



ORANGE COUNTY  
**WORKFORCE  
INDICATORS  
REPORT**

2016

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2017



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Dear Workforce Development Partner:

Orange County Business Council (OCBC) and the Orange County Development Board (OCDB) are pleased to present the 15th annual "2016-2017 Orange County Workforce Indicators Report." This research highlights the central accomplishments of Orange County's employers, educators and workers, the education and workforce training system, as well as remaining challenges that California must address to close the skills gap and develop a highly-trained workforce for a competitive 21st century economy.

Orange County's trifecta of a high quality of life, a diverse economy, and a well-educated workforce has propelled the county to lead the region in growth and prosperity. However, a growing and persistent skills gap threatens that continued success. Even as unemployment rates continue to drop, employers face rising difficulties in filling positions with skilled, educated workers. Last year's report focused on the economic trends shaping the past decade of workforce development. This year's report continues with that research as Dr. Wallace Walrod, OCBC's Chief Economic Adviser explores how to capitalize on the emerging technologies and industries to educate a highly-skilled workforce, fill open positions, and cultivate a globalized economy.

The theme for this year's conference is "Workforce talent taking off: How globalization and innovation is changing the business climate." Orange County is a great place to live, work and thrive; but faces new challenges as the old ways of doing business evolve into technology-based processes, creating a new set of needs and skills for Orange County's workforce and economic prosperity as a whole.

Together, OCBC and the OCDB have built an enduring alliance to seek out creative workforce solutions, educational success and the best in workforce training. We hope you will gain a new understanding about these issues in a spirit of collaboration and partnership. We encourage you to utilize today's materials to plan for future success in all endeavors.

Sincerely,

A handwritten signature in black ink, appearing to read "Lucy Dunn", written in a cursive style.

Lucy Dunn  
President and CEO  
Orange County Business Council

A handwritten signature in black ink, appearing to read "Bob Bunyan", written in a cursive style.

Bob Bunyan  
2016 Chair  
Orange County Development Board



## LISA BARTLETT

CHAIRWOMAN, ORANGE COUNTY BOARD OF SUPERVISORS  
SUPERVISOR, FIFTH DISTRICT

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October 11, 2016

Dear Friends,

On behalf of the Orange County Board of Supervisors, I am pleased to announce the release of the annual Orange County Workforce Indicators Report and welcome you to the 2016 Workforce Development Conference. The Workforce Indicators Report celebrates its 15<sup>th</sup> year of publication, developed through a long-standing partnership between the Orange County Development Board and the Orange County Business Council.

The 2016-2017 Orange County Workforce Indicators Report presents a comprehensive analysis of Orange County's economy and workforce. This report in conjunction with the annual Orange County Comprehensive Economic Development Strategy (CEDS), provide the information and analysis for the public and private sector alike to shape future policies, services and investments in the region. This examination of regional economic and labor force trends provides data and information about the Orange County Region that will inform choices made, and priorities set, by today's education, workforce, and business community leaders that may determine the fate of the county for decades to come.

The County of Orange is proud to support the OC Development Board's ongoing efforts to strengthen and grow our region's economy. Congratulations to the OC Development Board and the Orange County Business Council on the 2016-17 Workforce Indicators Report.

Sincerely,

**Lisa A. Bartlett**  
**Chairwoman, Board of Supervisors**  
**Orange County Supervisor, 5<sup>th</sup> District**



# INTRODUCTION

The 2016-2017 Orange County Workforce Indicators Report provides a detailed overview of the local economy, highlighting numerous strengths driving economic growth in the region, as well as issues limiting the county's economic performance. This report provides current, past and projected trends across multiple, diverse metrics including demographics, industry clusters, education and workforce trends, and workforce housing.



**21%**

of OC's population  
is millennials



**Top 5**

college educated  
in the nation

**38.8%** of residents  
have either a bachelor's or  
graduate degree



OC is one of most expensive  
places to live in U.S. due to  
housing costs

**\$630,887**

entry-level median price

**\$1,900**

average rental price





# 2016/2017 WORKFORCE INDICATORS

“Disruption” is the current buzzword amongst business leaders and economists. As technology advances, the economy continues to change and grow along with it, presenting new opportunities for innovation, industries and business. However, this also presents a phase where these new technologies and industries are disrupting the old ways of doing business, and with that the old ways of educating a workforce. As economic and demographic trends continue to evolve rapidly, Orange County is not alone in facing a much more complex set of questions about the future of workforce development than is commonly understood. Trends like demographic change, the skills gap, and workforce housing supply are longstanding, interconnected issues generating headwinds to economic performance. Yet, even in this complex environment, tremendous opportunity is prevalent for innovation within new and traditional industries to propel growth for decades to come.

This will rely greatly on the priorities set by today’s community leaders, and their willingness to collaborate and transcend conventional boundaries. Existing workforce, education, and housing strategies have enabled the county to surpass pre-recessionary levels of economic growth and activity, but it is imperative that policy-makers and county stakeholders continually improve these strategies to ensure viability in the New Economy.

The goal of this annual report is to help stakeholders across the county – from CEOs of Fortune 500 Companies, to college administrators, teachers, students, parents and entry-level workers – better understand the current economic landscape, to avoid pitfalls and leverage unique strengths. Orange County is known for its high quality of life, increasingly diverse and well-educated workforce, and healthy business environment; this report provides various strategies on how stakeholders can maintain these significant competitive advantages while scanning the horizon for fledgling industries to power future growth.

The New Economy has many definitions, but it is primarily characterized by emerging high-growth industries that use cutting-edge information technology, automation, robotics, artificial intelligence, and machine learning to transform traditional business processes, which have far-reaching impacts on the workforce. The ability of New Economy technology and business models to both create and destroy jobs is one most critical trends facing Orange County.

Particularly, Orange County needs to be proactive in responding to these disrupting forces:

- The rise of the sharing economy, online platforms or marketplaces that connect workers or sellers directly to customers;
- Cybersecurity and its inherent ramifications; and
- The impact of robotics, automation, and artificial intelligence.

Trends indicate these forces will only continue to rise in popularity due to the technology revolution and further globalization, having lasting impacts on the traditional business and workforce models. For example, the sharing economy's disruption of the transportation, tourism and housing industries, causing unforeseen consequences from tax collection to insurance coverage, and a negative impact on housing supply. While this is an isolated example, the rapid growth and emergence of more sharing platforms have the ability to transform many other sectors as well. The U.S., and specifically California, are clear leaders in founding the sharing economy, with eight of the 17 largest sharing-focused companies founded in the state (12 are U.S. based). However, the sharing economy is also global, with these companies expanding its consumer base outside of the U.S., as well as the introduction of many new companies in other countries.

These industry drivers are typically comprised of the most up-to-date technologies or processes, making them ideal areas in which younger generations can find gainful employment opportunities. On top of providing potentially above-average salaries to their workers, these industries also contain navigable career ladders enabling young workers to create more effective and realistic career paths to follow.

The value of these drivers and the impacts across all regional industries can be exemplified by the growing number of IT professionals needed by industries implementing up-to-date technologies and also by the growing number of innovative creativity and design-related occupations required in marketing departments and many other business settings.

There are also a number of barriers and bottlenecks that are holding the growth of these industries back, as well as the prospects for many other industries in the county. The most salient example is the emergence of the skills gap: an imbalance in supply and demand between skills required by companies and the skills possessed by incoming talent. This translates into a problem whereby employers are unable to find qualified employees to fill open positions. This report will show which sectors of the local economy are hit especially hard by this pervasive problem.



**The ability of New Economy technology and business models to both create and destroy jobs is probably one of the biggest trends that Orange County must be proactive in responding to effectively.**

Understanding the many shifts occurring on the global stage and the potential impact on Orange County's economy will be crucial to addressing and adapting to new economic realities in the coming year. Only with key information and solid analysis can stakeholders develop a proactive, forward-looking perspective, rather than a reactive, stance to respond to economic turbulence and change. Considered the economic engine of Southern California, Orange County policy-makers and stakeholders must be cognizant of the various factors impacting the local economy so that they may craft strategic policies that continue to drive economic activity in the region. Continued economic growth in the region will be dictated by how well-prepared the region's business leaders, workforce development organizations, and educational institutions are to deal with these changes. Failing to do so will not only have an impact on Orange County residents' quality-of-life, but will have reverberations across the Southern California regional and state economy.



## AT A GLANCE: HOW TO USE THIS REPORT

The 2016-2017 Orange County Workforce Indicators Report provides a detailed summary and analysis of historical, current, and projected economic, demographic, workforce and educational trends; using a combination of both the best public and private economic and labor market data sources, as well as sector-specific, industry-specific, occupation-specific and various layers of cross-cutting analysis. This report is an excellent tool for individuals wishing to learn more about the region, highlighting both the positives and negatives in order to provide the most realistic, unbiased views of the region. One of the most important features of this report is its use of qualitative analysis drawn from collaborative initiatives and projects completed with other local workforce development agencies, businesses and government organizations. The reader will be thoroughly updated on current trends and insights of economists and workforce experts. The package of quantitative and qualitative information and analysis provide the most comprehensive and detailed snapshot of the Orange County economy and its workforce, demographics, major industry clusters and their drivers, education and training, and workforce housing.

Overall, this report is meant to serve as the primary source for unbiased, detailed research and data analysis regarding Orange County's economic and workforce climate that can be used in a number of settings, such as:

- Planning
- Forecasting
- Grant Writing
- Business Decision-Making

Whether readers of this report are established industry professionals or just starting out professional careers, the data, analysis and recommendations contained in this report can provide extremely valuable information enabling those individuals to make better informed decisions regarding their businesses or their own professional careers. On top of providing crucial information for county residents, this report can extensively educate individuals or businesses currently outside of the county, allowing them to gauge if potentially lucrative and sustainable opportunities exist for them in the region.

### **OCECONOMY.ORG**

The Orange County Development Board's (OCDB) Economic Indicators Dashboard ([oceconomy.org](http://oceconomy.org)) provides an extensive repository of data tables and graphs which highlight Orange County's performance in a variety of metrics. As a collaborative partner with the OCDB, OCBC regularly updates and provides analysis of these metrics essentially creating an almost real-time tracking system of Orange County's current economic climate. Metrics tracked and analyzed on the OCEconomy website include measures of population, age groups, employment, industry growth, workforce development, housing, support programs and a variety of other metrics important in gauging a region's economic standing. For monthly updates on these and other important Orange County indicators, please visit [oceconomy.org](http://oceconomy.org).





## REGIONAL INITIATIVES

Over the last year, Orange County has been identified by the state as a single economic sub-region by the State of California. In response, the Orange County Region (OC Region) has amplified its continuing efforts to strengthen the alignment of workforce infrastructure, programs, and policies to respond to regional workforce and economic development needs. OC Region projects, such as RICO and SlingShot (see below for details), have focused on developing long term plans to drive sustainability and growth for regional workforce and the Orange County economy.

### OC NETWORK

The Orange County Regional Economic and Workforce Development Network (the OC Network) was established in order to better support and integrate county-wide initiatives through collaborative partnerships between public and private organizations and established industry sector professionals. The OC Network is comprised of members from businesses, industry associations, education, workforce development, economic development, community based organizations, labor organizations and other public sector agencies. The OC Network effectively serves as a lever to promote valuable and continued communication between various stakeholders with the goal of enhancing workforce and economic development throughout the Orange County region. Not only focusing on ensuring local businesses in important high-growth, high-value industries are properly supported in the current environment, OC Network leverages the collective knowledge of its members to ensure that the county is well-prepared to weather future economic disruptions as well as being well-positioned to take advantage of new and emerging opportunities.

### WIOA LEADERSHIP COUNCIL

The OC Region has proactively engaged leaders from key stakeholder groups and core workforce partners to work with the three local boards to strategically transition and implement the Workforce Innovation and Opportunity Act mandates as a region.



**The 2016-2017 Orange County Workforce Indicators Report provides a detailed summary and analysis of historical, current, and projected economic, demographic, workforce and educational trends using a combination of both the best public and private economic and labor market data sources, as well as sector-specific, industry-specific, occupation-specific and various layers of cross-cutting analysis. This report is an excellent tool for individuals wishing to learn more about the region, highlighting both the positives and negatives in order to provide the most realistic, unbiased views of the region.**



## **REGIONAL INDUSTRY CLUSTERS OF OPPORTUNITY (RICO) INITIATIVE**

The California Workforce Development Board, in coordination with the California Labor and Workforce Development Agency, the California Energy Commission, and the Governor's Office of Business and Economic Development (GO-Biz) partnered to lead the AB 118 Regional Industry Clusters of Opportunity (RICO) initiative, which designs and implements regional

economic development strategies in the alternative fuel and advanced vehicle technology industries. This project focused on the promotion of accelerated deployment of hydrogen infrastructure in the Orange County region; to support accelerated adoption of hydrogen fuel cell vehicles; and to create a talent pipeline for the next workforce generation.

## **SLINGSHOT INITIATIVE**

The SlingShot Initiative aims to catalyze collaborative efforts by employers, industry, government, workforce development, economic development and education stakeholders within a region to address employment challenges with regionally selected solutions to regionally defined problems. The SlingShot challenge from the California Workforce Development

Board sets into motion an opportunity to accelerate income mobility through regional collaboration. The overarching OC Region SlingShot vision is a large scale movement that will address employment, education, and poverty challenges in the region through assessment and alignment of the local workforce system policies, practice and service delivery.



## COMPREHENSIVE ECONOMIC DEVELOPMENT STRATEGY (CEDS)

The Comprehensive Economic Development Strategy (CEDS) Committee, in partnership with the Orange County Development Board (OCDB) and on behalf of the Orange County Board of Supervisors, provides an accurate and continuous economic development and management program. The CEDS provides a strategy for qualified "Red-Zone" locations in the OC

Region to diminish poverty and chronic economic issues. Though the Board of Supervisors is responsible for the well-being of all Orange County residents and businesses, the CEDS Committee is especially committed to focusing change on areas identified as either distressed or vulnerable to distress; to improve communities identified as "Red-Zones" in the region.

## OC PATHWAYS

OC Pathways creates a county-wide regional infrastructure that builds, supports, and expands high demand and high growth career pathways and creates opportunities for educators to collaborate with key stakeholders to develop viable and sustainable career pathways in OC Region's priority industries, including healthcare, manufacturing, and information technology. OC Pathways and the Orange County Department of Education's regional collaboration across schools,

colleges, business and community partners, and state and local agencies ensures that Orange County students are ready for college, career, and life success through participation in learning experiences that integrate rigorous academics and career preparation. OC Pathways is committed to creating educational opportunities that connect business, industry and education to support the needs of the regional economy and the vibrant communities of Orange County.



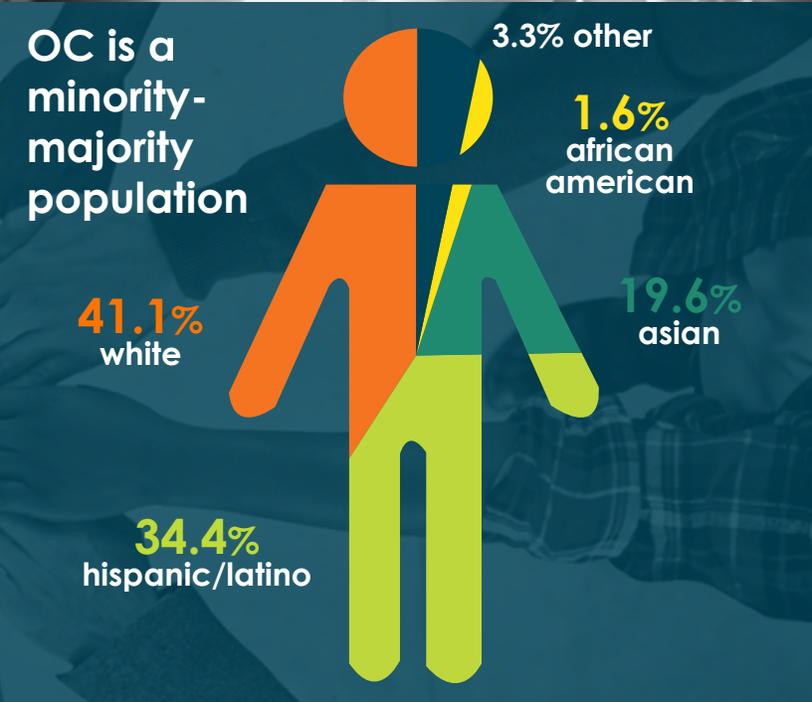
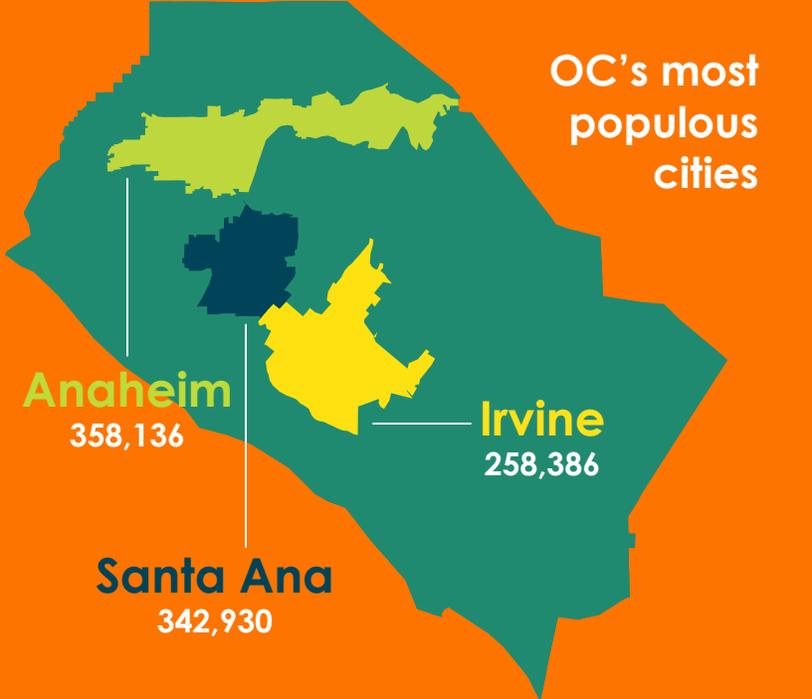
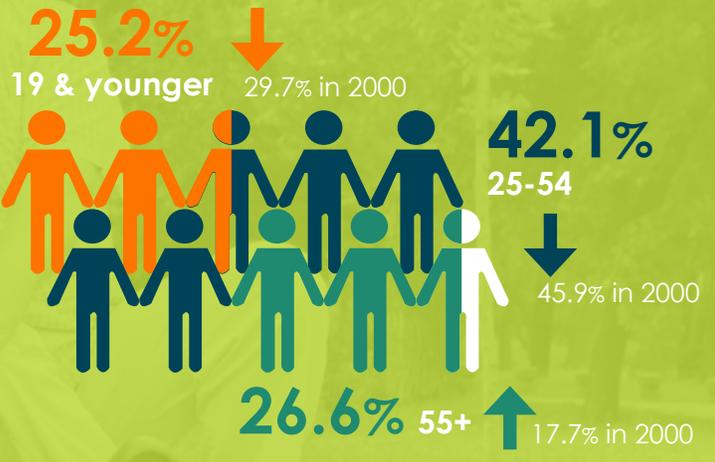
# DEMOGRAPHIC TRENDS



Orange County continues to see both a rapidly aging population and an increasingly diverse ethnic mix. Population growth in the county is driven primarily by natural increase, or children born to families already residing here. While net migration into the region has steadily decreased, international migration remains strong. Understanding the implications of these longstanding trends and preparing and adapting for future realities is crucial for all Orange County community, education and business leaders.



OC is aging in place,  
65+ will be largest group by 2060





# WHY IS THIS RELEVANT IN OC?

Diversity and generational shifts create new needs and expectations among residents. As Orange County's population continues to evolve, leaders must properly support demographic realities in ways that make sense for the specific needs of these communities as well as for the county as a whole. This ranges from improving education opportunities for non-native English speakers, to developing support systems for the growing elderly population.

Educational programs, from K-12 to colleges and universities, must fine-tune initiatives and strategies to foster an environment that supports the advancement of the county's growing and diverse population. Additional efforts must be made to improve English language proficiency programs, as well as programs which help to develop soft skills critical in readying individuals for the increasingly collaborative/team-based work environments present in a growing number of industries.

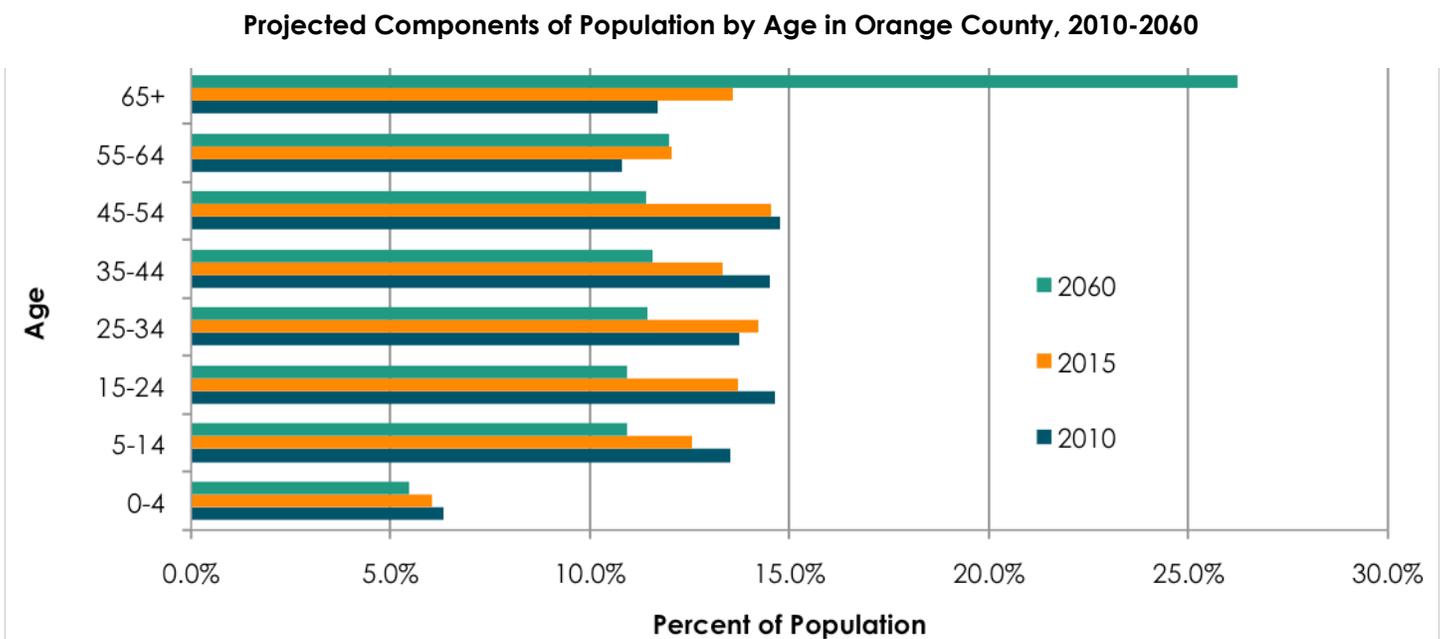
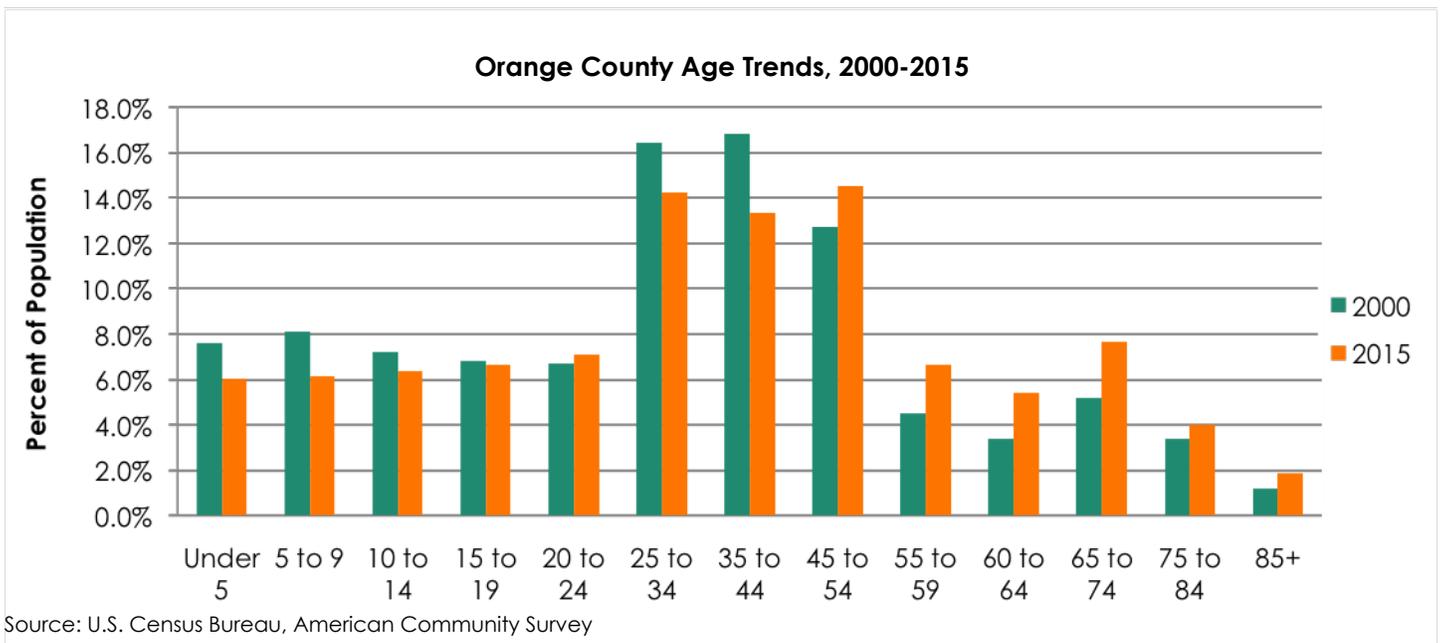
Strategies addressing Orange County's aging population are just as important. The mass retiring of Baby Boomers increases the need for social support programs and healthcare services; while also creating employment opportunities for younger generations in many industries. These trends are already taking shape as Healthcare employment in the county continues to rapidly expand and businesses clamor for more educated and qualified workers to replace retirees. This places even more importance on effective language, education and training programs to prepare Orange County's younger workforce to fill open roles and grow into management positions.

# HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

## AGE TRENDS

Orange County is rapidly aging in place. The older generation continues to increase, while, despite continuous overall population growth, every other age group is decreasing. The current median age is 38-years-old, a substantial increase over the median age of 33 in 2000. Most notably, those aged 19 and younger have decreased from 29.7 percent of the

population in 2000 to 25.2 percent in 2015; while those aged 55 and older have grown from 17.7 percent in 2000 to 25.6 percent in 2015. Even more alarming is the decrease in the prime working age population, those aged 25 to 54, which has decreased from 45.9 percent to 42.1 percent.



Projections show these trends continuing, and even accelerating, as every age cohort under 65 years of age will experience a decrease in population sizes according to state estimates. Orange County's 0-4 year old age group will shrink by 1,833 individuals, or by 1 percent; the 5-17 year old age group will decrease by 50,971, or by 9 percent; the 18-24 year old age group will decrease by 40,350, or 13 percent; and finally and most importantly for this report the working age group, those between 25 to 64 years of age, will decrease by 14,165, or by 1 percent.

While much of the state is experiencing an increase in the older population—including Santa Clara, Riverside, and San Bernardino counties—Orange County is the only one projected to also deal with a simultaneous decrease in younger and working age populations. For example, Santa Clara County will grow its working age population by 25 percent, San Bernardino by 47 percent, and Riverside by 61 percent. This major demographic shift will have profound ramifications throughout the economy, housing markets, and provision of government services.

### Projected California County Population Growth by Major Age Groups, 2010-2060

	Preschool Age (0-4)	School Age (5-17)	College Age (18-24)	Working Age (25-64)	Young Retirees (65-74)	Mature Retirees (75-84)	Seniors (85 +)	Total (All Ages)
<b>San Francisco</b>	42%	83%	-6%	7%	130%	197%	235%	36%
<b>San Diego</b>	12%	18%	-2%	11%	144%	211%	274%	31%
<b>Orange County</b>	-1%	-9%	-13%	-1%	111%	167%	312%	15%
<b>California</b>	18%	16%	10%	23%	140%	203%	316%	38%
<b>Los Angeles</b>	-1%	-3%	-16%	-1%	133%	197%	320%	17%
<b>Santa Clara</b>	14%	19%	28%	25%	140%	257%	415%	45%
<b>Riverside</b>	28%	18%	28%	61%	194%	240%	443%	68%
<b>San Bernardino</b>	24%	18%	18%	47%	220%	286%	541%	56%

Source: California Department of Finance, Demographic Research Unit

## COMPONENTS OF POPULATION GROWTH

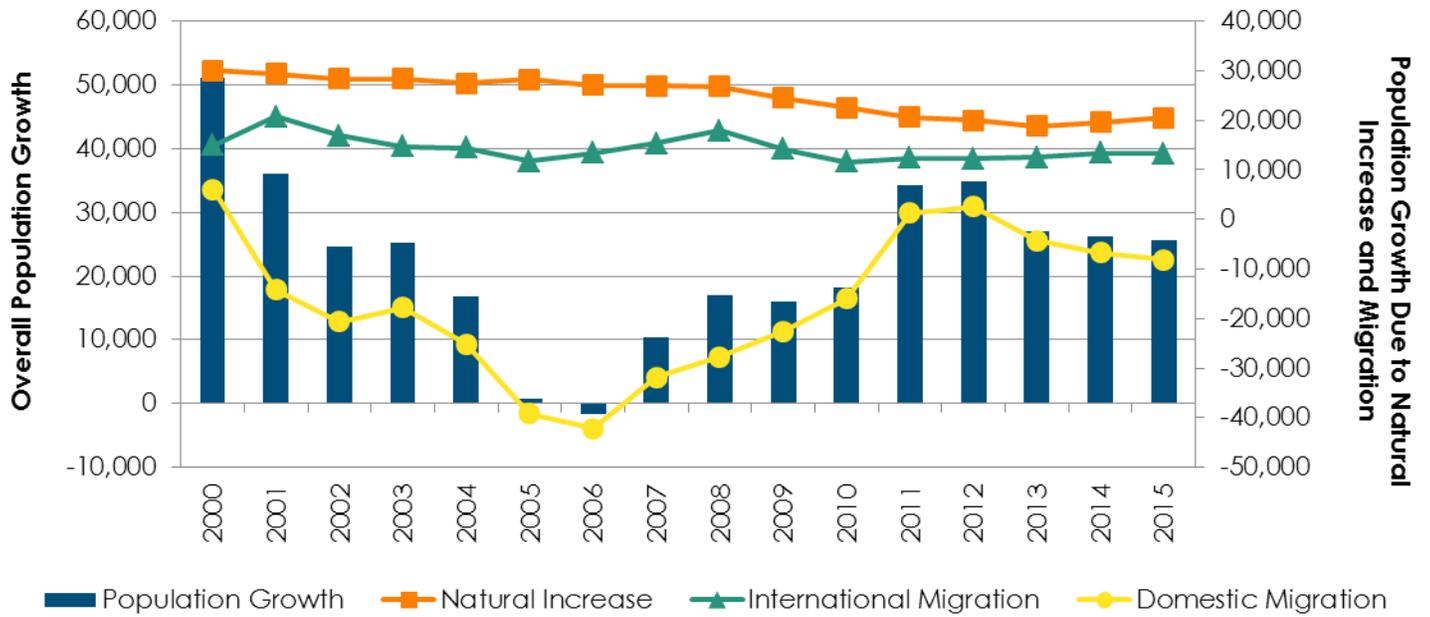
After experiencing robust population growth between 1950 and 2000, growth in Orange County has slowed considerably. Prior to 2000, a combination of natural increase, international migration and domestic migration from other states drove population growth. Since 2000, growth has stemmed primarily from natural increase and international migration, while domestic migration has seen many people leave to surrounding counties and states.

From 2002 to 2010, overall net migration was negative, due mostly to domestic migration out of the county. Overall net migration did make a rebound in 2010, contributing 48,503 people since then; and has remained positive in large part to a steady source of international immigrants, adding 14,349 people over the last 15 years.

Outward domestic migration continues to be an issue the county's population and workforce struggles with, averaging a loss of 25,737 people annually between 2001 and 2010. It did see a slight uptick in 2011, but has since returned to negative values and is projected to continue this path in the following years.

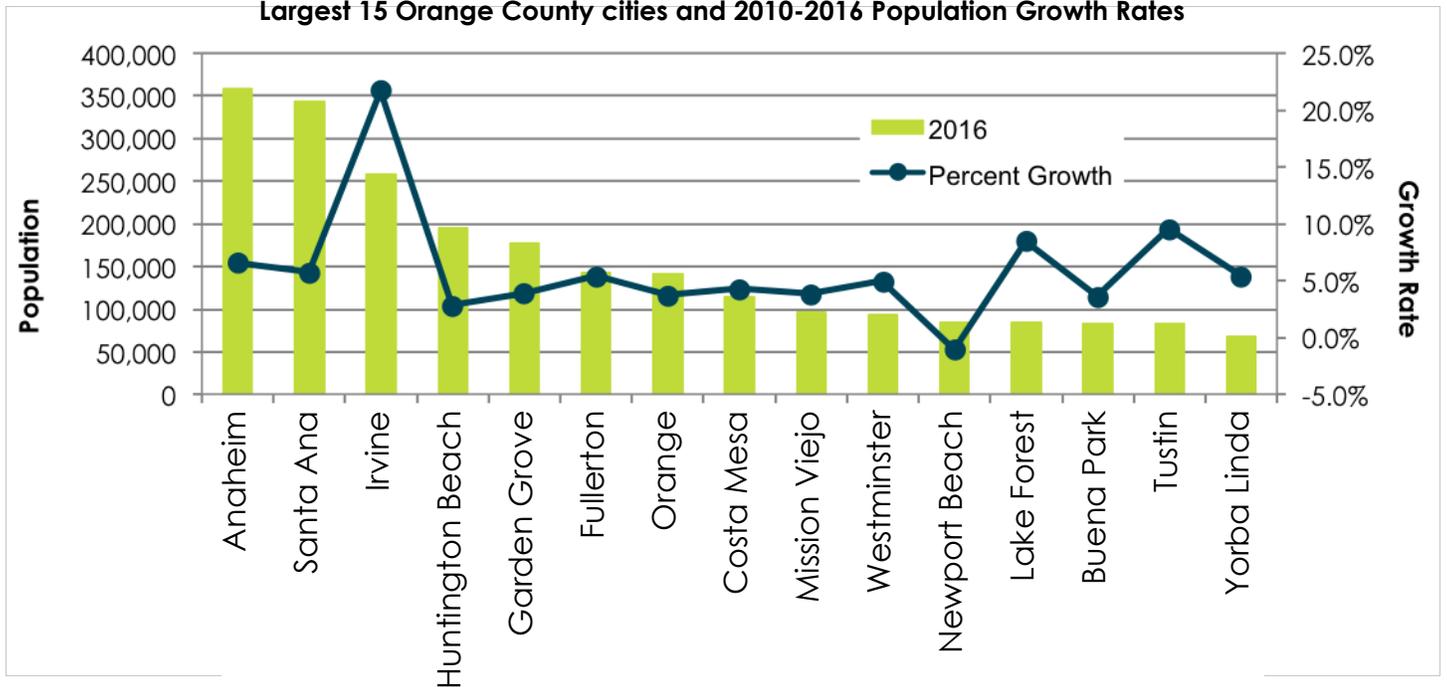
Orange County's most populated cities are Anaheim (358,136), Santa Ana (342,930), and Irvine (258,386). While Anaheim and Santa Ana experienced growth rates of 6.5 percent and 5.6 percent, respectively, between 2010 and 2016, Irvine grew by nearly 21.7 percent. Other cities in Orange County with high growth rates included Brea (11.6 percent) and Tustin (9.5 percent); overall, the County itself expanded by 5.7 percent.

### Orange County Population Growth, 2000-2015



Source: California Department of Finance, Demographic Research Unit

### Largest 15 Orange County cities and 2010-2016 Population Growth Rates



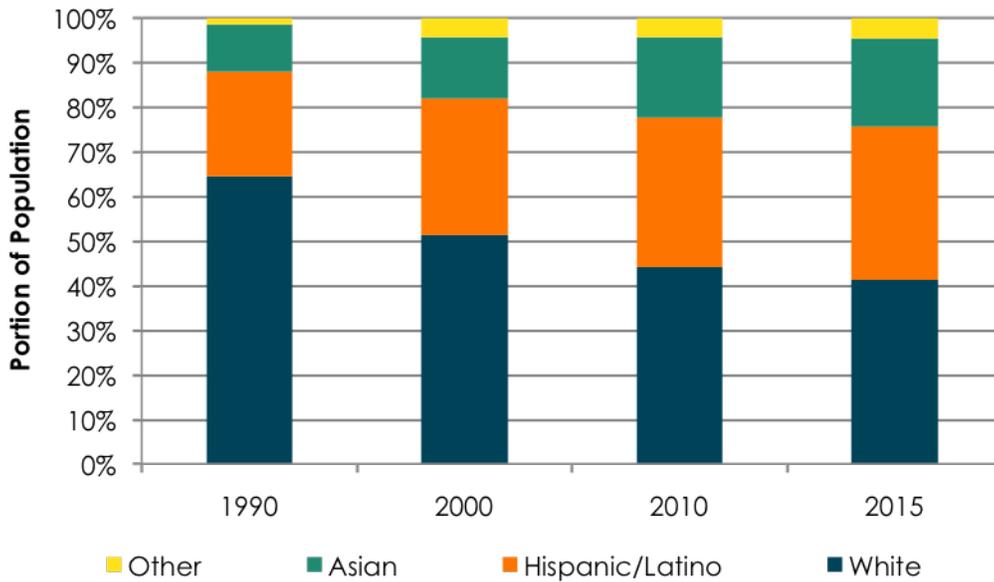
Source: California Department of Finance, Demographic Research Unit



## ETHNIC COMPOSITION

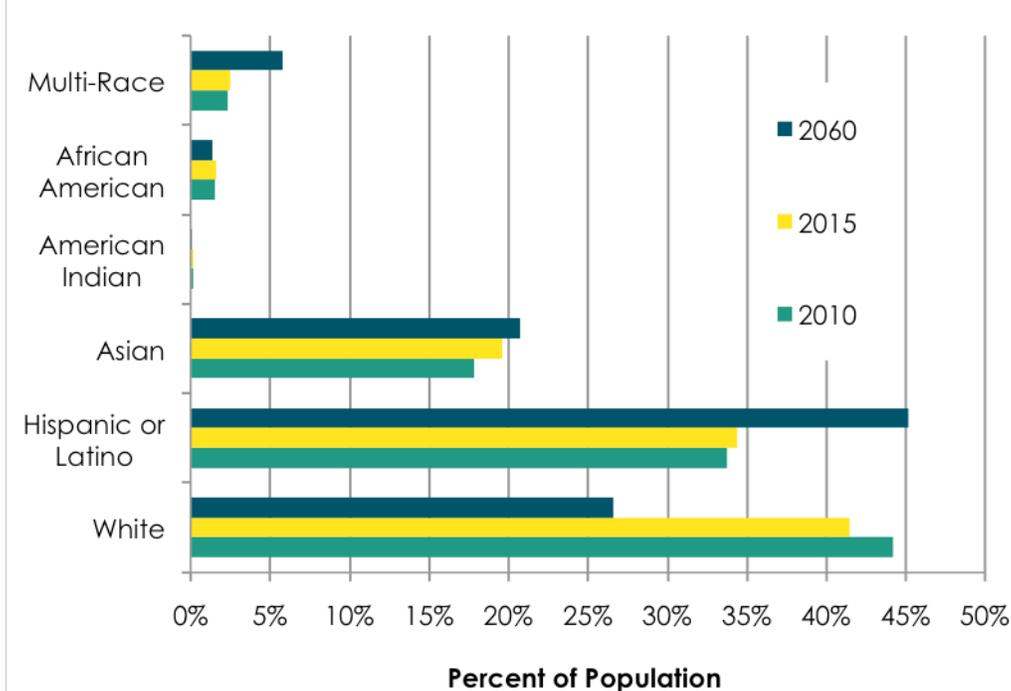
Orange County's ethnic composition has become much more diverse since the 1990s and this trend is projected to continue over the next few decades. For example, in 2015, 41.4 percent of the county was white, 34.4 percent Latino, and approximately 19.6 percent were Asian. According to the California Department of Finance, these proportions will shift dramatically by 2060 with an expected 45.1 percent of the population being Hispanic, 26.6 percent being white, and approximately 20.7 percent being Asian. While Latinos families have accounted for nearly half of the total births since 2005, Asian births have expanded even more quickly, increasing by 139 percent since 1990, compared to a 91 percent increase in Latino population during the same time period.

**Orange County Ethnic Composition, 1990-2015**



Source: U.S. Census Bureau, American Community Survey

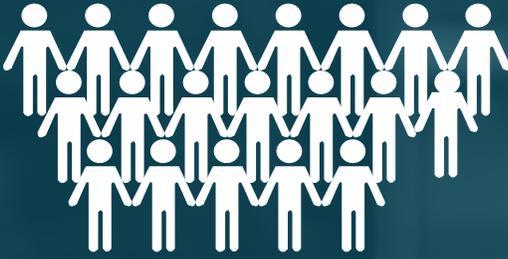
**Projected Components of Population by Ethnicity in Orange County, 2010-2060**



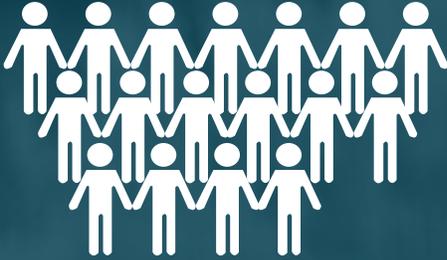
Source: California Department of Finance, Demographic Research Unit



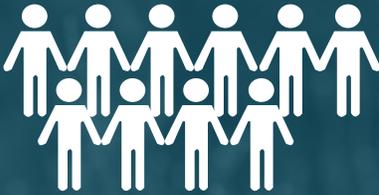
## OC POPULATION BY ETHNICITY



**WHITE** 1,312,967 41.4%  
GROWTH -0.5%



**HISPANIC/LATINO** 1,089,056 34.4%  
GROWTH 0.8%



**ASIAN** 621,864 19.6%  
GROWTH 3.1%



**TWO OR MORE RACES**  
78,964 2.5%  
GROWTH 3.2%



**AFRICAN AMERICAN**  
51,315 1.6%  
GROWTH 2%



**NATIVE HAWAIIAN**  
9,115 0.3%  
GROWTH 1.9%

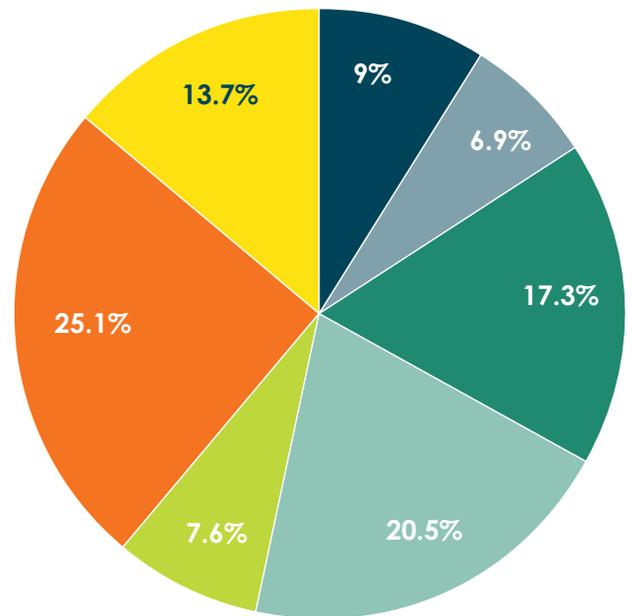


**AMERICAN INDIAN**  
6,495 0.2%  
GROWTH -0.3%

## EDUCATIONAL ATTAINMENT AND INCOME

Educational attainment in Orange County continues to improve across the board. The number of residents with an Associate's degree or higher has increased to 46.4 percent in 2014, while the number of residents with no high school diplomas has decreased, and the number of residents with some form of college training has also increased. However, while overall education levels show promising improvements, the fact that just over 15 percent of the population still lacks a high school diploma remains concerning. As the county continues to struggle with a skills gap in several major industries, efforts must be made to properly educate and train all residents with the skills needed to fill these positions. This not only strengthens the financial stability and quality of life for those residents but also the county's overall economic performance.

Orange County Educational Attainment of Population Age 25+, 2014



- Less than 9th grade
- 9th-12th grade, no diploma
- High school graduate
- Some college, no degree
- Associate's Degree
- Bachelor's Degree
- Graduate or Professional Degree

Source: U.S. Census Bureau, American Community Survey

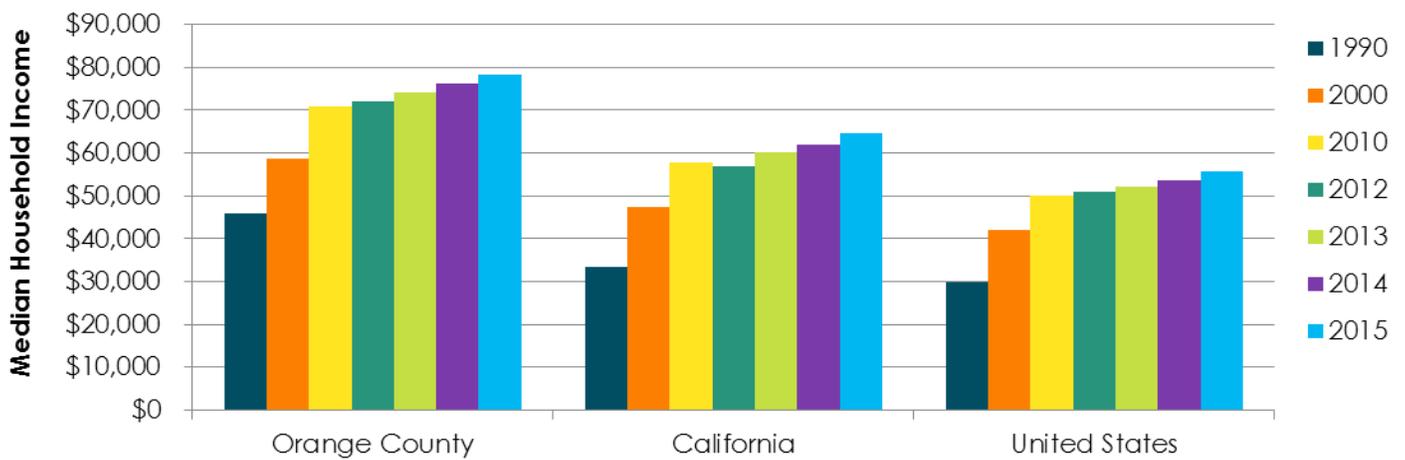
Orange County has experienced rapid household income growth over the last few years. Median household income totaled \$78,428 in 2015, which was nearly \$14,000 higher than the state median household income and over \$22,000 higher than the national median household income. Over the past year, the median household income in Orange County grew by 2.8 percent, 1.4 percentage points below state-level growth and 1.2 percentage points below nation-wide growth. Since 2010 median household income in the county expanded by 10.6 percent, while the state and nation registered growth rates of 11.8 percent and 11.4 percent, respectively.

Looking at the distribution of income groups in Orange County, approximately 15.4 percent of the population made under \$24,999 in 2015; 17.2 percent made between \$25,000 and \$49,999; 28.6 percent made between \$50,000 and \$99,999; 17.2 percent made between \$100,000 and \$149,999; and 21.7 percent made \$150,000 or more.

Reflecting household income growth trends, per capita income growth has experienced year-over-year increases since 2010, averaging an increase of 2.6 percent annually. For example, per capita income grew from \$31,373 to \$35,651 in 2015, an increase of 13.6 percent.

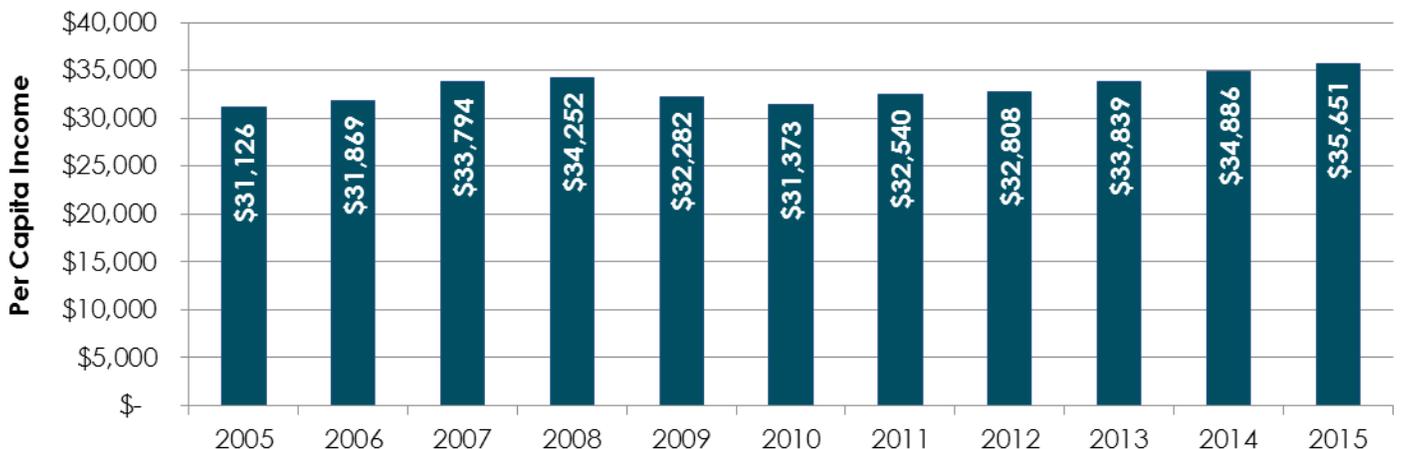
While the county experienced solid income growth in recent years, income growth has been inadequate for some communities where the cost-of-living, rent, and home prices have increased even more rapidly during the same time period. This widening gap, which is more fully discussed in the Workforce Housing section, finds many Orange County families struggling to afford the various housing options provided in the county. This has not only served to reduce potential migration into the region, but in fact has led many 25 to 34 year olds to permanently leave Orange County, thus limiting the county's ability to attract and retain a talented workforce and contributing to the growing skills gap.

**Orange County, California, and U.S. Median Household Income Comparisons**



Source: U.S. Census Bureau, American Community Survey

**Orange County Per Capita Income, 2005-2015**



Source: U.S. Census Bureau, American Community Survey

### Orange County Median Household Income Distribution, 2015



Source: U.S. Census Bureau, American Community Survey

This critical issue is reinforced by the most recent poverty measures, especially as it relates to child poverty. In 2013, the federal Official Poverty Measure (OPM) in Orange County stood at 12.6 percent; much lower than its peer regions and the state rate of 16.2 percent. Yet, the California Poverty Measure (CPM), formulated by Stanford University and PPIC, tells a slightly different story. Taking into account additional metrics such as the full range of necessary expenditures, adjusting for geographic differences in housing costs, and including food stamp programs and other non-cash benefits, Orange County's rate grew to 21.8 percent. While lower than the measure for Los Angeles County, which is 25.7 percent, this rate is higher than all other measured counties and the state rate of 21.2 percent.

Taking into account additional metrics, the CPM provides a much more detailed, comprehensive measure of poverty in the region providing additional understanding

to policy-makers and allowing them to create more targeted, effective programs aimed at supporting those individuals and families currently struggling.

Similarly, while the official poverty rate for Orange County children 17 and under using the federal OPM method stood at 18.2 percent, lower than estimates for peer regions, the state and the nation; using the CPM measure, Orange County's rate increases to 27 percent, again lower than the Los Angeles County measure of 29.5 percent, but above all other measured counties and the state figure of 24.3 percent.

Considering the population and age trends currently shaping Orange County, it is imperative that more effective programs are put into place to help lift individuals and families out of poverty, especially younger generations as they will need to support the increasing number of baby boomer retirees in the coming years.

### Poverty Rates by Region, 2013

	Orange	Los Angeles	Riverside	San Bernardino	San Diego	California	United States
Percentage of population in Poverty, OPM*	12.6%	18.3%	16.6%	19.2%	14.5%	16.2%	15.5%
Percentage of population in Poverty, CPM**	21.8%	25.7%	20.1%	19.4%	21.5%	21.2%	-
OPM-CPM Differential	9.2%	7.4%	3.5%	0.2%	7.0%	5.0%	-
Percentage of Children Ages 17 and Below in Poverty, OPM	18.2%	26.8%	23.8%	27.0%	19.7%	23.4%	21.7%
Percentage of Children Ages 17 and Below in Poverty, CPM	27.0%	29.5%	23.1%	21.4%	25.3%	24.3%	-
Child OPM - CPM Differential	8.79%	2.74%	-0.69%	-5.59%	5.61%	0.95%	-

\*Official Poverty Measure (OPM)

\*\*California Poverty Measure (CPM)

Source: Stanford University/PPIC



# EDUCATION & WORKFORCE TRAINING TRENDS

Orange County's deep pool of well-educated, talented workers is a key advantage solidifying the county as Southern California's economic engine. In order to maintain this competitive edge, the county must continue to invest in, develop, and promote innovative education and workforce development initiatives to continue growth of the county's most vital and precious resource – its students and future workforce. This is achieved through understanding the progression of students through analysis of college eligibility rates, SAT scores, English language fluency, dropout rates, and other metrics that allows the county to benchmark and improve educational attainment.



## OC's job market is suffering from a "skills gap"

Jobs that employers are currently looking to fill



Employees available with the skills to fill those jobs



## OC has more "English Learners" than region and state

- 24.9%** Orange
- 22.7%** Los Angeles
- 22.1%** San Diego
- 20.7%** Riverside
- 18.9%** San Bernadino

**22.4%**  
California



## OC has the lowest dropout rate in the region



- 5.7%** Orange
- 7.7%** Riverside
- 8.3%** San Diego
- 12.5%** Los Angeles



# COMMON CORE STANDARDS

Over the past few years, the educational attainment and academic progress of the nation's students has faltered, resulting in the U.S. dropping in international rankings and losing its competitive edge amongst a globalized workforce. By establishing nationwide academic standards through new education policy known as the Common Core State Standards (CCSS), the U.S. is hoping to reverse these troubling education performance trends by providing students from all economic backgrounds the basic knowledge and skills required to succeed in 21st century jobs.



## WHY IS THIS RELEVANT IN OC?

So far 42 states, including California, have adopted the Common Core State Standards (CCSS), which define a uniform set of skills and knowledge students need to gain from kindergarten through 12th grade in order to properly succeed later in life. The Common Core State Standards are:

- Research and evidence-based;
- Clear, understandable, and consistent;
- Aligned with college and career expectations;
- Based on rigorous content and application of knowledge through higher-order thinking skills;
- Built upon the strengths and lessons of current state standards; and
- Informed by other top performing countries in order to prepare all students for success in the global economy and society.

While Orange County's educational performance is, in general, outperforming peer regions, the adoption of CCSS will create a more standardized academic environment, which better prepares students for the challenges they will face in post-secondary educational institutions and in the workforce.

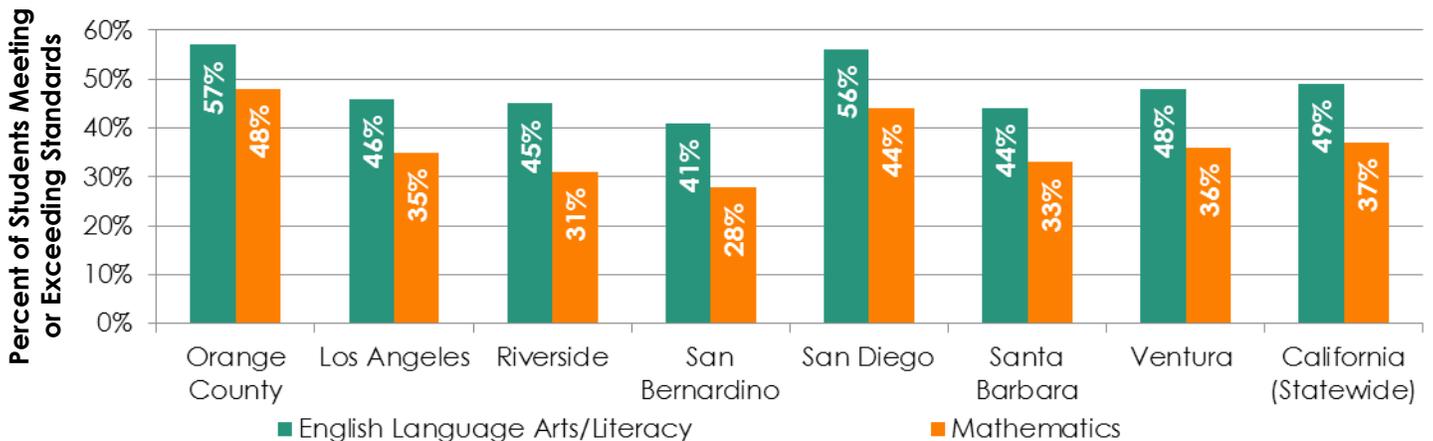
## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Results regarding CCSS are just starting to roll in, providing initial snapshots regarding current student performance under the program. The second annual California Assessment of Student Performance and Progress (CAASPP) report was released in September 2016, providing the results of the Smarter Balanced Assessment Consortium (SBAC) standardized test for English Language Arts/Literacy and Mathematics, which aligns CCSS tests across states and allows educators and stakeholders a better understanding of the current capabilities of students as well as establishes an important baseline from which to improve on.

Looking at all grade levels, Orange County was a top performer in both English Language Arts/Literacy and Mathematics in 2016 with 57 percent and 48 percent of students meeting or exceeding standards, respectively. The county's students ranked highest out of all Southern California counties, and overall, performed 8 percent points better in English Language Arts/Literacy and 11 percent points better in Mathematics than the statewide average. These scores are encouraging as it points to Orange County students at all grade levels being very prepared for the future workforce.

Looking at all grade levels, Orange County was a top performer in both English Language Arts/Literacy and Mathematics in 2016. OC's students ranked highest out of all Southern California counties.

Smarter Balanced Assessment Consortium (SBAC) Scores in Southern California for All Grade Levels, 2016

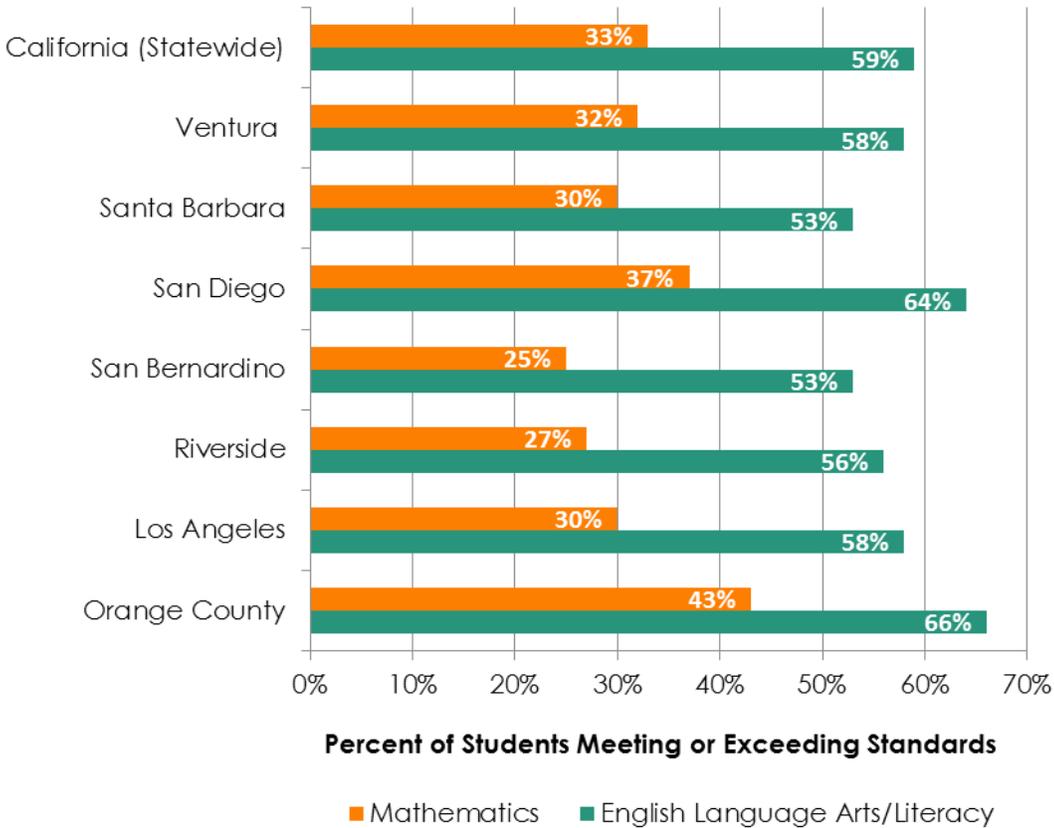


Source: OCDE, California Assessment of Student Performance and Progress



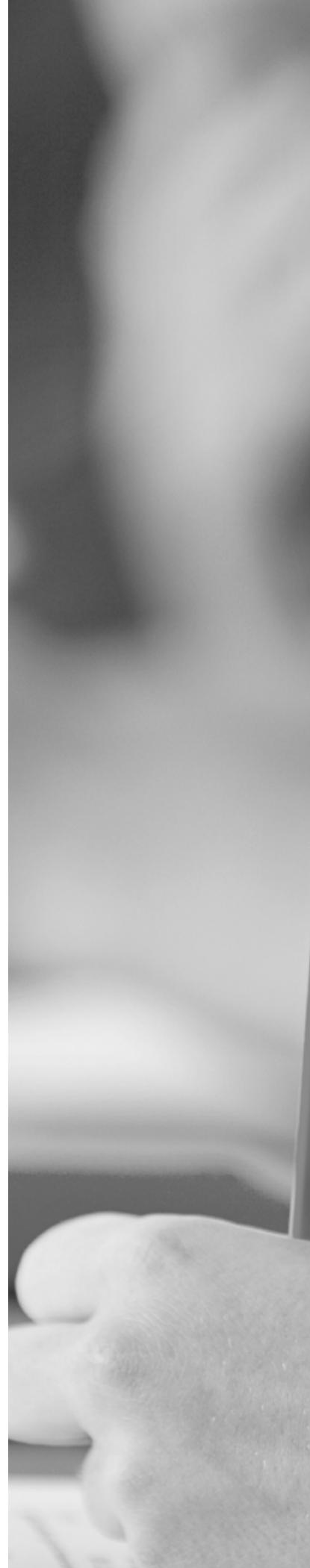
**In particular, Orange County's 11th grade students are exceeding standards and surpassing statewide performance.**

**Smarter Balanced Assessment Consortium (SBAC) Scores in Southern California for 11th Graders, 2016**



Source: OCDE, California Assessment of Student Performance and Progress

In particular, Orange County's 11th grade students are exceeding standards and surpassing statewide performance. In English Language Arts/Literacy, Orange County 11th graders meeting or exceeding those standards stood at 66 percent, surpassing the statewide average of 59 percent and edging out the next best performer, San Diego, by 2 percentage points. In Mathematics, Orange County again led the Southern California region with 43 percent of 11th graders meeting or exceeding standards, 10 percentage points above the statewide average and surpassing San Diego County, by 6 percentage points.



## COMMON CORE IMPLEMENTED IN CA

The Common Core State Standards is an educational initiative in the U.S. that details what K-12 students should know in English language arts and mathematics at the end of each grade.



by **42** states  
**D.C.**  
**4** territories

2013

## 1ST ANNUAL SBAC SCORES RELEASED

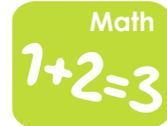
All Grades



**53%**

Orange County

**44%**  
California



**45%**

Orange County

**33%**  
California

11th Grade

**64%**

Orange County

**56%**  
California

**39%**

Orange County

**29%**  
California

## 2ND ANNUAL SBAC SCORES RELEASED

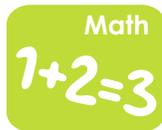
All Grades



**57%**

Orange County

**49%**  
California



**48%**

Orange County

**37%**  
California

11th Grade

**66%**

Orange County

**59%**  
California

**43%**

Orange County

**33%**  
California

2015

## YEAR-OVER-YEAR GROWTH

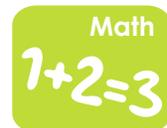
All Grades



**4%**

Orange County

**5%**  
California



**3%**

Orange County

**4%**  
California

11th Grade

**2%**

Orange County

**3%**  
California

**4%**

Orange County

**4%**  
California

YOY

**OC is consistently outperforming the state in CCSS scores. However, progress is modest.**



# COLLEGE ELIGIBILITY

The ability for young people to enter post-secondary institutions is of critical importance to Orange County's future economic competitiveness. Employers need the valuable skills and knowledge that not only four-year institutions provide, but also the kinds of training and education available at community colleges. Entrance into these institutions is also a crucial gateway to opportunities that improve income and quality of life. Providing a variety of options to Orange County residents in the form of community college programs and four-year institutions will allow many individuals to increase their skill sets and become more attractive to many employers in the region. Simply put, post-secondary capacity is a cornerstone for regional economic success and individual vertical economic mobility.

## WHY IS THIS RELEVANT IN OC?

Orange County experienced significant employment growth over the past few years, much of which is attributable to an increasingly skilled, educated workforce pipeline. To be viable in the ever more complex post-Great Recession job market, which increasingly relies on the nexus of skills and education, jobseekers are incentivized to keep improving these gains in human capital. Through collaborative initiatives, employers and educational institutions converged toward an understanding on the importance of both technical and soft skills to prepare a skilled and knowledgeable workforce. Continued collaboration between education and business to integrate the growing need for technical skills with soft skills will help maintain and improve the already highly-skilled, talented labor pool which has driven the creation of vibrant industry clusters and attracted many businesses to the region.

# HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

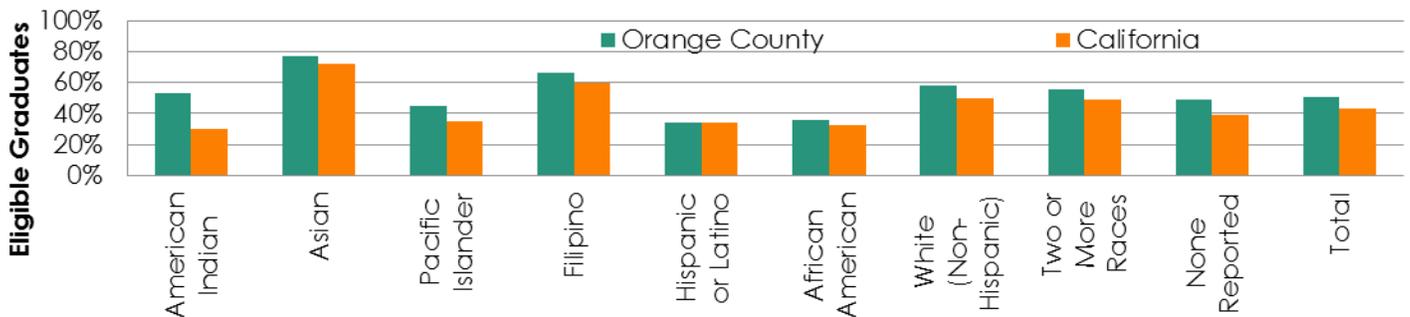
As industries continue to evolve thanks to improved efficiency and rapid technological advancement, employer expectations and requirements for workers correspondingly increase. Many employment opportunities offered in today's economic environment require a complicated mixture of soft and technical skills, even at entry-level positions, and many employers find themselves struggling to fill positions that require this combination, a phenomena known as the skills gap. Fortunately, many educational institutions in the county recognize this need for enhanced skills and are shaping programs to cater to the increasing skill requirements of Orange County's employers. As a result, the number of high school students who are college-ready and well-prepared for post K-12 success is of growing significance.

According to the California Department of Education, 50.4 percent of Orange County graduates were eligible for entrance into the University of California/California State University (UC/CSU) system, compared to only 43.4 percent of students in the state. Of the students in Orange County, ethnicities with the highest levels of

preparedness for entrance into the UC/CSU included Asians at 77.3 percent, Filipino's at 66.2 percent, and Whites (Non-Hispanic) at 57.9 percent. At the state levels these groups had totals of 71.8 percent, 60.0 percent and 49.7 percent, respectively. All cohorts outperformed state counterparts, with the exception of Orange County Latino students, who performed at the same level as the state with 34.1 percent eligibility.

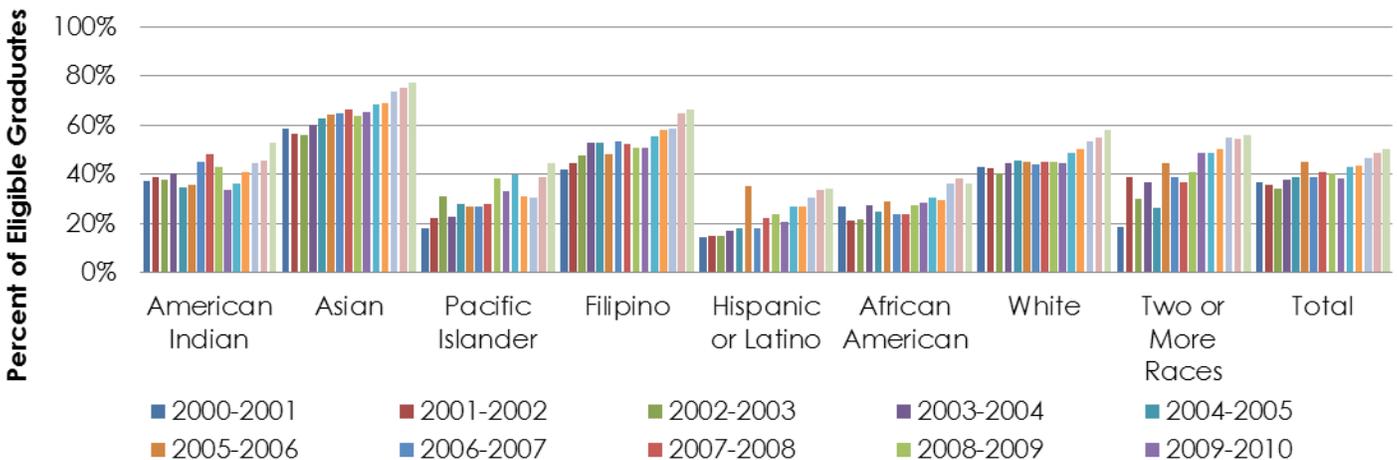
As Orange County's population continues to become increasingly diverse, it is imperative that improvements in educational attainment and access to advanced programs are made available to all residents across all income and ethnic spectrums. While there is still room for improvement, overall, looking at graduate eligibility rates since 2002, Orange County's education system has outperformed the rest of the state and all ethnic groups in the county have made significant improvements. College degrees are still a cornerstone of economic mobility, providing opportunities to develop critical skills that are highly valued to the county's employers.

**UC/CSU Eligible Graduates in Orange County and California, 2015**

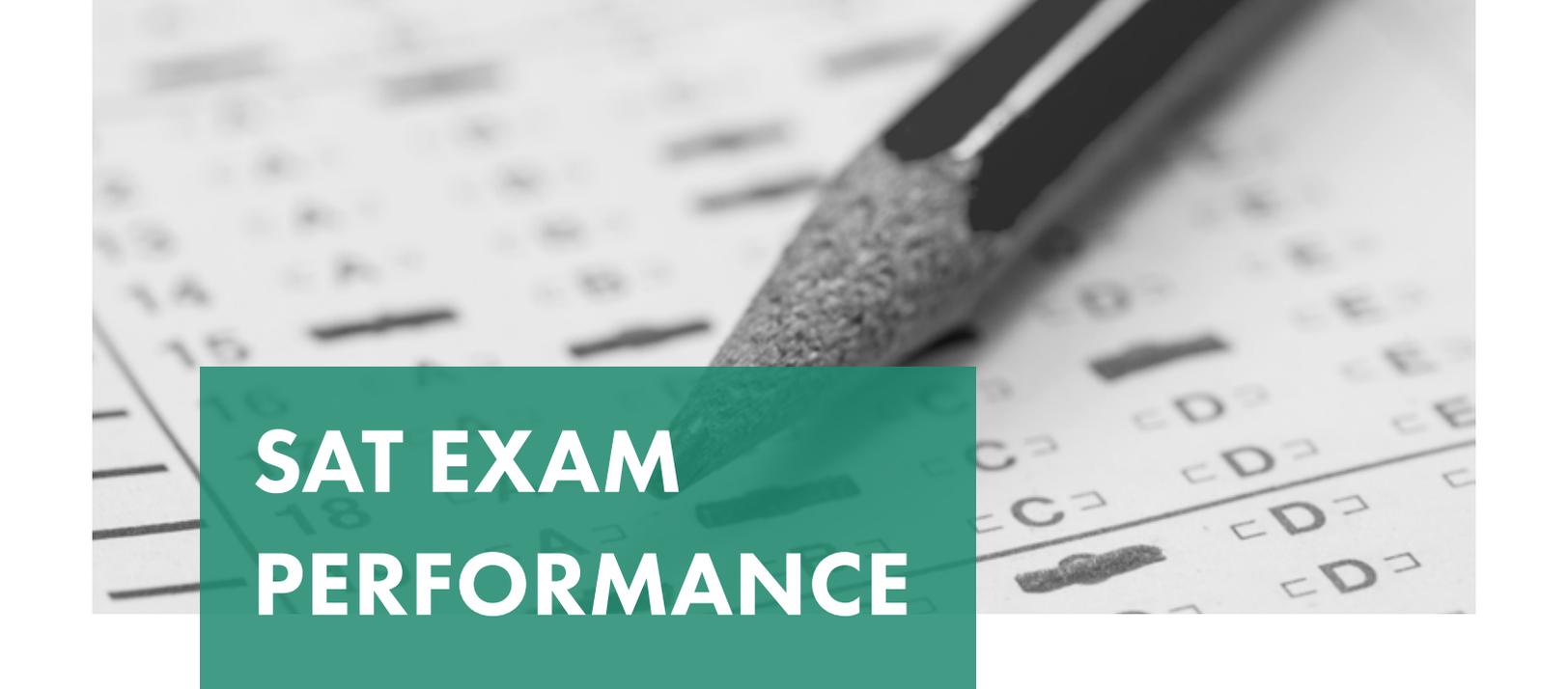


Source: California Department of Education

**UC/CSU Eligible Graduates by Ethnicity, 2002-2015**



Source: California Department of Education



# SAT EXAM PERFORMANCE

Benchmarking SAT (Scholastic Assessment Test) exam performance helps community leaders, education and workforce development professionals, and the business community assess potential gaps in K-12 educational programs and opportunities to support and enrich educational pipelines. By identifying gaps, educational institutions can improve strategies and pathways to better prepare students for success in both post-secondary and workplace environments.

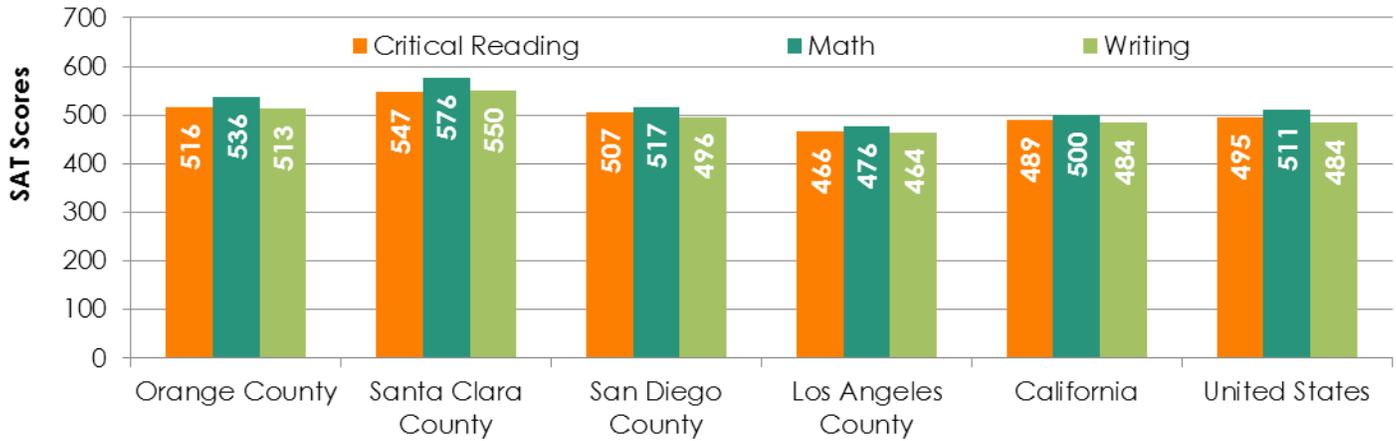
## WHY IS THIS RELEVANT IN OC?

The SAT exam has become synonymous with measuring student performance, and helps educators assess how well their educational programs have prepared students for the rigors of a college education. Additionally, regional SAT scores help provide an important snapshot of workforce readiness. Continued improvements in educational performance are crucial to maintaining long-term economic competitiveness in Orange County and improving the lives of individual students.

## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Increased post-graduation demands in higher education and the workplace make it imperative to lift county-wide SAT scores, especially in lower performing districts. While several school districts in Orange County have long histories of outstanding SAT performance, many other districts, especially those in lower socio-economic communities, have struggled and may benefit from continued focus, attention, and support. High-performing schools should also be conscious of avoiding complacency and look for ways to continuously increase the quality and breadth of their education programs. Finding innovative ways to prepare students for post-secondary educations and the fast-paced, rapidly changing employment environment should emerge as a top priority. Best practices and "lessons learned" from strong, effective programs should be shared and disseminated across the entire county so that other districts can emulate them and produce beneficial results.

### 2015 SAT Scores by Subject



Source: California Department of Education, Educational Demographics Unit

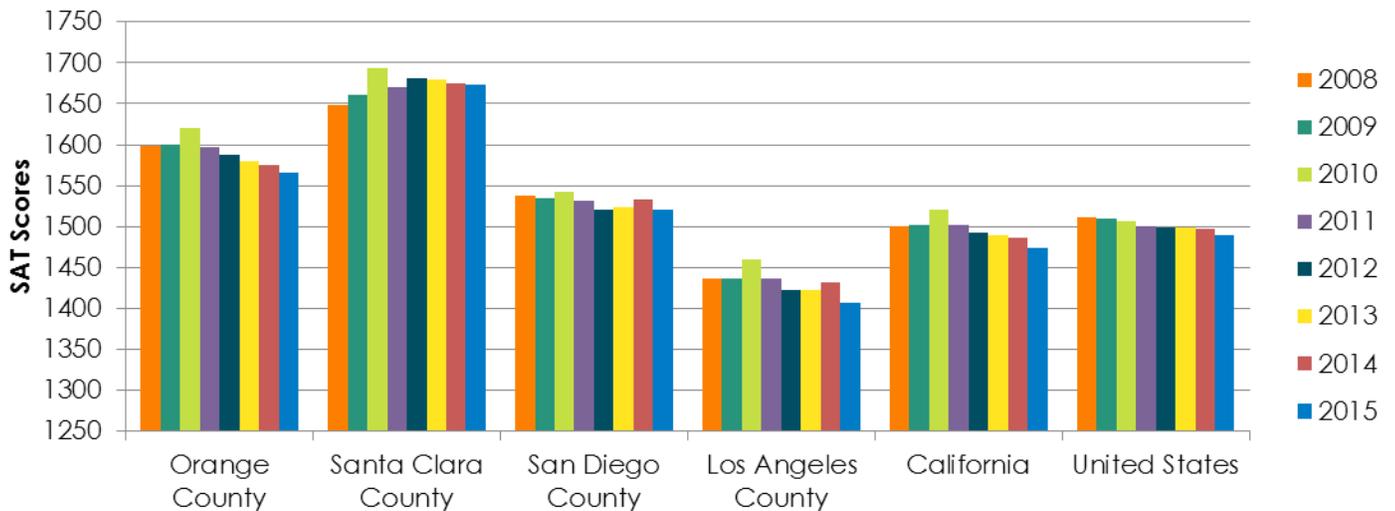
## SAT PERFORMANCE

When compared to state, national, and most regional peers, Orange County's overall SAT performance is encouraging, with an overall average score of 1565. Only Santa Clara County exceeded Orange County, boasting an overall score nearly 108 points above the county's average score, indicating that there is still room for improvement for Orange County's education system.

The most concerning trend in Orange County's SAT performance is not its comparative performance to other counties, but in fact its own comparative stagnation over the last half decade. After experiencing increases in SAT score performance between 2008 and 2010, average scores in Orange County have plateaued and began to decline. In 2010, the average score for Orange County hit a high of 1621 before falling to 1597 in 2011. Scores fell again in 2012, 2013, 2014 and 2015, an overall decrease of 56 points since the peak in 2010.

When compared to state, national, and most regional peers, Orange County's overall SAT performance is encouraging, with an overall average score of 1565.

### Regional SAT Scores, 2008-2015



Source: California Department of Education, Educational Demographics Unit

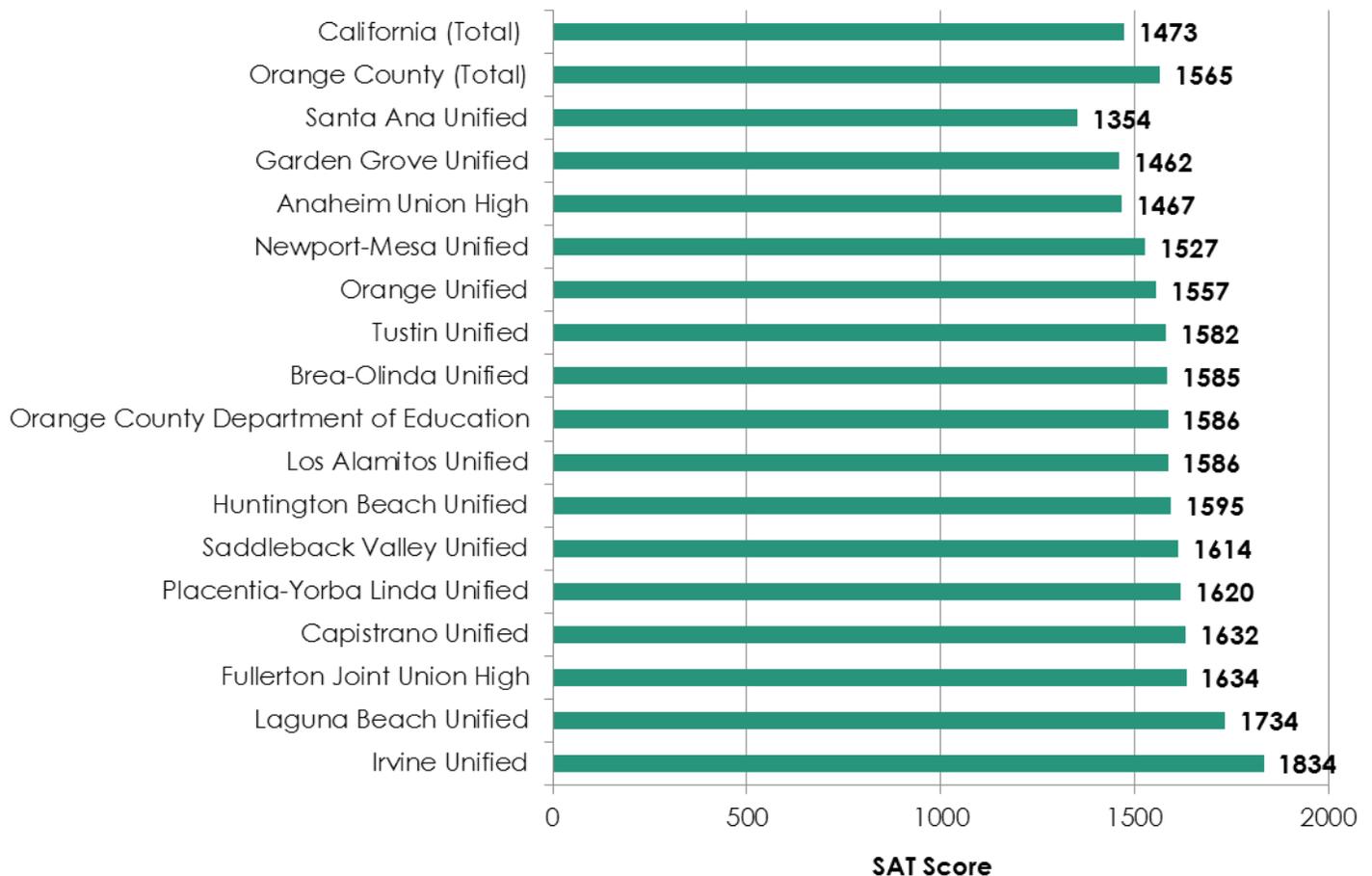
While this trend of decreasing SAT performance is alarming, it is a trend which is seen across the board at both the state and national levels, highlighting larger issues that may exist either with the education system as a whole or indicate increasing testing standards. Overall, average national SAT scores totaled 1511 in 2008 before beginning a gradual decrease to the current reading of 1490 in 2015. A similar, yet more pronounced, decrease in average SAT scores can be seen at the state level as well. California average SAT scores peaked in 2010 at 1521 before falling to 1473 in 2015, currently standing at 17 points below the national average.

However, the rate of decrease has been slightly more pronounced in Orange County. Santa Clara County, after a peak in 2010 and a drop in 2011, saw steady improvements in 2012 followed by a more marginal decrease from 2013 to 2015. San Diego County saw continual improvements in SAT scores in 2013 and 2014, yet experienced a decline in 2015 which brought it back near levels experienced in 2012. Los Angeles County saw dramatic improvements in SAT score performance in 2014, despite overall much lower SAT scores, followed by a large drop in 2015.

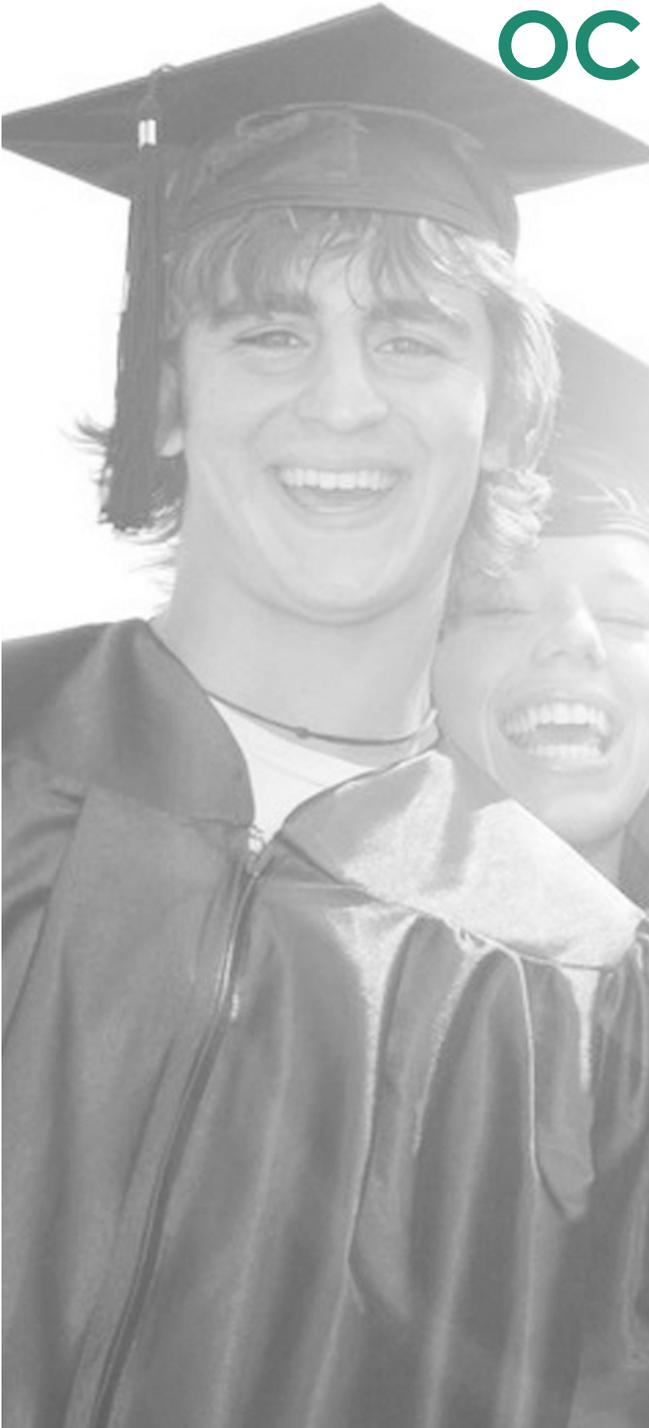
Orange County districts with the highest average SAT scores included Irvine Unified (1834), Laguna Beach Unified (1734), and Fullerton Joint Union High (1634). Residing in higher-than-average income regions, these districts most likely benefitted from more prevalent and effective college preparedness courses. Lower ranked districts included Santa Ana Unified (1354), Garden Grove Unified (1462) and Anaheim Union High (1467), and this could be explained by lack of access to more encompassing and advanced programs that help students understand the structure and complexities of the SAT exam. Increasing the access to prepetory courses in these districts could have a tremendous impact on student performance.

As a result of falling test scores, the College Board is redesigning the test, with the new edition coming out next year. The new test will be based on subjects and questions that are more consistent with current educational policies such as Common Core standards. This redesign will include changes such as making the essay portion optional, returning from a 2400-point scale to a 1600-point scale, and the elimination of obscure vocabulary words and penalties for guessing.

**Regional SAT Scores, 2008-2015**



Source: California Department of Education, Educational Demographics Unit



# OC PATHWAYS

## WHAT IS IT?

A collaborative partnership between the Orange County Department of Education, K-12, and Orange County's nine community colleges, in 2015-16, OC Pathways served approximately 25,000 students, with over 3,500 of those students participating in opportunities across the work-based learning (WBL) spectrum.

### NUMBER OF STUDENTS PARTICIPATING IN WBL PROGRAMS, 2015-2016

<b>JOB SHADOWING</b> HIGH SCHOOL 752	COMMUNITY COLLEGE 75
<b>MENTORING</b> HIGH SCHOOL 784	COMMUNITY COLLEGE 290
<b>INTERNSHIPS</b> HIGH SCHOOL 458	COMMUNITY COLLEGE 418
<b>WORK EXPERIENCE</b> HIGH SCHOOL 522	COMMUNITY COLLEGE 73
<b>PRE-APPRENTICESHIPS</b> HIGH SCHOOL 65	COMMUNITY COLLEGE 0
<b>APPRENTICESHIPS</b> HIGH SCHOOL 65	COMMUNITY COLLEGE 0
<b>STUDENT LEADERSHIP ORGANIZATION</b> HIGH SCHOOL 578	COMMUNITY COLLEGE 19
<b>TOTAL WBL STUDENTS</b> HIGH SCHOOL 3,224	COMMUNITY COLLEGE 875
<b>TOTAL PATHWAY STUDENTS</b> HIGH SCHOOL 11,578	COMMUNITY COLLEGE 10,752

## OC PATHWAYS CAREER READINESS HUB

The career readiness hub is a comprehensive learning program that provides many resources to community partners and OC educators to educate and encourage pathways to jobs in 17 industry sectors for students K-12.

The OC Pathways Career Readiness Hub, an online portal that includes:

- Work-based learning experiences for virtual job-shadowing;
- Real-time mentoring by industry professionals;
- Financial literacy; and
- Internship Ready! Curriculum developed under the California Department of Education's Employability Skills Framework.



# ENGLISH LEARNERS

Improving English language acquisition trends has been a long-standing priority for Orange County's education system. Progress has been made, but data shows there is still room for improvement in this crucial building block to educational attainment and career development. If not properly addressed, these trends can result in individuals lacking the qualifications for gainful employment in many industries. As Orange County becomes more diverse, encouraging English fluency will pay dividends and is vital to help students improve educational performance, ability to successfully progress through higher education programs, and gain access to future employment opportunities.

## WHY IS THIS RELEVANT IN OC?

One of the most significant barriers to employment in many industries can be the language barrier; the ability to orally and verbally communicate is one of the most important skills to ensure workforce success. Increasing English language fluency early in students' academic careers also allows for much quicker learning success as concepts and ideas are more effectively understood and communicated by students. For example, a recent survey by the National Adult Literacy Council reported that three-fourths of all welfare recipients perform at the lowest levels of literacy. Fighting poverty by improving education provides hope for breaking the cycle of multi-generational poverty. Additionally, many employers in the region have cited communication skills as an issue in finding qualified workers. Students can have impressive technical skills, knowledge, and ability, but if they are unable to communicate ideas or effectively interact with co-workers in a team-based environment, they may find it difficult to perform successfully in many workplace settings.

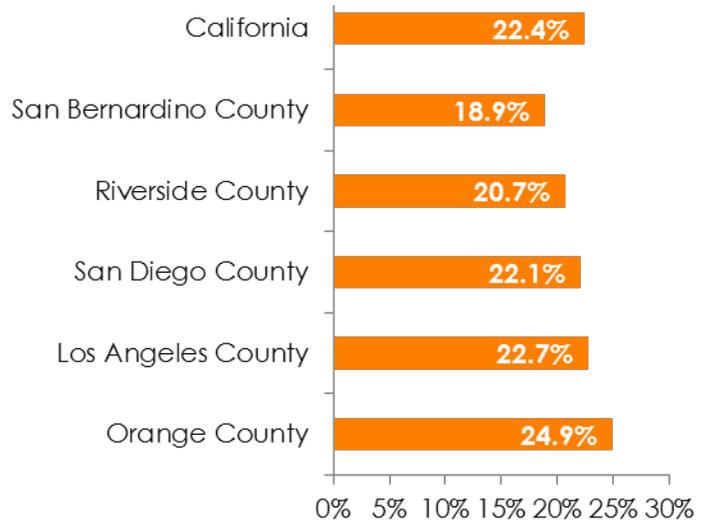
## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Orange County exceeds the state average of 22.4 percent of total enrolled students classified as "English Learners". Overall, 24.9 percent of students are considered English Learners, above surrounding counties such as San Bernardino County at 18.9 percent, Riverside County at 20.7 percent, San Diego County at 22.1 percent, and Los Angeles County at 22.7 percent. Starting at around 30 percent in 1996, the proportion of English Learners peaked at around 32 percent in 2003. Since then, Orange County students improved English language proficiency, although the rate stayed high in the 28 to 29 percent range through 2010 before beginning the drop to the current 25 percent level.

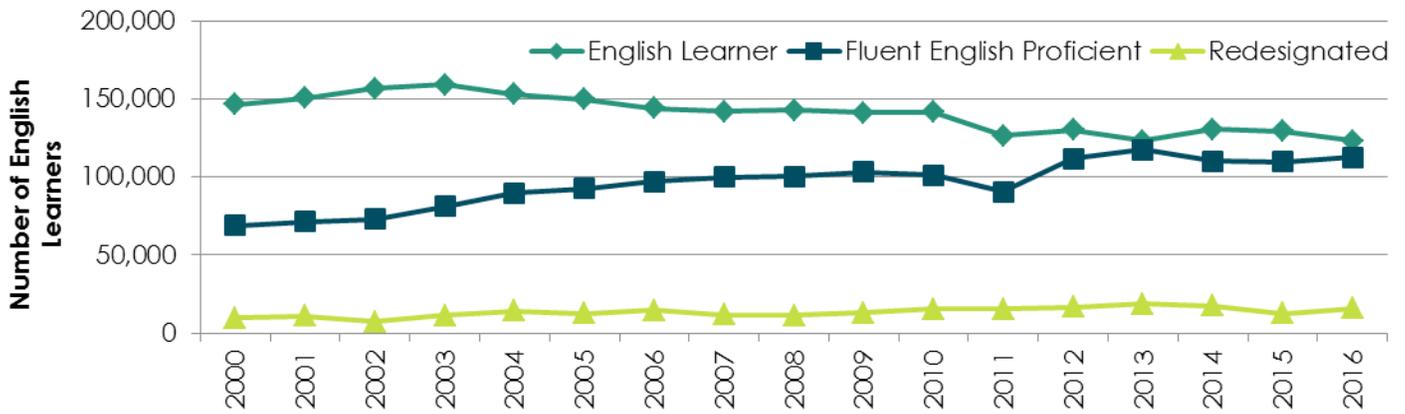
These improvements can be attributed to significant outreach and improvements in many English language programs offered by Orange County school districts.

Areas with much more ethnic diversity continue to have a significant percent of English learners, primarily concentrated in the the central portion of the county, including Anaheim City with 60.2 percent, Magnolia Elementary with 52.4 percent, and Westminster Elementary with 46.8 percent. These statistics help highlight the challenges some school districts face in preparing students for future success. Putting more focus on language education for English Learners in these areas will considerably improve the lives and opportunity for many Orange County residents, while creating a better trained, home-grown pipeline for the future workforce.

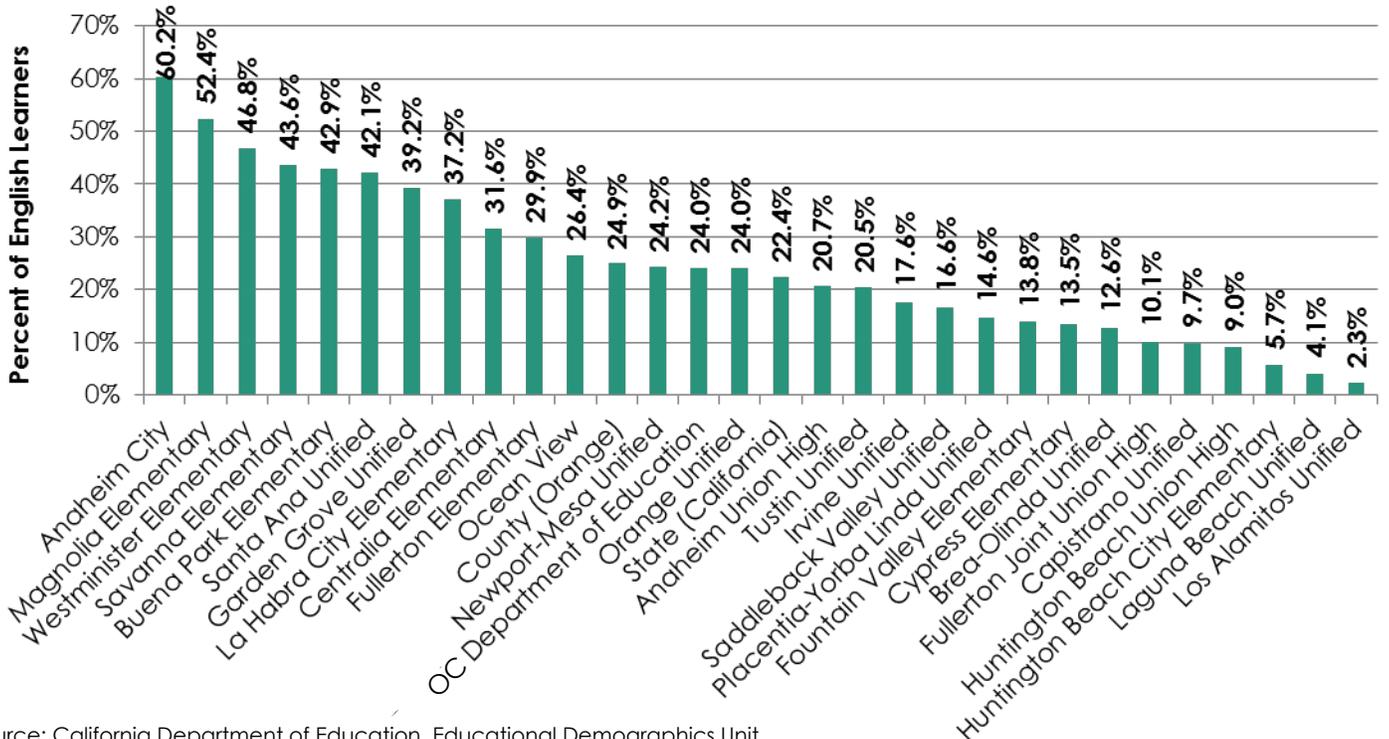
**English Learners as a Percent of Total Enrollment, 2016**



**Percent of English Learners by District, 2015**



**Percent of English Learners by District, 2015**



Source: California Department of Education, Educational Demographics Unit



# DROPOUT RATES

Reducing dropout rates, especially in lower-income areas, is crucial to helping students and their families, neighborhoods, and communities improve their financial standings. Students who dropout before graduating from high school face lifelong challenges across many dimensions. Research shows that dropouts are more likely to be unemployed, have low-paying jobs, be incarcerated, and become single parents.

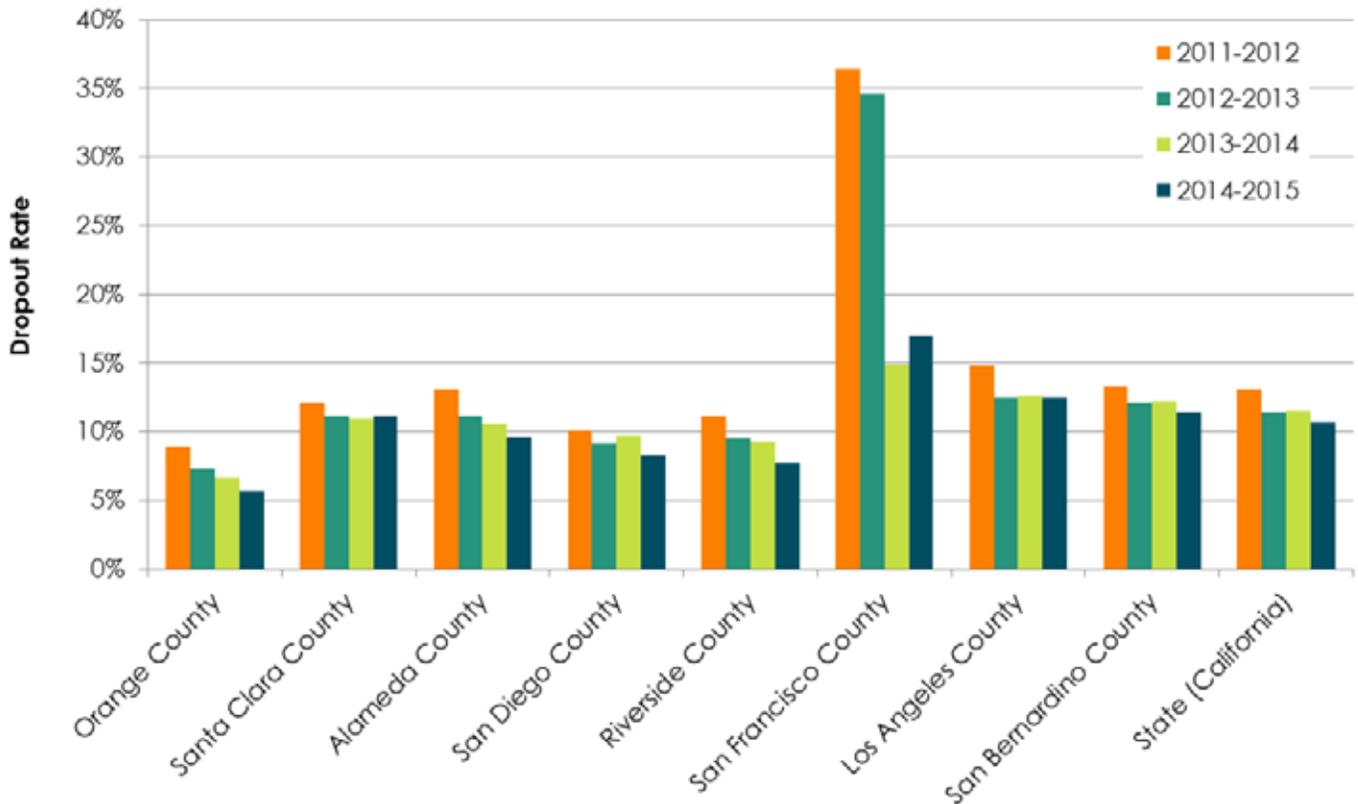
## WHY IS THIS RELEVANT IN OC?

Orange County is performing significantly better than all of its regional peers, as well as outperforming state and national dropout trends. Despite this success, the county must continue to reduce the number of students who dropout in order to prevent future problems of financial instability and a diminishing workforce. Distressed communities in Orange County often are home to a higher percentage of dropouts, according to the Orange County 2013-2018 Comprehensive Economic Development Strategy (CEDS), the county's regional economic development strategy. Moving the needle on poverty in these communities includes improving dropout trends.

## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Between 2014 and 2015, Orange County once again had the lowest dropout rates in the state, with only approximately 5.7 percent of students between 9th and 12th grade dropping out. This dropout rate is much lower when compared to peer regions such as Riverside County which registered 7.7 percent dropouts, San Diego County with 8.3 percent, and 9.6 percent in Alameda County. Orange County's dropout rate was also nearly half the dropout rate of the state with 10.7 percent. Of notable mention, Orange County performed exceptionally better than areas such as Santa Clara County and Los Angeles County where dropout rates were approximately double that of Orange County with 11.1 percent and 12.5 percent, respectively.

### Grades 9-12 Adjusted High School Dropouts by County

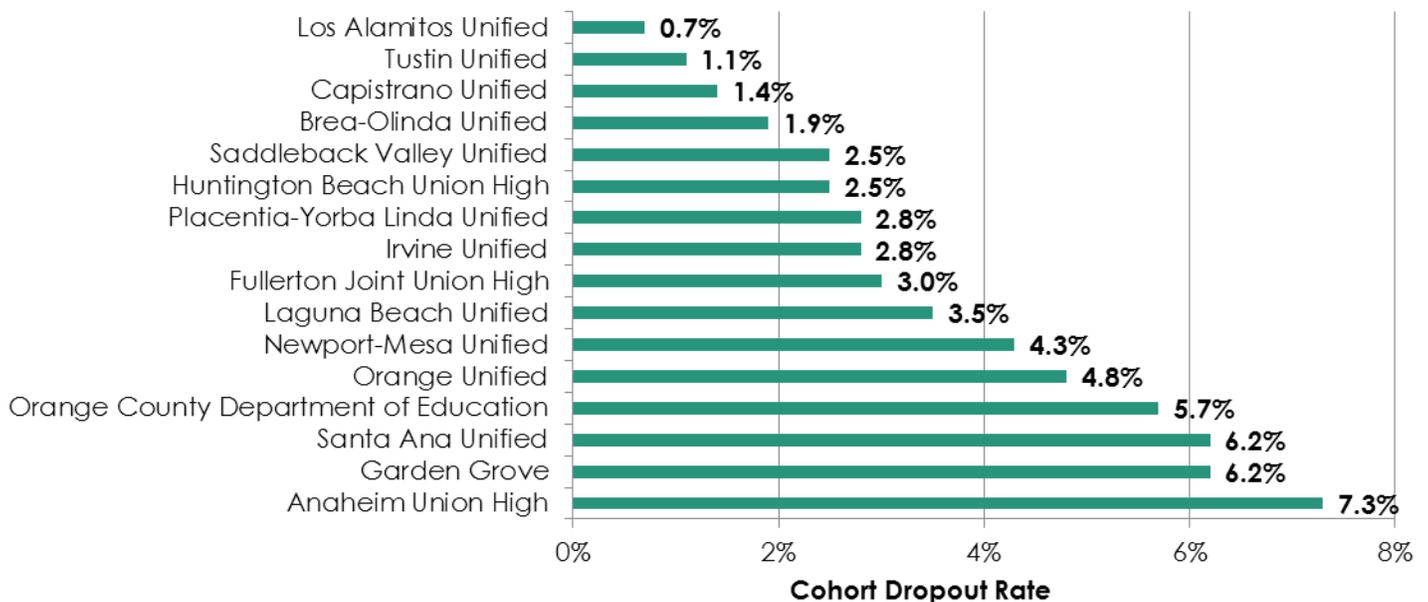


**Note:** San Francisco County increases due to Five Keys Charter School adult rehabilitation centers being included in dropout totals. Excluding these outliers, San Francisco Unified's dropout rate was 10.1 percent in 2011-2012, 8.9 percent in 2012-2013, 7.9 percent in 2013-2014, and 7.0 percent in 2014-2015. Source: California Department of Education, Educational Demographics Unit

Looking within Orange County, the variance in high school dropouts by district provides a clear picture of the need for targeted strategies to improve overall performance on reducing dropouts. School districts with high dropout rates correlate with the CEDS distressed communities, or "red-zone" areas.

The best performing districts included Los Alamitos Unified with a 0.7 percent dropout rate, followed by Tustin Unified at 1.1 percent, and Capistrano Unified at 1.4 percent. The lowest performing districts included Anaheim Union High with 7.3 percent, followed by Garden Grove Unified and Santa Ana Unified, both at 6.2 percent.

### Orange County Dropout Rates by District, 2015



Source: California Department of Education, Educational Demographics Unit



Considering the rapid pace of technological evolution that impacts both career and workplace, STEM (Science, Technology, Engineering, and Mathematics) disciplines will continue to grow in importance as foundational education training for students who are interested in high-skill, high-wage science and technology positions in Orange County. In order to maintain the county's competitive advantage, developing a well-educated, talented workforce of the future must be a priority for the region's educational institutions and related stakeholders. Concerted efforts must be made to better market the many benefits of STEM-related degrees to current and future students.



### **WHY IS THIS RELEVANT IN OC?**

Orange County's ability to successfully recover from the recession and surpass pre-recessionary levels of employment is largely attributable to the gains made in its most powerful industry clusters such as Medical Device, IT, Healthcare, Professional and Business Services, and Advanced Manufacturing. These clusters, and many others, are increasingly reliant on well-trained, highly-skilled employees well versed in STEM disciplines. Orange County must continue to grow and nurture its STEM workforce. The best way is for the county to "grow its own" by fostering an academically supportive environment for STEM that provides students and teachers with the tools required to build these necessary, highly-valued skills.

Considering how rapidly technologies and business processes evolve, it is imperative that Orange County's educational programs evolve with them, providing students access to cutting-edge curriculum based on emerging technologies and software. Accomplishing this will require increased coordination between the business community, educational institutions, and workforce development organizations. The investment is large and ongoing, but the payoff will provide significant benefits to all parties involved, improving not only the business competitive environment but the career pathways for students, graduates, and young adults across the county.



# HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

In 2015, the number of STEM-related degrees awarded to both undergraduates and graduates in Orange County continued to grow and reached all-time highs. While the number of degrees awarded has been steadily increasing since 2000, there was a period between 2005 and 2009 in which the county experienced a slight stagnation in the growth of STEM degrees. This was most likely attributable to the economic environment and subsequent recession crisis.

An important contributor to the resurgence in STEM-related degrees being awarded in Orange County and around the nation has been the steadily increasing number of STEM degrees awarded to women. Thanks to organizations such as Girls Inc. of Orange County, which provides year-round support to girls between kindergarten and 18-years-old with focuses on STEM disciplines, more and more young women are entering these programs and emerging with specialized, lucrative degrees extremely valuable to local and nationwide employers.

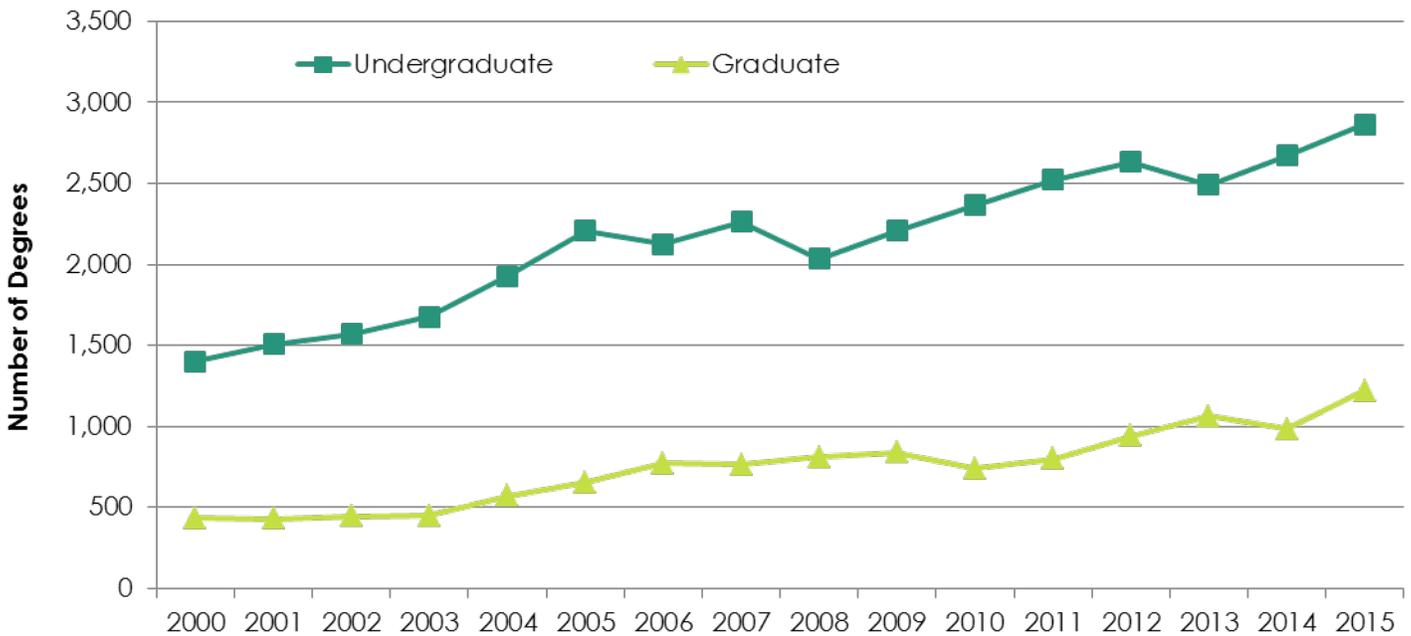
The Women Advancing Through Technology (WATT) is another local Orange County initiative aimed at improving access to STEM fields for women. WATT, created by OC STEM through a grant provided by JP Morgan Chase, was instituted in response to a need for greater emphasis put on supporting women throughout their education and professional lives.

The program culminated in a five-week pilot AutoCAD class for female residents from affordable housing communities in Orange County. Upon graduation, all students were provided with new laptops with pre-loaded AutoCAD software to help them turn their educations quickly into lucrative employment opportunities.

Programs focusing specifically on information technology applications or computer-related programs, such as WATT, are crucial considering the increasing usage of information technology in many industries and occupations. These occupations have navigable career ladders providing high-wage occupations at nearly all levels, while cross-cutting nearly every industry. Professionals with these certifications or training are able to find gainful employment positions across a broad number of industries rather than having to limit career options to a single field or industry.

However, despite severe impacts to both the housing and employment markets, the recession also served to increase the number of students pursuing higher levels of educational attainment as is evidenced by the strong growth in the number of overall degrees granted after 2011. The number of STEM degrees granted has been growing by approximately 7 percent per year over the last several years. After experiencing a decrease of 7.5 percent from 2013 to 2014, the number of graduate degrees awarded in 2015 increased to 1,204, representing a sizable increase of 22.5 percent over 2014 levels.

Tech-Related Degrees Granted, 2000-2015



Source: California Department of Education, Educational Demographics Unit

Overall, approximately 2,858 undergraduate degrees and 1,204 graduate degrees were awarded in STEM-related disciplines in Orange County in 2015. When compared to the number of degrees awarded in 2004, the number of undergraduate degrees awarded has increased by 32.5 percent while the number of graduate degrees has increased by 117.6 percent. It is crucial that the county continue on this upward educational growth trajectory in order to continue to properly serve the high-tech businesses and industry clusters currently driving the regional economy. Continued support and nurturing of business linkages with these educational institutions will be crucial in ensuring both undergraduate and graduate students are properly trained in their respective fields and can fill higher-skill, higher-wage positions left open by retiring baby boomers and overall growth in STEM occupations.

Additionally, while post-secondary STEM education is extremely important in the cultivation of advanced technical skills, at the same time more emphasis should be placed on lower cost, shorter term STEM programs such as certifications and programs offered by the community college system.

These certifications can offer similar career paths and progression for individuals who may not be able to afford the high cost of four-year degrees at major educational institutions or who simply do not want to take on substantial student loan debt. Many employers have touted the importance of these certifications and how they are an increasingly important source of STEM workforce talent.



**It is crucial that the county continue on this upward educational growth trajectory in order to continue to properly serve the high-tech businesses and industry clusters currently driving the regional economy.**



Discipline	2015		2004-2015	% Change
	Bachelor's Degrees Granted	Graduate Degrees Granted	Bachelor's Degree Change	Graduates Degree Change
Biological Sciences	973	85	27.9%	193.9%
Engineering	839	565	45.3%	121%
Information and Computer Sciences	499	370	-7.7%	338.5%
Physical Sciences	372	138	63.7%	-8.9%
Math	175	46	44.6%	40.1%
<b>Total</b>	<b>2,858</b>	<b>1,204</b>	<b>32.5%</b>	<b>177.6%</b>

Source: OCBC Analysis of University of California, Irvine; Chapman University; and California State University, Fullerton Graduation Rate Data





# INDUSTRY & OCCUPATION TRENDS

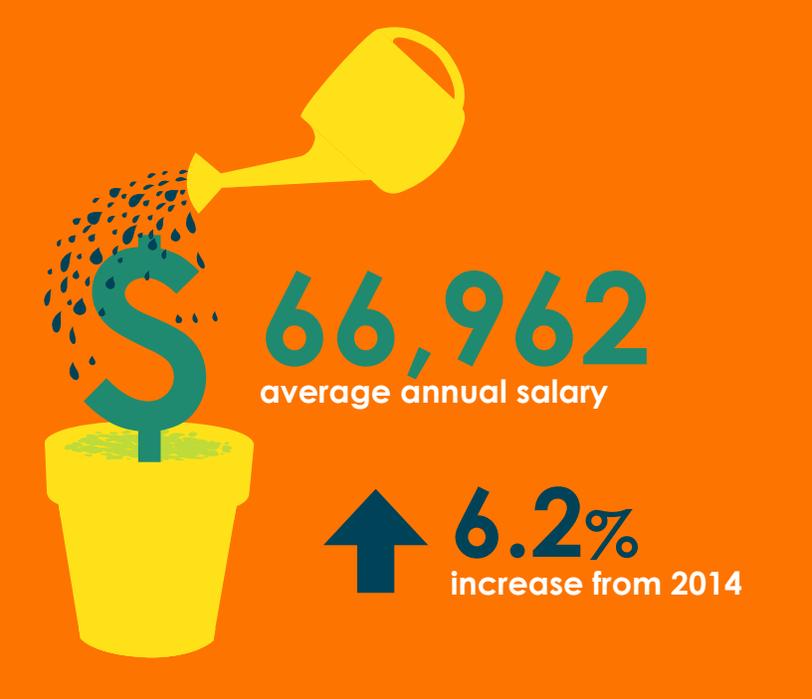
Orange County has surpassed pre-recessionary levels of employment, in no small part thanks to its strong regional industry clusters such as Professional and Business Services, Healthcare, and Tourism. To ensure future economic development success, community and business leaders should continue to identify and understand what unique strengths and emerging opportunities will cultivate good-paying, high-quality job opportunities.



OC leads region, state and nation in job creation

**+ 39,000**  
jobs in last 12 months

**4.4%**  
unemployment rate



**42,490**  
current job openings

**3,773**  
customer service

**3,679**  
administrative

**2,852**  
project manager



# UNEMPLOYMENT

Cementing its position as the economic engine of Southern California, Orange County continues to outperform neighboring regions with a powerful combination of economic growth, low levels of unemployment, and high quality of life for residents. While pre-recession levels of employment have been surpassed in the county, it is important to continue to understand where these jobs are being created and the impact on the overall regional economy.



## WHY IS THIS RELEVANT IN OC?

While employment growth is a welcome sign of increased economic activity and regional success, under the surface there are two significant workforce and economic development issues for the county: the skills gap and the quality of jobs created. Despite being able to boast about its world-class educational institutions, vibrant industry clusters, diverse workforce and ideal geographical location; many businesses and institutions in the area have raised significant concerns regarding the growing skills gap plaguing a range of industries. The skills gap, defined as the mismatch between employer needs and employee qualifications, limits potential employment growth, oftentimes reduces the ability of workers to move up in terms of their career, and is especially detrimental to the competitiveness of industries that rely on a highly skilled workforce. Another major issue that the county faces is the quality of jobs created. While many growing industries provide gainful employment opportunities, a significant portion of new job creation has come from low-skill, low-wage sectors which provide comparatively lower multiplier effects across the regional economy.



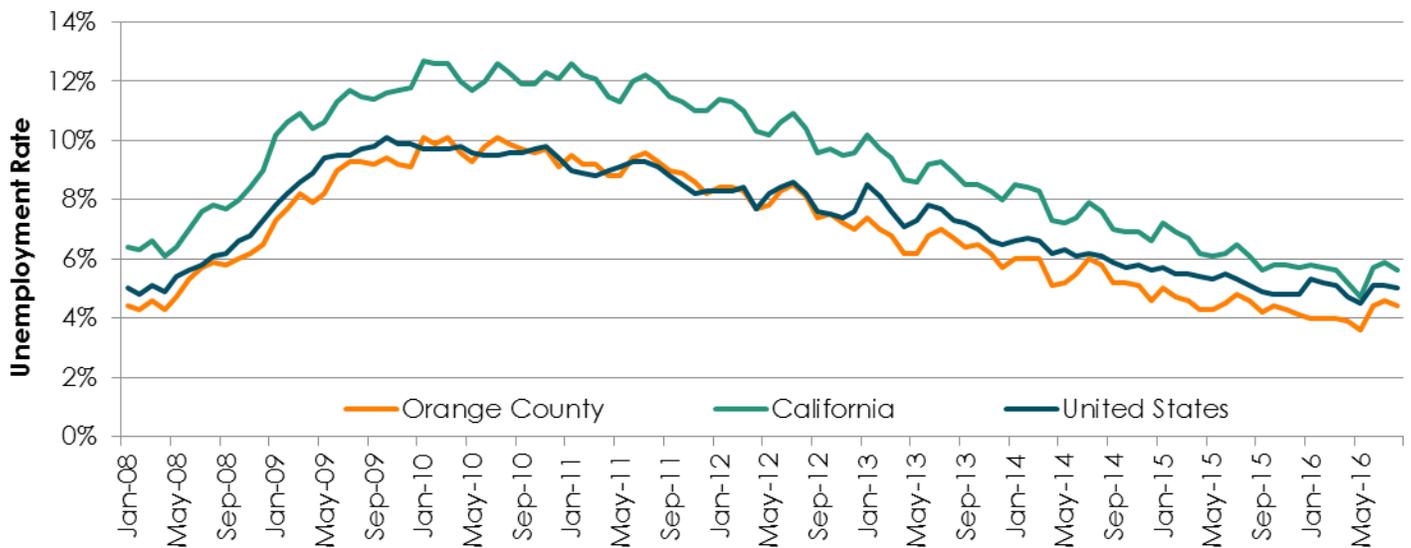
**Orange County continues to outperform neighboring regions with a powerful combination of economic growth, low levels of unemployment, and a high quality of life for residents.**

# HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

At the beginning of 2016, Orange County's unemployment rate dropped to four percent and remained near this level for the first quarter, hitting an interim low unemployment rate of 3.6 percent in May. After starting in June 2016, nearly all California counties experienced a jump in unemployment rates, largely due to an influx of jobseekers re-entering the labor market and seasonal job losses in government and education. As of August 2016, Orange County's unemployment rate stood at 4.4 percent, approximately 1.2 percent and

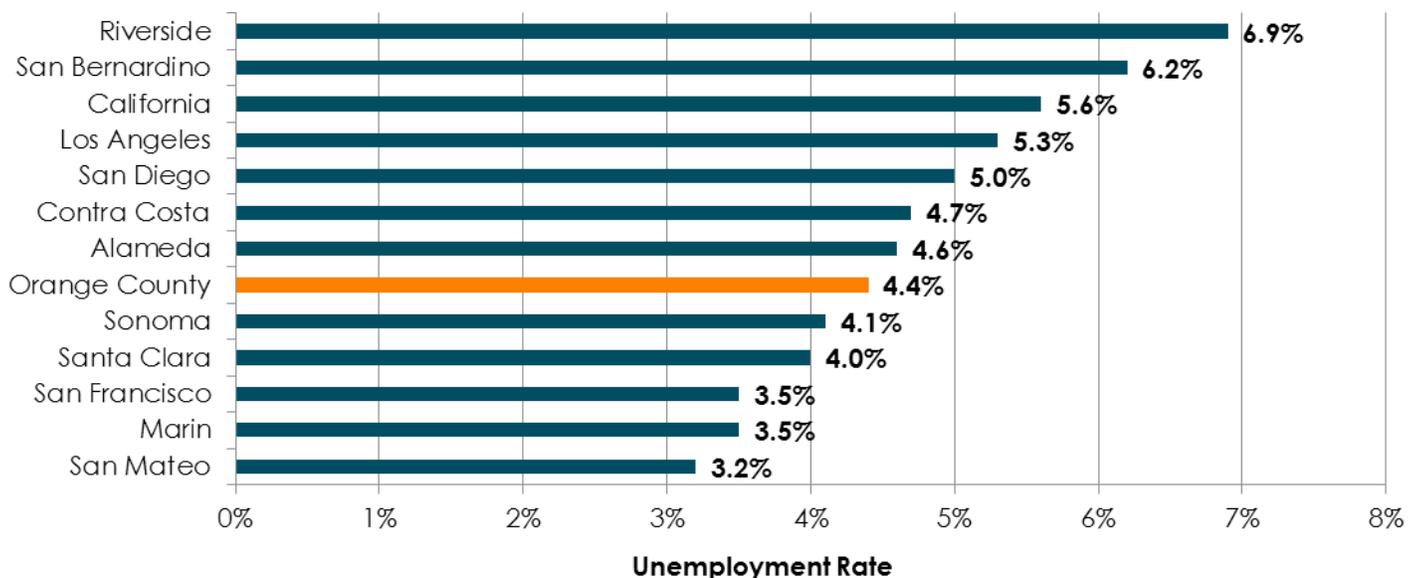
0.6 percent below state and national unemployment rates, respectively. When compared to its peers, Orange County remains the stand-out performer in the region, growing 39,000 jobs in the last 12 months and registering the lowest unemployment rate out of all Southern California counties. Since August 2016, the strongest job growth has stemmed from Professional and Business Services (+11,400), Construction (+10,200), Educational and Health Services (+7,400) and Leisure and Hospitality (+6,700).

**Unemployment Rates in Orange County, California, and the United States, January 2008 – August 2016**



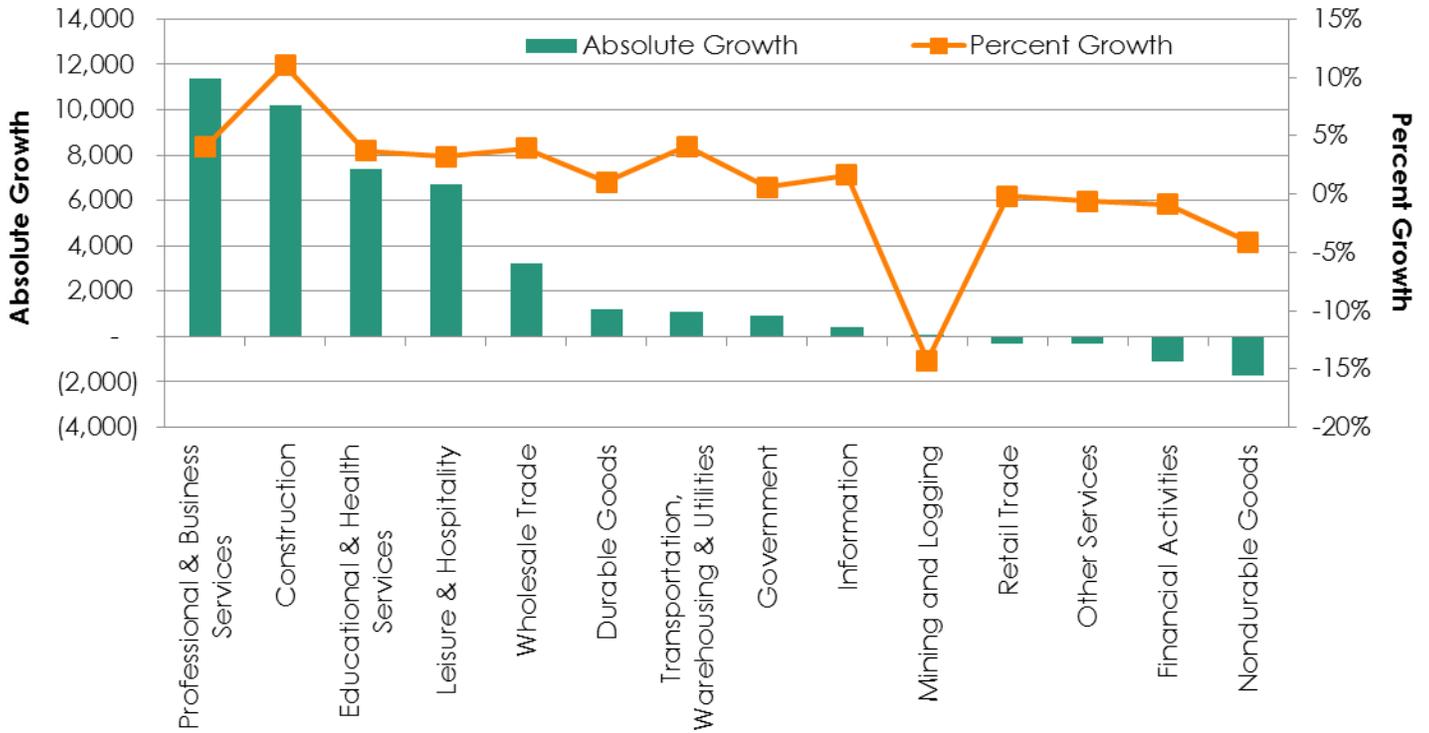
Source: California Employment Development Department

**Orange County Unemployment Rate vs. Peers, August 2016**



Source: California Employment Development Department

**Orange County Unemployment Rate vs. Peers, August 2016**



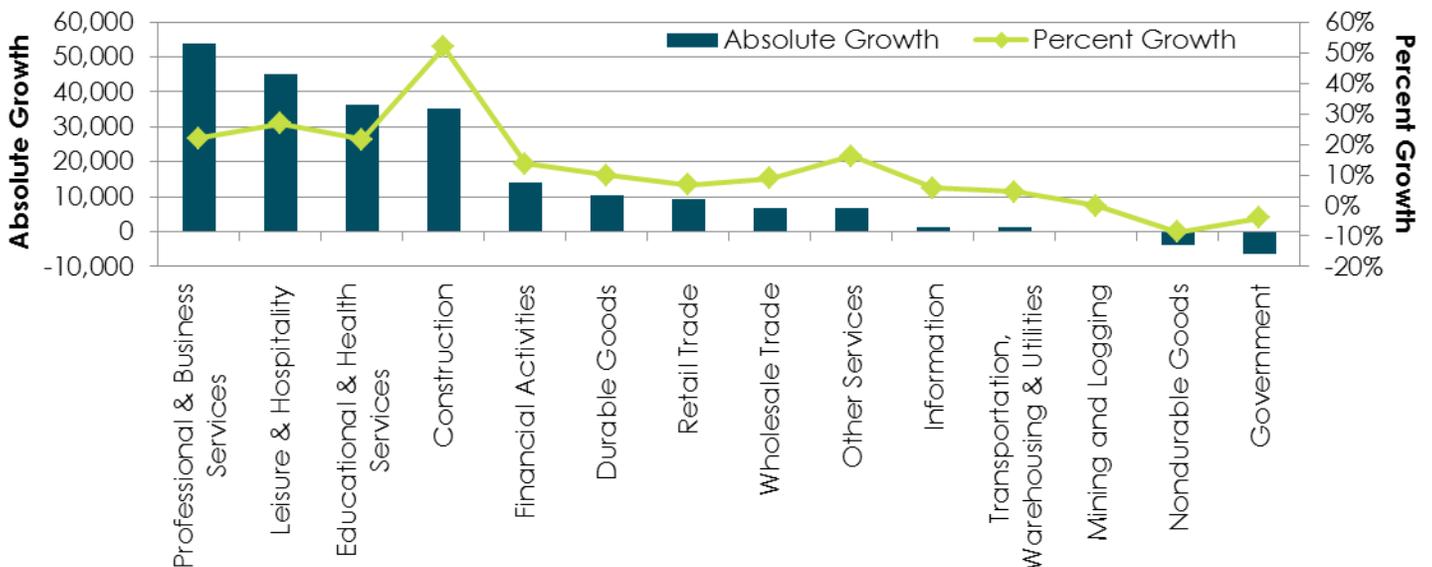
Source: California Employment Development Department

Since 2010, the strongest employment growth has occurred in the Construction industry, which added 35,300 jobs for a growth rate of 51.9 percent. Other high-growth industries include Professional and Business Services, Leisure and Hospitality, and Educational and Health Services, with employment growth of 53,900, 45,200 and 36,400, respectively.

During this period of steady growth, nondurable goods manufacturing—which includes products like

food, beverages and clothing—was the only industry to shrink, likely a result of cost of living and regulatory climate factors, which make it challenging to stay competitive. While advanced manufacturing jobs in the durable goods sector have grown, nondurable goods manufacturing may not be able to remain competitive in Orange County compared to lower cost regions. Only investments in maintaining and growing an increasingly highly-skilled, trained manufacturing workforce will reverse the downward trend in this sector.

**Orange County Industry Growth, 2010-2016 YTD**



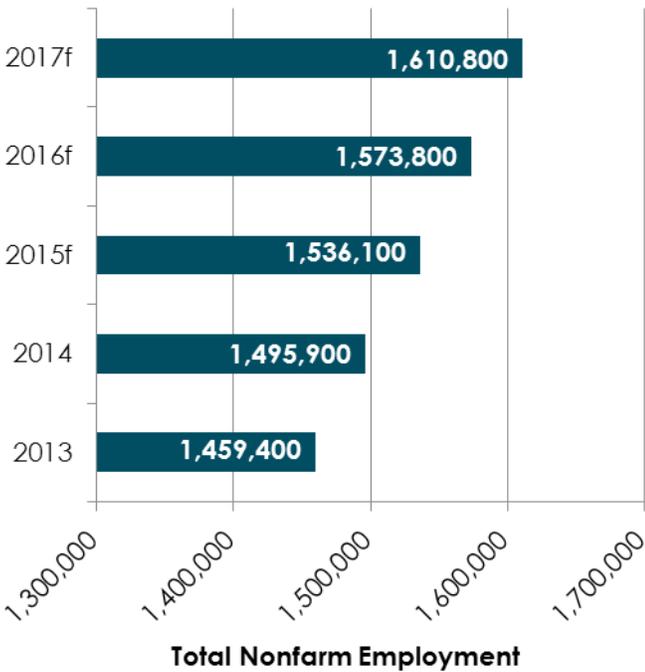
Source: California Employment Development Department

**The most important factor moving forward will be to ensure Orange County creates a higher proportion of high-skill, high-wage positions that provide above-average multiplier effects.**

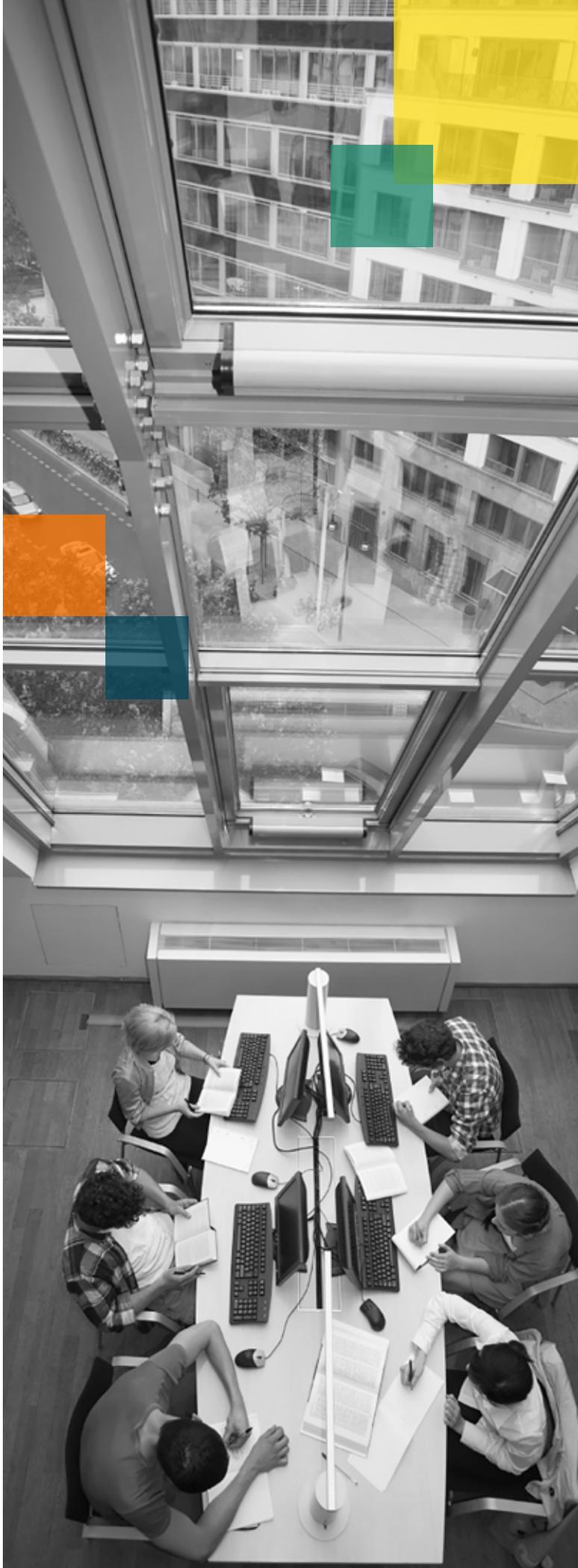
According to California State University, Fullerton's (CSUF) most recent economic forecast, total nonfarm employment is expected to increase 2.5 percent, from 1,536,100 in 2015 to 1,573,800 in 2016. It is projected to further increase by 2.4 percent in 2017 to 1,610,800 jobs. While this nonfarm employment growth is slightly subdued compared to growth experienced in recent years, CSUF's forecast demonstrates that the region currently, and in the near future, continues to generate solid job creation.

The most important factor moving forward will be to ensure Orange County creates a higher proportion of high-skill, high-wage positions that provide above-average multiplier effects. Having high-quality employment positions will not only benefit the workers in the region by providing access to valuable employment positions but will serve to attract more qualified workers to the area.

**Orange County Forecasted Nonfarm Employment, 2013-2017**



Source: California State University, Fullerton





# INDUSTRY CLUSTER EMPLOYMENT & COMPENSATION TRENDS

Orange County's position as an engine for economic growth and development in Southern California was made possible due to the clustering of several high-value industries in the region. Industries such as Advanced Electronics, Biotechnology, Information Technology, Advanced Manufacturing, Medical Device, and Healthcare represent key drivers of the Orange County economy, providing high-skill, high-wage occupations that support many county residents. Occupations within these high-growth industries also boast high-multiplier effects, creating additional supportive occupations or economic benefits that ripple across the county.



## WHY IS THIS RELEVANT IN OC?

Industry clusters are characterized by critical mass, regional specialization, high-multiplier effects, high-growth rates, and a legacy of world-class iconic industry leaders. The wine industry in Napa Valley and entertainment industry in Hollywood are well-known examples of global-leading industry clusters. The Medical Device and Tourism/Theme Park industries are prime examples of Orange County's own world-class industry clusters.

Critical mass of the industry clusters denotes a higher concentration of firms and supporting networks than average. This ensures the availability of specialized labor pools, reduces logistical costs, and promotes not only collaboration but also healthy competition for firms within its specific cluster. Regional specialization leads to increased customer spending and higher demand for exports, leading to higher cash flows into the region. A high multiplier effect signifies the impact of industry clusters across other parts of the economy, including job creation in supporting industries such as Business and Professional Services. High growth rate of industry clusters along with the high multiplier effect attracts businesses, corporations and highly-skilled workers to the region, all critical to the wealth and prosperity of the region. Finally, a legacy of world-class industry leading companies — from such iconic firms like the Walt Disney Company, The Irvine Company, Broadcom and Edwards Lifesciences — popularizes the image of the county as a center of innovation with access to talented people and firms.

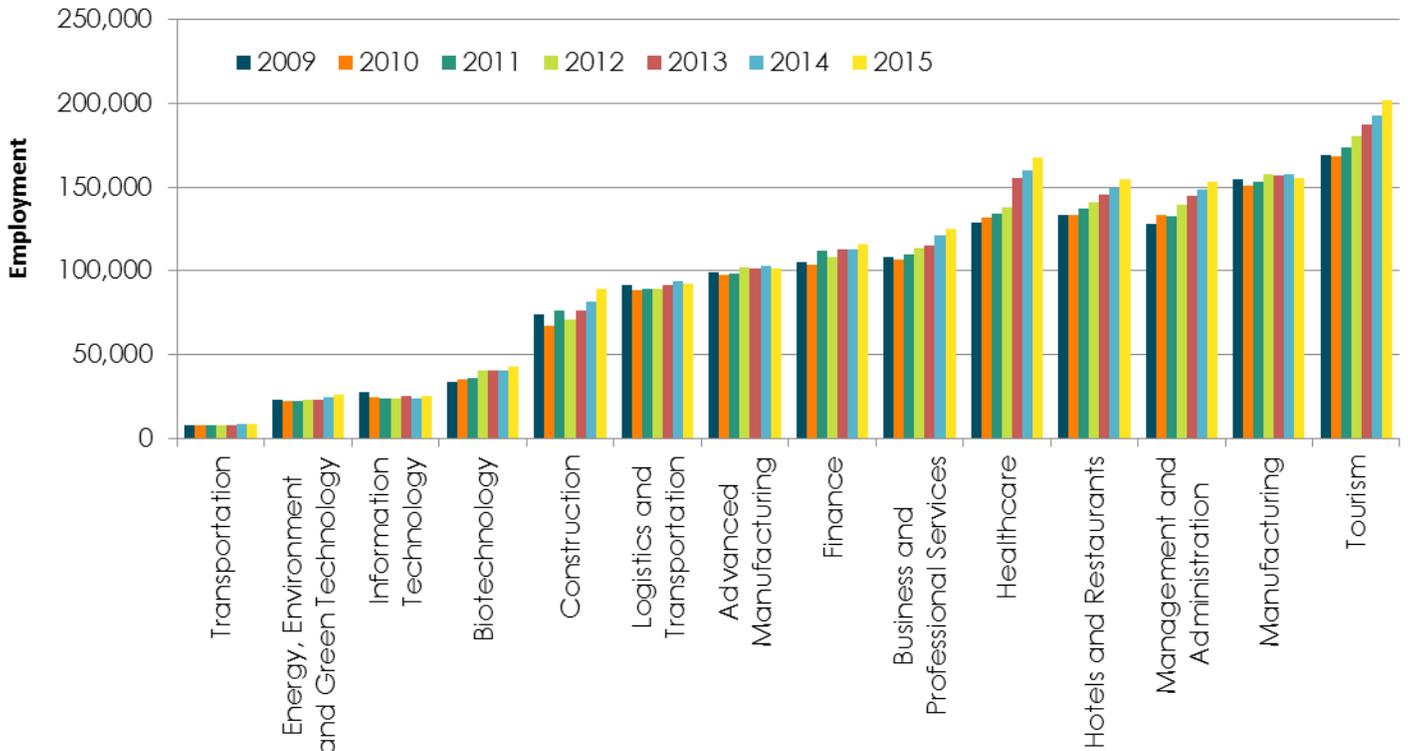
## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Industry clusters promote higher economic growth by creating a self-sustaining, virtuous cycle of innovation, productivity, and employment creation. Cluster formation can create economic competitiveness in a region by generating greater cash inflow, attracting and retaining a skilled labor pool, and providing a clear pathway from specialized education towards in-demand careers.

Moreover industry clusters are associated with reduced environmental impact through efficient supply side management, and a growth in supporting professional and business service industries such as accounting, legal and management consulting services, all of which improve the region's overall economy. By encouraging the development of industry clusters, the County can strengthen the economic activity in the region and provide a variety of employment opportunities within the clusters themselves and across all industries in the region.

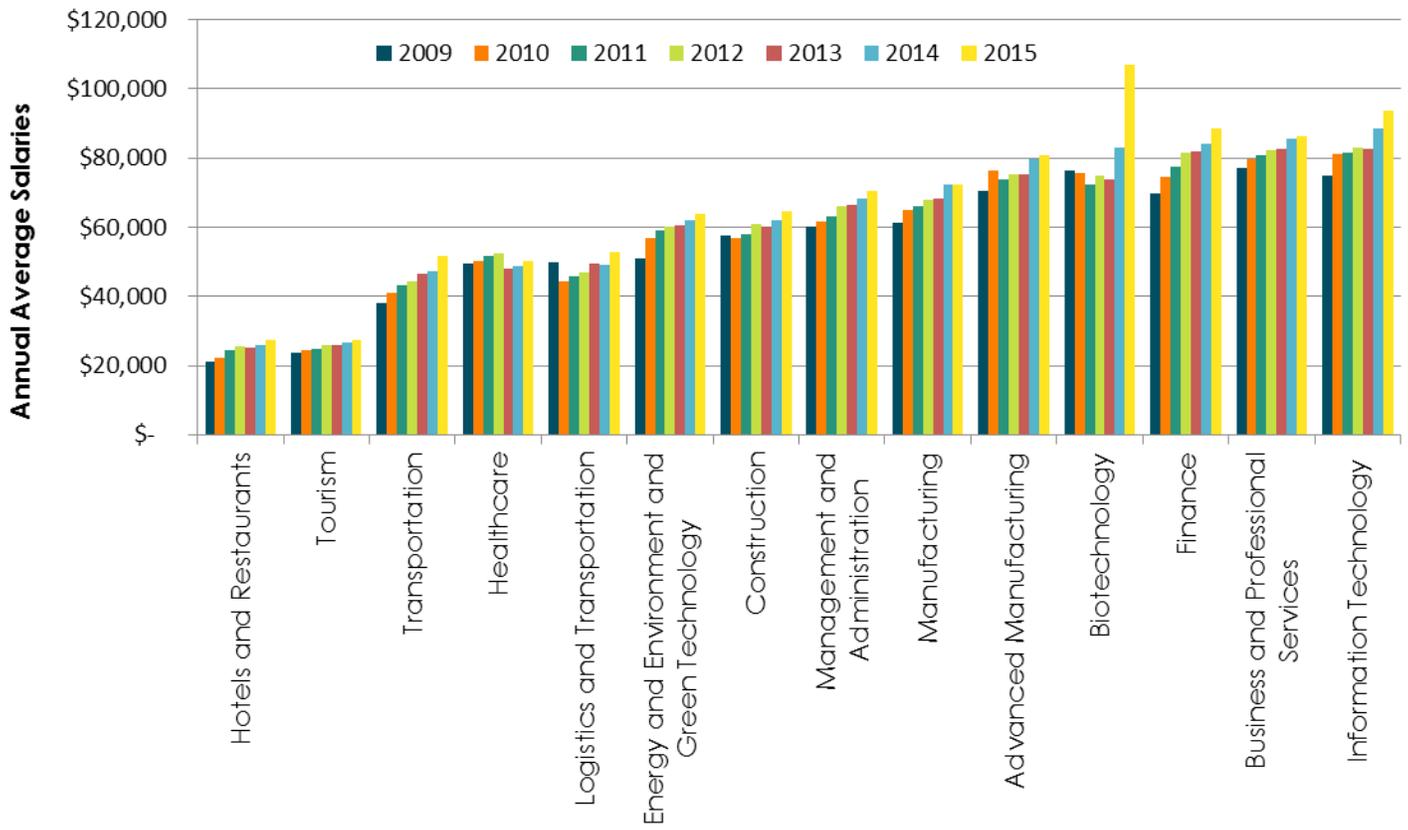
Driven by a continually recovering economy, the Tourism cluster in Orange County added the most jobs between 2014 and 2015, increasing by 4.8 percent or 9,220 jobs. Increasing demand for housing and corresponding home construction, the Construction industry experienced the second highest increase in jobs — up 9.7 percent, an addition of 7,906 jobs. The Healthcare sector ranked third with a 4.9 percent increase, an addition of 7,843 jobs likely resulting from the growing need for healthcare services by an aging population, as well as, from the implementation of the Affordable Care Act (ACA). The Information Technology and the Biotechnology sectors, which represent the technological base of the county, saw an overall increase in employment of 1,208 and 2,650 jobs, respectively; a significant improvement over employment trends experienced the year before which registered drops in employment for both of these industries. This increase represents the improving standing and competitiveness of Orange County as an innovation and research center.

Orange County Cluster Employment, 2009-2015



Source: California Employment Development Department, Quarterly Census of Employment and Wages

## Orange County Cluster Salaries, 2009-2015



Source: California Employment Development Department, Quarterly Census of Employment and Wages



**Industry clusters are characterized by critical mass, regional specialization, high multiplier effects, high growth rates, and a legacy of world-class iconic industry leaders. The wine industry in Napa Valley and entertainment industry in Hollywood are well-known examples of global-leading industry clusters.**

**The Medical Device and Tourism/Theme Park industries are prime examples of Orange County's own world-class industry clusters.**

Overall, the average salary for all major industry clusters in Orange County experienced considerable increases in 2015. The overall average salary for cluster employment in Orange County in 2015 was \$66,962, an increase of 6.2 percent compared to 2014 salary averages. The highest increase in average percent salary over the past year occurred in Biotechnology, which increased significantly by 28.9 percent, largely

driven by wage growth in one particular sub-industry group, Physical, Engineering and Biological Research. The second highest percent increase in cluster salaries was in the Transportation industry cluster, which increased by 9.1 percent, followed by Logistics and Transportation which increased by 7.6 percent, and followed by Information Technology which increased by 6.2 percent.





# OCCUPATIONAL GROWTH TRENDS

On a number of fronts, the labor market is in the midst of disruptive change like never before. The county's current employment landscape has gone through significant transformations as a result of the recession, technological improvements, and general societal demographic trends. The skilled, talented pool of workers that live in Orange County are one of its most important assets and a major source of competitive advantage, playing a key role in attracting and retaining businesses. Ensuring that these talented individuals remain in the county – and that the next generation of students is educated and prepared to fill the unique set of specialized industries and occupations will be an important driver of long-term economic health of the county – a challenge that can only be handled by the combined efforts of all stakeholders.

This highlights the importance of collaborative workforce development programs, where businesses can provide input and guidance to these programs, helping to ensure individuals are trained to meet the necessary skill level for both general employment and vertical career movements. Ensuring there are gainful employment opportunities available at all skill levels will be a serious challenge for the county in the years to come. In order to properly mitigate and prepare for these future challenges, workforce development and education professionals and the local business community will have to join together to increase collaborative efforts as never before.

## WHY IS THIS RELEVANT IN OC?

Orange County's employment growth in recent years is encouraging, but upon deeper inspection, creating enough high skill, high wage jobs is a challenge that the county is starting to face. A large portion of that employment growth has come from low-skill, low-wage sectors which provide lower overall multiplier effects to the economy. Additionally, as older generations remain in the workforce longer, many high-skill, high-wage occupations which should have become available due to retirements, remain filled; stalling vertical career movements and progression for younger generations. This is especially relevant in areas which have a high number of older residents and where the cost of living is high, as older workers, especially those hard-hit by the recession, attempt to recover the savings and investments lost during the recession by working well past the traditional date of retirement.

Another major issue impacting the employment landscape is the emergence of an imbalance between supply and demand for middle-skills jobs, often referred to as a “middle-skills gap.” Middle-Skill occupations are defined as positions which do not require a Bachelor’s degree but require training or some level of education above that of a high school diploma. This often means a certification or Associates degree gained through community college or collaborative training programs between employers and educational institutions.

Organizations are reporting an inability to find qualified individuals for open positions due to a lack of the right mix of technical and soft skills. This is an issue taken very seriously by many Orange County companies; employers are concerned that education and training capacity will continue to prove insufficient in providing a pipeline of qualified candidates, which will continue to limit economic growth and job creation. In order to ensure the county continues to sustain strong employment growth, relevant, up-to-date training and education programs must better prepare jobseekers for the rapidly evolving job market.

## TOP 10 MOST “IN DEMAND” TECH AND SOFT SKILLS FOR OPEN POSITIONS 2016



## WORKFORCE OF THE FUTURE STAKEHOLDER FOCUS GROUPS

OCBC, with support from JPMorgan Chase and in partnership with the Orange County Department of Education (OCDE), OC Pathways, and the Orange County Development Board (OCDB), brought together sector-specific Orange County small, medium, and large employers to identify in-demand, emerging skill needs and workforce trends in the Healthcare, Information Technology, and Advanced Manufacturing sectors. Overall, Orange County employers in the three industries shared many of the same concerns and mutually reported facing a significantly widening skills gap in Orange County due to a complex set of interrelated factors.

### Major Overarching Skill/Talent Themes:

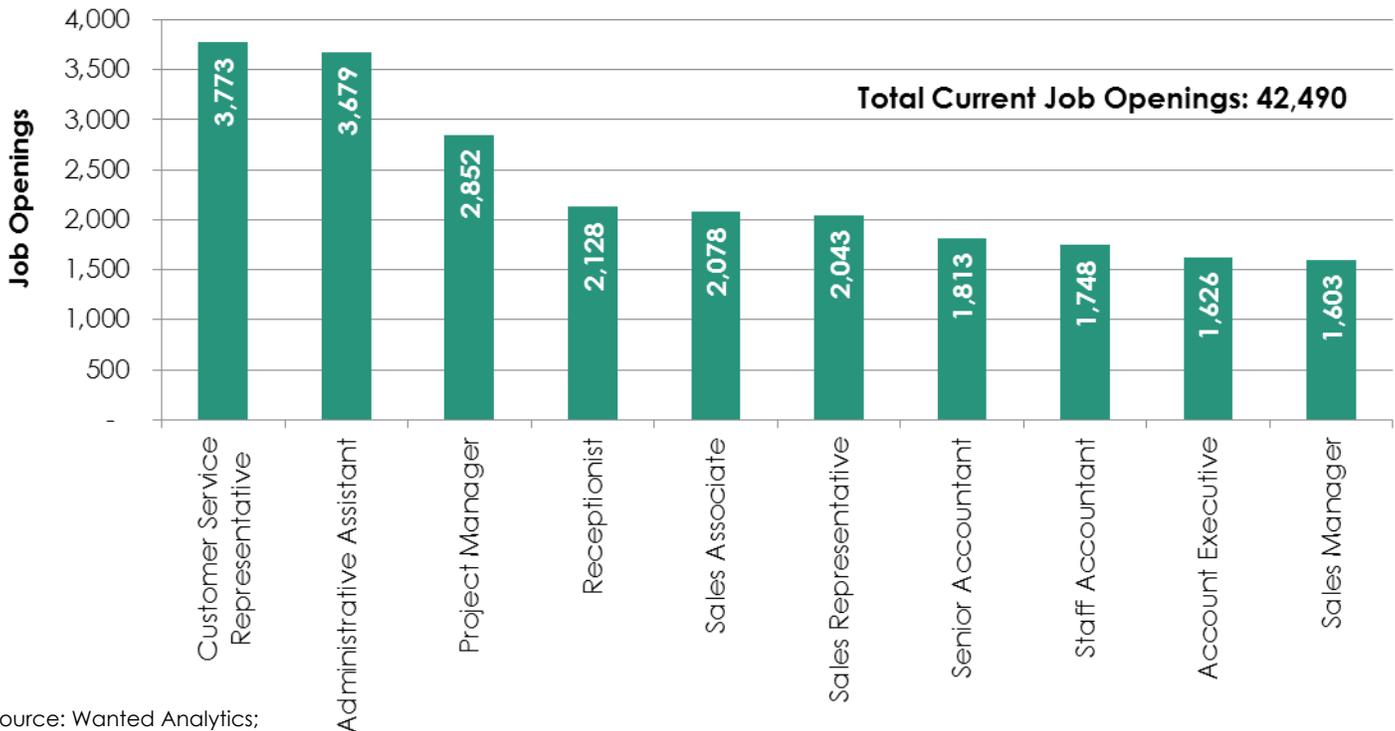
- Many applicants lack specialized skills for new and emerging technologies, including:
  - Healthcare IT
  - IT Security
  - Coding/Programming
  - Mobile App Development
  - Cybersecurity
  - Robotics
  - Business “Big Data” Analytics
  - Quality Assurance/Quality Control
- Many applicants that do have technical skills lack soft skills – skills such as project management, teamwork and team management, and critical thinking skills such as process improvement and problem solving.
- For certain occupations, professional certifications are increasingly just as important, if not more important, than four-year degrees.
- There needs to be a concerted effort in creating more and better partnerships between education, industry associations and employers in order to properly inform and develop a new workforce pipeline for the future.
- The housing supply shortage and rising costs of living are a major issue for Orange County employers. Orange County’s high cost of living limits employer recruiting and retention abilities, especially hurting entry-level hiring because most applicants simply cannot afford to live in the area. Many are forced to live in surrounding areas and make long commutes into the county, or move completely to more affordable areas.

## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

According to Wanted Analytics, a data analytics firm that tracks real-time employment information, Orange County currently has 42,490 current job openings. The largest source of openings is in customer service representative positions where there are currently 3,773 openings. Followed by administrative assistants with 3,679 openings and project managers with 2,852 current openings. According to Wanted Analytics, the most in-demand hard skills for job openings in the county were quality assurance (QA), bilingual fluency, usually in Spanish, and structured query language (SQL). The majority of the most in-demand hard skills seem to be primarily related to information technology occupations, yet the occupations that are the most highly demanded do not directly fit this profile.

While many of the occupations with the most number of job openings are entry-level positions which do not require significant training or educational backgrounds, the need for skills such as SQL and bilingual capability is still high. The composition of the labor market for entry-level work is moving towards a new reality where a handful of hard-skills are required, and most young people who are leaving college with a degree that emphasizes soft skills are unprepared for this reality. This disconnect has created significant limitations upon supply for these skills, which directly impacts the potential opportunity for businesses to capitalize on these new technologies and expand economic activity.

**Top 10 Orange County Occupations with Most Job Openings**

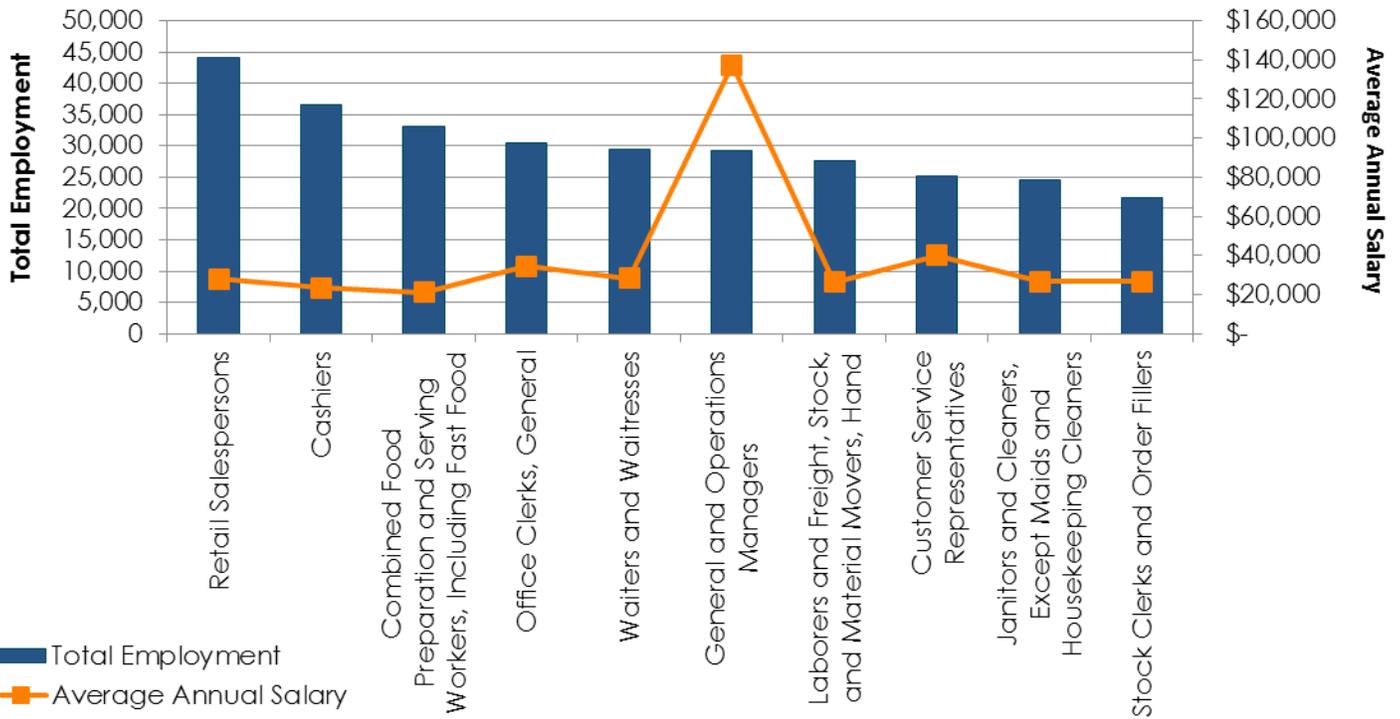


Source: Wanted Analytics; OCBC analysis

Although sustained employment growth is a welcomed sign of increasing economic activity in the region, it is also important to understand the occupational breakdown of this growth, so as to better understand the quality of jobs being created. While most peer regions also have an abundance of low-skill, low-wage employment, these positions create a unique problem for Orange County. Many of these positions, especially entry-level positions, will have trouble being filled, as applicants may not be able to afford the high cost-of-living in the region. There seem to be three possible ways to remedy this

disconnect: employers may have to increase their compensation packages; workers will have to find ways to increase earnings by improving valuable skills or perhaps additional income from new “sharing economy” gigs; or cost of living relief brought about primarily by increased housing supply in key areas leading to greater affordability. Absent a serious effort to address this problem, many individuals may calculate that living outside of the county is more optimal for their lifestyle than facing a long commute or spending a larger portion of their income on housing related expenses.

### Top 10 Largest Orange County Occupations and Respective Salaries, 2015



Source: Bureau of Labor Statistics, Occupational Employment Survey

#### MOST IN-DEMAND SKILLS IN OC

**1,572** job openings  
**QUALITY ASSURANCE (QA)**

**1,254** job openings  
**BILINGUAL**

**943** job openings  
**STRUCTURED QUERY LANGUAGE (SQL)**

**908** job openings  
**QUALITY CONTROL**

**842** job openings  
**CUSTOMER RELATIONSHIP MANAGEMENT**

**748** job openings  
**JAVA**

**627** job openings  
**TECHNICAL SUPPORT**

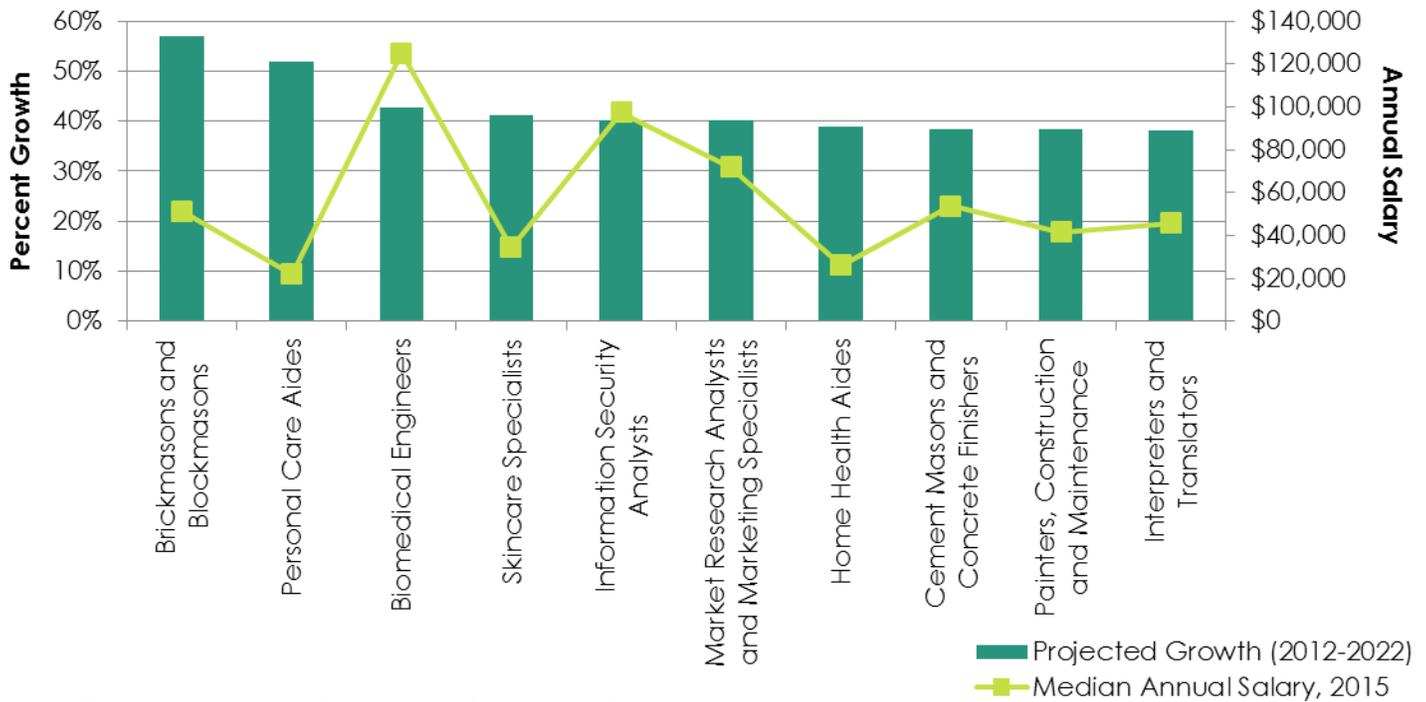
**578** job openings  
**BUSINESS SYSTEMS**

**565** job openings  
**USER EXPERIENCE DESIGN (UX)**

**564** job openings  
**JAVASCRIPT (JS)**

Occupational projections by the California Employment Development Department (EDD) continue to predict a somewhat concerning future. Overall, between 2012 and 2022, EDD predicts the largest percentage growth in specific positions will come from brick and blockmasons at 56.9 percent, personal care aides at 51.8 percent and biomedical engineers at 42.6 percent; highlighting the current primary growth industries of construction, healthcare and biotechnology. Of significant importance is the growth of biomedical engineering occupations, as these occupations provide average salaries of \$125,090, substantially higher than most occupational wages in Orange County. Other high growth occupations providing higher than average salaries include information security analysts. These are expected to grow by 40.2 percent with average annual salaries of \$97,520, likely driven by growing cybersecurity threats. Followed by market research analysts and marketing specialists, which are expected to grow by 40.2 percent with an average annual salaries of \$71,980.

### Average Salaries of Fastest-Growing Occupations in Orange County, 2012-2022



Source: California Employment Development Department, Bureau of Labor Statistics

However, this future is not set in stone, as EDD projections do not always accurately predict the future. For example, between 2012 and 2022 customer service occupations were expected to grow by 5,480; yet, as of Q2 2015 the number of customer service occupations decreased by 1,270. A similar trend formed for retail salespersons, which the EDD expected to expand by 8,050 between 2012 and 2022; and, as of Q2 2015, actually contracted by a small amount. These trends are likely the result of increased automation in these industries, especially customer service representatives, where businesses are using automated message services instead of actual people to handle customer questions and complaints. As automation technologies continue to improve and evolve, they will be increasingly implemented throughout a number of industries. Many entry-level, low-skill occupations are highly replaceable by automated solutions, further complicating the job market for the low-skill, low-wage labor market that often includes many of the entry-level positions.

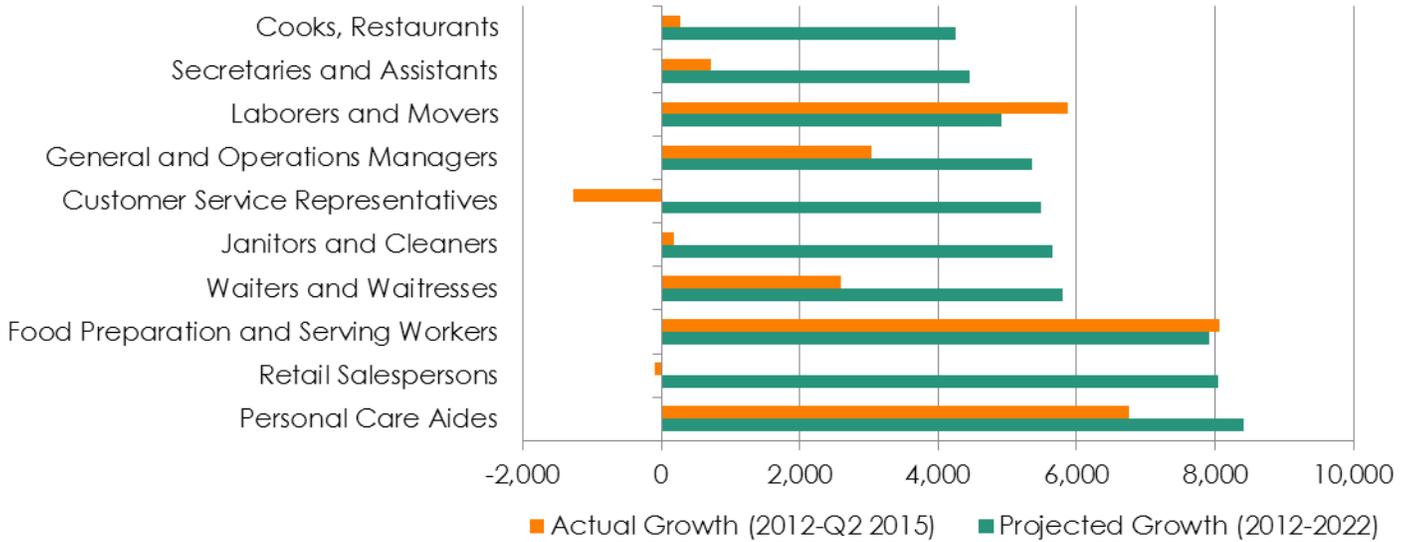
On the other hand, some occupational projections by the California EDD actually appear to underestimate job creation in areas such as laborers and movers and food preparation and serving workers. The laborer and movers occupation was expected to add 4,920 jobs between 2012 and 2022, but has already added 5,880 as of Q2 2015. Food preparation and serving workers were expected to add 7,920 workers, but

have already added 8,060 for the same time period. Job growth in these two areas is likely a result of the rapid growth experienced in the construction industry and a resurgence in the tourism industry which has required more service occupations.

In terms of absolute job growth, EDD projects that service-based occupations such as Retail Salespersons, Waiters/Waitresses and Food Preparation and Serving Workers will be the biggest job generators between 2012 and 2022. Despite these occupations providing a significant number of job openings, wage levels lag other occupational categories. Excluding General and Operations Managers, the majority of these occupations pay near the \$20,000 level, well below the average Orange County salary. Despite increased salaries within these occupations that will come about due to rising minimum wage levels, it bears mentioning these occupations are often entry-level jobs typically filled by younger individuals who have just entered the workforce or who are currently enrolled in educational or training programs. While the majority of the occupations with the most projected job openings provide salaries below \$40,000, General and Operations Managers occupations, which are expected to provide 10,420 job openings, provide annual wages of approximately \$114,000. Unlike the majority of the other occupations, though, General and Operations Managers occupations require significant work experience, skills, and expertise, as well as higher educational requirements.

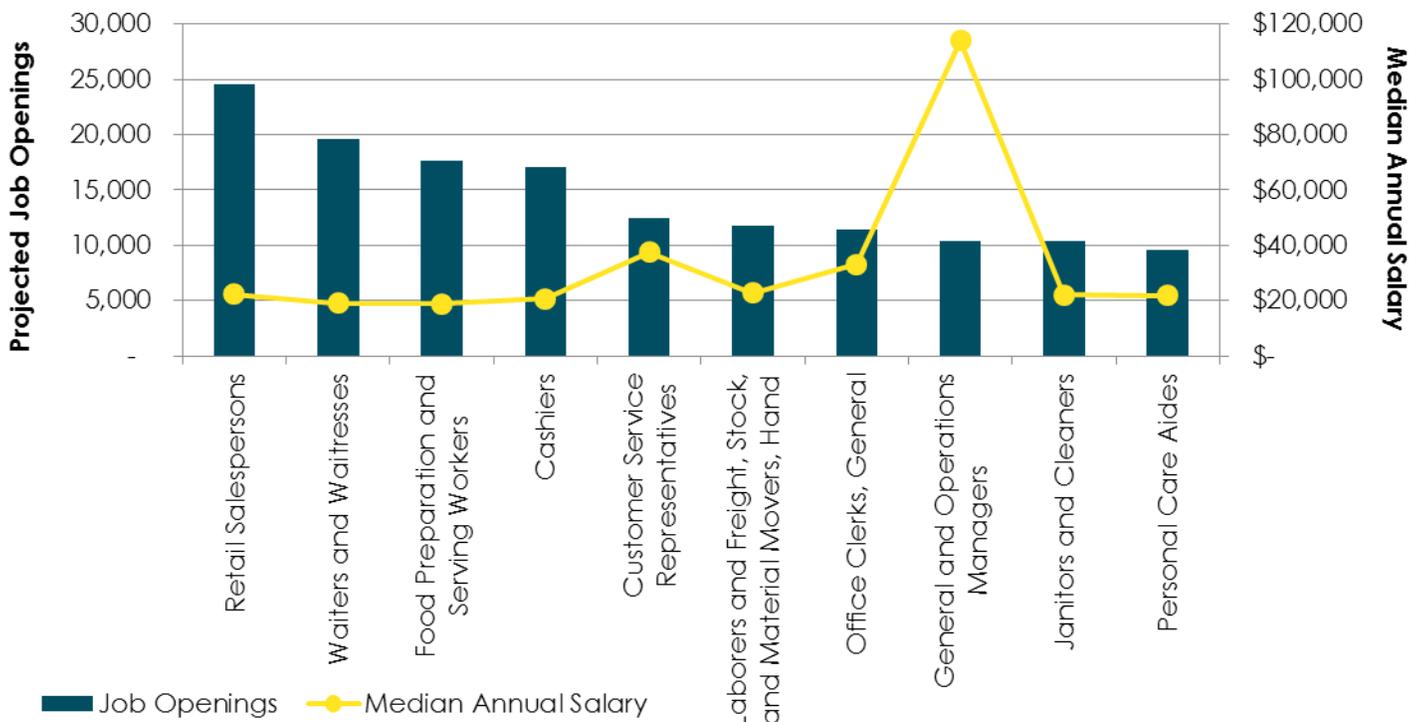


### Average Salaries of Fastest-Growing Occupations in Orange County, 2012-2022



Source: California Employment Development Department, Bureau of Labor Statistics OES Data

### Average Salaries of Fastest-Growing Occupations in Orange County, 2012-2022



Source: California Employment Development Department

The background of the left side of the page is a grayscale image of the American flag, showing the stars and stripes in a slightly blurred, draped manner. The title text is overlaid on this background.

# VETERAN EMPLOYMENT IN ORANGE COUNTY

As a result of their service, military veterans develop a robust suite of technical, leadership, and valuable career skills that are an ideal fit – and transferable – to a wide variety of industries and occupations at nearly all wage and skill levels. Veterans' leadership qualities are especially effective in managing teams, making them ideal candidates for managerial and operations occupations. Also, many veterans are taught to use advanced technologies that allow them to easily transition into IT, computer, and engineering occupations. Developing and further nurturing existing veteran support programs not only provides a pathway to fill widening employment skill gaps in key industries, but also positions Orange County as a receptive home that welcomes transitioning veterans with guidance towards stable career pathways and more successful transitions into civilian life.



**4th**

largest veteran population in U.S. resides in LA/OC

OC's veteran population **3rd** largest in CA

**133,000**  
veterans live in OC

including

**10,519**  
post-9/11 vets



Top industry for veteran employment





## WHY IS THIS RELEVANT IN OC?

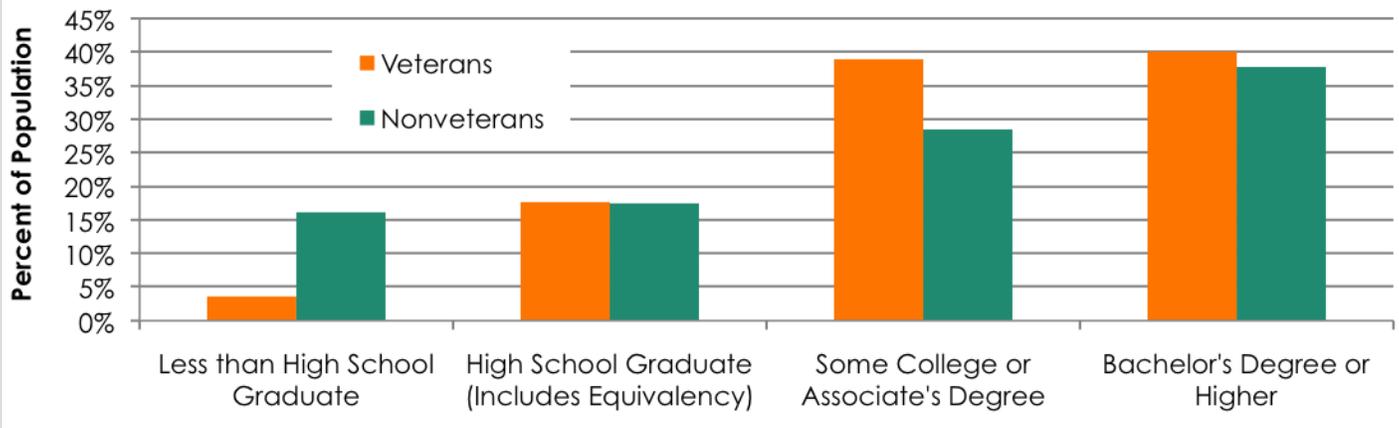
The Los Angeles-Long Beach-Anaheim Metropolitan Statistical Area (MSA), which includes Orange County, is the 4th largest destination for veterans; according to the 2016 Annual Veteran Insights Report, “An Inside Look at U.S. Veterans in the Workplace,” a study conducted by LinkedIn. A strong veteran presence in the workforce has significant upside for the county, making the ability of Orange County’s roughly 133,000 veterans to transition successfully into meaningful careers a top priority for elected officials, policy makers, and the business community. Addressing the needs of transitioning veterans is an opportunity to create a win-win scenario that benefits both returning veterans and Orange County employers.

Due to the nature of military experience, veterans often have much more refined skillsets – such as teamwork skills which allow them to perform extremely well in team-based environments under stressful situations. Combined with a high level of proficiency in technical skills, veterans are an ideal fit in many industry clusters experiencing a skills gap, such as IT, Healthcare, and Advanced Manufacturing. The information technology industry in particular is the largest employer of returning veteran talent, which is an area in Orange County with tremendous job opportunity. Veterans also are more likely to succeed in private sector leadership positions. The “South Orange County Veterans Report” released by the County of Orange in 2015 found that Orange County veterans are more likely to be employed in managerial and professional occupations. Therefore, veterans who succeed in transitioning into the civilian workforce have demonstrated very high ceilings of career achievement.

Additionally, Orange County veterans are more educated than the average resident, as evidenced by the fact that 38.9 percent of veterans have had some college or an Associate’s degree compared to the county average of 28.5 percent; and 40 percent of veterans have a bachelor’s degree or higher, compared to 37.8 percent of the county.

Despite these advantages, many veterans often face obstacles in finding gainful employment opportunities upon returning home. There are a number of both local and national veteran support organizations available to assist with this transition, such as One-Stop Career Centers. Increasing the visibility of these organizations and improving functionality to better attract and serve veterans coming home from service will not only benefit struggling veterans but will also provide businesses, especially here in Orange County, with a capable and motivated pool of workers.

**Orange County Veteran and Nonveteran Educational Attainment, 2014**



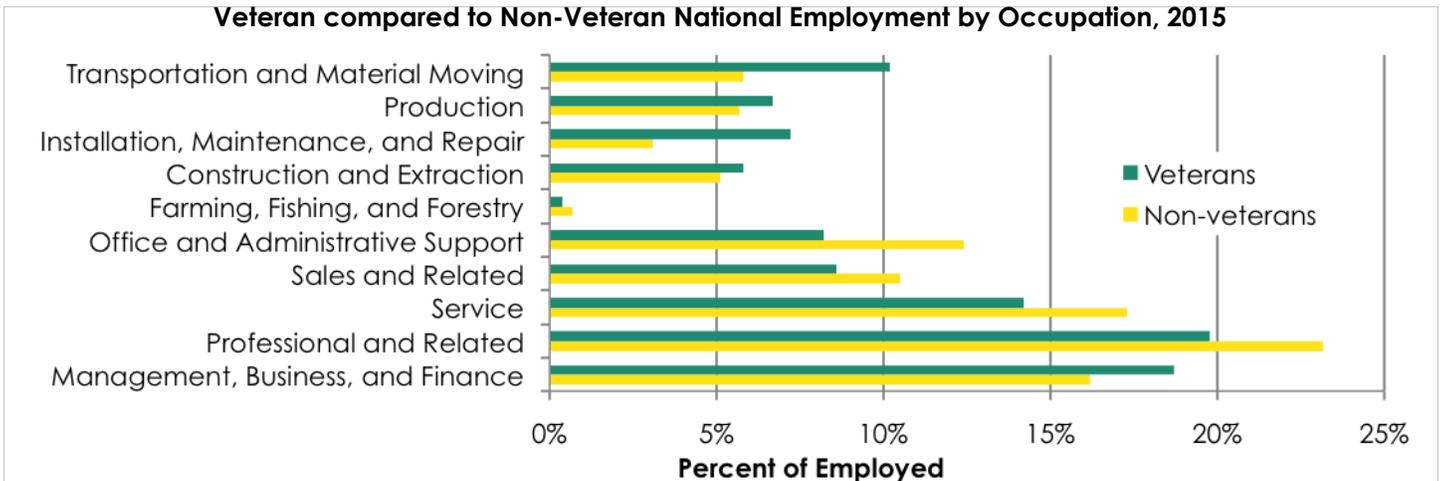
Source: U.S. Census Bureau

## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Veterans encounter a series of needs during transition from military service into civilian life, which can have an impact on successfully finding rewarding employment. In particular, post 9/11 veterans report having more adjustment challenges compared to pre-9/11 veterans, 60 percent to 30 percent, respectively; according to, "The State of the American Veteran: The Orange County Veterans Study," conducted in 2015 by the University of Southern California (USC) School of Social Work. While many variables and factors outlined in the study help explain the low participation rate, regrettably, the bottom line is that a large number of qualified, employable veterans continue to struggle to find gainful employment positions in the nation, state, and even locally in Orange County.

Nationwide, the employment situation for veterans has improved slightly over the past year with the employment-participation ratio increasing from 47.9 percent in 2014 to 48.4 percent in 2015. Despite this slight improvement, this ratio is still far behind the non-veteran ratio of 62 percent, exemplifying the hardships still experienced by many veterans in finding gainful employment positions. California experienced similar improvements in veterans' employment-participation rate, which increased from 44.4 percent in 2014 to 46.2 percent in 2015; yet this figure still lags behind the nationwide ratio by 2.2 percent, indicating California may have a less hospitable employment environment for veterans.

**Veteran compared to Non-Veteran National Employment by Occupation, 2015**



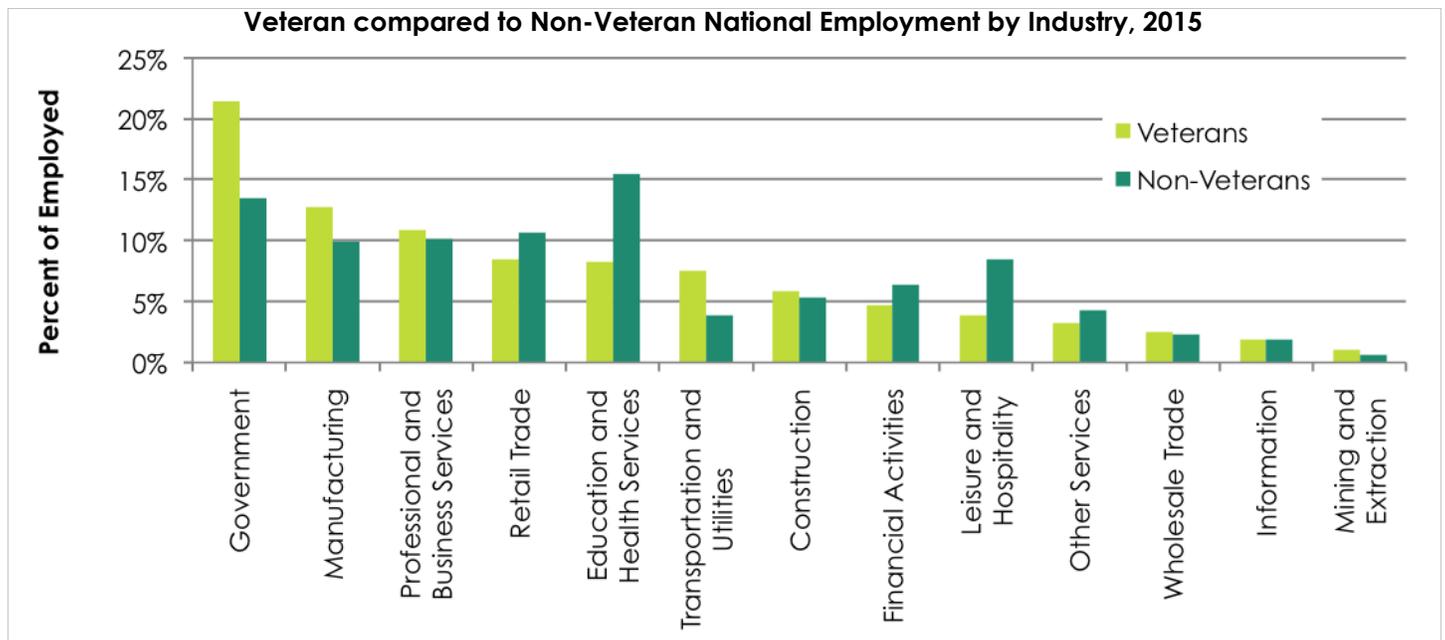
Source: Bureau of Labor Statistics, Employment Situation of Veterans, 2015

Veterans tend to be more concentrated in the IT, defense, and government administration sectors, while there is an opportunity to grow veterans' presence in healthcare and education. When considering absolute volume of employment, LinkedIn reports that IT is the top industry employing veterans, followed by the defense industry. With regards to these rankings another clear picture emerges: veterans tend to work in industries that require a complex set of advanced soft and technical skills.

Nationally, veterans are often found in Professional and related occupations, at 19.8 percent; Management, Business, and Finance, at 18.7 percent; and Service occupations, at 14.2 percent. Compared to non-veterans, a higher percent of veterans work in occupations such as Transportation and Material Moving; Production; Installation, Maintenance, and Repair; and Construction and Extraction — likely a result of the tougher physical requirements required in these fields. Yet, veterans also have a somewhat higher tendency than non-veterans to work in the management, business, and finance occupations;

highlighting the management, planning and business development skills that are featured in the top 10 most common soft skills possessed by veterans, according to studies done on LinkedIn. Interestingly, approximately 67 percent of veterans in the same study indicated that they are not working in a job bearing similarities to their military roles, and as a result, approximately 61 percent of veterans have received some form of on-the-job training.

Drilling down to the Orange County level, the "South Orange County Veterans Report," found that Orange County veterans also hold higher rates of employment compared to veterans at the national level and non-veterans in occupations related to business operations, computers, mathematics, architecture and engineering. Additionally, veterans in Orange County are more likely to hold jobs in protective services, construction, installation and repair, and transportation than veterans nationally or non-veterans locally, reflective of the training and education that veterans receive during military service.



Source: Bureau of Labor Statistics, Employment Situation of Veterans 2015





## LOCAL PROGRAMS AND COLLABORATION EFFORTS

### OC ONE-STOP CENTERS

Orange County organizations offer a variety of support services to its military veterans, with many useful services found at Orange County's One-Stop Centers. The services provided at these organizations include career coaching, 1-on-1 counseling, training and certification programs, direct job placement services and on-site employer recruitments. On top of career coaching, One-Stop Centers also provide critical free services, including access to computers, fax machines and telephones, resume development and distribution services, several professional workshops and job leads. One-Stop Centers are currently located in Garden Grove, Irvine, Buena Park, and at the Joint Forces Training Base located in Los Alamitos.

The Orange County Development Board has been a primary partner in the development and ongoing operations of a Veterans Service Center on the Joint Forces Training Base (JFTB) in Los Alamitos. Since 2008, the JFTB Veterans Service Center has promoted and enhanced the delivery of programs and services to Veterans and their families. By housing multiple agencies under one roof, Veterans have convenient

access to a broad range of services. Army reservists and National Guard units and their dependents may also utilize the Veterans Service Center.

The OCDB also facilitates the Veterans' Employment-Related Assistance Program (VEAP), which serves veterans who have left military duty within the last 48 months and other related populations that require higher levels of support, including those with significant barriers, eligible spouses and campaign veterans. VEAP provides military veterans with education, training and industry-recognized certifications required for high-wage, high-growth industries. Additionally, the OCDB works with the Orange County Health Care Agency and the OC Community Resources Veterans Service Office in running the OC4VETS program, a program which assists veterans and their families with community and behavioral health services. Through this collaborative effort, military veterans are provided with brief screenings, case management, housing, job skills enhancement, and access to programs treating medical, mental health and substance use disorders.

### ORANGE COUNTY VETERANS SERVICE OFFICE

Located centrally in Santa Ana, the Orange County Veteran Service Office (OCVSO) provides veterans and their families' assistance and guidance in filing and claiming eligible benefits and services, helping to reduce potential stress involved in these situations. This includes assistance with financial services and access to the College Tuition Fee Waiver Veterans' Dependents program, which waives mandatory system-wide tuition and fees at any California community college, University of California campus or California State University system. In addition to VSO, there are many other programs offering important resources to Orange County veterans.

The OCVSO works in partnership with the United States Department of Veterans Affairs (DVA), the California Department of Veterans Affairs (CDVA) and nationally chartered veterans organizations to ensure that wartime and peacetime veterans, including their dependents and survivors, receive the benefits and entitlements they earned while honorably serving the United States Armed Forces. The OCVSO is the only locally available center to screen eligible veterans for Federal and State benefits earned through honorable wartime or peacetime service.

The OCVSO helps clients navigate the complexities of the DVA and apply for benefits under the direction of a fully accredited Veterans Claims Officer (VCO). VCOs are available to interview veterans, dependents or survivors to determine if entitlement is warranted, which is based on military service. If appropriate, a VCO will assist in preparing all the required VA forms and answer any questions relative to the claim process and submit the required VA forms and paperwork to the appropriate agency for consideration.

Orange County and its Board of Supervisors remain committed to veterans in the region. Through a partnership with the OC Veterans Advisory Council, a concentrated focus is placed on important veteran issues with comprehensive and effective plans set in motion to address these needs. The OC Veterans Advisory Council serves as an instrument and catalyst for moving the veteran agenda related to housing, employment, health, education and legal opportunities for our county's veterans.

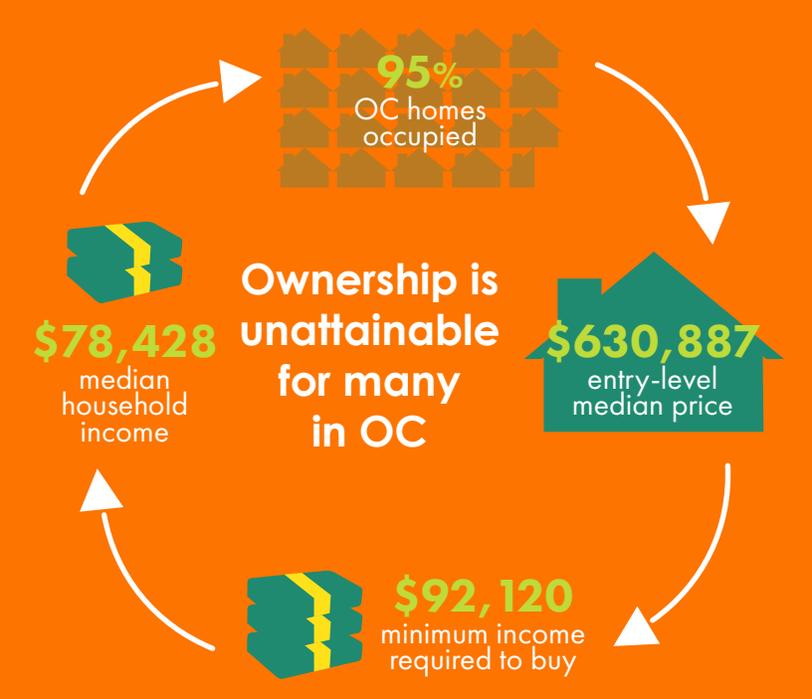
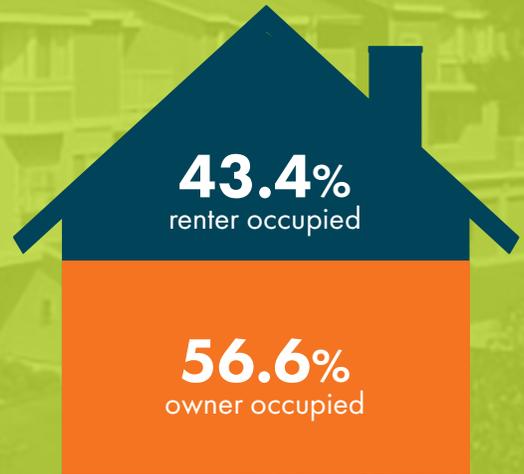
# WORKFORCE HOUSING

While Orange County continues to display strong employment growth trends, slower growth in wages and salaries, coupled with rapidly rising home and rent prices pose a real challenge which may limit future economic competitiveness. Ensuring residents have access to a wide range of workforce housing options is essential to attracting and retaining a talented, skilled workforce in Orange County.





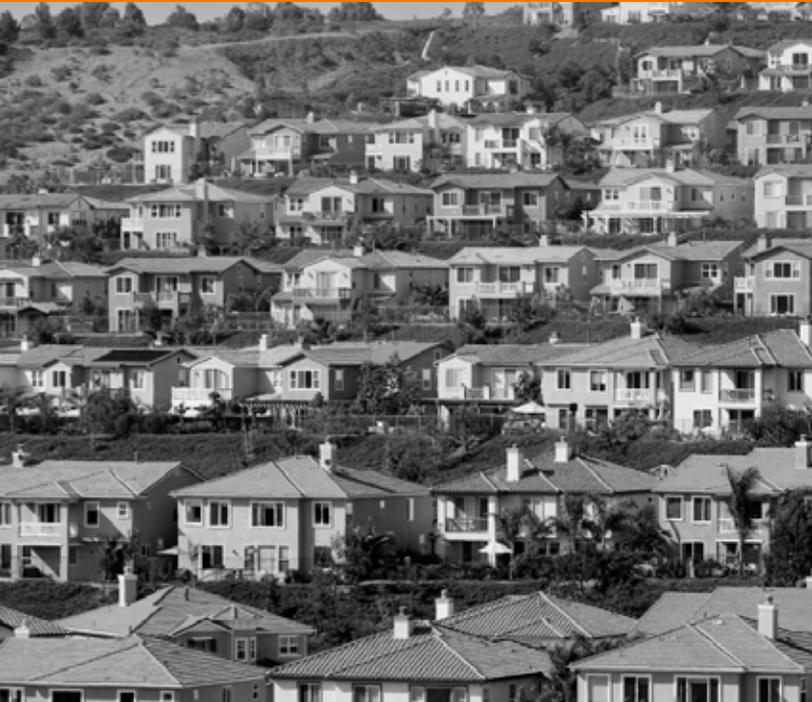
Renters are on the rise,  
while ownership is decreasing



OC is one of most expensive places to live in U.S. due to housing costs

**\$1,900** average rent

Need to earn **\$25.46** hourly  
or **\$52,960** annually  
to afford 1 bedroom





# WHY IS THIS RELEVANT IN OC?

The higher cost of housing in Orange County, when compared to the neighboring regions and the national average, seems to indicate a growing gap between demand and supply for housing. As a result, the county is a net importer of workers who commute into the county from the neighboring regions. Provision of sufficient housing supply, therefore, is essential to ensure the future economic development and wellbeing of Orange County and Southern California.

Lack of affordable housing has been a longstanding issue for Orange County. Increased availability of sufficient workforce housing is essential for attracting skilled young adults, a resource that is critical for ensuring future economic growth in the county. Analysis of workforce housing trends supports policy makers in formulating effective strategies to cater to the specific housing needs of the county's workforce in the region and individual cities.

## HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

Despite being rocked by the Great Recession, Orange County recovered and continues to boast a high quality of life which is exemplified by the strong resurgence of the region's housing market. Recently, home prices and rental rates have rapidly increased as demand for more housing options created by job growth continues to outpace supply. This imbalance is especially noticeable in the rapid increase in rates for rental housing. While price increases are helping current homeowners build equity, they also serve to limit the formation of new households, as young professionals often opt to save and rent rather than start families and purchase homes.

**Orange County employers regularly voice concerns over housing costs which drive the high cost-of-living in the region, significantly exacerbating the skills gap as it continues to broaden in many of their industries.**

Additionally, rapidly increasing prices for both rental and homeownership have impacted the employment landscape as many workers are being forced into neighboring counties to find more affordable housing options, increasing their commute and complicating their work/life balance. As employees continue to pursue a more balanced work-life schedule, they may begin choosing employment opportunities outside of Orange County – or outside the state. This growing dynamic could potentially damage the supply of skilled labor for the region.

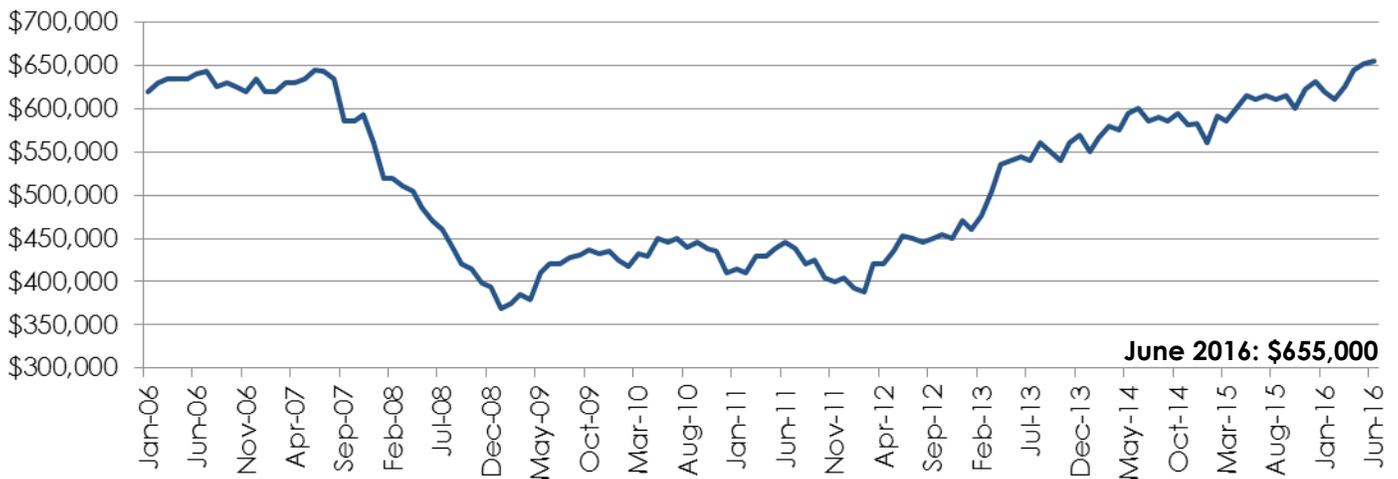
Orange County employers regularly voice concerns over housing costs which drive the high cost-of-living in the region, significantly exacerbating the skills gap as it continues to widen in many industries. In recent focus groups, human resource and hiring professionals coming from healthcare, information technology, and advanced manufacturing all cited the high cost-of-living in the area as a major reason that explains why they are unable to find qualified employees to fill entry- and middle-level positions at their firms.

## HOME OWNERSHIP AND HOUSING AFFORDABILITY

Housing prices in Orange County have recently returned to levels not seen since 2006. According to CoreLogic, as of June 2016, the median home price in Orange County stood at \$655,000, making Orange County the only Southern California county where home prices have so far fully recovered from the recession. This price recovery has been a result of low mortgage rates, increasing demand, and a worsening shortage of housing units. Due to continued increases in housing prices, affordability in the region continues to suffer as evidenced by the Housing Affordability Index (HAI).

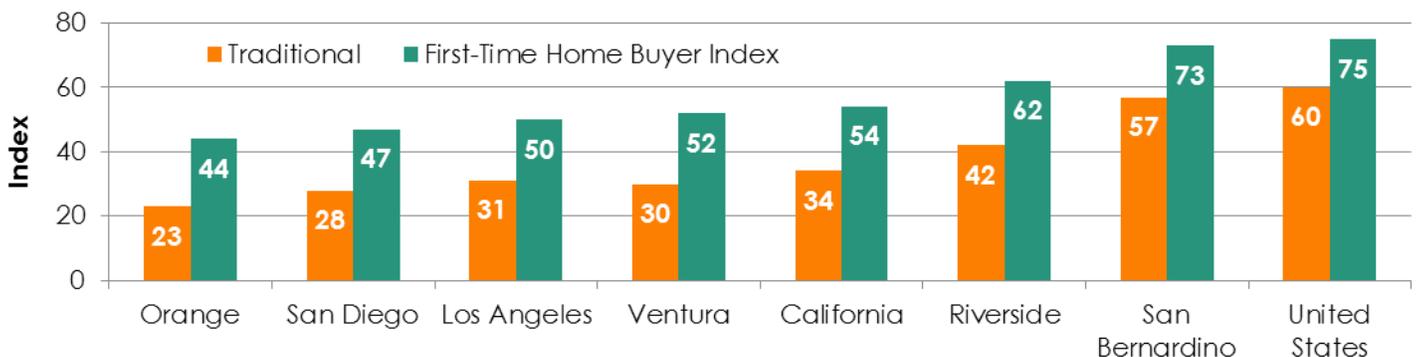
Created by the National Association of Realtors, the HAI tracks the eligibility of a typical family to qualify for a mortgage loan on a typical home based on recent price and income data. Currently, Orange County has the lowest HAI score for both traditional home buyers and first-time home buyers in Southern California with scores of 23 and 44, respectively. This compares to the traditional home buyer index and first-time home buyer index of 34 and 54 for the state of California, and 60 and 75 for the U.S., respectively.

Orange County Median Home Price, 2006-2016



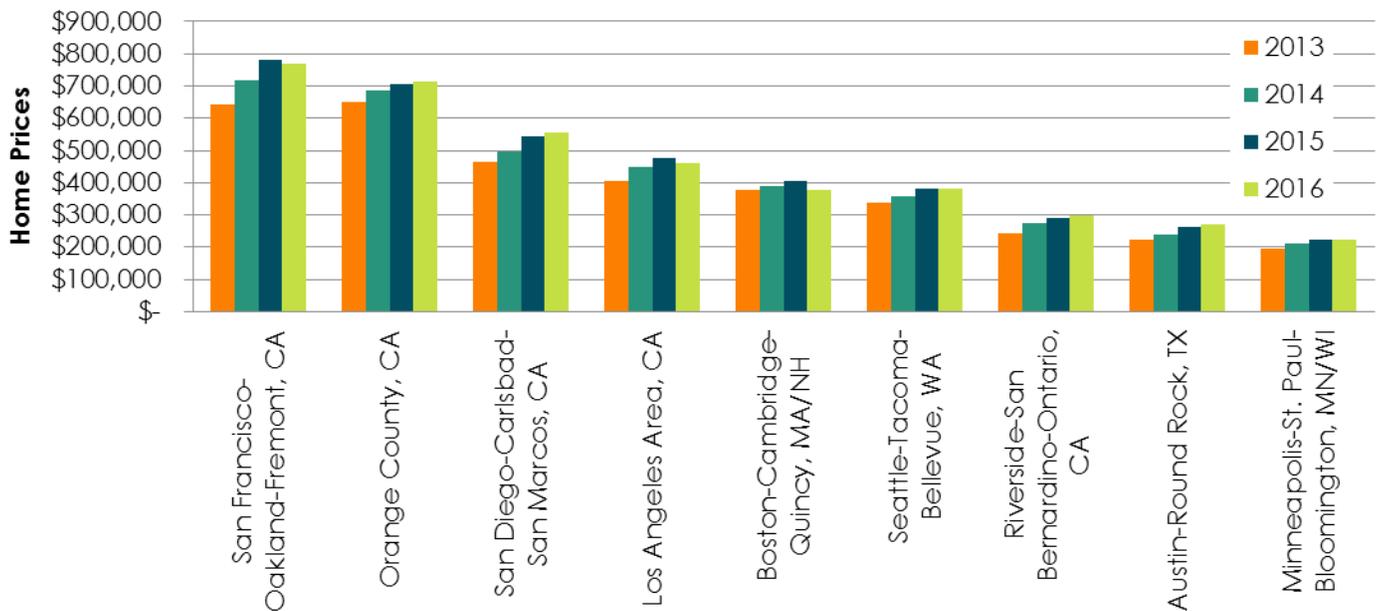
Source: CoreLogic, Real Estate Data Reports

Housing Affordability Index Comparison Southern California, California and United States, 2016



Source: California Association of Realtors, Affordability Index

### Median Single-Family Home Prices Compared to Orange County vs. National Peers



Source: National Association of Realtors

After experiencing a decrease of 1,131 building permits from 2013 to 2014, total residential building permits in Orange County increased to 10,771 in 2015. As job creation and population continues to increase in the county, many cities have submitted plans for increased multi-family properties such as condominiums and apartments. One such city currently doing an exemplary job in planning for future population and job growth is Irvine.

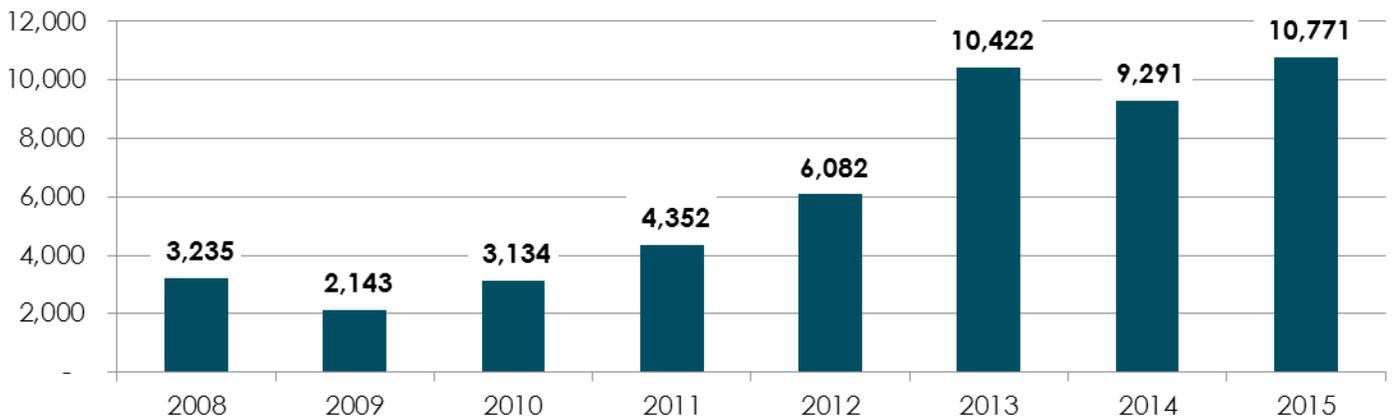
Often viewed as the hub for business and key job center in the county, Irvine has seen its population increase by over 20 percent since 2010, reaching nearly 260,000 residents by 2016. As a result, many housing developments have been planned for, entitled, and developed. As the region's population continues to expand, especially in major employment centers such as Irvine, it is imperative residents are provided with housing options at all income levels in order to ensure

that workforce housing needs are properly served. If not, many employers may experience increasing shortages of skilled workers, impacting their ability to operate efficiently and competitively.

While job creation and population growth generate increased economic activity and benefits, it is important to balance this growth with provision of sufficient workforce housing or the county risks creating negative unintended consequences which can slow or even reverse previously enjoyed economic growth.

According to the 2015 Orange County Workforce Housing Scorecard, forecasted new job creation will significantly outpace projected new housing units over the next two and half decades, resulting in a housing shortfall that will grow from a current reading of 50,000-62,000 units to a staggering 100,000 units by 2040.

### Orange County Building Permits, 2008-2015



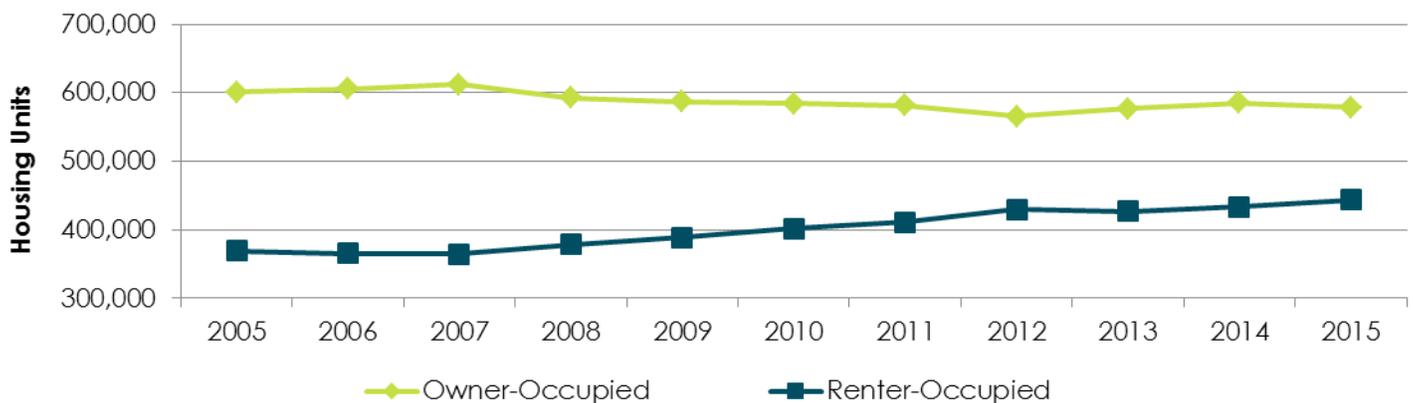
Source: U.S. Census Bureau, Censtats Database

While increasing population, employment, and housing are all net positives for a region, unless they are properly balanced, the resulting imbalances can have severe negative consequences. For example, if problems of insufficient workforce housing supply continue to persist, many young professionals may choose to move or locate elsewhere outside of the county where housing costs are more manageable. Coupled with the fact that the working age population in the county is projected to shrink drastically in the coming years, adding to this shortfall of young and working age professionals will harm the county's primary competitive advantage, a diverse pool of talented workers, harming business attraction to the area and further depressing potential economic growth.

**The appeal of home ownership appears to have waned considerably, as young professionals would rather not be tied down by a mortgage in a certain geographic location or consider moving to metro areas with more affordable housing options.**

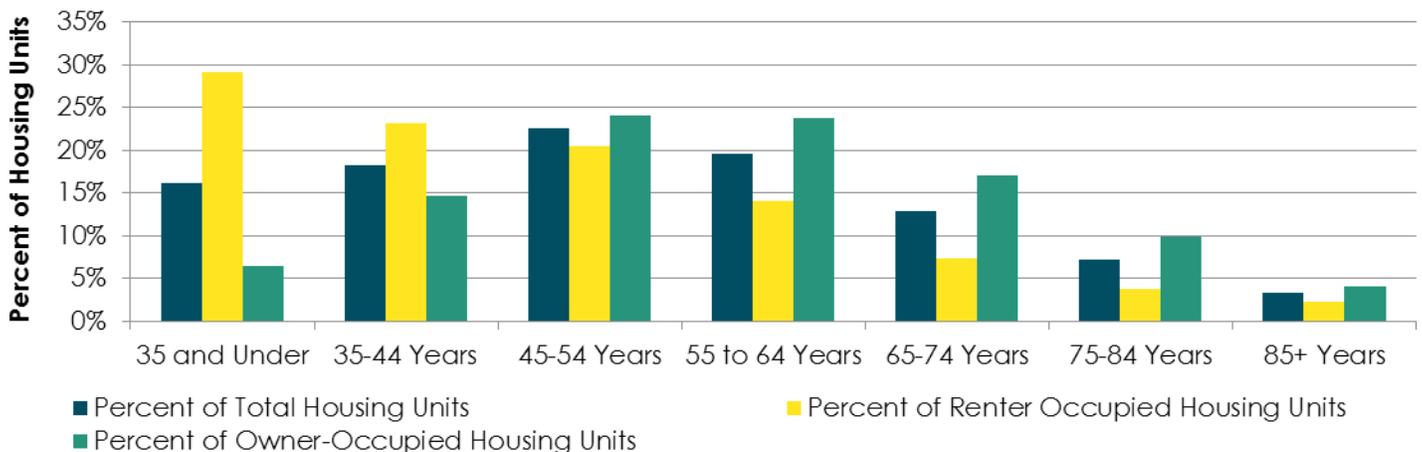
Reacting to pressures caused by the housing downturn and subsequent gradual recovery, Orange County homeownership is down while rental housing is up. According to the U.S. Census Bureau, the portion of home owners in Orange County has been steadily decreasing since 2007 while the number of renters has been steadily increasing. As of 2015, 56.6 percent of Orange County residents owned their homes while 43.4 percent rented.

**Renter- and Owner-Occupied Housing Units in Orange County, 2005-2015**



Source: U.S. Census Bureau, American Community Survey

**Orange County Housing Tenure by Major Age Groups, 2015**



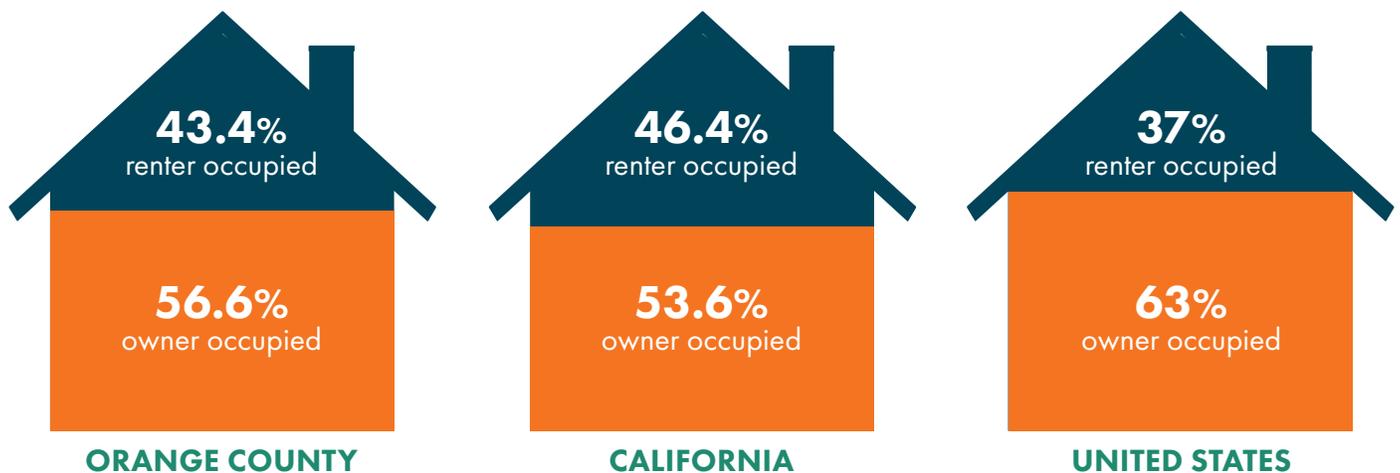
Source: U.S. Census Bureau, American Community Survey

Early on, this living transition was seen as a result of Millennials witnessing the financial burdens placed on their parents due to the housing crisis and choosing to avoid the same burdens. A preference for renting also corresponded to the generational characteristics and preferences of Millennials, including seeking residential options not typically found in the suburbs dominated by families and young children. These preferences require close proximity to commercial and entertainment zones in more urbanized areas, making renting a natural fit. Overall in 2015, despite representing only 16.2 percent of all occupied housing units, Millennials represented 29.1 percent of all renter-occupied housing units in Orange County while only representing 6.4 percent of all owner-occupied housing units. This compares to those aged 35 to 44 in the county which accounted for 18.3 percent of all occupied housing units while representing 23.1 percent of all renter-occupied housing units and 14.7 percent of all owner-occupied housing units and those aged 45 to 54 years which represented the majority of occupied housing units in the county (22.5 percent) and accounted for 20.4 percent of all renter-occupied housing units and 24.1 percent of

all owner-occupied housing units in the county. This shows that despite representing considerably smaller portion of all housing units in Orange County, a higher proportion of Millennials are renters rather than homeowners indicating a current preference for rentals.

While some Millennials may purchase homes when they start families, there are a number of more disquieting reasons which explain why Millennials prefer to rent in Orange County: declining homeownership for this upcoming generation may simply be a result of affordability concerns. With the price of an education far outpacing income growth, young professionals now find themselves weighed down by student debt loans that negate their ability to save for big-ticket purchases such as their first home and also making increasing rent payments that much more difficult. As a result of this trend, the appeal of home ownership appears to have waned considerably, as young professionals would rather not be tied down by a mortgage in a certain geographic location or consider moving to metro areas with more affordable housing options.

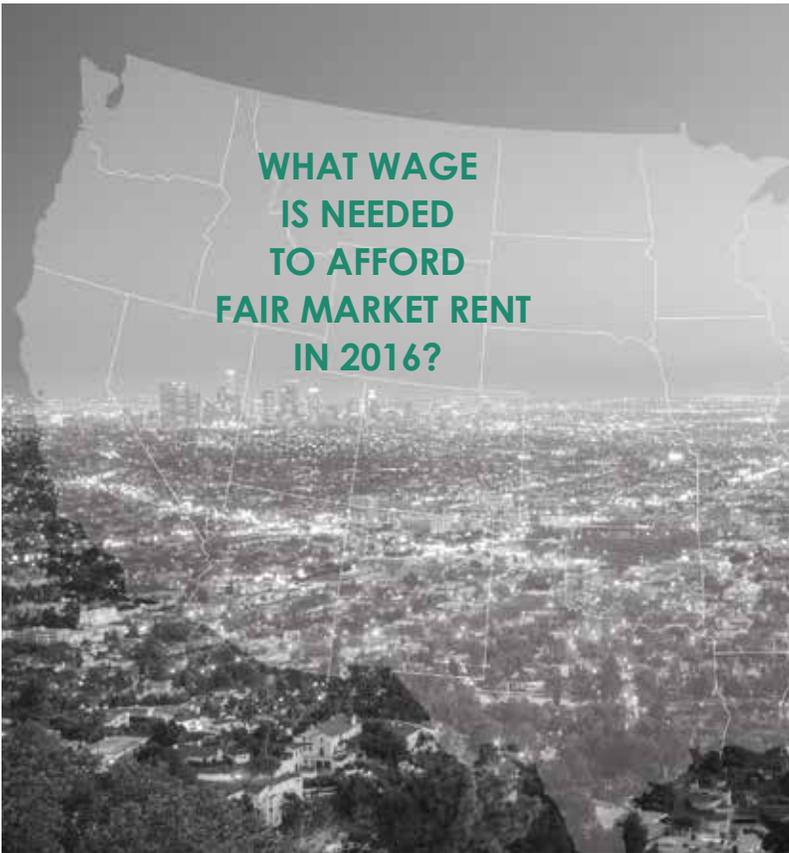
### Rental compared to Ownership Occupation rates



### RENTING IN ORANGE COUNTY

Orange County continues to be one of the most expensive areas in the nation for renters. The percentage of renters in Orange County is 43 percent, higher than the national average, and only 3 percentage points below the state average. The percent of renters in Orange County has been steadily increasing since 2006, a trend resulting from the housing crisis which served to push many out of existing homes and into rentals. Despite the ongoing economic recovery, slow wage growth, rapidly increasing housing prices, and generational preferences have strengthened this trend, increasing the number of renters in the region. Overall, average monthly rents in Orange County have increased from around \$1,500 in 2011 to over \$1,900 in 2016.

While many young professionals often prefer to rent as it provides them with flexible living options and allows them to live in more active city centers, many rent simply because of financial burdens. While increasing rent costs point to accelerated economic activity in the region, city planners and community leaders must be cognizant of the impact rising rents could have on residents, businesses, and future economic growth. Many employers in the county already point to the higher cost-of-living contributing to their challenges in finding qualified employees to fill open positions; if the cost of housing continues to increase, the pool of well-educated, young professionals risks drying up as they are pushed into lower cost, neighboring regions or other states.



<b>SAN FRANCISCO COUNTY</b>	1 bed \$34.88	2 Bed \$44.02	3 Bed \$57.44
<b>SANTA CLARA COUNTY</b>	1 bed \$30.42	2 Bed \$38.35	3 Bed \$53.40
<b>ORANGE COUNTY</b>	1 bed \$25.46	2 Bed \$32.15	3 Bed \$44.75
<b>KING COUNTY (SEATTLE)</b>	1 bed \$23.56	2 Bed \$29.29	3 Bed \$42.69
<b>SAN DIEGO COUNTY</b>	1 bed \$22.17	2 Bed \$28.83	3 Bed \$41.67
<b>BOSTON-CAMBRIDGE-QUINCY</b>	1 bed \$24.25	2 Bed \$30.13	3 Bed \$37.40
<b>LOS ANGELES COUNTY</b>	1 bed \$22.19	2 Bed \$28.65	3 Bed \$38.63
<b>RIVERSIDE COUNTY</b>	1 bed \$18.17	2 Bed \$22.83	3 Bed \$32.15
<b>TRAVIS COUNTY (AUSTIN)</b>	1 bed \$17.35	2 Bed \$21.65	3 Bed \$29.29
<b>HENNEPIN COUNTY (MINNEAPOLIS)</b>	1 bed \$15.63	2 Bed \$19.75	3 Bed \$27.77
<b>DALLAS COUNTY</b>	1 bed \$15.31	2 Bed \$18.96	3 Bed \$25.71

According to the National Low Income Housing Coalition (NLIHC), Orange County still maintains a relatively high "Housing Wage", the minimum wage required to afford rental housing for specific family sizes, when compared to the rest of California and the country. Overall, the hourly wage needed to afford fair market rent in Orange County for a one-bedroom unit increased from \$24.67 in 2015 to \$25.46 in 2016, an increase of 3.2 percent, and 13.8 percent higher than the current required wage of \$22.36 to afford rent for the state of California. The housing wage of \$25.46 for Orange County translates into a required annual income of approximately \$52,960 for a one-bedroom unit, while the required annual income for two- and three-bedroom units increases sharply to \$66,880 and \$93,080, respectively.

When compared to other counties, the Housing Wage of Orange County is still relatively high; only San Francisco and Santa Clara counties, regions which have recently experienced significant increases in home price and rental rates spurred by the clustering of high technology companies in the region, have higher housing wages than Orange County.

Looking further into housing affordability, the NLIHC measures the work hours required per week at mean renter wages. At a mean renter wage of \$18.44, a renter in Orange County would be required to work 55 hours per week to afford a one-bedroom apartment, 70 hours per week for a two-bedroom apartment, and 97 hours per week for a three-bedroom apartment.

**Orange County Average Rental Rate, 2011-2016**



Source: RentBits



# ADVANCED MANUFACTURING HEALTHCARE INFORMATION TECHNOLOGY TOURISM

This section spotlights four critical Orange County industries: Advanced Manufacturing, Healthcare, Information Technology, and Hospitality and Tourism. These four powerhouses have proven to be great job generators at nearly all skills levels and offer multiple pathways for vertical career advancement. Orange County has the opportunity to accelerate future growth in these industries. There is strong potential to reduce unemployment in the region while simultaneously increasing the financial security for many more residents if the county develops and promotes a business-friendly environment hospitable to their business needs.



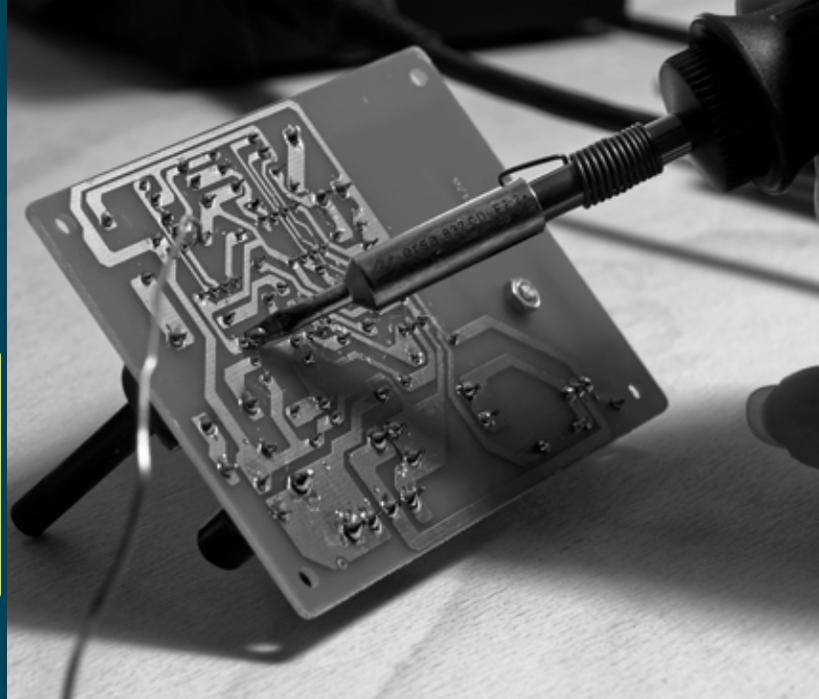
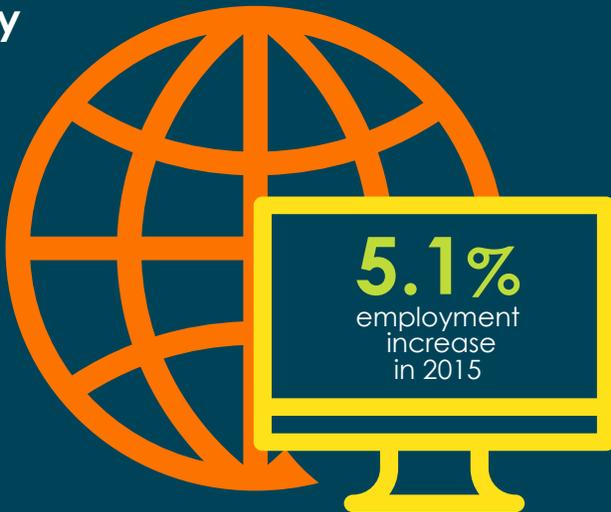
Registered nurses to be largest occupation in Healthcare by 2022



= **21,300**  
projected jobs

**\$88,910**  
average salary

OC's IT industry is growing faster than any other industry



**47.3 million**

people visited OC last year

almost half was to the Anaheim resort area

spending

**\$11.3 billion**

a 4.1% increase over 2014





# WHY IS THIS RELEVANT IN OC?

The four industries highlighted in this section will all play a pivotal role in shaping the Orange County economy and workforce landscape over the next several decades. Addressing the current and projected skills gap found in each, and creating a pipeline of skilled future workers coming up through the county's educational and workforce development system, are two of the best ways to ensure long-term success of these key industries in Orange County. Nearly 52 percent of U.S. employers reported some form of reduced economic output as a result of the skills gap. Each of the four industries highlighted in this section, if regional challenges such as the skills gap can be mitigated, can help not just to create jobs, but to create high quality jobs with strong earnings potential and opportunities for advancement.

## ADVANCED MANUFACTURING

At first glance, the story of manufacturing employment in Orange County is a complex one that does not immediately suggest the potential for growth. The manufacturing industry has an image problem, with many potential workers reporting a general disinterest in manufacturing due to misconceptions about the industry and workplace. Even many career advisement/counseling professionals disregard opportunities in manufacturing for the most part. As a result, many institutions of higher education have eliminated many programs geared towards training young people with the skills required in manufacturing jobs.

The vast majority of job opportunities in manufacturing come not from new jobs created, but by job openings arising due to retirement of an aging Orange

County manufacturing workforce. Due to a predominantly Baby Boomer workforce reaching retirement age, the manufacturing industry faces a cliff in terms of a looming shortage of workforce talent. Another special feature of manufacturing is that the industry creates a disproportionately high number of jobs that can be classified as "middle-skill occupations", or occupations that do not require a four-year degree, but do require some level of education and training above a high school degree. This often translates into community college degrees and/or certifications. Middle-skill occupations are increasingly important to Orange County, and there are many good-paying, middle-skill jobs in manufacturing that are accessible to workers without a four-year degree.

The intersection of technology and efficient manufacturing processes has led to the emergence of the Advanced Manufacturing industry; this industry encapsulates all manufacturing companies that utilize advanced processes and technologies in their operations. Examples of sectors which may fall under the Advanced Manufacturing designation include computer and electronic products, fabricated metal products, medical equipment and supplies, aerospace products and parts, and a variety of other sectors that require or benefit from these advanced processes. The work activities and corresponding employment opportunities require training well beyond the high school diploma which many workforce development organizations and educational institutions in the region offer through classes and certification programs.

It is imperative that these resources are adequately supported and able to evolve alongside the innovation in operational processes implemented by Advanced Manufacturing firms in the region.

The strength and importance to the regional economy of the Advanced Manufacturing industry should not be understated; according to numbers provided by the EDD, current employment for the industry reached 110,000 in 2015, or nearly 70 percent of total manufacturing employment. On top of the significant level of employment provided to the region, the Advanced Manufacturing industry also boasts some of the highest multiplier effects that will ripple throughout the rest of the economy through direct, indirect and induced economic impact effects.

## KEY ADVANCED MANUFACTURING INDUSTRY TRENDS

Despite the fact that overall Advanced Manufacturing employment experienced growth over the past few years, 2015 registered a slight drop in Advanced Manufacturing employment year-over-year. This drop in employment is attributable to a drop in one industry sub-sector – Medical Equipment and Supplies Manufacturing which saw its employment decrease by 1,646 jobs. Advanced Manufacturing sub-sectors which registered growth over the past year included Plastics and Rubber Manufacturing, Aerospace and Products and Parts Manufacturing, and Computer and Electronic Product Manufacturing.

While overall employment experienced a marginal decrease over the past year, Advanced Manufacturing salaries experienced an increase over the same time period. The average Advanced Manufacturing salary in 2015 was \$71,689. Salaries in two major sub-sectors decreased — Medical Equipment and Supplies, and Computer and Electronic Products. Every other sub-sector measured increased in average salary, with the highest absolute and percentage change coming from the Pharmaceutical and Medicine Manufacturing sector, followed by Printing and Related Support Activities and Electrical and Equipment and Appliances.

Orange County Advanced Manufacturing Employment and Salary Change Year-Over-Year, 2015

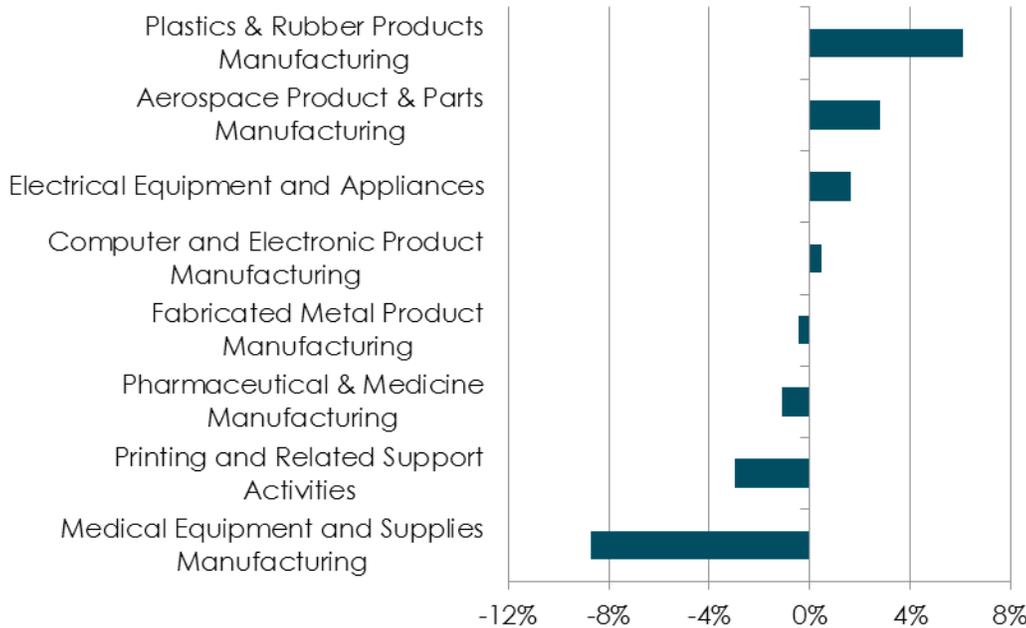
INDUSTRY	EMPLOYMENT		AVERAGE ANNUAL SALARY	
	2015	Year-Over-Year Change	2015	Year-Over-Year Change
Computer & Electronic Product Manufacturing	33,177	148	\$103,012	(\$1,768)
Fabricated Metal Product Manufacturing	23,395	(101)	\$59,748	\$468
Medical Equipment & Supplies Manufacturing	17,238	(1,646)	\$73,788	\$4,992
Aerospace Product & Parts Manufacturing	11,477	313	\$100,932	\$1,092
Plastics & Rubber Products Manufacturing	8,256	475	\$52,468	\$884
Printing & Related Support Activities	7,760	(240)	\$48,932	\$2,288
Electrical Equipment & Appliances	4,864	79	\$62,972	\$1,456
Pharmaceutical & Medicine Manufacturing	3,689	(42)	\$71,656	\$6,916

Source: California Employment Development Department, Bureau of Labor Statistics



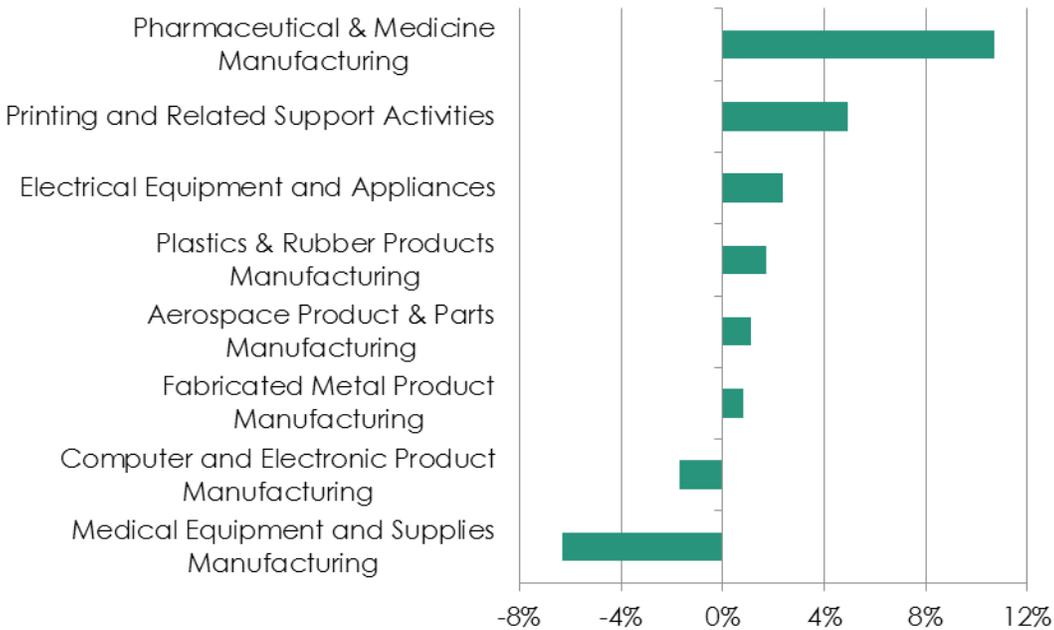
**The vast majority of job opportunities in manufacturing come not from new jobs created, but by job openings arising due to retirement of an aging Orange County manufacturing workforce.**

### Orange County Year-Over-Year Change in Advanced Manufacturing Employment

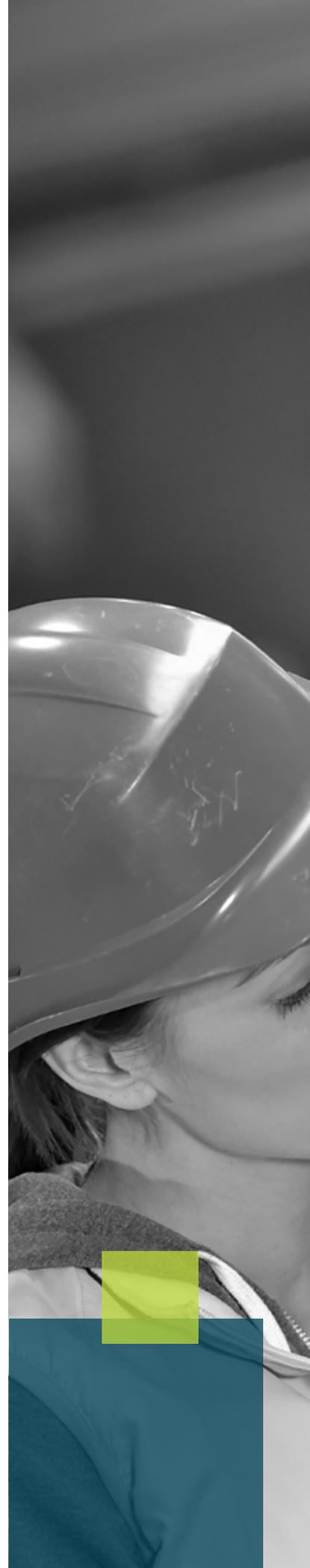


Source: California Employment Development Department, Bureau of Labor Statistics

### Orange County Year-Over-Year Change in Advanced Manufacturing Salaries



Source: California Employment Development Department, Bureau of Labor Statistics





## HEALTHCARE

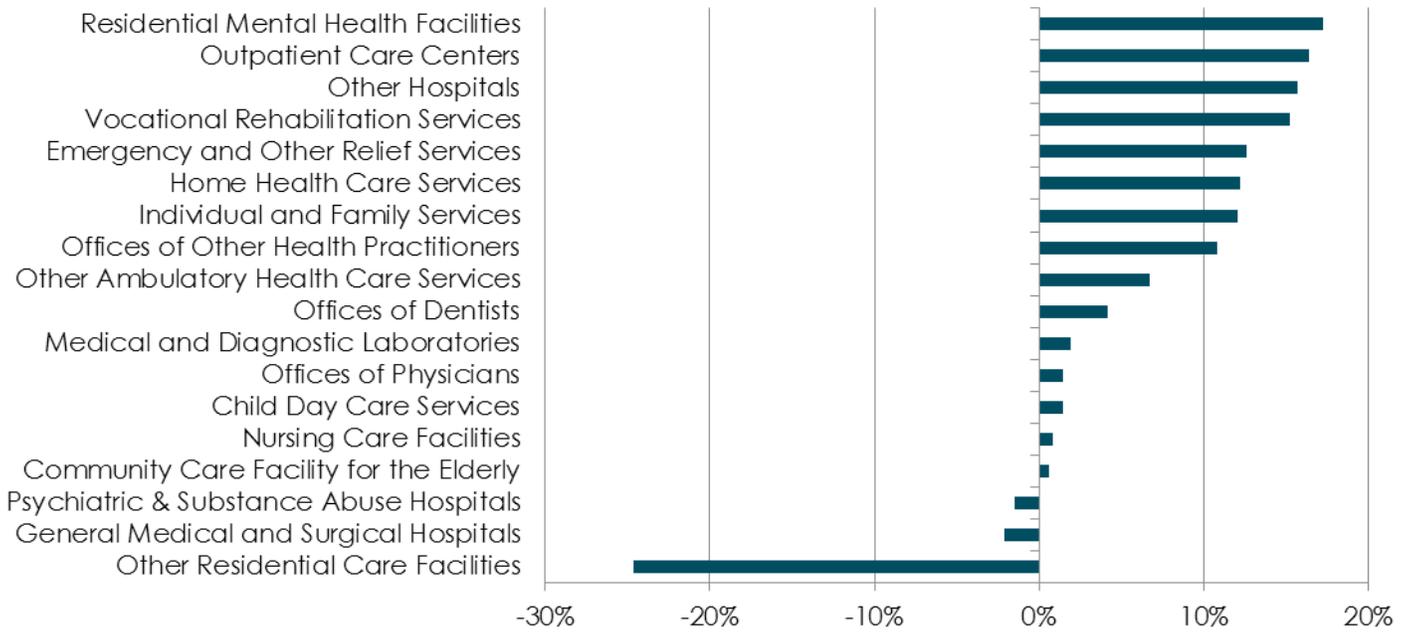
After demonstrating significant resilience and growth throughout the recession, the healthcare industry in Orange County has cemented itself as one of the major employers of the region, providing a variety of low- and high-skill positions. Employment growth in this industry can be attributed to both the implementation of the Affordable Care Act (ACA) which served to increase the number of medically insured individuals as well as the growing number of aging Baby Boomers in the region requiring increased medical services. Not unlike how technology has impacted the Manufacturing industry, increased technological capabilities in the Healthcare industry are giving rise to new occupations, such as virtual care professionals who can effectively treat patients without having face-to-face interactions, while expanding the number of at-home care professionals through increased mobility and replicability of health solutions.

As health and medical institutions attempt to increase overall efficiency and patient care by applying data analytics to patient records, Information Technology is playing an increasingly important role in healthcare, a synergy which has increased the number of cross-cutting occupations. By better understanding their patients, symptoms and patient progression, medical professionals can provide better recommendations on treatments and craft both short- and long-term treatment programs helping to more efficiently treat patients, reducing the number of additional visits and the associated financial burdens. The transformation that healthcare in Orange County has experienced over the last decade has resulted in an expansion in employment levels, skills required, and the variety of skilled jobs being created.

### KEY HEALTHCARE INDUSTRY TRENDS

The primary Healthcare sub-sectors in this industry analysis together registered a healthy year-over-year increase in employment. The most significant employment increases were seen in Individual and Family Services, Offices of Other Health Practitioners, and finally Outpatient Care Centers. The sub-sector with the highest percent growth was Residential Mental Health Facilities. Despite overall industry growth, certain sub-sectors also registered declines in employment over the past year, most notably in General Medical and Surgical Hospitals, Other Residential Care Facilities, and Psychiatric and Substance Abuse Hospitals. These trends highlight a profound change that the healthcare sector is undergoing – a trend away from traditional inpatient services in settings like hospitals toward outpatient services and in-home care.

## Orange County Year-Over-Year Change in Healthcare Employment

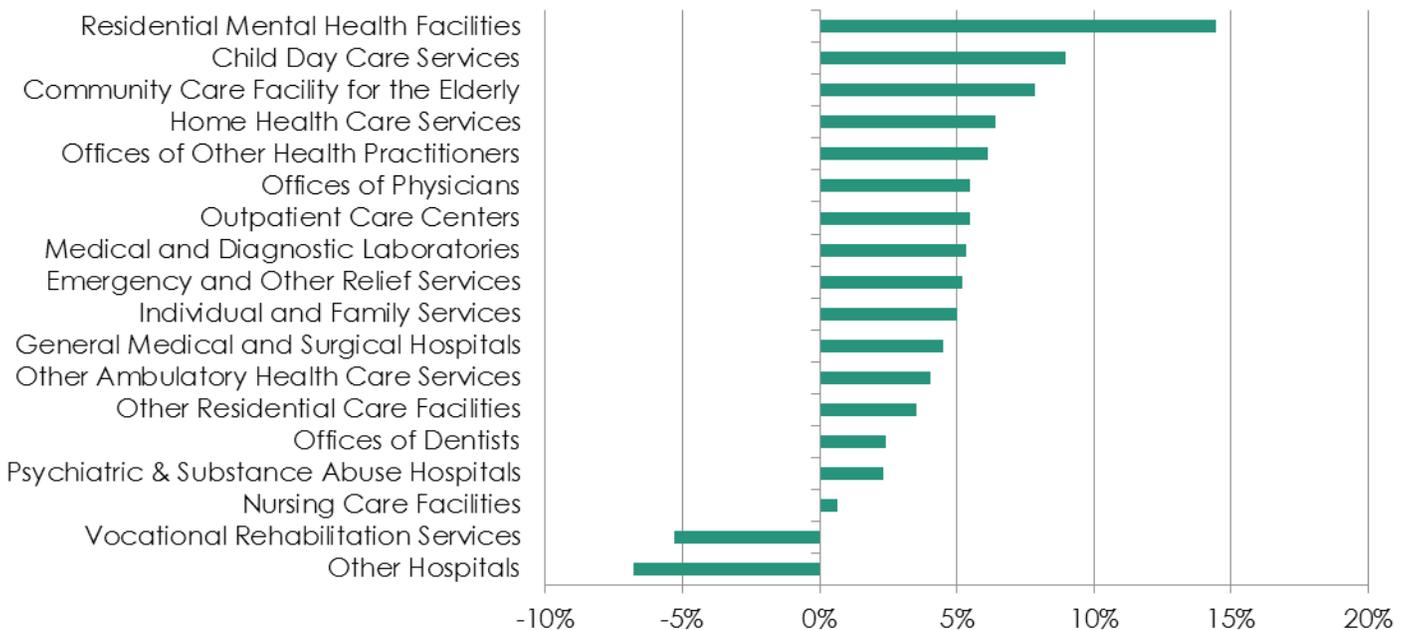


Source: California Employment Development Department, Bureau of Labor Statistics



**After demonstrating significant resilience and growth throughout the recession, the healthcare industry in Orange County has cemented itself as one of the major employers of the region, providing a variety of low- and high-skill positions.**

## Orange County Year-Over-Year Change in Healthcare Salaries



Source: California Employment Development Department, Bureau of Labor Statistics

## KEY HEALTHCARE OCCUPATIONS TRENDS

The California EDD expects that the Healthcare industry in Orange County will continue to rapidly grow well into the next decade to meet high regional employer demand. Registered Nurses are expected to be the largest single occupation in the Healthcare industry, reaching 21,300 by 2022 for an expected growth of 14.5 percent compared to 2012, or 12.7 percent compared to more recent estimates in 2015. This is a welcomed sign as Registered Nurses received average salaries of \$88,910 in 2015, well above the current average across the county. In terms of percentage growth, the occupations expected to register the largest increases, including Home Health Aides and Medical and Clinical Laboratory Technicians, which are both set to expand by 36.1 percent, followed by Physical Therapists which are expected see occupational growth of 31.8 percent, and Social and Human Service Assistants, which are expected to grow by 23.5 percent between 2012 and 2022.

Of the Healthcare occupations measured, Physical Therapists had the highest average salaries in 2015 measured at \$94,450, followed by Dental Hygienists at \$91,660 and Registered Nurses at \$88,910. These occupations require varying levels of education with Registered Nurses and Dental Hygienists requiring an Associate's or Bachelor's degree while Physical Therapists must pursue Doctorates or other professional degrees. Despite requiring additional educational investments by those looking to enter these fields, these occupations provide compensation which will more than cover living expenses and potential student loan repayments, quelling many fears young professionals have when attempting to identify a potential field of study and career path.



**Orange County Healthcare Employment and Salary Growth by Occupation**

Occupation	Current Employment 2015	Average Salary 2015	Estimated Employment 2012	Estimated Employment 2022	Estimated Growth
<b>Registered Nurses</b>	18,890	\$88,910	18,610	21,300	14.5%
<b>Medical Assistants</b>	7,170	\$35,120	7,560	9,010	19.2%
<b>Licensed Practical &amp; Licensed Vocational Nurses</b>	6,860	\$51,270	6,080	7,430	22.2%
<b>Dental Assistants</b>	5,550	\$34,580	4,990	5,750	15.2%
<b>Home Health Aides</b>	3,890	\$26,050	3,770	5,130	36.1%
<b>Social &amp; Human Service Assistants</b>	2,550	\$33,660	2,380	2,940	23.5%
<b>Physical Therapists</b>	2,170	\$94,450	2,010	2,650	31.8%
<b>Dental Hygienists</b>	2,150	\$91,660	2,240	2,760	23.2%
<b>Medical &amp; Clinical Laboratory Technicians</b>	1,680	\$44,500	1,580	2,150	36.1%
<b>Health Technologists &amp; Technicians, Other</b>	1,240	\$50,940	1,260	1,530	21.4%

Source: California Employment Development Department, Bureau of Labor Statistics

## INFORMATION TECHNOLOGY

Information technology (IT) occupations enjoy a virtuous combination of high multiplier effects on the regional economy, substantially above-average wages, and significantly higher projected job growth rates than almost any other sector over the next decade, as IT continues to evolve at a pace not seen in other sectors. Orange County has a booming IT sector due to its strong business community, high quality talent pool that includes both traditional employment but also significant opportunities for IT consultants, and an attractive location that promotes a high quality-of-life. On the demand side, the increased use of technology in various types of businesses has led to a rapid growth in the IT sector,

which will continue to experience an increase in growth in the near future. Equipped with a world-class STEM and technology related education and training, the county and its IT businesses have a mutually beneficial relationship.

A key trend to understand is that IT jobs are increasingly not just in traditional IT settings like tech firms, but increasingly throughout most employment sectors such as healthcare, financial services, and government. As the business world becomes more high-tech and interconnected, IT creates more and more opportunities for businesses that provide products and services that increase efficiency.

### KEY IT INDUSTRY TRENDS

Overall, the IT industry in Orange County registered an increase in employment of 5.1 percent for an addition of 1,208 jobs from 2014 to 2015, bringing total industry employment to 25,017. The largest growth in absolute terms stemmed from sub-sectors including Software Publishers, Information Services, ISP/Search Portals and Data Processing.

Average salaries in the IT industry experienced similar growth, with the average IT salary increasing from \$88,400 in 2014 to \$93,860 in 2015, an increase of 6.2

percent. This salary growth was driven in large part by the ISPs, Search Portals and Data Processing sub-sector which saw average salaries increase significantly by \$12,688 from 2014 to 2015, for growth of 15.5 percent. Software Publishers registered the second largest absolute increase in average salaries, followed by the Computer and Systems Design and Related Services. Currently, the IT industry provides relatively high salaries when compared to other occupations, with Software Publishers providing the highest annual average salary of \$139,048 in 2015.

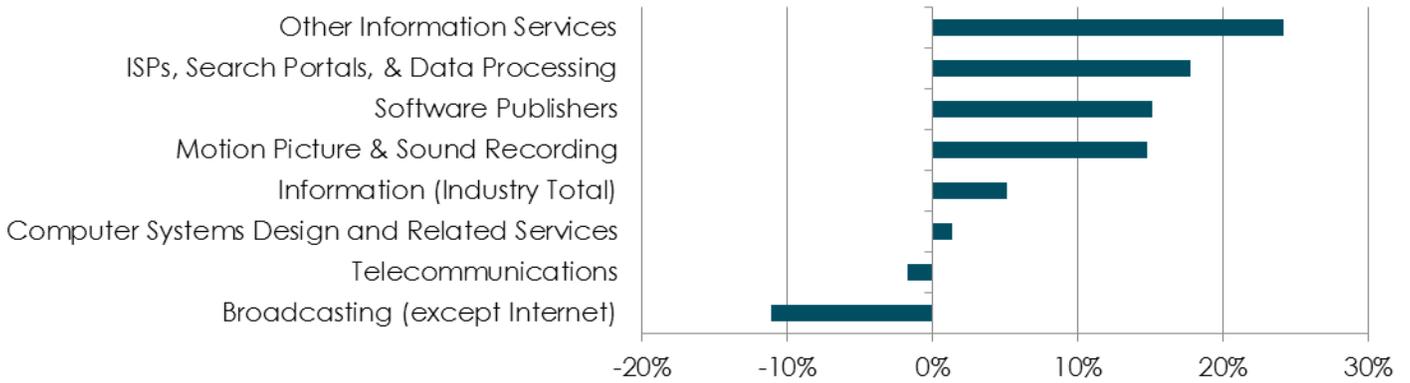
**Orange County IT Employment and Salary Change Year-Over-Year, 2015**

INDUSTRY	EMPLOYMENT		AVERAGE ANNUAL SALARY	
	2015	Year-Over-Year Change	2015	Year-Over-Year Change
<b>Information (Industry Total)</b>	25,017	1,208	\$93,860	\$5,460
<b>Computer Systems Design and Related Services</b>	19,284	259	\$106,912	\$5,460
<b>Telecommunications</b>	8,058	(143)	\$91,052	\$4,524
<b>Software Publishers</b>	5,994	789	\$139,048	\$6,292
<b>Motion Picture &amp; Sound Recording</b>	2,639	339	\$34,008	-
<b>ISPs, Search Portals, &amp; Data Processing</b>	2,310	348	\$94,640	\$12,688
<b>Other Information Services</b>	2,304	448	\$95,420	(\$52)
<b>Broadcasting (except Internet)</b>	1,107	(139)	\$69,732	(\$3,120)

Source: California Employment Development Department, Bureau of Labor Statistics

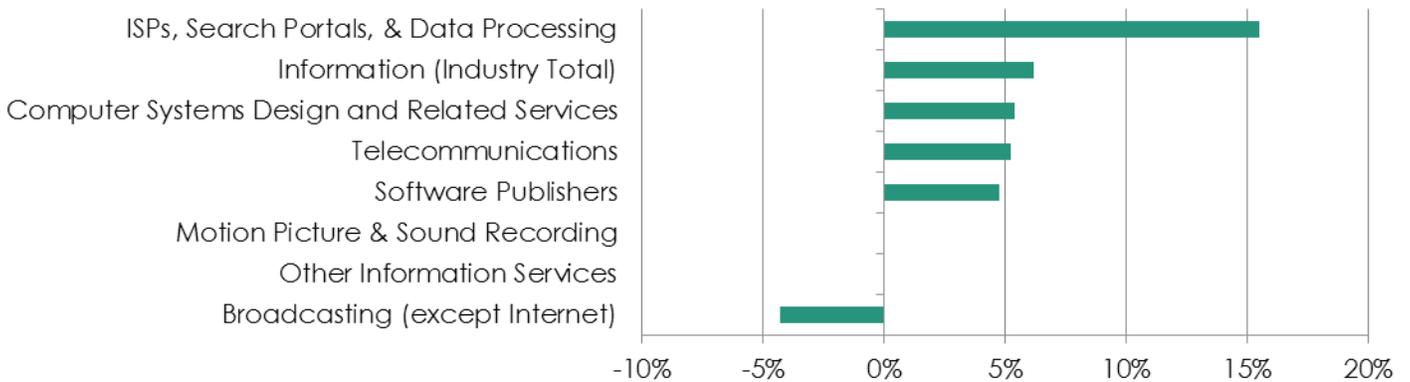


**Orange County Year-Over-Year Change in Information Technology Employment**



Source: California Employment Development Department, Bureau of Labor Statistics

**Orange County Year-Over-Year Change in Information Technology Salaries**



Source: California Employment Development Department, Bureau of Labor Statistics

**KEY IT OCCUPATIONS TRENDS**

IT sub-sectors providing the highest average salaries in 2015 included Software Developers, Systems Software at \$119,740 with expected employment growth of 19.1 percent between 2012 and 2022 followed by Computer Network Architects at \$113,510 with expected employment growth of 28.7 percent during the same time period. Overall, the highest percent employment growth is expected to come from Information Security Analysts, a crucial occupational group considering the increasing use of IT applications using sensitive, personal information

and the emerging world of cybersecurity threats, which is expected to grow by 43.5 percent between 2012 and 2022; yet, according to most recent employment estimates, as of 2015 this occupational group had already surpassed employment levels expected in 2022 by 12.1 percent, demonstrating the high and growing demand for this occupation by IT employers. Interestingly, in the IT world, for certain occupations and IT consultant positions, professional certifications are increasingly just as important, if not more important, than four-year degrees.

## Orange County IT Employment and Salary Growth by Occupation

Occupation	Current Employment 2015	Average Salary 2015	Estimated Employment 2012	Estimated Employment 2022	Estimated Growth
Software Developers, Applications	9,900	\$108,700	8,900	10,320	16.0%
Software Developers, Systems Software	7,100	\$119,740	6,900	8,220	19.1%
Computer User Support Specialists	6,630	\$59,400	6,330	7,920	25.1%
Computer Systems Analysts	5,010	\$95,340	4,970	6,500	30.8%
Network and Computer Systems Administrators	4,760	\$88,380	4,340	5,270	21.4%
Computer Programmers	4,430	\$82,150	5,060	5,810	14.8%
Web Developers	2,490	\$77,640	2,090	2,840	35.9%
Computer Network Support Specialists	1,840	\$69,350	1,870	1,970	5.3%
Database Administrators	1,570	\$88,800	1,250	1,570	25.6%
Computer Network Architects	1,450	\$113,510	1,430	1,840	28.7%
Information Security Analysts	740	\$97,520	460	660	43.5%

Source: California Employment Development Department, Bureau of Labor Statistics



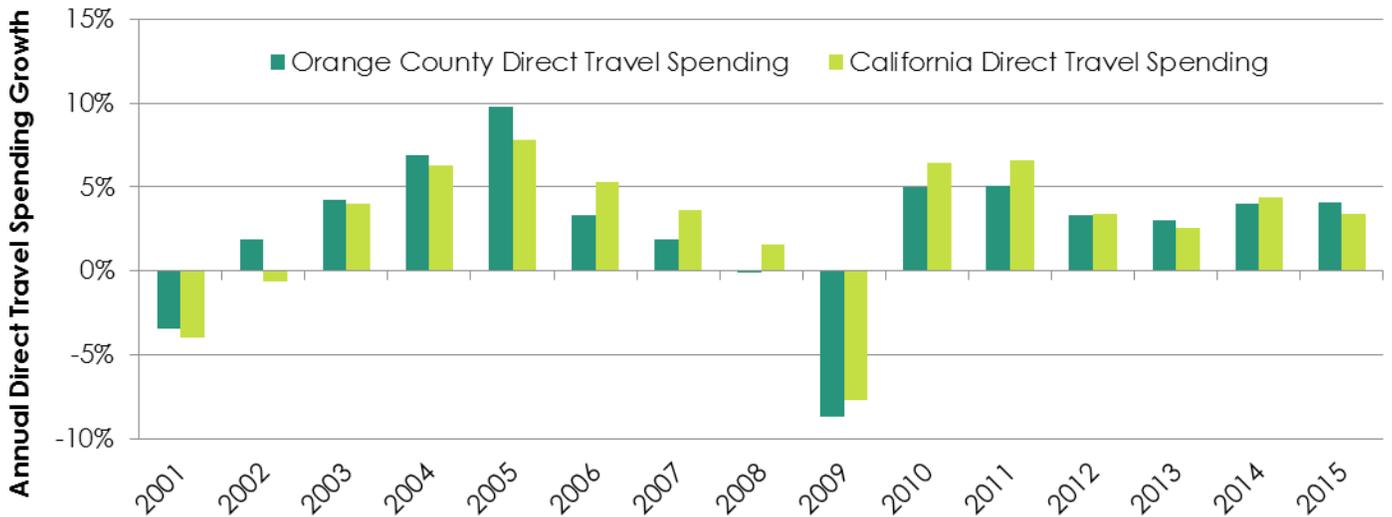
## HOSPITALITY AND TOURISM

Orange County's tourism industry has deep, historic roots in the region, beginning in 1950s when it became a popular vacation destination for celebrities thanks to its sprawling 42-mile coastline. Decades later, Orange County's tourism industry is stronger than ever with major attractions such as Disneyland and Knott's Berry Farm serving to attract a large number of families into the area; scenic beaches along the coast with luxury resort hotels; historical and cultural tourism assets such as Mission San Juan Capistrano; ample professional meeting space for businesses and industry organizations to hold conventions and conferences; and a number of high-end shopping

centers such as South Coast Plaza and Fashion Island which provide luxury goods to visitors helping to drive visitor spending in the region.

According to the most recent tourism statistics provided by Visit Anaheim, previously known as the Anaheim/ Orange County Visitor and Convention Bureau, Orange County attracted 47.3 million visitors in 2015, which represents a 2.6 percent increase since 2014. In addition to the regional tourism assets mentioned above that are found throughout the county, Anaheim played a central role in driving tourism into the region.

### Orange County vs. California Travel Spending Growth, 2001-2015



Source: VisitCalifornia.com

With attractions such as Disneyland, Angel Stadium of Anaheim, Honda Center, and the Anaheim Convention Center pulling in 22.5 million travelers into the city, a 3.5 percent increase over the previous year. The Anaheim Convention Center saw a large increase in visitors with a total of 1.6 million attendants in 2015, an increase of 27.5 percent over 2014. This drastic increase in the number of attendees is likely a result of recent expansion program, which by 2017 will add 200,000 square feet of new multipurpose space creating 1,860 construction jobs and providing an additional \$9 million in additional tax revenue.

Visitor spending in the region increased year-over-year as well totaling approximately \$11.3 billion in 2015 for an increase of 4.1 percent since 2014. The majority of visitor spending was focused on Food Service at approximately \$2.6 billion, representing an increase of 6.3 percent year-over-year and around

22 percent of total spending, followed by spending on Accommodation which totaled approximately \$2.2 billion for an increase of 10.5 percent year-over-year and comprising around 19 percent of total visitor spending.

According to the most recent employment release by the California Employment Development Department, the Leisure and Hospitality industry in Orange County employed a total of 213,800 individuals in August 2016, which represents an increase of 6,700 workers year-over-year. Leisure and Hospitality currently comprises approximately 14 percent of total employment in the region. As the county continues to maintain and strengthen its positions as an attractive travel destination, it is expected that tourism job creation and economic activity will likewise continue to growth in importance.

### Orange County Leisure and Hospitality Employment Growth, 2000 – YTD 2016



Source: California Employment Development Department

## KEY HOSPITALITY AND TOURISM INDUSTRY TRENDS

From 2014 to 2015 only one sub-sector of the Tourism industry experienced a decline in employment – Performing Arts Companies lost 26 jobs, for a marginal decline of 2.2 percent to bring employment in this sector to 1,181 in 2015. The largest absolute growth in employment came from Amusement, Gambling and Recreation which added 2,980 jobs, an increase of 8.2 percent, followed by Full-Service Restaurants which added 2,657 jobs, an increase of 4.2 percent and Snack and Nonalcoholic Beverage Bars which added 1,286 jobs, an increase of 14.9 percent year-over-year.

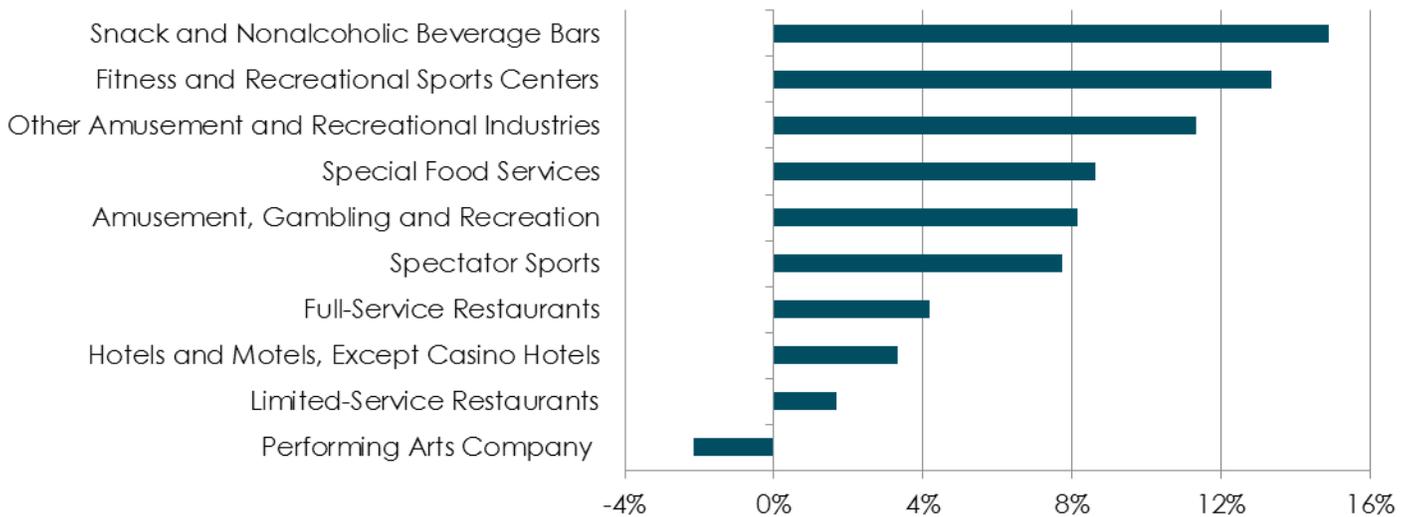
While average annual compensation of the tourism industry totaled \$35,407 in 2015, lower than the average county wage, there are increasingly opportunities for career advancement within this industry, with vertical career movements into better-paying positions that are attainable. Additionally, considering the large amount of customer interactions within this industry, employers in the tourism sector should market the fact that working in this industry allows for the development of strong customer service and public-facing soft skills, as well as managerial and supervisory skills, both key skillsets that are valuable and transferable to many other industries.

### Orange County Hospitality and Tourism Employment and Salary Change Year-Over-Year, 2015

INDUSTRY	EMPLOYMENT		AVERAGE ANNUAL SALARY	
	2015	Year-Over-Year Change	2015	Year-Over-Year Change
Full-Service Restaurants	66,333	2,657	\$21,580	\$1,135
Limited-Service Restaurants	46,856	778	\$16,640	\$857
Amusement, Gambling & Recreation	39,502	2,980	\$27,248	\$342
Hotels and Motels, Except Casino Hotels	23,903	772	\$35,100	\$1,790
Other Amusement & Recreational Industries	12,065	1,227	\$22,568	\$42
Snack and Nonalcoholic Beverage Bars	9,915	1,286	\$17,784	\$789
Fitness and Recreational Sports Centers	6,122	721	\$18,824	\$107
Special Food Services	3,852	306	\$25,272	\$768
Spectator Sports	2,050	147	\$138,320	(\$5,954)
Performing Arts Company	1,181	(26)	\$30,732	\$1,664

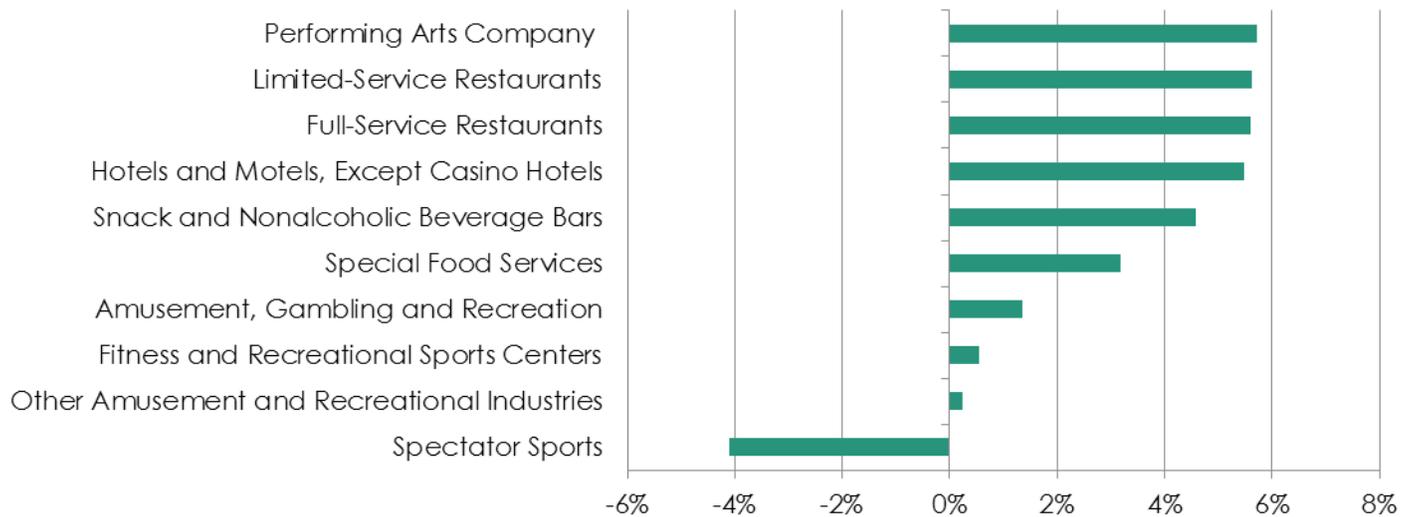
Source: California Employment Development Department, Bureau of Labor Statistics

### Orange County Year-Over-Year Change in Hospitality and Tourism Employment



Source: California Employment Development Department, Bureau of Labor Statistics

## Orange County Year-Over-Year Change in Hospitality and Tourism Salaries



Source: California Employment Development Department, Bureau of Labor Statistics

## KEY HOSPITALITY AND TOURISM OCCUPATIONS TRENDS

Focusing on occupational trends within the Tourism industry, the highest occupational growth will be First-Line Supervisors of Food Preparation and Serving Workers, followed by Concierges, and Waiters and Waitresses which are expected to increase by 28.1 percent, 27.3 percent and 20.1 percent, respectively. The lowest growth is expected to be seen in Commercial Pilots, Lodging Managers and Tour Guides which will expand by 2.4 percent, 4.2 percent and 5.9 percent, respectively. Many of the occupations have already surpassed their projected 2022 employment

totals including Food Preparation Workers where employment was expected to total 9,970 in 2022, yet as of 2015 employment was already measured at 10,650; 680 jobs or 6.8 percent above projected 2022 employment totals. Other occupations following similar trends include Commercial Pilots and Tour Guides which have surpassed their projected 2022 employment totals by 27.9 percent and 50 percent, respectively. While average salaries for Tour Guides totaled only \$26,460 in 2015, Commercial Pilots annual salaries averaged \$89,560, well above the county average.

## Orange County Hospitality and Tourism Employment and Salary Growth by Occupation

Occupation	Current Employment 2015	Average Salary 2015	Est. Employment 2012	Est. Employment 2022	Est. Growth
Waiters and Waitresses	29,480	\$28,150	28,810	34,600	20.1%
Limited-Service Restaurants Receptionists and Information Clerks	12,560	\$31,170	11,440	12,890	12.7%
Food Preparation Workers	10,650	\$22,910	8,530	9,970	16.9%
Amusement and Recreation Attendants	7,880	\$20,930	6,870	7,930	15.4%
First-Line Supervisors of Food Preparation and Serving Workers	7,810	\$34,680	8,730	11,180	28.1%
Food Service Managers	3,490	\$54,440	4,840	5,650	16.7%
First-Line Supervisors of Personal Service Workers	1,210	\$42,060	2,020	2,240	10.9%
Commercial Pilots	550	\$89,560	420	430	2.4%
Lodging Managers	410	\$62,230	720	750	4.2%
Concierges	390	\$30,000	330	420	27.3%
Tour Guides	270	\$26,460	170	180	5.9%

Source: California Employment Development Department, Bureau of Labor Statistics

# CROSSCUTTING INDUSTRY HIGHLIGHTS



Much of the analysis in this report focuses on traditionally recognized industries that have provided for economic expansion. However, this section focuses on industry cluster drivers that not only enhance economic activity in the region, but also create an environment conducive for sustained economic growth and activity across multiple industries. Orange County's cluster drivers, which include the International Trade, Information Technology, and Creativity industries have accelerated that growth and are emerging as some of the most important drivers of both economic and employment growth in a wide variety of industry sectors.

Additionally, the previously mentioned "Sharing Economy" is emerging as a potential cross-cutting driver that directly influences many other industry sectors, but unfortunately the industry and its impact are still being defined, and as a result relatively little traditional economic data on the industry or related employment exists so far.



# 15<sup>th</sup>

## largest exporting U.S. metro area



**294,946** jobs across  
12 different industry clusters

JOBS  
**177,256**



**International  
Trade**

INCOME  
**\$78,950**

JOBS  
**63,690**



**Information  
Technology**

INCOME  
**\$93,860**

JOBS  
**54,000**



**Creativity**

INCOME  
**\$68,296**

Salaries average roughly **\$25,029** above  
the overall average Orange County wage



### Orange County's largest trading partners



Canada and Mexico  
= **34%** of total exports



# WHY IS THIS RELEVANT IN OC?

Despite the ability to segment occupations and industries based on their functions, new and emerging industries are increasingly blurring these delineations and boundaries due to their pervasiveness and presence across multiple traditional industries. These emerging industry drivers have been instrumental in driving economic activity in more traditionally recognized industries due to their rapid growth and ability to produce innovation.

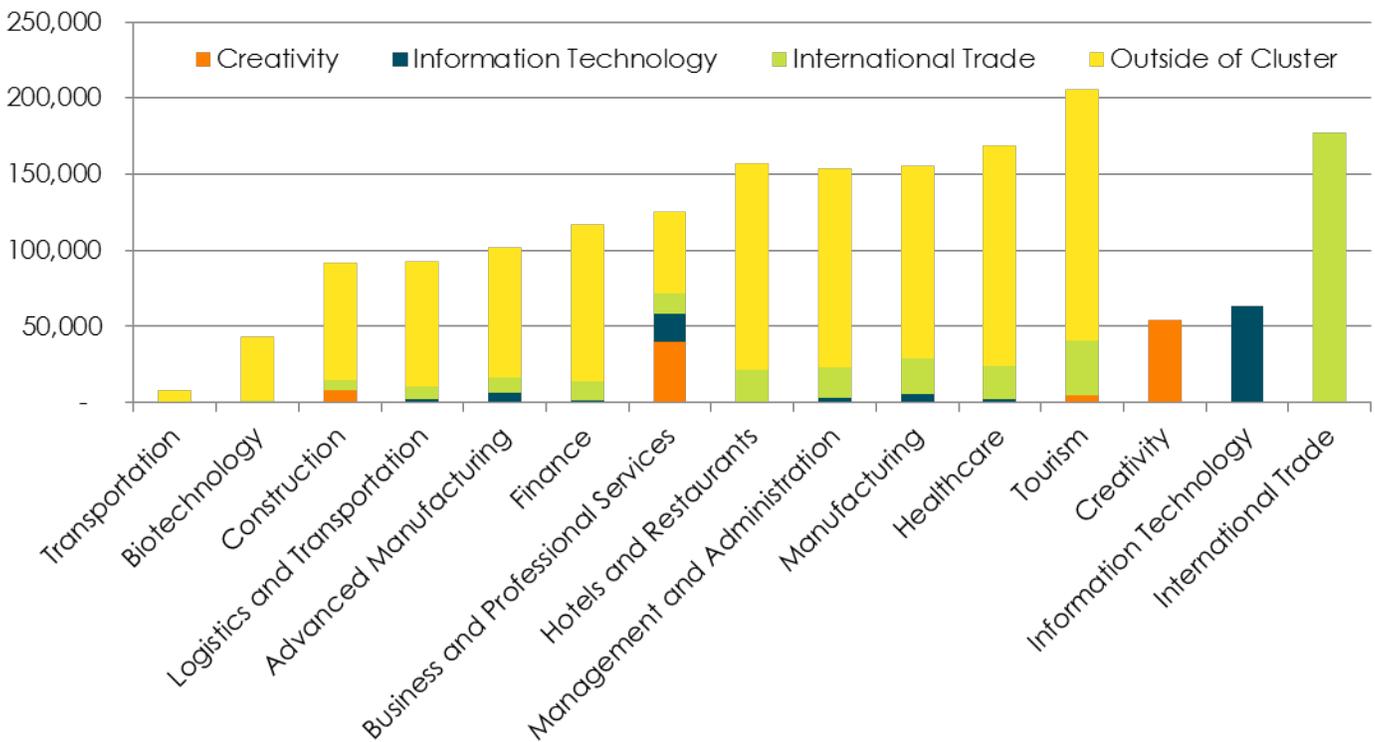
The purpose of this section of the Workforce Indicators Report is to provide a snapshot of not only what is driving traditional industry employment, but also to provide a better understanding of new, emerging industries which have the potential to drastically change the current employment landscape in the county. Overall, these cross-cutting industries contributed a total of 294,946 occupations to the county in 2015, a significant increase over the estimated 284,460 occupations provided by these industries in 2014. This significant growth can be attributed to the roles these cross-cutting industries have in numerous industries. Information Technology, for example, has been steadily increasing as evolving technologies allow businesses to increase overall efficiency requiring additional IT support occupations in nearly all industries. The Creativity sector falls in a similar boat, where as organizations must be increasingly creative in their product or service marketing strategies requiring individuals with an eye for innovative design.

# HOW WILL OC PROGRESS TODAY & IN THE FUTURE?

The importance of these cross-cutting industries to the local economy can not only be seen in the number of individuals they employ, but in the wages provided to those employees. Overall, the Information Technology sector provided the highest average salary measured at \$93,860 in 2015, a significant increase of 6.1 percent compared to the 2014 average salary for this industry of \$88,458 and well over the Orange County average salary of \$55,343. International Trade provided the second

highest average salaries in Orange County at \$78,950, followed by Creativity with average salaries of \$68,296 for 2015, although last in the order of these clusters, still well above the average salary of the county. Combined, these three cross-cutting industries provided Orange County with average salaries of \$80,369 which represents an increase of 3.7 percent compared to the previous year and an increase of \$25,026 or 45.2 percent over the Orange County average salary.

Orange County Cluster Drivers, 2015



Source: OCBC Analysis of California Employment Development Department Data, OTIS Report, and California State University, Fullerton

Average Salaries in Orange County's Selected Industry Drivers, 2015



Source: OCBC Analysis of California Employment Development Department Data, OTIS Report, and the Los Angeles Economic Development Corporation

## INTERNATIONAL TRADE

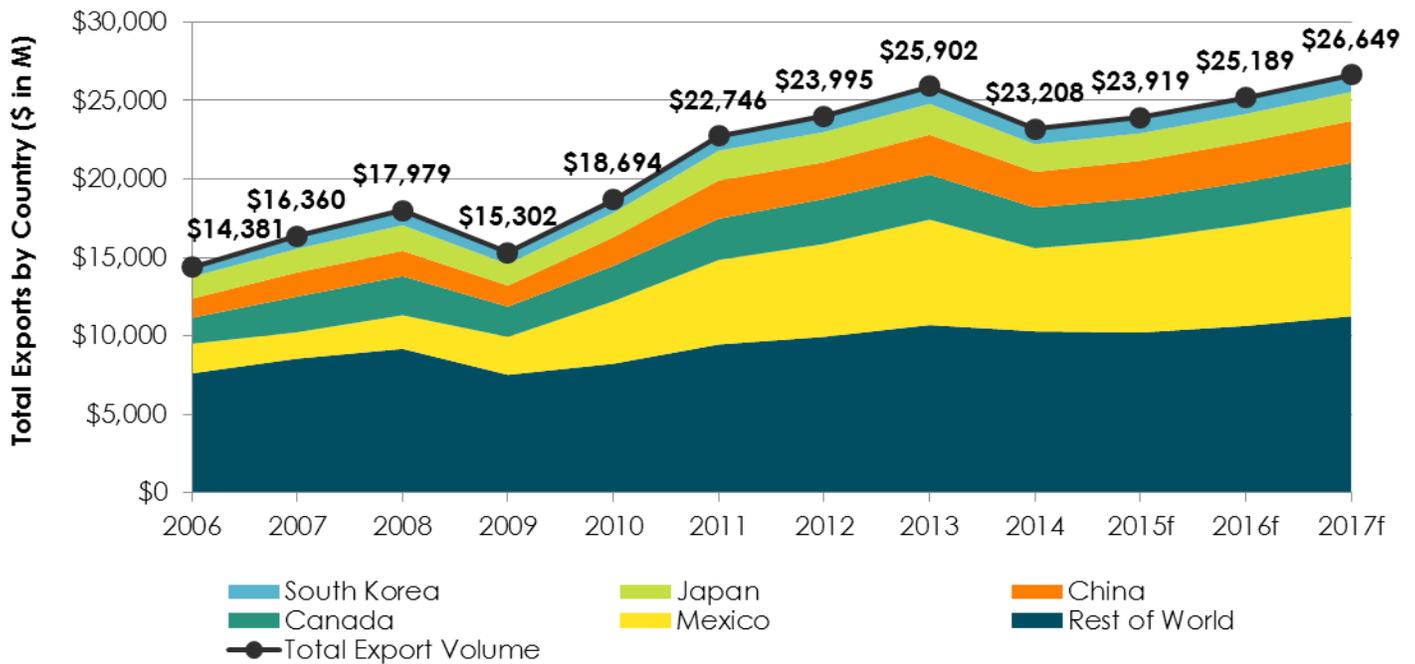
Orange County's advantageous location, combined with well-developed transportation and regional port infrastructure and its access to international business networks provides for a strong international trade competitive environment. International Trade is a primary cross-cutting industry driver in the county due to its increasing presence across nearly all major traditional industry sectors. In fact, International Trade could be considered as Orange County's "most" cross-cutting sector in terms of its presence, and impact on, nearly every single other industry cluster.

Additionally, the county is benefitting from the wider increase in economic globalization that has resulted from (and driven) innovation in digital communication technology. This increasingly diverse, well-connected freeway and road system, proximity to the Port of Los Angeles and Port of Long Beach, and access to a number of international airports and national rail lines has allowed the International Trade industry to expand

very rapidly in the local economy; merchandise exports are expected to total nearly \$24 billion, and in 2015 supported over 200,000 direct and indirect jobs in the county.

According to California State University, Fullerton Orange County is currently ranked as the 15th largest U.S. metro area based on its economic output. While impressive, this represents a slight drop in ranking as of last year, when Orange County was estimated to be the 12th largest metro area. Orange County exports contributed 13 percent of the gross metropolitan product (GMP), a percentage that dropped to 11 percent in 2015, with a total export value to \$23.2 billion. Despite export growth stumbling in 2014, Cal State Fullerton expects export growth to be reignited over the next three years, growing by 3.1 percent in 2015, 5.3 percent in 2016, and 5.8 percent in 2017, when the expected value of international trade in Orange County is estimated to be \$26.6 billion.

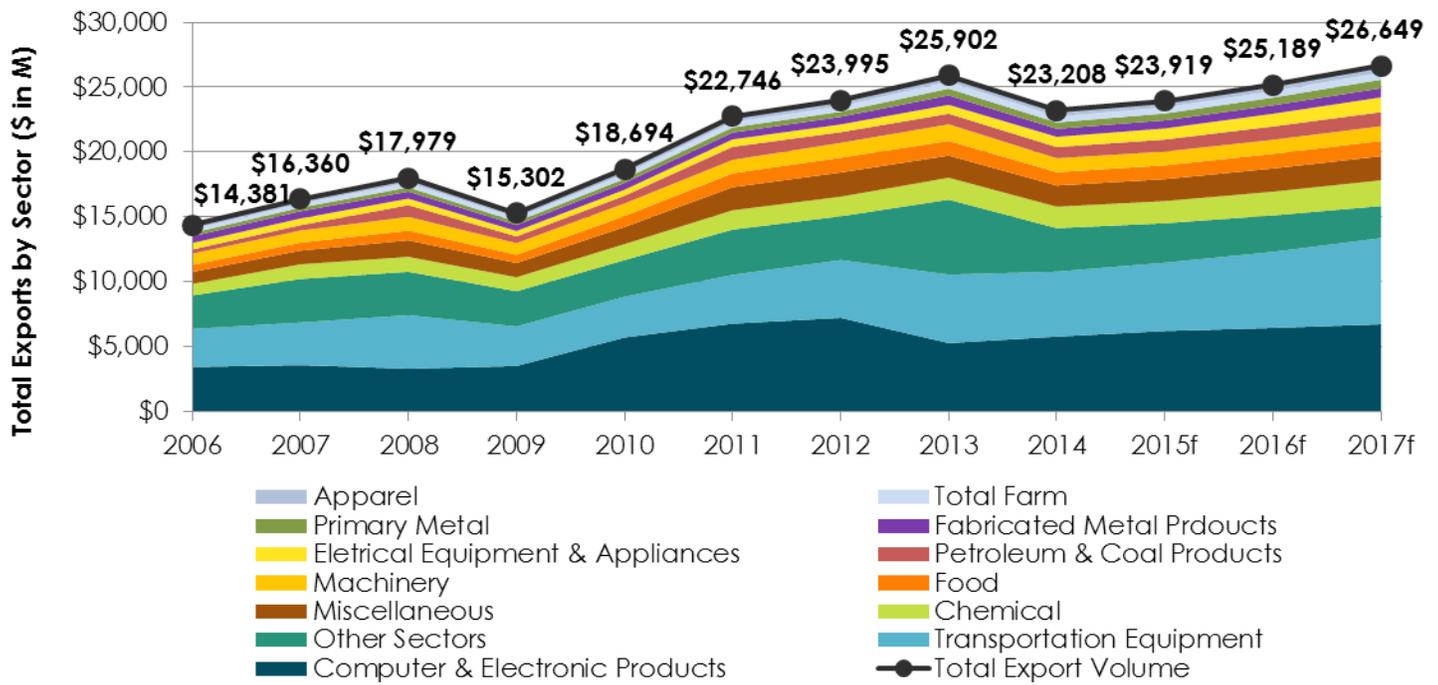
Orange County Exports by Country, 2006-2017 Forecast



Source: Institute for Economic and Environmental Studies, California State University, Fullerton

**Orange County's advantageous location, combined with well-developed transportation and regional port infrastructure and its access to international business networks provides for a strong international trade competitive environment.**

### Orange County Exports by Sector, 2006-2017 Forecast



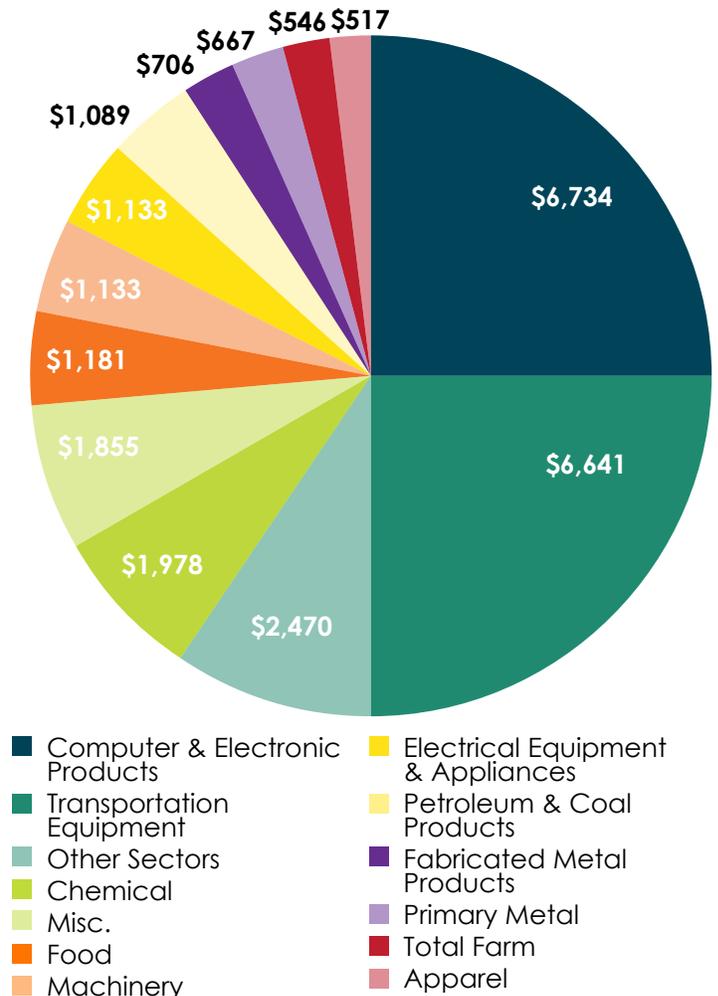
Source: Institute for Economic and Environmental Studies, California State University, Fullerton

In 2014, the county's largest trading partners were Mexico and Canada which accounted for \$5.3 billion and \$2.6 billion in exports, respectively. Together, these two countries represented approximately 34 percent of total exports in 2014 and by 2017 are expected to represent nearly 37 percent of total exports with a total value of \$9.8 billion. Orange County's next largest trading partners are China, Japan, and South Korea. However, despite providing increasing levels of exports over the past few years, a recent slowdown in Asian economies has resulted in a very flat growth trajectory for export to these regions.

Of all Orange County's trading partners, the most substantial increase in exports will be seen in trade with Mexico, where export values will increase from \$5.3 billion in 2014 to an estimated \$6.9 billion in 2017 bringing its total share of Orange County exports from 22.8 percent in 2014 to 26.2 percent in 2017, the largest proportional increase of any of Orange County's trading partners.

Orange County's high-tech industry clusters continue to lead other sectors in generating exports. In 2014 the exports of the Computer/Electronic products and Transportation Equipment amounted to \$5.7 billion and \$5.0 billion in exports respectively, together representing 46.4 percent of the total exports. This value is predicted to increase by the end of 2017, with both the sectors representing almost half, or 50.2 percent, of total exports. Other sectors which contributed substantially towards Orange County's total exports include Chemicals and various companies which fall under the Miscellaneous category, which together accounted for \$3.2 billion or 14.1 percent of the total export in 2014.

### Orange County Forecasted Exports by Sector, 2017 (in millions)



Source: Institute for Economic and Environmental Studies, California State University, Fullerton



## INFORMATION TECHNOLOGY (IT)

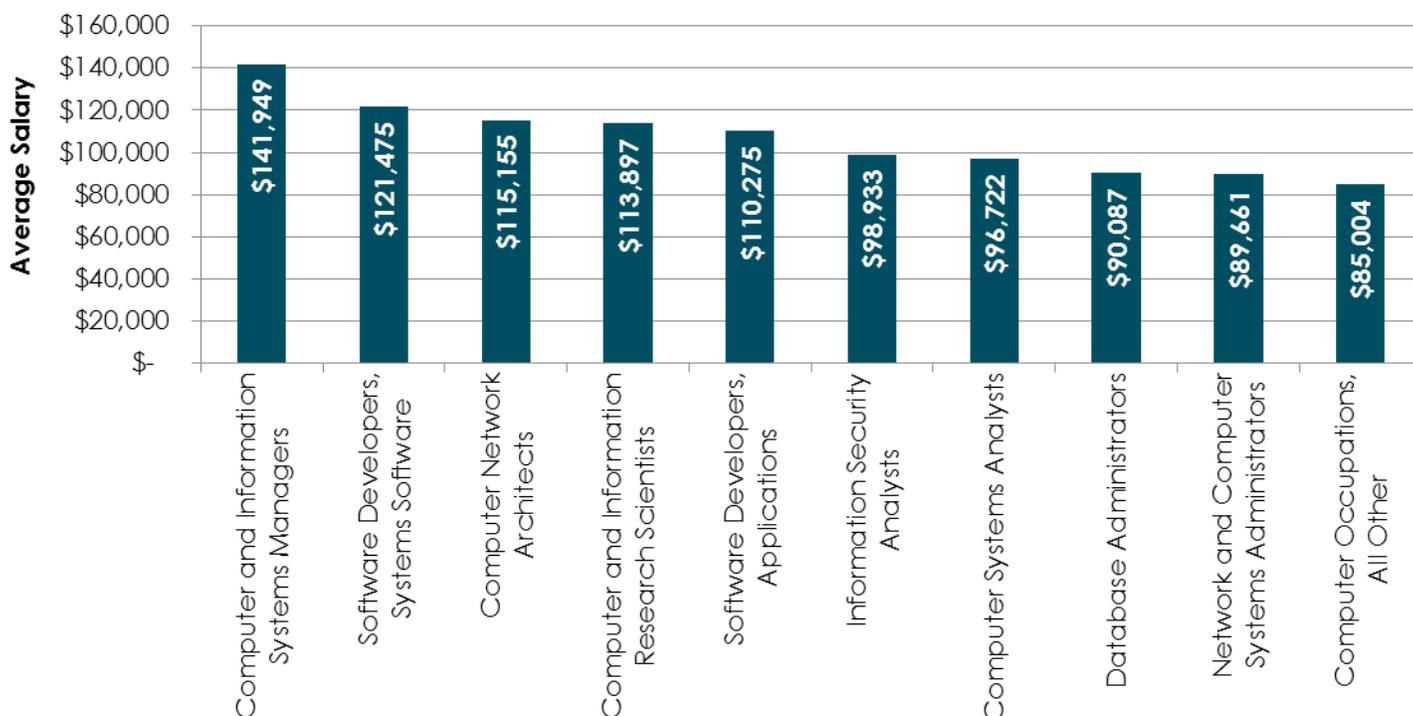
Information Technology (IT) is rapidly changing the workplace. Every industry continues to progressively rely on information technology applications on a daily basis, with an equally growing need for a skilled IT workforce across the board. Training, preparing and sustaining a skilled workforce should be a top priority for the region. Providing Orange County businesses with a knowledgeable and talented IT workforce that can apply the newest available technologies should be a top education and workforce priority. By increasing the focus on IT occupations, local businesses will benefit from having a pool of highly-skilled workers that earn higher wages, increasing the quality of life for all.

IT occupations provide high wages and growth opportunities across all industries. Increased focus on IT occupations will benefit individuals, local businesses, and the regional economy. According to most recent estimates from the California Employment Development Department, the average IT salary in the county totaled \$93,860 in 2015, almost 70% higher

than the average Orange County salary. Within the Information Technology industry, the highest paying occupations included Computer and Information Systems Managers (\$141,949), Software Developers, Systems Software (\$121,475) and Computer Network Architects (\$115,155).

There is a more in-depth analysis of trends in the IT cluster in the Sector Spotlights chapter of this report. As technology evolves and improves, the demand for these occupations by businesses will increase dramatically and the county needs to ensure it can provide businesses with an extensive pipeline of talented IT professionals to choose from. Whether through collaborative partnerships between businesses and workforce development organizations or educational institutions, updating and accelerating employment growth strategies should be a priority for the county. Developing this pipeline will help in the attraction and retention of additional IT organizations increasing Orange County's regional competitive advantage positions.

**Top 10 Highest-Paying Information Technology Occupations in Orange County, 2015**



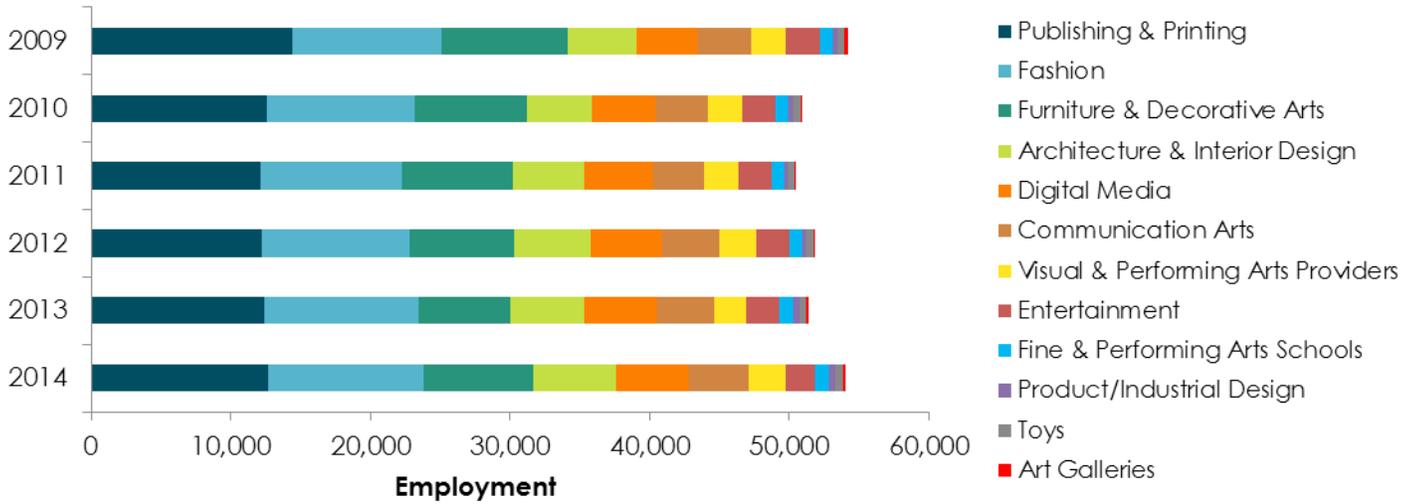
Source: California Employment Development Department

## CREATIVITY

The Creativity sector includes occupations which emphasize culture, arts and design with businesses employing individuals who are able to create inventive, innovative products and services. According to the Los Angeles Economic Development Corporation (LAEDC), the Creativity sector in Orange County employed a total of 54,000 individuals in 2014, representing approximately 3.5 percent of total employment in the county, and 5.2 percent higher than in 2013. The strong value of the

Creativity sector can be seen in its multiplier impacts across the region which, if taking into account direct, indirect and induced impact, pushes creativity sector employment to approximately 93,200 jobs, providing labor income of \$5.7 billion. The largest Creativity sub-sectors in Orange County included Publishing and Printing (12,700 jobs), followed by Fashion (11,100), and Furniture and Decorative Arts (7,900).

Orange County Creative Jobs, 2009-2014



Source: California Employment Development Department

The Great Recession noticeably impacted jobs related to creativity, and the sector is just starting to recover. Creativity employment totaled 61,700 in 2008 in Orange County before dropping to 54,300 in 2009 and 51,000 in 2010. While employment in this sector is on the rebound, increasing to 54,000 in 2014, overall, creativity employment in Orange County decreased between 2008 and 2014. While these statistics help illustrate how hard the Creativity sector was hit by the recession, they also provide some respite as they indicate a resurgence in this sector. Sub-sectors which have been driving employment growth in this Creativity industry include Furniture and Decorative Arts which expanded employment by 20.4 percent, followed by Product and Industrial Design which grew by 18.9 percent and finally Architecture and Interior Design which registered an 11.9 percent increase in its employment levels.

While the recession severely impacted overall Creativity employment in traditional firms, it seemed to have the opposite effect on self-employed creative workers.

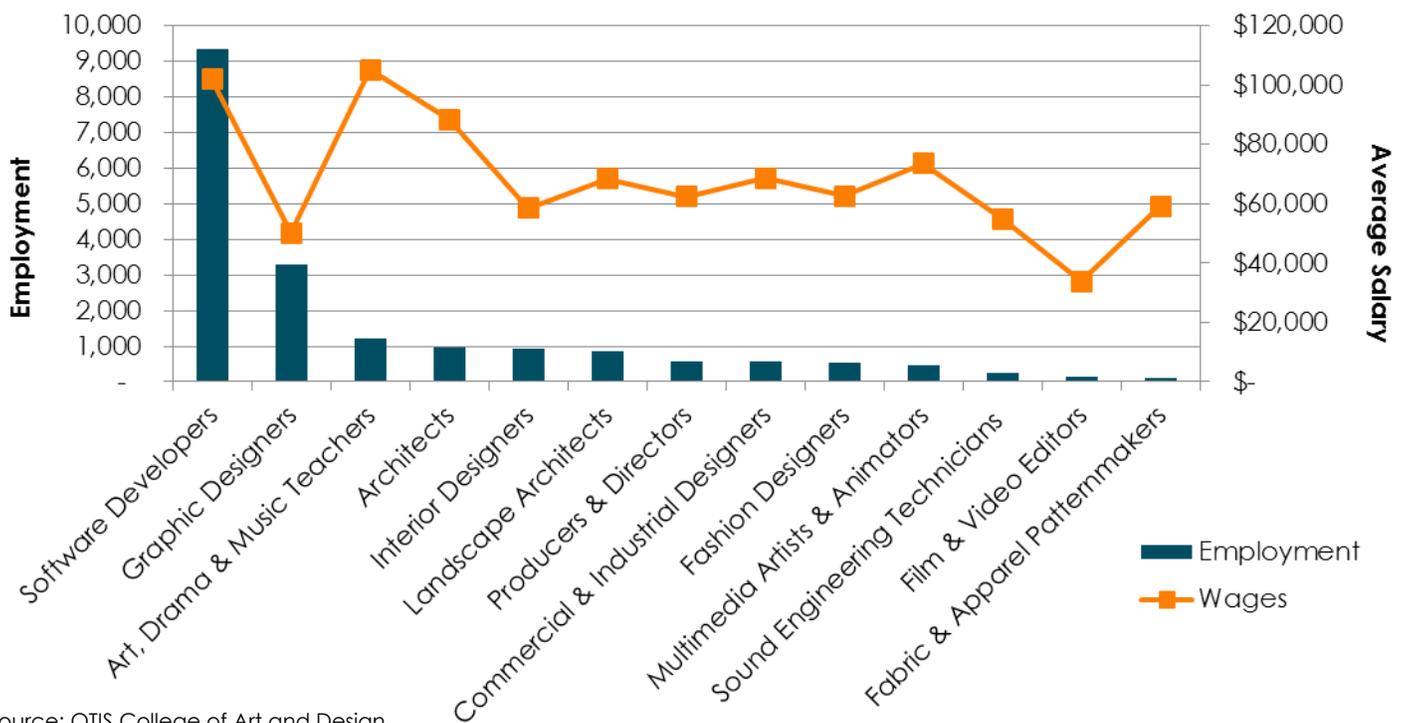


While the recession severely impacted overall Creativity employment in traditional firms, it seemed to have the opposite effect on self-employed creative workers. As firms shed employees, preferring to contract out much of their marketing services during the recession, the new pool of displaced creative workers, alongside a significant improvement in availability and ease-of-use of design applications, resulted in many individuals striking out on their own. These individuals created their own business opportunities by advertising themselves through various social media and “sharing economy” outlets available today and are serving as independent contractors and consultants, often for medium and small-sized businesses. Research shows that, post-Great Recession, self-employment and the “gig economy” have become very attractive employment options for many creative individuals.

The value and importance of the Creativity sector in contributing to the local economy can be seen in the average salaries provided to these workers, although reliable wage or earning potential data from creative self-employment is quite limited. The highest paid occupation, Postsecondary Arts, Drama, Music Teachers, had average salaries of \$105,150, followed by Software Developers, Applications (\$101,930) and Architects (\$83,330). The highest paid occupations also tended to be among the highest employing occupations, indicating a deep pool of high quality jobs. Nearly all Creative sector occupations provided average salaries of over \$50,000 in Orange County, with only Film and Video Editors falling below the mark, registering an income of \$31,190.



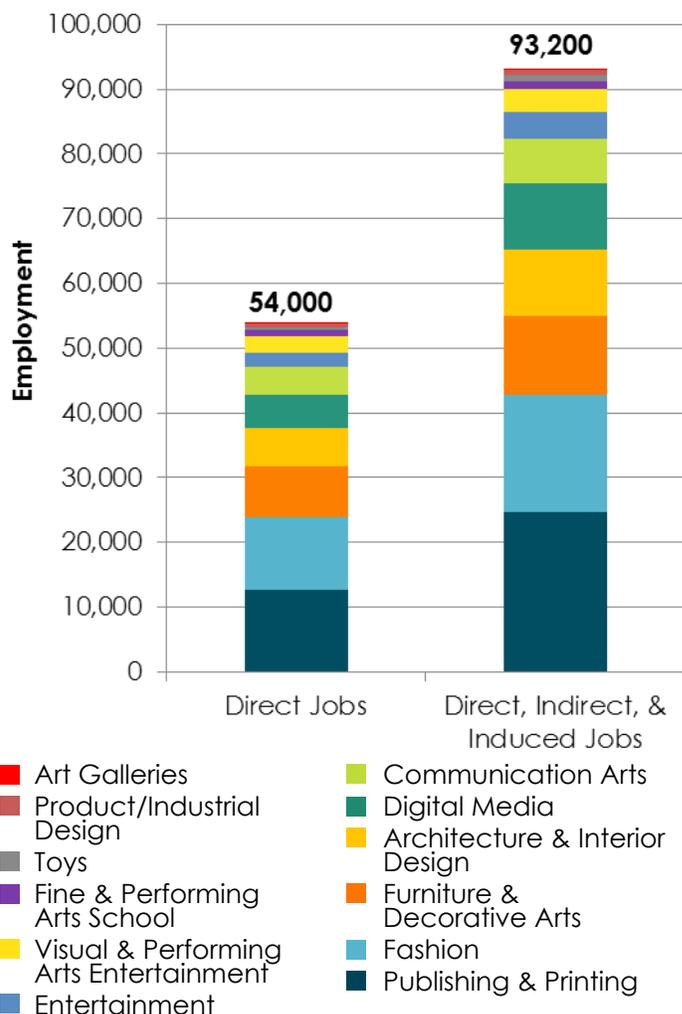
**Orange County Select Creative Occupation Employment and Average Salaries, 2014**



Source: OTIS College of Art and Design

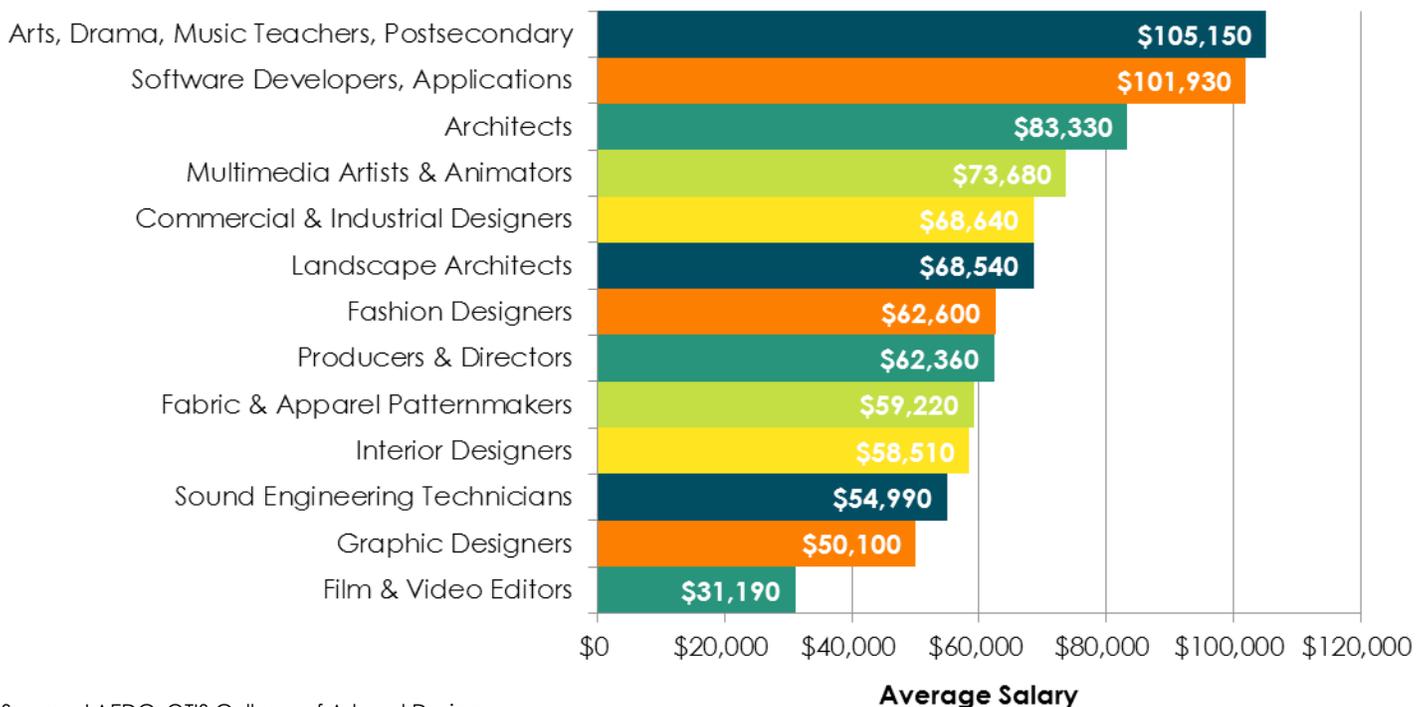


### Direct, Indirect, and Induced Employment Generated by Orange County's Creative Industry, 2014



Source: LAEDC; OTIS College of Art and Design

### Orange County Creative Sector Salaries, 2014



Source: LAEDC; OTIS College of Art and Design



# REPORT PARTNERS

A product of the research partnership between Orange County Business Council, County of Orange, and Orange County Development Board, the Workforce Indicators Report examines the growth of industry and employment, salary and wage trends, demographic changes and the educational attainment of Orange County students.

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