

Regional Economic Analysis Profile

San Francisco Bay Area Economic Sub-Market
Marin, San Francisco, San Mateo, and Santa Clara Counties

March 2015



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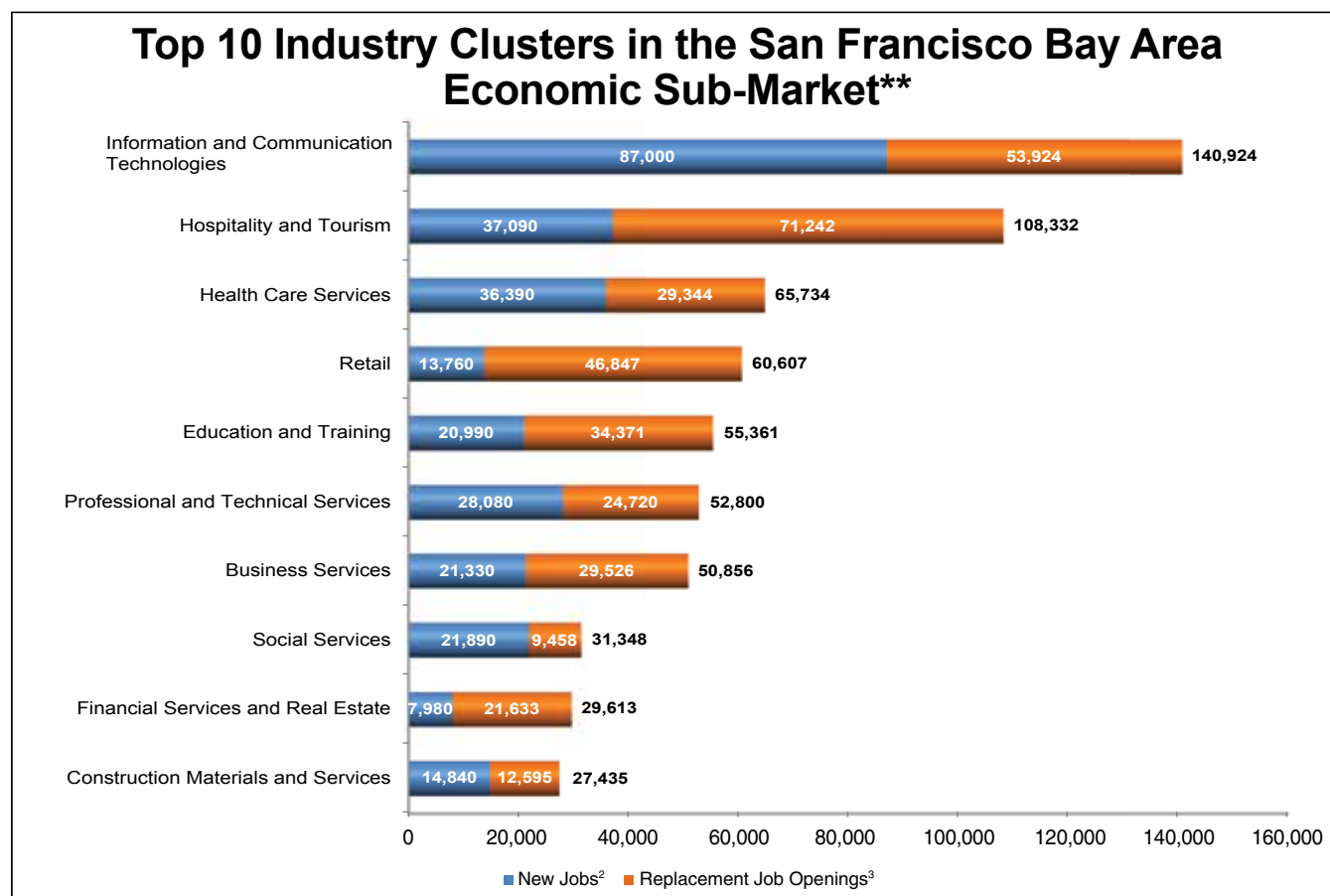
SUMMARY OF THE SAN FRANCISCO BAY AREA ECONOMIC SUB-MARKET INDUSTRY CLUSTERS

What is an Industry Cluster?

Industry clusters are groups of associated industries in an economic market that stimulate the creation of new businesses and job opportunities in a particular field. The application of workforce and economic development resources toward the continual development of industry clusters will help stimulate economic growth and boost the number of employment opportunities for the labor force.

Purpose of this Report

The purpose of this report is to help align the state's workforce institutions and programs around the needs of economic sub-market industry clusters. This report focuses on the future employment demand of the economic sub-market industry clusters and features them as primary investment opportunities for the California workforce development system. The goal of this report is to account for industry clusters with the largest number of projected total job openings¹ and help the California workforce development system prepare the state's workforce to compete for these future job opportunities.



Source: California Employment Development Department, *Projections of Employment 2012-2022*. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.

¹ Total job openings are the sum of new jobs and replacement job openings.

² New jobs are only openings due to growth and do not include job declines. If an occupation's employment change is negative, there is no job growth and new jobs are set to zero.

³ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

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INDUSTRY CLUSTER DESCRIPTIONS

The following are descriptions of the San Francisco Bay Area Economic Sub-Market's** top 10 industry clusters followed by a list of the top industries with the highest total projected total job openings in the cluster.

The **Information and Communication Technologies** industry cluster includes interdependent industries related to computers and peripheral equipment, as well as software design and manufacturing, computer programming services, installation services, and wireless telecommunications carriers. For 2013-2014,* this cluster employed more than 317,000 workers, or 16.5 percent of the economic sub-market's total employment. Industries with the highest number of expected job openings include:

- Computer Systems Design and Related Services
- Other Information Services
- Software Publishers
- Computer and Peripheral Equipment Manufacturing
- Semiconductor and Other Electronic Component Manufacturing

The **Hospitality and Tourism** industry cluster includes interrelated industries such as eating establishments, hotels and motels, casinos, museums, and sightseeing transportation. During 2013-2014,* this cluster was comprised of almost 225,000 workers, or 11.7 percent of the economic sub-market's employment. Industries within this cluster with the most projected job openings include:

- Restaurants and Other Eating Places
- Traveler Accommodation
- Other Amusement and Recreation Industries
- Special Food Services
- Drinking Places (Alcoholic Beverages)

The **Health Care Services** industry cluster includes acute care and outpatient hospitals, nursing homes and rehabilitation centers, and community service agencies for the elderly. It employed more than 160,000 people in the economic sub-market during 2013-2014,* accounting for 8.3 percent of the workforce. Industries in this cluster may include both public and private employment. Top industries within this cluster include:

- General Medical and Surgical Hospitals
- Offices of Physicians
- Outpatient Care Centers
- Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly
- Offices of Dentists

The **Retail** industry cluster includes grocery and department stores, dollar stores, retail pharmacies, and clothing specialty stores. During 2013-2014,* this cluster employed over 153,000 workers, or about 8 percent of the economic sub-market's total employment. Industries projected to have the largest number of jobs (new and replacement) include:

- Grocery Stores
- Other General Merchandise Stores
- Clothing Stores
- Department Stores
- Building Material and Supplies Dealers

The **Education and Training** industry cluster is comprised of public and private elementary and high schools, community colleges, universities, and professional schools with programs such as dental, law, and medical. Other establishments include English as a Second Language (ESL) programs, test preparation and tutoring, or driving instruction. During 2013-2014,* this cluster employed more than 154,000 people in the economic sub-market, accounting for 8 percent of the workforce. Top industries within this cluster include:

- Elementary and Secondary Schools
- Colleges, Universities, and Professional Schools
- Other Schools and Instruction
- Junior Colleges
- Educational Support Service

* Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period April 2013 through March 2014.

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INDUSTRY CLUSTER DESCRIPTIONS

The **Professional and Technical Services** industry cluster is comprised of interrelated industries that include engineering and architectural firms, law offices, advertising companies, and accounting firms. In 2013-2014,* nearly 130,000 people were employed in the economic sub-market, or 6.7 percent of the workforce. Top industries within this cluster include:

- Management, Scientific, and Technical Consulting Services
- Architectural, Engineering, and Related Services
- Legal Services
- Accounting, Tax Preparation, Bookkeeping, and Payroll Services
- Advertising, Public Relations, and Related Services

The **Business Services** industry cluster is comprised of industries that include temporary help agencies, employer organizations, janitorial services, security systems services, and carpet cleaning establishments. This cluster employed nearly 157,000 people during 2013-2014,* or 8.1 percent of the economic sub-market's workforce. Top industries in this cluster include:

- Services to Buildings and Dwellings
- Management of Companies and Enterprises
- Employment Services
- Investigation and Security Services
- Office Administrative Services

The **Social Services** industry cluster is comprised of establishments and agencies (public and private) that provide non-residential services for the welfare of children, adults, the elderly, and disabled. Examples include nonmedical in-home care programs, day care centers, and community food banks. In total, the cluster employed nearly 79,000 people and accounted for 4.1 percent of the economic sub-market's workforce in 2013-2014.* Industries include:

- Individual and Family Services
- Child Day Care Services
- Vocational Rehabilitation Services
- Community Food and Housing, and Emergency and Other Relief Services

The **Financial Services and Real Estate** industry cluster includes commercial banks, savings institutions, credit unions, credit card companies, insurance firms, and real estate appraisers or property management companies. In total, the cluster employed more than 102,000 people, which accounted for 5.3 percent of the economic sub-market's workforce in 2013-2014.* Industries showing the highest projected job openings include:

- Other Financial Investment Activities
- Depository Credit Intermediation
- Lessors of Real Estate
- Activities Related to Real Estate
- Securities and Commodity Contracts Intermediation and Brokerage

The **Construction Materials and Services** industry cluster is comprised of builders of mechanical systems such as electrical, heating, and water; specialty trades outfits such as drywall, flooring, and painting contractors; residential and commercial builders; and contractors who complete foundation and framing work. During 2013-2014,* more than 78,000 workers made up the cluster's employment, representing 4.1 percent of the economic sub-market's total workforce. Industries showing the highest projected job openings include:

- Building Equipment Contractors
- Residential Building Construction
- Building Finishing Contractors
- Nonresidential Building Construction
- Foundation, Structure, and Building Exterior Contractors

* Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period April 2013 through March 2014.

INDUSTRY CLUSTER DEFINITIONS

The following is a list of the North American Industry Classification System (NAICS) codes and corresponding industries that fall under each of the top 10 industry clusters in the San Francisco Bay Area Economic Sub-Market.**

Information and Communication Technologies

3341	Computer and Peripheral Equipment Manufacturing
3342	Communications Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
4251	Wholesale Electronic Markets and Agents and Brokers
5112	Software Publishers
5171	Wired Telecommunications Carriers
5172	Wireless Telecommunications Carriers (except Satellite)
5174	Satellite Telecommunications
5179	Other Telecommunications
5182	Data Processing, Hosting, and Related Services
5191	Other Information Services
5415	Computer Systems Design and Related Services
8112	Electronic and Precision Equipment Repair and Maintenance

Hospitality and Tourism

4871	Scenic and Sightseeing Transportation, Land
4872	Scenic and Sightseeing Transportation, Water
4879	Scenic and Sightseeing Transportation, Other
5615	Travel Arrangement and Reservation Services
7121	Museums, Historical Sites, and Similar Institutions
7131	Amusement Parks and Arcades
7132	Gambling Industries
7139	Other Amusement and Recreation Industries
7211	Traveler Accommodation
7212	RV (Recreational Vehicle) Parks and Recreational Camps
7213	Rooming and Boarding Houses
7223	Special Food Services
7224	Drinking Places (Alcoholic Beverages)
7225	Restaurants and Other Eating Places

Health Care Services

6211	Offices of Physicians
6212	Offices of Dentists
6213	Offices of Other Health Practitioners
6214	Outpatient Care Centers
6215	Medical and Diagnostic Laboratories
6216	Home Health Care Services
6219	Other Ambulatory Health Care Services
6221	General Medical and Surgical Hospitals
6222	Psychiatric and Substance Abuse Hospitals
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals
6231	Nursing Care Facilities (Skilled Nursing Facilities)
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly
6239	Other Residential Care Facilities

Retail

4411	Automobile Dealers
4412	Other Motor Vehicle Dealers
4413	Automotive Parts, Accessories, and Tire Stores
4431	Electronics and Appliance Stores
4441	Building Material and Supplies Dealers
4451	Grocery Stores
4452	Specialty Food Stores
4453	Beer, Wine, and Liquor Stores
4461	Health and Personal Care Stores
4471	Gasoline Stations
4481	Clothing Stores
4482	Shoe Stores
4483	Jewelry, Luggage, and Leather Goods Stores
4511	Sporting Goods, Hobby, and Musical Instrument Stores
4521	Department Stores
4529	Other General Merchandise Stores
4532	Office Supplies, Stationery, and Gift Stores
4533	Used Merchandise Stores
4542	Vending Machine Operators

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

INDUSTRY CLUSTER DEFINITIONS

Education and Training

- 6111 Elementary and Secondary Schools
- 6112 Junior Colleges
- 6113 Colleges, Universities, and Professional Schools
- 6114 Business Schools and Computer and Management Training
- 6115 Technical and Trade Schools
- 6116 Other Schools and Instruction
- 6117 Educational Support Services

Professional and Technical Services

- 5411 Legal Services
- 5412 Accounting, Tax Preparation, Bookkeeping, and Payroll Services
- 5413 Architectural, Engineering, and Related Services
- 5414 Specialized Design Services
- 5416 Management, Scientific, and Technical Consulting Services
- 5418 Advertising, Public Relations, and Related Services
- 5419 Other Professional, Scientific, and Technical Services

Business Services

- 5511 Management of Companies and Enterprises
- 5611 Office Administrative Services
- 5612 Facilities Support Services
- 5613 Employment Services
- 5614 Business Support Services
- 5419 Other Professional, Scientific, and Technical
- 5616 Investigation and Security Services
- 5617 Services to Buildings and Dwellings
- 5619 Other Support Services
- 5621 Waste Collection
- 5622 Waste Treatment and Disposal
- 5629 Remediation and Other Waste Management Services

Social Services

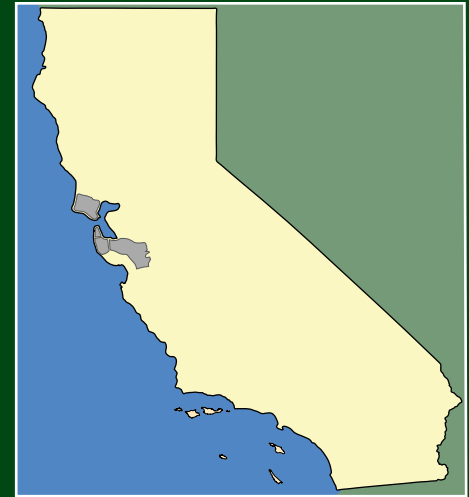
- 6241 Individual and Family Services
- 6242 Community Food and Housing, and Emergency and Other Relief Services
- 6243 Vocational Rehabilitation Services
- 6244 Child Day Care Services

Financial Services and Real Estate

- 5211 Monetary Authorities-Central Bank
- 5221 Depository Credit Intermediation
- 5222 Nondepository Credit Intermediation
- 5223 Activities Related to Credit Intermediation
- 5231 Securities and Commodity Contracts Intermediation and Brokerage
- 5232 Securities and Commodity Exchanges
- 5239 Other Financial Investment Activities
- 5241 Insurance Carriers
- 5242 Agencies, Brokerages, and Other Insurance Related Activities
- 5251 Insurance and Employee Benefit Funds
- 5259 Other Investment Pools and Funds
- 5311 Lessors of Real Estate
- 5312 Offices of Real Estate Agents and Brokers
- 5313 Activities Related to Real Estate

Construction Materials and Services

- 2123 Nonmetallic Mineral Mining and Quarrying
- 2213 Water, Sewage and Other Systems
- 2361 Residential Building Construction
- 2362 Nonresidential Building Construction
- 2372 Land Subdivision
- 2373 Highway, Street, and Bridge Construction
- 2379 Other Heavy and Civil Engineering Construction
- 2381 Foundation, Structure, and Building Exterior Contractors
- 2382 Building Equipment Contractors
- 2383 Building Finishing Contractors
- 2389 Other Specialty Trade Contractors
- 3211 Sawmills and Wood Preservation
- 3271 Clay Product and Refractory Manufacturing
- 3272 Glass and Glass Product Manufacturing
- 3273 Cement and Concrete Product Manufacturing
- 3274 Lime and Gypsum Product Manufacturing
- 3279 Other Nonmetallic Mineral Product Manufacturing
- 3339 Other General Purpose Machinery Manufacturing
- 3351 Electric Lighting Equipment Manufacturing



Occupational Analysis: Information and Communications Technologies Cluster

San Francisco Bay Area Economic Sub-Market
Marin, San Francisco, San Mateo, and Santa Clara Counties

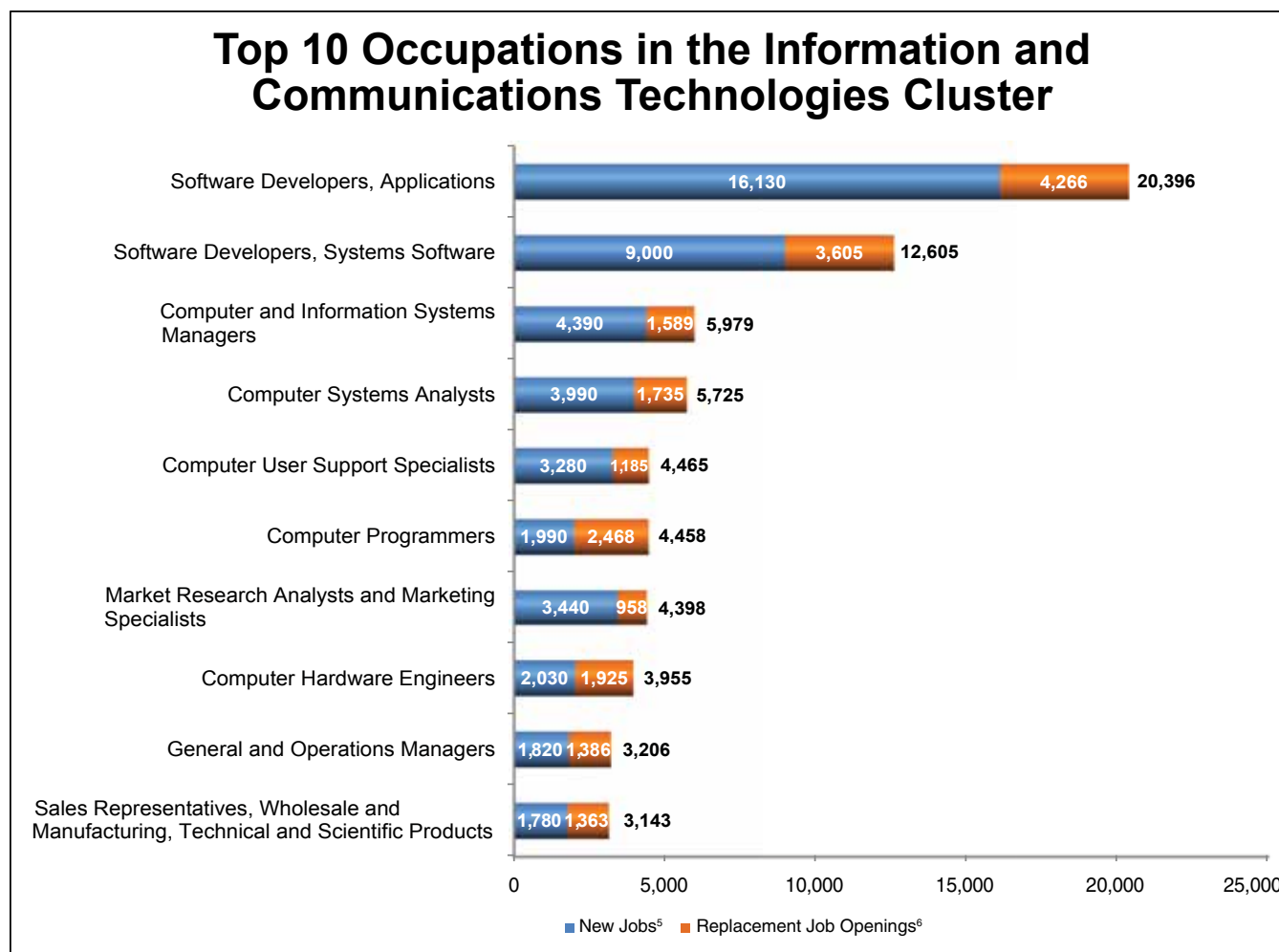
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What is the Information and Communications Technologies Cluster?

The Information and Communication Technologies cluster includes interdependent industries related to computers and peripheral equipment, as well as software design and manufacturing, computer programming services, installation services, and wireless telecommunications carriers. The workers employed within this cluster span all skill levels and share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Information and Communications Technologies Cluster

The graph below identifies the top 10 occupations in the Information and Communications Technologies cluster, based on the San Francisco Bay Area Economic Sub-Market's** new job growth plus replacement openings. In sum, these 10 occupations nearly one-half of the 140,924 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, critical thinking, reading comprehension, and writing.⁴



Source: California Employment Development Department, *Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.*

⁴ U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

⁵ New jobs are only openings due to growth and do not include job declines. If an occupation's employment change is negative, there is no job growth and new jobs are set to zero.

⁶ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

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Top 10 Occupations and Recent Job Demand in the Information and Communications Technologies Cluster

The table below further profiles the San Francisco Bay Area Economic Sub-Market's** top 10 occupations in the Hospitality and Tourism cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a recent 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ⁷ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ⁸	HWOL Job Ads ⁹ (120 days)
Software Developers, Applications	20,396	\$59.61	\$123,994	Bachelor's degree	20,419
Software Developers, Systems Software	12,605	\$62.27	\$129,535	Bachelor's degree	2,885
Computer and Information Systems Managers	5,979	\$82.31	\$171,203	Bachelor's degree	2,737
Computer Systems Analysts	5,725	\$51.24	\$106,582	Bachelor's degree	4,830
Computer User Support Specialists	4,465	\$32.78	\$68,180	Some college, no degree	3,668
Computer Programmers	4,458	\$44.86	\$93,301	Bachelor's degree	2,218
Market Research Analysts and Marketing Specialists	4,398	\$43.39	\$90,264	Bachelor's degree	3,664
Computer Hardware Engineers	3,955	\$65.00	\$135,184	Bachelor's degree	1,156
General and Operations Managers	3,206	\$65.71	\$136,670	Bachelor's degree	2,580
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	3,143	\$49.28	\$102,505	Bachelor's degree	2,281

Source: California Employment Development Department, *Projections of Employment 2012-2022*; *Occupational Employment Statistics Wage Survey*, updated to 4th Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending March 13, 2015.

⁷ Total job openings are the sum of new jobs and replacement job openings.

⁸ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

⁹ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

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Top Occupations for the Information and Communications Technologies Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Information and Communications Technologies cluster. The table includes the San Francisco Bay Area Economic Sub-Market's** projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ¹⁰ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or Higher				
Software Developers, Applications	20,396	\$59.61	\$123,994	20,419
Software Developers, Systems Software	12,605	\$62.27	\$129,535	2,885
Computer and Information Systems Managers	5,979	\$82.31	\$171,203	2,737
Computer Systems Analysts	5,725	\$51.24	\$106,582	4,830
Computer Programmers	4,458	\$44.86	\$93,301	2,218
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Computer User Support Specialists	4,465	\$32.78	\$68,180	3,668
Web Developers	2,005	\$46.61	\$96,945	8,914
Computer Network Support Specialists	1,376	\$41.64	\$86,617	41
Telecommunications Equipment Installers and Repairers, Except Line Installers	873	\$32.57	\$67,736	261
Electrical and Electronics Engineering Technicians	866	\$30.99	\$64,462	406
Requires a High School Diploma or Equivalent or Less				
Customer Service Representatives	2,667	\$21.26	\$44,217	2,779
Office Clerks, General	962	\$18.47	\$38,428	1,112
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	913	\$20.58	\$42,797	1,532
Electrical and Electronic Equipment Assemblers	768	\$16.66	\$34,669	144
First-Line Supervisors of Office and Administrative Support Workers	754	\$31.07	\$64,628	3,612

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 4th Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending March 13, 2015.

¹⁰ Total job openings are the sum of new jobs and replacement job openings.

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Skill Requirements in the Information and Communications Technologies Cluster

The table below lists the 10 top skills required for top occupations in the Information and Communications Technologies cluster, categorized by entry-level education requirements. Active listening, critical thinking, and reading comprehension are the most commonly shared skills, followed by monitoring and writing. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

Occupations	Skills																			
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Mathematics	Monitoring	Operation and Control	Operation Monitoring	Operations Analysis	Persuasion	Programming	Quality Control Analysis	Reading Comprehension	Repairing	Service Orientation	Social Perceptiveness
Requires a Bachelor's Degree or Higher																				
Software Developers, Applications		●	●		●		●		●						●	●				●
Software Developers, Systems Software	●	●	●		●		●		●	●						●			●	●
Computer and Information Systems Managers	●	●	●		●	●				●						●			●	●
Computer Systems Analysts		●			●		●								●	●	●			●
Computer Programmers		●	●		●	●							●		●	●	●			●
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																				
Computer User Support Specialists	●	●		●	●	●				●						●		●		●
Web Developers	●	●	●		●		●			●		●		●		●				●
Computer Network Support Specialists	●	●			●		●	●		●						●			●	●
Telecommunications Equipment Installers and Repairers, Except Line Installers		●	●		●					●		●				●	●	●		●
Electrical and Electronics Engineering Technicians ¹¹	●	●	●		●				●	●		●				●	●			●
Requires a High School Diploma or Equivalent or Less																				
Customer Service Representatives		●		●	●					●				●		●	●	●		●
Office Clerks, General		●		●	●					●						●	●	●		●
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	●	●			●					●						●	●	●		●
Electrical and Electronic Equipment Assemblers	●	●		●	●					●	●	●				●			●	●
First-Line Supervisors of Office and Administrative Support Workers		●		●	●		●			●						●		●		●

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

¹¹ Skills represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technicians.

Work Activities in the Information and Communications Technologies Cluster

The table below lists the 10 top work activities required for top occupations in the Information and Communications Technologies cluster, categorized by entry-level education requirements. The most common include updating and using relevant knowledge; organizing, planning, and prioritizing work; and communicating with supervisors, peers, or subordinates.

Occupations	Work Activities																															
	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Controlling Machines and Processes	Coordinating the Work and Activities of Others	Developing and Building Teams	Developing Objectives and Strategies	Documenting/Recording Information	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	Guiding, Directing, and Motivating Subordinates	Handling and Moving Objects	Identifying Objects, Actions, and Events	Interacting With Computers	Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Organizing, Planning, and Prioritizing Work	Performing Administrative Activities	Performing for or Working Directly with the Public	Performing General Physical Activities	Processing Information	Provide Consultation and Advice to Others	Repairing and Maintaining Electronic Equipment	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Thinking Creatively	Updating and Using Relevant Knowledge	
Requires a Bachelor's Degree or Higher																																
Software Developers, Applications	●			●									●			●	●	●		●				●						●	●	
Software Developers, Systems Software	●			●									●					●	●		●				●	●				●	●	
Computer and Information Systems Managers	●	●					●				●	●	●	●				●	●											●	●	
Computer Systems Analysts				●								●	●					●	●		●				●					●	●	
Computer Programmers	●			●										●			●	●	●		●				●					●	●	
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																																
Computer User Support Specialists				●							●	●					●	●	●		●				●						●	●
Web Developers				●									●				●	●	●		●				●	●					●	●
Computer Network Support Specialists				●								●	●					●		●	●				●	●					●	●
Telecommunications Equipment Installers and Repairers, Except Line Installers			●									●				●				●	●		●	●				●			●	●
Electrical and Electronics Engineering Technicians ¹²				●						●	●	●						●	●						●		●			●	●	
Requires a High School Diploma or Equivalent or Less																																
Customer Service Representatives			●	●							●	●					●		●		●				●			●				●
Office Clerks, General		●		●					●		●	●						●			●				●					●		●
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive				●								●	●				●		●		●	●	●		●							●
Electrical and Electronic Equipment Assemblers				●	●			●			●	●			●				●	●	●											●
First-Line Supervisors of Office and Administrative Support Workers			●	●	●		●					●	●	●								●							●			●

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

¹² Work Activities represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technicians.

Related Occupations for the Information and Communications Technologies Cluster

The table below lists top occupations in the Information and Communications Technologies cluster by entry-level education requirements and provides a sample of related occupations. These related occupations match many of the skills, education, and work experience needed for the top Information and Communications Technologies cluster occupations.

Information and Communications Technologies Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Software Developers, Applications	<ul style="list-style-type: none"> • Computer Systems Analysts • Information Security Analysts • Network and Computer Systems Administrators
Software Developers, Systems Software	<ul style="list-style-type: none"> • Computer Systems Engineers/Architects • Geographic Information Systems Technicians • Software Quality Assurance Engineers and Testers
Computer and Information Systems Managers	<ul style="list-style-type: none"> • Computer Systems Engineers/Architects • Logistics Managers • Risk Management Specialists
Computer Systems Analysts	<ul style="list-style-type: none"> • Computer Programmers • Software Quality Assurance Engineers and Testers • Web Administrators
Computer Programmers	<ul style="list-style-type: none"> • Database Administrators • Software Developers, Applications • Software Quality Assurance Engineers and Testers
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Computer User Support Specialists	<ul style="list-style-type: none"> • Computer Operators • Electrical Engineering Technicians • Web Administrators
Web Developers	<ul style="list-style-type: none"> • Computer Programmers • Database Administrators • Software Developers, Applications
Computer Network Support Specialists	<ul style="list-style-type: none"> • N/A
Telecommunications Equipment Installers and Repairers, Except Line Installers	<ul style="list-style-type: none"> • Electrical and Electronics Repairers, Commercial and Industrial Equipment • Electricians • Heating and Air Conditioning Mechanics and Installers
Electrical and Electronics Engineering Technicians	<ul style="list-style-type: none"> • Broadcast Technicians • Computer User Support Specialists • Manufacturing Production Technicians
Requires a High School Diploma or Equivalent or Less	
Customer Service Representatives	<ul style="list-style-type: none"> • Bill and Account Collectors • Medical Records and Health Information Technicians • Receptionists and Information Clerks
Office Clerks, General	<ul style="list-style-type: none"> • Insurance Claims Clerks • Medical Records and Health Information Technicians • Medical Secretaries
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	<ul style="list-style-type: none"> • Bill and Account Collectors • Executive Secretaries and Executive Administrative Assistants • Hotel, Motel, and Resort Desk Clerks
Electrical and Electronic Equipment Assemblers	<ul style="list-style-type: none"> • Inspectors, Testers, Sorters, Samplers, and Weighers • Solderers and Brazers • Team Assemblers
First-Line Supervisors of Office and Administrative Support Workers	<ul style="list-style-type: none"> • Administrative Services Managers • General and Operations Managers • Human Resources Specialists

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

Employer Demand for the Information and Communications Technologies Cluster

The following table lists the San Francisco Bay Area Economic Sub-Market** employers in the Information and Communications Technologies cluster who posted the most job advertisements during the 120-day period ending March 13, 2015. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Information and Communications Technologies Cluster Employers	Recent Job Advertisements ¹³ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)
Google	1,802	1,740	62	3.6%
Cisco	1,179	429	750	174.8%
Facebook	978	657	321	48.9%
Collabera	812	697	115	16.5%
Hewlett-Packard Company	738	604	134	22.2%
Intel	706	661	45	6.8%
Salesforce.com	687	621	66	10.6%
Verizon	573	267	306	114.6%
Apple Inc.	469	648	-179	-27.6%
VMware	468	1,395	-927	-66.5%
Nvidia Corporation	459	392	67	17.1%
TEKsystems	397	532	-135	-25.4%
Autodesk, Inc.	386	311	75	24.1%
CTG - Computer Task Group	379	17	362	2,129.4%
Adobe Systems Incorporated	345	339	6	1.8%
Intuit Inc.	318	504	-186	-36.9%
NetApp	305	121	184	152.1%
LinkedIn	295	219	76	34.7%
Juniper Networks	280	267	13	4.9%
Microsoft	276	355	-79	-22.3%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending March 13, 2015.

¹³ Totals do not include employers with anonymous job advertisements.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Instructional Programs for the Top Information and Communications Technologies Occupations

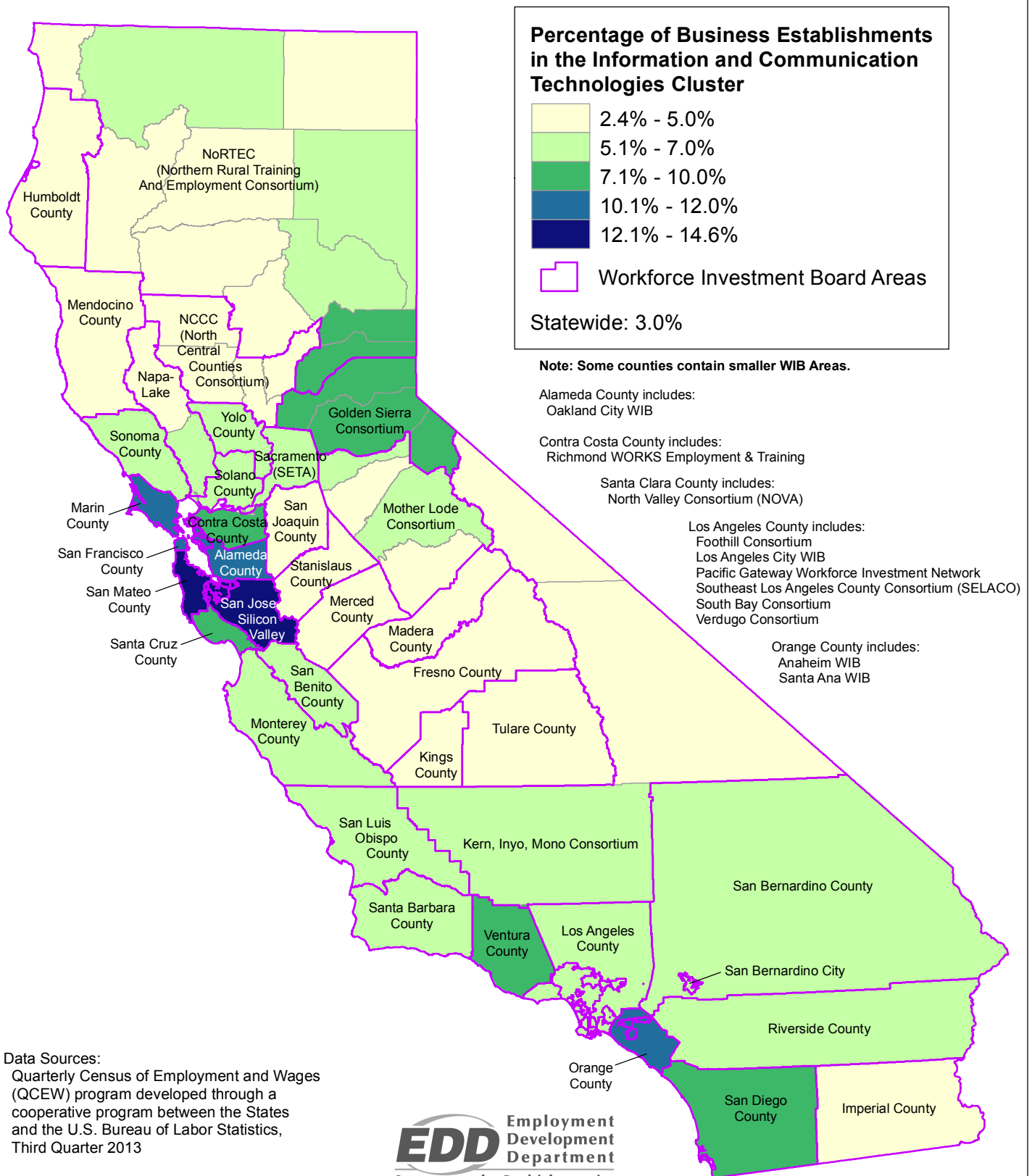
The table below provides examples of instructional programs related to some of the top occupations in the Information and Communications Technologies cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Information and Communications Technologies cluster. To view a more complete list of training programs, select the source links under the table below. The Taxonomy of Programs categorizes and describes instructional programs only for California Community Colleges.

Occupations	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Computer User Support Specialists	01.0106	Agricultural Business Technology	070820	Computer Support
	11.1006	Computer Support Specialist Medical		
	51.0709	Office Computer Specialist/Assistant		
Web Developers	11.0201	Computer Programming/Programmer, General	061430	Website Design and Development
	11.0801	Web Page, Digital/Multimedia and Information Resources Design	070700	Computer Software Development
	11.1004	Web/Multimedia Management and Webmaster	070710	Computer Programming
Computer Network Support Specialists	11.0201	Computer Programming/Programmer, General	070710	Computer Programming
	11.0701	Computer Science	070800	Computer Infrastructure and Support
	11.0901	Computer Systems Networking and Telecommunications	070810	Computer Networking
Telecommunications Equipment Installers and Repairers, Except Line Installers	47.0103	Communications Systems Installation and Repair Technology	N/A	N/A
Electrical and Electronics Engineering Technicians	15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	N/A	N/A
	15.1201	Computer Engineering Technology/Technician		
	15.1202	Computer Technology/Computer Systems Technology		
Customer Service Representatives	52.0406	Receptionist	051800	Customer Service
	52.0411	Customer Service Support/Call Center/Teleservice Operation		
Office Clerks, General	52.0408	General Office Occupations and Clerical Services	N/A	N/A
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	52.0401	Administrative Assistant and Secretarial Science, General	051400	Office Technology/Office Computer Applications
	52.0402	Executive Assistant/Executive Secretary		
First-Line Supervisors of Office and Administrative Support Workers	52.0204	Office Management and Supervision	050630	Management Development and Supervision
	52.0207	Customer Service Management	051440	Office Management
	52.0208	E-Commerce/Electronic Commerce	070910	E-Commerce (technology emphasis)

Source: U.S. Department of Education [Integrated Postsecondary Education Data System \(IPEDS\)](http://www.nces.ed.gov/ipeds) at www.nces.ed.gov; [California Community Colleges TOP-to-CIP Crosswalk](http://www.cccco.edu) 7th Edition (2010), www.cccco.edu.

California Information and Communication Technologies Cluster

Percentage of Total County Establishments, 2013



Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2013

Cartography by:
Labor Market Information Division
California Employment Development Department
<http://www.labormarketinfo.edd.ca.gov>
March 2015

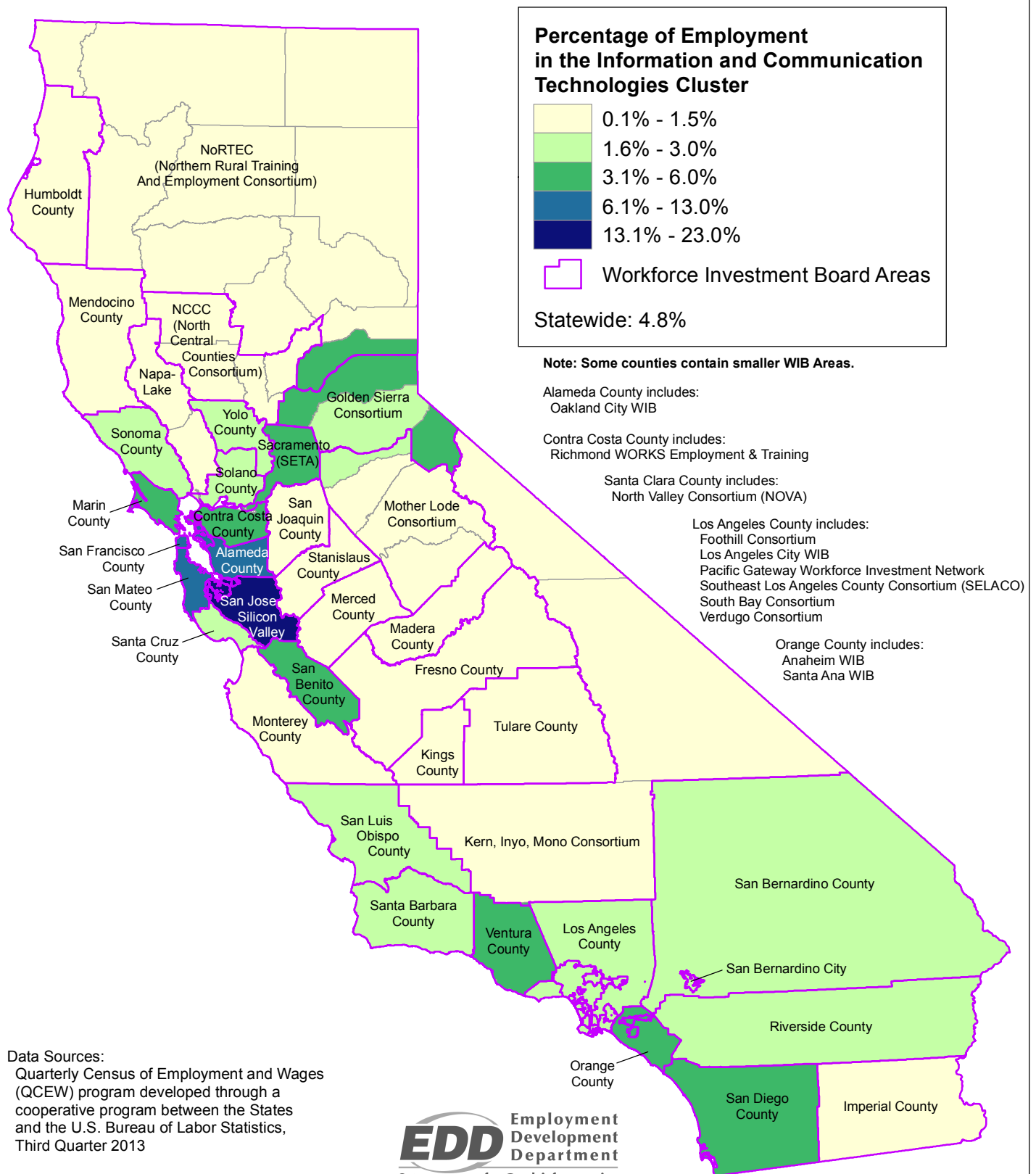
EDD Employment Development Department
State of California

LaborMarketInfo

File T036

California Information and Communication Technologies Cluster

Percentage of Total County Employment, 2013



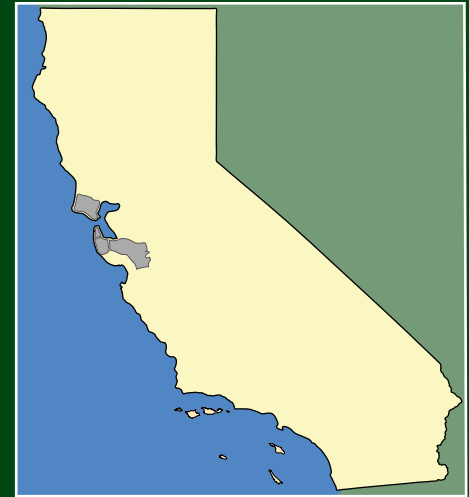
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EDD Employment Development Department
State of California

LaborMarketInfo

File T036



Occupational Analysis: Hospitality and Tourism Cluster

San Francisco Bay Area Economic Sub-Market
Marin, San Francisco, San Mateo, and Santa Clara Counties

March 2015

What is the Hospitality and Tourism Cluster?

The Hospitality and Tourism cluster is comprised of 14 industries that provide goods and services related to lodging, food, recreation, travel, and sightseeing transportation. Establishments in this cluster include restaurants, hotels, casinos, golf courses, marinas, and fitness centers. The workers employed within this cluster share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Hospitality and Tourism Cluster

The graph below identifies the top 10 occupations in the Hospitality and Tourism cluster, based on the San Francisco Bay Area Economic Sub-Market's** new job growth plus replacement openings. In sum, these 10 occupations represent almost three-quarters of the 108,332 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, coordination, critical thinking, monitoring, reading comprehension, social perceptiveness, and speaking.¹⁴



Source: California Employment Development Department, *Projections of Employment 2012-2022*. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.

¹⁴ U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

¹⁵ New jobs are only openings due to growth and do not include job declines. If an occupation's employment change is negative, there is no job growth and new jobs are set to zero.

¹⁶ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Top 10 Occupations and Recent Job Demand in the Hospitality and Tourism Cluster

The table below further profiles the San Francisco Bay Area Economic Sub-Market's** top 10 occupations in the Hospitality and Tourism cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBS™ (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ¹⁷ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ¹⁸	HWOL Job Ads ¹⁹ (120 days)
Waiters and Waitresses	20,577	\$10.42	\$21,674	Less than high school	1,458
Combined Food Preparation and Serving Workers, Including Fast Food	14,850	\$10.54	\$21,924	Less than high school	1,639
Cooks, Restaurant	7,030	\$12.97	\$26,985	Less than high school	1,426
Dishwashers	6,015	\$10.06	\$20,929	Less than high school	631
Dining Room and Cafeteria Attendants and Bartender Helpers	5,747	\$9.99	\$20,779	Less than high school	396
Food Preparation Workers	5,742	\$10.93	\$22,731	Less than high school	504
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	4,392	\$10.48	\$21,800	Less than high school	423
First-Line Supervisors of Food Preparation and Serving Workers	4,378	\$17.58	\$36,567	High school diploma or equivalent	3,245
Bartenders	3,898	\$11.46	\$23,840	Less than high school	237
Maids and Housekeeping Cleaners	3,705	\$16.09	\$33,474	Less than high school	1,298

Source: California Employment Development Department, *Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 4th Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending March 13, 2015.*

¹⁷ Total job openings are the sum of new jobs and replacement job openings.

¹⁸ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

¹⁹ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Top Occupations for the Hospitality and Tourism Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Hospitality and Tourism cluster. The table includes the San Francisco Bay Area Economic Sub-Market's** projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ²⁰ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or Higher				
General and Operations Managers	700	\$65.71	\$136,670	2,580
Coaches and Scouts	325	N/A	\$39,980	401
Meeting, Convention, and Event Planners	286	\$28.95	\$60,211	295
Accountants and Auditors	216	\$38.88	\$80,868	5,851
Recreation Workers	124	\$12.86	\$26,754	310
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Massage Therapists	81	\$17.57	\$36,557	263
Audio and Video Equipment Technicians	42	\$25.41	\$52,856	215
Skincare Specialists	13	\$19.61	\$40,794	114
Web Developers	13	\$46.61	\$96,945	8,914
First-Line Supervisors of Production and Operating Workers	11	\$29.86	\$62,104	878
Requires a High School Diploma or Equivalent or Less				
Waiters and Waitresses	20,577	\$10.42	\$21,674	1,458
Combined Food Preparation and Serving Workers, Including Fast Food	14,850	\$10.54	\$21,924	1,639
Cooks, Restaurant	7,030	\$12.97	\$26,985	1,426
Dishwashers	6,015	\$10.06	\$20,929	631
Dining Room and Cafeteria Attendants and Bartender Helpers	5,747	\$9.99	\$20,779	396

Source: California Employment Development Department, Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey, updated to 4th Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending March 13, 2015.

²⁰ Total job openings are the sum of new jobs and replacement job openings.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Skill Requirements in the Hospitality and Tourism Cluster

The table below lists the 10 top skills required for top occupations in the Hospitality and Tourism cluster, categorized by entry-level education requirements. Active listening and critical thinking are the most commonly shared skills, followed by monitoring and speaking. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

Occupations	Skills																			
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Instruction	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Mathematics	Monitoring	Negotiation	Operation Monitoring	Operations Analysis	Persuasion	Programming	Quality Control Analysis	Reading Comprehension	Service Orientation
Requires a Bachelor's Degree or Higher																				
General and Operations Managers	•	•	•	•	•					•	•							•	•	•
Coaches and Scouts		•			•		•	•	•	•	•								•	•
Meeting, Convention, and Event Planners		•	•	•								•	•					•	•	•
Accountants and Auditors ²¹	•	•			•			•			•	•						•		•
Recreation Workers		•	•	•		•				•	•							•	•	•
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																				
Massage Therapists	•	•			•			•			•							•	•	•
Audio and Video Equipment Technicians	•	•	•	•		•					•		•					•		•
Skincare Specialists	•	•	•	•			•				•							•	•	•
Web Developers	•	•	•		•			•			•			•		•		•		
First-Line Supervisors of Production and Operating Workers		•	•	•					•	•								•	•	•
Requires a High School Diploma or Equivalent or Less																				
Waiters and Waitresses		•	•	•				•			•				•			•	•	•
Combined Food Preparation and Serving Workers, Including Fast Food		•	•	•		•		•							•			•	•	•
Cooks, Restaurant	•	•	•	•		•					•						•			•
Dishwashers	•	•	•	•	•						•					•		•	•	•
Dining Room and Cafeteria Attendants and Bartender Helpers		•	•	•			•				•							•	•	•

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

²¹ Skills represent Accountants, a specialty occupation of Accountants and Auditors.

Work Activities in the Hospitality and Tourism Cluster

The table below lists the 10 top work activities required for top occupations in the Hospitality and Tourism cluster, categorized by entry-level education requirements. The most common include establishing and maintaining interpersonal relationships; communicating with supervisors, peers, or subordinates; and organizing, planning, and prioritizing work.

Occupations	Work Activities																			
	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Controlling Machines and Processes	Coordinating the Work and Activities of Others	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	Guiding, Directing, and Motivating Subordinates	Handling and Moving Objects	Identifying Objects, Actions, and Events	Interacting With Computers	Judging the Qualities of Things, Services, or People	Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Monitoring and Controlling Resources	Organizing, Planning, and Prioritizing Work	Performing Administrative Activities
Requires a Bachelor's Degree or Higher																				
General and Operations Managers				•	•		•	•							•	•	•		•	•
Coaches and Scouts		•					•	•				•		•					•	•
Meeting, Convention, and Event Planners			•	•			•	•	•		•	•				•			•	•
Accountants and Auditors ²²	•			•			•	•	•	•					•		•	•	•	•
Recreation Workers		•	•	•		•	•	•											•	•
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																				
Massage Therapists		•	•				•	•		•		•			•	•	•			•
Audio and Video Equipment Technicians				•	•		•	•				•	•		•	•			•	•
Skincare Specialists	•					•	•	•			•				•	•			•	•
Web Developers				•				•			•	•		•			•	•		•
First-Line Supervisors of Production and Operating Workers		•		•	•	•	•	•		•	•							•	•	•
Requires a High School Diploma or Equivalent or Less																				
Waiters and Waitresses				•	•	•	•	•		•	•							•	•	•
Combined Food Preparation and Serving Workers, Including Fast Food		•		•	•	•	•	•		•	•							•		•
Cooks, Restaurant				•	•	•				•	•			•	•	•		•		•
Dishwashers		•		•	•	•	•			•					•	•				•
Dining Room and Cafeteria Attendants and Bartender Helpers	•		•	•		•	•	•	•	•	•				•		•			•

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

²² Work Activities represent Accountants, a specialty occupation of Accountants and Auditors.

Related Occupations for the Hospitality and Tourism Cluster

The table below lists top occupations in the Hospitality and Tourism cluster by entry-level education requirements and provides a sample of related occupations. These related occupations match many of the skills, education, and work experience needed for the top Hospitality and Tourism cluster occupations.

Hospitality and Tourism Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
General and Operations Managers	<ul style="list-style-type: none"> Logistics Managers Purchasing Managers Storage and Distribution Managers
Coaches and Scouts	<ul style="list-style-type: none"> Health Educators Recreation Workers Training and Development Managers
Meeting, Convention, and Event Planners	<ul style="list-style-type: none"> Human Resources Specialists Public Relations and Fundraising Managers Public Relations Specialists
Accountants and Auditors	<ul style="list-style-type: none"> Bookkeeping, Accounting, and Auditing Clerks Financial Analysts Risk management Specialists
Recreation Workers	<ul style="list-style-type: none"> Education Administrators, Preschool and Childcare Center/Program Preschool Teachers, Except Special Education Social and Human Service Assistants
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Massage Therapists	<ul style="list-style-type: none"> Fitness Trainers and Aerobics Instructors Manicurists and Pedicurists Teacher Assistants
Audio and Video Equipment Technicians	<ul style="list-style-type: none"> Computer User Support Specialists Electronic Home Entertainment Equipment Installers and Repairers Film and Video Editors
Skincare Specialists	<ul style="list-style-type: none"> Dental Assistants Hairdressers, Hairstylists, and Cosmetologists Medical Assistants
Web Developers	<ul style="list-style-type: none"> Computer Programmers Computer Systems Analysts Web Administrators
First-Line Supervisors of Production and Operating Workers	<ul style="list-style-type: none"> First-Line Supervisors of Construction Trades and Extraction Workers First-Line Supervisors of Mechanics, Installers, and Repairers Non-Destructive Testing Specialists
Requires a High School Diploma or Equivalent or Less	
Waiters and Waitresses	<ul style="list-style-type: none"> Cashiers Food Servers, Nonrestaurant Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop
Combined Food Preparation and Serving Workers, Including Fast Food	<ul style="list-style-type: none"> Cooks, Fast Food Food Preparation Workers Stock Clerks, Sales Floor
Cooks, Restaurant	<ul style="list-style-type: none"> Cooks, Institution and Cafeteria Food Preparation Workers Packers and Packagers, Hand
Dishwashers	<ul style="list-style-type: none"> Helpers--Production Workers Janitors and Cleaners, Except Maids and Housekeeping Cleaners Landscaping and Groundskeeping Workers
Dining Room and Cafeteria Attendants and Bartender Helpers	<ul style="list-style-type: none"> Counter Attendants, Cafeteria, Food Concession, and Coffee Shop Food Servers, Nonrestaurant Maids and Housekeeping Cleaners

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

Employer Demand for the Hospitality and Tourism Cluster

The following table lists the San Francisco Bay Area Economic Sub-Market** employers in the Hospitality and Tourism cluster who posted the most job advertisements during the 120-day period ending March 13, 2015. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Hospitality and Tourism Cluster Employers	Recent Job Advertisements ²³ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)
Hilton Hotels & Resorts	422	258	164	63.6%
Marriott	251	504	-253	-50.2%
Chipotle	185	77	108	140.3%
Guckenheimer	147	29	118	406.9%
Hyatt	133	150	-17	-11.3%
Embassy Suites	118	47	71	151.1%
Red Robin	98	30	68	226.7%
Sodexo, Inc.	97	51	46	90.2%
Ritz-Carlton	84	67	17	25.4%
24 Hour Fitness	76	177	-101	-57.1%
InterContinental Hotels Group	63	56	7	12.5%
Boston Market Corporation	60	11	49	445.5%
Taco Bell	60	2	58	2,900.0%
Wyndham Hotel Group	59	8	51	637.5%
Starbucks	58	175	-117	-66.9%
The Walt Disney Company	56	3	53	1,766.7%
Interstate Hotels & Resorts	50	6	44	733.3%
OpenTable, Inc.	45	24	21	87.5%
Hotwire	45	13	32	246.2%
Gate Gourmet	40	27	13	48.1%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending March 13, 2015.

²³ Totals do not include employers with anonymous job advertisements.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Instructional Programs for the Top Hospitality and Tourism Cluster Occupations

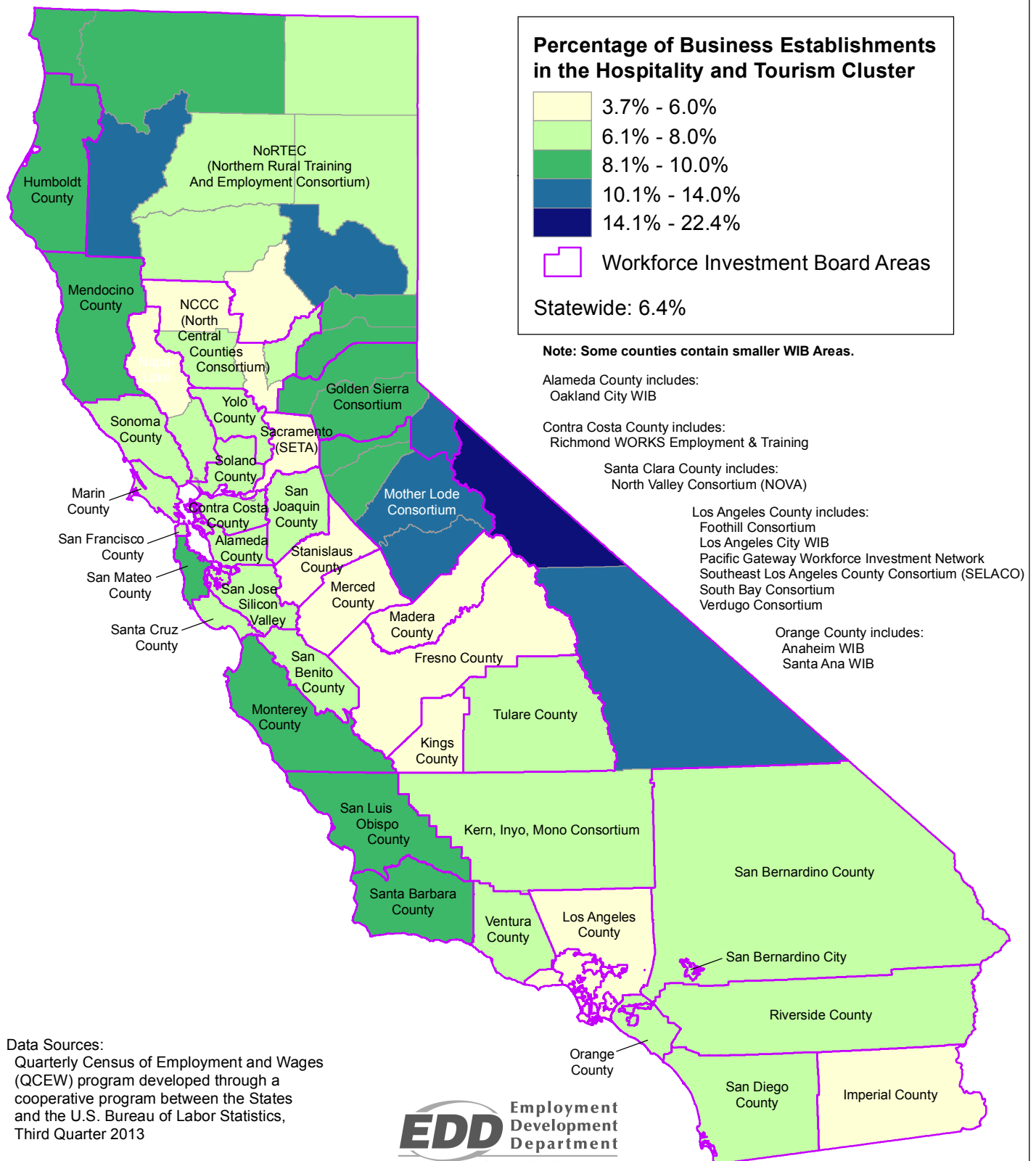
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Occupations	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Massage Therapists	51.3501	Massage Therapy/Therapeutic Massage	126200	Massage Therapy
	51.3502	Asian Bodywork Therapy		
	51.3503	Somatic Bodywork		
Audio and Video Equipment Technicians	01.0802	Agricultural Communication/Journalism	100500	Commercial Music
	10.0201	Photographic and Film/Video Technology/Technician and Assistant	101200	Applied Photography
	10.0203	Recording Arts Technology/Technician		
Skincare Specialists	12.0401	Cosmetology/Cosmetologist, General	300700	Cosmetology and Barbering
	12.0408	Facial Treatment Specialist/Facialist		
	12.0409	Aesthetician/Esthetician and Skin Care Specialist		
Web Developers	11.0201	Computer Programming/Programmer, General	061430	Website Design and Development
	11.0801	Web Page, Digital/Multimedia and Information Resources Design	070710	Computer Programming
	11.1004	Web/Multimedia Management and Webmaster	070900	World Wide Web Administration
First-Line Supervisors of Production and Operating Workers	52.0205	Operations Management and Supervision	N/A	N/A
Cooks, Restaurant	12.0500	Cooking and Related Culinary Arts, General	130630	Culinary Arts
	12.0503	Culinary Arts/Chef Training		

Source: U.S. Department of Education [Integrated Postsecondary Education Data System \(IPEDS\)](http://www.nces.ed.gov/ipeds) at www.nces.ed.gov; [California Community Colleges TOP-to-CIP Crosswalk](http://www.cccco.edu) 7th Edition (2010), www.cccco.edu.

California Hospitality and Tourism Cluster

Percentage of Total County Establishments, 2013



Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2013

Cartography by:
Labor Market Information Division
California Employment Development Department
<http://www.labormarketinfo.edd.ca.gov>
July 2014

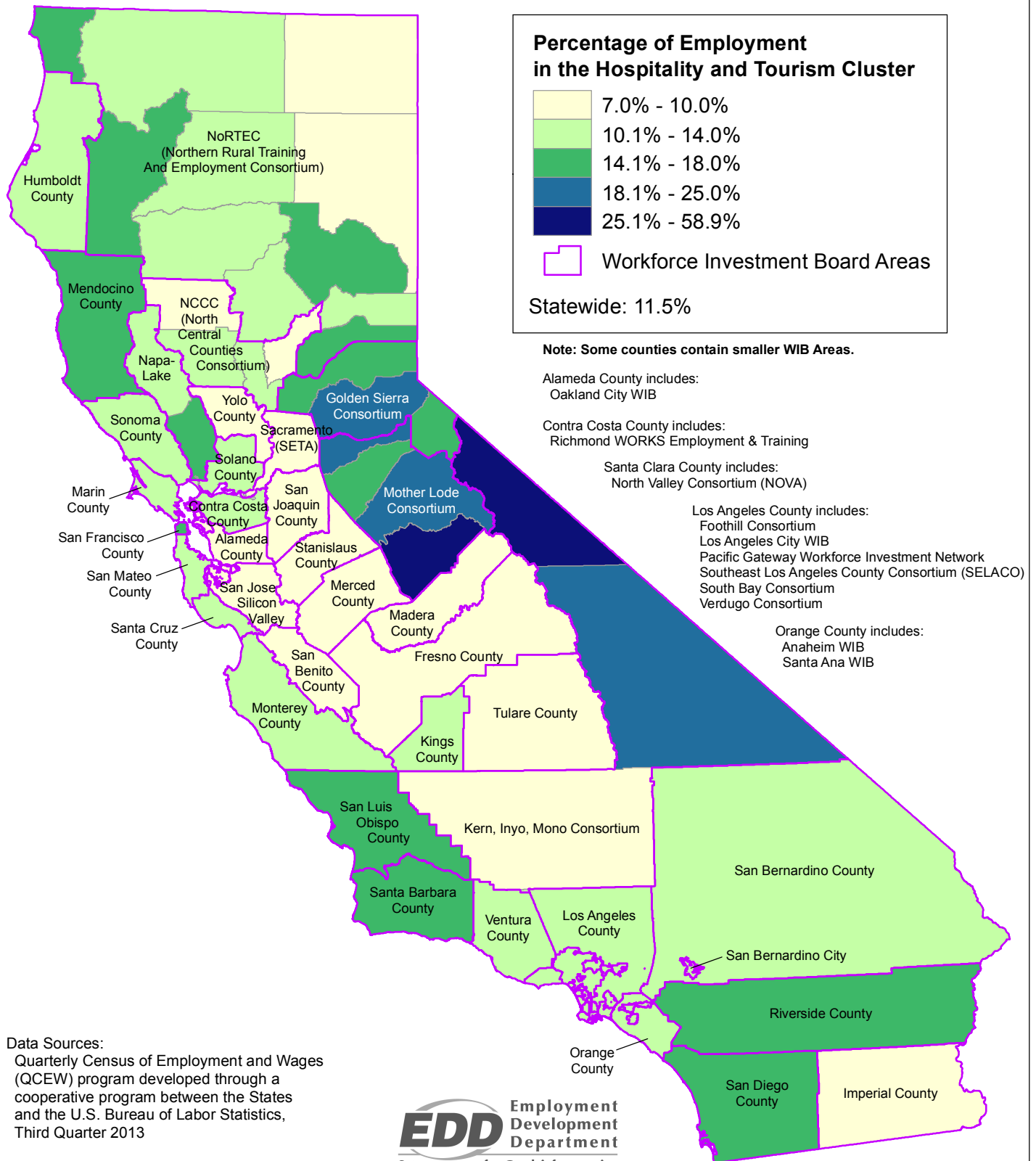
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California Hospitality and Tourism Cluster

Percentage of Total County Employment, 2013



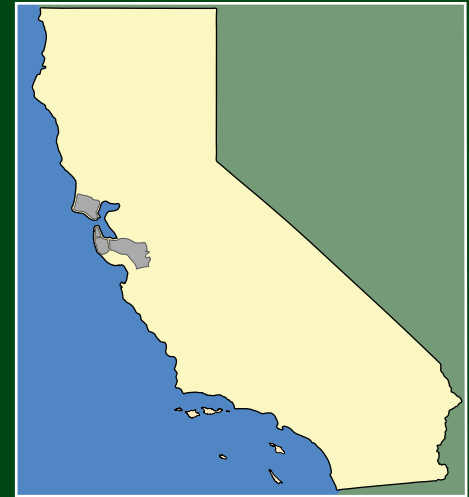
Data Sources:
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Occupational Analysis: Health Care Services Cluster

San Francisco Bay Area Economic Sub-Market
Marin, San Francisco, San Mateo, and Santa Clara Counties

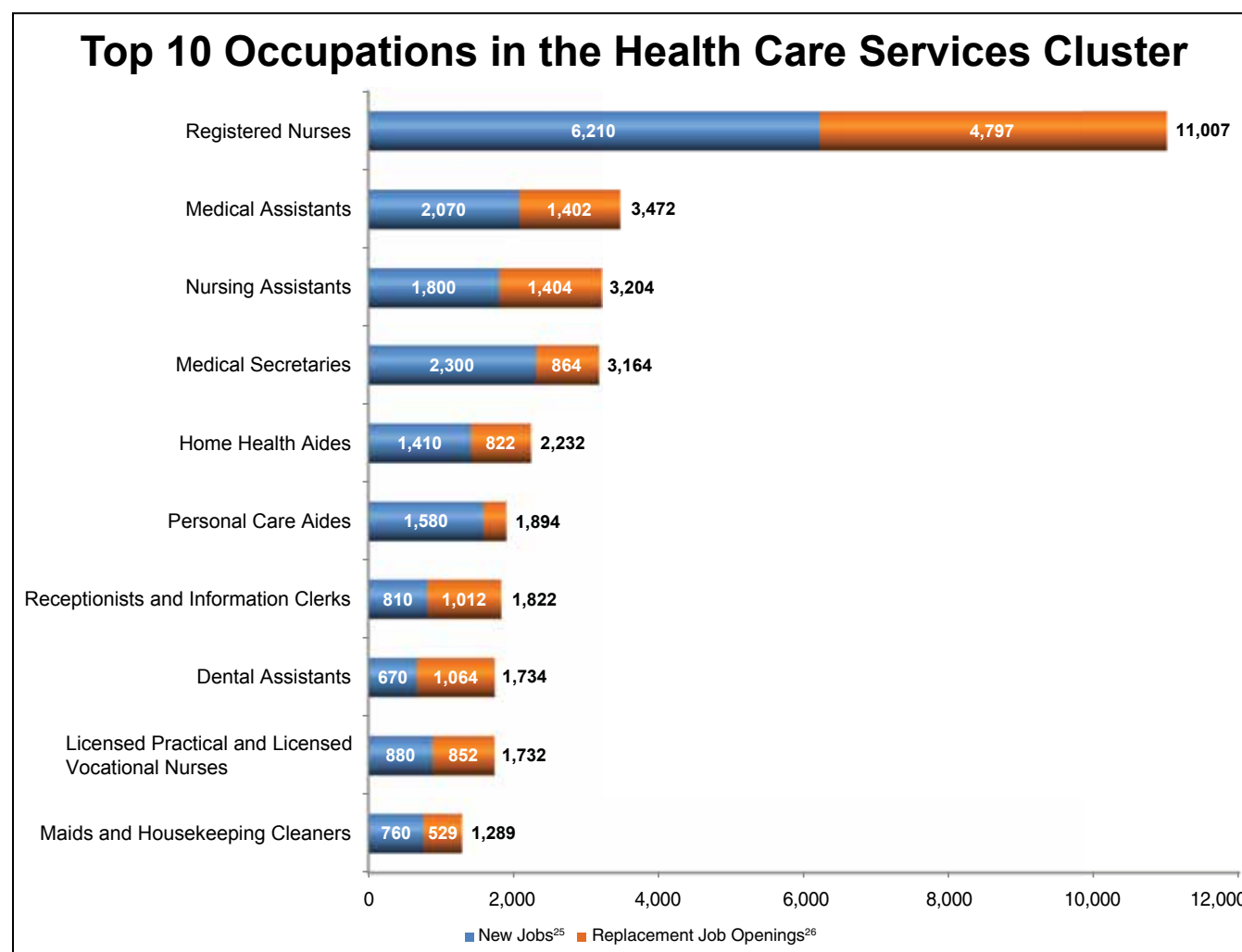
March 2015

What is the Health Care Services Cluster?

The Health Care Services cluster is comprised of 14 industries that include hospitals and doctors' offices, diagnostic laboratories, continuing care retirement communities, home health care services, and other activities related to health care. The workers employed within this cluster span all skill levels and share skills and work activities both within the cluster and in many other industry clusters, suggesting the potential for skills transference and upward mobility with additional training.

Top 10 Occupations in the Health Care Services Cluster

The graph below identifies the top 10 occupations in the Health Care Services cluster, based on the San Francisco Bay Area Economic Sub-Market's** new job growth plus replacement openings. In sum, these 10 occupations represent nearly one-half of the 65,734 total job openings projected in this cluster between 2012 and 2022. Moreover, many share the same required skills such as active listening, critical thinking, reading comprehension, service orientation, social perceptiveness, and speaking.²⁴



Source: California Employment Development Department, *Projections of Employment 2012-2022. Industry and occupational employment projections for 2012-2022 in this report may not be directly comparable to the published 2012-2022 employment projections available online at www.labormarketinfo.edd.ca.gov.*

²⁴ U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

²⁵ New jobs are only openings due to growth and do not include job declines. If an occupation's employment change is negative, there is no job growth and new jobs are set to zero.

²⁶ Replacement job openings estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Top 10 Occupations and Recent Job Demand in the Health Care Services Cluster

The table below further profiles the San Francisco Bay Area Economic Sub-Market's** top 10 occupations in the Health Care Services cluster by listing the total job openings for 2012-2022, median hourly and annual wages, and entry-level education requirements. Also included are online job advertisements extracted from The Conference Board Help Wanted OnLine™ (HWOL) data series over a recent 120-day period. HWOL compiles, analyzes, and categorizes job advertisements from numerous online job boards, including CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ²⁷ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ²⁸	HWOL Job Ads ²⁹ (120 days)
Registered Nurses	11,007	\$64.69	\$134,547	Associate's degree	6,666
Medical Assistants	3,472	\$20.41	\$42,466	Postsecondary non-degree award	765
Nursing Assistants	3,204	\$17.74	\$36,885	Postsecondary non-degree award	290
Medical Secretaries	3,164	\$21.52	\$44,763	High school diploma or equivalent	1,152
Home Health Aides	2,232	\$11.97	\$24,895	Less than high school	355
Personal Care Aides	1,894	\$12.04	\$25,041	Less than high school	988
Receptionists and Information Clerks	1,822	\$17.35	\$36,090	High school diploma or equivalent	1,129
Dental Assistants	1,734	\$23.00	\$47,844	Postsecondary non-degree award	635
Licensed Practical and Licensed Vocational Nurses	1,732	\$28.94	\$60,196	Postsecondary non-degree award	520
Maids and Housekeeping Cleaners	1,289	\$16.09	\$33,474	Less than high school	1,298

Source: California Employment Development Department, *Projections of Employment 2012-2022; Occupational Employment Statistics Wage Survey*, updated to 4th Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending March 13, 2015.

²⁷ Total job openings are the sum of new jobs and replacement job openings.

²⁸ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

²⁹ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Top Occupations for the Health Care Services Cluster by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics (BLS) 2012 entry-level education requirements, within the Health Care Services cluster. The table includes the San Francisco Bay Area Economic Sub-Market's** projected total job openings and median hourly and annual wages. In addition, recent totals of online job advertisements over 120-day period are included. Grouping occupations by education levels allows individuals to better gauge the potential for skills transference and upward mobility within the cluster.

Occupations	Total Job Openings ³⁰ (2012-2022)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Ads (120 days)
Requires a Bachelor's Degree or Higher				
Medical and Health Services Managers	1,259	\$65.65	\$136,542	1,852
Physical Therapists	777	\$47.75	\$99,335	659
Pharmacists	647	\$67.81	\$141,052	217
Family and General Practitioners	548	\$88.94	\$184,996	155
Medical and Clinical Laboratory Technologists	523	\$43.56	\$90,610	147
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Registered Nurses	11,007	\$64.69	\$134,547	6,666
Medical Assistants	3,472	\$20.41	\$42,466	765
Nursing Assistants	3,204	\$17.74	\$36,885	290
Dental Assistants	1,734	\$23.00	\$47,844	635
Licensed Practical and Licensed Vocational Nurses	1,732	\$28.94	\$60,196	520
Requires a High School Diploma or Equivalent or Less				
Medical Secretaries	3,164	\$21.52	\$44,763	1,152
Home Health Aides	2,232	\$11.97	\$24,895	355
Personal Care Aides	1,894	\$12.04	\$25,041	988
Receptionists and Information Clerks	1,822	\$17.35	\$36,090	1,129
Maids and Housekeeping Cleaners	1,289	\$16.09	\$33,474	1,298

Source: California Employment Development Department, *Projections of Employment 2012-2022*; *Occupational Employment Statistics Wage Survey*, updated to 4th Q, 2014; *The Conference Board Help Wanted OnLine™ (HWOL) Data Series*, 120-day period ending period ending March 13, 2015.

³⁰ Total job openings are the sum of new jobs and replacement job openings.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Skill Requirements in the Health Care Services Cluster

The table below lists the 10 top skills required for top occupations in the Health Care Services cluster, categorized by entry-level education requirements. Active listening, critical thinking, reading comprehension and speaking are the most commonly shared skills, followed by social perceptiveness and monitoring. The skills and work activities identified for each occupation are from the U.S. Department of Labor's Occupational Information Network (O*NET).

Occupations	Skills															
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Monitoring	Operation Monitoring	Operations Analysis	Quality Control Analysis	Reading Comprehension	Science	Service Orientation	Social Perceptiveness
Requires a Bachelor's Degree or Higher																
Medical and Health Services Managers		●		●	●		●		●		●		●		●	●
Physical Therapists		●		●	●		●		●				●		●	●
Pharmacists	●	●			●	●			●				●	●		●
Family and General Practitioners	●	●	●		●		●						●	●		●
Medical and Clinical Laboratory Technologists	●	●			●				●	●		●	●	●		●
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																
Registered Nurses	●	●		●	●			●	●				●		●	●
Medical Assistants	●	●		●	●				●				●		●	●
Nursing Assistants	●	●		●	●				●				●		●	●
Dental Assistants	●	●			●	●			●				●		●	●
Licensed Practical and Licensed Vocational Nurses		●		●	●				●				●		●	●
Requires a High School Diploma or Equivalent or Less																
Medical Secretaries		●		●	●				●				●		●	●
Home Health Aides	●	●		●	●			●	●				●		●	●
Personal Care Aides	●	●		●	●				●				●		●	●
Receptionists and Information Clerks		●	●	●	●								●		●	●
Maids and Housekeeping Cleaners		●		●	●	●			●				●		●	●

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

Work Activities in the Health Care Services Cluster

The table below lists the 10 top work activities required for top occupations in the Health Care Services cluster, categorized by entry-level education requirements. The most common include establishing and maintaining interpersonal relationships; identifying objects, actions, and events; assisting and caring for others; monitoring processes, materials, or surroundings; and organizing, planning, and prioritizing work.

Occupations	Work Activities																			
	Analyzing Data or Information	Assisting and Caring for Others	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Coordinating the Work and Activities of Others	Documenting/Recording Information	Establishing and Maintaining Interpersonal Relationships	Evaluating Information to Determine Compliance with Standards	Getting Information	Guiding, Directing, and Motivating Subordinates	Handling and Moving Objects	Identifying Objects, Actions, and Events	Inspecting Equipment, Structures, or Material	Making Decisions and Solving Problems	Monitor Processes, Materials, or Surroundings	Monitoring and Controlling Resources	Organizing, Planning, and Prioritizing Work	Performing Administrative Activities	Performing for or Working Directly with the Public
Requires a Bachelor's Degree or Higher																				
Medical and Health Services Managers			•		•	•		•			•					•	•		•	•
Physical Therapists		•					•	•				•	•			•	•			•
Pharmacists	•	•						•	•				•			•			•	
Family and General Practitioners	•	•					•	•		•			•			•	•			•
Medical and Clinical Laboratory Technologists	•			•		•		•				•		•	•		•			•
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																				
Registered Nurses		•		•			•	•				•		•	•		•			•
Medical Assistants		•		•		•	•	•				•				•	•		•	•
Nursing Assistants		•		•			•	•				•	•		•	•		•		
Dental Assistants		•					•	•	•			•	•		•	•				•
Licensed Practical and Licensed Vocational Nurses		•		•		•	•					•	•		•	•				•
Requires a High School Diploma or Equivalent or Less																				
Medical Secretaries		•	•	•			•	•				•		•			•			•
Home Health Aides		•		•		•	•					•	•			•		•		•
Personal Care Aides		•		•		•	•					•	•		•	•		•		
Receptionists and Information Clerks		•				•	•		•			•				•		•		•
Maids and Housekeeping Cleaners				•		•	•		•	•	•		•			•	•	•		•

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

Related Occupations for the Health Care Services Cluster

The table below lists top occupations in the Health Care Services cluster by entry-level education requirements and provides a sample of related occupations. These related occupations match many of the skills, education, and work experience needed for the top Health Care Services cluster occupations.

Health Care Services Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Medical and Health Services Managers	<ul style="list-style-type: none"> • Chief Executives • Education Administrators, Elementary and Secondary School • Management Analysts
Physical Therapists	<ul style="list-style-type: none"> • Health Specialties Teachers, Postsecondary • Nursing Instructors and Teachers, Postsecondary • Occupational Therapists
Pharmacists	<ul style="list-style-type: none"> • Health Specialties Teachers, Postsecondary • Medical Scientists, Except Epidemiologists • Nursing Instructors and Teachers, Postsecondary
Family and General Practitioners	<ul style="list-style-type: none"> • Hospitalists • Pediatricians, General • Preventive Medicine Physicians
Medical and Clinical Laboratory Technologists	<ul style="list-style-type: none"> • Chemical Technicians • Diagnostic Medical Sonographers • Neurodiagnostic Technologists
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Registered Nurses	<ul style="list-style-type: none"> • Cardiovascular Technologists and Technicians • Emergency Medical Technicians and Paramedics • Respiratory Therapy Technicians
Medical Assistants	<ul style="list-style-type: none"> • Occupational Therapy Assistants • Pharmacy Technicians • Physical Therapist Assistants
Nursing Assistants	<ul style="list-style-type: none"> • N/A
Dental Assistants	<ul style="list-style-type: none"> • Dental Hygienists • Surgical Technologists • Veterinary Technologists and Technicians
Licensed Practical and Licensed Vocational Nurses	<ul style="list-style-type: none"> • Acute Care Nurses • Physical Therapist Assistants • Radiologic Technicians
Requires a High School Diploma or Equivalent or Less	
Medical Secretaries	<ul style="list-style-type: none"> • Bill and Account Collectors • Medical Records and Health Information Technicians • Office Clerks, General
Home Health Aides	<ul style="list-style-type: none"> • Childcare Workers • Occupational Therapy Aides • Physical Therapist Aides
Personal Care Aides	<ul style="list-style-type: none"> • Ambulance Drivers and Attendants, Except Emergency Medical Technicians • Childcare Workers • Physical Therapist Aides
Receptionists and Information Clerks	<ul style="list-style-type: none"> • Customer Service Representatives • Medical Records and Health Information Technicians • Office Clerks, General
Maids and Housekeeping Cleaners	<ul style="list-style-type: none"> • Dishwashers • Food Preparation Workers • Food Servers, Nonrestaurant

Source: U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org.

Employer Demand for the Health Care Services Cluster

The following table lists the San Francisco Bay Area Economic Sub-Market** employers in the Health Care Services cluster who posted the most job advertisements during the 120-day period ending March 13, 2015. The table also includes the number of job advertisements from the previous year's period, as well as the numerical change and year-over percent change in these postings for the same 120-day period.

Health Care Services Cluster Employers	Recent Job Advertisements ³¹ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change (HWOL Job Advertisements)
Kaiser Permanente	1,286	639	647	101.3%
Sutter Health	1,042	1,597	-555	-34.8%
Dignity Health	329	336	-7	-2.1%
HCA - The Healthcare Company	221	117	104	88.9%
O'Connor Hospital	154	303	-149	-49.2%
American Mobile Healthcare	144	156	-12	-7.7%
Onward Healthcare	126	67	59	88.1%
Good Samaritan Hospital	118	16	102	637.5%
Vitas Healthcare	111	24	87	362.5%
UCSF Medical Center	108	132	-24	-18.2%
Sunrise Senior Living, Inc.	89	16	73	456.3%
Lucile Packard Children's Hospital	87	62	25	40.3%
VA Medical Center	87	0	87	—
Stanford Hospital & Clinics	79	149	-70	-47.0%
Satellite Healthcare	73	73	0	0.0%
Ascension Health	57	58	-1	-1.7%
Brookdale Senior Living	55	61	-6	-9.8%
Inventiv Health, Inc.	54	53	1	1.9%
Kindred Healthcare	46	69	-23	-33.3%
El Camino Hospital	45	169	-124	-73.4%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending March 13, 2015.

³¹ Totals do not include employers with anonymous job advertisements.

** This Economic Sub-Market includes Marin, San Francisco, San Mateo, and Santa Clara Counties.

Instructional Programs for the Health Care Services Cluster Occupations

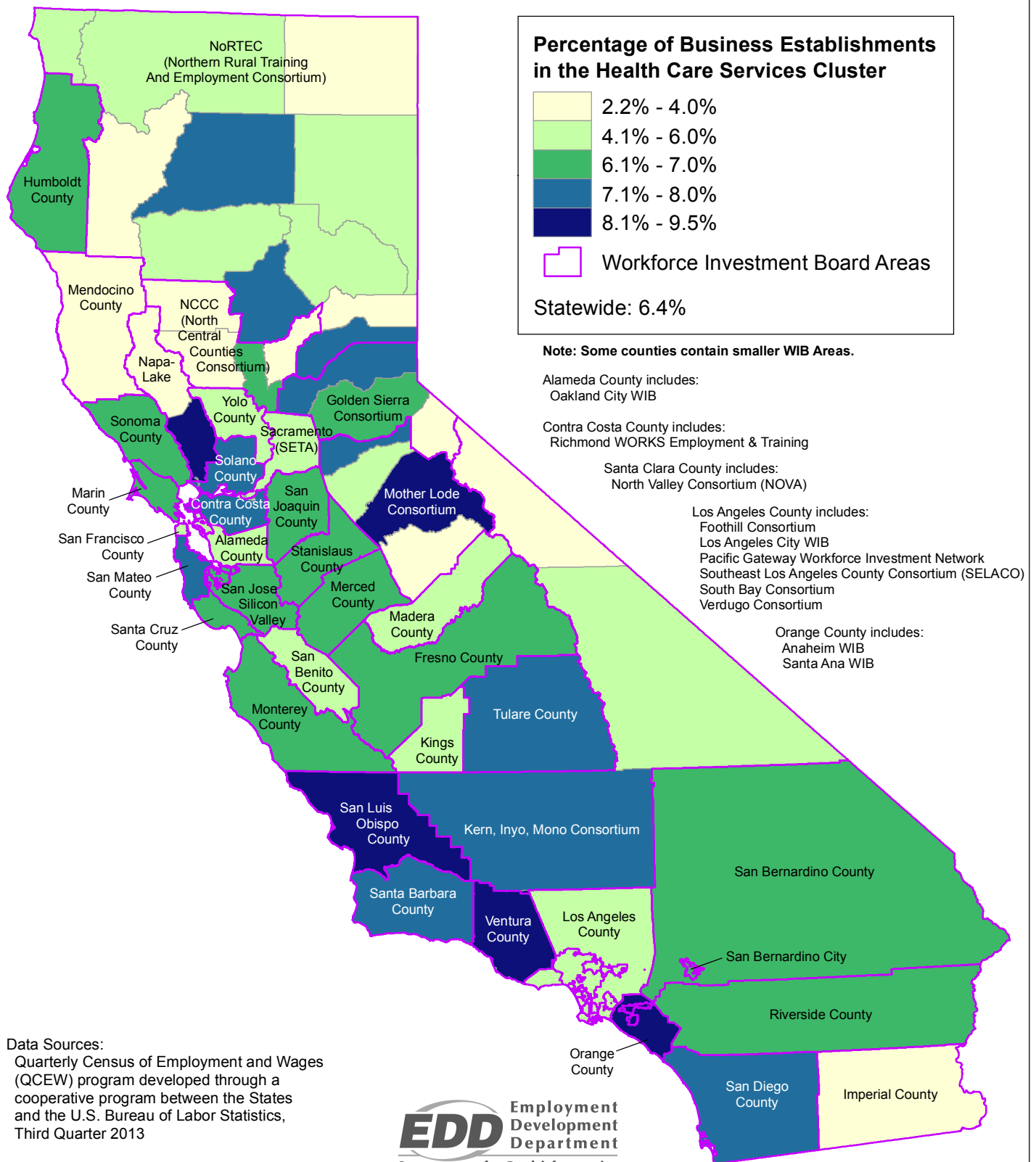
The table below provides examples of instructional programs related to some of the top occupations in the Health Care Services cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Health Care Services cluster. To view a more complete list of training programs, select the source links under the table below. The Taxonomy of Programs categorizes and describes instructional programs only for California Community Colleges.

Occupations	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Registered Nurses	51.3801	Registered Nursing/Registered Nurse	123000	Nursing
	51.3802	Nursing Administration	123010	Registered Nursing
	51.3803	Adult Health Nurse/Nursing		
Medical Assistants	51.0710	Medical Office Assistant/Specialist	051420	Medical Office Technology
	51.0801	Medical/Clinical Assistant	120800	Medical Assisting
	51.0809	Anesthesiologist Assistant	120810	Clinical Medical Assisting
Nursing Assistants	51.2601	Health Aide	123030	Certified Nurse Assistant
	51.3902	Nursing Assistant/Aide and Patient Care Assistant/Aide		
	51.3999	Practical Nursing, Vocational Nursing and Nursing Assistants, Other		
Dental Assistants	51.0601	Dental Assisting/Assistant	124010	Dental Assistant
Licensed Practical and Licensed Vocational Nurses	51.3901	Licensed Practical/Vocational Nurse Training	123020	Licensed Vocational Nursing
	51.3999	Practical Nursing, Vocational Nursing and Nursing Assistants, Other		
Medical Secretaries	51.0710	Medical Office Assistant/Specialist	051420	Medical Office Technology
	51.0714	Medical Insurance Specialist/Medical Biller		
	51.0716	Medical Administrative/Executive Assistant and Medical Secretary		
Home Health Aides	51.2602	Home Health Aide/Home Attendant	123080	Home Health Aide
Personal Care Aides	51.2602	Home Health Aide/Home Attendant	123080	Home Health Aide
Receptionists and Information Clerks	52.0406	Receptionist	N/A	N/A

Source: U.S. Department of Education [Integrated Postsecondary Education Data System \(IPEDS\)](https://nces.ed.gov/ipeds/) at [www.nces.ed.gov](https://nces.ed.gov/); [California Community Colleges TOP-to-CIP Crosswalk](https://www.cccco.edu/) 7th Edition (2010), www.cccco.edu.

California Health Care Services Cluster

Percentage of Total County Establishments, 2013



Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2013

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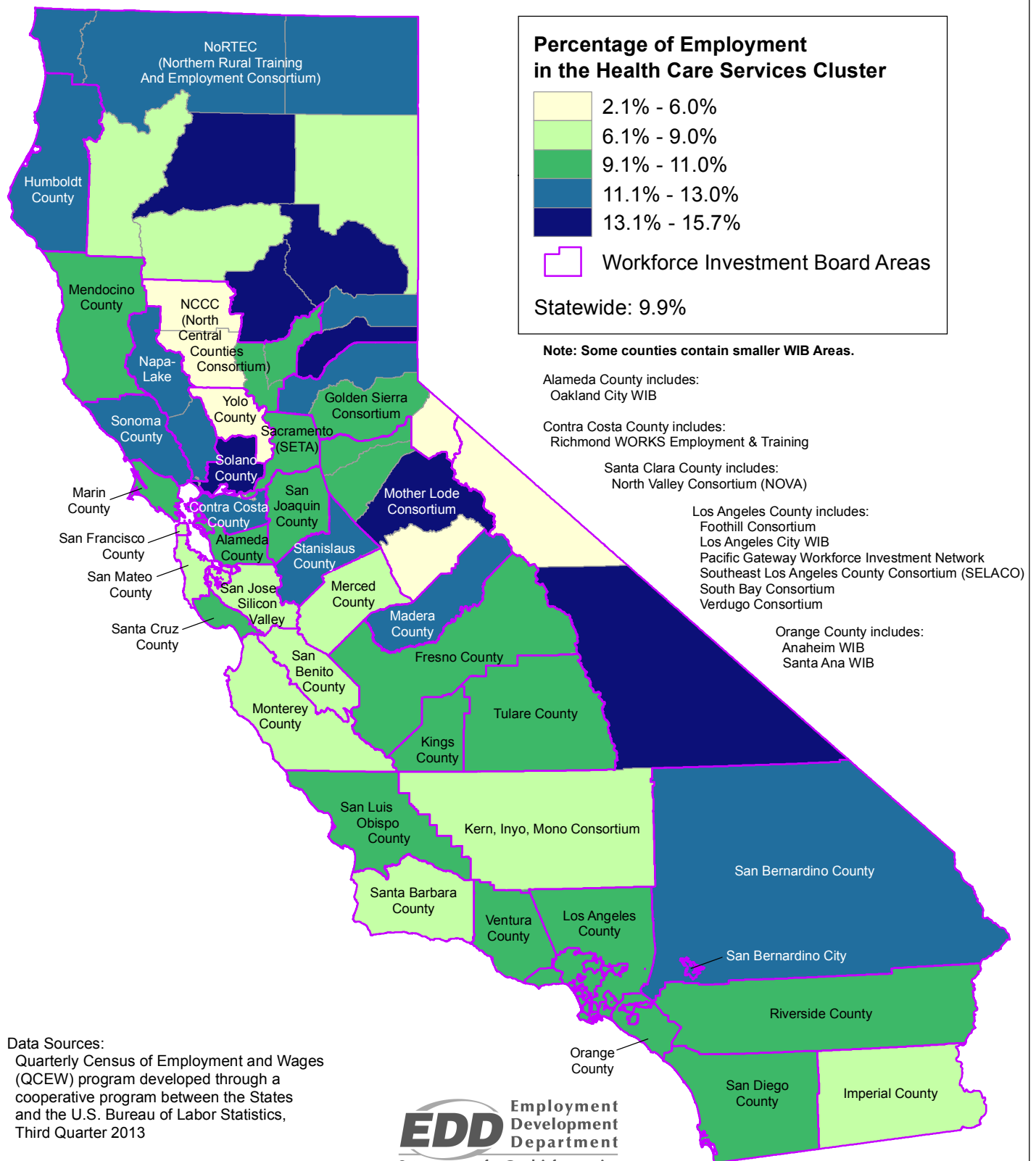
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California Health Care Services Cluster

Percentage of Total County Employment, 2013



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