

Will I be prepared for the jobs of tomorrow?

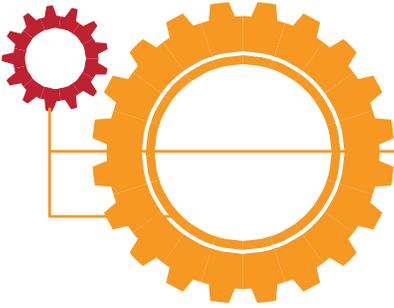


Will my business find the employees it needs?



orange county
**work
force**

2008-2009



Dear Workforce Development Partner:

The Orange County Business Council and the Orange County Workforce Investment Board are pleased to announce the seventh annual “Orange County Workforce: State of the County 2008 Report.” The objective of our joint effort is to analyze and showcase the real accomplishments the County’s workforce system and business community have achieved in Orange County, as well as reflect on the challenges yet to be addressed in developing a skilled workforce for the future.

Last year’s report examined Orange County’s workforce trends and solutions assisting businesses in their HR and recruitment efforts for skilled employees, growth industry and employment opportunities, salary and wage trends, demographic changes and the cost of workforce housing. In the 2008 report, Dr. Wallace Walrod presents a new set of challenges facing Orange County - how our workforce and education system can positively shape K-12, Community College and University curriculum through the S.T.E.M Disciplines - Science, Technology, Engineering and Mathematics - to better prepare our students for the business world of the future.

Orange County’s future is now. As baby boomers retire, educators need the proper support and necessary programs to provide the knowledge and skills necessary to succeed in highly skilled positions. Teaching K-12 youth technical skills early in life will lead to successful, challenging and lucrative careers in key growth industry clusters. But Orange County businesses must be willing to collaborate with educators and other workforce partners by asking the tough questions such as:

- What education and life skills will employees need in the future?
- How will science and math training today affect Orange County’s competitiveness?
- How can more students be motivated to take science, math and computer courses?

The Orange County Business Council and the Orange County Workforce Investment Board believe in partnership and cooperation as evidenced by many project collaborations. By providing real-world information on future needs to educators and workforce professionals, they then can make a difference explaining what is needed, what is working, and what can be improved upon. Success is measured with a prosperous county, well-prepared employees, and a thriving economy.

The theme of this year’s conference is “S.T.E.M. Today for the Jobs of Tomorrow.” Orange County has long been a wonderful place to live and work. Building upon a great foundation, the Orange County Business Council and the Orange County Workforce Investment Board are committed to the future success of Orange County’s youth by making educational success and workforce training our highest priorities.

We hope you will find this conference informational and riveting enough to spur your supportive action!

Lucy Dunn
President and CEO,
Orange County Business Council

Bob Bunyan
Principal
The Arlington Group
Chairman, OCWIB



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Orange County has a long, distinctive history of successfully growing into a world-class economy we see today. For decades we've built this strong, diverse, and entrepreneurial economy upon the foundation of a skilled, educated workforce – making our community one of the best places in the nation, a great place to live, work and grow a business. However, we all know that we must now compete in an ever more global economy. Our region's workforce is facing new and unprecedented challenges – the careers of tomorrow may be very different from those of the past.

There's no better time to examine Orange County's future workforce trends affecting our more the three million residents and our business community's ability to remain competitive. There's also no better time to invest in partnerships with our workforce and education stakeholders.

The 2007 State of the County Workforce report is a go-to guide for Orange County's stakeholders to look at the core issues that can that help prepare policy-makers, workers, job-seekers, employers compete in a "flattening" world.

With more than 150-years of service behind us, Wells Fargo is one of the industry's most stable, reliable and dependable financial services companies. As one of the County's older businesses, dating back to 1860 when Wells Fargo appointed its first agent in Anaheim, and as a major local employer with 8,994 banking locations, we work hard to make our neighborhoods stronger because we're a part of them. Wells Fargo has a tradition for investing giving back into the communities we serve through outreach programs, financial support, volunteerism, providing high quality financial services, maintaining high standards for integrity and being regarded as a great place to work for our diverse team members. Although we connect to our rich past, Wells Fargo has always focused on the future and is proud to partner with the Orange County Business Council to sponsor its sixth annual Orange County Workforce Conference.

We congratulate the Orange County Business Council and the Orange County Workforce Investment Board for their leadership in bringing quality research, issue analysis and success measures that will help Orange County workforce stay competitive now and long into the future.

A handwritten signature in black ink that reads "Robbin Preciado".

Robbin Preciado
Senior Vice President
Wells Fargo



Dear Workforce Development Partner:

We are very fortunate to live in a county with a world class economy, a dynamic business environment, and a diversity that makes it culturally vibrant and uniquely positioned to understand the challenges of remaining competitive in today's global economy. The future of our county depends heavily on the success of our businesses, a large number of them depending on a highly skilled workforce. Therefore, it is imperative that business and education leaders work collaboratively in designing education curricula that will prepare the children of today to meet the demands of our future workforce.

Fluor was founded in Santa Ana in 1912, and we are very proud of our history of having a positive impact in the communities we touch. This was the philosophy of the company founders, and it is still one of our core values nearly 100 years later. As one of the largest engineering, procurement, construction and maintenance companies in the world, we have always relied on a highly educated, creative and forward-looking workforce. We understand the importance of developing the technologically skilled employees of the future, and are very pleased to partner with the Orange County Business Council and the Orange County Workforce Investment Board to sponsor this year's Workforce Development Conference focusing on Science, Technology, Engineering and Mathematics.

We look forward to the unveiling of the "Orange County Workforce: State of the County 2008 Report." We know that this will be a very important tool in the process of working collaboratively with education leaders in developing a plan to guarantee that the workforce demands of the future will be met.

A handwritten signature in cursive script that reads "Margarita Miranda".

Margarita Miranda
Community Relations Manager, Southern California



JOHN M.W. MOORLACH, C.P.A.
CHAIRMAN, ORANGE COUNTY BOARD OF SUPERVISORS
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September 5, 2008

On behalf of the Orange County Board of Supervisors, it is a pleasure to announce the release of the seventh annual Orange County Workforce Report.

This report is a valuable resource for educators, businesses, and countless other organizations that are committed to the local, national and global capacity of Orange County's economy.

The 2008 Orange County Workforce Report clearly defines the trends in education, employment and population for the county. The report serves as a significant indicator of the workforce needs and movement within the County. Although challenges are presented, they can be addressed through collaborative initiatives among county partners in workforce and economic development.

This report allows educational institutions, businesses, and other organizations to analyze, assess, and plan for success for today and for the future. Orange County's economy is diverse and its workforce needs are distinct. The information in this report is the link among workforce development, education, business and industry, and the economic viability of the county.

Congratulations to the Orange County Workforce Investment Board and the Orange County Business Council on the release of the 2008 Workforce Report.

Very truly yours,



John M. W. Moorlach



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Dear Workforce Development Partner:

The Orange County Workforce Investment Board and the Orange County Business Council are pleased to again partner on the 2008 Workforce Report – our seventh collaboration.

In today's global economy, the issues facing Orange County are not unique. The County faces an aging workforce and the challenges related to it such as a lack of skilled workers who can fill those vacancies; educational and training needs for high-wage and high-growth occupations; home ownership and rental affordability; and economic development challenges.

Orange County must constantly strive to anticipate and respond to changes in the economy, including sudden changes in market conditions, new legislation, business structure and design, population factors, educational and training needs, and services that impact the workforce development system. In being proactive through development and implementation of programs and services, the entire county will reap the benefits.

The impact of the Workforce Report on Orange County cannot be understated. The Workforce Report reveals the trends influencing and affecting economic development and workforce needs. It serves as a gauge for strategic planning and implementing programs that will best serve the industries and organizations and the people who live and work in Orange County. This report includes population projections, employment trends, preparations required for skilled occupations, and the widely used economic indicators.

We are also pleased to present, as a special feature of this year's report, an update on the Industry Clusters of Orange County. Clusters are geographic concentrations of interconnected companies that are present in a particular region or local economy, benefiting from both collaboration and growing through competition. Cluster industries are the main contributors to economic growth in a region, and we hope this tool will enhance industry growth and targeted training for occupations in these important industries.

The Orange County Business Council and the Orange County Workforce Investment Board are confident that the Workforce Report will continue to serve as a valuable resource for Orange County residents, businesses, and local governments alike.

Sincerely,

Jack Mixner
Chair
Economic & Workforce Intelligence Committee

MISSION STATEMENT

**TO RESPOND TO THE NEEDS OF BUSINESSES, JOB SEEKERS AND STUDENTS THROUGH
AN INTEGRATED WORKFORCE DEVELOPMENT SYSTEM.**

2008-09 Workforce Indicators Introduction

It's no secret that Orange County, like much of the nation, has faced its share of challenges in the last twelve months. Declining home values and rising unemployment have grabbed many headlines, perhaps rightly so:

- Orange County's unemployment rate stood at 5.7 percent in July 2008, up from 4.3 percent a year ago and 3.4 percent in 2006.
- The financial and construction sectors accounted for nearly 2/3rds of job losses in the last year.
- Median home prices are down 28.5 percent in the last 12 months.

But how should we put these "headline" numbers into a thoughtful context? First, let's compare Orange County to its neighbors:

- San Diego County's current unemployment rate is 6.4 percent. Orange County, with a similar population, has nearly 200,000 more jobs than San Diego County.
- Los Angeles County's unemployment rate is 7.5 percent versus 4.9 percent a year ago.
- San Bernardino County's unemployment rate is 8.5 percent and Riverside County's is 9.3 percent, for a combined Inland Empire rate of 8.9 percent, where median home prices are down over 35 percent.

Remember, too, that we've been here before. In 1990, Orange County's unemployment rate stood at 3.5 percent and rose to 5.3 percent in 1991, 6.7 percent in 1992, and peaked in 1993 at 6.9 percent. From then on, the Orange County economic engine began to create jobs, jobs, jobs. By 1999, Orange County had created approximately 230,000 jobs and cut that 6.9 percent unemployment rate to 2.7 percent.

The future is more important than the past, however. Where is Orange County headed, and how can business leaders and workforce professionals prepare today for the jobs, workforce, and workplace of tomorrow?

This year's report, the eighth edition, aims to answer these questions directly. In the following pages you will find:

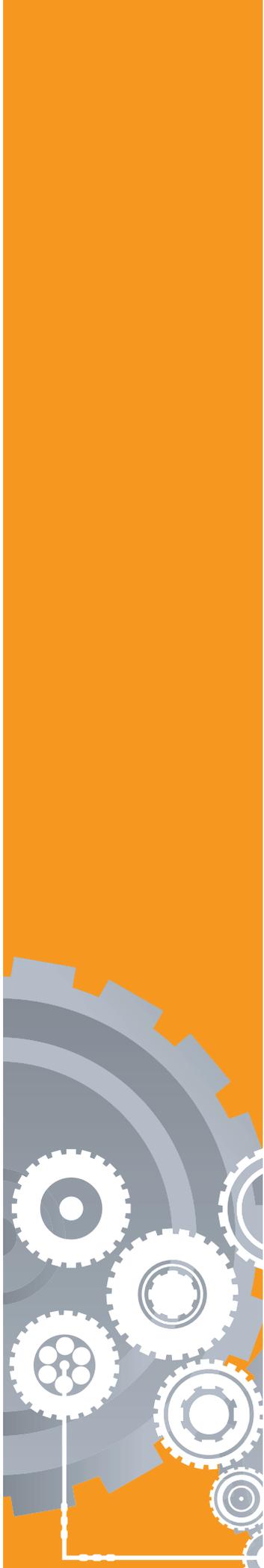
- Demographic projections about Orange County's current and future workforce.
- Extensive information on Orange County's student population, from kindergarten to college and university, with a particular emphasis on science, technology, engineering, and mathematics (STEM).
- Employment trends in Orange County's major industry clusters, newly defined this year and including emerging clusters such as biotechnology and nanotechnology.
- Projections of the fastest growing occupations, along with the relevant education and training requirements.
- Housing and rental costs from a workforce perspective.

Consider this Workforce Indicators report your roadmap. Orange County has come to expect the prosperity that follows with a strong business community and sustained economic growth, but it is essential to focus on the tools that drive growth for this journey.

The report's findings demonstrate that science, engineering, math, computer and other STEM skills are vital to Orange County's overall future competitiveness. They indicate that the achievement of Orange County students in the STEM disciplines is above average. However, there are just not enough students taking STEM coursework today to meet the projected demand for jobs in these areas.

Just as the county has laid the foundation of prosperity with investments in world-class infrastructure systems, such as the renewal of Measure M for transportation investments, it must also focus on education and workforce training targeted to the jobs of tomorrow.

To ensure the long-term prosperity of Orange County, it is essential to have a renewed commitment to STEM preparation from the business community, education and training institutions, and most importantly, parents and students.



orange county

Employment Trends

08-09 Indicators

Percentage of Senior Citizens in Orange County Projected to Increase While Percentage of Working Age Adults Will Decrease; Latino Plurality by 2020 and Majority by 2050

Description of Indicator

This indicator measures the components of demographic change in Orange County. Projected population growth by age group is compared between the years 2000 and 2050.

Why is it Important?

Orange County's population components are expected to change dramatically in ways that will radically affect the type of community and economy in the region. Through understanding the expected pattern of future demographic change, policy makers and leaders can better understand the evolving population, and hence labor force, of the County.

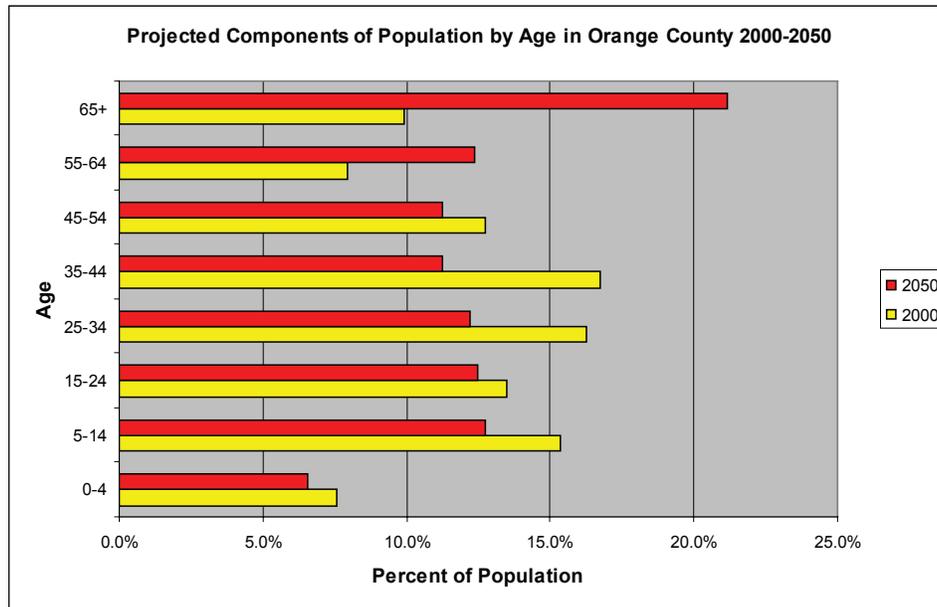
How is Orange County Doing?

By the year 2050, the age composition of Orange County is projected to change dramatically. Individuals over age 65 made up 9.9 percent of the total population in the County in 2000. In the next 35 years, individuals over 65 will make up 21.2 percent of the County's population. During the same time period, the percent of the population between 25 and 54 years of age will be reduced from 45.8 percent to 34.7 percent.

Furthermore, by 2020, Latinos will be the largest ethnic group in Orange County, comprising 41 percent of the

population in 2020, and 53 percent by 2050. This trend is already evident as 71.1 percent of the Latino population is under the age of 34, and 50.3 percent is under the age of 24. Approximately 14.9 percent of the White population is over age 65 while only 3.2 percent of the Latino population is over the age of 65.

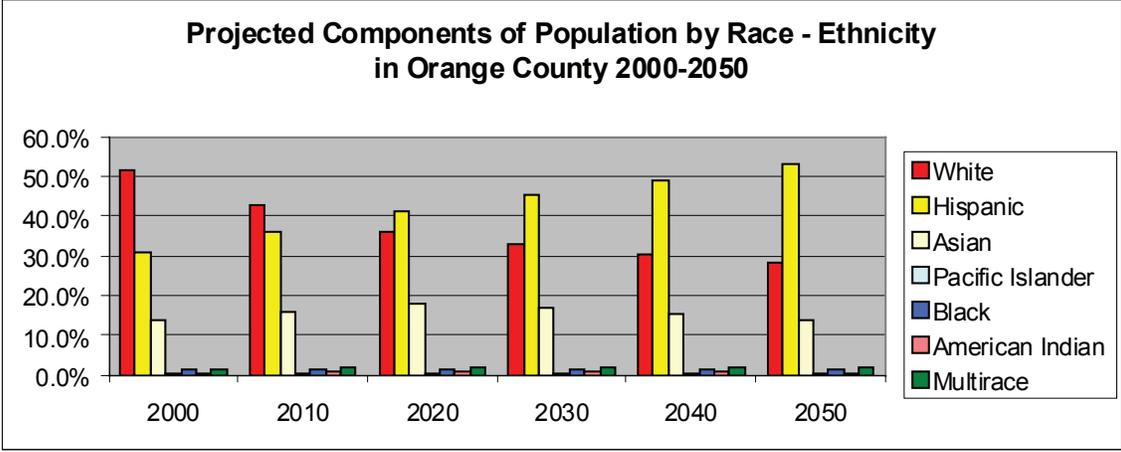
Between 1990 and 2004, over 70 percent of the County's population growth has been through natural increase and less than a third has been from migration. Since 2001, net domestic migration has been negative - more persons moved out of Orange County to other locations in the United States than moved into the County from other locations within the United States. Orange County experienced a similar trend during the 1991-1996 time period. In 1994, 1995, and since 2005, net domestic migration out of the County exceeded international migration into the County resulting in population growth solely through natural increase. In the late 1990s, the domestic migration out of the County reversed itself although the trend toward negative net domestic migration resumed in 2001. With the exception of a slight spike in 2001, overall net migration into Orange County has been declining since 1999. Instead, as shown by the number of births in Orange County, since 2004, the number of actual births is slightly increasing, projected to reach approximately 47,500 per year by 2013.



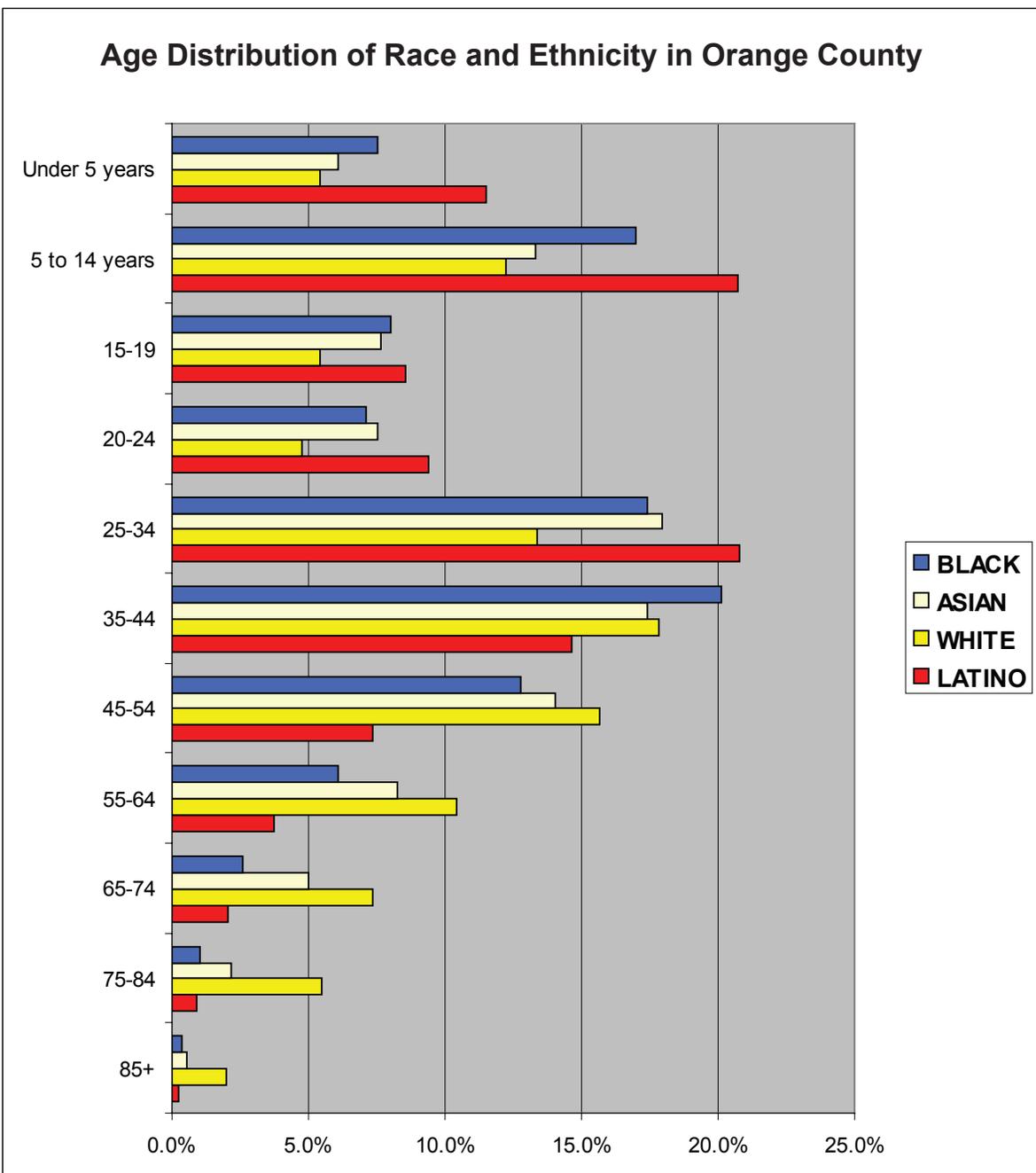
Source: State of California, Department of Finance



Create sustainable job growth needed to keep unemployment 1.5 percent below State and national averages. Orange County lost 29,900 jobs over the last year, July 2007 through July 2008, and is currently 1.9 percent below the State and 0.3 percent below the national unemployment rate.



Source: State of California, Department of Finance



Source: US Census Bureau, 2000 Census

College Readiness Decreases in 2006-2007 for Orange County Students with Drop in Eligibility for Hispanic Students

Description of Indicator

College readiness measures the number of public high school graduates eligible for admission to the University of California (UC) and California State University (CSU) campuses.

Minimum Requirements

- 4 years of College Preparatory English
- 3 years of College Preparatory Mathematics (*Algebra, Geometry, Intermediate Algebra*)
- 2 years of College Prep Foreign Language
- 2 years of College Prep History (*1 year World History, 1 year US History*)
- 2 years of College Prep Laboratory Science (*1 year biological science, 1 year physical science*)
- 1 year of College Prep Visual and Performing Arts
- 1 year of College Preparatory Elective

Unless a student completes the above requirements, he/she will not be eligible to enter a UC/CSU university.

This indicator also measures Orange County high school graduates' performance on the Scholastic Aptitude Test (SAT).

Why is it Important?

A college education or related skill certification is increasingly important for many of today's jobs in Orange County. To gain entry to most four-year universities, high school students must complete the necessary course work and perform well on standardized tests. While many jobs in Orange County do not require a college education (see Occupations Analysis), evaluating college readiness is important to know what can be done to improve the ability of students to obtain this necessary educational credential for higher wage jobs.

How is Orange County Doing?

Average eligibility for the County increased from 37.6 percent in 2003-2004 to 39.1 percent in 2006-2007. However, the decrease in the 2006-07 school year from 43.4 percent to 39.1 percent is a trend in the wrong direction.

Hispanic students saw a dramatic increase in the number of students eligible for UC/CSU Admission rising from 18.2 percent in 2004-05, to 35.1 percent in 2005-06 only to reverse course back to 18.1 percent eligibility for 2006-07.

When compared to the entire state, Orange County has slightly lower percentages of students in three ethnic/racial groups taking the necessary courses for UC/CSU eligibility: Pacific Islanders, African/Americans, and Hispanic/Latino. By contrast, a larger percentage of American Indian and Hispanic students in Orange County took the necessary courses for UC/CSU eligibility in 2005-2006. Orange County students scored higher on the SAT than students in the nation, State, and most peer metropolitan areas. Of the counties used for a comparison, only Santa Clara County had seven-year average scores that were above Orange County.

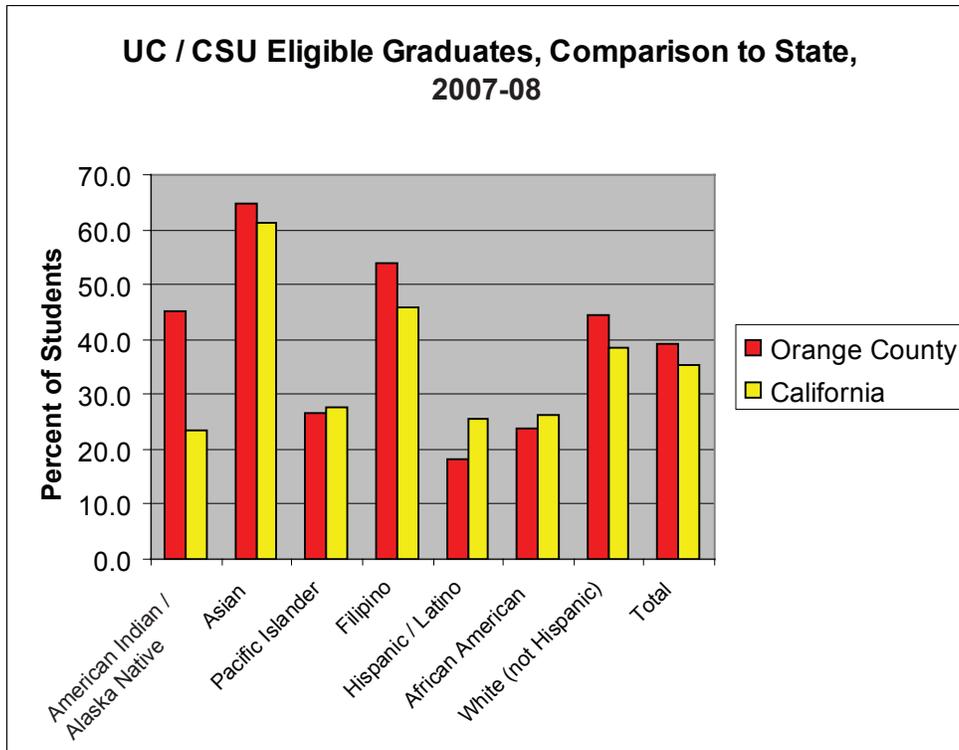
Irvine Unified School District reported the highest average reading/writing/math combined score for the County in the 2006-2007 school year, while Santa Ana Unified School District has the lowest average score. With the exception of Santa Ana, Garden Grove, and Anaheim, all of the school districts in Orange County have average scores above both the California and National average SAT scores for 2006-2007.



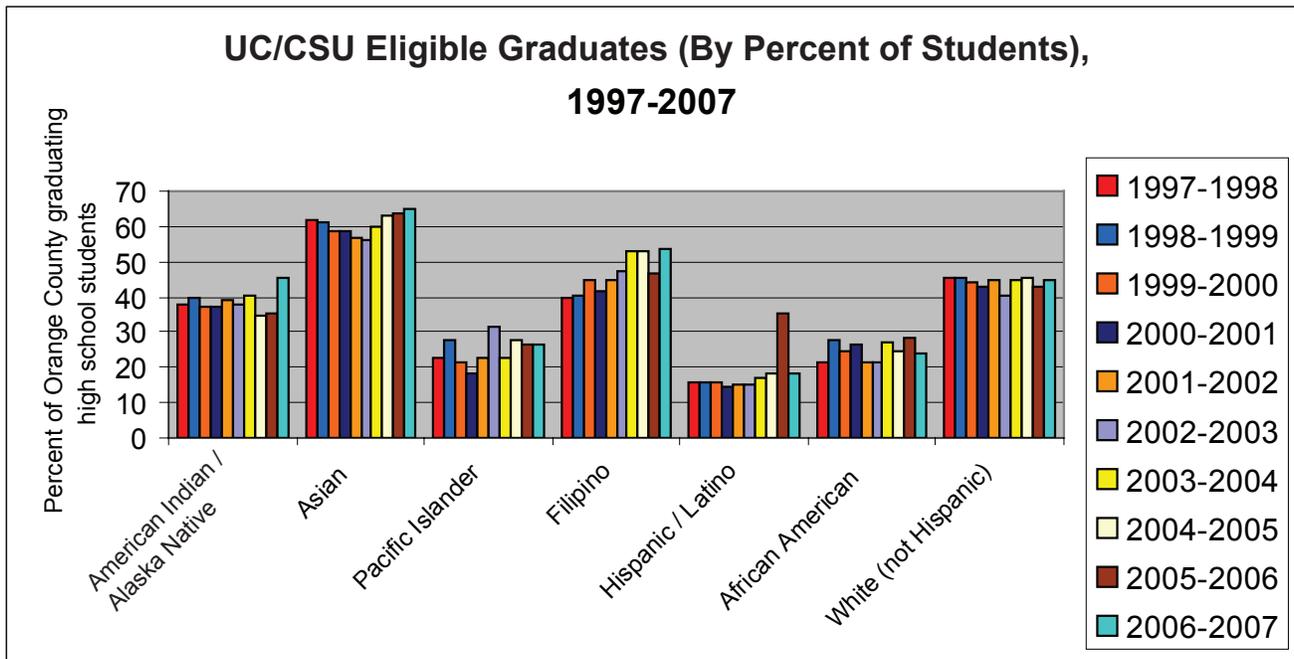
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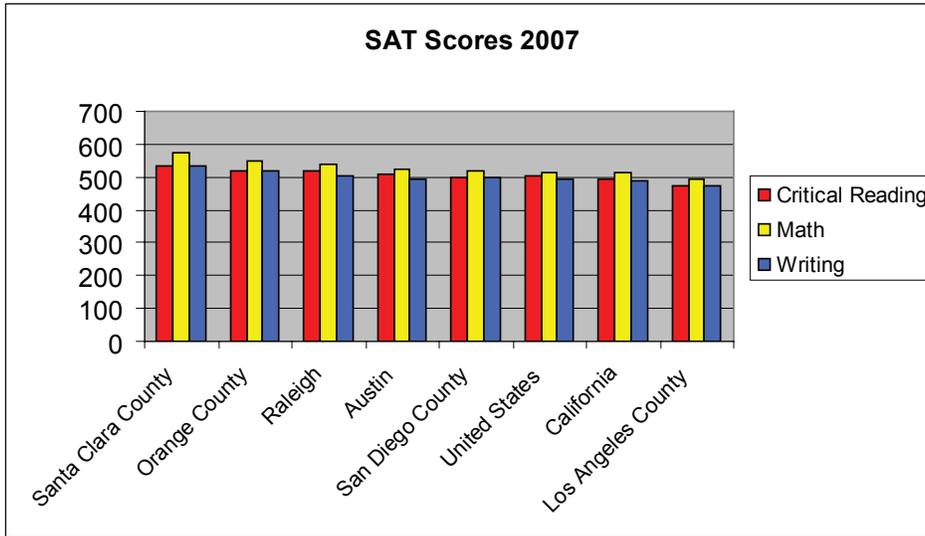
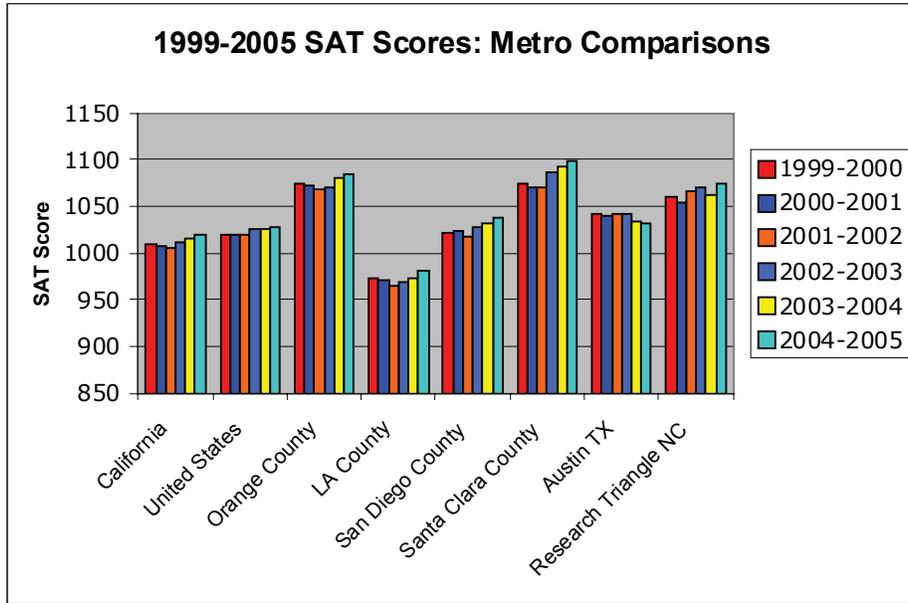
By 2010, 50 percent of Hispanic/Latino and Pacific Islander students meet UC/CSU eligibility.

In the last year, 18.1 percent of Hispanic/Latino and 26.6 percent of Pacific Islander students met UC/CSU eligibility, a dramatic decrease from the previous year.

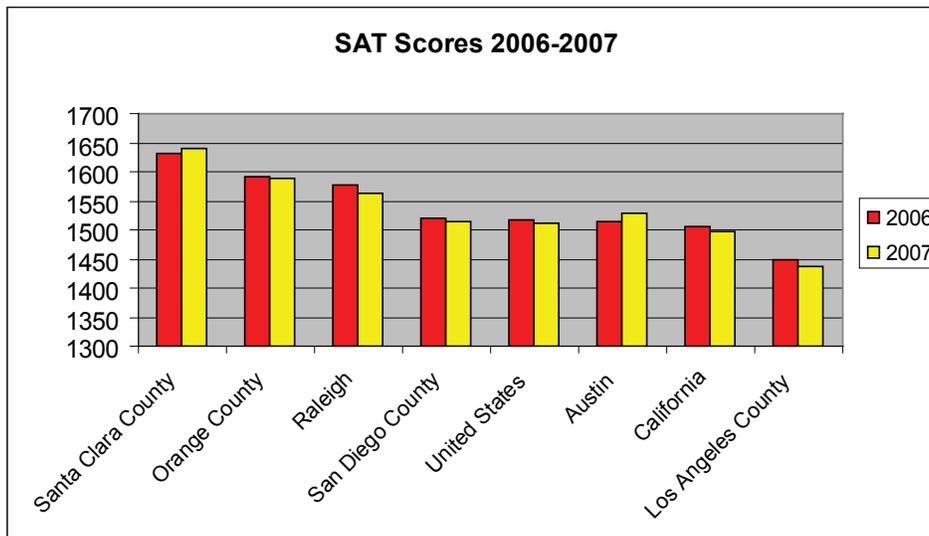


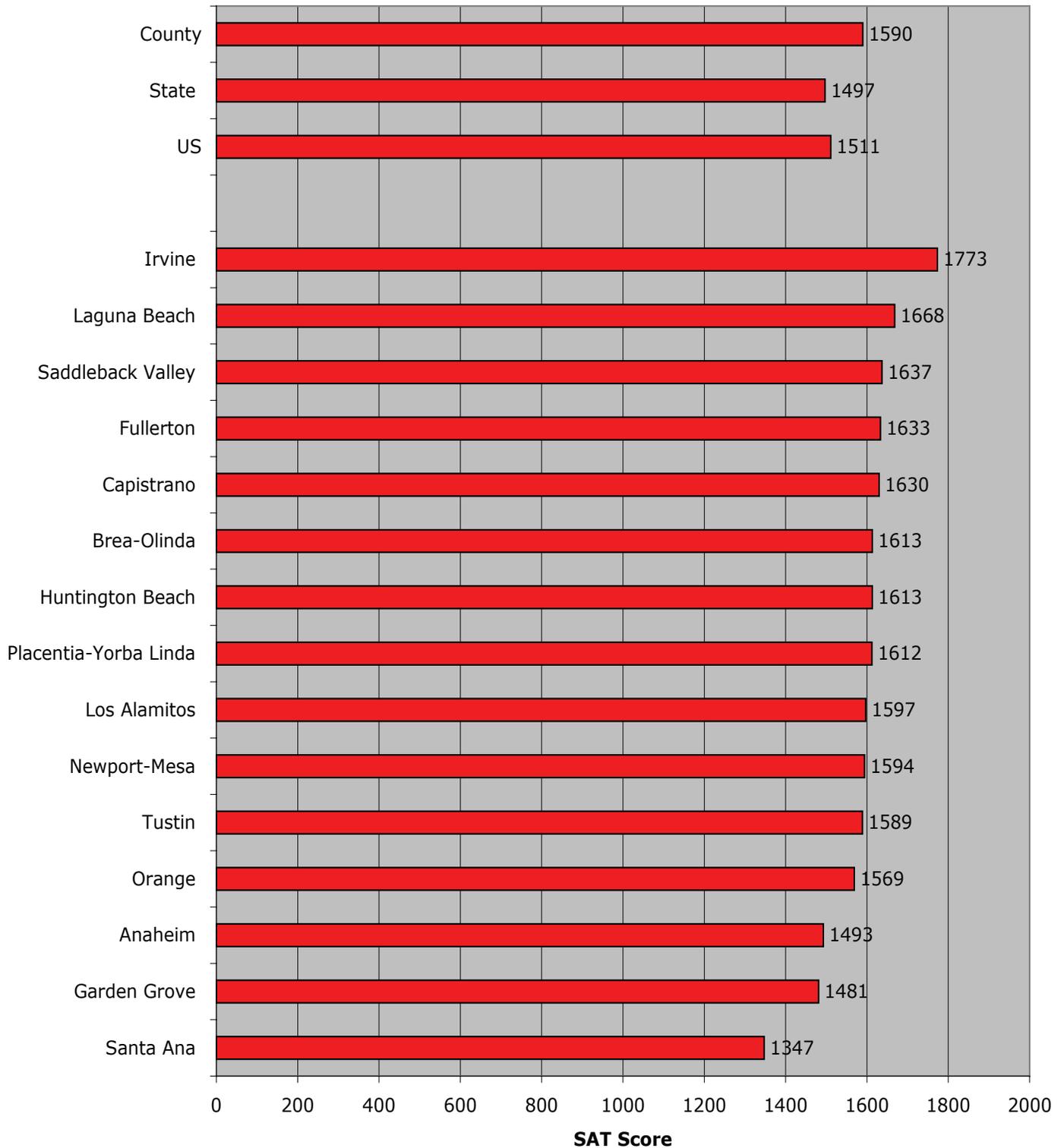
Source: California Department of Education, Educational Demographics Unit





Source: California Department of Education, Educational Demographics Unit; North Carolina State Board of Education, Department of Public Instruction; Texas Education Agency, Academic Excellence Indicator System, Performance Reports



Average Total SAT Scores By School District, 2007

Source: California Department of Education

Largest Projected Job Growth is in Business Services, Food Services, and Education

Description of Indicator

This indicator is a measure of the growth in employment in particular industries in Orange County from 2004-2014, as projected by the Employment Development Department. Industries are defined by the business activities which they perform. The definitions and labels of each industry sector are defined by the North American Industry Classification System (NAICS) used by the California Employment Development Department. These are not necessarily the same labels for the clusters used by the Orange County Workforce Investment Board (see Cluster Analysis indicator). The employment numbers are the count of all the employees hired by the businesses in that industry regardless of the type of occupation performed by the employee.

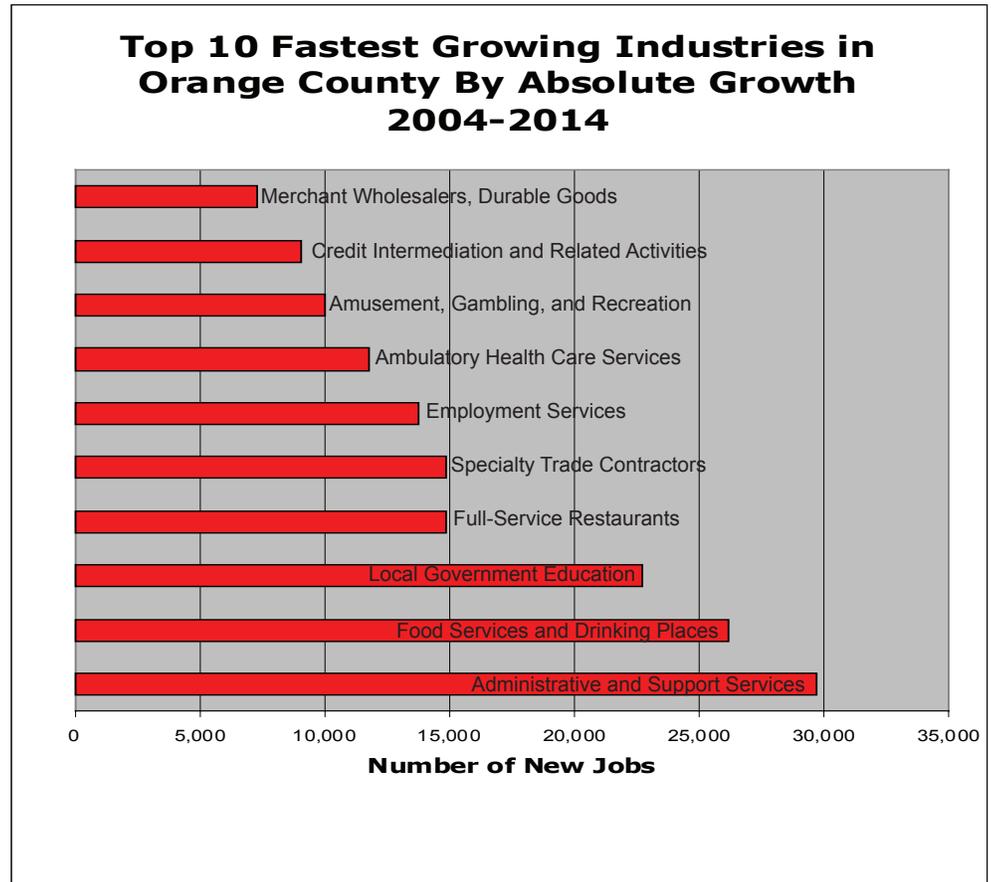
These projections are for the ten year period of 2004 to 2014. Intervening events such as the housing credit crunch starting in 2007 should be taken into consideration in evaluating these projections.

Why is it Important?

In the 1990s, Orange County underwent a major shift in its industry composition. As overall Defense/Aerospace employment declined, Business and Professional Services employment surged, catering to the regional economy, high-tech industries, and financial services. Measuring the continuing transformation of the Orange County economy towards greater diversification enables policy makers to better assess the strengths and vulnerabilities of the local economy and capitalize on existing assets and advantages.

How is Orange County Doing?

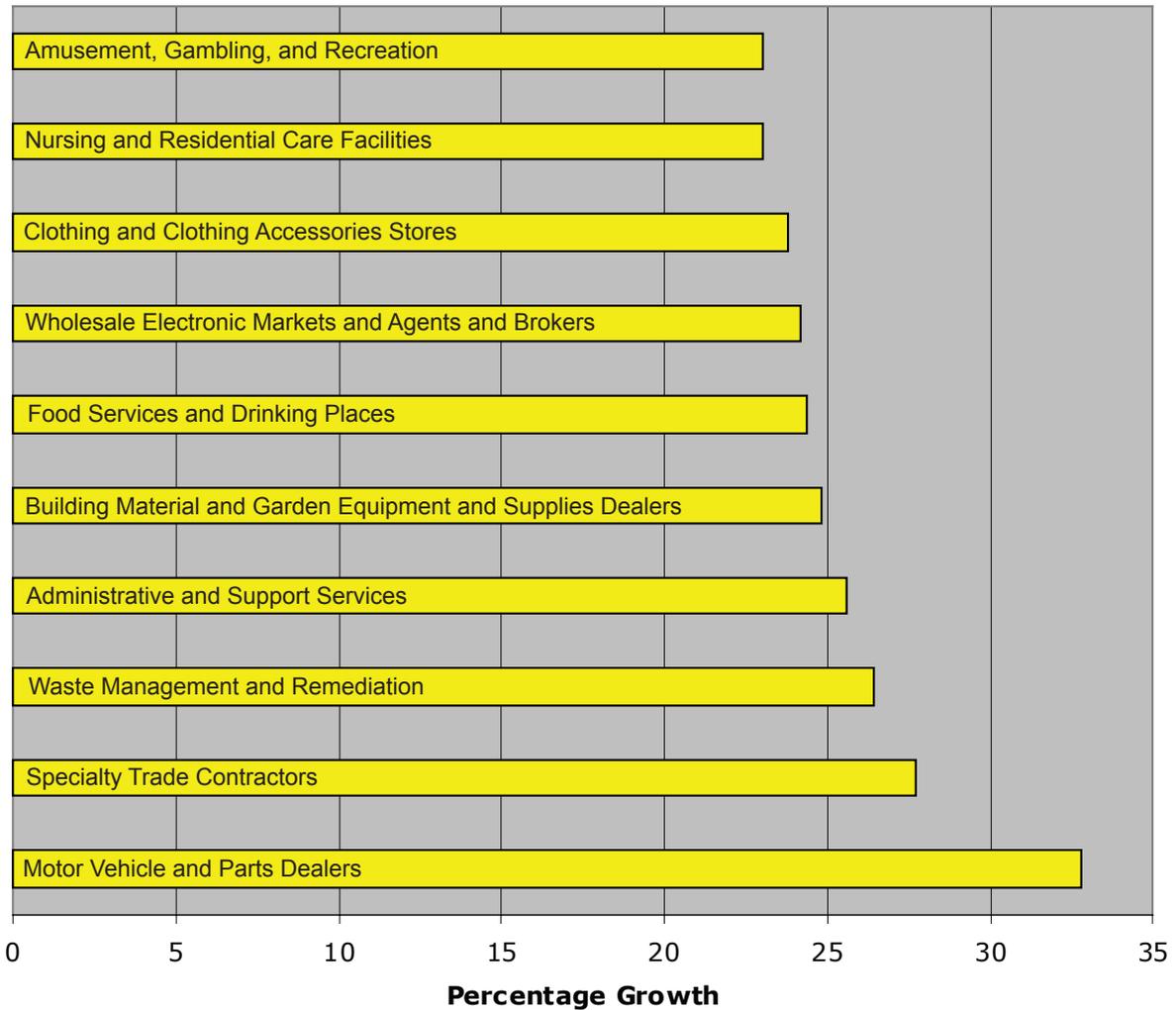
Overall, Orange County employment is expected to increase 18.0 percent from 2004-2014. Projections confirm the continuing importance of Business and Professional Services, as this sector is the leading sector in projected absolute number of jobs. This sector was also a leader in both absolute and percentage job growth for the previous projections, covering the period from 2002-2012. When looking at individual industries, the largest growth industries are in Administrative and Support (Business Services), Food Services, and local Government/Education. When looking at the industries that will generate the largest employment growth as a percentage of their 2004 Orange County employment level, services, Construction and Wholesale Trade sectors figure prominently among the top ten.



Orange County creates 5,000 new, high-wage jobs in Biomedical and Computer Software Clusters and 25,000 jobs in Business and Professional Service by 2010.

In the last year, firms oriented to the Biomedical cluster decreased by approximately 900 jobs, Information Technology (containing the Computer Software industry) decreased by about 900 jobs, and Business and Professional services grew approximately 7,000 jobs last year. Business and Professional Services is on-target while job growth in the Biomedical and Computer Software industries is not.

Top 10 Industries in Orange County By Percentage Job Growth 2004-2014



Orange County has Substantial Competitive Advantage in Professional and Business Services, Retail Trade, Leisure & Hospitality, Services and Manufacturing

Description of Indicator

This indicator uses a technique called shift-share analysis to drill down employment growth in Orange County using three drivers:

- Employment growth attributed to statewide employment growth,
- Employment growth resulting from the County's mix of industries,
- Employment growth that can be credited to unique competitive advantages or disadvantages in Orange County.

The indicator details employment growth during two time periods: high growth years from 1997 through 2000, and a slow growth period from 2001 to 2007. The definitions and labels of each industry sector are defined by the North American Industry Classification System (NAICS) used by the California Employment Development Department. These are not necessarily the same labels for the clusters used by the Orange County Workforce Investment Board. Shift-Share Analysis measures employment change but does not necessarily define the comprehensive picture of whether or not an industry sector qualifies as an industry cluster of Orange County (see Cluster Analysis indicator).

Why is it Important?

Understanding Orange County's unique competitive advantage environment, relative to statewide employment trends can help policy-makers assess where to focus workforce training and economic development initiatives. Understanding the County's competitive advantage during periods of rapid growth and slow growth provides a perspective in differing economic contexts.

How is Orange County Doing?

However since 2003-04 the State economy rebounded leading to additional growth in all industry categories

shown in this indicator except natural resources and mining. During this time period, California's strong employment growth contributed positively to employment growth in all Orange County industries. From 1997 through 2000, the County showed a competitive advantage in generating job growth in Durable Goods Manufacturing, Nondurable Goods Manufacturing, Retail Trade, Information, Professional and Business Services, Leisure and Hospitality, Other Services, and Government.

In the last seven years, Orange County's economy has experienced significant economic change resulting in a large restructuring of workplaces and employment opportunities. During this time period, the County had employment growth in the Construction, Retail Trade, Financial Activities, Professional and Business Services, Health Services, Leisure and Hospitality, Other Services, and Educational/Government sectors.

From 2001 through 2003, the weak State economy contributed negatively to employment growth in all Orange County industries in this indicator.

However, from 2003-2004, the State economy rebounded thus leading to additional growth in the local Orange County economy. Coupled with substantial competitive advantages in several clusters, Orange County's job growth was quite robust. Orange County showed competitive advantages in job generation in all sectors except Wholesale Trade, Retail Trade, Transportation/Warehousing/Utilities, Information, and Leisure and Hospitality from 2001 to 2007. Considering both local competitive advantage and industry mix for the 2001-2007 time period, the county experienced job gains in "other services", due to local competitive advantages in spite of the drag caused decreases in these industries overall.



TARGET

Orange County creates 5,000 new, high-wage jobs in Biomedical and Computer Software Clusters and 25,000 jobs in Business and Professional Service by 2010. *In the last year, firms oriented to the Biomedical cluster decreased by approximately 900 jobs, Information Technology (containing the Computer Software industry) decreased by about 900 jobs, and Business and Professional services grew approximately 7,000 jobs last year. Business and Professional Services is on-target while job growth in the Biomedical and Computer Software industries is not.*

Orange County Employment Growth, by Industry, 1997-2000

	1997 Employment	2000 Employment	Growth (Loss) from 1997 through 2000
TOTAL ORANGE COUNTY EMPLOYMENT	1,142,000	1,287,900	145,900
O.C. Employment by Industry:			
Natural Resources and Mining	800	600	(200)
Construction	59,200	77,000	17,800
Durable Goods Manufacturing	147,200	153,400	6,200
Nondurable Goods Manufacturing	61,500	63,300	1,800
Wholesale Trade	75,800	80,800	5,000
Retail Trade	132,900	147,800	14,900
Transportation, Warehousing and Utilities	28,900	30,400	1,500
Information	32,500	41,500	9,000
Professional and Business Services	196,500	248,800	52,300
Educational and Health Services	106,200	112,800	6,600
Leisure and Hospitality	127,600	140,700	13,100
Other Services	40,200	44,200	4,000
Government	132,700	146,600	13,900

Components of Orange County Employment Growth, 1997-2000

	O.C. Job Growth Due to State Growth	O.C. Job Growth Due to O.C. Industrial Mix	O.C. Job Growth Due to O.C. Competitive Advantage
TOTAL COUNTY EMPLOYMENT	120,587	616	24,696
Breakdown by Industry			
Natural Resources and Mining	84	(66)	(219)
Construction	6,251	12,593	(1,044)
Durable Goods Manufacturing	15,543	(10,676)	1,332
Nondurable Goods Manufacturing	6,494	(7,098)	2,404
Wholesale Trade	8,004	(1,730)	(1,274)
Retail Trade	14,033	(3,233)	4,100
Transportation, Warehousing and Utilities	3,052	(707)	(845)
Information	3,432	4,572	996
Professional and Business Services	20,749	16,449	15,102
Educational and Health Services	11,214	(2,474)	(2,140)
Leisure and Hospitality	13,474	(3,501)	3,127
Other Services	4,245	(498)	253
Government	14,012	(3,015)	2,903

Source: Orange County Business Council analysis of data from California Employment Development Department

Orange County Employment Growth, by Industry, 2001-2007

	2001 Employment	2007 Employment	Growth (Loss) from 2001 to 2007
TOTAL ORANGE COUNTY EMPLOYMENT	1,413,900	1,513,000	99,300
O.C. Employment by Industry			
Natural Resources and Mining	600	600	0
Construction	80,700	103,700	23,000
Durable Goods Manufacturing	147,800	126,100	(21,700)
Nondurable Goods Manufacturing	60,700	54,200	(6,500)
Wholesale Trade	83,900	87,100	3,200
Retail Trade	150,100	160,700	10,600
Transportation, Warehousing and Utilities	30,400	28,700	(1,700)
Information	40,200	31,300	(8,900)
Financial Activities	106,100	128,500	22,400
Professional and Business Services	248,400	272,300	23,900
Educational and Health Services	114,600	141,600	27,000
Leisure and Hospitality	154,300	171,600	17,300
Other Services	45,200	47,600	2,400
Government	150,900	159,200	8,300

Components of Orange County Employment Growth, 2001-2007

	O.C. Job Growth Due to State Growth	O.C. Job Growth Due to O.C. Industrial Mix	O.C. Job Growth Due to O.C. Competitive Advantage
TOTAL COUNTY EMPLOYMENT	54,341	(3,990)	48,949
Breakdown by Industry			
Natural Resources and Mining	23	(16)	(7)
Construction	3,102	8,470	11,429
Durable Goods Manufacturing	5,680	(35,408)	8,028
Nondurable Goods Manufacturing	2,333	(10,378)	1,545
Wholesale Trade	3,225	4,161	(4,185)
Retail Trade	5,769	4,985	(153)
Transportation, Warehousing and Utilities	1,168	(1,695)	(1,174)
Information	1,545	(7,307)	(3,138)
Financial Activities	4,078	4,882	13,440
Professional and Business Services	9,547	(798)	15,152
Educational and Health Services	4,404	12,723	9,872
Leisure and Hospitality	5,930	15,320	(3,950)
Other Services	1,737	(433)	1,096
Government	5,800	1,504	996

Source: Orange County Business Council analysis of data from California Employment Development Department

State Manufacturing Climate Creates a Drag on Orange County Manufacturing Competitive Advantages

Description of Indicator

This indicator uses a shift-share analysis to drill down employment growth in Orange County industries into three categories - employment growth that can be attributed to growth in the statewide employment, employment growth that is due to Orange County's mix of industries, and employment growth that can be credited to unique competitive advantages or disadvantages in Orange County. The analysis examined Orange County's employment growth from 2001 to 2007. The definitions and labels of each industry sector are defined by the North American Industry Classification System (NAICS) used by the California Employment Development Department. These are not the same categories for the clusters used by the Orange County Workforce Investment Board (see Cluster Analysis indicator).

Why is it Important?

Understanding the pattern of Orange County's competitive advantage, relative to statewide employment trends, can help policy-makers assess where to focus workforce training initiatives. Given that manufacturing is important

in an economy's ability to create long-term sustainable wealth for its residents, understanding Orange County's competitive advantage in Durable Goods and Non-Durable Goods Manufacturing is essential.

How is Orange County Doing?

From 2001 to 2007, Orange County experienced job losses in all Durable Goods and Non-Durable Goods Manufacturing sectors except computers and peripherals, and electronic instrument manufacturing. Furthermore, from 2001 through 2007, the weak State manufacturing situation contributed negatively to employment growth in all Orange County industries in this sector. In Durable Goods Manufacturing, from 2001 to 2007, Orange County showed competitive advantages in job generation in the pre-fabricated metal manufacturing, machinery manufacturing, semiconductor manufacturing, electronic instrument manufacturing, aerospace products and parts manufacturing, and Non-Durable Goods Manufacturing categories.



Executives create a business environment in Orange County conducive to competitive advantages and positive job growth. Orange County remains competitive in many industry clusters. *Orange County executives rate Orange County highly as a place to do business*

Orange County Durable Goods Manufacturing Employment Growth, by Industry, 1997-2000

O.C. Employment by Industry:	1997	2000	Growth (Loss) from 1997 through 2000
Fabricated Metal Product Manufacturing	24,000	25,000	1,000
Machinery Manufacturing	14,200	13,500	(700)
Semiconductor & Electronic Component Manufacturing	18,700	20,100	1,400
Electronic Instrument Manufacturing	17,300	16,600	(700)
Aerospace Product and Parts Manufacturing	13,100	14,300	1,200
Other Transportation Equipment Manufacturing	6,800	6,500	(300)
Residual-Miscellaneous Manufacturing	39,200	43,400	4,200

Source: California Employment Development Department

Orange County Durable Goods Manufacturing, Employment Growth Components, 1997-2000

	O.C. Job Growth Due to State Growth	O.C. Job Growth Due to O.C. Industrial Mix	O.C. Job Growth Due to O.C. Competitive Mix
Fabricated Metal Product Manufacturing	357	624	20
Machinery Manufacturing	211	290	(1,201)
Semiconductor and Electronic Component Manufacturing	278	949	173
Electronic Instrument Manufacturing	257	(1,848)	891
Aerospace Product and Parts Manufacturing	195	(1,510)	2,515
Other Transportation Equipment Manufacturing	101	(378)	(23)
Residual-Miscellaneous Manufacturing	582	3,159	459

Source: Orange County Business Council analysis of data from California Employment Development Department

Orange County Durable Goods Manufacturing Employment Growth, by Industry, 2001-2007

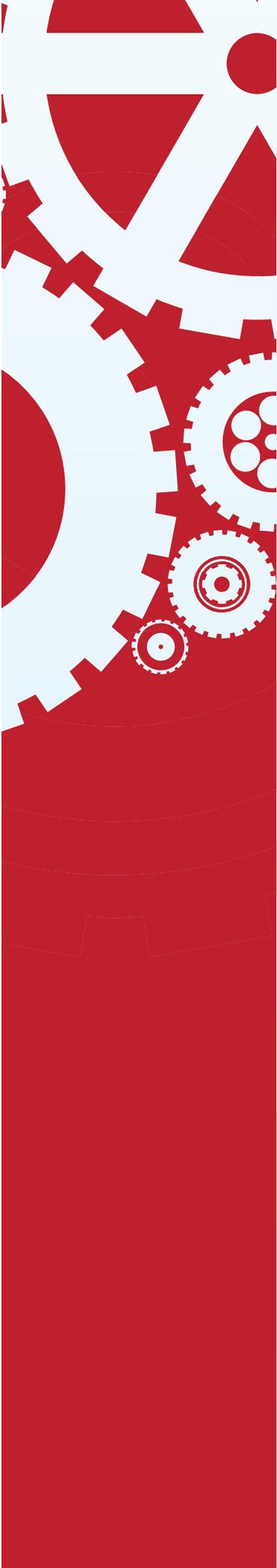
O.C. Employment by Industry	2001 Employment	2007 Employment	Growth (Loss) from 2001 to 2007
Fabricated Metal Product Manufacturing	25,300	24,100	(1,200)
Machinery Manufacturing	12,300	11,000	(1,300)
Semiconductor & Electronic Component Manufacturing	19,800	14,700	(5,100)
Electronic Instrument Manufacturing	16,200	16,900	700
Aerospace Product and Parts Manufacturing	13,000	11,000	(2,000)
Other Transportation Equipment Manufacturing	6,500	4,800	(1,700)
Residual-Miscellaneous Manufacturing	41,300	34,500	(6,800)

Source: California Employment Development Department

Orange County Durable Goods Manufacturing, Employment Growth Components 2001-2007

	O.C. Job Growth Due to State Growth	O.C. Job Growth Due to O.C. Industrial Mix	O.C. Job Growth Due to O.C. Competitive Advantage
Fabricated Metal Product Manufacturing	(3,989)	476	2,313
Machinery Manufacturing	(1,939)	(995)	1,634
Semiconductor & Electronic Component Manufacturing	(3,121)	(2,776)	797
Electronic Instrument Manufacturing	(2,554)	461	2,793
Aerospace Product and Parts Manufacturing	(2,049)	(47)	96
Other Transportation Equipment Manufacturing	(1,025)	1,156	(1,831)
Residual-Miscellaneous Manufacturing	(6,511)	2,051	(2,340)

Source: Orange County Business Council analysis of data from California Employment Development Department



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Housing Costs:

A Workforce Perspective

08-09 Indicators

Orange County Median Home Prices Drop 27.2 percent between June 2007 and June 2008

Description of Indicator

This indicator is a measure of the home purchasing power of the different wage levels in Orange County. The indicator shows the home that can be purchased for different annual incomes, and the median home price for Orange County compared to peer regions.

Why is it Important?

Orange County's high cost of homeownership requires that some lower-wage workers either live in crowded conditions within the County or that they commute long distances from locations outside of the County. Additionally, workforce and economic development efforts that target higher wage industries and occupations can provide wages that are better suited to Orange County's cost of living.

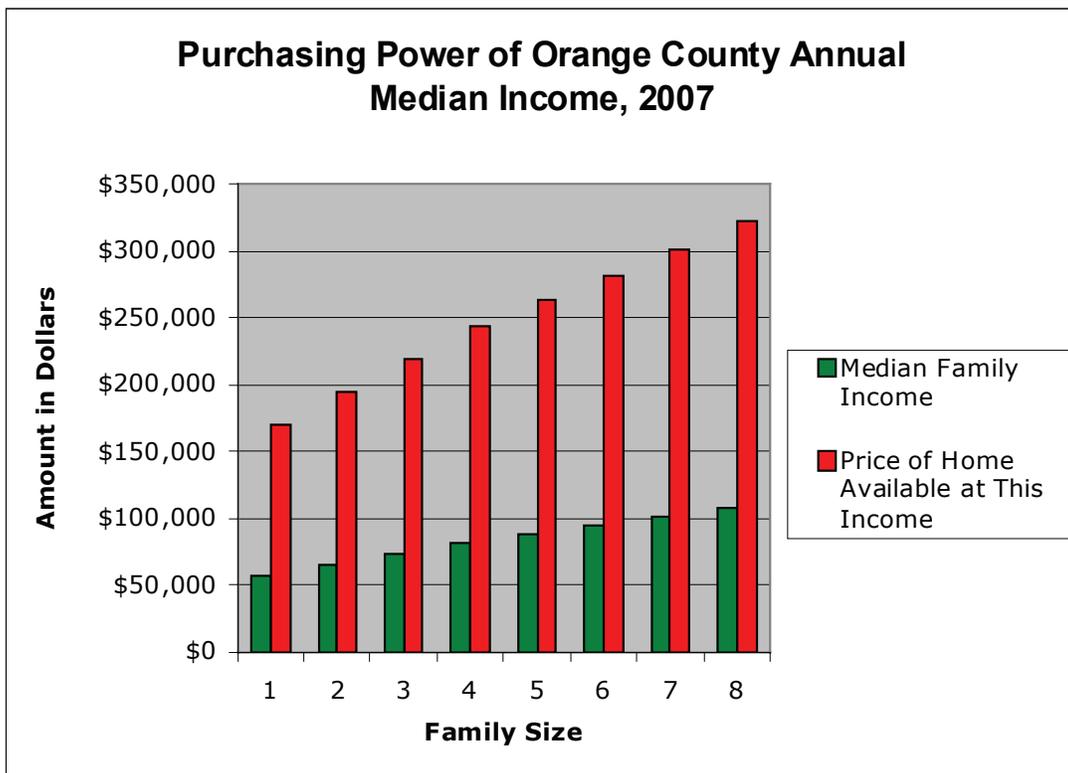
How is Orange County Doing?

Between June of 2007 and June of 2008, the Orange County median priced home (condos and single family homes) dropped 27.2 percent to \$470,000. After years of double digit increases, this drops shows that the recent housing price boom is over. However, while the boom

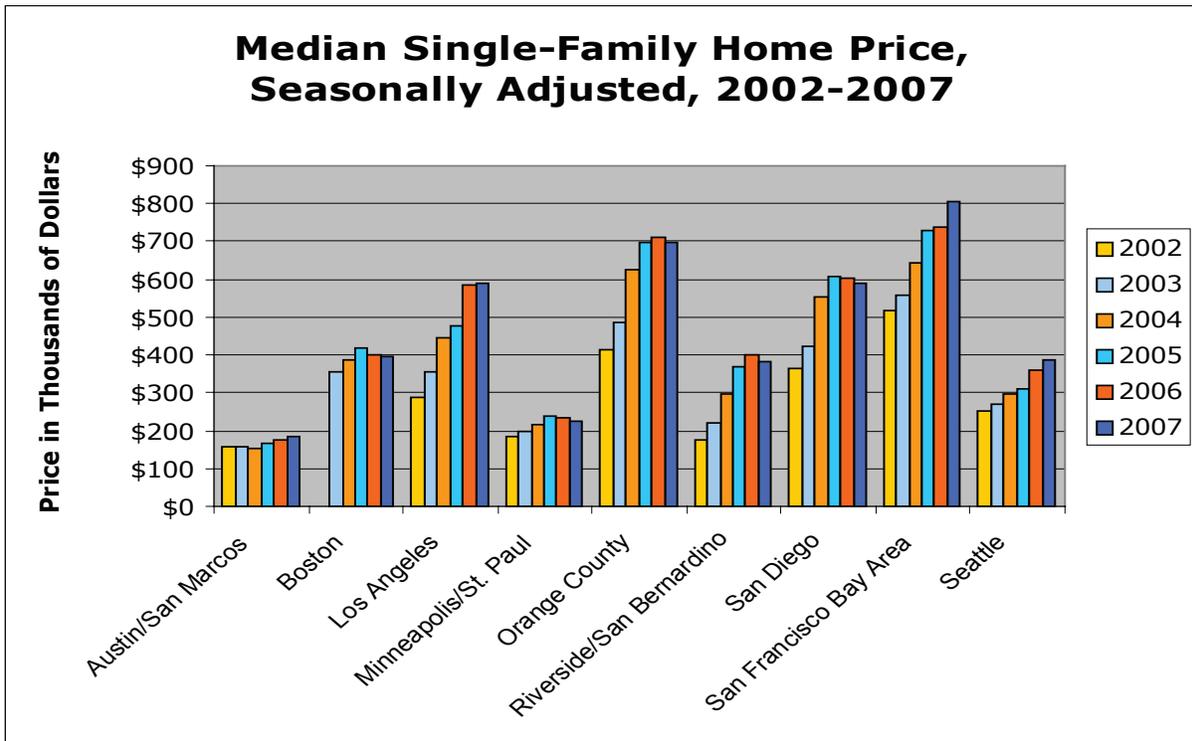
is over, housing is not necessarily more affordable for a large number of Orange County residents.

Families making the median family income for Orange County are not able to afford median priced single-family homes here. The median family income for a family of four in Orange County in 2007 was \$78,700 and the purchasing power for that level of income is a \$245,000 home. Santa Ana had the lowest median home price for June 2008 (\$310,000), suggesting that even with home price declines there is still a large gap between home prices and the household incomes for many Orange County residents.

When compared to peer regions, only San Francisco has higher median single-family home prices than Orange County. The median single family home price in Austin, Texas for 2007 (\$183,700) was more than \$500,000 less than in Orange County. This suggests that employers in Orange County may have a more difficult time retaining or attracting high quality workers than other similar communities.

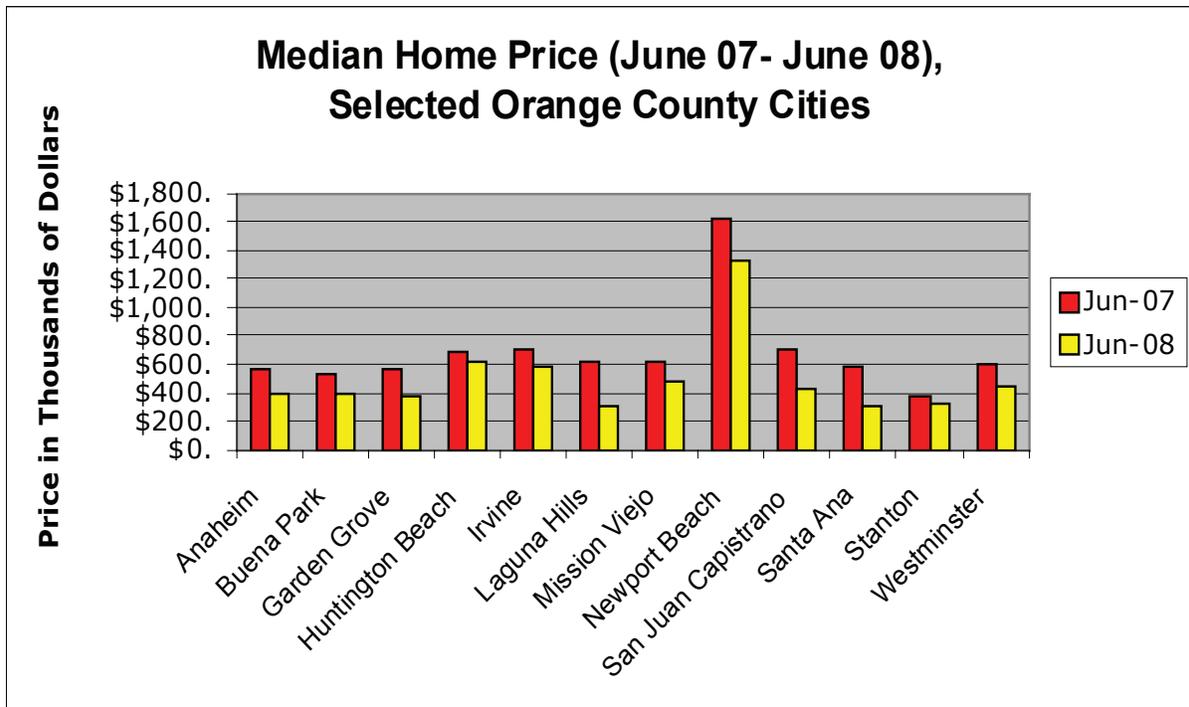


FOOTNOTE: The chart shows the estimated home price that an Orange County family earning the median annual income could afford. Source: U.S. Department of Housing & Urban Development, Homes & Communities



Source: National Association of REALTORS

*Note: Data from National Association of Realtors is of Single Family Home Prices while California Association of Realtors data is of all homes, single family as well as condominiums and town-homes.



Source: California Association of Realtors



Orange County has sufficient affordable housing for all income levels and maintains a competitive home purchasing power of wages compared to other innovation-driven economies. *Orange County remains one of the most expensive places to purchase a home, even though prices are now dropping.*

Orange County is Among Nation's Most Expensive Rental Markets

Description of Indicator

The rental affordability indicator measures the Housing Wage - the hourly wage a resident would need to afford Fair Market Rent.¹ This indicator also shows fair market rents for a typical Orange County apartment.

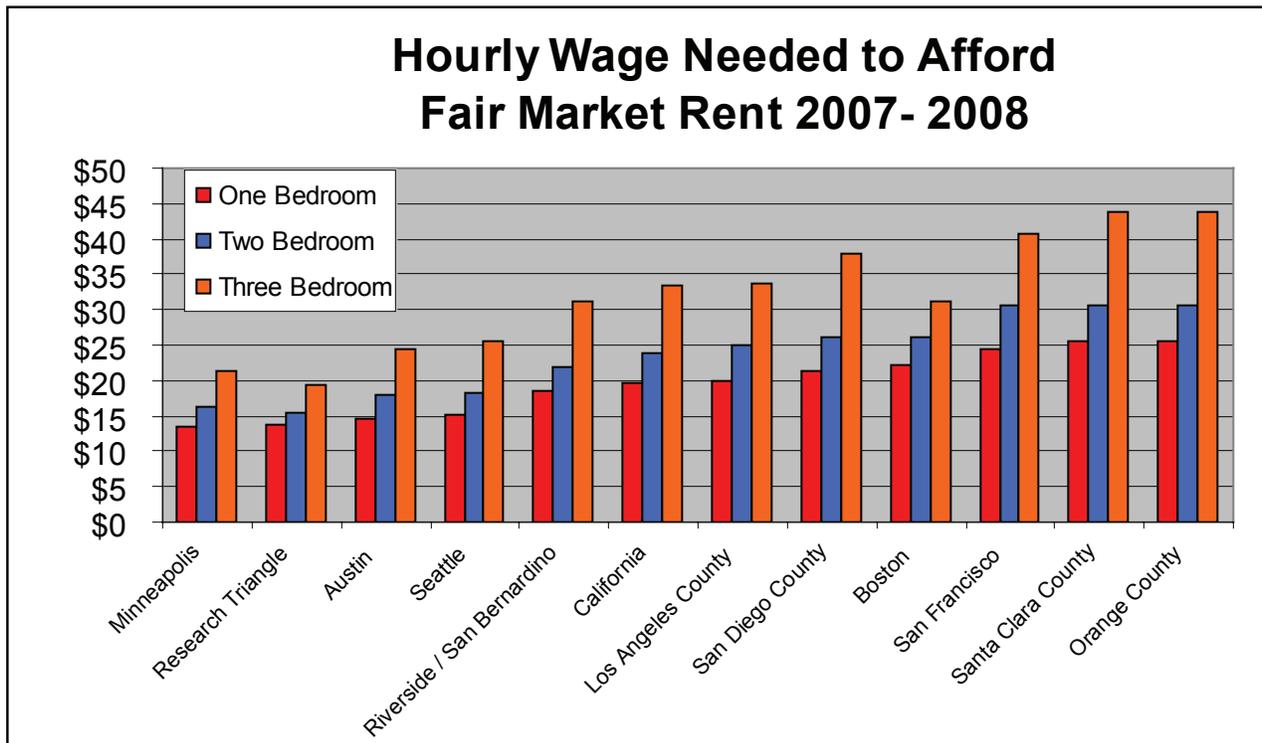
Why is it Important?

Rental housing can provide low and moderate-income workers with affordable places to live. Lack of affordable rental housing can cause high occupancy levels, leading to crowding and household stress. Less affordable rental housing also restricts the ability of moderate-income renters to save for a down payment on a home, limiting their ability to become home owners and build personal wealth through housing appreciation. Ultimately, a shortage of affordable housing for renters can instigate a cycle of poverty with potentially debilitating effects throughout the County.

How is Orange County Doing?

The Housing Wage in Orange County ranges from \$25.58 per hour for a one-bedroom housing unit to \$43.88 per hour for a three-bedroom housing unit. The hourly wage needed for a one-bedroom housing unit (\$25.58) is equivalent to an annual income of \$53,206. Orange County's Housing Wage rates have increased since 2000, when Housing Wages were \$15.23, \$18.85, and \$20.86 for one-bedroom, two-bedroom, and three-bedroom housing units, respectively. According to the National Low Income Housing Coalition, an Orange County household earning minimum wage can afford to pay no more than \$416 per month in rent. A household earning 30 percent of the Orange County median family income (\$25,230) can only afford to pay \$631 in rent. Among state and national peer metropolitan areas, Orange County has the highest Housing Wages (in other words, the least affordable rental housing).

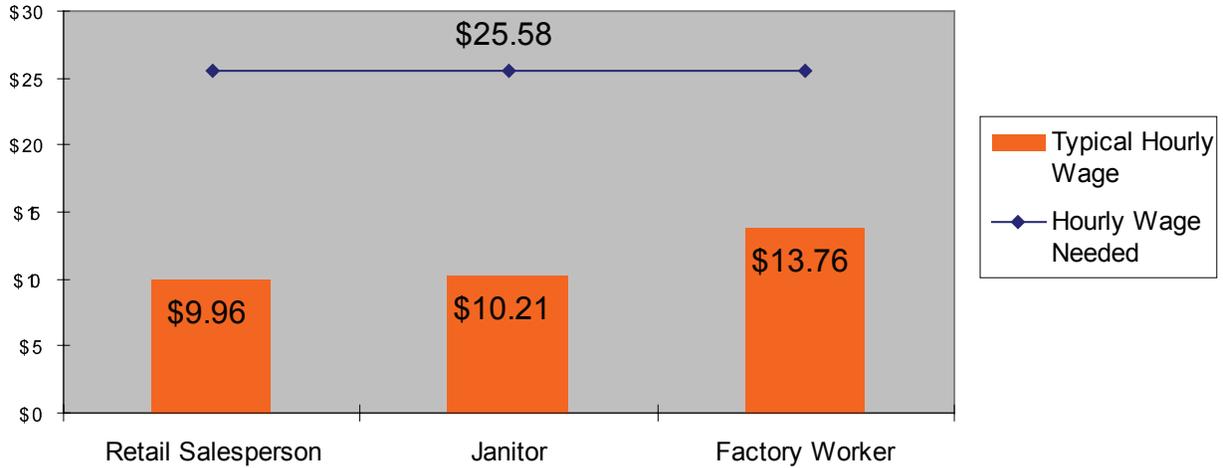
STATE OF THE COUNTY 2008-2009



Orange County has affordable rented housing rates for all income levels. *Rental affordability declined this year.*

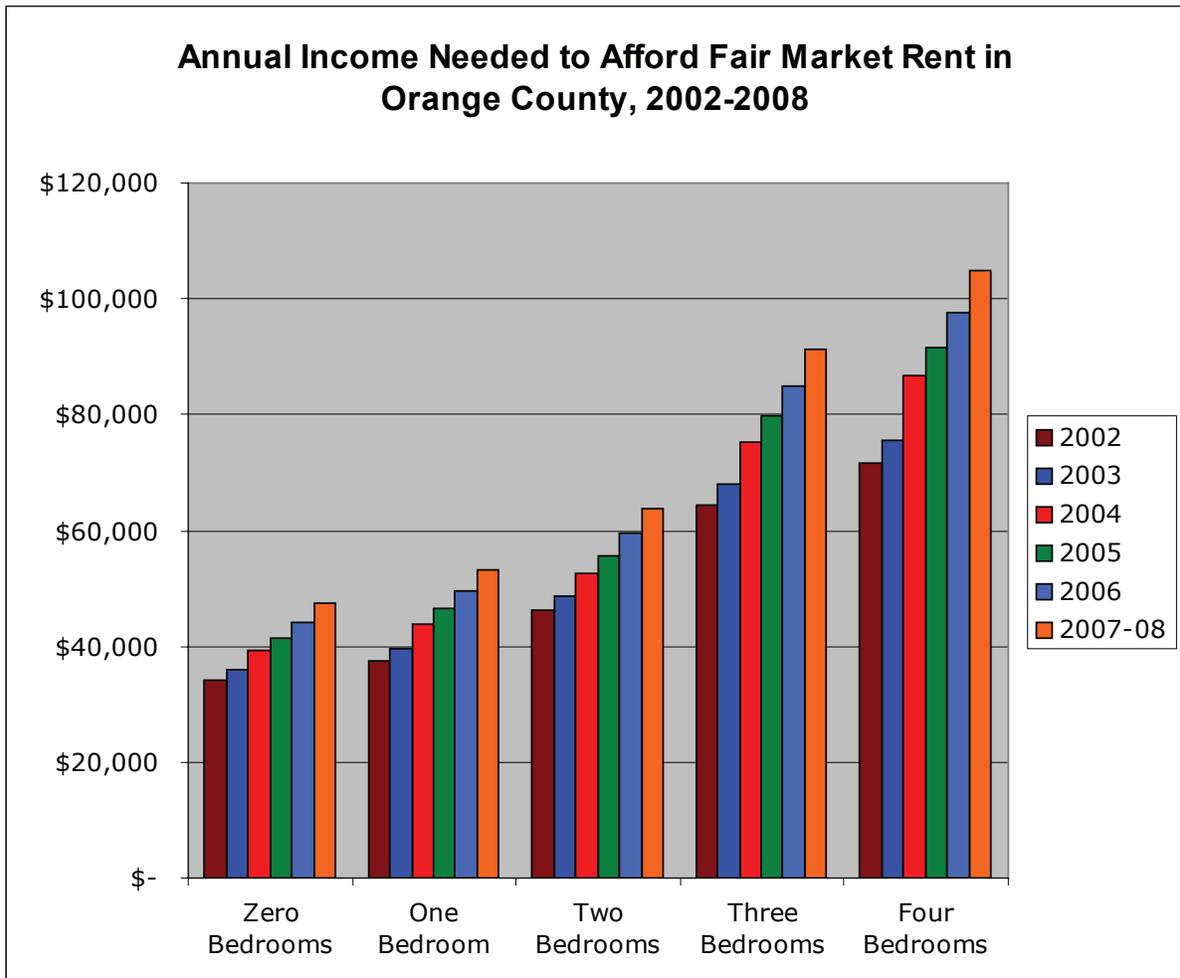
¹ Fair Market Rent is the 50th percentile (or median) rent in the market.

Hourly Wage Needed to Afford a One-Bedroom Unit Compared to Typical Hourly Wages Orange County 2007-08

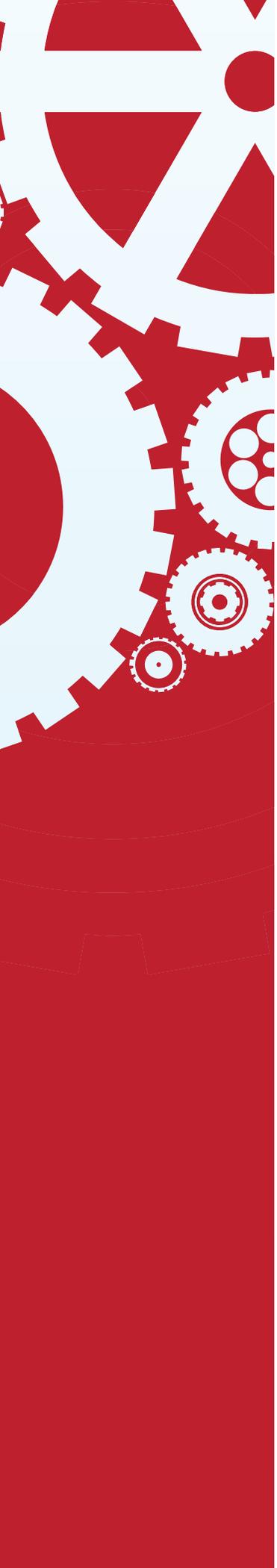


Source: California Employment Development Department and National Low Income Housing Coalition

Annual Income Needed to Afford Fair Market Rent in Orange County, 2002-2008



Source: National Low Income Housing Coalition



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Workforce

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High Schools & Colleges



08-09 Indicators

Orange County Community Colleges Educate Residents in Local Communities

Description of Indicator

This indicator shows the high school district of origin for first-time students entering North Orange County Community College District (CCD), Rancho Santiago CCD, Coast CCD, and South Orange CCD for the Fall semester, 2006.

Why is it Important?

Community colleges provide a locally oriented opportunity for post-secondary education and workforce training that is flexible and affordable. By identifying and understanding the service areas for these institutions, programs can be designed to best serve local residents and businesses.

How is Orange County Doing?

The four Community College Districts (CCDs) in Orange County serve distinct but overlapping geographic service areas:

- At South Orange County CCD, approximately 29.3 percent of students at Irvine Valley College graduated from the Irvine Unified School District and about 20.4 percent come from Saddleback Valley Unified School District. For Saddleback College, 76.8 percent of first-time students graduated from high schools in either the Capistrano or Saddleback Valley Unified School Districts.
- Coast CCD has colleges located in Fountain Valley, Costa Mesa, and Huntington Beach and draws the majority of its first-time students from the Garden Grove, Newport-Mesa, and Huntington Beach School Districts.
- The service area for Rancho Santiago CCD is located primarily around Santa Ana and Orange. Over 39 percent of first-time students at Santa Ana College graduated from the Santa Ana Unified School District.
- Two community colleges are located in North Orange County CCD: Cypress College and Fullerton College. In addition to drawing first-time students from the local Anaheim and Fullerton Joint unified school districts, a large number of students have graduated from Los Angeles County schools.



TARGET

Increase attendance at OC Community Colleges to 210,000 by 2010. *Enrollment trends are on track to meet this target.*

High School District of Origin for First-Time Students by Percentage									
School District	Coast Community College District (CCD) ¹			Rancho Santiago CCD ²		South Orange County CCD ³		North Orange County CCD	
	Orange Coast	Golden West	Coastline	Santiago Canyon	Santa Ana College	Irvine Valley	Saddleback	Cypress	Fullerton
Anaheim	2.5%	4.6%	1.9%	3.4%	8.5%	0.9%	0.9%	34.4%	17.3%
Brea-Olinda	0.2%	0.0%	1.0%	0.4%	0.2%	0.2%	0.1%	0.4%	4.7%
Capistrano	1.3%	0.2%	1.2%	1.2%	2.5%	9.3%	44.4%	0.1%	0.3%
Fullerton Joint	1.0%	0.9%	0.3%	2.0%	1.3%	0.9%	0.2%	9.1%	23.4%
Garden Grove	15.3%	25.9%	23.8%	2.1%	13.8%	1.2%	0.4%	7.6%	1.7%
Huntington Beach	25.3%	43.6%	27.7%	1.1%	3.4%	2.0%	0.7%	1.9%	0.4%
Irvine	7.7%	0.9%	2.7%	2.5%	1.4%	29.3%	3.7%	0.1%	0.3%
Laguna Beach	0.7%	0.1%	0.2%	0.1%	0.5%	0.8%	1.1%	0.0%	0.0%
Los Alamitos	0.8%	4.7%	0.8%	0.2%	0.4%	0.3%	0.0%	5.1%	0.3%
Newport-Mesa	14.7%	1.8%	4.4%	0.5%	1.8%	1.8%	0.5%	0.2%	0.2%
Orange	3.2%	0.9%	2.4%	39.3%	9.5%	2.2%	0.3%	0.9%	4.3%
Placentia-Yorba Linda	1.2%	0.2%	0.8%	13.4%	2.1%	0.8%	0.2%	1.6%	12.0%
Saddleback Valley	3.0%	0.6%	1.0%	2.2%	2.3%	20.4%	32.4%	0.2%	0.4%
Santa Ana	9.0%	2.4%	4.2%	5.9%	39.1%	3.2%	0.8%	0.6%	0.9%
Tustin	3.1%	0.4%	0.7%	11.5%	5.5%	7.2%	0.4%	0.2%	0.4%
Private Schools/ Home Schooling/ Other	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
District Not Specified	0.4%	0.2%	0.7%	10.9%	7.0%	1.1%	1.6%	0.0%	0.0%
Out of OC	10.60%	12.60%	26.20%	3.70%	0.70%	18.40%	12.30%	37.60%	33.40%

Sources: Rancho Santiago Community College District, Educational Services; Coast Community College District, Educational Services; South Orange County Community College District, Educational Services; North Orange County Community College District, Public Affairs

Orange County Community Colleges Serve Almost 220,000 Students

Description of Indicator

This indicator provides selected demographic information for the four community college districts located in Orange County.

Why is it Important?

Community colleges enable students to obtain specialized training and certification or to complete up to two years of courses to be transferred to a four-year baccalaureate institution. In addition to this role as an entry point into the higher education system, community colleges are an important source of workforce training in many occupations. Demographic information on community college students can inform how closely community college enrollments reflect Orange County's changing demographics, while illustrating the diversity of the County's community colleges service population.

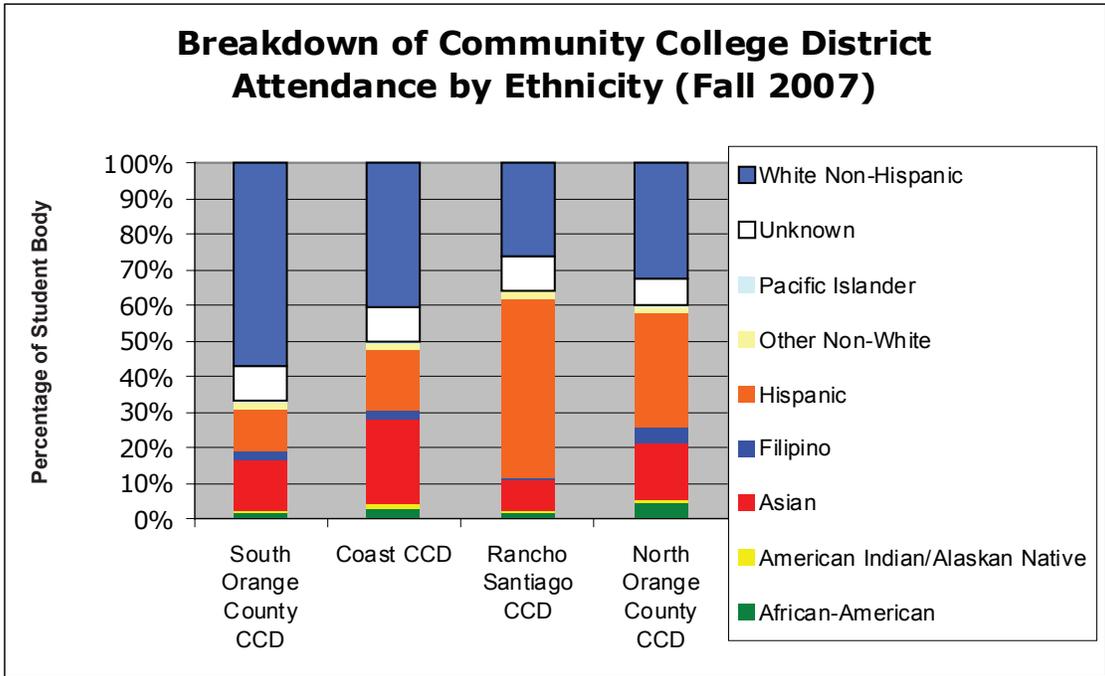
How is Orange County Doing?

Approximately 219,000 students registered to attend courses at one of the four community college districts (CCD) in Orange County for the Fall semester, 2007. This is up from approximately 205,000 in the Fall semester, 2006:

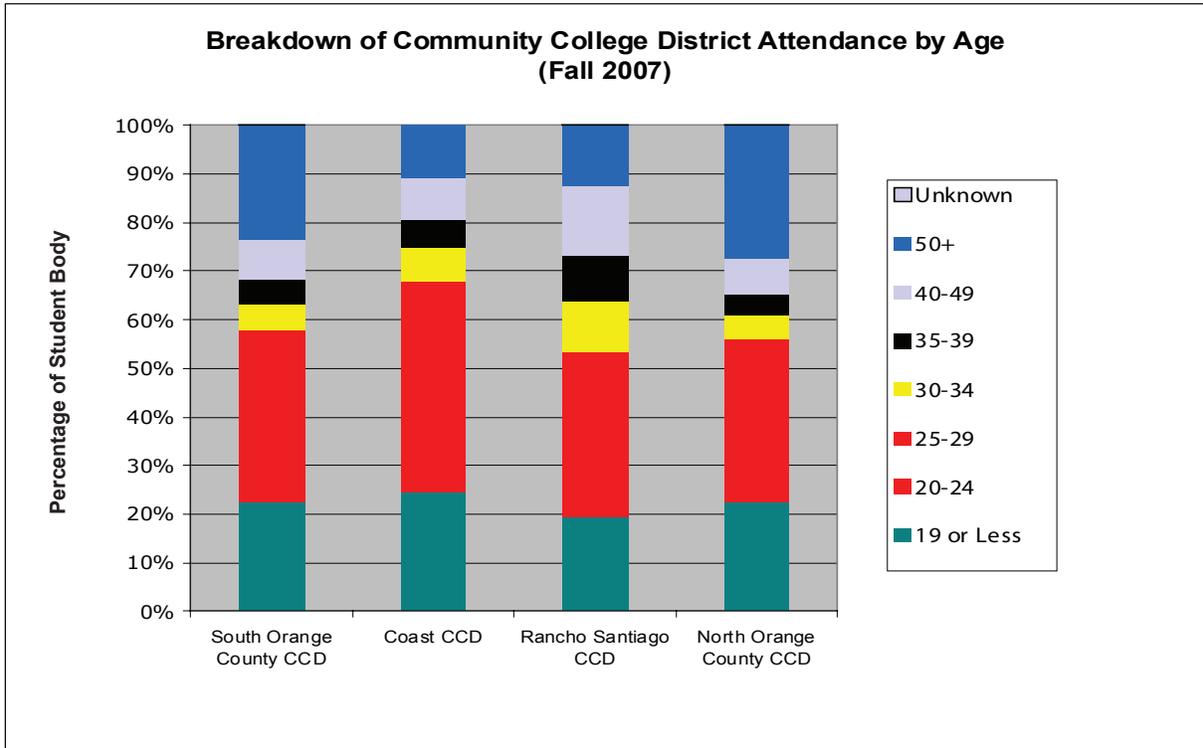
- The largest CCD in Orange County is Rancho Santiago CCD with approximately 70,000 students who attend Santa Ana College (Santa Ana) and Santiago Canyon College (Orange).
- Coast CCD has a student body of approximately 50,000 students attending Coastline College (Fountain Valley), Orange Coast College (Costa Mesa), and Golden West College (Huntington Beach).
- North Orange County CCD serves approximately 34,000 students at two colleges: Cypress College (Cypress) and Fullerton College (Fullerton). The School of Continuing Education (SCE), with approximately 26,000 students, is also located within the North Orange County CCD, although this indicator does not include demographic information from the SCE.
- The smallest CCD in the County is South Orange County CCD with a Fall 2007 student body of approximately 36,000 students attending two institutions: Irvine Valley College (Irvine) and Saddleback College (Mission Viejo)

White students make up the largest component for three of the four CCDs. Nearly 60 percent (20,719) and 41 percent (20,634) of students in South Orange County CCD and Coast CCD respectively are White, while nearly a third of the student body at North Orange County CCD is white. The largest ethnic component of Rancho Santiago CCD is Hispanic with about 49.8 percent (35,345) of the student body. Asian students make up approximately 25 percent of the Coast CCD student body, about 15 percent of students at both North and South Orange County CCD, and less than 10 percent of students at Rancho Santiago CCD.

The ability to take classes part-time while working or to take non-credit classes are popular features of community colleges. At North Orange County and Rancho Santiago CCDs, approximately 40 percent of students are enrolled in non-credit courses. Students taking less than 12 units per semester are considered part-time and this group makes up the majority of credit attendance at Coast, South Orange County, and Rancho Santiago CCDs (65 percent, 60%, and 50% of student respectively). A significant number of students at South Orange County Community College District and North Orange County Community College District are over the age of 50. Currently, the cost per unit for schools in the California Community College system (all four Orange County CCDs are in this system) is \$26 per unit for California residents.

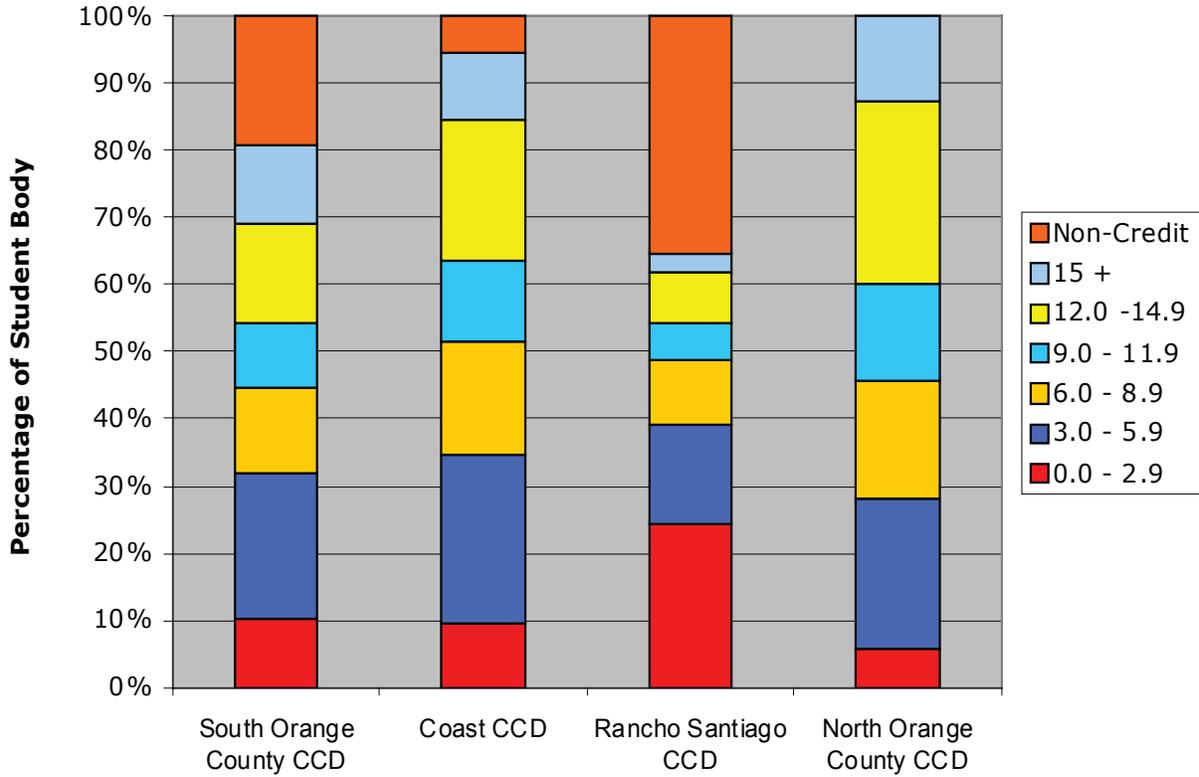


Source: Student Demographics. State of California. California Community Colleges. Chancellor's Office



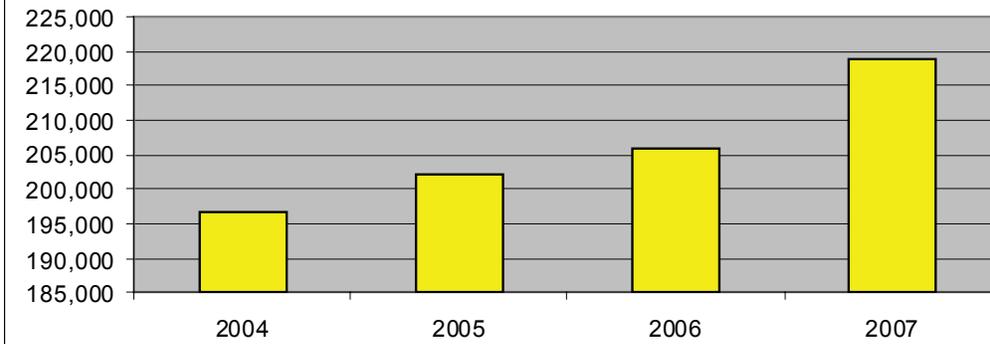
Source: Student Demographics. State of California. California Community Colleges. Chancellor's Office

Breakdown of Course Units Attempted by Community College Students (Fall 2007)



Source: Student Demographics. State of California. California Community Colleges. Chancellor's Office.

Community College Enrollment 2004-2007



Community College Districts

South Orange County CCD

Irvine Valley College
Saddleback College

Coast CCD

Coastline Community College
Orange Coast College
Golden West College

Rancho Santiago CCD

Santa Ana College
Santiago Canyon College

North Orange County CCD

Cypress College
Fullerton College
School of Continuing Education

Less Than 25% of Students of Most Races/Ethnicity Take Upper Level Math and Science Courses; Female Enrollment in Math and Chemistry Higher than Male Enrollment

Description of Indicator

This indicator is a measure of enrollment and standardized test achievement in upper level math and science courses by Orange County high school students, measured by ethnicity, race, and gender. The math courses are Intermediate Algebra and Grade 11 Summative Advanced Math. The science courses are First Year Chemistry and First Year Physics.

Standardized tests in California are implemented in compliance with the No Child Left Behind Act of 2001 passed by the Federal Government for Assessing and Tracking Student Achievement.

Why is it Important?

Orange County’s student population is becoming more diverse as is the need to obtain the education and career preparation necessary to participate in Orange County’s increasingly high-tech economy. If our educational system does not prepare enough STEM (Science, Technology, Engineering, and Math) students, companies that need high level math and science skills may consider leaving for other locations. Even if they do not leave, many could resort to recruiting workers from outside the County, while students born here fail to obtain high-growth, high-paying jobs. This potential mismatch can lead to widespread economic and social dislocation resulting in a two-tiered economy and increased economic segregation.

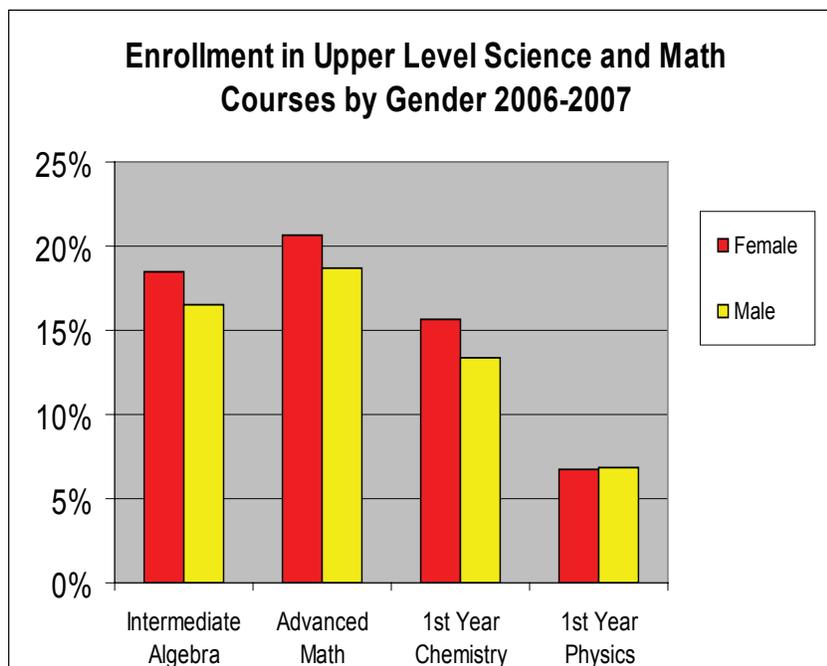
How is Orange County Doing?

Enrollment

Orange County students taking upper level math and science courses are a low percentage of the total student population; but, exceed State averages and are higher than in previous years. Approximately 17.5 percent take courses in Intermediate Algebra, 19.7 percent take courses in Advanced Math, 14.5 percent take First Year Chemistry, and 6.8 percent take First Year Physics courses. State averages range from 5.3 percent for First Year Physics to 16.5 percent for Intermediate Algebra.

The highest percentages of students in upper level math and science courses in Orange County are in the Asian, Filipino, and White populations. The lowest percentages are in the Hispanic, American Indian, and African American populations. Between 2006 and 2007, enrollments in upper level math and science courses stayed relatively constant across race and ethnicity.

A higher percentage of female students took Intermediate Algebra, Advanced Math, and First Year Chemistry than male students. Only in First Year Physics were there higher numbers of male students to female students.



Increase test scores and achievement in upper level math and science courses by 10% by 2010.

Trends in this indicator are not growing fast enough to meet the target.

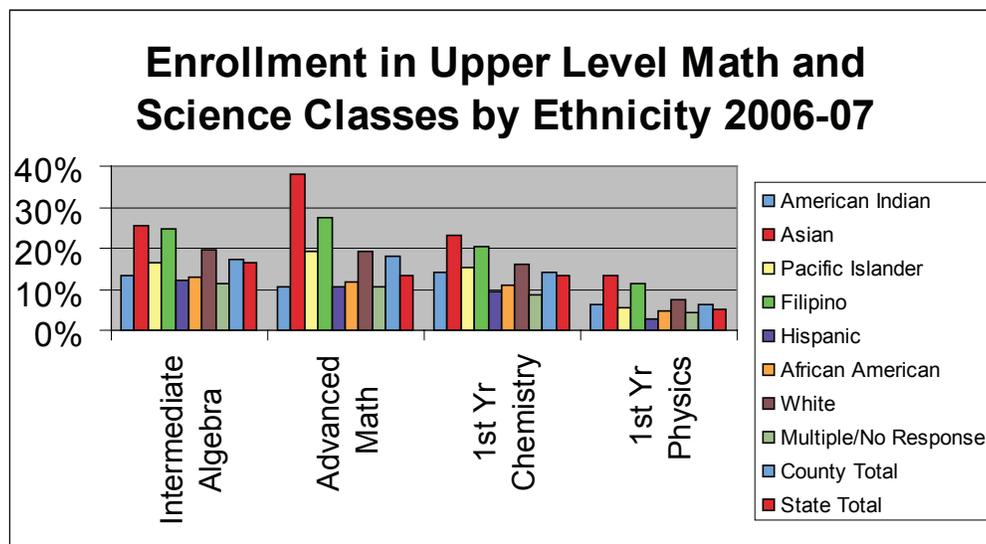
Achievement

Orange County’s achievement in math and science exceeds the State rate in all math and science subjects measured.

Approximately 18 percent of Orange County 11th Graders showed “Advanced” or “Proficient” achievement in Algebra compared to 10 percent for the State. Over half (58 percent) of Orange County 11th graders showed “advanced” or “proficient” achievement in Summative High School Math compared to 43 percent for the State.

In the sciences, 37 percent of Orange County 11th graders showed “Advanced” or “Proficient” achievement in Chemistry in comparison to 26 percent for the State. In Biology/Life Sciences, 39 percent of Orange County 11th Graders showed “Advanced” or “Proficient” achievement, in comparison to 36 percent for the State.

The vast majority of Orange County 11th Graders show only “Basic”, “Below Basic”, and “Far Below Basic” achievement in math and science. The percentage of students showing “Advanced” achievement in math and science ranged from 3 percent for Algebra II to 24 percent for Physics. On the other end of the spectrum, the percentage of students “Far Below Basic” ranged from 15 percent for Algebra II to 2 percent for Summative High School Math.



Percentage of Students Who Achieved “Advanced” or “Proficient” on Standardized Tests

	Grade 11 Algebra II	Grade 11 Summative High School Math	Grade 11 Chemistry	Grade 11 Physics
Orange County	21%	61%	37%	58%
California	12%	44%	26%	35%

	Grade 11 Algebra II	Grade 11 Summative High School Math	Grade 11 Chemistry	Grade 11 Physics
% Advanced	3%	23%	13%	24%
% Proficient	18%	38%	26%	34%
% Basic	34%	22%	43%	32%
% Below Basic	31%	14%	11%	7%
% Far Below Basic	15%	2%	5%	3%

Source: California Department of Education

Examining these statistics by gender also shows that male students tend to perform better in math and science courses than female students even though more female students are enrolling in these courses.

In Grade 11 Intermediate Algebra II, male students outnumber female students in ranking “Advanced” or “Proficient” by 22 percent to 18 percent. Also, in Grade 11 Summative High School Math, male students outnumber female students in ranking “Advanced” or “Proficient” by a margin of 10 percent. In 11th Grade Chemistry, male students (44 percent) outnumber female students (33 percent) in ranking “Advanced” or “Proficient.” However, in 11th Grade Physics, 64 percent of males ranked “Advanced” or “Proficient” compared to 51 percent of female students ranking in the same “Advanced” or “Proficient.”

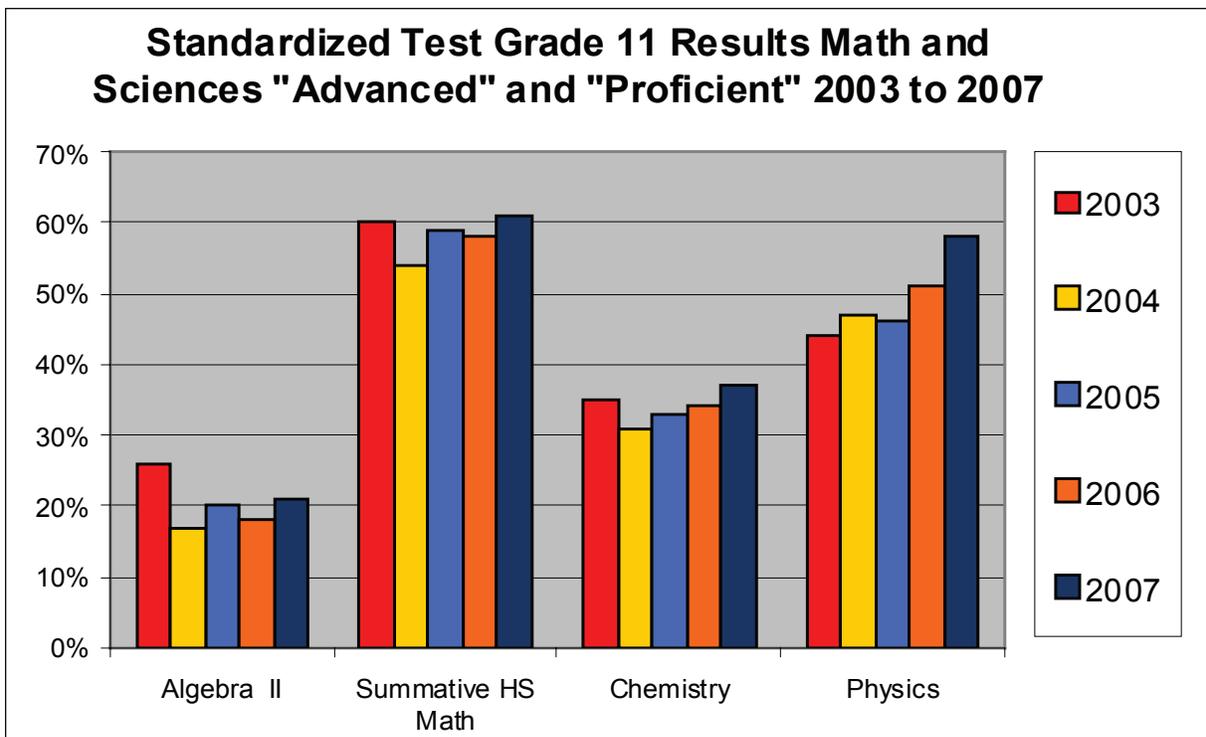
Standardized Test Results 2006-07 Orange County--Female

	Grade 11 Intermediate Algebra II	Grade 11 Summative High School Math	Grade 11 Chemistry	Grade 11 Physics
% Advanced	2%	19%	10%	16%
% Proficient	16%	38%	23%	35%
% Basic	34%	25%	47%	36%
% Below Basic	33%	16%	12%	9%
% Far Below Basic	15%	2%	7%	4%

Source: California Department of Education

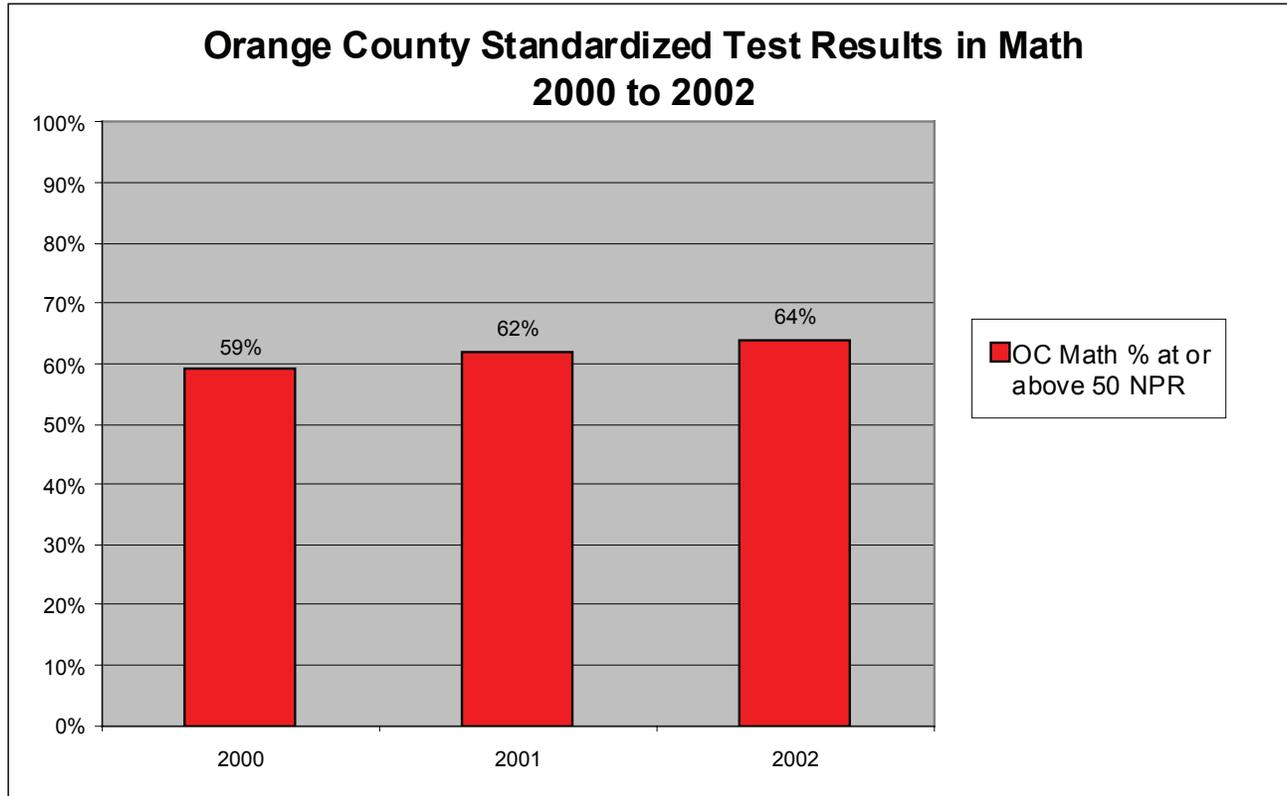
Standardized Test Results 2006-07 Orange County--Male

	Grade 11 Intermediate Algebra II	Grade 11 Summative High School Math	Grade 11 Chemistry	Grade 11 Physics
% Advanced	3%	28%	16%	31%
% Proficient	19%	37%	28%	33%
% Basic	34%	20%	39%	28%
% Below Basic	29%	13%	10%	5%
% Far Below Basic	15%	2%	8%	3%



Source: California Department of Education

The earlier testing regime 2000 through 2002 did not measure achievement in terms of “Advanced,” “Proficient,” “Basic,” “Below Basic,” and “Far Below Basic.” Instead it measured achievement in comparison to the 50th percentile of nationwide achievement. It also only measured general math achievement rather than math as well as science. In these results, Orange County’s achievement was slightly increasing relative to the nation over time.



Source: California Department of Education

Most District Passing Rates Exceed State Rates; Overall Passing Rates Increasing

Description of Indicator

This indicator measures student passing rates on the High School Exit Exam by Orange County’s school districts, the County’s combined rate, and the statewide rate.

Why is it Important?

The future of Orange County’s economy hinges greatly on the quality of education our high school students receive. If our schools fail to prepare students for success in an increasingly competitive business climate, our economic prosperity will not be sustainable long-term. Exit exams are a valuable tool available for measuring cumulative student achievement against their peers in other school districts.

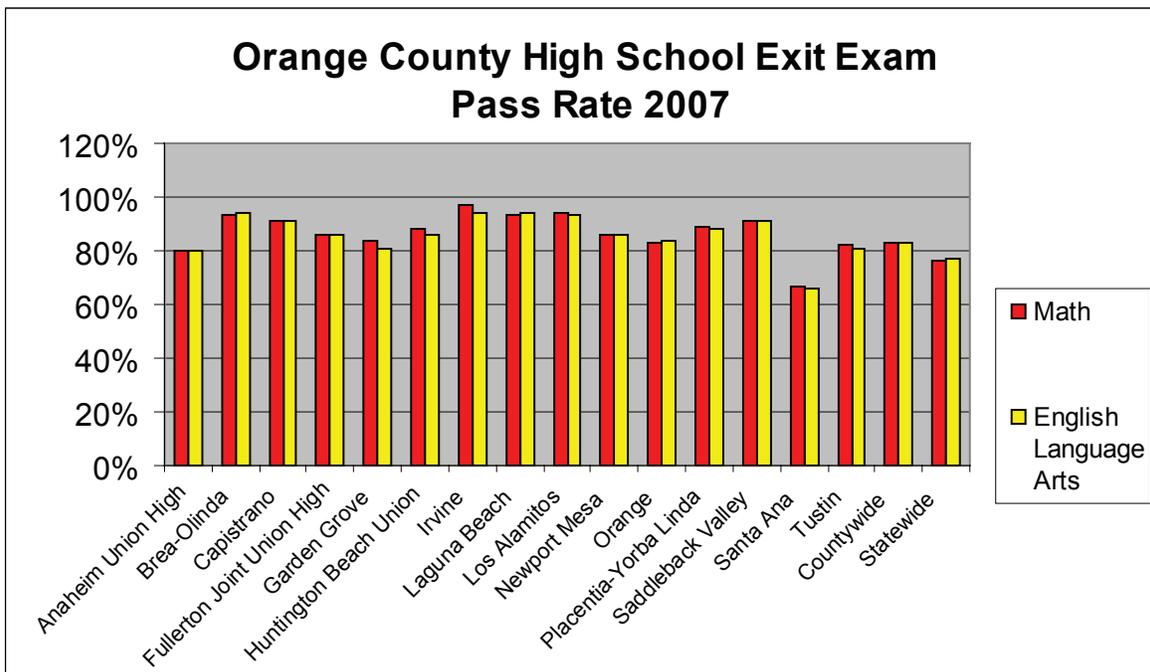
How is Orange County Doing?

Every school district in Orange County except for Santa Ana exceeds the statewide high school exam pass rate. Overall, the County experienced a general upward trend

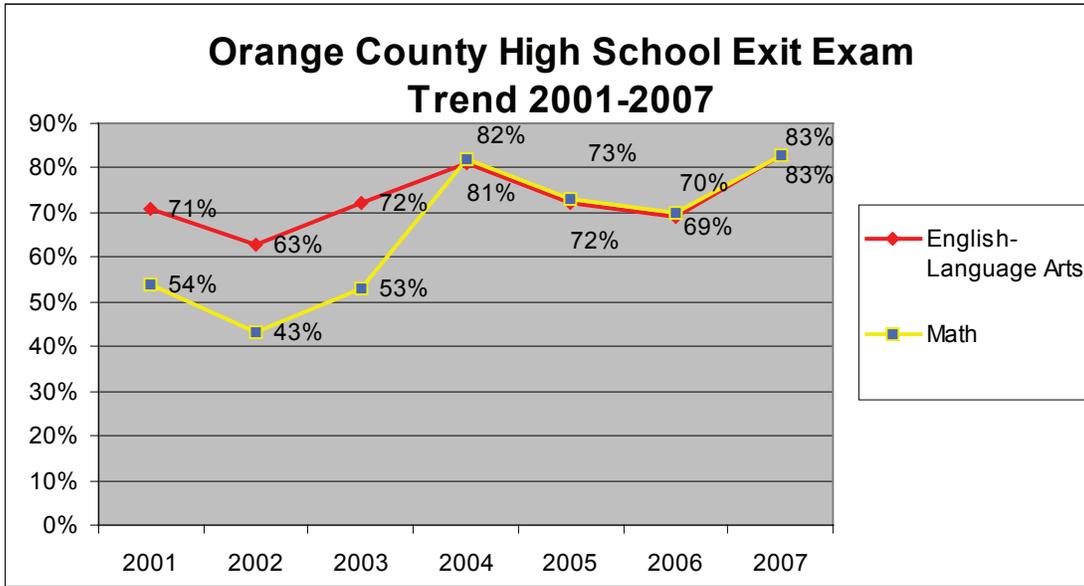
since 2001. Approximately 83 percent of Orange County students passed the Math portion of the exam and 83 percent passed the English Language Arts portion of the exam. This is a significant increase from 2006 when 70 percent passed the Math portion of the exam and 69 percent passed the English Language Arts portion.

For the State, 76 percent passed Math and 77 percent passed English Language Arts. State scores were also up from 2005, when 59 percent passed the Math portion of the exam and 61 percent passed the English Language Arts portion.

For the Math portion of the exam, Orange County school districts ranged from 97 percent passing in Irvine to 67 percent passing in Santa Ana. For the English Language Arts portion of the exam, Orange County school districts ranged from 94 percent passing in Irvine and Laguna Beach to 66 percent passing in Santa Ana.



By 2010, 90% of all Orange County students pass the High School Exit Exams. *Pass rates have increased and are trending towards the target.*



Source: California Department of Education, Educational Demographics Unit

Orange County has Lowest Dropout Rate of Major California Counties

Description of Indicator

The adjusted dropout rate for Orange County in comparison to other Southern California counties is shown in this indicator. Dropout statistics by the California Department of Education were recently updated as a result of a new method of tracking students. Rather than gathering dropout rates by school, the Department of Education now is able to track individual students specifically so that as they transfer across schools, their student status can be monitored. As a result, this new set of statistics is more accurate than previous measures.

Why is it Important?

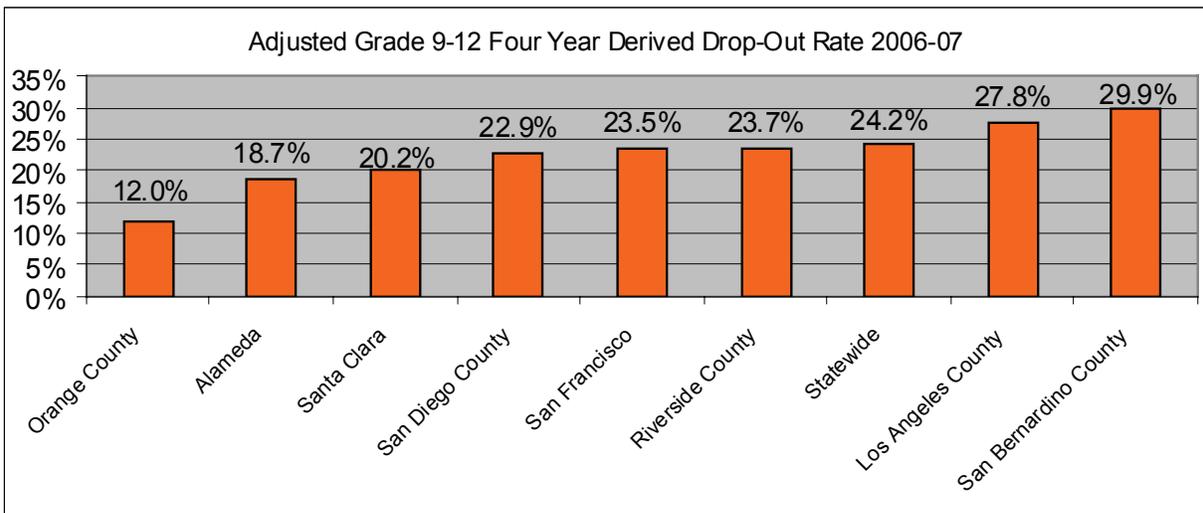
Understanding the dropout rate for high school students is important so that policy makers are able to monitor student high school completion and implement policies to reduce the dropout rate. Students who drop out of high school are significantly less likely to obtain stable employment with an income capable of sustaining the cost of living in Orange County. If residents are not able to achieve the education they are supposed to in Orange

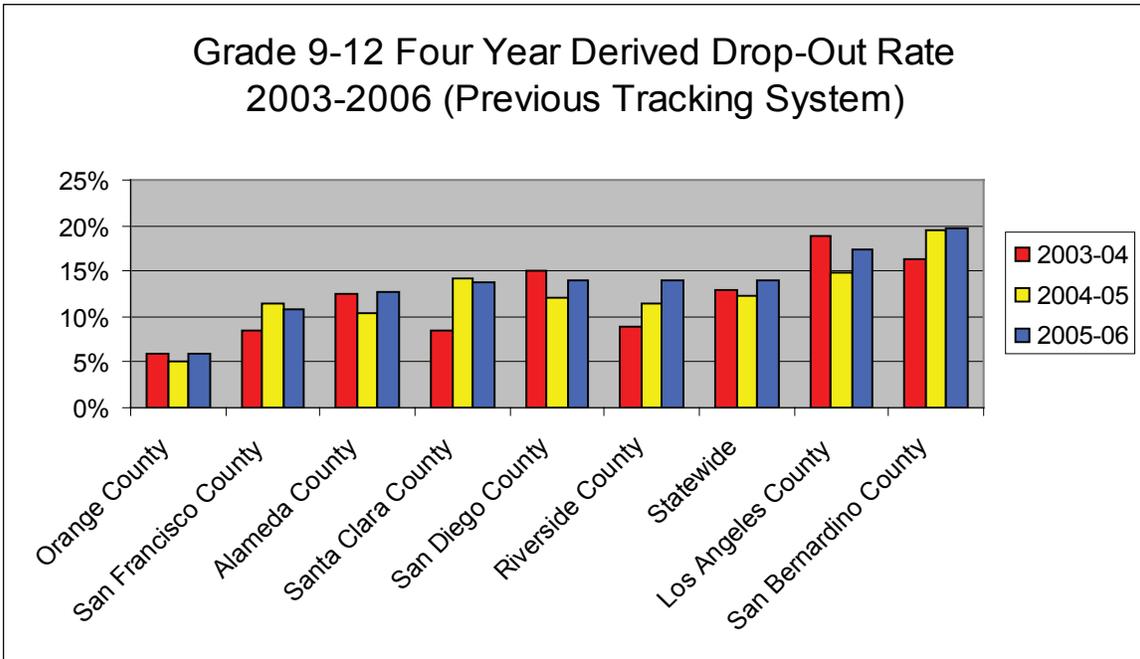
County schools, not only have they failed personally but also the long-term impact on the socio-economic fabric of Orange County will be damaged.

How is Orange County Doing?

Orange County has the lowest dropout rate of major urbanized counties in California. Orange County's dropout rate of 12 percent is approximately half of the dropout rate for the state. It is over six percentage points below its nearest competitor, Alameda County.

In previous years, Orange County also had the lowest dropout rate of major urbanized counties in California; although under the previous, less accurate tracking system, Orange County's dropout rate was measured at less than half of what the new tracking system reveals. The improved statistics on the high school drop out rate highlights how the drop-out rate in Orange County is much more serious than originally understood.





Percentage of English Language Learners Decreasing While Fluent English Proficient Students and Re-designated Fluent English Proficient Students Increasing

Description of Indicator

This is an indicator that measures the percentage of enrolled students who are English Language Learners in Orange County unified and high school districts from 1996 to 2007.

Why is it Important?

Understanding the magnitude and trends regarding limited English speaking students in our schools is important to have an accurate picture of factors driving educational performance in Orange County. Proper resources can then be assigned to address the fundamental language skills needs of students. Furthermore, showing the progress students make in learning English bolsters confidence that students are acquiring the essential skills necessary for academic, social, and ultimately, financial prosperity.

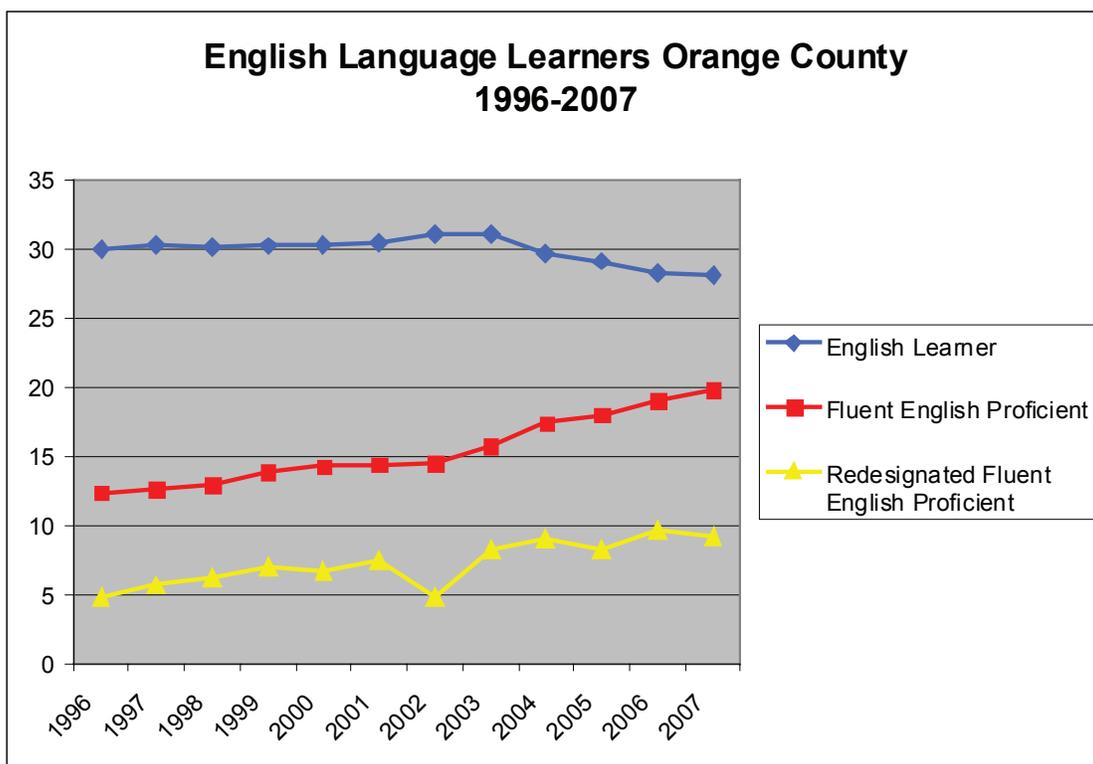
How Orange County Doing?

Orange County experienced a slight decrease in the percentage of English Language Learners in the 2006-07 school year. In 2006-07, the percentage of English Language Learners was 28.1 percent of students, while in 2005-06 it was 28.3 percent.

Orange County (28.1 percent) trails only Los Angeles County (29.9 percent) in the percentage of English Language Learners. Orange County's decrease is in line with a decreasing trend since 2002-03 while increases have been occurring for the Inland Empire counties of Riverside and San Bernardino.

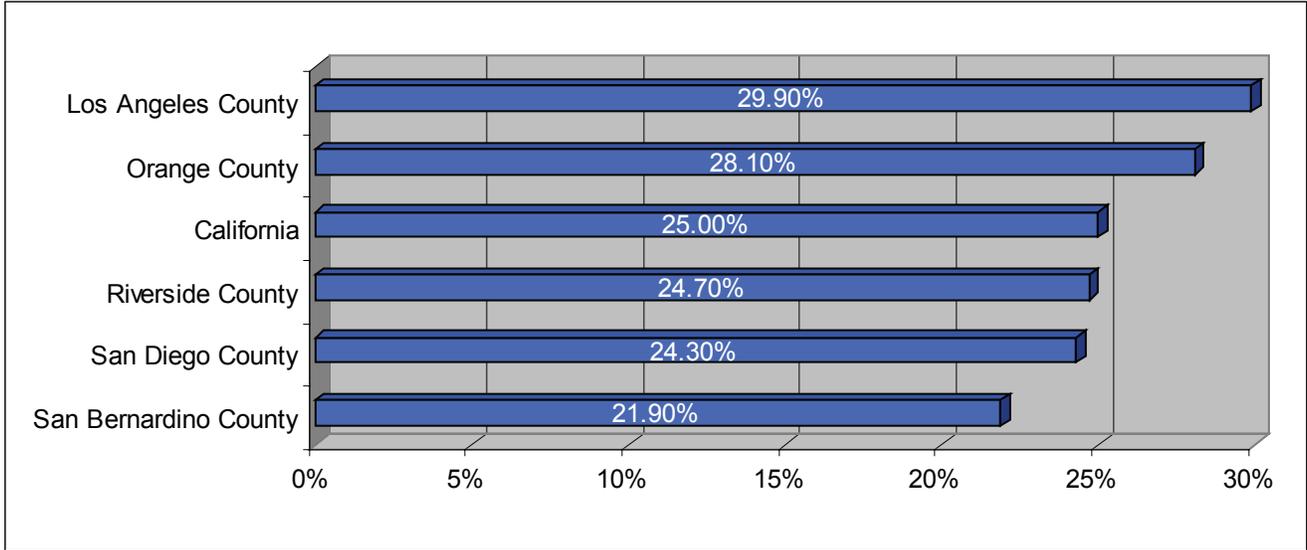
Santa Ana Unified School District has the highest percentage of English Language Learners with 54.9 percent of students designated as English Language Learners. Garden Grove was second with 46.5 percent, and Fullerton was third with 30.7 percent. Every other school district in Orange County is below the County average with Los Alamitos the lowest percentage at 2.3 percent.

The percentage of students re-designated from English Learner to Fluent English Proficient has experienced a steady rise between 1995-96 and 2005-2006 with a slight decrease in 2006-07. Also, the number of students considered initially Fluent English Proficient grew in the 2006-07 school year.



By 2010, double the rate of “converted” fluent English proficient students from 10 percent to 20 percent. English language acquisition trends are positive and on pace to meet the 2010 Target.

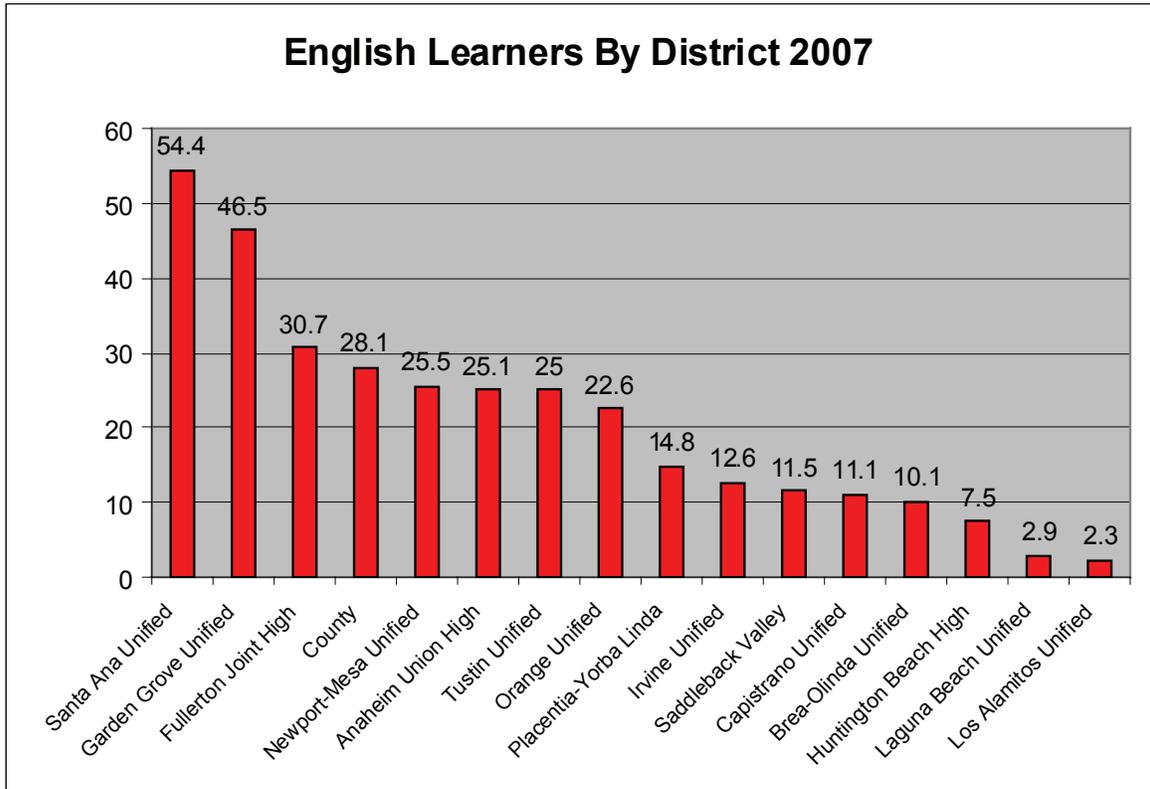
English Learners as a Percent of Total Enrollment – 2006-07



Source: California Department of Education, Educational Demographic Unit

Note: Numbers do not total 100 percent in top figure because each category is an independent measure of English language ability in each District.

English Learners By District 2007



Source: California Department of Education, Educational Demographic Unit

Orange County High Schools API Scores Average 786 Out of 800 On Statewide Performance Target

Description of Indicator

This indicator compares the average API (Academic Performance Index) scores for high schools in Orange County's districts. Each individual school receives a score and a target for the following year. The API scores for the high schools in each district are then averaged to show the API score for the entire district.

Why is it Important?

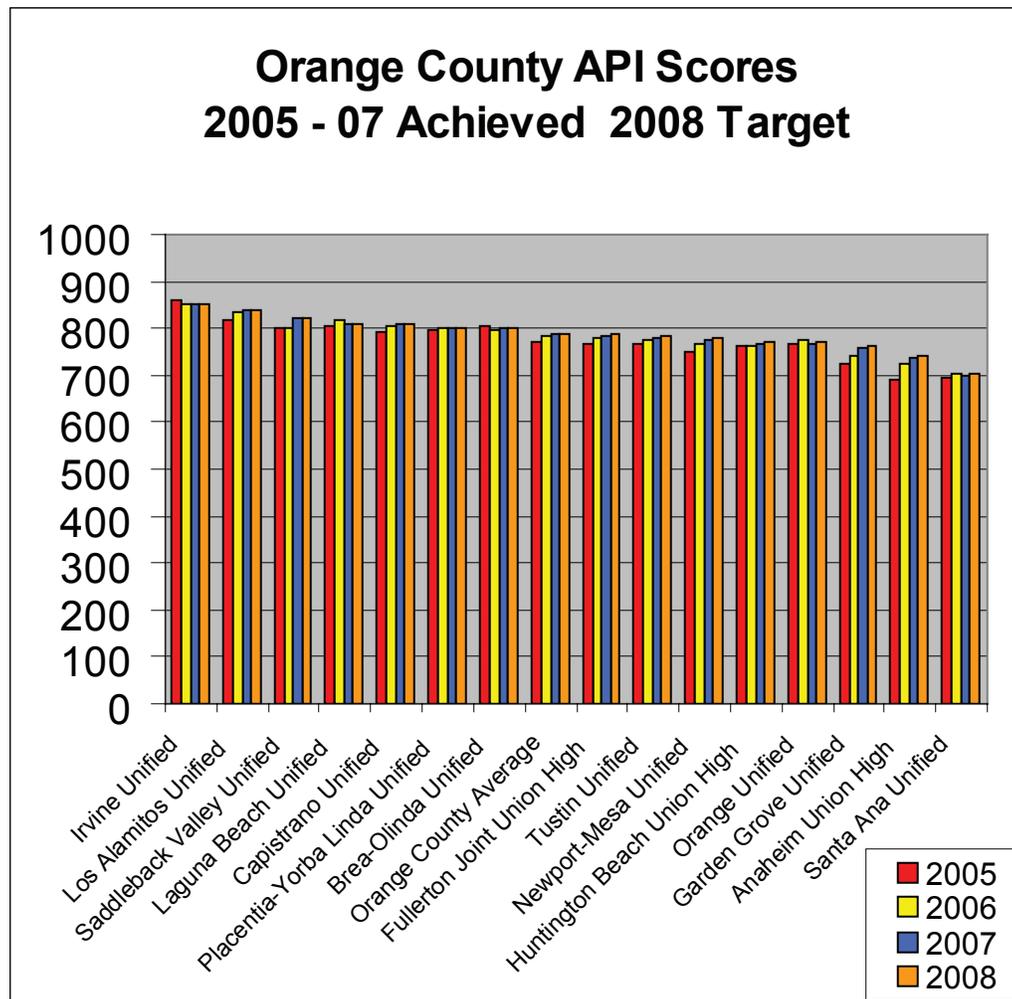
School performance is a key measure of whether students in a particular school district and Orange County as a whole are gaining the knowledge necessary to succeed in the modern global economy. The overall environment of a school sets the expectations and standards for students. Schools with high scores have a self-reinforcing standard of greater academic achievement. Such achievement is necessary for students to be well prepared to obtain

higher education and skills to succeed in an advanced economy such as Orange County.

How is Orange County Doing?

High schools in Orange County had an overall API score of 786 in 2007. The API target for Orange County high schools for 2008 is 789. The statewide performance goal for schools to aspire to is 800.

Out of twenty-eight Orange County school districts, high schools in Irvine Unified (851), Los Alamitos (837), Saddleback (822), Laguna Beach (811), Capistrano (808), and Brea-Olinda (801) met or exceeded this target. The lowest scores were in Anaheim (736) and Santa Ana (698).



Source: California Department of Education, Educational Demographics Unit



By 2010, All Orange County School Districts meet the statewide API target of 800. Orange County high schools are making progress with the average nearing the target of 800.

Orange County AP Science and Math Enrollment Highest In Southern California

Description of Indicator

Advanced Placement (AP) Course Enrollment in Science and Math measures the percentage of students in Grades 11 and 12 who are enrolled in Advanced Placement courses in Science and Math.

This indicator also measures the percentage of students who obtained a passing score of “3” or above on an advanced placement test.

Why is it Important?

Advanced Placement course participation measures the number of students who are seriously pursuing Math and Science advanced courses which will lead to college credit. Having already obtained course credit often enables students to pursue more advanced college courses which make it easier for them to major in disciplines such as Mathematics, Physics, Computer Science or Chemistry. A higher number of students with majors in Advanced Science and Math make it easier for Orange County high tech firms to recruit local talent to grow their business.

How is Orange County Doing?

Orange County enrollment in Advanced Placement courses in Science and Math is the highest of all Southern California counties but trails those of Northern California.

Orange County 11th and 12th Graders:

- Approximately 1 percent took AP Computer Science
- 6.00 percent took AP Calculus,
- 3.3 percent took AP Statistics
- About 4.5 percent took AP Biology
- Almost 2.3 percent AP Chemistry,
- About 2.4 percent took AP Physics
- Almost 2 percent took Environmental Science.

A higher percentage of students in San Francisco, Santa Clara, and Alameda Counties took AP courses. The percentage of Orange County students taking AP courses in Science and Math exceeds Los Angeles, San Diego, Riverside, and San Bernardino counties.

Comparing test passing rates at the Orange County school district level, in 2007 between 14.6 percent and 77.1 percent of AP test takers passed with a score of “3” or higher. Irvine had the highest percentage of test takers pass while Santa Ana had the lowest percentage.

Passing rates in all districts including the State decreased slightly in 2007 in comparison to previous years.

**Orange County AP Math and Science Enrollment
Percent of Total 11th and 12th Grade Enrollment 2006**

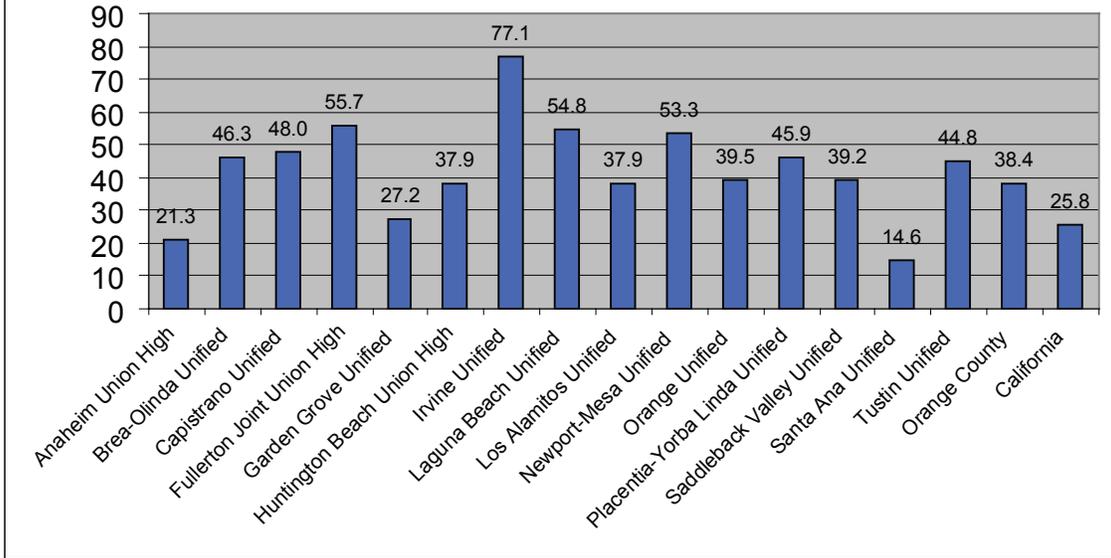
	2006	2007	2008
Computer Science A	0.79%	0.71%	0.82%
Computer Science AB	0.18%	0.15%	0.18%
Calculus AB	4.47%	4.87%	4.86%
Calculus BC	0.78%	1.06%	1.18%
Statistics	2.92%	2.98%	3.30%
General Biology	3.75%	4.15%	4.49%
General Chemistry	2.56%	2.34%	2.29%
Physics B	2.21%	2.40%	2.06%
Physics C	0.50%	0.34%	0.34%
Environmental Science	1.36%	1.42%	1.93%

Source: California Department of Education, Educational Demographics Unit



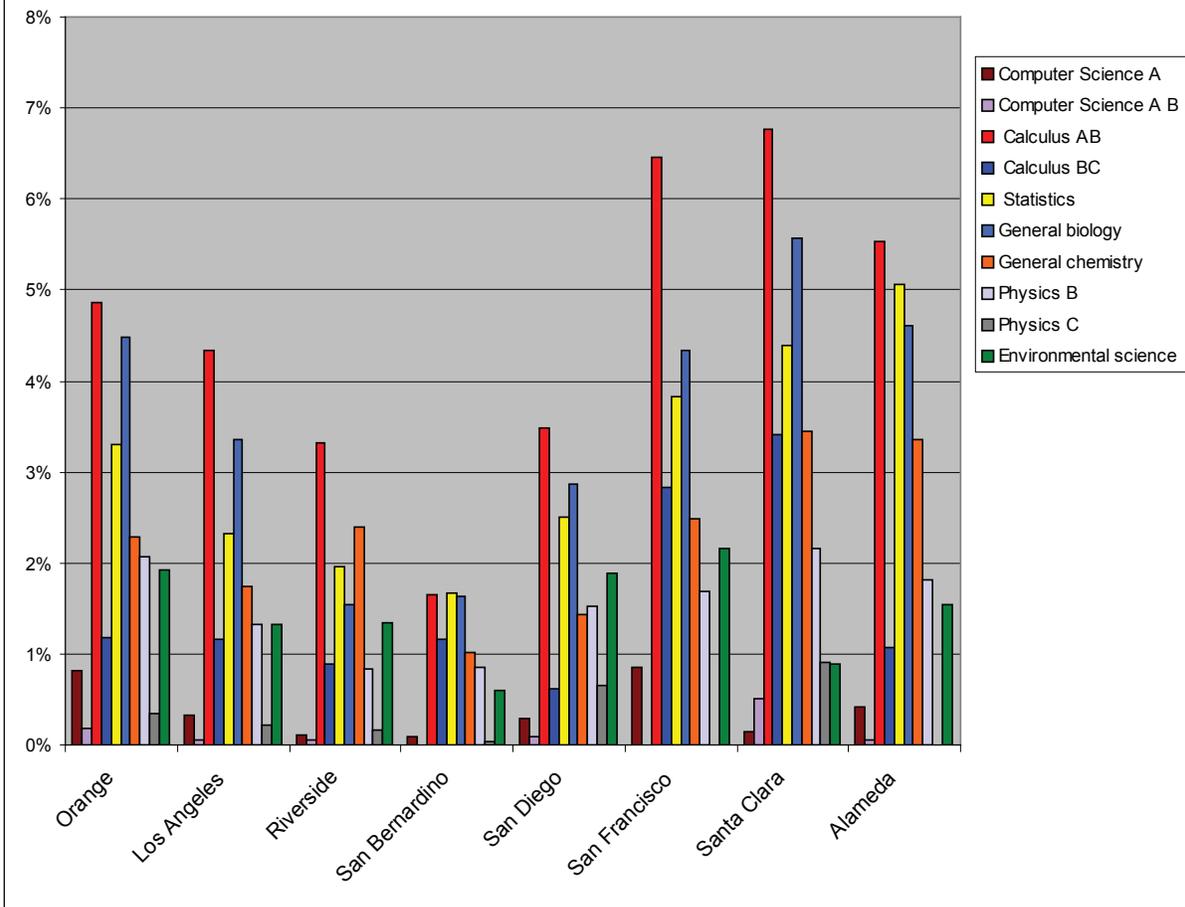
By 2010, double student enrollment in AP Science, Math, and Computer Science from current enrollment levels. Enrollment trends show that Orange County is not on pace to meet this target.

Percent of AP Test Scores Equal to Passing (3) or Greater 2006-2007



Source: California Department of Education, Educational Demographics Unit

Advanced Placement Enrollment as Percentage of Total Enrollment of 11th and 12th Grades 2008



Source: California Department of Education, Educational Demographics Unit

Orange County Class Sizes Exceeds Other Counties and State Average

Description of Indicator

This indicator measures the number of students in high school classes by subject area. The four subjects areas measured are English, math, social science, and science. Orange County is compared to seven other counties and the state of California average for each subject.

Why is it Important?

Small class size has been shown to contribute to greater student learning and achievement. Having a smaller teacher-to-student ratio increases the likelihood that students will receive personalized attention when learning a particular subject. Given the difficulty of math and science for many students, having a smaller class size should contribute to greater learning. Large class sizes may indicate that less learning is occurring since teacher attention is spread among more students.

How is Orange County Doing?

Orange County has a greater average class size for English, math, social science and science in comparison to seven other counties and the State average.

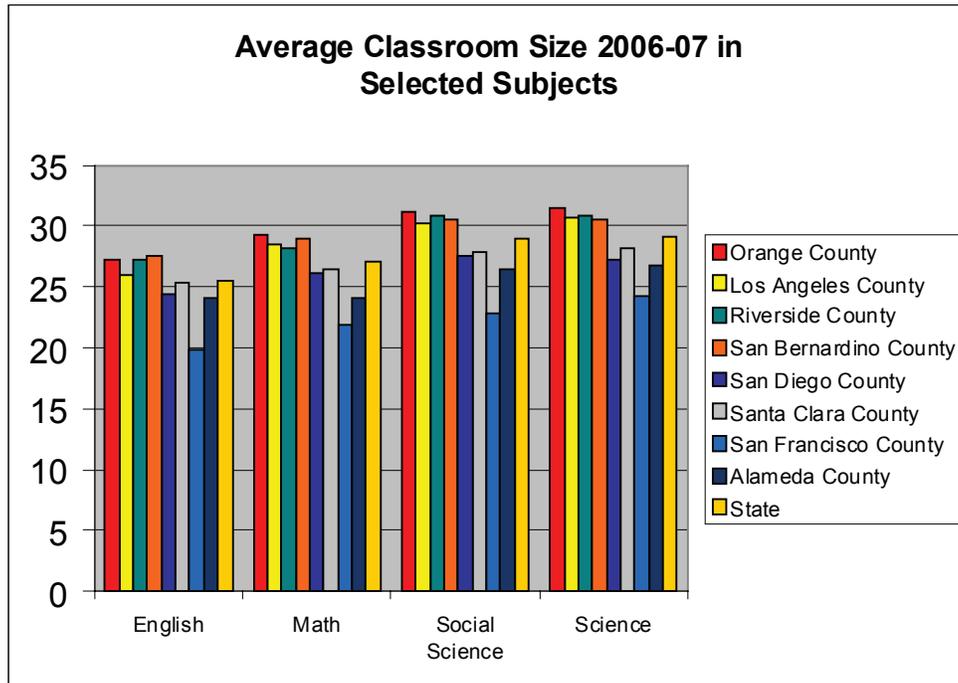
In 2006-07 for English, the average class size in Orange County was 27.3 students, down from 30.1 students in 2005-06. It was 29.2 for math (down from 32), 31.2 for

social science (down from 34.5), and 31.4 for science (down from 34.9). These class sizes compare to State averages of 25.5 for English, 27.1 for math, 28.9 for social science, and 29.1 for science.

Orange County's class sizes for these subjects are consistently larger than other counties across the State. San Francisco County is consistently smaller than other counties, while Riverside and San Bernardino are comparable to Orange County, albeit smaller.

Class Size by Subject

2006-07	English	Math	Social Science	Science
Orange County	27.3	29.2	31.2	31.4
Los Angeles County	25.9	28.5	30.2	30.7
Riverside County	27.3	28.2	30.9	30.9
San Bernardino County	27.5	29	30.5	30.5
San Diego County	24.4	26.1	27.5	27.3
Santa Clara County	25.3	26.4	27.8	28.2
San Francisco County	19.9	21.8	22.8	24.3
Alameda County	24.1	24.1	26.4	26.8
State	25.5	27.1	28.9	29.1



Source: California Department of Education



By 2010, reduce Orange County's average class size below the State average for English, math, social sciences and science courses. Average class size has decreased but is still above the State average.

Significant Variation in Enrollment in Upper Level Math and Science Courses by District; Computer Course Enrollment Very Low

Description of Indicator

This indicator is a measure of enrollment in upper level math and science courses by Orange County high school students, measured by school district.

The math courses reported are Intermediate Algebra and Advanced Math. The science courses tracked are First Year Chemistry and First Year Physics. Enrollment of students in computer courses by district is also shown.

Why is it Important?

A high percentage of high school students taking upper level math, science, and computer courses is essential for Orange County businesses hoping to hire local workers into an increasingly knowledge-based workplace. If Orange County high school students are not prepared to obtain college degrees in sciences or technology, high tech businesses will need to increasingly recruit workers from outside Orange County.

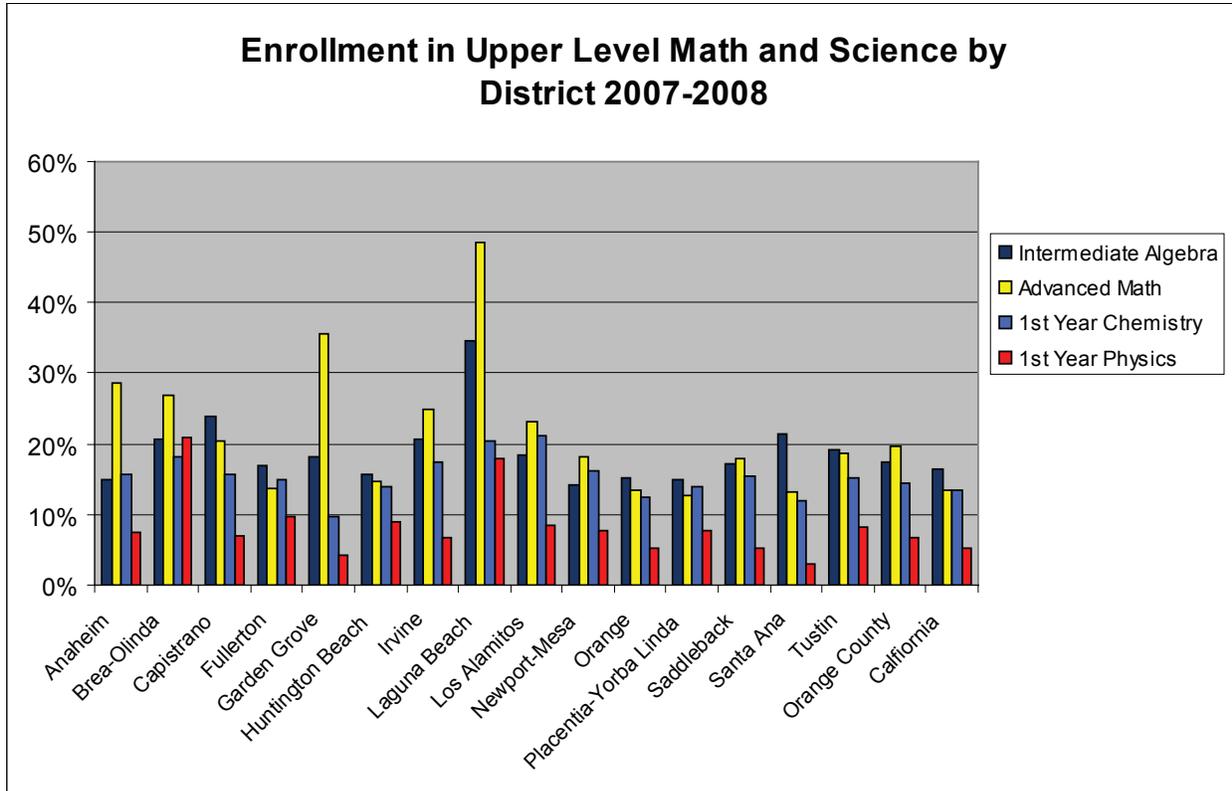
How is Orange County Doing?

Enrollment in upper level science, math, and computer courses varies significantly by school district. Computer course enrollment is less than one percent (1 percent) for all Orange County school districts.

In 2007-08, Laguna Beach saw 34.7 percent of students enrolled in Intermediate Algebra and 48.6 percent enrolled in Advanced Math. Others, such as Anaheim, have 14.9 percent in Intermediate Algebra and Placentia-Yorba Linda has 12.8 percent students enrolled in Advanced Math.

In 2007-08, 21.1 percent of Los Alamitos, 20.4 percent of Laguna Beach, and 18.1 percent of Brea-Olinda are enrolled in First Year Chemistry. In Brea-Olinda, 21.0 percent are enrolled in First Year Physics. However, in Garden Grove, 9.4 percent are enrolled in First Year Chemistry, and in Santa Ana Unified only 3.0 percent are enrolled in First Year Physics.

Between the 2006-07 and 2007-08 school year, enrollment in Intermediate Algebra and the sciences stayed relatively constant in most districts.

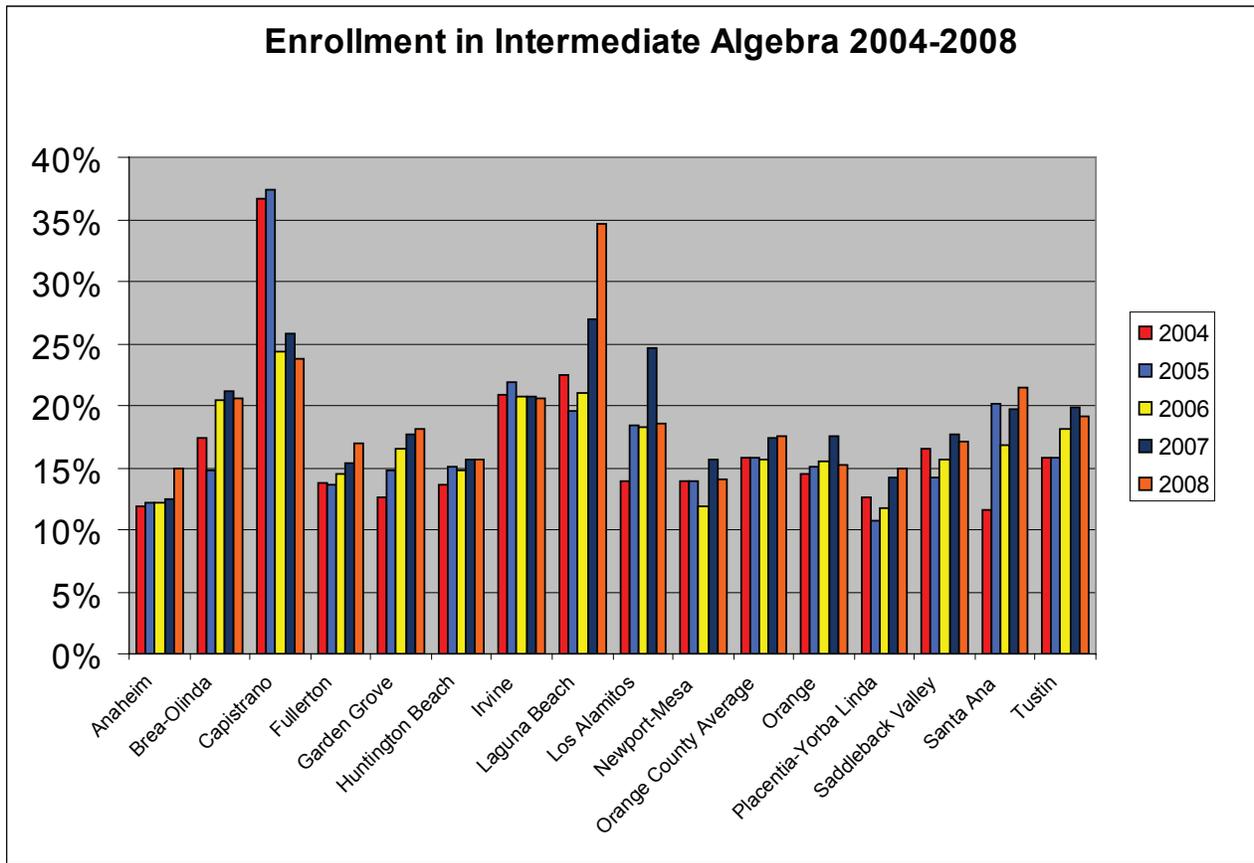


Source: California Department of Education, Educational Demographics Unit

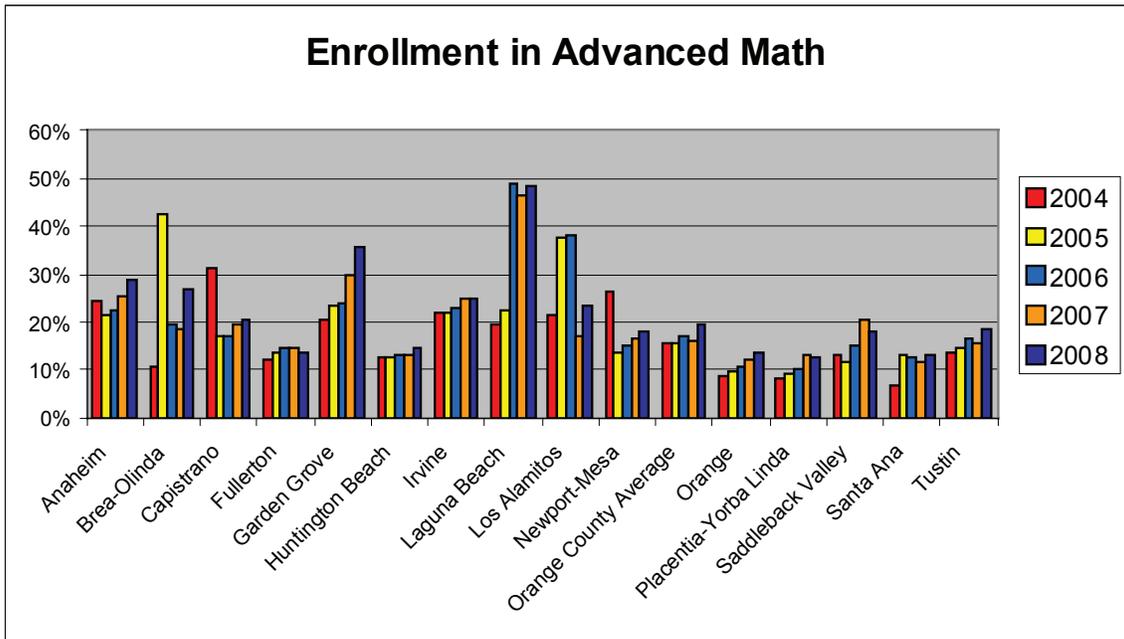


By 2010, increase enrollment in key career and tech prep courses by 20 percent.

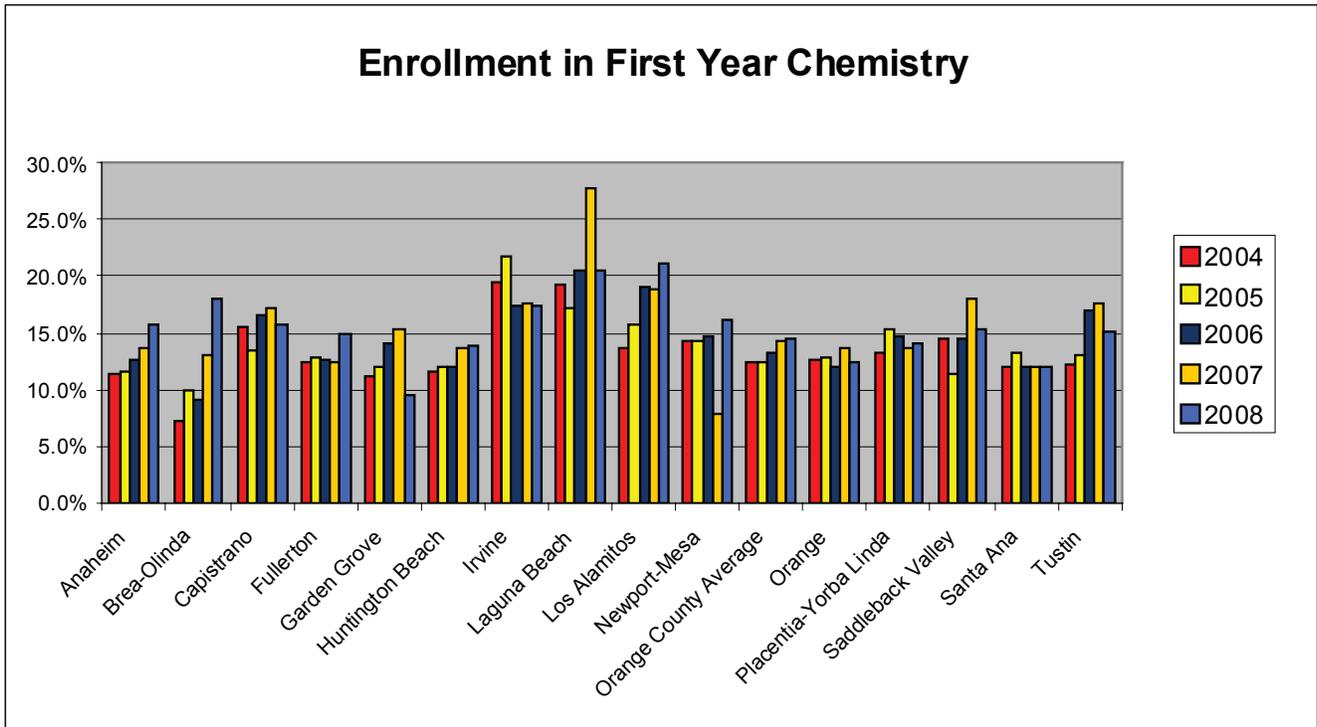
Performance increased but not enough of to make the Target by 2010.



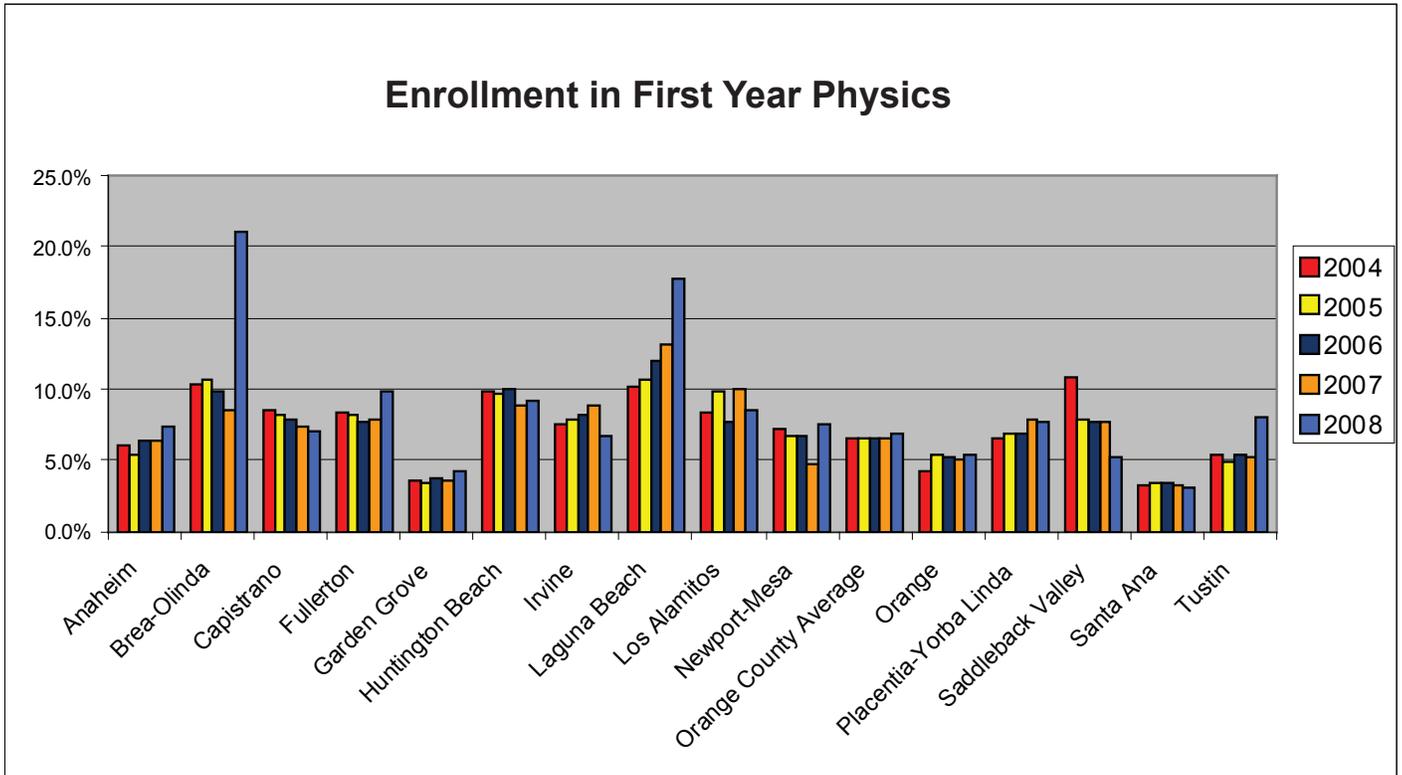
Source: California Department of Education, Educational Demographics Unit



Source: California Department of Education, Educational Demographics Unit



Source: California Department of Education, Educational Demographics Unit



Source: California Department of Education, Educational Demographics Unit

Career and Tech Prep Course Offerings Diverse

Description of Indicator

This indicator measures the enrollment of Orange County high school students in courses specifically designed to provide career relevant job skills or experience. In addition, this indicator measures participation in ROP (Regional Occupation Programs) courses which are primary career preparation sites for Orange County high school students.

Why is it Important?

Students should have opportunities to explore career interests and develop competence in particular occupational categories while in high school. These career-oriented classes help make school more relevant and prepare students with skills they can use in the workplace.

How is Orange County Doing?

Overall, approximately 65 percent of the total student enrollments in Orange County high schools take career and tech prep courses within their regular high school curriculum and/or in ROP courses. Actual enrollment may be less since students may elect to take more than one career and tech prep course in the academic school year.

ROP courses are a primary workforce preparation tool for high school students and adults in California. They provide specific skills training and comprehensive career education in 15 industry sectors through collaborating with business partners in curriculum design and implementation.

In Orange County, the four ROP programs are:

- Capistrano-Laguna Beach (5,373 enrollments)
- Central County (23,507 enrollments)
- Coastline (13,020 enrollments)
- North County ROP (22,684 enrollments)

The highest enrollments are found in:

- Health Science/Medical Technology
- Arts/Media/Entertainment
- Finance/Business
- Information Technology

North County ROP has particularly high enrollments in Finance/Business and Health Science/Medical Technology, while Coastline has large enrollments in Arts/Media/Entertainment. Central County ROP has high enrollments in Information Technology and Health Science/Medical Technology, and the Capistrano-Laguna Beach ROP has highest enrollments in Health Science/Medical Technology and Arts/Media/Entertainment.

In the regular high school curriculum, enrollment in “Construction” courses increased in 2007-08 in comparison to 2006-07 while enrollment in “Food and Nutrition”, “Woodworking” and “Keyboarding” declined resulting in an overall decline as these courses were the most frequently enrolled courses in 2007-08.

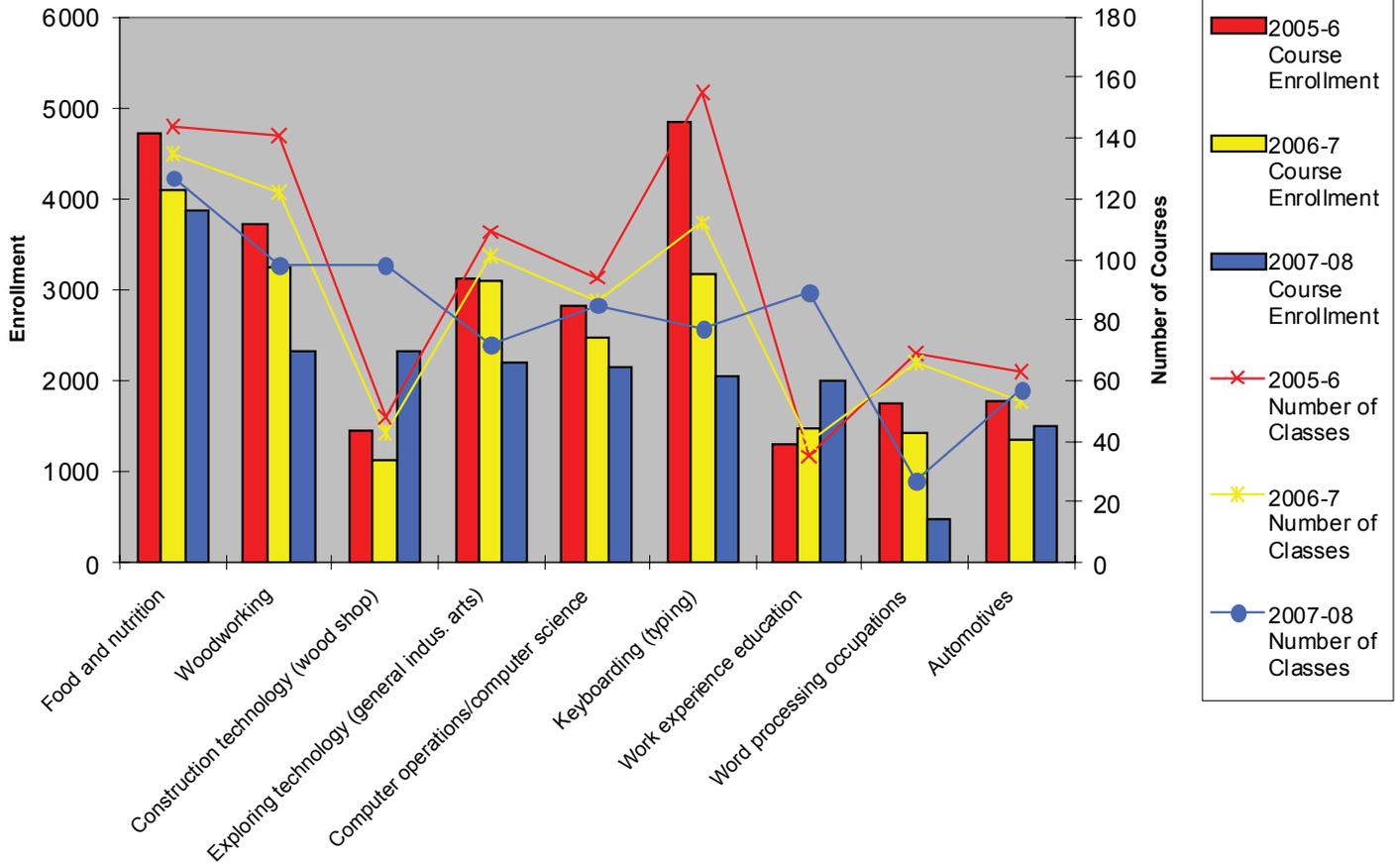
A 2006 report by UC Riverside found that students who are enrolled in ROP courses have higher improvement in their grades, higher wages at work upon graduation, and have greater success in securing raises, and promotions on the job than non-ROP enrolled students. Providing career-based training for students makes education more relevant for their future and ensures that Orange County businesses will have a future workforce with the skills and workplace attitudes that will enable them to succeed and grow in our economy.



By 2010, increase enrollment of students in key career and tech prep courses by 20 percent.

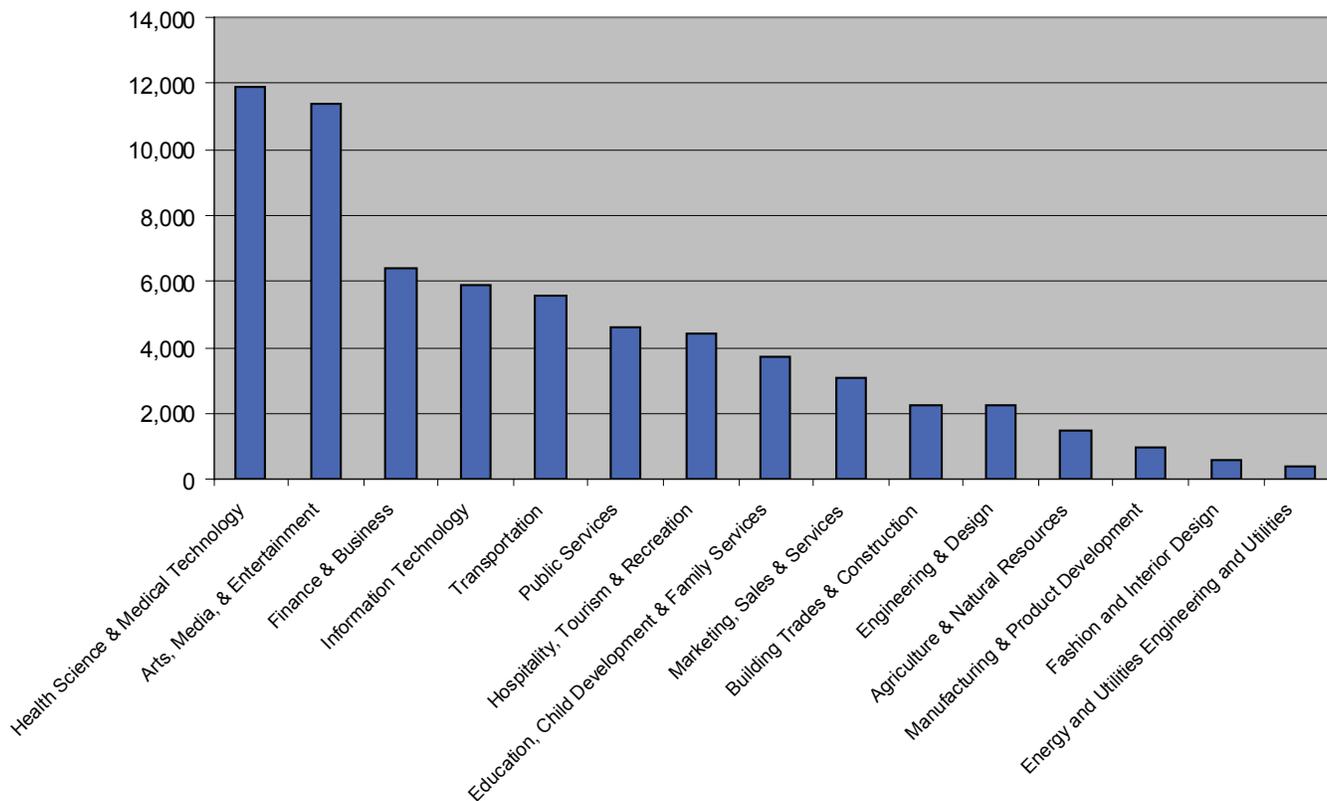
Enrollment in the regular high school curriculum is not increasing enough to meet the target by 2010; but, ROP courses provide good opportunities for expansion and growth.

Career and Tech Prep Courses in Orange County (Regular Curriculum) 2005-06 to 2007-08



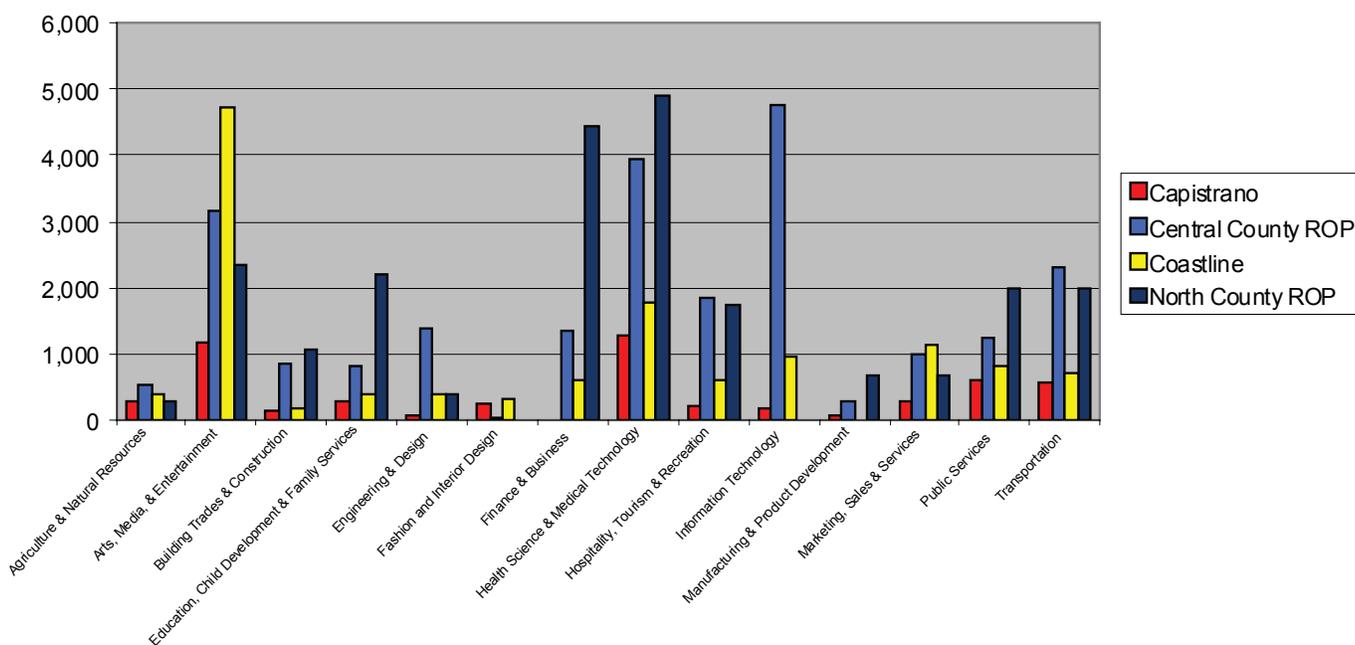
Source: California Department of Education

Total Enrollment by ROP Subject Area 2007-2008



Source: Capistrano-Laguna Beach ROP, Central County ROP, Coastline ROP and North County ROP

Program Areas Enrollment by ROP Program 2007-08



Source: Capistrano-Laguna Beach ROP, Central County ROP, Coastline ROP and North County ROP

Our Students Speak Out

Description of Indicator

This indicator is based on the results of 2007 “NetDay Speak Up Day for Students,” Project Tomorrow’s opinion survey of teachers and students in K-12 public, private, and charter schools in Orange County and throughout the nation. Nationwide, the survey included more than 319,000 students and teachers. The findings are designed to benefit federal, state, and local policies and programs for technology and education.

Why is it Important?

A workforce that is adept at utilizing and leveraging technology is essential to sustaining Orange County’s innovation-driven economy. If the County’s schools fail to integrate technology effectively into the curriculum, both businesses and students will be at a competitive disadvantage.

As the principal beneficiaries of our educational system, students’ perception of their school is critical to evaluating the overall effectiveness and relevance of their education. As students are increasingly savvy about technology that permeates their lives outside of school, they are uniquely qualified to assess the quality of technology being used inside the classroom.

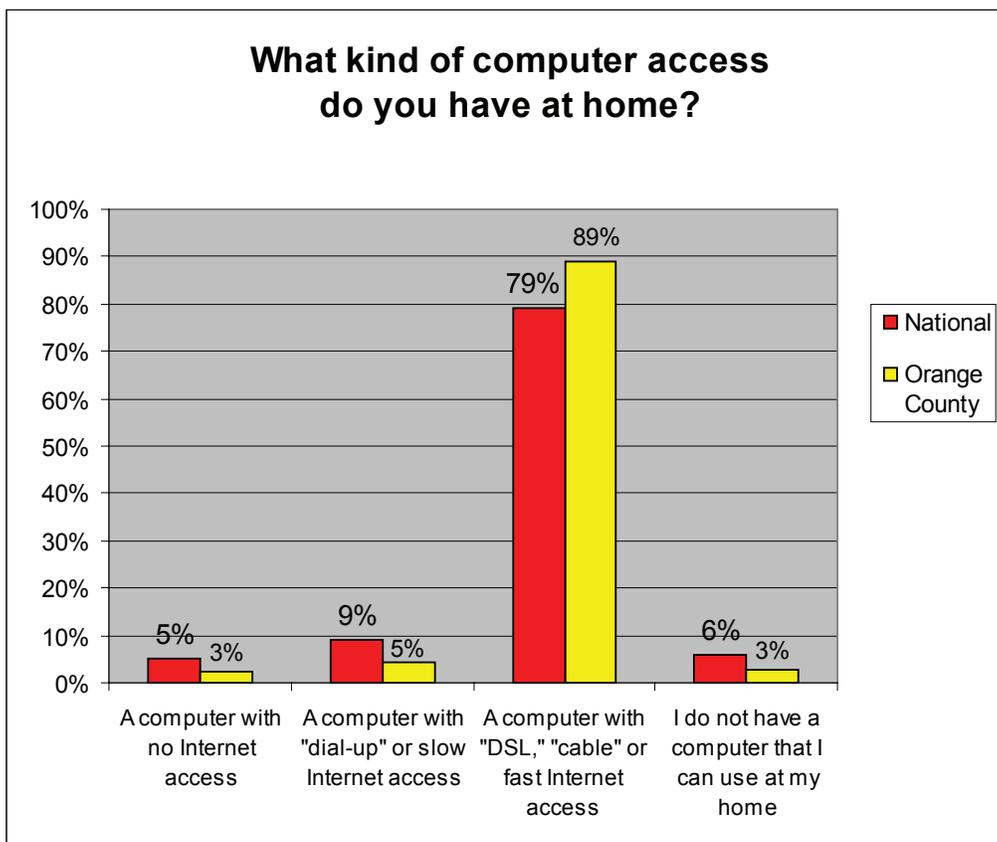
How is Orange County Doing?

Orange County students are increasing their technology knowledge. This is shown by how students communicate electronically with each other. Approximately 89 percent of the County’s students have high speed internet connections, versus 79 percent across the nation.

Asked which items they have for their own use, County students said they use the MP3 player (87 percent), desktop computer (71 percent), DVD/CD burner (62 percent), digital camera (59 percent), and laptop computer (47 percent) frequently. These students surpass their peers for all items listed on a national survey of their usage of high technology items except “Other”.

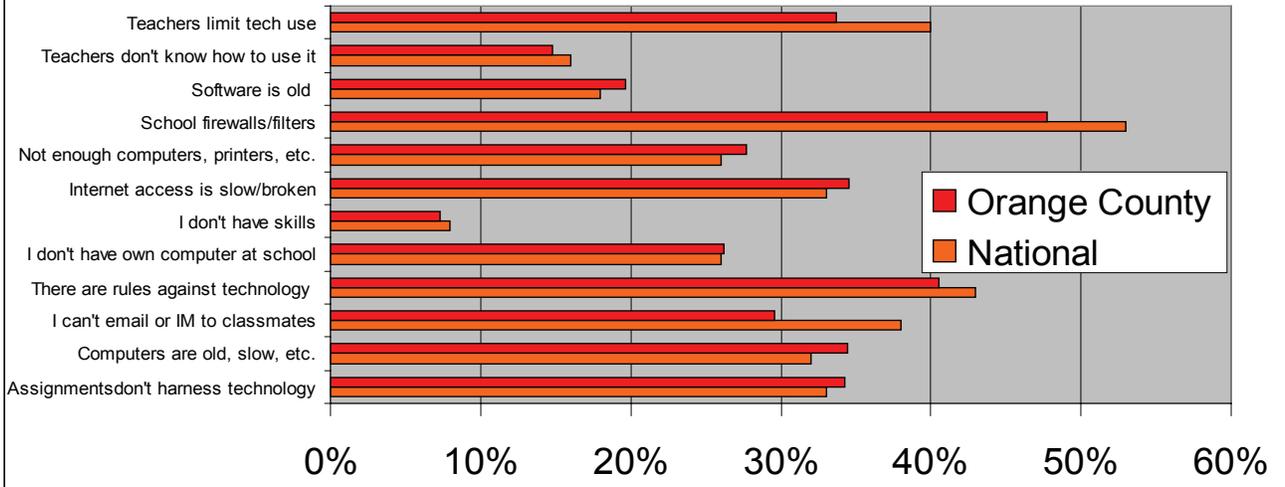
However, when asked what are the biggest hurdles to using technology at school, Orange County students more so than their peers nationally cited “Computers are old, slow, broken or freeze up” as among the major hurdles to their use of technology. What the students use easily at home is not so easy when they get to school.

Orange County students are very tech savvy as shown by their high usage of technology in their regular lives; however, this fails to translate into academic participation at school. The gap between how students live at home with technology and what they do in school needs to be addressed.

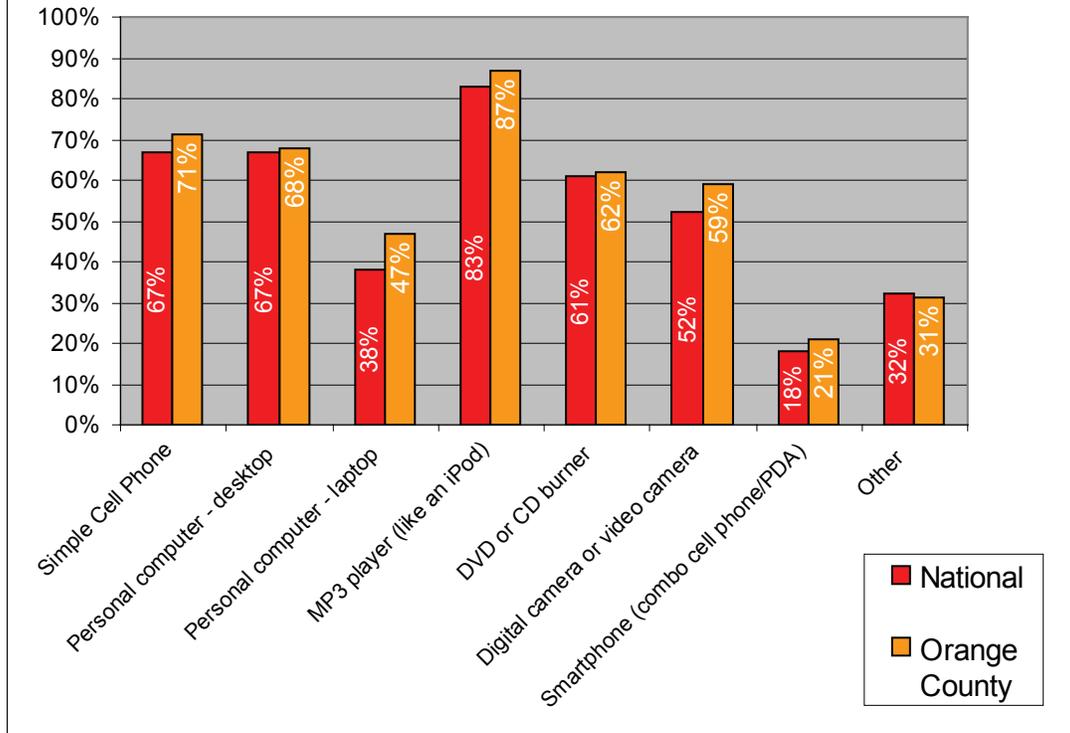


Source: “NetDay Speak Up” Survey, 2007

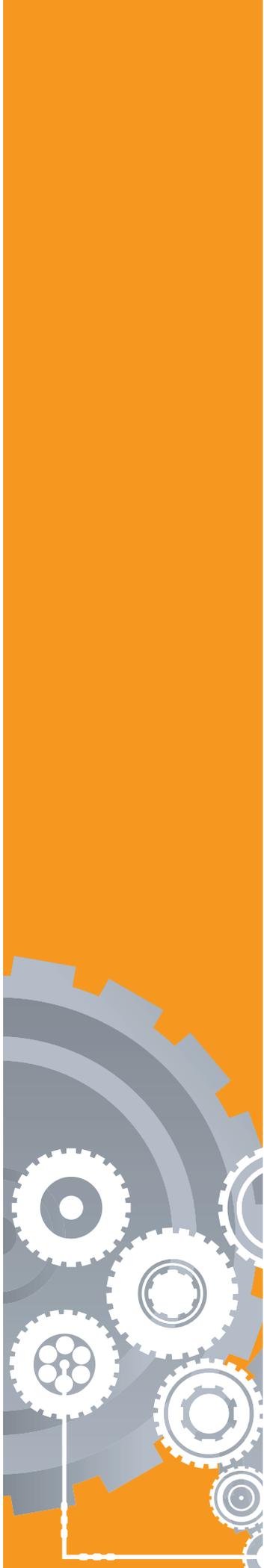
Besides not having enough time in your school day to use technology, what are the other major obstacles you face using technology at your school?



"What types of electronic devices do you have access to for your own use?"



Source: "NetDay Speak Up" Survey, 2007



Special Features

08-09 Indicators

Industry Clusters -- Beyond the Sectors

What are Clusters?

Clusters are geographic concentrations of interconnected companies, specialized suppliers, service providers, and associated institutions in a particular field that are present in a particular region or local economy. Clusters emerge because companies engaged in a similar industry recognize they can enhance their productivity through locating near each other, thus enhancing their ability to compete collectively and cooperatively.

Industry clusters typically possess four key characteristics:

- Critical mass/concentration -- in other words, more concentrated than average.
- High Growth rates -- a tendency toward higher growth rates than other sectors.
- High Multiplier effects -- not all jobs are equal in terms of their effect on other parts of the economy. For example, creating a job in an industry cluster typically creates two or three other jobs throughout the economy, such as in Advanced Manufacturing.
- Finally, and most importantly, some key reason, or some competitive advantage for the cluster to be here, today and in the future - Disney and Boeing are two examples of key reasons we have competitive advantage in their respective clusters.

Because of this, these businesses tend to be higher growth and generate higher wage occupations. Having significant multipliers also plays a role in identifying the clusters of Orange County. While a cluster itself may have more moderate growth or wages, if it has high multiplier effects (e.g. manufacturing), it could be included with a “sub-cluster” defined within it where more high-growth, high-wage jobs are concentrated. “Emerging clusters” are also defined in situations where elements of a cluster are emerging and expected to play a larger role into the future.

The “Cluster Competitiveness” strategy and mapping framework and methodology used by the Orange County Workforce Indicators was developed by the Institute for Strategy and Competitiveness at Harvard University. Using a Cluster Mapping Project the Institute for Strategy and Competitiveness has assembled a detailed picture of the location and performance of industries in the United States. Extensive data from the project is now available. In addition, the Cluster Meta-Study aggregates data from

existing cluster publications to learn more about the locational, economic, and competitive characteristics of industry clusters, the reasons behind their competitiveness or lack thereof, and their patterns of evolution over time as well as the reasons behind these patterns.

Orange County industry clusters were identified using comparative North American Industrial Classification System (NAICS) and Occupational Information Network (O*NET) data for Orange County and the surrounding region, along with sophisticated economic techniques such as Location Quotient, Shift-Share, Economic Base Analysis, and econometric research. Using analysis from over fifteen years of data and findings from the Cal State Fullerton Institute for Economic and Environmental Studies as well as a half dozen years of analysis in partnership with the Orange County Workforce Investment Board, clusters specific to Orange County have been identified, cataloged, and tracked.

Broken down by industry, NAICS data show the relative growth and decline of industries as measured by number of employees, fluctuations in payroll, concentration of industry in OC relative to California and the nation, and changes in the share of total regional employment held by each industry. This approach to identifying industry clusters of opportunity provides both a powerful analytical tool as well as a useful means of communicating the state of the regional economy to non-specialists.

The 2007 Workforce Indicator’s Report included research and analysis on ten industry clusters in Orange County that this report has tracked for several years: biomedical, business and professional services, communications, computer hardware, computer software, construction, defense and aerospace, energy and environment, health services, and tourism. Past research experience involving these industry clusters over the last six years has led to a refinement of data collection and analysis, as well as changes in the way the State and federal government classifies and tracks industry and employment. The 2008 Workforce Indicator Report contains an update and re-definition of Orange County’s industry clusters to reflect changes in the economy and alterations in the policy goals for improving economic growth. In some cases, clusters have been re-named, in others, definitions of the components of the cluster were revised to better capture the essence of the cluster. Sub-clusters were added to a few of the clusters to better refine the analysis. Emerging clusters were added to capture fields that have a promising future in Orange County.

For the 2008-2009 Workforce Indicators Report, The Clusters Are Now:

- Biotechnology
- Business and Professional Services
 - Management and Administration (sub-cluster)
- Construction
- Energy, Environment, and Green Technologies*
- Finance, Insurance, Real Estate (FIRE)
- Healthcare
- Information Technology
- Logistics and Transportation
 - Transportation (sub-cluster)
- Manufacturing
- Advanced Manufacturing (sub-cluster)
- Biotechnology and Nanotechnology*
- Hospitality and Tourism
 - Hospitality (sub-cluster)

* *Emerging Clusters*

These clusters are different from the “industry sectors” described elsewhere in this report. Industry sectors are defined by the hierarchy of the North American Industry Classification System (NAICS) used by the California Employment Development Department. For example, Natural Resources & Mining, Wholesale Trade, and Information are industry sectors defined by the hierarchy of the NAICS system while this report contains a local analysis of “clusters” such as Biotechnology, Healthcare, and Construction. Although there may be an overlap, the definitions and the analysis are different. The indicators in this report that contain analysis on industry sectors are the Orange County Competitive Advantage indicator, the Orange County Manufacturing Competitive Advantage indicator and the Industry Growth in Orange County indicator.

What Are Emerging Clusters?

Emerging industry clusters in Orange County contain firms involved with cutting-edge fields which promise great potential for the Orange County economy.

“Energy, Environment and Green Technologies” is highlighted because Orange County’s long-standing strength in this field and the opportunities emerging in Green Technologies due to the increasing costs of resources, policy requirements such as AB 32 requiring reductions in greenhouse gas emissions, and California’s strength in this area due to its natural resources in sunshine, geothermal energy and wind. According to “Harvesting California’s Renewable Energy Resources: A Green Jobs Business Plan,” if 20 percent of America’s energy were from renewable sources, Orange County could gain between 8,000 and 22,000 new jobs in companies emerging to address the new business opportunities with this energy target.

“Biotechnology and Nanotechnology” is highlighted as an emerging cluster because technological changes in the near future promise to revolutionize industries where Orange County firms are among the world-wide leaders today. Orange County is recognized as the center of the medical device industry; major pharmaceutical firms are also located in Orange County. As breakthrough High School in miniaturization and nanotechnology are implemented commercially, Orange County firms promise to be at the forefront of these changes creating new opportunities for Orange County workers to benefit as these firms prosper.

Why is it Important?

Approximately three fourths of all Orange County jobs are in the clusters described in this indicator. These clusters were chosen to reflect both key economic drivers for the Orange County economy and industries that are central to workforce development. Understanding employment trends in these clusters can and should influence workforce and economic development policy.

In addition, understanding comparative salary levels and salary growth trends is vital for education and workforce development policy. This information, combined with information from the indicator on cluster employment growth trends, allows workforce development professionals and the business community to understand how the County’s economy is performing in terms of generating jobs at differing salary levels. For example, if growth of low wage jobs is not balanced by growth of high wage jobs, there will be problems -- especially so in a high cost of living location like Orange County.

How is Orange County Doing?

Employment

The three largest clusters are Manufacturing, Tourism, and Management & Administration. These reflect the importance of the service sector in the Orange County economy as well as Orange County's continuing strength in manufacturing despite national trends. Other clusters such as Finance/Insurance/Real Estate, Construction, Healthcare, and Business & Professional Services also play significant roles in the Orange County economy.

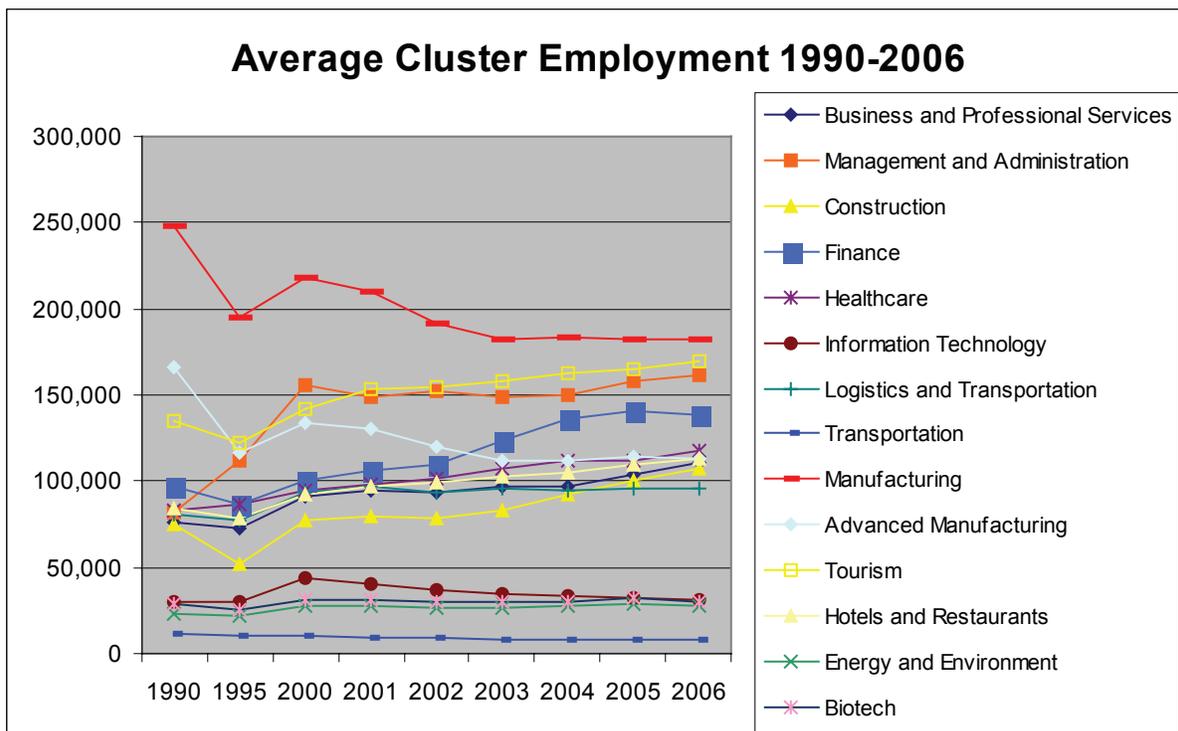
After a steady decrease through the 1990s due to efficiency and productivity gains, manufacturing employment has leveled off at approximately 180,000. Approximately 110,000 of those jobs are in the more technically/scientifically oriented Advanced Manufacturing sub-sector of this cluster.

Other clusters have posted steady gains through the 1990s and 2000s. Tourism is the second largest cluster with approximately 170,000 jobs and the Management & Administration sub-cluster of Business and Professional Services is third with approximately 160,000 jobs. Information Technology including Computer Software Programming experienced significant growth through

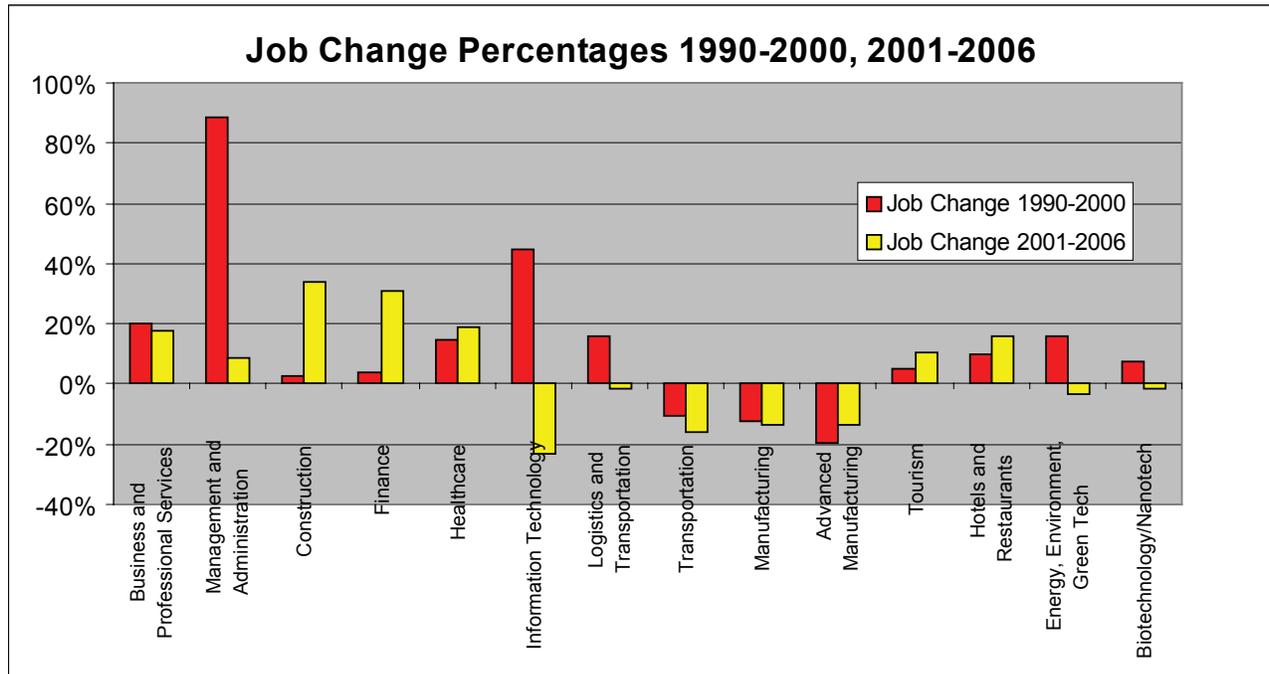
the 1990s, increasing employment by 50 percent, only to lose many of those jobs by 2006. Management and Administration, containing a significant number of employees who work for employment agencies, is among the fastest growing clusters surging from only 80,000 jobs in 1990 to 170,000 in 2006.

The Finance/Insurance/Real Estate and Construction clusters grew in tandem with each other through the 1990s and 2000s topping out at approximately 140,000 jobs (Finance/Insurance/Real Estate) and 107,000 (Construction) by 2006. However, the real estate slow down and credit crunch, starting in 2007, has reversed this growth and there will be decreases in future employment in the near-term.

Healthcare and Business & Professional Services (without Management & Administration) posted steady gains in employment through both the 1990s and 2000s with 110,000 jobs in Business & Professional Services and 117,000 jobs in Healthcare. Steady, consistent gains in these clusters in a variety of economic situations demonstrate why these clusters are projected to provide a significant portion of Orange County's employment growth.



Source: OCBC analysis of California Employment Development Department data



Source: OCBC analysis of California Employment Development Department CREE data set

Salary Growth

Because much of Orange County's job growth is in service sector clusters that have low wages and weak wage growth, workforce development policy in those sectors should focus strongly on skills development to provide avenues for wage growth that otherwise might not exist. Workforce development policy should also attempt to identify skill ladders that can move employees from service sector jobs to jobs in the technology clusters that have higher wages and more rapid wage growth.

While many jobs in these subclusters are part time or temporary, two clusters among those with highest levels of employment--the subclusters of Management and Administration and Hotels and Restaurants--were among the lowest paying clusters. Tourism jobs paid, on average, \$16,094 in 2007, the equivalent of \$7.73 per hour for full-time work. Management and Administration jobs paid an average of \$40,318 per year, which is equivalent to \$19.38 per hour in 2007.

The highest paying clusters in 2007 were Finance/Insurance/Real Estate, (\$79,319 or \$38.13 per hour), Advanced Manufacturing (\$74,590 or \$35.86 per hour), and Business and Professional Services (not including the sub-cluster of Management and Administration) which had salaries of \$73,400 or \$35.29 per hour). The presence of higher salaries in Advanced Manufacturing point to technically and scientifically oriented manufacturing processes that pay significantly better than the entire range of manufacturing jobs. Information Technology (\$70,240 or \$33.77 per hour) and Biotechnology/Nanotechnology (\$73,660 or \$35.41 per hour) also pay well. Energy, Environment and Green Technologies also pays relatively well (\$55,024 or \$26.45 per hour) considering how many

of the jobs in this cluster have low barriers for entry. For this reason, Biotechnology/Nanotechnology and Energy, Environment and Green Technologies are considered to be "Emerging Clusters" with a promising future.

All of the clusters show continuing salary growth over the last several years. However, wage growth since 2001 was less than wage growth during the boom years of the 1990s, even in the clusters. During the 1990s, economic expansion helped wages overall with particular assistance to the clusters while in the more weaker years of the 2000s. With wages stagnant in many industries, even these clusters faced lower wage growth than in the better economic climate of before.

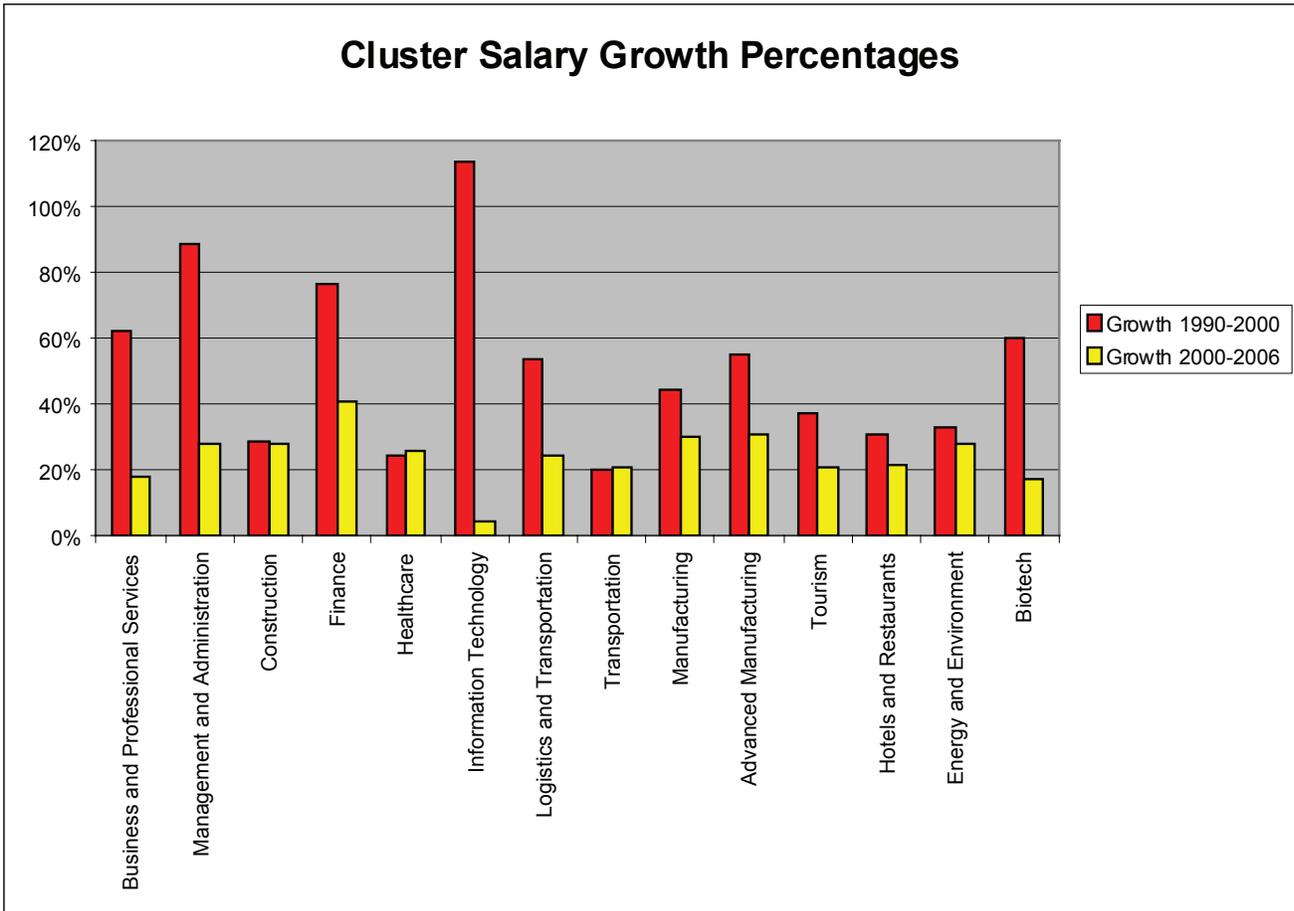
Continuing salary growth in some of Orange County's technology clusters is particularly good news in light of the troubles in the Finance/Insurance/Real Estate industry in the last year. Yet the preponderance of employment growth in relatively low-wage clusters suggests a long-term issue for Orange County's workforce development policies. These wage trends indicate that the County's recent economic contraction in some high technology clusters may be on the verge of expansion as growing wages suggest a potential for employment growth over time. Additionally, many of the higher paying clusters report great difficulty in finding skilled workers.

One of the major benefits of labor market research is being able to identify these shortages early to correct the problems such as the Orange County Business Council and Orange County Workforce Investment Board did in developing a Healthcare Collaborative to address the nursing shortage several years ago.

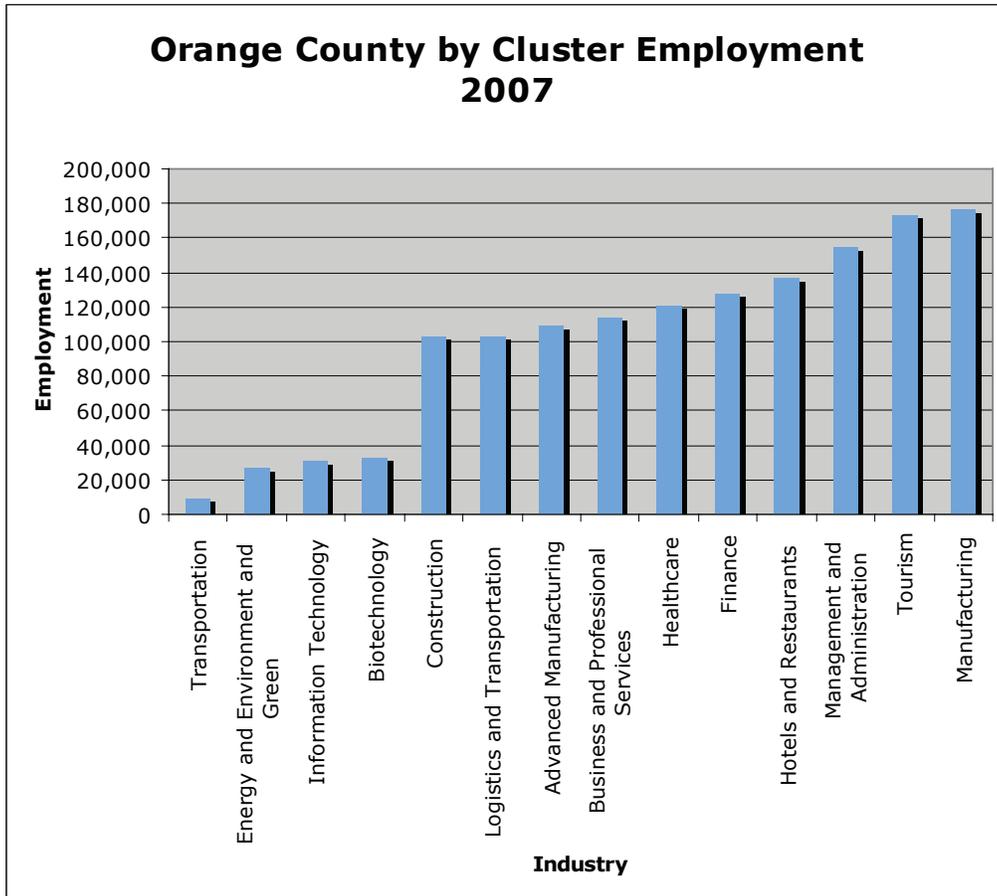
	1990	1995	2000	2001	2002	2003	2004	2005	2006
Business and Professional Services	\$36,706	\$43,494	\$59,517	\$61,110	\$61,950	\$62,449	\$63,106	\$66,190	\$70,279
<i>Management and Administration</i>	\$16,698	\$25,955	\$31,531	\$33,692	\$33,788	\$34,570	\$36,900	\$37,587	\$40,318
Construction	\$32,133	\$34,361	\$41,292	\$43,166	\$44,278	\$46,317	\$47,213	\$49,724	\$52,932
Finance	\$30,988	\$41,087	\$54,661	\$58,075	\$62,664	\$68,254	\$73,330	\$77,976	\$77,119
Healthcare	\$29,293	\$32,052	\$36,322	\$37,662	\$39,657	\$40,419	\$42,301	\$44,210	\$45,804
Information Technology	\$30,230	\$40,672	\$64,498	\$60,007	\$57,574	\$58,865	\$63,390	\$64,410	\$67,497
Logistics and Transportation	\$32,592	\$40,068	\$50,146	\$51,612	\$52,015	\$54,254	\$57,380	\$58,780	\$62,362
<i>Transportation</i>	\$26,062	\$25,189	\$31,329	\$32,198	\$32,648	\$33,526	\$35,496	\$36,635	\$37,857
Manufacturing	\$31,386	\$35,749	\$45,357	\$44,659	\$46,299	\$49,889	\$52,885	\$54,831	\$59,139
<i>Advanced Manufacturing</i>	\$36,740	\$43,233	\$56,975	\$55,197	\$56,989	\$62,354	\$66,493	\$68,526	\$74,590
Tourism	\$12,051	\$12,650	\$16,554	\$16,903	\$17,473	\$18,329	\$18,766	\$19,295	\$19,957
<i>Hotels and Restaurants</i>	\$10,110	\$10,398	\$13,240	\$13,702	\$14,263	\$14,740	\$15,135	\$15,594	\$16,094
Energy and Environment	\$30,697	\$32,824	\$40,759	\$41,797	\$44,234	\$45,091	\$47,770	\$49,212	\$52,001
Biotech	\$34,700	\$39,804	\$55,482	\$54,613	\$55,484	\$57,874	\$61,561	\$61,532	\$64,988

Source: OCBC analysis of California Employment Development Department CREE data set

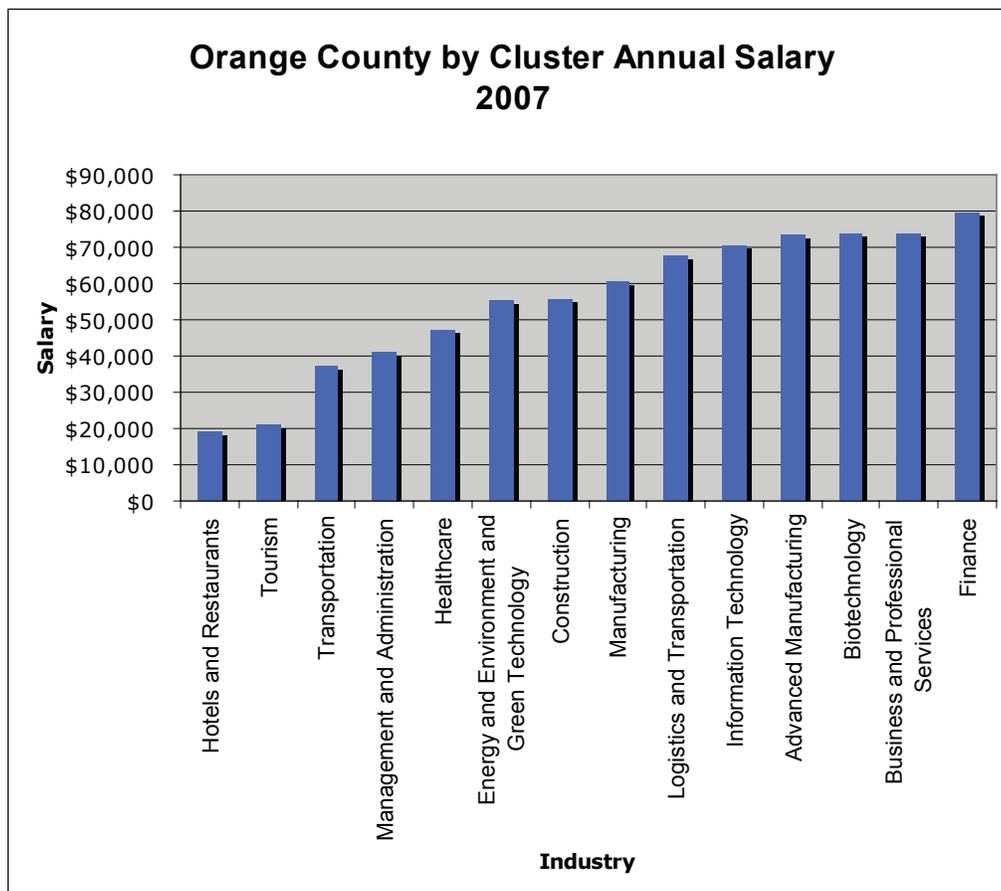
* Italicized clusters are subclusters. Clusters in bold are emerging clusters.



Source: OCBC Analysis of data from the California Employment Development Department



Source: OCBC analysis of California Employment Development Department QCEW dataset. The QCEW dataset contains more recent data than the CREE dataset but is not considered to be the final estimate like the CREE dataset is.



Source: OCBC analysis of California Employment Development Department QCEW dataset. The QCEW dataset contains more recent data than the CREE dataset but is not considered to be the final estimate like the CREE dataset is.

Occupations by Cluster:

Business and Professional Services Cluster

The Business & Professional Services industry cluster includes firms and occupations that provide specialized services in support of businesses. These include areas such as law, accounting, architecture, computer programming, consulting market research, and advertising. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Sub-Cluster: Management and Administration

The Business Management and Administration industry sub-cluster includes firms and occupations that establish and staff businesses. These include firms involved with management of companies, administrative support, employment and temporary help services, document preparation, telemarketing companies, collection agencies, credit bureaus, janitorial services, locksmiths, security services, and convention and trade show organizations.

Emerging Cluster –Energy, Environment, and Green Technologies

The Energy, Environment, and Green Technologies industry cluster is the employment field of the future that will utilize high technology in transportation, in the construction and modification of the built environment, in economic development in response to climate change, and will respond to the emerging legislative mandates affecting the economy. Green technologies will include efficiencies and re-use and/or transformation of waste into usable products. Recycling and organizing resources in a new way will respond to energy needs and shortages while also growing the economy. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Construction Cluster

The Construction industry cluster includes firms and occupations involved with the construction, design, and development of buildings and built structures. These include housing construction, industrial building construction, utility system construction, highway construction, and specialized contractors (plumbers, electricians, roofers, etc.). Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math). In addition, the construction cluster includes components of geospatial architectural research and auto-CAD work.

FIRE (Finance, Insurance, Real Estate)

FIRE (Finance, Insurance, Real Estate) industry cluster includes firms and occupations in the financial operation of the economy through real estate, banking, and insurance. FIRE includes banks, credit unions, mortgage loan originators, insurance companies, rental centers, and real estate offices. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Healthcare Cluster

The Healthcare industry cluster includes firms and occupations which provide healthcare services. These include hospitals, outpatient care centers, family planning centers, home healthcare services, ambulance services, nursing care facilities, social assistance agencies, and intermediate care facilities, and residential care facilities (nursing homes). Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Information Technology Cluster

The Information Technology industry cluster includes firms and occupations in advanced technology economies. These include computer software, telecommunications, internet service provision, motion pictures, and publishing businesses. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Logistics and Transportation Cluster

The Logistics and Transportation industry cluster includes firms and occupations which manage the flow of goods, information, and other resources, including energy and people, between the point of origin and the point of consumption in order to meet the requirements of consumers (frequently, and originally, military organizations). Logistics involves the integration of information, transportation, inventory, warehousing, material-handling, and packaging. Logistic and Transportation businesses include wholesalers, railroads, trucking, taxis, and charter bus businesses.

Sub-Cluster: Transportation

The Transportation sub-cluster of the Logistics and Transportation industry cluster includes firms and occupations involved with the transport of goods and commercial transportation such as railroads, air cargo, shipping, trucking, taxis, and charter buses.

Manufacturing Cluster

The Manufacturing industry cluster includes firms and occupations that create finished goods from raw materials, such as food products, wood products, apparel, printing, paper, plastics, biotechnology goods, glass, aluminum, semiconductors, transportation items (aerospace, automobiles, boats), and furniture. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Sub-Cluster: Advanced Manufacturing

The Advanced Manufacturing sub-cluster of the Manufacturing industry cluster includes firms and occupations that specialize in emerging elements of high-technology manufacturing. These include biotechnology, pharmaceuticals, medical devices, and aerospace. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Emerging Cluster—Biotechnology/Nanotechnology

The Biotechnology/Nanotechnology industry is a future employment cluster which will produce discoveries in biology and technology and mix the two to create new products, services and industries to enhance healthcare and biological care. While pharmaceuticals and medical device manufacturing are two components of this industry, discoveries from the human genome project, nanotechnology, and advances in biological knowledge promise the emergence of fields that can only be imagined now. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math). Occupations that exist today and may grow as a response to these demands are listed below.

Hospitality and Tourism Cluster

The Hospitality and Tourism industry cluster includes firms that are involved with the promotion and services for visitors to a particular location. These include hotels, museums, amusement parks, casinos, restaurants, and caterers.

Sub-Cluster: Hospitality

The Hospitality sub-cluster represents hotels and restaurants within the Tourism industry cluster. This cluster includes firms that provide accommodation and hospitality services to visitors such as hotels, restaurants, casinos, and caterers.

Further analysis on occupations in Orange County is found in the “Occupations Analysis” Indicator.

Projections of New Jobs In Orange County Will Incorporate A Wide Variety of Education, Training, and Skills.

Description of Indicator

This indicator describes occupational projections, training requirements and which occupations are generally found in each cluster (in other words where are the jobs that more frequently require a high school diploma and where are the jobs that more frequently require a bachelors degree or higher?). In addition, this indicator discusses the geographic location of jobs in various occupations and the educational attainment of residents in those geographical locations across Orange County. Note that occupational growth is a measure for specific types of jobs, not growth in the number of jobs in particular industries. Many occupations are found across several different industries. For example, while the Tourism industry may have maids, bellhops, taxi drivers, cooks, managers and executives, only some of these are occupations that are specifically classified as Tourism occupations. The Management Occupation “executive” is just as likely to be in the Business and Professional Services or Construction industry as he/she is in the Tourism industry, but a “bellhop” is only in Tourism and is classified as a Tourism occupation. Therefore statistics on occupations cannot be compared with statistics on industries (e.g. Tourism industry wages are not the same as Tourism occupation wages).

Why is it Important?

The measurement of occupational growth across several parameters enables workforce professionals to develop training programs which prepare workers for occupations that are expected to have the greatest demand in the future. Understanding the geographic distribution of jobs relative to educational attainment also helps further insight on transportation commute patterns and location of job training sites.

How is Orange County Doing?

Occupations Projections:

The California Employment Development Department prepares projections for the Orange County economy periodically with the most recent set projecting employment estimates for 2004 through 2014. Understandably, these projections may not be accurate as events such as the credit crunch/mortgage crisis in the real estate industry or student enrollment drops in

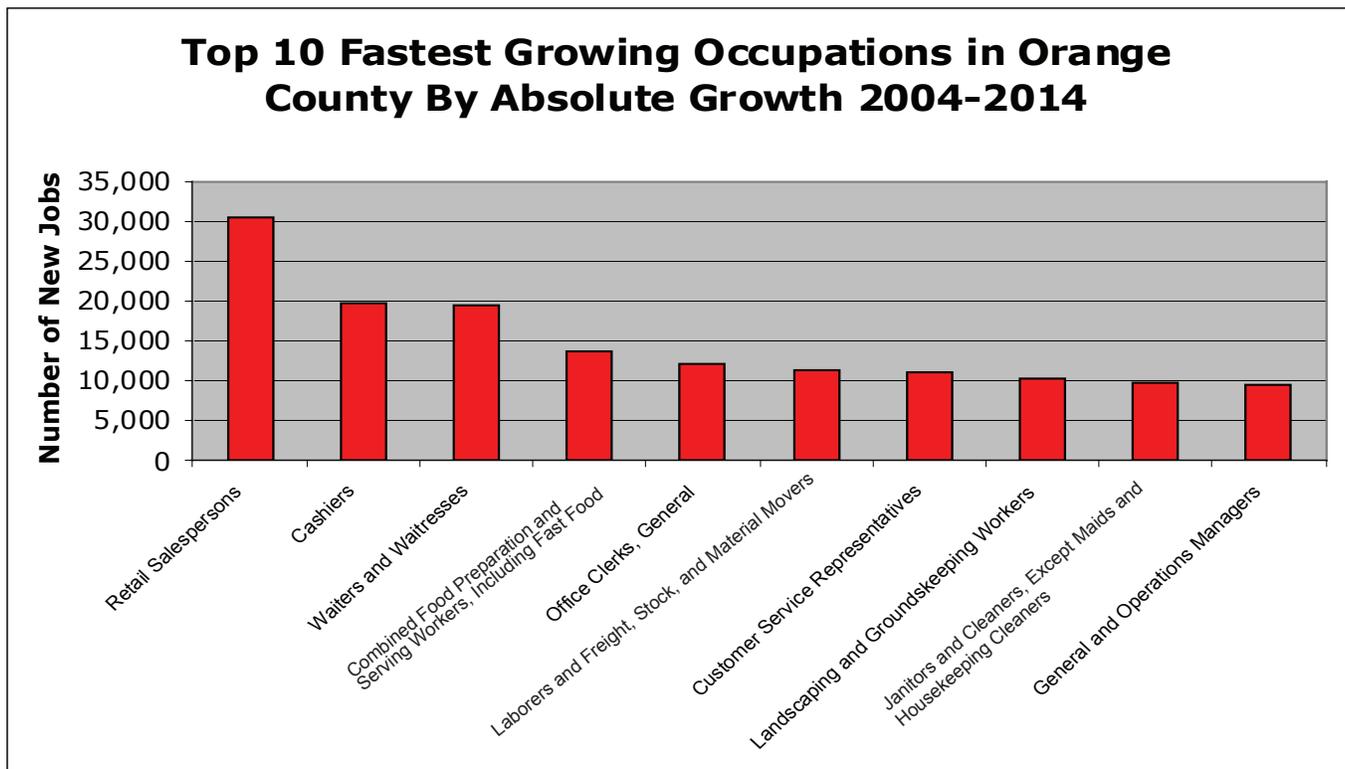
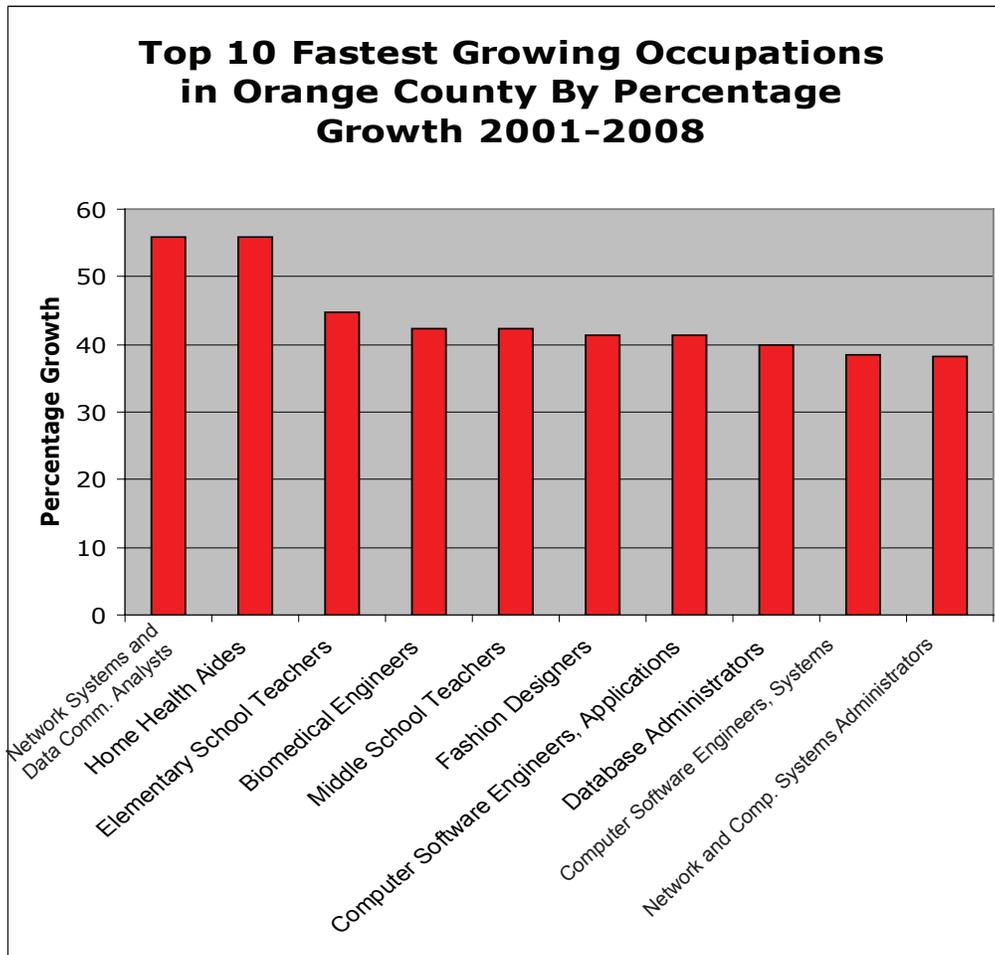
some school districts dramatically alters the economy in particular sectors. Nevertheless, the projections are useful tools for analyzing broad trends across the entire economy.

Out of the total 287,400 new jobs projected to be added to the Orange County economy from 2004 to 2014, 30,350 are expected to be in “Retail Salespersons.” Other high growth occupations are “Cashiers”, “Waiters and Waitresses”, and “Combined Food Preparation and Serving Workers, Including Fast Food.” In terms of percentage growth, the fastest occupational growth in Orange County will be in “Network Systems and Data Communications Analysts” (56.0 percent), “Home Health Aides” (55.8 percent) and “Special Education Teachers, Preschool, Kindergarten, and Elementary School” (44.7 percent).

Job Training Requirements

The new jobs projected to be created will incorporate a wide variety of education, training, and skill requirements. Three training categories were analyzed: (1) jobs that do not require a high school diploma (i.e., jobs that require short to long-term on the job training or work experience in the related occupation); (2) jobs that require some post-secondary education (i.e., post-secondary vocational education or associate’s degree), and (3) jobs that require a bachelor’s degree or higher educational attainment.

It is estimated that in 2004, 70.4 percent of the jobs in Orange County did not require a high school diploma, 7.5 percent required post-secondary education, and 22.1 percent required a bachelor’s degree or higher educational attainment. Of the three training categories, it is projected that jobs requiring a bachelor’s degree or higher will grow the fastest (23.2 percent) while jobs that do not require a high school diploma will also grow, but more slowly (16.0 percent). By 2014, net employment growth will be greatest in the lower education category of jobs (about 146,000 jobs) compared to the higher educational categories (89,715 combined).



Source: California Employment Development Department

Employment and Wages by Minimum Training Required, Orange County

Minimum Training Required	Percent of County Employment 2004	Estimated Number of Jobs, 2007	Estimated Percent Increase 2004-2014	Estimated Number of Jobs, 2014
No High School Diploma	70.4%	963,887	16.0%	1,109,882
Post-Secondary Education	7.5%	102,522	21.9%	121,084
Bachelor's or Higher	22.1%	302,459	23.2%	373,612
Training Level Not Classified	0.0%	268	9.7%	320

Data Sources: Adapted from Occupation Employment Statistics (OES), 2007 and Dun & Bradstreet, 2007

The table below lists the top 20 occupations that are projected to grow the fastest in net job growth between 2004 and 2014. These high-growth occupations span a wide range of income and training level categories, from Food Preparation and Serving Workers who do not need a high school diploma and earn, on average, \$8.17 an hour, to General and Operation Managers who need at least a bachelor's degree and earn \$48.67, an hour. Net job growth between 2004 and 2014 is projected to be largest for Retail Sales occupations, (12,510), followed by Customer Service Representatives (7,120), and Waiters and Waitresses (6,490), all of which do not require a high school diploma. Indeed, fourteen of the twenty occupations listed do not require a high school diploma.

Top 20 Projected Fastest Growing Occupations in Orange County, 2004-2014

Occupation	Minimum Training Required	Employment 2004	Median Hourly Wage
Retail Salespersons	No High School Diploma	12,510	\$9.89
Customer Service Representatives	No High School Diploma	7,120	\$15.06
Waiters and Waitresses	No High School Diploma	6,490	\$8.01
Janitors and Cleaners	No High School Diploma	5,330	\$8.99
Landscaping and Groundskeeping Workers	No High School Diploma	5,320	\$9.15
Registered Nurses	Post-Secondary Education	5,050	\$33.09
Food Preparation and Serving	No High School Diploma	5,030	\$8.17
General and Operations Managers	Bachelor's or Higher	5,010	\$48.67
Computer Software Engineers, Applications	Bachelor's or Higher	4,850	\$34.40
Carpenters	No High School Diploma	4,410	\$22.62
Business Operations Specialists, All Other	Bachelor's or Higher	4,200	\$28.12
Cashiers	No High School Diploma	3,920	\$8.66
Office Clerks, General	No High School Diploma	3,870	\$12.71
Sales Representatives	No High School Diploma	3,690	\$26.04
Accountants and Auditors	Bachelor's or Higher	3,650	\$27.24
Teacher Assistants	No High School Diploma	3,480	N/A
Elementary School Teachers	Bachelor's or Higher	3,380	N/A
Executive Secretaries and Admin Assts.	No High School Diploma	3,160	\$20.05
Receptionists and Information Clerks	No High School Diploma	3,130	\$12.30
Laborers and Freight	No High School Diploma	2,960	\$9.38

Data Source: Occupation Employment Statistics (OES), 2007

While a considerable number of employment opportunities in the Construction, Logistics and Transportation, Tourism and Leisure, and Management and Administration sectors do not require a high school diploma, wages differ between industry sectors. For example, the hourly wage for jobs that do not require a high school diploma within the Tourism and Hospitality sector is, on average, \$13.90 per hour (\$29,309 annually), while jobs in the Construction sector are estimated to earn nearly \$20.00 an hour (\$41,352 annually).

In contrast, employment opportunities within the Professional Services and Finance Insurance and Real Estate (FIRE) sectors tend to require higher levels of training. Over 52 percent of those employed in the Professional Services sector, are required to have at least a bachelor's degree. For those employed in the FIRE sector, 29.1 percent are required to have a higher degree. According to the data, the average annual wage for those with at least a bachelor's degree was highest in the Construction sector; \$93,606 per annum or \$45.00 per hour. With a similar level of training, employees were earning \$36.00 per hour, on average, and \$76,579 per annum in the Healthcare sector.

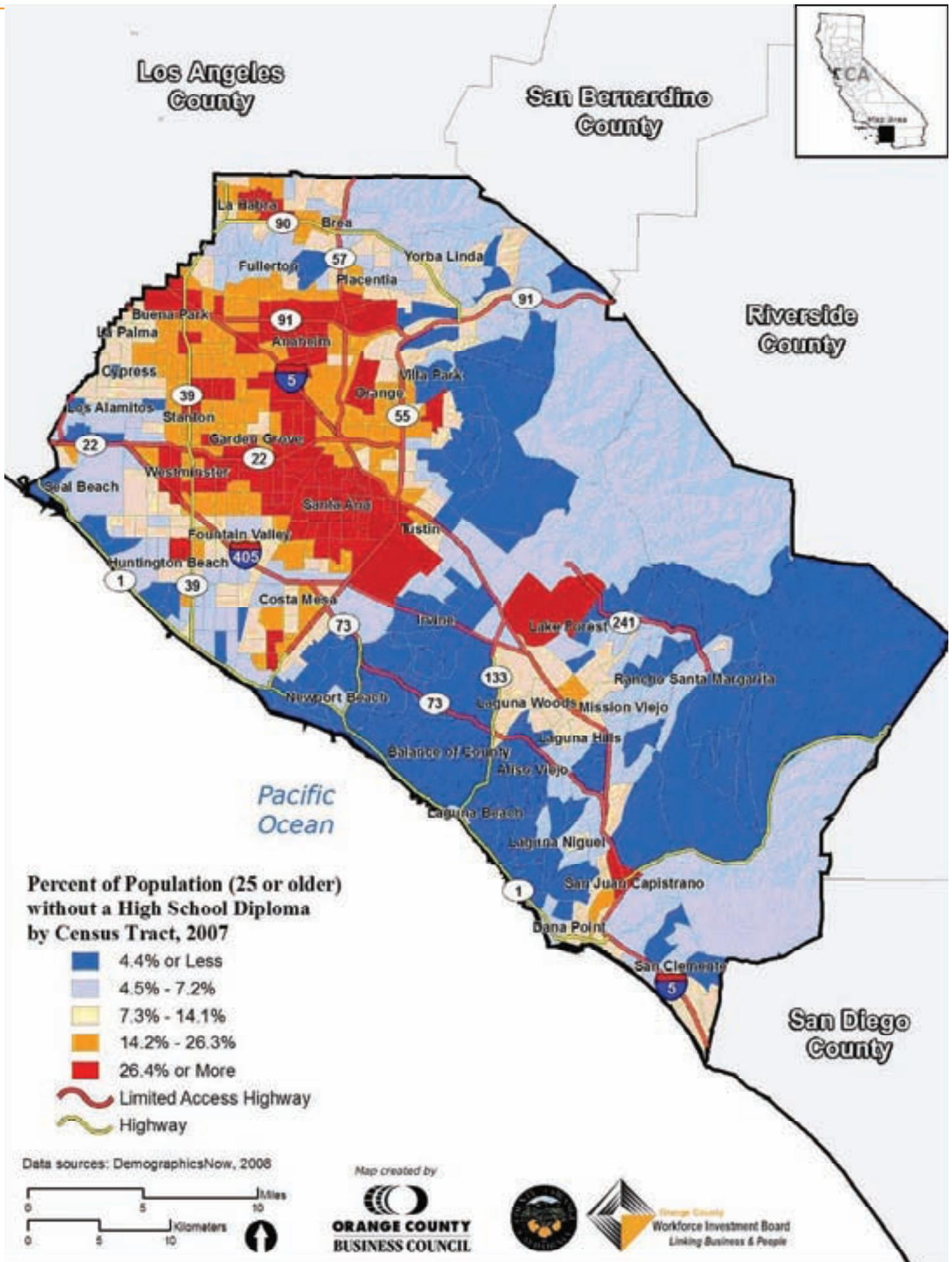
Training, Employment and Wages by Industry Sector, Orange County

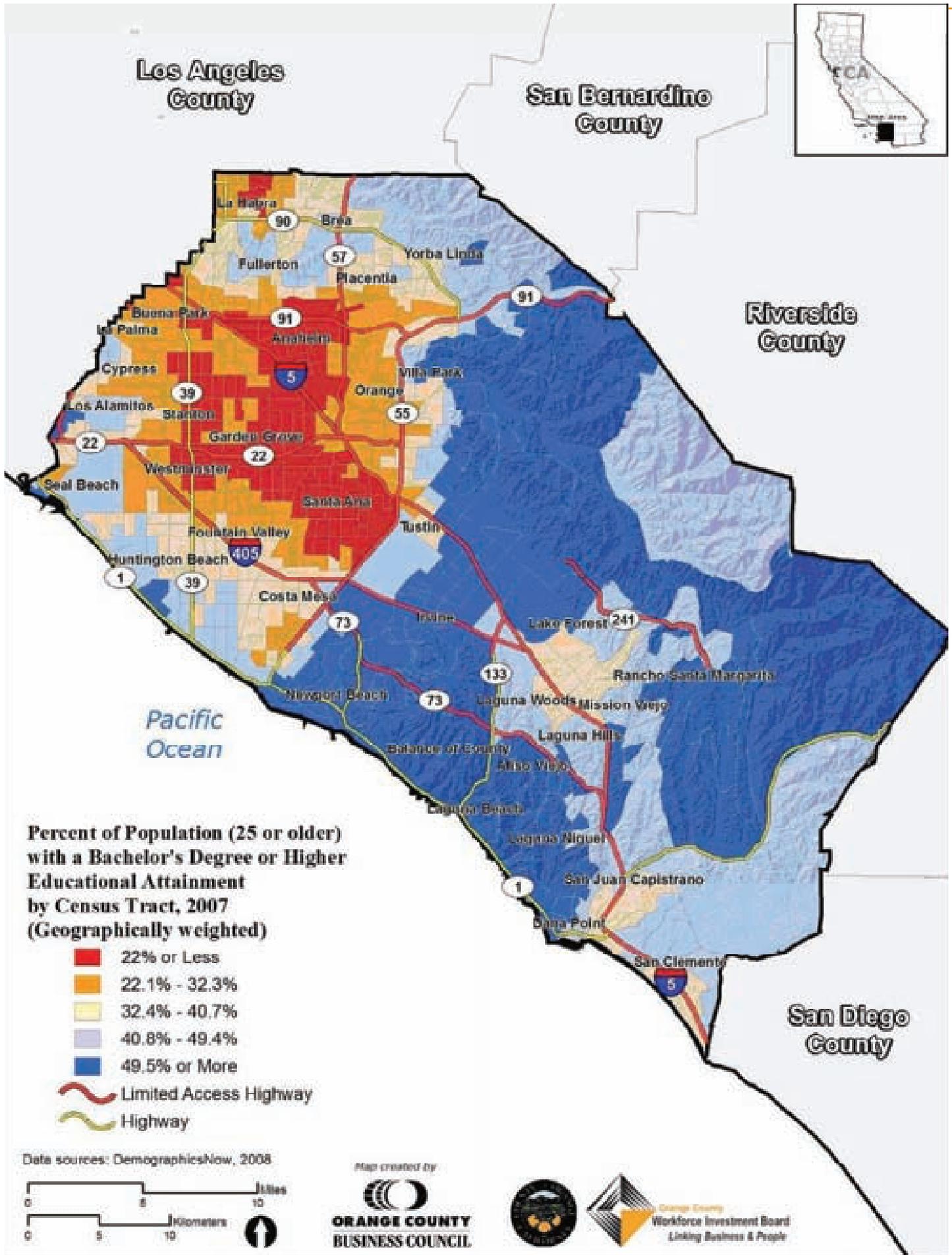
Industry Sector	Percent of Minimum Training Required	Percent of Employment 2004	Estimated Percent Increase 2004-2014	Average Hourly Wage 2007	Average Annual Wage 2007	Median Hourly Wage 2007
Management & Administration						
No High School Diploma	76.9%	30%	30%	\$17.38	\$36,155	\$16.35
Post-Secondary Education	7.5%	28%	28%	\$21.05	\$44,315	\$20.32
Bachelor's or Higher	13.9%	33%	33%	\$40.38	\$84,815	\$37.96
Training Level Not Classified	1.8%	31%	31%	\$33.27	\$69,195	\$31.02
Construction						
No High School Diploma	89.4%	19%	19%	\$19.88	\$41,352	\$19.15
Post-Secondary Education	3.4%	12%	12%	\$20.55	\$42,744	\$19.57
Bachelor's or Higher	5.6%	22%	22%	\$45.00	\$93,606	\$41.91
Training Level Not Classified	1.5%	19%	19%	\$29.55	\$61,459	\$25.88
Finance, Insurance, Real Estate						
No High School Diploma	63.4%	10%	10%	\$19.28	\$40,095	\$17.97
Post-Secondary Education	6.0%	7%	7%	\$20.84	\$43,362	\$19.67
Bachelor's or Higher	29.1%	18%	18%	\$41.60	\$86,533	\$38.71
Training Level Not Classified	1.4%	19%	19%	\$33.27	\$69,193	\$30.40
Healthcare						
No High School Diploma	47.7%	23%	23%	\$15.28	\$31,844	\$14.56
Post-Secondary Education	30.2%	23%	23%	\$21.57	\$46,470	\$20.90
Bachelor's or Higher	19.6%	22%	22%	\$36.28	\$76,579	\$34.21
Training Level Not Classified	2.5%	21%	21%	\$30.63	\$70,780	\$27.94
Information Technology						
No High School Diploma	54.9%	16%	16%	\$20.04	\$41,680	\$18.54
Post-Secondary Education	5.2%	13%	13%	\$21.44	\$44,599	\$21.00
Bachelor's or Higher	34.1%	30%	30%	\$41.20	\$85,691	\$38.82
Training Level Not Classified	5.7%	12%	12%	\$31.11	\$64,704	\$28.24
Logistics & Transportation						
No High School Diploma	84.2%	15%	15%	\$18.09	\$38,170	\$16.94
Post-Secondary Education	2.2%	11%	11%	\$18.22	\$37,909	\$17.64
Bachelor's or Higher	13.0%	23%	23%	\$42.98	\$89,741	\$40.10
Training Level Not Classified	0.5%	21%	21%	\$34.63	\$72,029	\$32.20
Manufacturing						
No High School Diploma	71.9%	0%	0%	\$16.52	\$34,359	\$15.42
Post-Secondary Education	4.9%	3%	3%	\$20.94	\$43,556	\$19.86
Bachelor's or Higher	22.5%	8%	8%	\$43.35	\$91,366	\$40.68
Training Level Not Classified	0.8%	3%	3%	\$33.95	\$70,608	\$32.29
Professional Services						
No High School Diploma	28.1%	16%	16%	\$19.08	\$39,638	\$17.88
Post-Secondary Education	16.6%	17%	17%	\$21.30	\$44,298	\$20.25
Bachelor's or Higher	52.3%	35%	35%	\$39.68	\$83,596	\$37.57
Training Level Not Classified	2.9%	30%	30%	\$34.42	\$72,532	\$32.25
Tourism and Leisure						
No High School Diploma	96.9%	19%	19%	\$13.90	\$29,309	\$12.94
Post-Secondary Education	0.7%	19%	19%	\$16.24	\$35,215	\$15.95
Bachelor's or Higher	1.8%	22%	22%	\$40.54	\$84,325	\$37.81
Training Level Not Classified	0.6%	24%	24%	\$28.32	\$58,892	\$26.05

Geographic Analysis of Educational Attainment and Job Openings

Educational attainment by geography was also examined as part of this analysis. Over 43 percent of the population age 25 years and older in the City of Santa Ana do not have a high school diploma. In addition, at least 20 percent of the 25 and older populations in the cities of Stanton, Garden Grove, Anaheim, Westminster, and La Habra have not earned a high school diploma. Most of the cities that are lower in educational attainment are clustered in the north and central areas of the County. This contrasts with cities that perform higher in resident educational attainment, most of which are located in the southern and western parts of the County.

The following map set demonstrates the education attainment rate in Orange County, both for high school diplomas and bachelor's degrees.





Cities with Lowest Educational Attainment (Top 20), Orange County, 2007

City/Place	Population 25 Years or Older	Percent with No High School Diploma	Percent with Post-Secondary Education	Percent with Bachelor's Degree or Higher
Santa Ana	192,304	43.50%	36.90%	17.00%
Stanton	24,381	27.60%	45.30%	18.60%
Garden Grove	108,182	25.10%	49.60%	21.50%
Anaheim	209,214	23.80%	52.50%	26.00%
Westminster	61,519	22.00%	53.60%	24.10%
La Habra	37,143	20.70%	53.90%	24.70%
Buena Park	50,045	19.20%	54.10%	25.40%
Costa Mesa	72,595	16.80%	64.00%	34.30%
Orange	86,862	15.50%	63.10%	33.90%
Tustin	48,293	15.20%	67.50%	40.50%
Fullerton	84,970	14.70%	64.60%	36.30%
Placentia	31,860	14.60%	65.90%	36.90%
San Juan Capistrano	25,682	14.30%	65.10%	37.10%
Fountain Valley	39,937	9.90%	70.00%	38.70%
Brea	24,546	9.80%	69.40%	38.10%
Lake Forest	41,570	9.50%	71.70%	38.90%
Laguna Woods	17,129	9.40%	65.30%	33.70%
Huntington Beach	135,239	8.90%	73.10%	40.70%
Cypress	32,062	8.70%	68.00%	36.00%
La Palma	10,762	8.60%	70.10%	41.70%

Data Source: DemographicsNow, 2007

Cities with Highest Educational Attainment (Top 20), Orange County, 2007

City/Place	Population 25 Years or Older	Percent with No High School Diploma	Percent with Post-Secondary Education	Percent with Bachelor's Degree or Higher
Newport Coast	2,382	1.50%	94.00%	78.30%
San Joaquin Hills	3,219	1.70%	91.20%	76.80%
Irvine	106,877	4.10%	84.90%	62.70%
Newport Beach	58,735	3.10%	86.40%	62.40%
Villa Park	4,259	3.60%	84.20%	61.20%
Coto de Caza	10,161	2.50%	86.90%	61.20%
Laguna Beach	19,389	3.70%	86.40%	59.70%
Tustin Foothills	17,454	3.70%	84.00%	57.80%
Las Flores	5,008	4.30%	85.30%	56.90%
Foothill Ranch	7,313	3.00%	85.90%	54.60%
Rossmoor	7,245	4.50%	81.60%	53.50%
Aliso Viejo	35,455	3.90%	83.30%	52.80%
Laguna Niguel	45,362	4.70%	81.30%	51.50%
Portola Hills	4,551	3.50%	86.50%	50.00%
Rancho S. Margarita	30,844	4.70%	80.40%	47.50%
Mission Viejo	70,972	5.60%	77.40%	46.10%
Yorba Linda	40,638	5.80%	78.10%	46.00%
Dana Point	26,836	7.60%	75.20%	45.30%
Laguna Hills	21,685	7.50%	75.00%	44.60%

Data Source: DemographicsNow, 2007

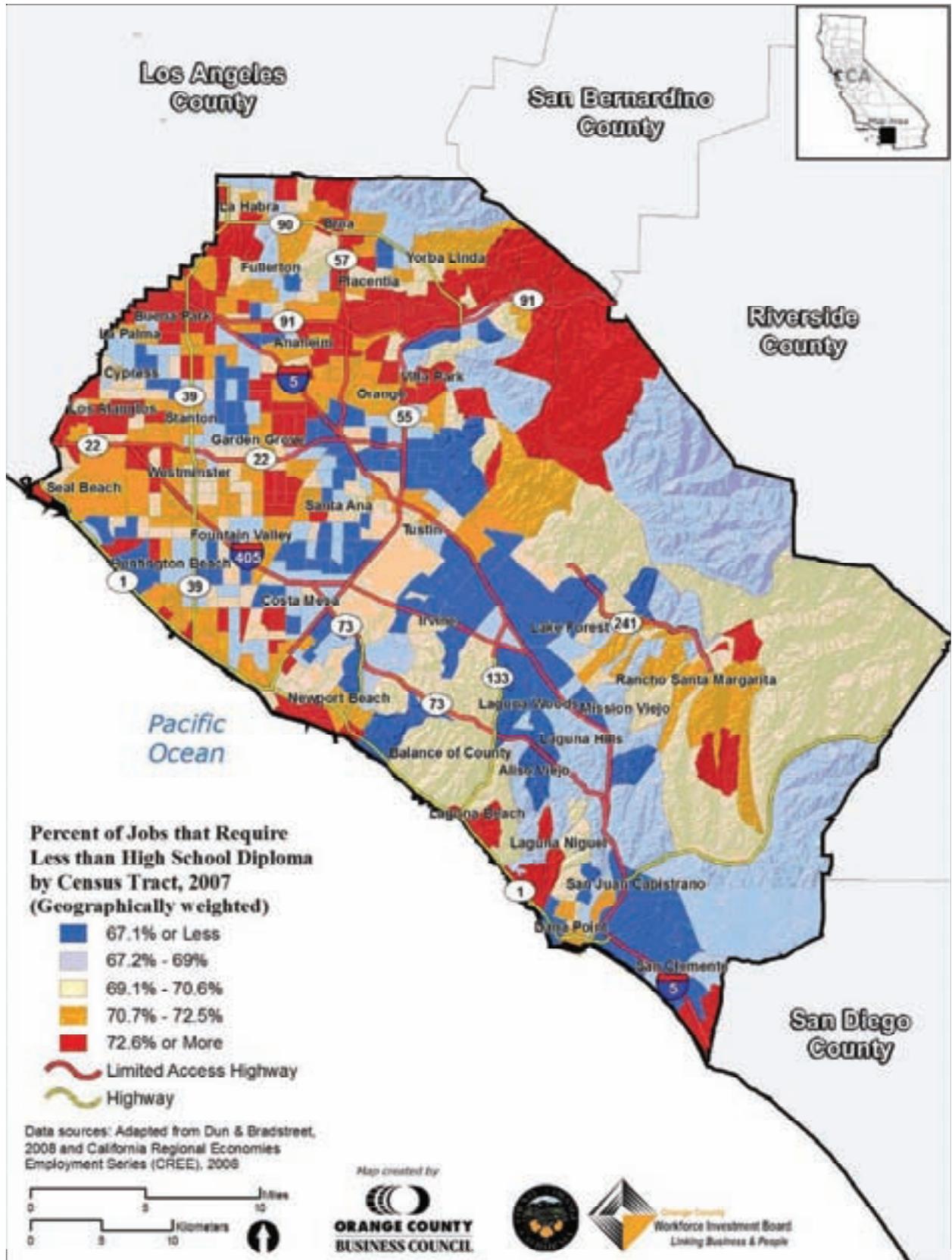
Educational Attainment by Orange County Workforce Investment Areas (WIA), 2007

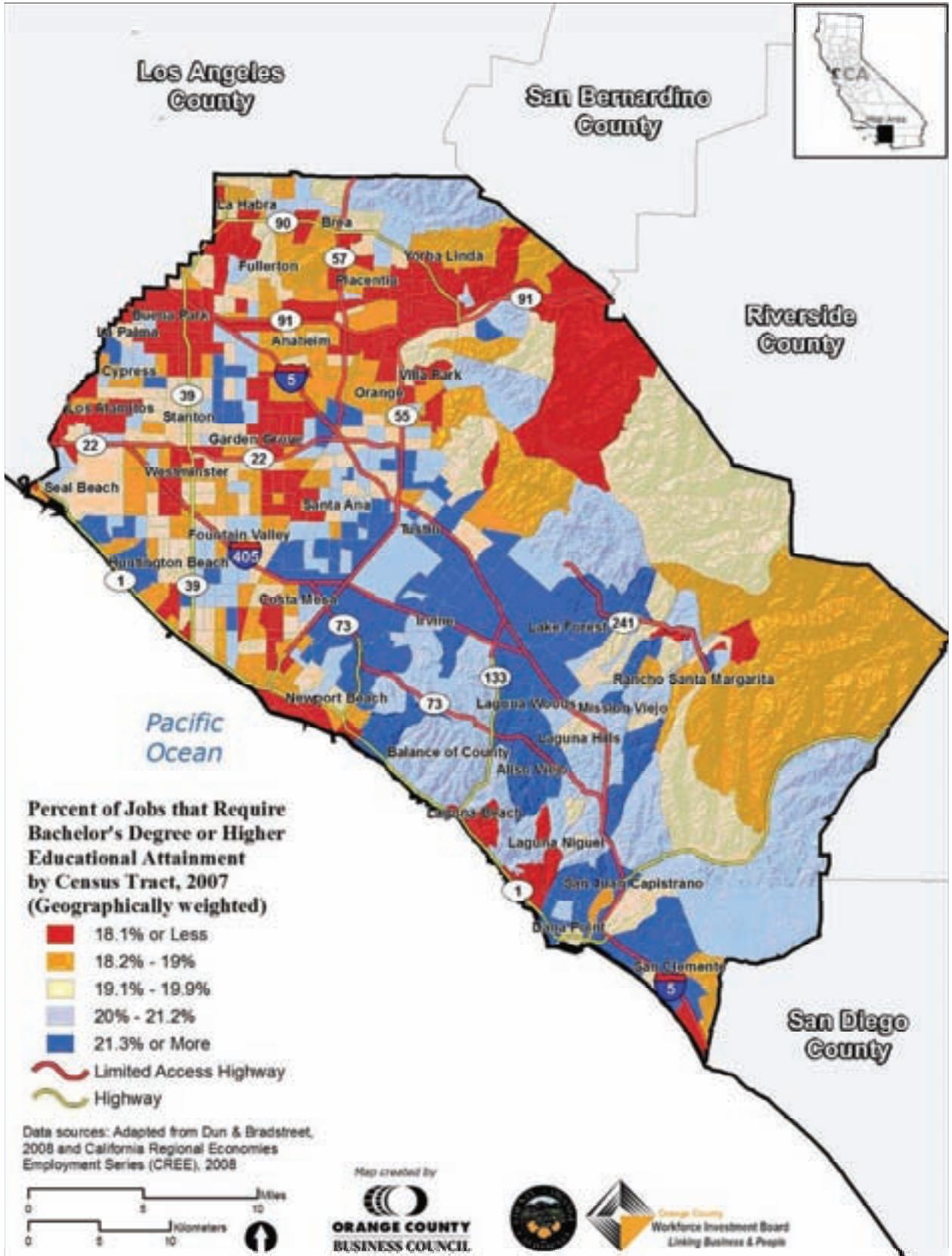
City/Place	Population 25 Years or Older	Percent with No High School Diploma	Percent with High School Diploma	Percent with Post- Secondary Education	Percent with Bachelor's Degree or Higher
Anaheim	209,214	23.8%	76.2%	52.5%	26.0%
Santa Ana	192,304	43.5%	56.5%	36.9%	17.0%
Orange County	1,507,585	11.6%	88.4%	69.8%	40.7%

(excluding Anaheim and Santa Ana)

Data Source: DemographicsNow, 2007

The geographic location of jobs by training or educational requirements was also examined. The map sets in the following pages thematically display these distributions by census tract. In comparison with the previous maps, it is clear that there is greater spatial variation in job requirement than in educational attainment throughout the County.





What is Green Technology?

Green Technology refers to an emerging set of industries involved with renewable resource development and conservation. The Energy, Environment, and Green Technologies industry cluster is the field of employment of the future that will utilize high technology in transportation, in the construction and modification of the built environment, in economic development in response to climate change, and will respond to the emerging legislative mandates affecting the economy. Green technologies will include efficiency enhancement and re-use and/or transformation of waste into usable products. Recycling and organizing resources in a new way, it will respond to energy needs and shortages while also growing the economy. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

Green Technology is composed of three sections:

Clean Energy Technology

- Solar and Wind Energy Development, Storage, and Transit
- Biofuels

Building Design and Construction

- Architectural Design of Buildings in a More Energy Efficient Manner
- Construction of Buildings that are Energy Efficient
- Building Materials Development to Make Current and Future Buildings more Energy Efficient

Public Sector and Utilities

- Land Use Planning
- Energy Development and Conservation
- Water Resources Development and Conservation

Green Technology is not a traditional industry cluster where sets of firms are geographically connected, dependent on similar supply chains and/or have similar occupation requirements. Instead it is a cluster where the participants are companies that have the same objectives:

- Reducing greenhouse gas emissions
- Efficient use of natural resources
- Sustainable development

Green Technology is exciting. It's where potential workers at all levels of education skill sets can get a job—construction workers to research scientists.

Why is Green Technology Growing?

Green Technology is being driven by:

Legislation

New government requirements and incentives are being

passed at the local, state and federal level to address energy concerns. The classic example of this in California is AB 32 designed to reduce greenhouse gas emissions in California.

Consumer demand for sustainable energy in a world of increased costs

Consumer demand for more energy efficient transportation and construction has dramatically increased. With gas doubling in price in the last four years and the costs for construction materials up 25 percent in the last year, Green Technology promises new ways to save money that the market is demanding.

New technological advances

Advances in nanotechnology and materials science are making it easier for industry to create products that are more cost effective and last longer than in previous years. With new technology, what was once considered impossible or too expensive is now common-place.

The opportunity for economic development and profit

With reduced costs, new technology, increased demand and government requirements, businesses are stepping up by creating products that result in economic development and profit. In the last year, the Los Angeles/Orange County region has seen over \$320 million of venture capital dollars in local green technology. According to "Harvesting California's Renewable Energy Resources: A Green Jobs Business Plan," if 20 percent of America's energy were from renewable sources, Orange County could gain between 8,000 and 22,000 new jobs in companies which are growing to address the new business opportunities that would emerge to address this energy target.

Red Occupations

Occupations That Provide the Strongest Indication That They Will Be Under-Supplied In the Future

- Water and Wastewater Operators
- Computer Analysts and Computer Support Specialists
- Supervisors/ Managers of Technicians & Maintenance Workers

Yellow Occupations

Occupations That Provide the Some Indication That They Will Be Under-Supplied In the Future

- Program Analysts, including Staff Service Analysts
- Budget, Business and Financial Analysts
- Supervisors or Managers of Office and Administrative Support Workers
- Accountants or Auditors
- Power Plant Operators

Source: Orange County Workforce Investment Board Industry Forum Presentation, "The Economic and Workforce Development Opportunities in Green Technology", July 31, 2008

What are the occupations that will emerge?

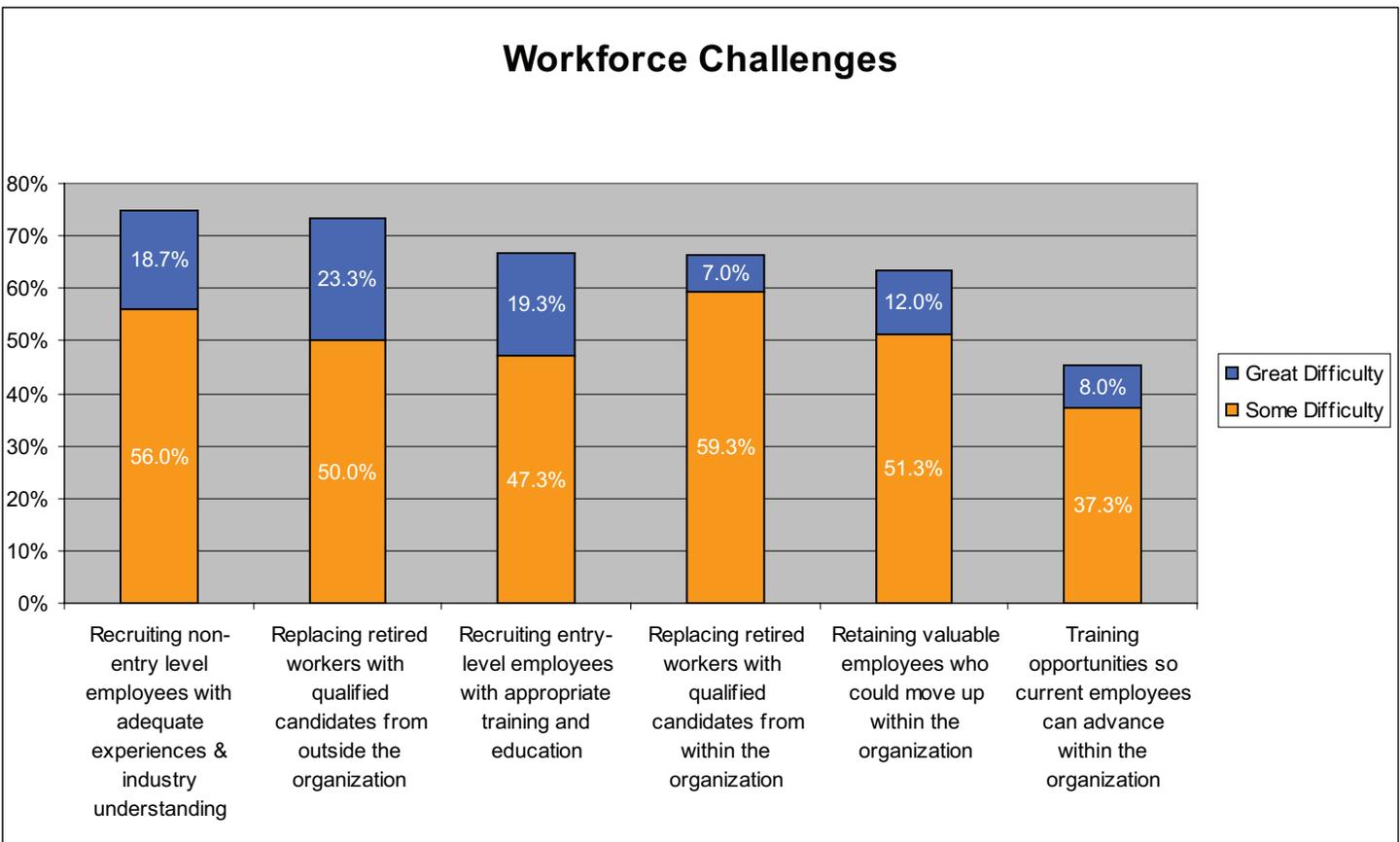
Occupational Title	Training Levels Required
Agricultural Workers, All Other	30-Day OJT
Compliance Officers, Except Agriculture, Construction, Health and Safety, and Transportation	12-Month OJT
Electrical Power-Line Installers and Repairers	12-Month OJT
Environmental Engineering Technicians	AA Degree
Environmental Engineers	BA/BS Degree
Environmental Science and Protection Technicians, Including Health	AA Degree
Environmental Scientists and Specialists, Including Health	BA/BS Degree
Farm-workers and Laborers, Crop, Nursery, and Greenhouse	30-Day OJT
Farm-workers, Farm and Ranch Animals	30-Day OJT
First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	Work Experience
Forensic Science Technicians	AA Degree
Forest and Conservation Technicians	AA Degree
Geoscientists, Except Hydrologists and Geographers	MA/MS Degree
Life, Physical, and Social Science Technicians, All Other	AA Degree
Pest Control Workers	1-12 Month OJT
Pesticide Handlers, Sprayers, and Applicators, Vegetation	1-12 Month OJT
Petroleum Pump System Operators, Refinery Operators, and Gaugers	12-Month OJT
Physical Scientists, All Other	BA/BS Degree
Surveying and Mapping Technicians	1-12 Month OJT
Urban and Regional Planners	MA/MS Degree
Water and Liquid Waste Treatment Plant and System Operators	12-Month OJT

Changing Job Demands in the Green Technology Cluster

- Green Construction firms make up 28 percent of construction industry.
 - a. Employment is increasing at twice the rate of other construction firms.
 - b. More Green Technology firms are experiencing difficulty finding and recruiting quality entry level employees (70 percent)—twice the rate of non-green construction firms.
- Given the downturn in the real estate industry, Green Technology construction is the bright spot for Construction.
- Three out of four Green Technology employers will increase their number of permanent employees and total employment will increase by about 25 percent in the next 12 months.
- Over half of computer technology employers indicated they would have at least some change (40 percent) if not substantial changes (26 percent) in the composition of their workforce in next 24 months.
- Sixty percent of employers indicated they were having at least some difficulty if not great difficulty recruiting qualified applicants, either entry-level or non entry-level.
- The Solar Industry is one of the largest components Green Technology in the area of energy generation. A recent assessment of Solar’s current and future workforce in California finds that Solar expects to add 5,000 new jobs in the next 12 months with employment growth at 30 to 40 percent for the next few years.

Workforce Challenges

A survey of employers found several workforce challenges for employers in the Green Technology cluster. The most significant of the challenges involved recruiting employees with appropriate training, education and experience and retaining employees who are either retiring or seeking additional training.



Source: Orange County Workforce Investment Board Industry Forum Presentation, “The Economic and Workforce Development Opportunities in Green Technology”, July 31, 2008

Skills Deficiencies as Surveyed by Employers

Writing—52.0 percent

Technical competence—41.3 percent

Creative problem solving—35.3 percent

Interpersonal skills—31.3 percent

Ability to work independently—22.0 percent

Ability to work with different groups or departments—20.7 percent

With changes in the economy, environmental policy demands such as AB 32 (Reductions in greenhouse gas emissions for California), and new discoveries out of projects such as the Human Genome project, clusters of the future are emerging. Job training efforts should be established for workers to have the skills necessary in science and math to profit from growing occupations as these clusters become better defined. Waiting for these clusters to become established will be too late. Preparing workers today for the jobs of tomorrow will ensure that Orange County remains a hub of high technology and will benefit from the changes that future clusters promise.

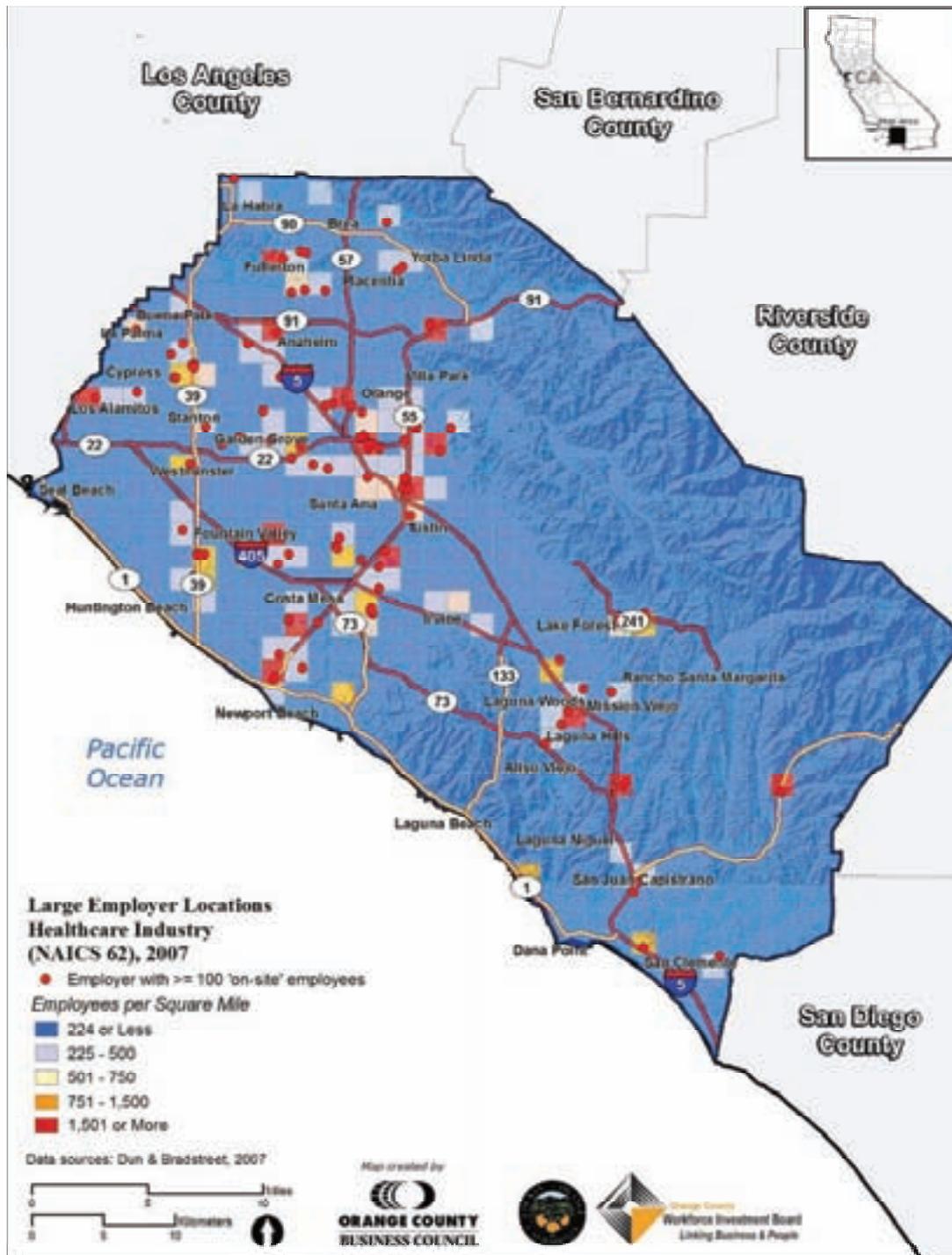
The Healthcare industry cluster includes firms and occupations which provide healthcare services. These include hospitals, outpatient care centers, family planning centers, home healthcare services, ambulance services, nursing care facilities, social assistance agencies, intermediate care facilities, and residential care facilities (nursing homes). Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

clusters, Healthcare provides multiple job opportunities at a variety of levels for current and potential employees.

Location of Employment and Large Firms

As the map indicates, the largest concentration of employment in Healthcare is around the City of Orange and northern Santa Ana with pockets of concentration in Irvine, Newport Beach, Fullerton, Los Alamitos and Huntington Beach.

As one of the most consistently growing and in demand



What are the occupations that will emerge?

Occupational Title	Training Levels Required
Cardiovascular Technologists and Technicians	AA Degree
Child, Family, and School Social Worker	BA/BS Degree
Chiropractors	LLD/MD Degree
Clinical, Counseling, and School Psychologists	PHD Degree
Community and Social Service Specialists, All Other	BA/BS Degree
Dental Assistants	1-12 Month OJT
Dental Hygienists	AA Degree
Dentists, All Other Specialists	LLD/MD Degree
Dentists, General	LLD/MD Degree
Diagnostic Medical Sonographers	AA Degree
Dietetic Technicians	1-12 Month OJT
Dietitians and Nutritionists	BA/BS Degree
Emergency Medical Technicians and Paramedics	Post-Secondary Voc-Ed
Family and General Practitioners	LLD/MD Degree
Health Diagnosing and Treating Practitioners, All Other	MA/MS Degree
Health Educators	MA/MS Degree
Health Specialties Teachers, Postsecondary	MA/MS Degree
Health Technologists and Technicians, All Other	Post-Secondary Voc-Ed
Healthcare Practitioners and Technical Workers, All Other	Post-Secondary Voc-Ed
Healthcare Support Workers, All Other	30-Day OJT
Home Health Aides	30-Day OJT
Internists, General	LLD/MD Degree
Licensed Practical and Licensed Vocational Nurses	Post-Secondary Voc-Ed
Marriage and Family Therapists	MA/MS Degree
Massage Therapists	Post-Secondary Voc-Ed
Medical and Clinical Laboratory Technicians	AA Degree
Medical and Clinical Laboratory Technologists	BA/BS Degree
Medical and Health Services Managers	BA/BS + Experience
Medical and Public Health Social Workers	BA/BS Degree
Medical Assistants	1-12 Month OJT
Medical Equipment Preparers	30-Day OJT
Medical Records and Health Information Technicians	AA Degree
Medical Secretaries	Post-Secondary Voc-Ed
Medical Transcriptionists	Post-Secondary Voc-Ed
Mental Health and Substance Abuse Social Workers	MA/MS Degree

What are the occupations that will emerge? -- Continued

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Occupational Title	Training Levels Required
Mental Health Counselors	
Nursing Aides, Orderlies, and Attendants	30-Day OJT
Nursing Instructors and Teachers, Postsecondary	MA/MS Degree
Nursing, Psychiatric, and Home Health Aides	BA/BS Degree
Obstetricians and Gynecologists	LLD/MD Degree
Occupational Health and Safety Specialists	BA/BS Degree
Occupational Therapist Assistants	AA Degree
Occupational Therapists	BA/BS Degree
Opticians, Dispensing	12-Month OJT
Optometrists	LLD/MD Degree
Pediatricians, General	LLD/MD Degree
Personal and Home Care Aides	30-Day OJT
Pharmacists	LLD/MD Degree
Pharmacy Aides	30-Day OJT
Pharmacy Technicians	1-12 Month OJT
Physical Therapist Aides	30-Day OJT
Physical Therapist Assistants	AA Degree
Physical Therapists	MA/MS Degree
Physician Assistants	BA/BS Degree
Physicians and Surgeons, All Other	LLD/MD Degree
Probation Officers and Correctional Treatment Specialists	BA/BS Degree
Psychiatric Technicians	Post-Secondary Voc-Ed
Psychiatrists	LLD/MD Degree
Psychology Teachers, Postsecondary	PHD Degree
Radiologic Technologists and Technicians	AA Degree
Recreational Therapists	BA/BS Degree
Registered Nurses	AA Degree
Rehabilitation Counselors	MA/MS Degree
Respiratory Therapists	AA Degree
Social and Human Service Assistants	1-12 Month OJT
Social Workers, All Other	BA/BS Degree
Speech-Language Pathologists	MA/MS Degree
Substance Abuse and Behavioral Disorder Counselors	MA/MS Degree
Surgeons	LLD/MD Degree
Surgical Technologists	Post-Secondary Voc-Ed
Therapists, All Other	BA/BS Degree

Jobs Facing Shortages

- Specialty Nursing shortages are the most critical
- Respiratory Therapy
- Pediatric Specialists
- Phlebotomy
- Infection Control/Epidemiology
- Pharmacy Technicians
- X-ray Technician
- Clinical Lab Assistants
- Speech Therapists
- Surgical Technicians
- Plant Managers

Changing Job Demands in the Healthcare Cluster

- In comparison to previous research findings from 2006, (Healthcare Industry Report issued by OCWIB), current focus group findings show greater awareness of a need in allied health occupations. Allied health occupations comprise 60 percent of all health care, but it is receiving less attention from the industry, workforce developers, or colleges. The previously reported shortage in registered nursing still exerts labor pressures on the industry and the region; however it is being addressed far more proactive than allied health.
- Compared to the 2006 report, the industry has become more aware of the changing demographics of Orange County, which will lead to projected shortages in healthcare occupations needed to serve an aging population. In the future, more and more hospital beds will be reserved for acute care services; leading to an increased need for out-patient and in-home healthcare.
- Greater emphasis should be placed on incumbent worker training, compared to the 2006 report. Especially noted are improving computer skills and organizations skills for incumbent, baby-boomer generation workers.

Skills in Demand:

- Computer skills
- Language/cultural competency skills
- Time management/organizational skills

Particular emphasis should be placed on specific training programs geared towards Wound Care/Infection Control as there are no programs targeted towards this area in the State of California, which has lead to a chronic shortage of such specialists.

Gaps between projected needs and current available training programs should be addressed before a shortage becomes critical. If currently available training meets current needs, such programs should be supported and marketed to both students and employers. If new programs are to be developed, action should be taken soon.

What is Information Technology?

The Information Technology cluster refers to firms that provide computer manufacturing, software products and design services, and computer services to various industries throughout the economy.

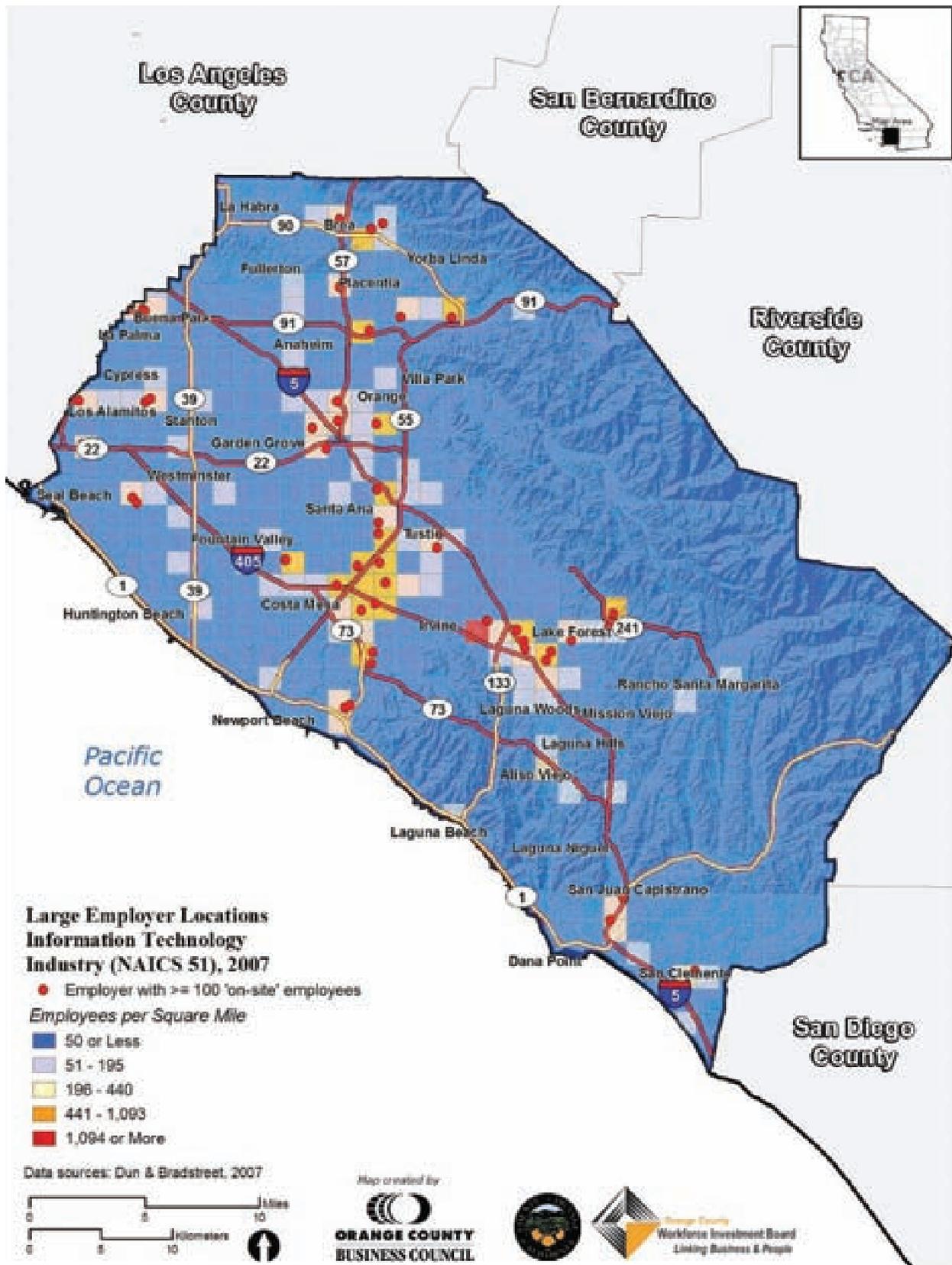
The Information Technology industry cluster includes firms and occupations involved with the creation of items used in advanced technology economies. These include computer software, telecommunications, internet service provision, motion pictures, and publishing businesses. Occupations in this cluster frequently require skills in STEM (Science, Technology, Engineering, and Math).

The key sectors of this cluster are:

- Computer and computer parts manufacturing
- Computer services
 - 1) Internet publishing and support
 - 2) Data processing
 - 3) Research and Development
- Software products and services
 - 1) Software publishing
 - 2) Software design and research

Location of Employment and Large Firms

As the map indicates, the largest concentration of employment in Information Technology is along the 55 Freeway Corridor of Irvine, Santa Ana, and Costa Mesa as well as the Irvine Spectrum and the “Orange Crush” junction of the 57, 22, and 5 Freeways near Anaheim, Orange, and Garden Grove.



What are the occupations that will emerge?

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STATE OF THE COUNTY 2008-2009

Occupational Title	Training Levels Required
Audio and Video Equipment Technicians	12-Month OJT
Broadcast Technicians	Post-Secondary Voc-Ed
Camera Operators, Television, Video, and Motion Picture	1-12 Month OJT
Computer and Information Systems Managers	BA/BS + Experience
Computer Hardware Engineers	BA/BS Degree
Computer Operators	1-12 Month OJT
Computer Programmers	BA/BS Degree
Computer Science Teachers, Postsecondary	MA/MS Degree
Computer Software Engineers, Applications	BA/BS Degree
Computer Software Engineers, Systems Software	BA/BS Degree
Computer Specialists, All Other	AA Degree
Computer Support Specialists	AA Degree
Computer Systems Analysts	BA/BS Degree
Data Entry Keyers	1-12 Month OJT
Database Administrators	BA/BS Degree
Desktop Publishers	Post-Secondary Voc-Ed
Electrical Engineers	BA/BS Degree
Electronics Engineers, Except Computer	BA/BS Degree
Film and Video Editors	BA/BS Degree
Graphic Designers	BA/BS Degree
Mathematical Science Occupations, All Other	MA/MS Degree
Mathematical Science Teachers, Postsecondary	MA/MS Degree
Media and Communication Equipment Workers, All Other	1-12 Month OJT
Multi-Media Artists and Animators	BA/BS Degree
Network and Computer Systems Administrators	BA/BS Degree
Network Systems and Data Communications Analysts	BA/BS Degree
Photographers	12-Month OJT
Statisticians	MA/MS Degree
Switchboard Operators, Including Answering Service	30-Day OJT
Word Processors and Typists	1-12 Month OJT

Source: California Regional Economies Employment CREE Series, 2007

Red Occupations

Occupations That Provide the Strongest Indication That They Will Be Under-Supplied In the Future

- Computer Engineers
- Sales Representatives
- Electrical and Electronic Engineering Technicians

Yellow Occupations

Occupations That Provide the Some Indication That They Will Be Under-Supplied In the Future

- Inspectors, Testers, Graders
- Computer Programmers
- Research and Development Technicians
- Customer Service Technicians
- Assemblers or Electrical & Electronic Assemblers
- Database Administrators
- Computer Support Specialists

Source: Orange County Workforce Investment Board Industry Forum Presentation “Workforce Challenges & Opportunities For Orange County’s Computer Cluster Collaborative Revisited”, July 31, 2008

Changing Job Demands in the Information Technology Cluster

- Information Technology cluster employment peaked around the year 2000 with over 50,000 employees. It dropped dramatically after that following the bursting of the “tech bubble” with some recovery by 2005-06. However, due to the diversity of firms in the Orange County economy, the sluggish employment pattern did not severely impact Orange County as much as other tech-heavy regions such as Silicon Valley.
- During the 1990s, the Information Technology cluster had a heavier concentration in high technology manufacturing. Today, manufacturing has decreased while software publishing, computer services, and internet business are far more common.
- Recent surveys of Information Technology firms find more than half expect to increase employment in the next year in comparison to only 2.0 percent which expect to reduce employment.
- Information Technology firms often recruit from outside of Orange County. Approximately 41 percent of firms recruit from outside of Orange County 25 percent of the time. In the Information Technology cluster, firms recruit prospective employees in pursuit of specific skills sets for which they recruit far and wide in order to find them.
- The demand for particular skills requires many potential employees who already have a bachelor’s degree to return to school to obtain certification and additional training specific to the demands of a new technology.

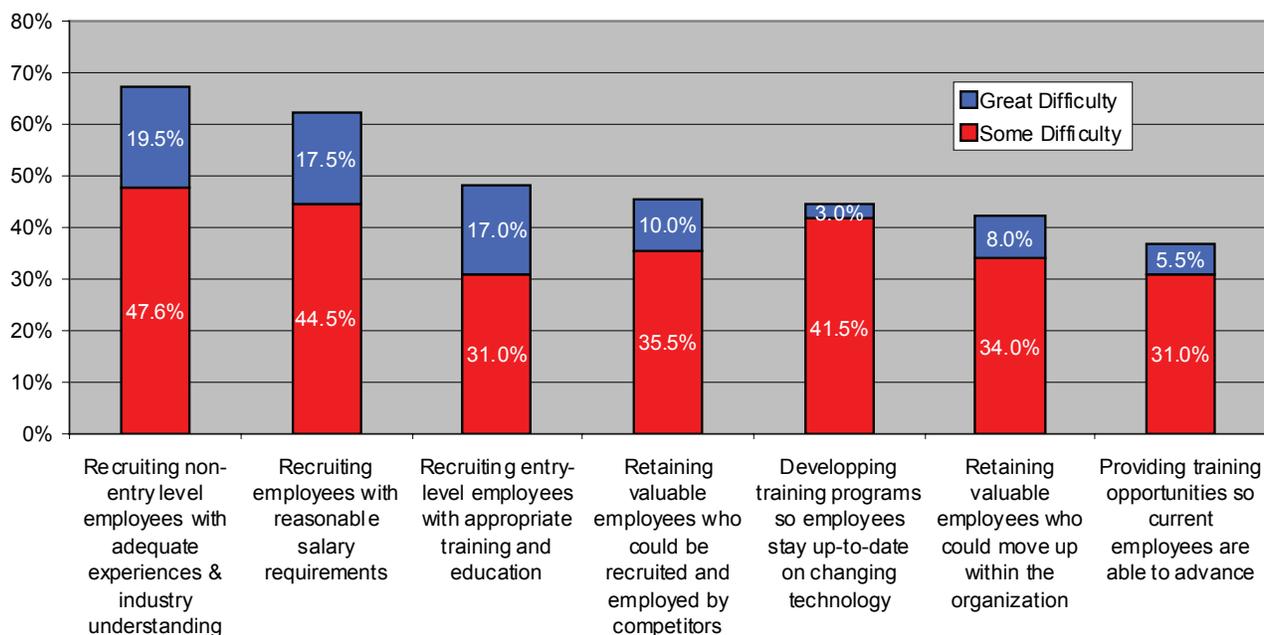
Workforce Challenges

A survey of employers found several workforce challenges for employers in the Information Technology cluster. The most significant of the challenges involved recruiting employees with appropriate training, education, and experience. Salary expectations and retaining current employees were also major concerns.

Skills in Demand:

- Technical Writing Skills
- Language/cultural competency skills
- Time management/organizational skills

Workforce Challenges



Source: Computer Cluster Collaborative Labor Market Research

Skills Deficiencies by Employers Surveyed

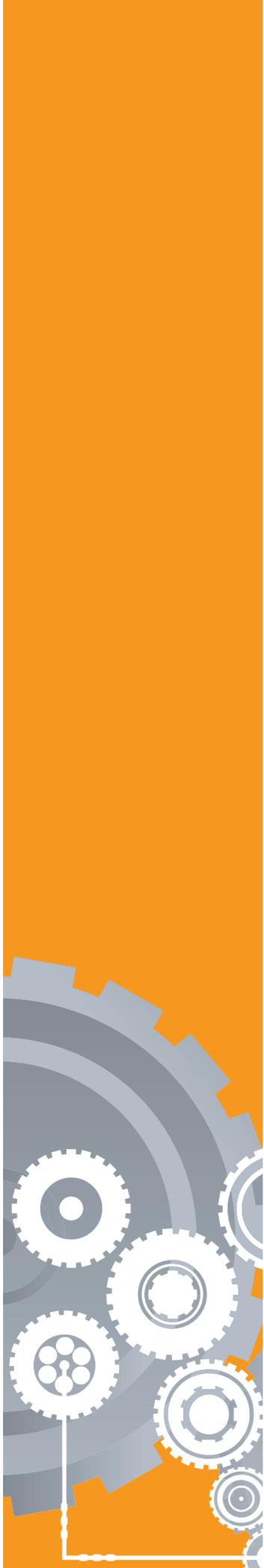
The survey revealed that employers are finding the greatest skill deficiencies of their employees are not so much in computer knowledge but in the ability to communicate in writing and interpersonally with others. Creative problem solving ranks high as well which indicates that employers are becoming more interested in broader thinking and communication skills than solely in technical skills.

Skills Deficiencies in New Hires

- Technical writing skills—39 percent
- Interpersonal communication skills—32.5 percent
- Creative problem solving skills—31.5 percent
- Current programming knowledge—22.5 percent
- Ability to work with different groups/departments—22.0 percent
- Ability to use software applications—21 percent

Source: Orange County Workforce Investment Board Industry Forum Presentation "Workforce Challenges & Opportunities For Orange County's Computer Cluster Collaborative Revisited", July 31, 2008

Technical skills may get a particular employee "in the door" to be hired. However, unless they have communication skills, they cannot move up in the field. Workers need to have technical writing skills, take a more interdisciplinary approach to their career, and learn "big picture" management in order to advance.



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Data Sources:

BW Industry Partnerships
California Association of Realtors
California Department of Education
California Department of Finance
California Employment Development Department
Coast Community College District
California Community Colleges Chancellor's Office
Demographics Now
Dun and Bradstreet
National Association of Realtors
National Low Income Housing Coalition
NetDay--Project Tomorrow
North Carolina State Board of Education
North Orange County Community College District
Orange County Workforce Investment Board Industry Forums
South Orange County Community College District
Texas Education Agency
US Department of Housing and Urban Development
US Census Bureau

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