

Regional Economic Analysis Profile

San Francisco Bay Area Region

June 2014



Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties



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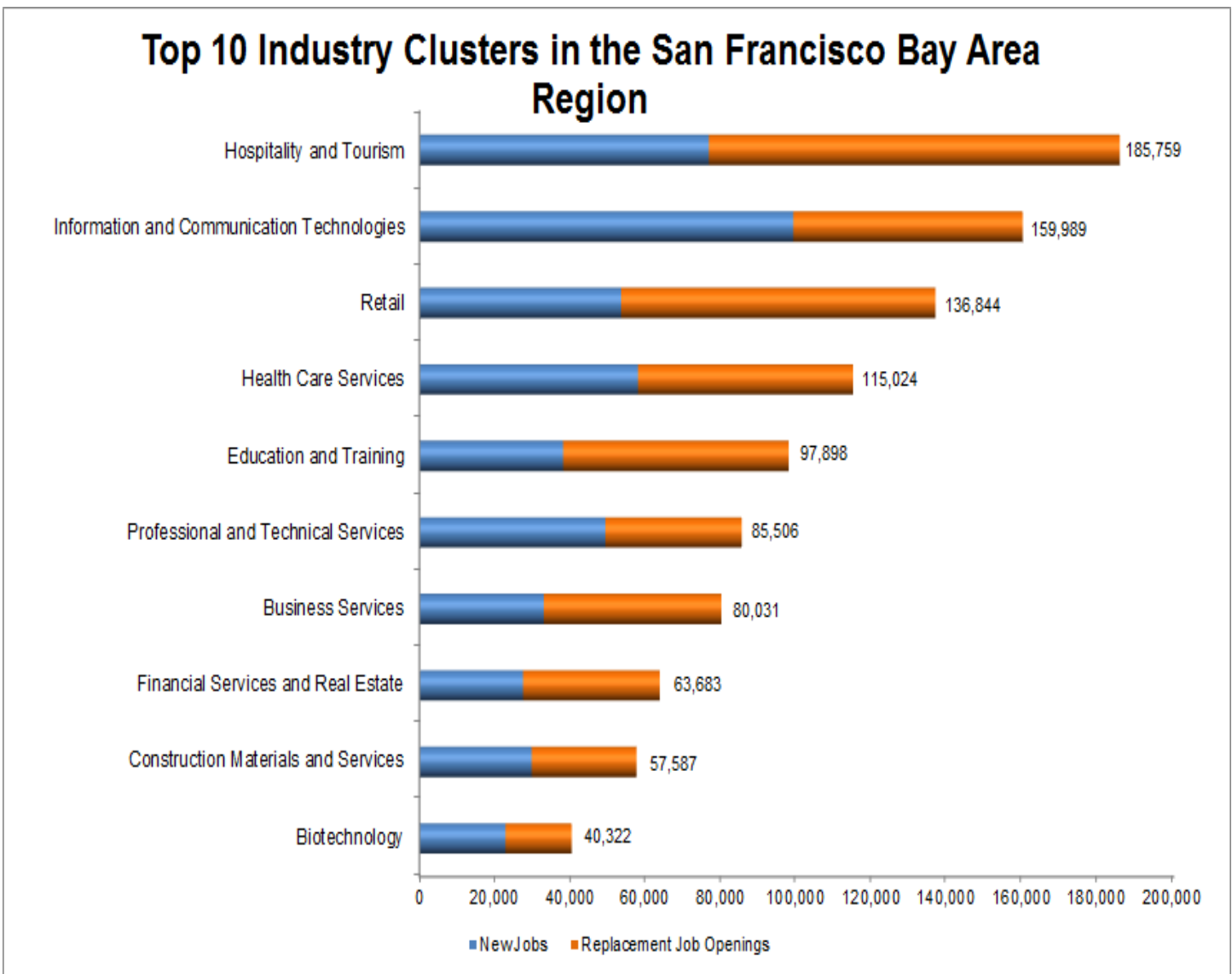
SUMMARY OF SAN FRANCISCO BAY AREA INDUSTRY CLUSTERS

What is an Industry Cluster?

Industry clusters are groups of associated industries in a region 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 regional economic growth and boost the number of employment opportunities for a regional 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 regional industry clusters. This report focuses on the future employment demand of regional 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 future job opportunities and help the California workforce development system prepare the state's workforce to compete for these future employment opportunities.



Source: California Employment Development Department, *Projections of Employment 2010-2020*. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

SUMMARY OF SAN FRANCISCO BAY AREA INDUSTRY CLUSTERS

The table below lists the estimated numbers of new jobs, replacement needs, and total job openings for the top 10 industry clusters in the region for the 2010-2020 projections period.

Top 10 Industry Clusters in the San Francisco Bay Area Region	New Jobs¹	Replacement Needs²	Total Job Openings³
Hospitality and Tourism	76,710	109,049	185,759
Information and Communication Technologies	99,160	60,829	159,989
Retail	53,430	83,414	136,844
Health Care Services	57,890	57,134	115,024
Education and Training	38,070	59,828	97,898
Professional and Technical Services	49,300	36,206	85,506
Business Services	32,960	47,071	80,031
Financial Services and Real Estate	27,490	36,193	63,683
Construction Materials and Services	29,740	27,847	57,587
Biotechnology	22,790	17,532	40,322

Source: California Employment Development Department, Projections of Employment 2010-2020.

¹ 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.

² Replacement needs estimate the number of job openings created when workers retire or permanently leave an occupation and need to be replaced.

³ Total job openings are the sum of new jobs and replacement needs.

INDUSTRY CLUSTER DESCRIPTIONS

The **Hospitality and Tourism** industry cluster includes interrelated industries such as eating establishments, hotels and motels, casinos, museums, and sightseeing transportation. For 2012-2013*, this cluster included more than 354,00 workers, or 10.6 percent of the region's total employment. Industries within this cluster that have 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 **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 2012-2013*, this cluster employed almost 363,000 workers, or 10.8 percent of the region's total employment. Industries with the highest number of expected job openings include:

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

The **Retail** industry cluster includes grocery and department stores, dollar stores, retail pharmacies, and clothing specialty stores. For 2012-2013*, this cluster employed more than 290,000 workers, or 8.7 percent of the region's total employment. Industries projected to have the largest number of jobs (new and replacement) include:

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

The **Health Care Services** industry cluster includes acute care and outpatient hospitals, nursing home and rehabilitation centers, adult day care centers, and community service agencies for the elderly. For 2012-2013*, this cluster employed nearly 281,000 workers, or 8.4 percent of the region's total employment. Top industries within this cluster include:

- General Medical and Surgical Hospitals (Public and Private)
- Outpatient Care Centers
- Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly
- Nursing Care Facilities (Skilled Nursing Facilities)
- Offices of Dentists

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. For 2012-2013*, this cluster comprised almost 88,000 workers, or 2.6 percent of the region's total employment. Top industries within this cluster include:

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

* Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period July 2012 through June 2013.

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. For 2012-2013*, this cluster comprised almost 185,000 workers, or 5.5 percent of the region's total employment. 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. For 2012-2013*, this cluster comprised more than 248,000 workers, or 7.4 percent of the region's total employment. Top industries in this cluster include:

- Employment Services
- Services to Buildings and Dwellings
- Management of Companies and Enterprises
- Investigation and Security Services
- Office Administrative 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. For 2012-2013*, this cluster employed almost 162,000 workers, or 4.8 percent of the region's total employment. Industries showing the highest projected job openings include:

- Depository Credit Intermediation
- Other Financial Investment Activities
- Agencies, Brokerages, and Other Insurance Related Activities
- Securities and Commodity Contracts Intermediation and Brokerage
- Activities Related to Real Estate

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. For 2012-2013*, this cluster comprised more than 152,000 workers, or 4.6 percent of the region's total employment. Top industries in this cluster include:

- Building Equipment Contractors
- Residential Building Construction
- Building Finishing Contractors
- Nonresidential Building Construction
- Other Specialty Trade Contractors

The **Biotechnology** industry cluster is comprised of establishments whose efforts result in the discovery, design, and manufacture of a wide range of products and processes including medicines, vaccines, and treatments; medical devices; plant-based packaging; cosmetics; biofuels; and agricultural products. For 2012-2013*, this cluster included close to 86,000, or 2.56 percent of the region's total employment. Top industries in this cluster include:

- Scientific Research and Development Services
- Pharmaceutical and Medicine Manufacturing
- Medical Equipment and Supplies Manufacturing

* Quarterly Census of Employment and Wages (QCEW), a federal-state cooperative program, for the period July 2012 through June 2013.

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.

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
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

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

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

Education and Training

6111	Elementary and Secondary Schools
6112	Junior Colleges
6113	Colleges, Universities, and Professional Schools

INDUSTRY CLUSTER DEFINITIONS

Education and Training (Continued)

- 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

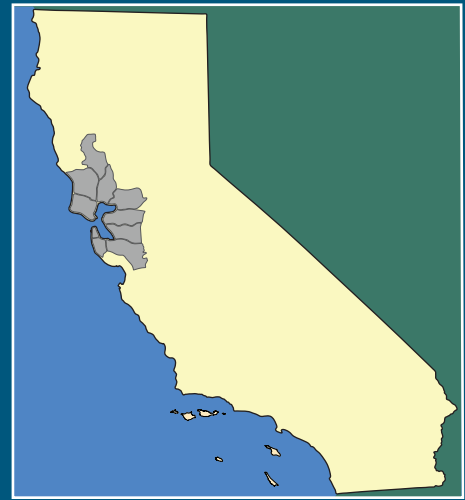
- 5511 Management of Companies and Enterprises
- 5611 Office Administrative Services
- 5612 Facilities Support Services
- 5613 Employment Services
- 5614 Business Support Services
- 5616 Investigation and Security Services
- 5617 Services to Buildings and Dwellings
- 5619 Other Support Services
- 5621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

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
- ## Biotechnology
- 3254 Pharmaceutical and Medicine Manufacturing
 - 3391 Medical Equipment and Supplies Manufacturing
 - 5417 Scientific Research and Development Services



Occupational Analysis: Hospitality and Tourism

San Francisco Bay Area Region

June 2014

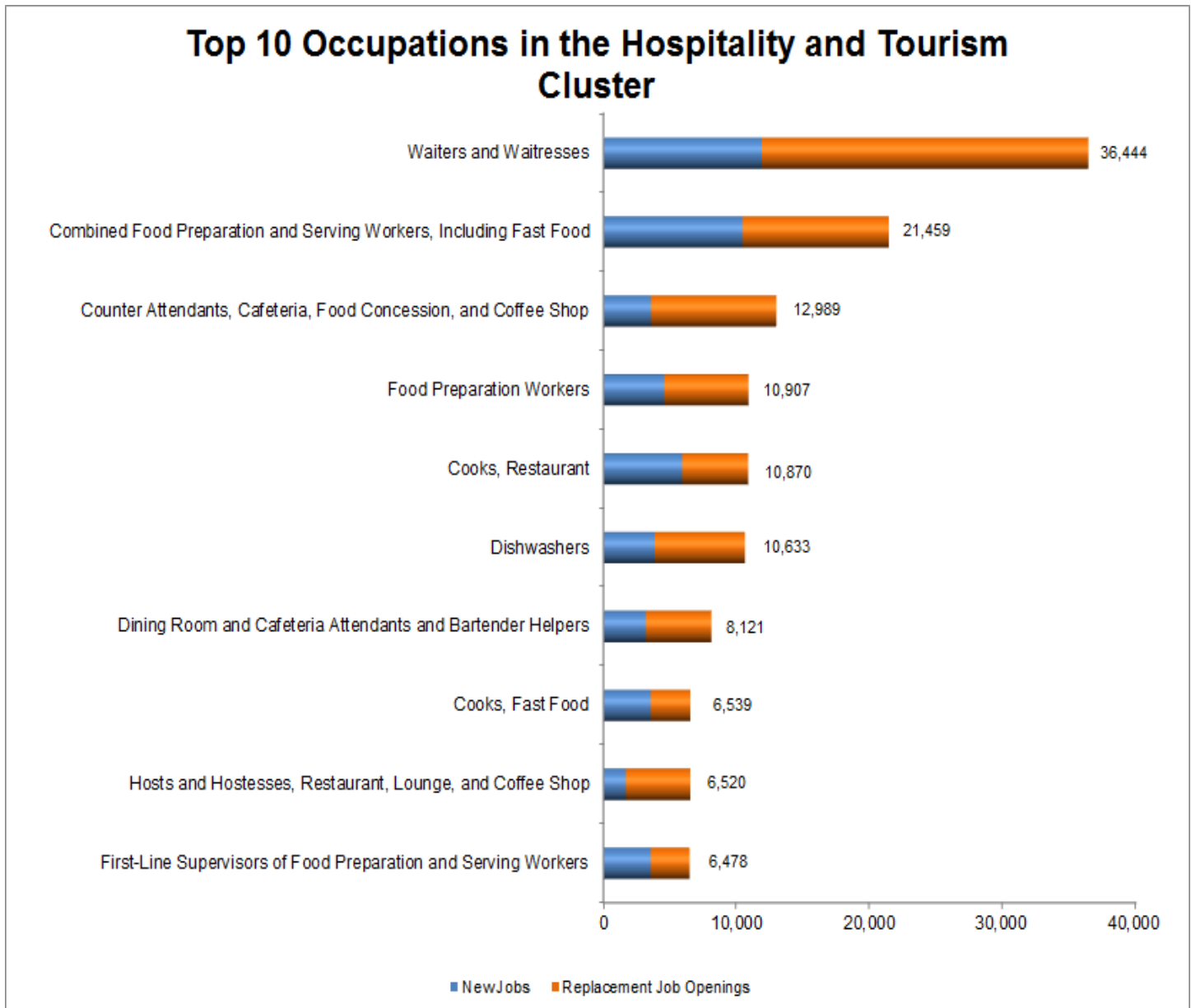
Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties

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, conventions, and transportation. 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 Hospitality and Tourism Cluster

The graph below identifies the top 10 occupations in the Hospitality and Tourism cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent more than two-thirds of the 185,759 total job openings projected in this cluster between 2010 and 2020. Moreover, many share the same required skills such as active listening, coordination, critical thinking, service orientation, social perception and speaking.⁴



Source: California Employment Development Department, *Projections of Employment 2010-2020*. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 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

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

The table below further profiles the top 10 occupations in the Hospitality and Tourism cluster by listing the total job openings for 2010-2020, 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 CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ⁵ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ⁶	HWOL Job Advertisements ⁷ (120 days)
Waiters and Waitresses	36,444	\$9.53	\$19,834	Less than high school	2,285
Combined Food Preparation and Serving Workers, Including Fast Food	21,459	\$9.71	\$20,201	Less than high school	2,314
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	12,989	\$10.11	\$21,025	Less than high school	652
Food Preparation Workers	10,907	\$10.35	\$21,533	Less than high school	706
Cooks, Restaurant	10,870	\$12.02	\$25,011	Less than high school	2,239
Dishwashers	10,633	\$9.53	\$19,821	Less than high school	906
Dining Room and Cafeteria Attendants and Bartender Helpers	8,121	\$9.36	\$19,466	Less than high school	529
Cooks, Fast Food	6,539	\$9.75	\$20,286	Less than high school	188
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	6,520	\$9.34	\$19,429	Less than high school	561
First-Line Supervisors of Food Preparation and Serving Workers	6,478	\$15.74	\$32,744	High school diploma or equivalent	6,308

Source: California Employment Development Department, *Projections of Employment 2010-2020*; *Occupational Employment Statistics Wage Survey*, updated to 1st Q, 2014; *The Conference Board Help Wanted OnLine™ (HWOL) Data Series*, 120-day period ending May 2, 2014.

⁵ Total job openings are the sum of new jobs and replacement needs.

⁶ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

⁷ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

Top Occupations for the Hospitality and Tourism by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Hospitality and Tourism cluster. The table includes the San Francisco Bay Area region'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 ⁸ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or Higher				
General and Operations Managers	833	\$58.47	\$121,612	3,714
Coaches and Scouts	782	NA	\$39,568	687
Meeting, Convention, and Event Planners	350	\$26.81	\$55,774	384
Accountants and Auditors	238	\$36.76	\$76,460	8,072
Recreation Workers	132	\$12.22	\$25,416	621
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Massage Therapists	168	\$18.39	\$38,254	484
Audio and Video Equipment Technicians	91	\$25.02	\$52,048	212
Skincare Specialists	33	\$17.94	\$37,302	323
Computer Support Specialists	23	\$30.85	\$64,162	5,163
Manicurists and Pedicurists	17	\$9.43	\$19,616	76
Requires a High School Diploma or Equivalent or Less				
Waiters and Waitresses	36,444	\$9.53	\$19,834	2,285
Combined Food Preparation and Serving Workers, Including Fast Food	21,459	\$9.71	\$20,201	2,314
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	12,989	\$10.11	\$21,025	652
Food Preparation Workers	10,907	\$10.35	\$21,533	706
Cooks, Restaurant	10,870	\$12.02	\$25,011	2,239

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 2, 2014.

⁸ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Hospitality and Tourism Cluster

The table below lists the top 10 skills required for the top Hospitality and Tourism cluster, categorized by entry-level education requirements. Active listening and critical thinking are the most commonly shared skills, followed by coordination, 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).

Occupation	Skills																							
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Instructing	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Mathematics	Monitoring	Negotiation	Operation Monitoring	Operations Analysis	Persuasion	Quality Control Analysis	Reading Comprehension	Service Orientation	Social Perceptiveness	Speaking	Systems Analysis	Systems Evaluation	Time Management	Writing
Requires a Bachelor's Degree or Higher																								
Accountants and Auditors ⁹	•	•			•		•			•	•						•			•	•			•
Coaches and Scouts		•		•	•	•			•		•								•	•			•	
General and Operations Managers	•	•		•	•				•		•							•		•	•			•
Meeting, Convention, and Event Planners		•		•	•						•	•		•				•	•		•			•
Recreation Workers		•		•	•	•			•		•							•	•	•	•			
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																								
Audio and Video Equipment Technicians	•	•		•	•	•					•		•					•			•			•
Computer Support Specialists ¹⁰	•	•		•	•	•					•							•	•		•			•
Manicurists and Pedicurists	•	•		•	•						•								•	•	•			•
Massage Therapists	•	•			•						•							•	•	•	•			•
Skincare Specialists	•	•	•	•	•						•							•	•		•			
Requires a High School Diploma or Equivalent or Less																								
Combined Food Preparation and Serving Workers, Including Fast Food		•		•	•	•		•	•									•	•	•				
Cooks, Restaurant	•	•		•	•	•					•						•			•				•
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop		•	•	•	•										•			•	•	•	•			•
Food Preparation Workers		•	•	•	•						•							•	•	•	•			•
Waiters and Waitresses		•		•	•	•		•			•				•			•	•					

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

⁹ Skills listed represent Accountants, a specialty occupation of Accountants and Auditors.

¹⁰ Skills listed represent Computer User Support Specialists, a new classification that replaces Computer Support Specialists.

Work Activities in the Hospitality and Tourism Cluster

The table below lists the top 10 work activities required for the 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; identifying objects, actions, and events; and organizing, planning, and prioritizing work.

Occupation	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	Handling and Moving Objects	Identifying Objects, Actions, and Events	Inspecting Equipment, Structures, or Material	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	Performing for or Working Directly with the Public	Performing General Physical Activities	Processing Information	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Selling or Influencing Others	Thinking Creatively	Training and Teaching Others	Updating and Using Relevant Knowledge
Requires a Bachelor's Degree or Higher																													
Accountants and Auditors ¹¹	•				•			•	•	•						•			•	•			•						•
Coaches and Scouts			•				•	•				•			•				•			•		•	•			•	
General and Operations Managers				•	•		•	•							•		•		•					•	•		•		
Meeting, Convention, and Event Planners				•	•			•		•	•								•		•			•	•				
Recreation Workers	•	•		•			•	•											•			•	•			•			
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																													
Audio and Video Equipment Technicians					•	•		•				•		•		•	•								•		•		•
Computer Support Specialists ¹²					•			•		•			•			•			•			•				•			•
Manicurists and Pedicurists		•		•				•			•						•		•						•		•		•
Massage Therapists		•		•				•			•					•			•			•	•			•			•
Skincare Specialists		•					•	•			•					•			•			•				•	•		•
Requires a High School Diploma or Equivalent or Less																													
Combined Food Preparation and Serving Workers, Including Fast Food			•		•		•	•		•	•										•			•				•	
Cooks, Restaurant					•		•	•			•	•				•		•	•			•						•	
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop					•		•	•		•	•					•					•			•		•		•	
Food Preparation Workers					•		•	•			•	•	•			•			•			•			•			•	
Waiters and Waitresses					•		•	•		•	•	•								•	•			•		•			•

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

¹¹ Work Activities listed represent Accountants, a specialty occupation of Accountants and Auditors.

¹² Work Activities listed represent Computer User Support Specialists, a new classification that replaces Computer Support Specialists.

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 for each provides a sample of related occupations. With additional preparation, these related occupations match 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"> Purchasing Managers Storage and Distribution Managers Logistics Managers
Coaches and Scouts	<ul style="list-style-type: none"> Training and Development Managers Health Educators Directors, Religious Activities and Education
Meeting, Convention, and Event Planners	<ul style="list-style-type: none"> Advertising and Promotions Managers Marketing Managers Public Relations and Fundraising Managers
Accountants and Auditors	<ul style="list-style-type: none"> Compensation, Benefits, and Job Analysis Specialists Credit Analysts Financial Analysts
Recreation Workers	<ul style="list-style-type: none"> Coaches and Scouts Recreational Therapists First-Line Supervisors of Personal Service Workers
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Massage Therapists	<ul style="list-style-type: none"> Skincare Specialists Tour Guides and Escorts Fitness Trainers and Aerobics Instructors
Audio and Video Equipment Technicians	<ul style="list-style-type: none"> Computer User Support Specialists Audio-Visual and Multimedia Collections Specialists Technical Directors/Managers
Skincare Specialists	<ul style="list-style-type: none"> Self-Enrichment Education Teachers Massage Therapists Dental Assistants
Computer Support Specialists	<ul style="list-style-type: none"> Web Administrators Electrical Engineering Technicians Audio-Visual and Multimedia Collections Specialists
Manicurists and Pedicurists	<ul style="list-style-type: none"> Massage Therapists Gaming Dealers Skincare Specialists
Requires a High School Diploma or Equivalent or Less	
Waiters and Waitresses	<ul style="list-style-type: none"> Dining Room and Cafeteria Attendants and Bartender Helpers Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop Counter Attendants, Cafeteria, Food Concession, and Coffee Shop
Combined Food Preparation and Serving Workers, Including Fast Food	<ul style="list-style-type: none"> Counter Attendants, Cafeteria, Food Concession, and Coffee Shop Waiters and Waitresses Food Servers, Nonrestaurant
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	<ul style="list-style-type: none"> Food Servers, Nonrestaurant Dining Room and Cafeteria Attendants and Bartender Helpers Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop
Food Preparation Workers	<ul style="list-style-type: none"> Food Servers, Nonrestaurant Dining Room and Cafeteria Attendants and Bartender Helpers Janitors and Cleaners, Except Maids and Housekeeping Cleaners
Cooks, Restaurant	<ul style="list-style-type: none"> Bakers Butchers and Meat Cutters Food Cooking Machine Operators and Tenders

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 region's employers in the Hospitality and Tourism cluster who posted the most job advertisements during the 120-day period ending June 3, 2014. 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 ¹³ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Marriott	603	809	-206	-25.5%
24 Hour Fitness	365	354	11	3.1%
Starbucks	360	103	257	249.5%
Hilton Hotels & Resorts	329	307	22	7.2%
Chipotle	193	24	169	704.2%
Med Travelers	162	138	24	17.4%
Pizza Hut	150	60	90	150.0%
Hyatt	145	203	-58	-28.6%
McDonald's Corporation	124	15	109	726.7%
Panda Express	113	7	106	1,514.3%
The Ritz-Carlton Hotel Company, L.L.C.	109	9	100	1,111.1%
Embassy Suites	104	90	14	15.6%
The Cheesecake Factory	102	13	89	684.6%
Jamba Juice Company	90	57	33	57.9%
Sodexo Inc.	85	83	2	2.4%
Hyatt Hotels	83	8	75	937.5%
Gold's Gym	75	0	75	N/A
Landry's Restaurants, Inc.	67	4	63	1,575.0%
Hotwire	59	1	58	5,800.0%
Wyndham International	58	24	34	141.7%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending June 3, 2014.

¹³ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Hospitality and Tourism Occupations

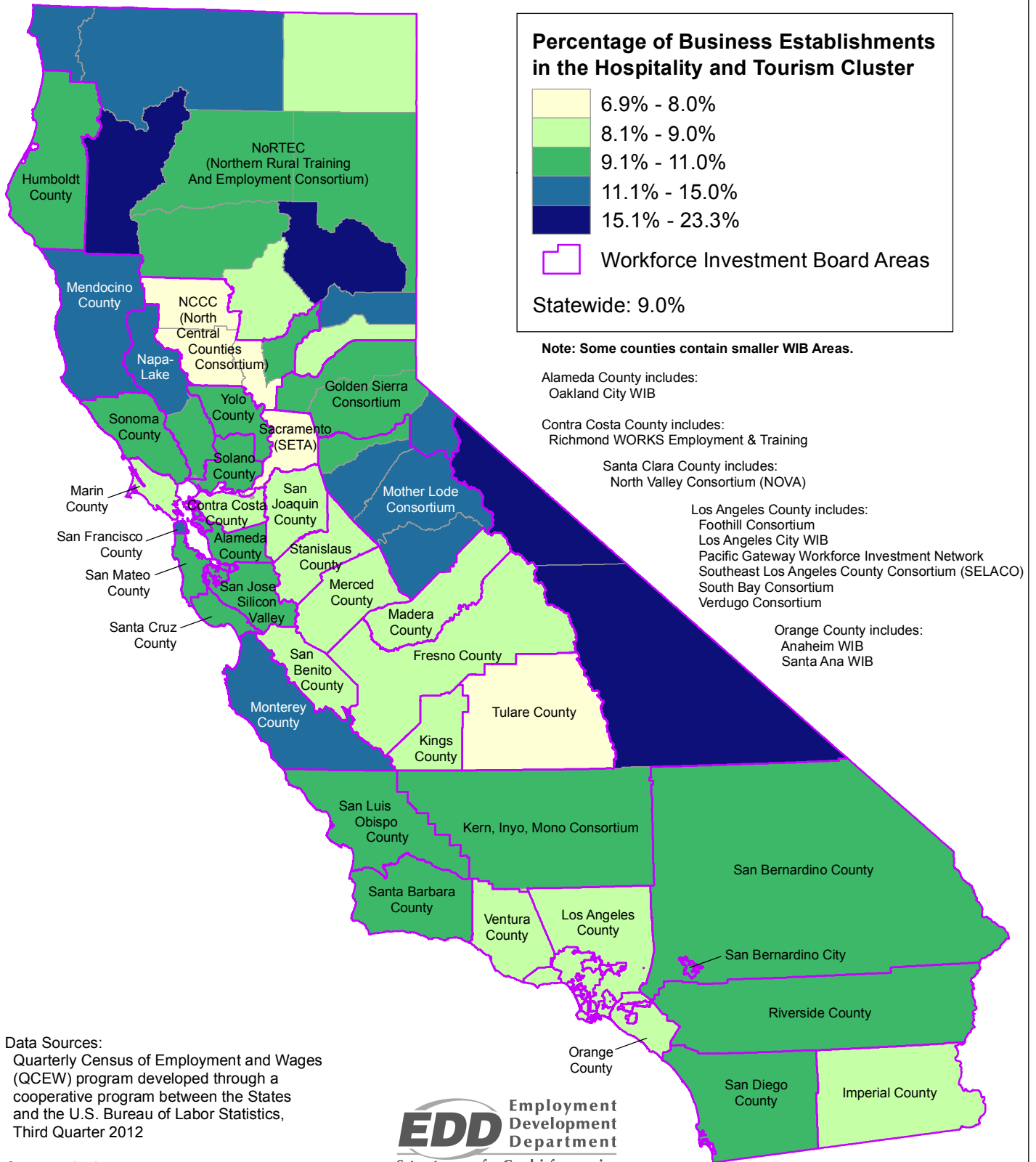
The table below provides examples of instructional programs related to top occupations in the Hospitality and Tourism cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Hospitality and Tourism 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.

Occupation	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Audio and Video Equipment Technicians	01.0802	Agricultural Communication/Journalism	N/A	N/A
	10.0201	Photographic and Film/Video Technology/Technician and Assistant		
Combined Food Preparation and Serving Workers, Including Fast Food	N/A	N/A	N/A	N/A
Computer Support Specialists	11.1006	Computer Support Specialist	N/A	N/A
	11.0201	Computer Programming/Programmer, General		
	11.0501	Computer Systems Analysis/Analyst		
Cooks, Restaurant	12.0500	Cooking and Related Culinary Arts, General	130630	Culinary Arts
	12.0503	Culinary Arts/Chef Training		
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	N/A	N/A	N/A	N/A
Food Preparation Workers	N/A	N/A	130630	Culinary Arts
Manicurists and Pedicurists	12.0401	Cosmetology/Cosmetologist, General	300700	Cosmetology and Barbering
	12.0410	Nail Technician/Specialist and Manicurist		
Massage Therapists	51.3502	Asian Bodywork Therapy	126200	Massage Therapy
	51.3503	Somatic Bodywork		
Skincare Specialists	12.0401	Cosmetology/Cosmetologist, General	300700	Cosmetology and Barbering
	12.0409	Aesthetician/Esthetician and Skin Care Specialist		
	12.0414	Master Aesthetician/Esthetician		
Waiters and Waitresses	N/A	N/A	N/A	N/A

Source: U.S. Department of Education [Integrated Postsecondary Education Data System \(IPEDS\)](http://www.ipeds.org) at www.nces.ed.gov; [California Community Colleges TOP-to-CIP Crosswalk 6th Edition \(2009\)](http://www.cccco.edu), www.cccco.edu

California Hospitality and Tourism Cluster

Percentage of Total County Establishments, 2012



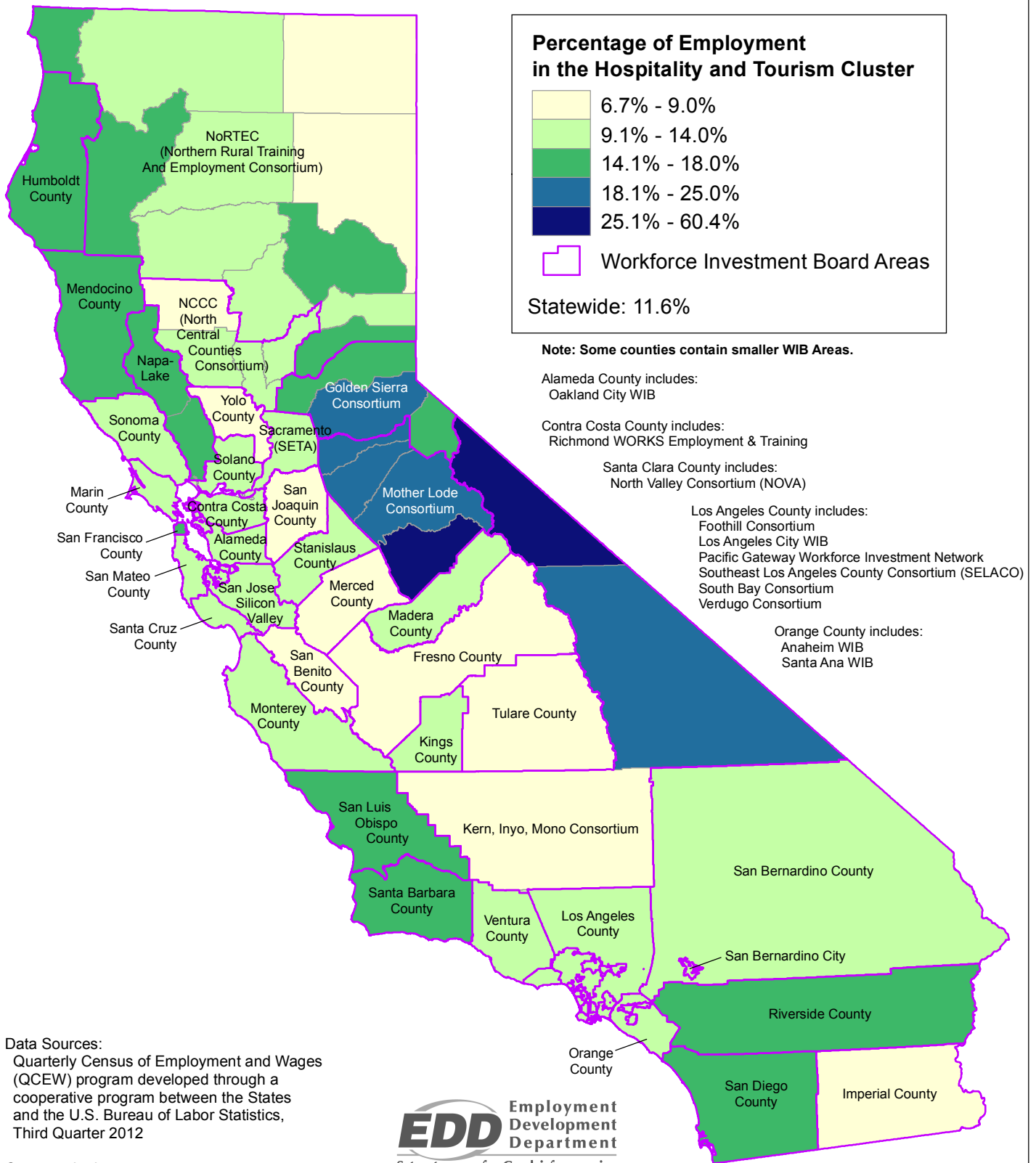
Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2012

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



California Hospitality and Tourism Cluster

Percentage of Total County Employment, 2012

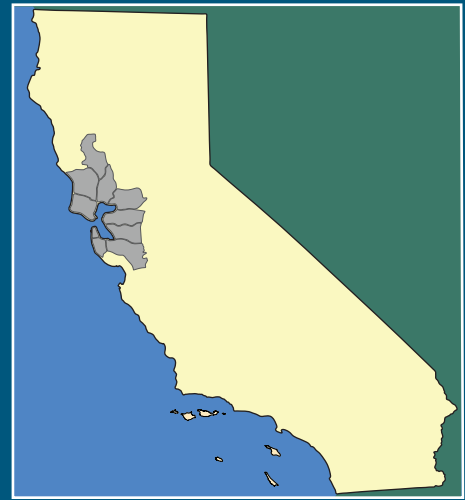


Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2012

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April 2014

EDD Employment Development Department
State of California

LaborMarketInfo



Occupational Analysis: Information and Communication Technologies

San Francisco Bay Area Region

June 2014

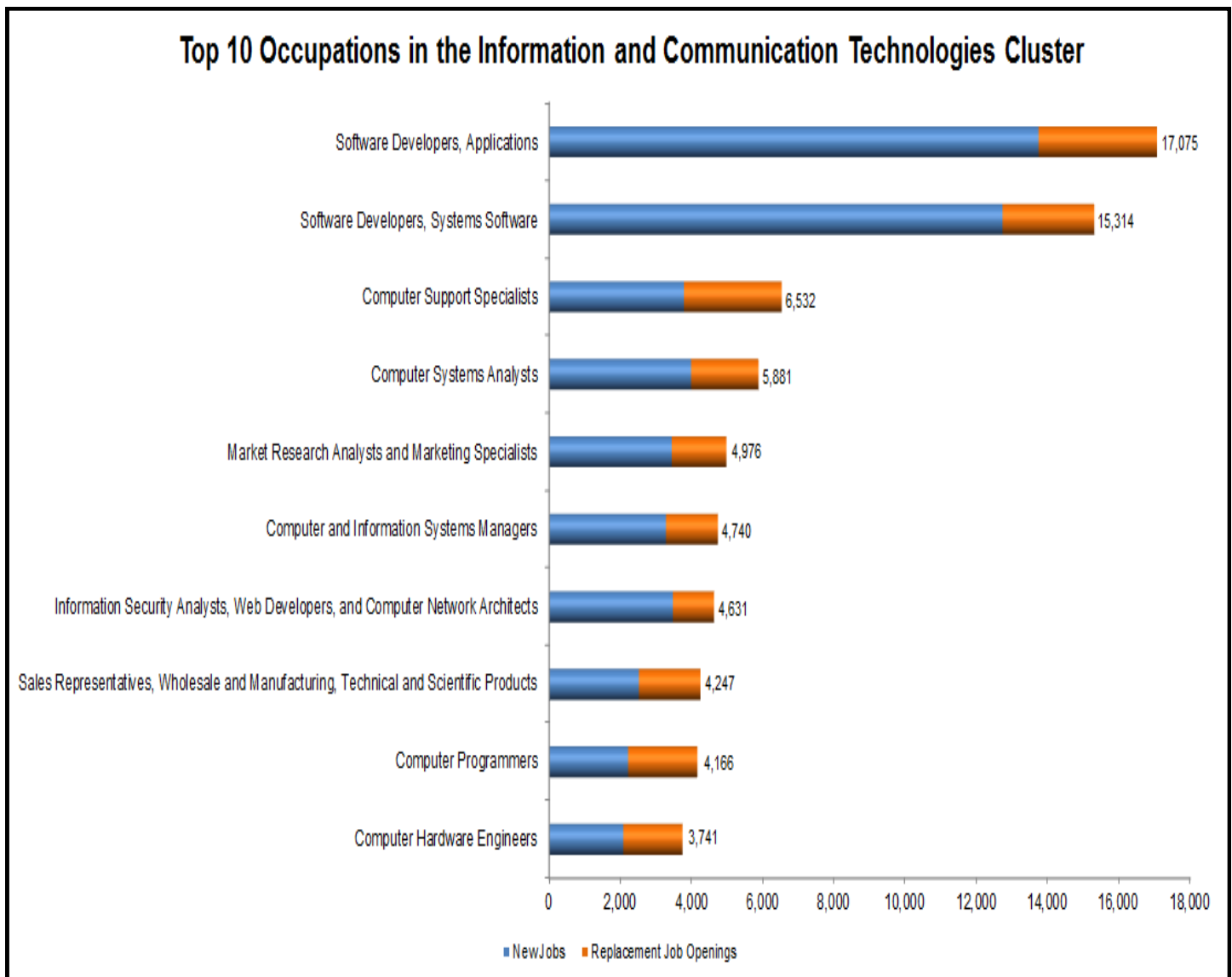
Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties

What is the Information and Communication 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 Communication Technologies Cluster

The graph below identifies the top 10 occupations in the Information and Communication Technologies cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent almost one-half of the 159,989 total job openings projected in this cluster between 2010 and 2020. Moreover, many share the same required skills such as critical thinking, active listening, reading comprehension, active learning, judgment and decision making, and writing.¹⁴



Source: California Employment Development Department, *Projections of Employment 2010-2020*. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 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

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

The table below further profiles the top 10 occupations in the Information and Communication Technologies cluster by listing the total job openings for 2010-2020, 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 CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ¹⁵ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ¹⁶	HWOL Job Advertisements ¹⁷ (120 days)
Software Developers, Applications	17,075	\$57.41	\$119,422	Bachelor's degree	24,492
Software Developers, Systems Software	15,314	\$60.53	\$125,914	Bachelor's degree	4,015
Computer Support Specialists	6,532	\$30.85	\$64,162	Some college, no degree	5,107
Computer Systems Analysts	5,881	\$48.21	\$100,271	Bachelor's degree	7,223
Market Research Analysts and Marketing Specialists	4,976	\$40.51	\$84,268	Bachelor's degree	4,880
Computer and Information Systems Managers	4,740	\$79.08	\$164,496	Bachelor's degree	3,262
Information Security Analysts, Web Developers, and Computer Network Architects ¹⁸	4,631	\$61.85	\$128,640	Bachelor's degree	14,105
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4,247	\$45.66	\$94,956	Bachelor's degree	3,099
Computer Programmers	4,166	\$44.19	\$91,922	Bachelor's degree	3,140
Computer Hardware Engineers	3,741	\$62.48	\$129,959	Bachelor's degree	1,512

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 28, 2014.

¹⁵ Total job openings are the sum of new jobs and replacement needs.

¹⁶ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

¹⁷ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

¹⁸ Wages for this occupation represent Computer Network Architects.

Top Occupations for the Information and Communication Technologies by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Information and Communication Technologies cluster. The table includes the San Francisco Bay Area region'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 ¹⁹ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or Higher				
Software Developers, Applications	17,075	\$57.41	\$119,422	24,492
Software Developers, Systems Software	15,314	\$60.53	\$125,914	4,015
Computer Systems Analysts	5,881	\$48.21	\$100,271	7,223
Market Research Analysts and Marketing Specialists	4,976	\$40.51	\$84,268	4,880
Computer and Information Systems Managers	4,740	\$79.08	\$164,496	3,262
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Computer Support Specialists	6,532	\$30.85	\$64,162	5,107
Telecommunications Equipment Installers and Repairers, Except Line Installers	1,370	\$32.23	\$67,041	436
Electrical and Electronics Engineering Technicians	863	\$30.65	\$63,754	708
Semiconductor Processors	565	\$17.45	\$36,298	26
Computer, Automated Teller, and Office Machine Repairers	561	\$20.75	\$43,157	26
Requires a High School Diploma or Equivalent or Less				
Customer Service Representatives	2,985	\$20.07	\$41,747	6,003
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,023	\$28.44	\$59,163	3,752
Inspectors, Testers, Sorters, Samplers, and Weighers	1,696	\$20.31	\$42,237	499
Executive Secretaries and Executive Administrative Assistants	1,683	\$31.28	\$65,056	6,902
Electrical and Electronic Equipment Assemblers	1,633	\$16.82	\$34,985	292

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 28, 2014.

¹⁹ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Information and Communication Technologies Cluster

The table below lists the top 10 skills required for the top Information and Communication Technologies cluster, categorized by entry-level education requirements. Critical thinking and reading comprehension are the most commonly shared skills, followed by active listening 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).

Occupation	Skills																									
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Instructing	Judgment and Decision Making	Mathematics	Monitoring	Negotiation	Operation and Control	Operation Monitoring	Persuasion	Programming	Quality Control Analysis	Reading Comprehension	Repairing	Service Orientation	Social Perceptiveness	Speaking	Systems Analysis	Systems Evaluation	Time Management	Troubleshooting	Writing
Requires a Bachelor's Degree or Higher																										
Computer and Information Systems Managers	•	•	•		•		•			•						•					•		•			•
Computer Systems Analysts	•	•			•		•								•	•	•					•	•		•	
Market Research Analysts and Marketing Specialists	•	•	•		•		•										•				•	•	•			•
Software Developers, Applications		•	•		•		•	•							•		•					•	•		•	
Software Developers, Systems Software	•	•	•		•		•	•	•								•				•					•
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																										
Computer Support Specialists ²⁰	•	•		•	•		•			•						•			•		•					•
Computer, Automated Teller, and Office Machine Repairers	•	•		•	•					•		•	•				•	•							•	
Electrical and Electronics Engineering Technicians ²¹	•	•	•	•	•					•		•				•	•									•
Semiconductor Processors		•			•	•		•		•		•	•			•	•				•					
Telecommunications Equipment Installers and Repairers, Except Line Installers	•	•	•		•					•		•				•	•	•							•	
Requires a High School Diploma or Equivalent or Less																										
Customer Service Representatives		•	•	•	•					•				•			•		•	•	•					
Electrical and Electronic Equipment Assemblers	•	•		•	•					•		•	•				•				•			•		
Executive Secretaries and Executive Administrative Assistants		•		•	•					•							•		•	•	•			•		•
Inspectors, Testers, Sorters, Samplers, and Weighers		•		•	•		•			•		•				•	•				•					•
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	•	•			•		•				•					•			•	•	•					

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

²⁰ Skills listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

²¹ Skills listed represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technician.

Work Activities in the Information and Communication Technologies Cluster

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

Occupation	Work Activities																																
	Analyzing Data or Information	Coaching and Developing Others	Communicating with Persons Outside Organization	Communicating with Supervisors, Peers, or Subordinates	Controlling Machines and Processes	Developing and Building Teams	Developing Objectives and Strategies	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	Interacting With Computers	Judging the Qualities of Things, Services, or People	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	Repairing and Maintaining Mechanical Equipment	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Selling or Influencing Others	Thinking Creatively	Updating and Using Relevant Knowledge	
Requires a Bachelor's Degree or Higher																																	
Computer and Information Systems Managers	•	•				•			•		•	•				•		•													•	•	
Computer Systems Analysts				•					•	•						•		•		•			•						•		•	•	
Market Research Analysts and Marketing Specialists	•		•	•					•		•			•				•		•				•								•	
Software Developers, Applications	•			•							•			•		•		•		•				•							•	•	
Software Developers, Systems Software	•			•							•			•		•		•		•				•	•						•	•	
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																																	
Computer Support Specialists ²²				•					•		•			•		•		•		•				•						•	•		
Computer, Automated Teller, and Office Machine Repairers				•					•				•		•		•		•					•		•					•	•	
Electrical and Electronics Engineering Technicians ²³				•					•	•			•	•				•		•				•			•				•	•	
Semiconductor Processors				•	•				•	•			•	•				•	•				•								•	•	
Telecommunications Equipment Installers and Repairers, Except Line Installers			•						•				•					•	•				•	•			•				•	•	
Requires a High School Diploma or Equivalent or Less																																	
Customer Service Representatives			•	•					•		•			•				•		•				•				•			•	•	
Electrical and Electronic Equipment Assemblers				•	•		•		•		•		•					•	•	•												•	•
Executive Secretaries and Executive Administrative Assistants			•	•				•	•		•			•				•	•		•											•	•
Inspectors, Testers, Sorters, Samplers, and Weighers				•					•		•		•	•	•		•		•				•									•	•
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products			•	•					•									•		•				•				•		•	•	•	•

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

²² Work activities listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

²³ Work Activities listed represent Electrical Engineering Technicians, a specialty occupation of Electrical and Electronics Engineering Technician.

Related Occupations for the Information and Communication Technologies Cluster

The table below lists top occupations in the Information and Communication Technologies cluster by entry-level education requirements, and for each provides a sample of related occupations. With additional preparation, these related occupations match the skills, education, and work experience needed for the top Information and Communication Technologies cluster occupations.

Information and Communication Technologies Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Computer and Information Systems Managers	<ul style="list-style-type: none"> • Computer Systems Engineers/Architects • Logistics Engineers • Software Developers, Systems Software
Computer Systems Analysts	<ul style="list-style-type: none"> • Software Developers, Systems Software • Information Security Analysts • Computer Programmers
Market Research Analysts and Marketing Specialists	<ul style="list-style-type: none"> • Risk Management Specialists • Regulatory Affairs Specialists • Financial Analysts
Software Developers, Applications	<ul style="list-style-type: none"> • Computer Systems Analysts • Information Security Analysts • Software Developers, Systems Software
Software Developers, Systems Software	<ul style="list-style-type: none"> • Computer Systems Analysts • Geographic Information Systems Technicians • Computer Systems Engineers/Architects
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Computer Support Specialists	<ul style="list-style-type: none"> • Web Administrators • Electrical Engineering Technicians • Audio-Visual and Multimedia Collections Specialists
Computer, Automated Teller, and Office Machine Repairers	<ul style="list-style-type: none"> • Computer User Support Specialists • Audio and Video Equipment Technicians • Security and Fire Alarm Systems Installers
Electrical and Electronic Engineering Technicians	<ul style="list-style-type: none"> • Computer User Support Specialists • Manufacturing Production Technicians • Medical Equipment Repairers
Semiconductor Processors	<ul style="list-style-type: none"> • Solderers and Brazers • Engine and Other Machine Assemblers • Print Binding and Finishing Workers
Telecommunications Equipment Installers and Repairers, Except Line Installers	<ul style="list-style-type: none"> • Electricians • Heating and Air Conditioning Mechanics and Installers • Telecommunications Line Installers and Repairers
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
Electrical and Electronic Equipment Assemblers	<ul style="list-style-type: none"> • Solderers and Brazers • Team Assemblers • Inspectors, Testers, Sorters, Samplers, and Weighers
Executive Secretaries and Executive Administrative Assistants	<ul style="list-style-type: none"> • Bookkeeping, Accounting, and Auditing Clerks • Secretaries and Administrative Assistants, Except Legal, Medical, and Executive • Paralegals and Legal Assistants
Inspectors, Testers, Sorters, Samplers, and Weighers	<ul style="list-style-type: none"> • Shipping, Receiving, and Traffic Clerks • Team Assemblers • Solderers and Brazers
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	<ul style="list-style-type: none"> • Retail Salespersons • Property, Real Estate, and Community Association Managers • Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products

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 Communication Technologies Cluster

The following table lists the region's employers in the Information and Communication Technologies cluster who posted the most job advertisements during the 120-day period ending May 28, 2014. 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 Communication Technologies Cluster Employers	Recent Job Advertisements ²⁴ (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Google Inc.	1,968	1,377	591	42.9%
VMware	1,045	995	50	5.0%
Collabera	847	551	296	53.7%
Hewlett-Packard Company	745	1,135	-390	-34.4%
Intel	660	1,117	-457	-40.9%
TEKsystems	656	710	-54	-7.6%
Verizon	651	198	453	228.8%
Modis	640	980	-340	-34.7%
Salesforce.com	613	785	-172	-21.9%
Facebook	603	599	4	0.7%
Broadcom	590	743	-153	-20.6%
Apple Inc.	563	760	-197	-25.9%
Cisco	440	1,345	-905	-67.3%
Walmart	440	147	293	199.3%
Oracle Corporation	424	628	-204	-32.5%
Microsoft	403	592	-189	-31.9%
PayPal	399	377	22	5.8%
Nvidia Corporation	394	824	-430	-52.2%
Intuit Inc.	387	563	-176	-31.3%
Autodesk, Inc.	375	226	149	65.9%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending May 28, 2014.

²⁴ Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Information and Communication Technologies Occupations

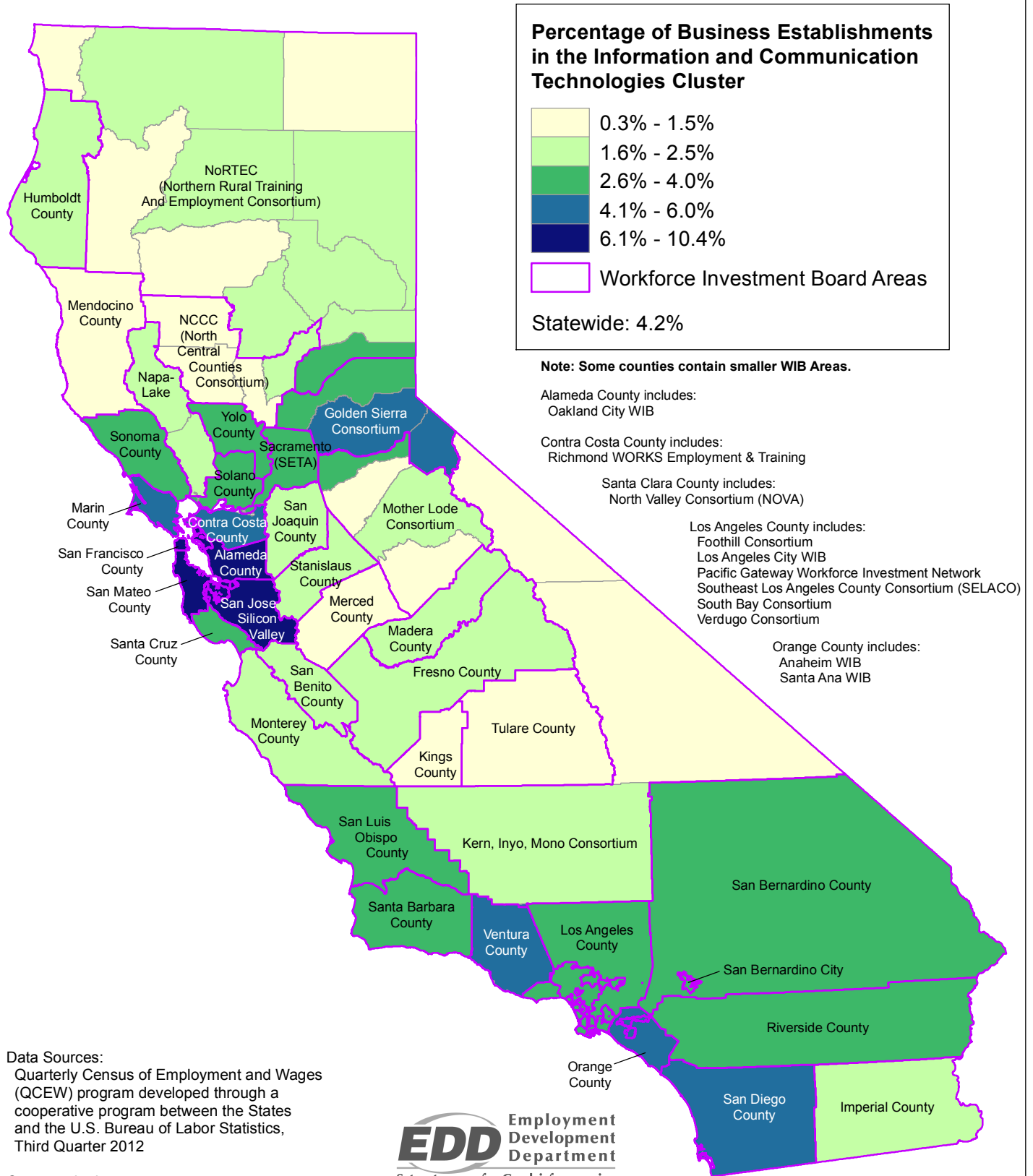
The table below provides examples of instructional programs related to top occupations in the Information and Communication Technologies cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Information and Communication 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.

Occupation	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Computer Support Specialists	11.1006	Computer Support Specialist	N/A	N/A
	51.0709	Medical Office Computer Specialist/Assistant		
	01.0106	Agricultural Business Technology		
Computer, Automated Teller, and Office Machine Repairers	47.0104	Computer Installation and Repair Technology/Technician	093410	Computer Electronics
	47.0102	Business Machine Repair		
Customer Service Representatives	52.0411	Customer Service Support/Call Center/Teleservice Operation	051800	Customer Service
	52.0406	Receptionist		
Electrical and Electronic Equipment Assemblers	N/A	N/A	093420	Industrial Electronics
			093430	Telecommunications Technology
Electrical and Electronic Engineering Technicians	15.0305	Telecommunications Technology/Technician	N/A	N/A
	15.0306	Integrated Circuit Design		
	15.0303	Electrical, Electronic and Communications Engineering Technology/Technician		
Executive Secretaries and Executive Administrative Assistants	52.0401	Administrative Assistant and Secretarial Science, General	051400	Office Technology/Office Computer Applications
	52.0402	Executive Assistant/Executive Secretary	051420	Medical Office Technology
Inspectors, Testers, Sorters, Samplers, and Weighers	15.0702	Quality Control Technology/Technician	095680	Industrial Quality Control
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	52.1801	Sales, Distribution, and Marketing Operations, General	050900	Marketing and Distribution
	52.1909	Special Products Marketing Operations	050960	Display
	52.1902	Fashion Merchandising	59900	Other Business and Management
Semiconductor Processors	47.0105	Industrial Electronics Technology/Technician	093420	Industrial Electronics
	15.0616	Semiconductor Manufacturing Technology		
Telecommunications Equipment Installers and Repairers, Except Line Installers	47.0103	Communications Systems Installation and Repair Technology	093430	Telecommunications Technology

Source: U.S. Department of Education [Integrated Postsecondary Education Data System \(IPEDS\)](http://www.nces.ed.gov) at www.nces.ed.gov; [California Community Colleges TOP-to-CIP Crosswalk](http://www.cccco.edu) 6th Edition (2009), www.cccco.edu

California Information and Communication Technologies Cluster

Percentage of Total County Establishments, 2012



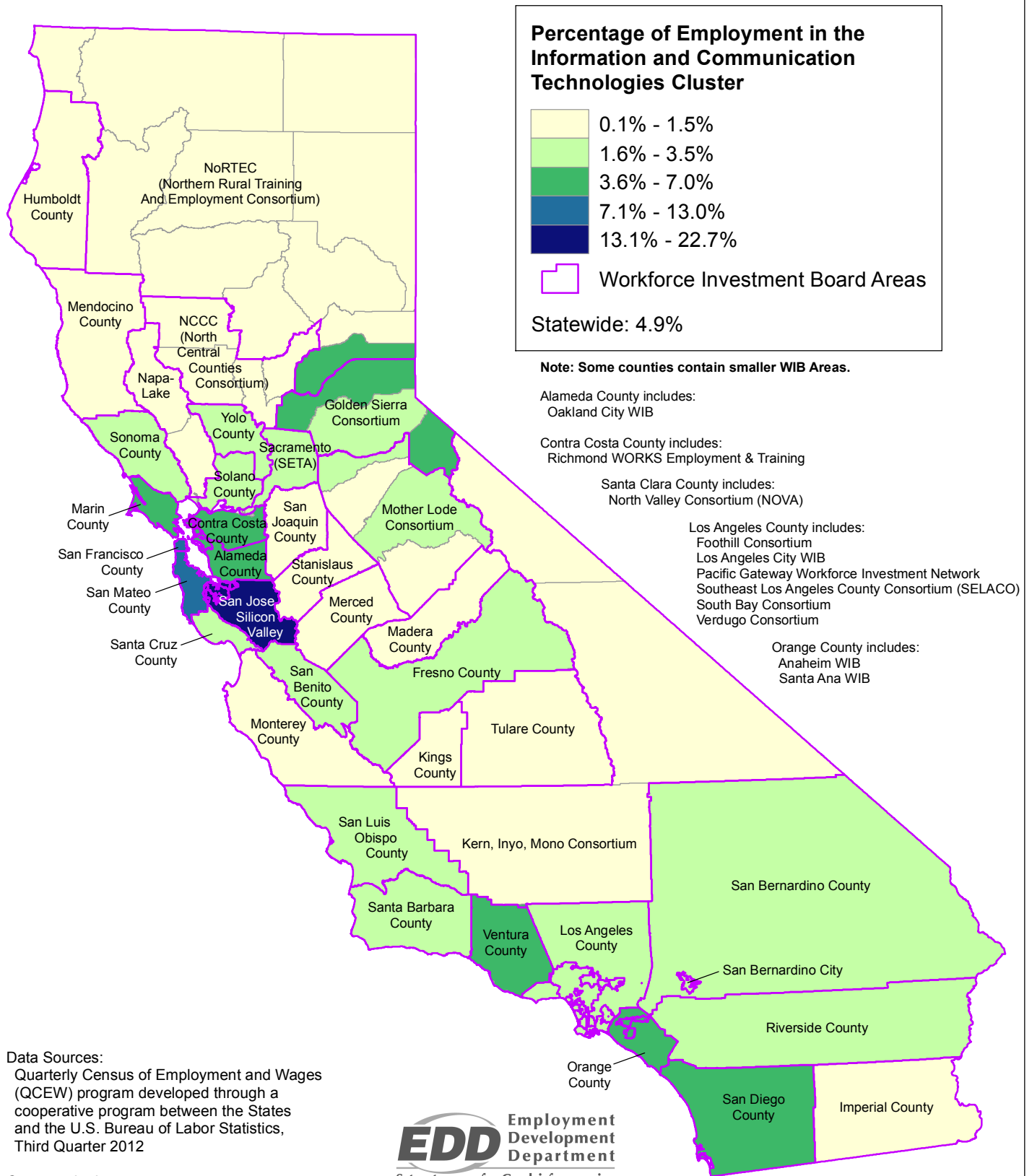
Data Sources:
Quarterly Census of Employment and Wages (QCEW) program developed through a cooperative program between the States and the U.S. Bureau of Labor Statistics, Third Quarter 2012

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Labor Market Information Division
California Employment Development Department
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May 2014



California Information and Communication Technologies Cluster

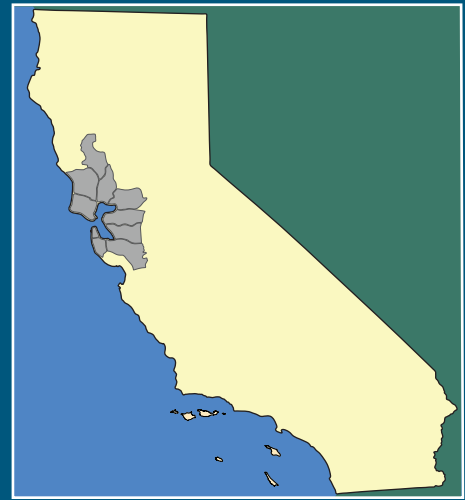
Percentage of Total County Employment, 2012



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May 2014





Occupational Analysis: Retail

San Francisco Bay Area Region
June 2014

Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties

What is the Retail Cluster?

The Retail cluster is comprised of 19 industries involved in the sales of goods both familiar and esoteric, everything from groceries and automobiles to musical instruments and surfboards. 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 Retail Cluster

The graph below identifies the top 10 occupations in the Retail cluster, based on the region's new job growth plus replacement openings. In sum, these 10 occupations represent more than three-quarters of the 136,844 job openings projected in this cluster between 2010 and 2020. The top common skills required for these occupations include listening, coordination, critical thinking and reading comprehension.²⁵



Source: California Employment Development Department, *Projections of Employment 2010-2020*. Industry and occupational employment projections for 2010-2020 in this report may not be directly comparable to the published 2010-2020 employment projections available online at www.labormarketinfo.edd.ca.gov.

²⁵ U.S. Department of Labor's [Occupational Information Network \(O*NET\)](http://www.onetonline.org) at www.onetonline.org

Top 10 Occupations and Recent Job Demand in the Retail Cluster

The table below further profiles the top 10 occupations in the Retail cluster by listing the total job openings for 2010-2020, 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 CalJOBSSM (www.caljobs.ca.gov), California's online job listing system.

Occupations	Total Job Openings ²⁶ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	Entry Level Education ²⁷	HWOL Job Advertisements ²⁸ (120 days)
Retail Salespersons	37,559	\$11.52	\$23,969	Less than high school	8,617
Cashiers	35,316	\$11.14	\$23,158	Less than high school	1,042
Stock Clerks and Order Fillers	9,090	\$12.77	\$26,566	Less than high school	2,172
First-Line Supervisors of Retail Sales Workers	8,620	\$20.67	\$43,000	High school diploma or equivalent	7,093
Combined Food Preparation and Serving Workers, Including Fast Food	3,399	\$9.71	\$20,201	Less than high school	2,368
Laborers and Freight, Stock, and Material Movers, Hand	2,899	\$13.56	\$28,197	Less than high school	869
Packers and Packagers, Hand	2,590	\$10.53	\$21,893	Less than high school	58
Butchers and Meat Cutters	2,055	\$16.25	\$33,813	Less than high school	33
Customer Service Representatives	1,945	\$20.07	\$41,747	High school diploma or equivalent	6,146
Pharmacy Technicians	1,880	\$21.92	\$45,595	High school diploma or equivalent	402

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 6, 2014.

²⁶ Total job openings are the sum of new jobs and replacement needs.

²⁷ U.S. Department of Labor, Bureau of Labor Statistics (BLS) 2012 education levels.

²⁸ Totals represent job advertisements from employers in all industries. One job opening may be represented in more than one job advertisement.

Top Occupations for the Retail by Education Level

The table below identifies the occupations with the most total job openings, categorized by Bureau of Labor Statistics 2012 entry-level education requirements, within the Retail cluster. The table includes the San Francisco Bay Area region'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 ²⁹ (2010-2020)	Median Hourly Wage (2014)	Median Annual Wage (2014)	HWOL Job Advertisements (120 days)
Requires a Bachelor's Degree or Higher				
Pharmacists	1,496	\$66.50	\$138,318	390
Sales Managers	1,146	\$69.67	\$144,923	4,752
General and Operations Managers	1,067	\$58.47	\$121,612	3,764
Interior Designers	175	\$32.05	\$66,660	349
Cost Estimators	169	\$34.96	\$72,730	508
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree				
Computer, Automated Teller, and Office Machine Repairers	325	\$20.75	\$43,157	34
Computer Support Specialists	293	\$30.85	\$64,162	5,134
Electronic Equipment Installers and Repairers, Motor Vehicles	168	\$14.78	\$30,749	20
Electronic Home Entertainment Equipment Installers and Repairers	154	\$16.14	\$33,579	90
First-Line Supervisors of Production and Operating Workers	154	\$30.78	\$64,016	2,248
Requires a High School Diploma or Equivalent or Less				
Retail Salespersons	37,559	\$11.52	\$23,969	8,617
Cashiers	35,316	\$11.14	\$23,158	1,042
Stock Clerks and Order Fillers	9,090	\$12.77	\$26,566	2,172
First-Line Supervisors of Retail Sales Workers	8,620	\$20.67	\$43,000	7,093
Combined Food Preparation and Serving Workers, Including Fast Food	3,399	\$9.71	\$20,201	2,368

Source: California Employment Development Department, Projections of Employment 2010-2020; Occupational Employment Statistics Wage Survey, updated to 1st Q, 2014; The Conference Board Help Wanted OnLine™ (HWOL) Data Series, 120-day period ending May 6, 2014.

²⁹ Total job openings are the sum of new jobs and replacement needs.

Skill Requirements in the Retail Cluster

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

Occupation	Skills																											
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Installation	Instructing	Judgment and Decision Making	Learning Strategies	Management of Financial Resources	Management of Personnel Resources	Mathematics	Monitoring	Negotiation	Operation and Control	Operation Monitoring	Persuasion	Quality Control Analysis	Reading Comprehension	Repairing	Science	Service Orientation	Social Perceptiveness	Speaking	Time Management	Troubleshooting	Writing
Requires a Bachelor's Degree or Higher																												
Cost Estimators	•	•	•		•						•		•	•						•					•			•
General and Operations Managers	•	•		•	•						•			•						•				•	•			•
Interior Designers		•	•	•	•										•			•		•			•		•			•
Pharmacists	•	•			•			•	•					•						•		•			•			•
Sales Managers			•	•	•				•			•		•				•						•	•	•		
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																												
Computer Support Specialists ²⁹	•	•		•	•			•						•						•			•		•			•
Computer, Automated Teller, and Office Machine Repairers	•	•		•	•									•		•	•			•	•						•	
Electronic Equipment Installers and Repairers, Motor Vehicles		•	•		•	•	•									•				•	•				•		•	
Electronic Home Entertainment Equipment Installers and Repairers	•	•	•		•	•													•	•	•		•				•	
First-Line Supervisors of Production and Operating Workers		•	•	•	•						•									•				•	•	•		•
Requires a High School Diploma or Equivalent or Less																												
Cashiers		•		•	•									•						•			•	•	•	•		•
Combined Food Preparation and Serving Workers, Including Fast Food		•		•	•			•	•	•		•											•	•	•			
First-Line Supervisors of Retail Sales Workers					•			•			•		•	•			•		•				•	•	•	•		
Retail Salespersons		•		•	•									•	•			•		•			•	•	•			
Stock Clerks-Stockroom, Warehouse, or Storage Yard		•	•	•	•			•							•			•					•		•	•		

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

³⁰ Skills listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

Work Activities in the Retail Cluster

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

Occupation	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	Documenting/Recording Information	Drafting, Laying Out, and Specifying Technical Devices, Parts, and Equipment	Establishing and Maintaining Interpersonal Relationships	Estimating the Quantifiable Characteristics of Products, Events, or Information	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	Monitoring and Controlling Resources	Organizing, Planning, and Prioritizing Work	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	Repairing and Maintaining Mechanical Equipment	Resolving Conflicts and Negotiating with Others	Scheduling Work and Activities	Selling or Influencing Others	Thinking Creatively	Training and Teaching Others	Updating and Using Relevant Knowledge		
Requires a Bachelor's Degree or Higher																																			
Cost Estimators	•				•		•				•		•					•			•		•		•									•	
General and Operations Managers				•	•		•			•									•		•							•	•						
Interior Designers				•			•		•	•			•								•									•	•			•	
Pharmacists	•	•								•						•			•		•	•		•										•	
Sales Managers			•	•	•		•			•				•					•		•							•	•						
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree																																			
Computer Support Specialist ³⁰					•					•			•			•					•		•									•		•	
Computer, Automated Teller, and Office Machine Repairers					•					•					•	•					•					•	•							•	•
Electronic Equipment Installers and Repairers, Motor Vehicles						•				•				•					•			•				•								•	•
Electronic Home Entertainment Equipment Installers and Repairers										•				•	•				•			•				•								•	•
First-Line Supervisors of Production and Operating Workers			•		•	•	•			•				•	•										•			•	•						
Requires a High School Diploma or Equivalent or Less																																			
Cashiers				•	•					•			•	•							•	•					•	•							
Combined Food Preparation and Serving Workers, Including Fast Food			•		•		•			•			•	•							•						•								•
First-Line Supervisors of Retail Sales Workers			•		•					•			•	•							•	•					•	•							
Retail Salespersons				•	•					•				•	•						•	•							•	•					•
Stock Clerks- Stockroom, Warehouse, or Storage Yard					•	•				•				•	•						•	•	•	•											

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

³¹ Work activities listed represent Computer User Support Specialist, a new classification that replaces Computer Support Specialists.

Related Occupations for the Retail Cluster

The table below lists top occupations in the Retail cluster by entry-level education requirements, and for each provides a sample of related occupations. With additional preparation, these related occupations match the skills, education, and work experience needed for the top Retail cluster occupations.

Retail Occupations	Related Occupations
Requires a Bachelor's Degree or Higher	
Pharmacists	<ul style="list-style-type: none"> Health Specialties Teachers, Postsecondary Medical Scientists, Except Epidemiologists Nursing Instructors and Teachers, Postsecondary
Sales Managers	<ul style="list-style-type: none"> Financial Manager, Branch or Department Logistics Managers Sales Representative, Wholesale and Manufacturing, Technical and Scientific Products
General and Operations Managers	<ul style="list-style-type: none"> First-Line Supervisors of Office and Administrative Support Workers Logistics Managers Wholesale and Retail Buyers, Except Farm Products
Interior Designers	<ul style="list-style-type: none"> Landscape Architects Marketing Managers Graphic Designers
Cost Estimators	<ul style="list-style-type: none"> Logistics Managers Market Research Analysts and Marketing Specialists Supply Chain Managers
Requires Some College, Postsecondary Non-Degree Award, or Associate's Degree	
Computer, Automated Teller, and Office Machine Repairers	<ul style="list-style-type: none"> Computer User Support Specialist Electrical Engineering Technicians Avionics Technicians
Computer Support Specialists	<ul style="list-style-type: none"> Web Administrator Electrical Engineering Technicians Broadcast Technicians
Electronic Equipment Installers and Repairers, Motor Vehicles	<ul style="list-style-type: none"> Automotive Specialty Technicians Automotive Master Mechanics Heating and Air Conditioning Mechanics and Installers
Electronic Home Entertainment Equipment Installers and Repairers	<ul style="list-style-type: none"> Electrical Engineering Technician Medical Equipment Repairers Security and Fire Alarm Systems Installers
First-Line Supervisors of Production and Operating Workers	<ul style="list-style-type: none"> Industrial Production Managers Non-Destructive Testing Specialist First-Line Supervisor of Logging Workers
Requires a High School Diploma or Equivalent or Less	
Retail Salespersons	<ul style="list-style-type: none"> Counter and Rental Clerks First-Line Supervisors of Retail Sales Workers Tellers
Cashiers	<ul style="list-style-type: none"> Host and Hostesses, Restaurant, Lounge, and Coffee Shop Waiters and Waitresses Cooks, Fast Food
Stock Clerks and Order Fillers	<ul style="list-style-type: none"> Shipping, Receiving and Traffic Clerks Marking Clerks Stock Clerks -Stockroom, Warehouse, or Storage Yard
First-Line Supervisors of Retail Sales Workers	<ul style="list-style-type: none"> Hotel, Motel, and Resort Desk Clerks Dispatchers, Except Police, Fire and Ambulance Wholesale and Retail Buyers, Except Farm Products
Combined Food Preparation and Serving Workers, Including Fast Food	<ul style="list-style-type: none"> Cooks, Fast Food Food Servers, Non-restaurant Waiters and Waitresses

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

Employer Demand for the Retail Cluster

The following table lists the region's employers in the Retail cluster who posted the most job advertisements during the 120-day period ending May 7, 2014. 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.

Retail Cluster Employers	Recent Job Advertisements ³² (120-day period)	Prior Year Job Advertisements (120-day period)	Numerical Change	Year-Over Percent Change
Apple Inc.	2,237	1,223	1,014	82.9%
Amazon.com	893	963	-70	-7.3%
Macy's	821	557	264	47.4%
Gap Inc.	679	665	14	2.1%
Sears Holdings Corporation	634	688	-54	-7.8%
Whole Foods	596	7	589	8,414.3%
DELL	452	273	179	65.6%
Safeway Companies	384	526	-142	-27.0%
Nordstrom	346	434	-88	-20.3%
Lowe's	325	303	22	7.3%
Wheel Works	276	34	242	711.8%
Chevron	274	455	-181	-39.8%
Best Buy	240	46	194	421.7%
T-Mobile	199	306	-107	-35.0%
Tesla Motors	198	302	-104	-34.4%
AutoNation	195	129	66	51.2%
CVS Caremark	178	393	-215	-54.7%
Home Depot	174	448	-274	-61.2%
Firestone	165	12	153	1,275.0%
Staples	154	91	63	69.2%

Source: The Conference Board Help Wanted OnLine™ (HWOL) Data Series: Period ending May 7, 2014.

³² Totals do not include employers with anonymous job advertisements.

Instructional Programs for the Top Retail Occupations

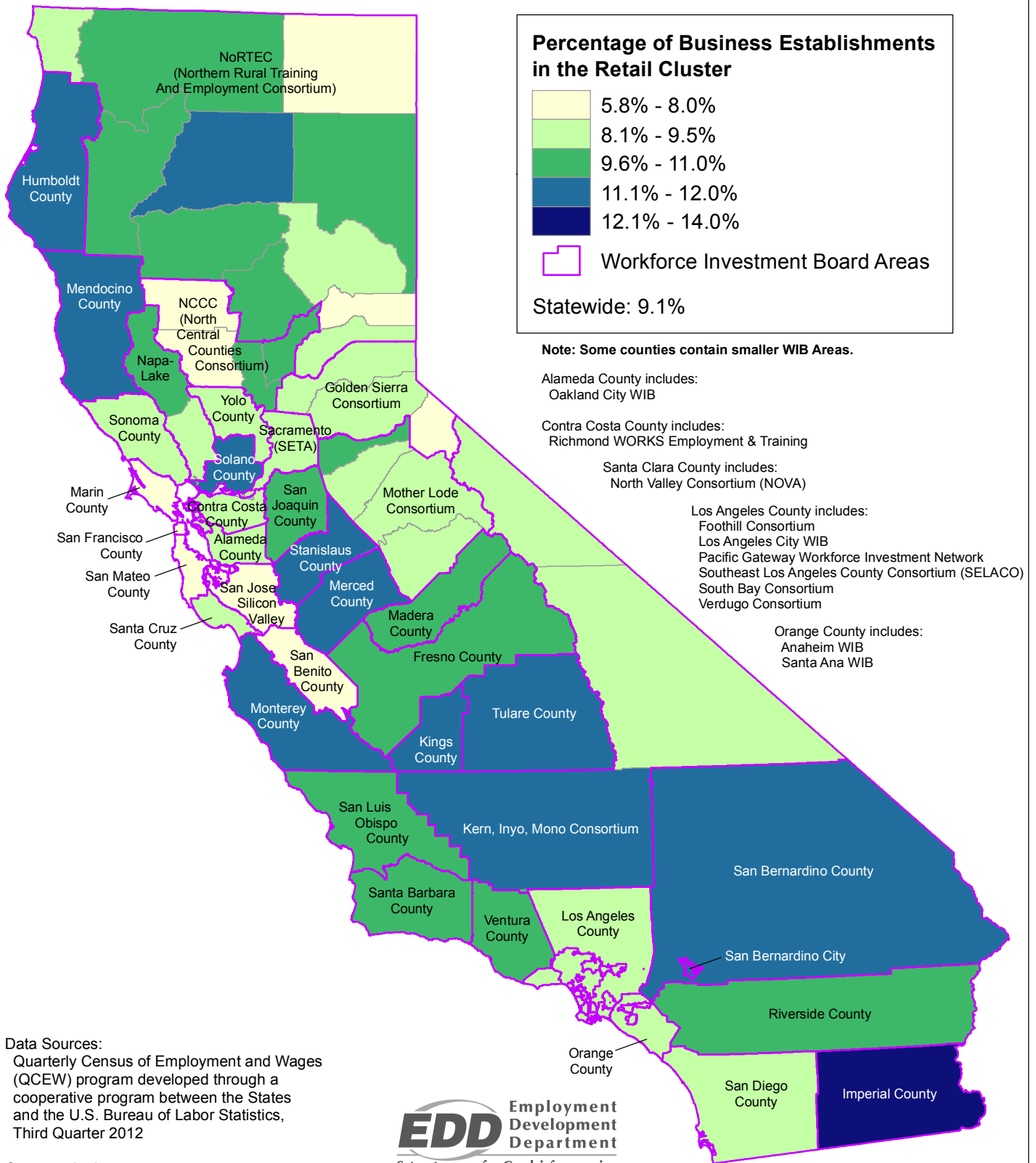
The table below provides examples of instructional programs related to top occupations in the Retail cluster, particularly those that require less than a bachelor's degree. These programs train individuals for occupations throughout many industries and are not limited to the Retail cluster. To view a 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.

Occupation	Classification of Instructional Program (CIP)		Taxonomy of Programs (TOP)	
	CIP Code	CIP Title	TOP Code	TOP Title
Cashiers	N/A	N/A	050650	Retail Store Operations and Management
Combined Food Preparation and Serving Workers, Including Fast Food	N/A	N/A	N/A	N/A
Computer, Automated Teller, and Office Machine Repairers	47.0102 47.0104	Business Machine Repair Computer Installation and Repair Technology/Technician	093410	Computer Electronics
Computer Support Specialists	11.1006 51.0709	Computer Support Specialist Medical Office Computer Specialist/Assistant	N/A	N/A
Electronic Equipment Installers and Repairers, Motor Vehicles	47.0604	Automobile/Automotive Mechanics Technology/Technician	094800	Automotive Technology
Electronic Home Entertainment Equipment Installers and Repairers	47.0103	Communications Systems Installation and Repair Technology	093430	Telecommunications Technology
First-Line Supervisors of Production and Operating Workers	52.0205	Operations Management and Supervision	N/A	N/A
First-Line Supervisors of Retail Sales Workers	19.0203 52.0212 52.1803	Consumer Merchandising/Retailing Management Retail Management Retailing and Retail Operations	050650 059900	Retail Store Operations and Management Other Business and Management
Retail Salespersons	N/A	N/A	050650 050900 050940	Retail Store Operations and Management Marketing and Distribution Sales and Salesmanship
Stock Clerks and Order Fillers	N/A	N/A	050650	Retail Store Operations and Management

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) 6th Edition (2009), www.cccco.edu

California Retail Cluster

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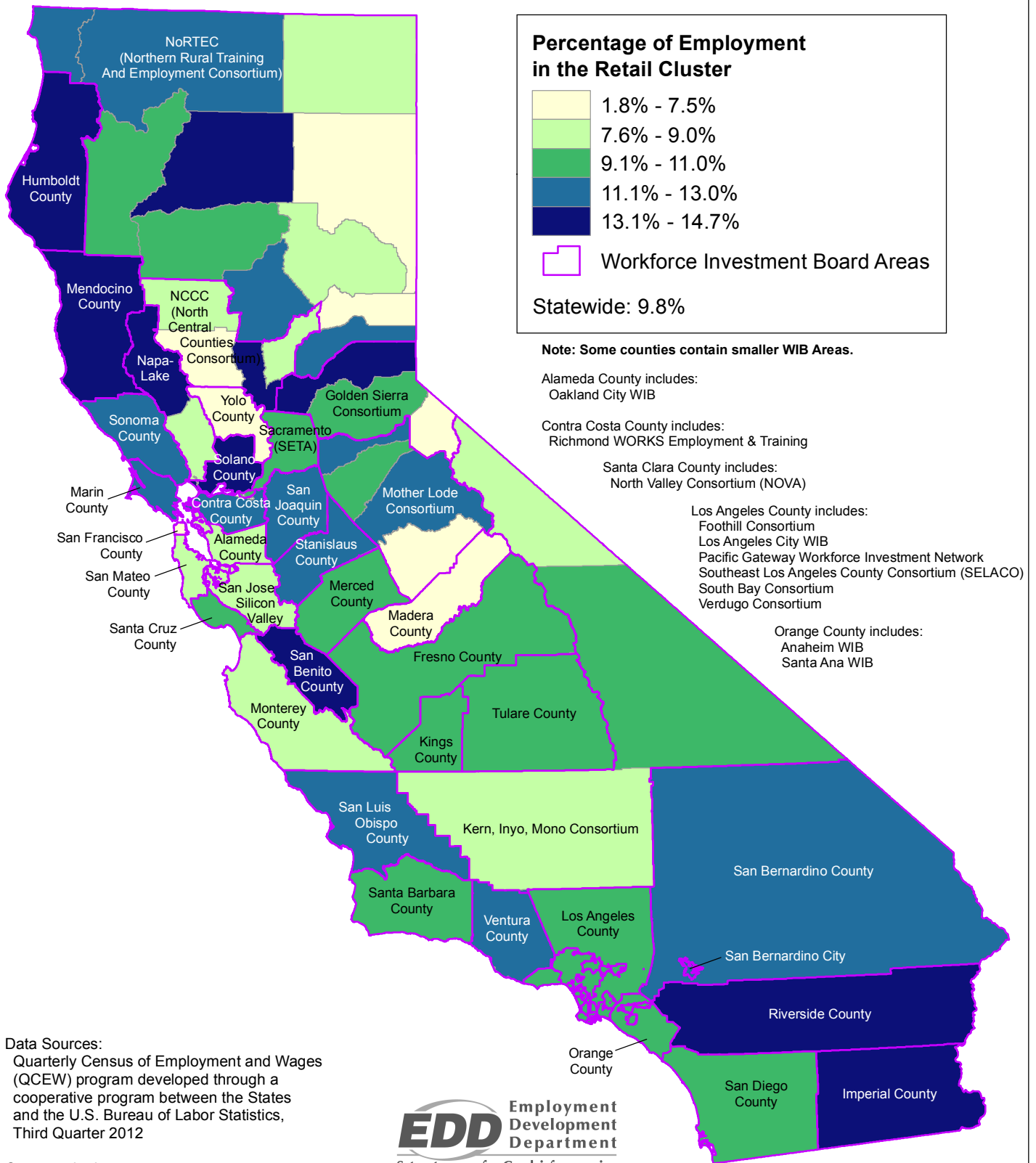
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California Retail Cluster

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