California Labor Market and Economic Analysis 2007

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Executive Summary

Introduction:
The following is an executive summary of the economic and labor market analysis prepared by the Employment Development Department Labor Market Information Division to support the California Workforce Investment Board's (CWIB) strategic planning processes. This summary is enhanced by the California Economic Strategy Panel's Economic Base Analysis, prepared for their California Regional Economies Project. The labor market and economic analysis offers an environmental scan to inform stakeholders in the workforce investment system's strategic planning.

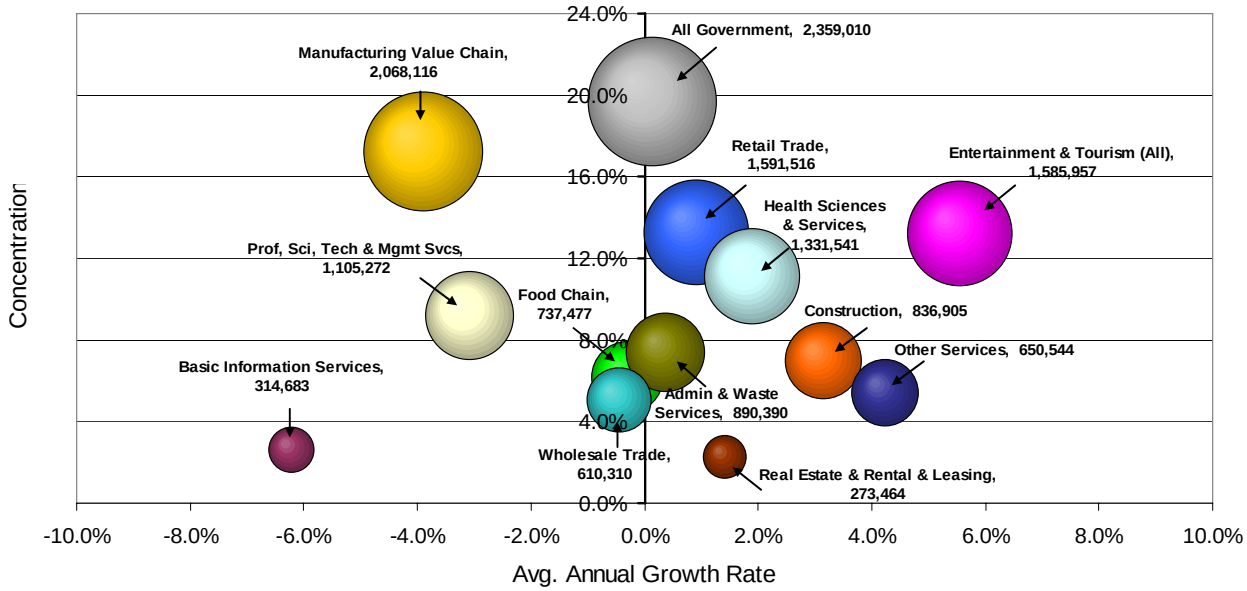
The full labor market and economic analysis can be found as Chapter IV (pages 20-53) of the CWIB's Strategic Two Year Plan for the Workforce Investment Act, at www.calwia.org. It also follows this Executive Summary, and is published as a stand alone document at www.labormarketinfo.edd.ca.gov.

California Economic Base Analysis 2001-4
The California Economic Strategy Panel (Panel) examines California's statewide and regional economies, industry clusters, and cross-regional economic issues, in order to develop an overall economic vision and strategy for the State. The California Regional Economies Project is the primary research mechanism for the Panel. The following are excerpts from the Panel's recent report, *California Economic Base Report: A Statewide Overview & Regional Analyses*. The entire report, as well as related regional base analyses, may be found online at www.labor.ca.gov/panel/.

California has one of the largest and most diverse economies in the world. To create an effective statewide strategy for continued economic growth, each of the different economic regions of the state needs to be examined.

The following chart provides information on the state's economic base composition during the period 2001-4 through the use of bubble charts. This time period represents the recent recession and initial recovery period. The economic base is traditionally considered to be made up of export-oriented industries; however, for the purpose of their report, the Panel chose to include export-oriented and local-serving industries, and to treat the statewide economic base as a composite of the regions' economic base industry sectors and clusters. (Bubble size relates to size of the industry, and placement to the right of the 0.0% axis indicates industry growth. The vertical position indicates the percentage of economic base jobs the industry provides.)

Statewide Economic Base
2001-2004



Highlights of the State Economic Base Analysis 2001-4:

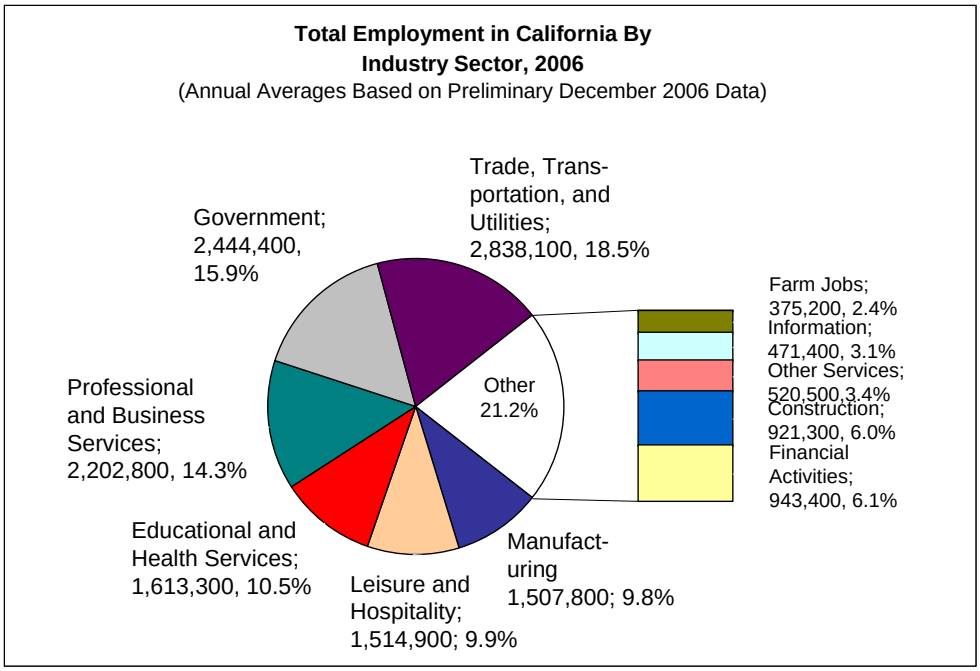
- All Government provides the most jobs in the economic base, followed by the Manufacturing Value Chain, Retail Trade, Entertainment & Tourism (using the statewide definition of Entertainment & Tourism), and Health Sciences & Services.
- All Government represents federal, state and local government jobs, and includes state and local education, federal defense, police and firefighting jobs, as well as other public service jobs.
- Entertainment & Tourism reported the highest rate of job growth from 2001 to 2004, followed by Other Services, Construction and Health Sciences & Services.
- Basic Information Services reported the highest rate of job losses from 2001 to 2004, followed by the Manufacturing Value Chain and Professional, Scientific, Technical & Management Services. The other two industries reporting job losses for this period include Wholesale Trade and the Food Chain cluster.
- Eight of the thirteen industries and clusters in the economic base reported job growth from 2001 to 2004.

Current California Industry Employment 2006

The information source for both the Panel's Economic Base Analysis and the industry employment figures that follow is the same—industry employment collected by the Labor Market Information Division. Whereas the Economic Base Analysis addresses relative employment change over the period 2001-4, this section addresses the annual average data for 2006.

- California has the largest labor market in the US, with 15 million non-farm jobs (11 percent of the nation's non-farm jobs). In addition, California had 375,200 jobs in the farm sector (2.4 percent of all California jobs), for a total of 15.4 million jobs in 2006.

- California's largest industries are trade, transportation and utilities (2.8 million jobs); government (2.4 million jobs); and professional and business services (2.2 million jobs). Natural resources and mining is the smallest (24,300 jobs.)



Projected growth and decline

- 90 percent of the industries projected to grow over the next decade are in the service-producing industries: administrative and support services; healthcare services; retail trade; accommodation and food services; and professional, scientific and technical services. Construction, which is a goods-producing industry, is expected to generate almost 163,000 new jobs by 2014.
- Industries forecasted to decline over the next decade include manufacturing production in areas such as apparel, plastics, converted paper, machinery, printing, and petroleum and coal manufacturing.
- The 50 occupations with the largest forecasted growth over the next decade are expected to generate nearly 1.4 million new jobs and almost 1.8 million additional opportunities due to vacancies that will be refilled when an individual retires, changes careers or leaves for personal reasons—3.2 million total job openings by 2014.
- Fastest growing occupations are concentrated in healthcare, education, and computer related fields.

Demand for skilled workers

- Skilled work is defined as jobs requiring at least long-term on-the-job training (12 months or more). This includes work experience in a related occupation, vocational training, and college education through first professional degree.
- The top ten largest growth skilled occupations in California account for growth of approximately 349,200 new jobs in the next decade. These top growth occupations include registered nurses (RN); general and operations managers; elementary school teachers; carpenters; computer software engineers (applications) and (system software);

accountants and auditors; secondary school teachers; and computer systems analysts. Most of these occupations require a Bachelor's degree. RNs require at least an Associates degree.

Jobs most critical to the State's economy

- Each job has an intrinsic value in a State as complex and diverse as California. Even declining industries and occupations continue to add value.
- Critical jobs are linked to the President's High-Growth Training Initiative, and dovetail with high-growth industries identified by the California Regional Economies Project.
- High-Growth industries include advanced manufacturing; automotive; biotechnology; construction; geo-spatial; health care; hospitality; information technology; retail; energy; financial services; and transportation.

Common skills needs across industries

The following listing was compiled by a detailed analysis of the top growth industries, top growth occupations within those industries, and identification of the common skills shared by each.

- Active listening—giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- Coordination—adjusting actions in relation to others' actions.
- Critical thinking—using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Judgment and decision-making—considering the relative costs and benefits of potential actions to choose the most appropriate one.
- Mathematics—using mathematics to solve problems.
- Reading comprehension—understanding written sentences and paragraphs in work-related documents.
- Speaking—talking to others, especially in English, to convey information effectively.
- Time management—managing one's own time and the time of others.

These skills findings are consistent with the findings of the Secretary's Commission on Achieving Necessary Skills (SCANS) 1992 report *Learning a Living: A Blueprint for High Performance; A SCANS Report for America 2000,* as well as the findings of a 2006 survey of 431 human resources executives by the Conference Board. [1]

Demographics

- The most populous state in the Union, California had 37.7 million state residents on January 1, 2007.
- In March 2007, California had 29.3 million working aged (16 and over) residents, of which 17.9 million were in the labor force—17 million employed and 865 thousand unemployed. Forty-five percent of the labor force is White; 33.5 percent is Hispanic; 12 percent is Asian; and 6.6 percent is Black.

[1] http://www.conference-board.org/utilities/pressDetail.cfm?press_ID=2971

- California's population is slightly younger than the national population, and more diverse—with a substantially larger percentage of Hispanics.
- Despite the "slightly younger" population, like the rest of the nation, California faces an aging workforce, and loss of skilled workers due to retirement. Twenty percent of California workers were 45-to-54 years old in 2001. Many planners anticipate this proportion will grow even more rapidly over the next two decades unless a large influx of younger workers comes into California.
- The labor force is highly skilled—over 40 percent of the working population has a postsecondary degree, and three-quarters of these are BA or higher.
- In contrast, 16 percent of the workers aged 25-50 years have not received a high school diploma or GED.
- One-tenth of California workers in 2004 lived in a household where all adults spoke only Spanish.

Current and Projected Skills Gaps

- Fifteen occupations, 11 of which are skilled, are anticipated to have long-run shortages: accountants and auditors; automotive mechanics; carpenters; computer software engineers, (applications) and (systems software); dental hygienists; elementary school teachers; heating, air conditioning and refrigeration technicians; general and operations managers; home health aides; medical assistants; office clerks; police and sheriff's patrol officers; registered nurses; secondary school teachers; and truck drivers, heavy and tractor-trailer.

Regional information:

In an economy and labor market as large and diverse as California, local and regional analyses are equally important. For additional information see the Labor Market Information web site www.labormarketinfo.edd.ca.gov; the California Workforce Investment Board site at www.calwia.org (See California Strategic Two Year Plan); and the California Economic Strategy Panel's Regional Economies Project reports at www.labor.ca.gov/panel.

California Labor Market and Economic Analysis Questions Considered

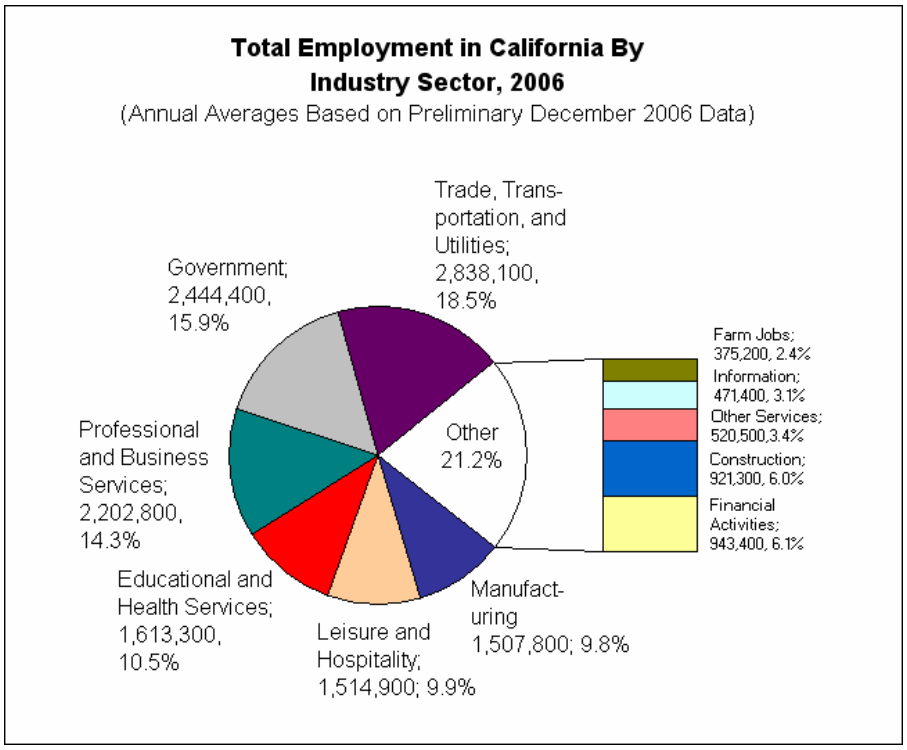
The Department of Labor, Employment and Training Administration, asked each State to consider a series of questions as the State Workforce Board developed its Strategic Plan. Labor Market Information Division prepared this Labor Market and Economic Analysis to support the California Workforce Investment Board in its workforce system planning. This analysis is structured to follow these questions:

- What is the current makeup of the State's economic base by industry?
- What industries and occupations are projected to grow and or decline in the short term and over the next decade?
- In what industries and occupations is there a demand for skilled workers and available jobs, both today and projected over the next decade? In what numbers?
- What jobs/occupations are most critical to the State's economy?
- What are the skill needs for the available, critical and projected jobs?
- What are the current and projected demographics of the available labor pool (including the incumbent workforce) both now and over the next decade?
- Is the State experiencing any "in migration" or "out migration" of workers that impact the labor pool?
- Based on an analysis of both the projected demand for skills and the available and projected labor pool, what skill gaps is the State experiencing today and what skill gaps are projected over the next decade?

Labor Market and Economic Analysis

What is the current makeup of the State's economic base by industry?

California has the largest labor market in the United States. Total employment in all California industries was 15,377,400 jobs in 2006.[2] Non-farm employment payrolls totaled 15,002,200 jobs, accounting for 11 percent of all non-farm jobs in the United States. There were 375,200 jobs in the farm sector, accounting for 2.4 percent of all California jobs. The following chart shows the industry sector breakdown for California's total employment in 2006. The trade, transportation, and utilities sector had the largest number of jobs (2,838,100 jobs), while the natural resources and mining sector had the fewest (24,300 jobs).



The following industry sectors had employment exceeding 2 million jobs in 2006: trade, transportation, and utilities; government; and professional and business services. These industries accounted for 49 percent of the state's jobs. Three additional sectors – educational and health services, manufacturing, and leisure and hospitality – had 1.5 million jobs or more, and accounted for 30 percent of all California jobs. Six industry sectors, each with employment of less than one million jobs, accounted for the remainder of California jobs.

[1] The analysis in this section incorporates preliminary December 2006 data and does not reflect 2006 benchmark revisions.

Basic Industries

The California Regional Economies Project (CREP) and the Center for the Continuing Study of the California Economy distinguish between economic base industries and population-serving industries.[3] Population-serving industries primarily serve local markets in the state and include industries such as retail trade, health care, food services, state and local government, construction, and finance. Population growth typically drives job growth in these industries. In contrast, economic base industries typically serve external markets. As a result, firms in economic base industries have more flexibility in deciding where to locate their operations or production facilities. A state or region's ability to attract and retain these firms largely determines how fast a state will grow relative to other states in the nation.

California's economic base is comprised of eight industries: professional, technical, scientific, and management services; diversified manufacturing; wholesale trade and transportation; tourism and entertainment; resource-based; high technology manufacturing; basic information services; and government (federal only). Table 1 shows the employment levels of these industries in 2006.

Table 1

Employment in California's Economic Base Industries, 2006
(Annual averages based on preliminary December 2006 data)

	Number of Jobs	Share of All Economic Base Industry Jobs (%)	Share of Total Employment (%)
Total Employment	15,377,400	--	--
Population-serving Industries	9,620,600	--	62.6
Economic Base Industries	5,756,800	100.0	37.4
Professional, Technical, Scientific, and Management Services	1,650,300	28.7%	10.7%
Wholesale Trade and Transportation	1,085,900	18.9%	7.1%
Diversified Manufacturing	1,036,000	18.0%	6.7%
Tourism and Entertainment	605,300	10.5%	3.9%
Resource-Based	435,800	7.6%	2.8%
High Technology Manufacturing	435,700	7.6%	2.8%
Basic Information Services	259,700	4.5%	1.7%
Government	248,100	4.3%	1.6%

Employment in California's economic base industries totaled 5,756,800 jobs in 2006, accounting for 37.4 percent of the state's total employment. Professional, technical, scientific, and management services was the largest basic industry with 1,650,300 jobs, followed by wholesale trade and transportation (1,085,900 jobs), and diversified manufacturing (1,036,000 jobs). These industries accounted for two-thirds of the jobs in California's economic base, and for one-quarter of all jobs in California. Tourism

[2] The industries included in Statewide and regional economic base analyses vary. Economic base reports for nine California regions are available from the CREP website at: http://www.labor.ca.gov/panel/espcrepindex.htm.

and entertainment (including motion pictures and sound recording), resource-based industries (including farming), and high technology manufacturing accounted for slightly more than one-quarter of the jobs in California economic base industries, but only 10 percent of total employment.

What industries and occupations are projected to grow and or decline in the short term and over the next decade?

Industry Projections

The EDD's Labor Market Information Division (LMID) prepares short-term (two-year) employment projections annually, as well as long-term (10-year) employment projections biennially, following the biennial production of the national employment projections. The most current available short-term projections cover 2005-07, and the most current available long-term projections cover the period 2004-2014.

California's industry projections dovetail consistently with the growing industries highlighted by the President's High Growth Job Training Initiative (see Table 2) – advanced manufacturing, automotive, biotechnology, construction, geo-spatial, health care, hospitality, information technology, retail, energy, financial services and transportation. In turn, the California Regional Economies' (CREP) focus industries mirror many of the President's target industries. California highlights two broad industry clusters – the Manufacturing Value Chain and Health Science and Services, as well as a large and diverse set of industries characteristic of California's rural areas.

Table 2

California's High-Growth Industries

High-Growth Job Training Initiative Industries	California Regional Economies Focus Industries
Advanced Manufacturing	Manufacturing Value Chain
Automotive	
Biotechnology	Health Science and Services
Construction	Residential infrastructure
Geo-spatial	
Health Care	Health Science and Services
Hospitality	Community Infrastructure
Information Technology	
Retail	Specialty food, beverages and retail
Energy	Community infrastructure
Financial Services	
Transportation	Manufacturing-Logistics

Note that the CREP "Manufacturing Value Chain" is paired with both the President's manufacturing and transportation industries. The Value Chain includes three components: design, production, and logistics. While manufacturing production has

been declining in California (and the nation) since the aerospace cuts in the 1980's and 1990's, and the trend has been to ship production activities to lower-cost areas in the country and the world, California's talent and innovation support a strong design component for the industry. In addition, the global marketplace requires a strong logistics support industry to ship and track manufactured parts and completed products throughout the world.

California's short-term non-farm industry projections estimated an annual growth rate of about 1.3 percent in 2005-07, resulting in about 400,000 new jobs by the end of 2007. Most of the growth in new jobs is forecast to occur in the industry sectors of professional and business services, health care and social assistance, retail trade, government, and accommodation and food services. Attachment A, *California Short-Term Industry Projections 2005-07, Industry Sector Growth* graphically demonstrates the distribution of new jobs across industries.

Nearly 30 percent of the job growth over the two-year period is forecast in professional and business services. Most of the firms in this sector provide professional, scientific, and technical services, or administrative and support services to other businesses. This sub-sector includes many of the support functions that maintain the day-to-day operations of businesses across all industries and includes a wide range of other activities such as temporary help agencies, office support, landscaping and janitorial services, call centers, and telemarketing. Another 26 percent of job growth is split between the government and accommodation and food services sectors. Fourteen percent of the job growth is forecast to occur in the retail trade sector.

Along with producing the most new jobs, the professional and business services sectors are also growing at the fastest rate, over 2.5 percent annually. Wholesale trade and arts, entertainment and recreation are both growing at the next fastest rate of nearly two percent annually. Industries projected to decline in the short-term include construction, apparel manufacturing, transportation equipment manufacturing, machinery manufacturing, and food manufacturing.

Consistent with the short-term trends, over 90 percent of the industries projected to grow over the next decade are in the service-producing industries. These include administrative and support services; health care services; retail trade; accommodation and food services; and professional, scientific, and technical services. In addition, construction, which is classified as a goods producing industry, is expected to generate almost 163,000 new jobs by 2014. Attachment B, *California Long-Term Industry Projections 2004-2014, Industry Sector Growth* shows the long-term distribution of new jobs across industries.

Employment services (a component of professional and business services) is at the top of the list with a projected growth rate of almost 49 percent. Other long-term top growth industries include software publishers with a growth rate of 39 percent; computer systems design with a projected growth rate of nearly 44 percent; and management, scientific, and technical consulting services projected to grow over 46 percent. Growing health-related industries include community care facilities for the elderly, offices of health practitioners, home health care services, outpatient care centers, and psychiatric and substance abuse hospitals. Growth rates for these

industry sub-sectors range from 32 percent for psychiatric and substance abuse hospitals to 49 percent for home health care services.

Other top growth industries over the next decade include construction-related industries – building finishing contractors; building equipment contractors; residential building construction; foundation, construction and building exterior contractors; and other specialty trade contractors. In support of the construction-related industries, other growing areas include building material and supplies dealers and activities related to real estate. Growth rates are as high as 26 percent for other specialty trade contractors.

Industries forecast to decline in the long term are similar to those forecast to decline in the short term: apparel manufacturing tops the list, with other manufacturing production business sectors also forecast to decline – plastics products, converted paper products, machinery manufacturing, printing and related support activities, apparel knitting mills, and petroleum and coal products.

Occupational Projections

As noted in the Industry Projections section above, California's short-term occupational projections forecast nearly 400,000 new jobs through the end of 2007. In addition, it is estimated that almost 830,000 job opportunities will be created as people vacate their jobs due to retirement, career change, or other personal reasons. Of the new jobs, the 50 largest growing occupations will create over 60 percent of the State's job growth. Of these top-growing occupations, nearly 128,000 new jobs will require only short-term on-the-job training (OJT), 30 days or less, and pay a median hourly wage range of $8.03 to $12.21. These include occupations in the retail trade and accommodation and food service industries. Retail salespersons, landscaping workers, teacher's assistants, food prep workers, janitors, and waiters are at the top of the list. Attachment C, *California Short-Term Occupational Projections 2005-07, Ten Largest Growing Occupations* graphically displays the top ten occupations. Attachment D, *California Short-Term Occupational Projections 2005-07, Employment Growth by Education and Training Level* graphically demonstrates that the preponderance of new jobs requires limited training.

New jobs requiring one to 12 months OJT include nearly 30,000 new jobs with a median hourly wage range of $13.34 to $24.59. Occupations in this category can be found in the health care services; professional, scientific, and technical services; electronic markets and agents/brokers, colleges and universities, local government, general freight, trucking administrative and support services and finance and insurance industries. Customer service representatives, sales representatives, and medical assistants are among the top growth occupations requiring this moderate-term training level.

At the professional level, over 32,000 new jobs will require a bachelor's degree and have a median hourly wage range of $27.11 to $44.28. This category includes occupations in the professional, scientific and technical services industry. Software engineers, and accountants and auditors are among the top growth occupations at this training level. Growth in the need for registered nurses (RN) accounts for over 10,000

new jobs. An RN with the required Associate of Arts degree earns a median $33.85 per hour.

The majority of the fastest growing occupations are expected to grow at a minimum rate of 2.5 percent annually. Fast growing occupations concentrated in the Health Care Service industry have median hourly wages ranging from $9.12 to $39.72. Computer-related occupations found in the Professional, Scientific, and Technical Services industry have a median hourly range of $21.98 to $54.31. These occupations typically require a bachelor's degree.

Long-term occupational projections are consistent with short-term trends. (See Attachment E, *California Long-Term Occupational Projections 2004-2014, Ten Largest Growing Occupations* and Attachment F, *California Long-Term Occupational Projections 2004-2014, Employment Growth by Education and Training Level*.) California's 50 largest growing occupations are forecast to generate nearly 3.2 million total job openings, with almost 1.4 million new jobs, and 1.8 million additional job opportunities due to separations (vacancies left when individuals retire, change careers, or leave for personal reasons). Long-term, RNs are expected to gain about 109,000 jobs, including 60,900 new jobs and another 48,200 openings due to separations. Sales representatives, wholesale and manufacturing, and truck drivers are also expected to have large growth as well as a high number of separations. Like the short-term projections, top growth occupations long-term include retail sales, combined food preparation, laborers, waiters and waitresses, customer service representatives, office clerks, general managers, janitors, and security guards. Also at the top of the large growth list are teacher assistants, and elementary and secondary teachers.

Some occupations that show lower job growth will still provide many job opportunities because of the large number of separations. Examples of large growth occupations with separations exceeding their growth are cashiers; executive secretaries and administrative assistants; counter attendants; and bookkeeping, accounting, and auditing clerks.

California's fastest growing occupations, over the long term, are concentrated in health care, education, and computer-related fields. Computer-related occupations are expected to grow, on average, at least four percent annually. Job opportunities for teachers are expected to grow at an average annual rate of three percent per year.

In what industries and occupations is there a demand for skilled workers and available jobs, both today and projected over the next decade? In what numbers?

The U.S. Bureau of Labor Statistics (BLS) facilitates occupational analysis as it classifies occupations in three ways:

- By an occupational code (the Standard Occupational Code) – The occupational code links an occupation with other similar occupations;

- By the industry (the North American Industry Classification System code) – The industry code points to the industry or industries that employ workers in the occupation; and
- By the education/training level typically required for each occupation (one of eleven levels).

These eleven training levels allow for general comparisons of occupational skill requirements across occupations and industries. This analysis uses occupational growth trends for the occupations with higher training levels as a proxy for a demand for skilled workers. The eleven training levels, from most- to least-skilled, are:

- First professional degree,
- Doctoral degree,
- Master's degree,
- Bachelor's degree or higher plus work experience,
- Bachelor's degree,
- Associate degree,
- Post-secondary vocational training,
- Work experience in a related occupation,
- Long-term OJT (12 months or more),
- Moderate-term OJT (one to 12 months), and
- Short-term OJT (one month or less).

Selecting a training level to serve as the bottom-most proxy for skilled workers is a judgment call; California proposes to define the skilled floor at the "long-term OJT" level. This brings in skilled crafts and trades workers such as carpenters and plumbers who often serve an apprenticeship, as well as law enforcement personnel who attend extensive peace officer standards training. Each of these occupations is among the top occupations projected to grow over the next decade at this level.

Attachment G, *Comparison of Growing Occupations in California, Base Year 2004 to Projected Year 2014*, provides a detailed listing of the projected top 100 growing occupations assorted by training level, across industries, including forecast numerical growth and growth rate. (The chart provides approximately 50 each of the largest and fastest growth occupations.) As noted above, for the most part, occupations projected to grow in the next decade are in demand today and in the immediate future. Of these, the top ten largest-growth skilled occupations in California are forecast to account for growth of approximately 349,200 new jobs in the next decade. Two of these occupations require long-term OJT, and most of the remainder requires a bachelor's degree. Table 3 lists these top-growth skilled occupations.

Table 3

TOP-GROWTH SKILLED OCCUPATIONS

Occupational Title	Growth 2004-14	Education/Training Level
Registered Nurses	60,900	Associate Degree
Elementary School Teachers	44,400	Bachelor's Degree
General and Operations Managers	44,400	Bachelor's Degree plus Work Experience
Carpenters	41,300	Long Term OJT
Computer Software Engineers (Applications)	39,200	Bachelor's Degree
Accountants and Auditors	29,500	Bachelor's Degree
Secondary School Teachers	24,800	Bachelor's Degree
Computer Software Engineers, Systems Software	23, 400	Bachelor's Degree
Computer Systems Analysts	17,400	Bachelor's Degree

Source: Labor Market Information Division
Projections of Employment 2004-2014

A more detailed analysis of the top occupations by training level, as presented in the comparison chart (Attachment G), follows:

Work experience in a related occupation The largest growth occupations at this level are first line supervisors/managers, broken out by the industry in which they work, such as retail Sales, food preparation, construction trades, or office and administrative. Construction and building inspectors and self enrichment teachers join first-line supervisors/managers on the list of fastest growing occupations at this level.

Post-secondary vocational training Top-growth occupations at this level are automotive service technicians and mechanics (automotive industry); preschool teachers (education); licensed practical nurses and licensed vocational nurses (LVN) (health care); fitness trainers and aerobics instructors (amusement); and real estate sales agents (real estate). The fastest growth occupations at this level also include gaming dealers (amusement); vocational education teachers, postsecondary, (education); emergency medical technicians and surgical technologists (health care).

Associate degree Occupations in the health care industry, RNs and dental hygienists, dominate the list of largest growth occupations at this level. Computer support specialists, paralegals and legal assistants, and electrical and electronic engineering technicians round out the list of the largest growth occupations. Four of the five fastest growing occupations are in the health care or health science industry—dental hygienists, veterinary technologists and technicians, RNs, and medical records and health information technicians. Paralegal and legal assistants round out the list of fastest growing occupations requiring an Associate degree.

Bachelor's degree Occupations in the education and information technology industries dominate both the largest and fastest growth occupations requiring a bachelor's degree. Elementary school and secondary school teachers are among the top five largest growth occupations, along with computer software engineers, applications, and systems software; and accountants and auditors. All of the fastest growing occupations are in information technology – network systems and data communications analysts; computer software engineers, applications and systems software; network and computer systems administrators, and database administrators. The health care and educational industries are also represented in the top ten fastest growing occupations, with the addition of physicians' assistants and special education teachers.

Bachelor's degree or higher plus work experience Based upon the top five occupations, this tends to be a "management" level, which spans a variety of industries. The top five largest growth occupations at this level include general and operations managers, management analysts, financial managers, sales managers, and computer and information systems managers. The top five fastest growth occupations overlap this largest growth list, with computer and information systems managers, and sales managers on the list. Agents and business managers of artists, performers and athletes; compensation and benefits managers; and producers and directors complete the fastest growing occupations at this level.

Master's degree The top largest growth occupation at this level is market research analyst. The remaining top four largest growth occupations requiring a master's degree are professional occupations in the health care or educational industry – educational, vocational, and school counselors; physical therapists; instructional coordinators; and mental health counselors. The fastest growth occupations requiring this educational level are also in the health care and educational industries. The top five fastest growth occupations are health specialties teachers, postsecondary; art, drama, and music teachers, postsecondary; physical therapists; substance abuse and behavioral disorder counselors; and instructional coordinators.

Doctoral degree The three occupations with the largest and fastest growth requiring a doctoral degree are medical scientists, except epidemiologists (health sciences); clinical counseling and school psychologists (education); and computer and information scientists, research (information technology).

First professional degree At this level, most of the same occupations appear in both the largest and fastest growth list. Lawyers, pharmacists, dentists, family and general practitioners, and chiropractors are the top growing occupations at this skill level. Four of these five occupations are in the health care industry. Lawyers are employed across industries. The fastest growing occupations include pharmacists, chiropractors, family and general practitioners, lawyers, and surgeons. Again these occupations are found predominately in the health care industry.

What jobs/occupations are most critical to the State's economy?

This is a challenging question, particularly for a State as large and diverse as California. Each job has an intrinsic value in the State's network. Even declining occupations and industries, continue to add value. For this analysis, then, we again take our guidance from the President's High Growth Job Training Initiative, and the industry focus of the CREP, and presume that top occupations in these industries are the most critical (see Table 2 "High-Growth Training Initiative Industries").

The CREP monograph *Creating a Workforce Transition System in California* notes the need for a connection between workforce and economic development, and the need to address both the "population serving" sectors like health care, construction, and education, as well as sectors with potential for future rapid growth. These growth sectors can be unique to the geographic region, based upon the composition of local businesses, the nature and talents of the local workforce, and the synergy between business, education, and workforce preparation.

Automotive

The automotive industry is "population serving" – as the population grows, the number of vehicles increases, as does the demand for sales and service. Large occupations in the automotive industry include auto service technicians and mechanics, cleaners of vehicles and equipment, auto body repairers, truck drivers, tire repairers and changers, painters of transportation equipment, and bus and truck mechanics, as well as support staff such as retail and parts salespersons and cashiers.

Biotechnology
California has the nation's largest biotechnology employer base, with approximately 400 biotechnology companies. The LMID completed a study of California's biotechnology industry in 2004 and determined that it encompasses seven major areas of research and production: agricultural products, biomedical devices, environmental management, food processing, human and veterinary medicines, instrumentation, and pharmaceutical manufacturing. Further findings indicate that occupations in California's biotechnology industry span seven major categories: research and development, clinical research, manufacturing and production, regulatory affairs, quality systems, information systems, and marketing and sales.

Top growth occupations include bioinformatics specialists, an emerging occupation encompassing the skills of computer software engineers and database administrators; sales representatives; medical scientists; veterinary technologists and technicians; biological technicians; and veterinary assistants and laboratory animal caretakers.

Construction
As noted by the CREP, "Construction is population serving." Growth is driven by a growing population's demand for homes and infrastructure. Top occupations in California's construction industry include carpenters, construction laborers, dry wall and ceiling tile installers, electricians, painters, plumbers, and first-line supervisors/managers of construction trades.

Energy
Energy is a key element of California's and the nation's economies, and without energy we cannot light, heat, or air-condition our homes and businesses, or propel our vehicles. However, California's employment projections for energy-related occupations in the period 2004-2014 indicate slow or no growth.

Financial Services
Financial services is another "population serving" sector. In fact, the services are offered across a wide range of industries. Top occupations in this industry include customer service representatives; tellers; insurance sales agents; claim adjusters; loan officers; securities, commodities, and financial services sales agents; and insurance claims and policy processing clerks.

Geospatial
Geospatial is emerging from established industries that use geospatial technologies or require geospatial competencies, and fast becoming an industry of its own. The President's High Growth Job Training Initiative describes the industry as "including cartographers, photogrammetrists, surveyors, civil drafters, electrical drafters, mechanical drafters, and technicians in aerospace engineering, civil engineering, electrical engineering, environmental engineering, industrial engineering, mechanical engineering, surveying, mapping, soil conservationists, range managers, foresters, geological data technicians, and geological sample test technicians. Other occupations listed by the American Society for Photogrammetry and Remote Sensing include geographers, physical scientists, computer scientists, geographical information systems analysts, database administrators, and remote sensing scientists."

California is home to the Environmental Systems Research Institute, the California Space Authority, defense and commercial aerospace companies, world-renowned oceanic research centers, and other businesses with geospatial functions providing a significant base for this industry. In California, the occupations identified by the DOL's Employment and Training Administration (ETA) as "geospatial technology-related" are expected to grow much faster than average between 2004 and 2014, adding nearly 100,000 new jobs across all industries. Employment projections note the largest demand will be for computer software engineers, both systems software and applications; database administrators; electrical and electronic engineering technicians; industrial, mechanical, electrical, environmental, and aerospace engineers; industrial engineering technicians, and civil engineering technicians.

Health Care

Health care is the ultimate "population serving" industry, reflecting the demands of a growing and aging population, both in California and across the nation. California is facing a nursing shortage that is expected to widen over the next two decades, along with a growing demand for other health caregivers. A recent study by the LMID examined the skills need and demand for 48 health care occupations that provide direct care, administrative support, and operations support for the industry. The same study examined the skills relationships and career ladder potential between five direct care occupations: home health aide, nursing aide, medical assistant, LVN, and RN. Each of these occupations is critical to California's future. Top occupations in California's health care industry include RN, nursing aides, LVNs, physicians and surgeons, home health aides, and medical assistants. Other top occupations in the industry include pharmacists, dental assistants, and dental hygienists.

Hospitality

Hospitality encompasses both accommodation and food services. Top occupations in California's hospitality industry include food preparation workers, waiters and waitresses, restaurant cooks, first-line supervisors/managers of food preparation and serving workers, counter attendants, maids and housekeeping cleaners, dishwashers, and food service managers. As the BLS notes, "the diverse range of activities offered by this industry provides excellent job opportunities for people with varied skills and educational backgrounds. Jobs will be plentiful for first-time job seekers, senior citizens, and those seeking part-time or alternative work schedules."

Information Technology (IT)

The Information Technology Association of America notes that, nationally, "92 percent of all IT workers work in non-information technology companies, 80 percent of which are in small companies outside the IT industry." California, with its dominance in the IT sector, registers a higher percentage of IT workers in IT companies, but the concept is consistent. Technology tools and the staff who use them are ubiquitous across all industries. In California, the number of workers in twelve high-growth IT occupations is expected to grow by approximately 150,000 between 2004 and 2014. Nearly two thirds of these new jobs will be for computer software engineers (both applications and systems software), computer systems analysts, and computer support specialists. Other high-growth IT occupations are network systems and data communications analysts and administrators, computer and information systems managers, computer

specialists such as those who direct computer labs, database administrators, computer hardware engineers, and computer programmers.

Manufacturing

The CREP notes that although California's overall manufacturing employment has declined in the last two decades due to cutbacks in the Department of Defense spending, cost reductions through outsourcing, and more recently the bursting of the "high tech bubble," a more careful examination of the component parts of the industry demonstrates that California is showing strong growth in the design and logistics components. The greatest growth expected for manufacturing jobs in California between 2004 and 2014 will be for production workers, production helpers, and assemblers, with nearly half of these new jobs hired through temporary help agencies rather than directly by the manufacturing industry. The top 20 high-growth occupations in the manufacturing industry are expected to add about 63,000 new jobs in the ten-year period. Among professional occupations, computer software engineers are expected to see the largest growth, with nearly 7,000 new jobs expected in the industry. Other growth occupations include first-line supervisors of production and operating workers, sales representatives, and machinists. Also important to the design component of the industry are industrial engineers and engineering managers, with over 4,000 new jobs projected for the industry during the period.

Retail

Retail trade is another example of the large "population serving" industries identified by the CREP. Self-operated checkout counters aside, the demands of a large and growing population will guarantee continued work opportunities, particularly in the largest occupations, such as cashiers, retail salespersons, and counter and rental clerks. Top growth occupations in California include these occupations as well as first-line supervisors/managers of retail sales workers, automotive service technicians and mechanics, and general and operations managers. While placement of auto service personnel may seem odd in this context, it is the largest occupation in retail trade, reflecting large mega-stores that have an automotive component.

Transportation

Transportation is a key function for California's manufacturing industry, as noted by the CREP – the logistics of getting raw materials to production centers, as well as getting parts and manufactured products tracked and distributed to global marketplaces, are essential to a successful manufacturing industry. In addition, the broader transportation infrastructure that supports the business of moving people and materials is equally key. Top occupations in California's transportation industry include truck drivers (both heavy and light); bus drivers (both school and transit); industrial truck and tractor operators; general operations managers; customer service representatives; bus and truck mechanics; diesel engine specialists; laborers and freight, stock, and material movers, hand.

What are the skill needs for the available, critical and projected jobs?

The occupational analysis above identifies top occupations in the High-Growth Job Training Initiative industries in California. This section examines the typical skill requirements for these occupations, and highlights the shared skills required. At the end of this section is a summary of common skill requirements across industries that serve as a foundation for the later analysis of skills gaps. Attachment H, *Top Skills Required in California Industries*, lists the top skills in each industry. The skills identified for each industry are from the Occupational Information Network (O*NET) skills database. More extensive definitions of each of the skills are available from that source.

Automotive

Most California employment in the automotive industry relates to selling and maintaining automobiles rather than manufacturing them. Industries that support California automobiles are motor vehicle and parts dealers, gasoline stations, and repair and maintenance facilities. The top 20 largest growth occupations in the automotive industry will grow by 18.7 percent (more than 50,000 jobs) between 2004 and 2014. The occupations vary considerably in preparation required by individuals seeking to enter them.

Of the 20 largest growth occupations in the automotive industry, seven require only short to medium OJT: retail salespersons; cashiers; cleaners of vehicles and equipment; office clerks, general; counter and rental clerks; helpers—installation, maintenance, and repair workers; and truck drivers, light and delivery services. Five of the largest growth occupations require either postsecondary vocational training or a bachelor's degree: automotive service technicians and mechanics; bus and truck mechanics, diesel engine specialists; sales managers; cost estimators; and general and operations managers.

The automotive industry has initiated efforts to standardize competencies and training for the mechanical occupations. The top skills used in the automotive industry's 20 top growth occupations are:

- Active learning,
- Active listening,
- Coordination,
- Critical thinking,
- Instructing,
- Judgment and decision making,
- Reading comprehension,
- Social perceptiveness,
- Speaking,
- Time management, and
- Troubleshooting.

Biotechnology

Biotechnology represents a bright area for job growth and employment possibilities in the near future. Rapid innovation coupled with scientific research means that important discoveries are being made routinely in California's biotech laboratories. Employment in the top 20 high-growth occupations in the industry will grow from a base of over 697,000 in 2004 to over 868,000 in 2014. Workers in this field can work under many different job titles and in many industries.

Occupations in the industry adding the most employees between 2004 and 2014 include bioinformatics specialists (includes computer software engineers, applications, up 24,700 jobs); sales representatives, wholesale and manufacturing, except technical and scientific products, up 16,700 jobs; accountants and auditors, up 15,200 jobs; and computer software engineers, systems software, up 14,500 jobs. Other occupations adding significant numbers of employees include general and operations managers, management analysts, customer service representatives, lawyers, executive secretaries and administrative assistants, computer systems analysts, and computer support specialists. Educational requirements range from a high school diploma to a doctoral degree. The top skills these occupations share include:

- Active learning,
- Active listening,
- Coordination,
- Critical thinking,
- Judgment and decision making,
- Monitoring,
- Reading comprehension,
- Social perceptiveness,
- Speaking,
- Time management, and
- Writing.

Construction

Projections of employment in California for the top 20 construction occupations with the largest growth indicate a gain of more than 119,000 jobs from 2004 through 2014. The top ten of these occupations account for more than 76 percent of this growth. Carpenters; first-line supervisors/managers of construction trades and extraction workers; electricians; plumbers, pipe fitters and steamfitters; construction laborers; and cement masons and concrete finishers; and painters, construction and maintenance are some of the occupations with the most projected growth.

Educational requirements vary among the construction occupations. Many do not even require a high school diploma. Others, such as various supervisors and managers, require a bachelor's degree. Required skills for these jobs can be wide-ranging and, in some instances high-level, such as:

- Coordination,
- Critical thinking,
- Judgment and decision making,

- Reading comprehension,
- Speaking, and
- Time management.

Over 31 percent of the construction jobs in the top growth occupations (construction laborers; cement masons and concrete finishers; painters – construction and maintenance; and dry wall and ceiling tile installers) require skills encompassing:

- Active learning,
- Active listening,
- Equipment selection,
- Installation, and
- Mathematics.

Financial Services

Financial services workers are employed in occupations that cut across a wide range of industries. In California, employment in the 20 largest growth financial services occupations is expected to increase by more than 62,000 workers between 2004 and 2014. These occupations include customer service representatives; tellers; insurance sales agents; claim adjusters, examiners, and investigators; loan officers; securities, commodities, and financial services sales agents; and insurance claims and policy processing clerks. Financial managers, financial analysts, and personal financial advisors will also experience growth during this time.

Educational requirements vary widely among the financial services occupations with the largest employment. Financial managers, financial analysts, and eight other occupations require a bachelor's degree. Customer service representatives, tellers, insurance claims and policy processing clerks and five other occupations require various levels of OJT. Financial jobs require workers to have high skill levels in:

- Active learning,
- Active listening,
- Critical thinking,
- Judgment and decision making,
- Mathematics,
- Reading comprehension,
- Service orientation,
- Speaking,
- Time management, and
- Writing.

Geospatial

Geospatial workers are employed in occupations that are used across a wide range of other industries. These include computer software engineers, systems software and applications; database administrators; electrical and electronic engineering technicians; industrial, electrical, mechanical, environmental, and aerospace engineers; industrial engineering technicians, and civil engineering technicians. Of the 21 high-growth occupations identified as geospatial, more than half require a

bachelor's degree or higher, with the bulk of the remaining occupations needing associate degrees or post-secondary vocational education. Geospatial occupations require many of the same basic skills:

- Active learning,
- Active listening,
- Complex problem solving,
- Coordination,
- Critical thinking,
- Judgment and decision making,
- Mathematics,
- Reading comprehension,
- Speaking, and
- Time management.

Additionally, the technical skills most important in the Geospatial sector are:

- Troubleshooting,
- Equipment selection, and
- Technology design.

Health Care

In California, employment in the top 20 high-growth occupations in the health care industry is expected to increase by more than 194,000 between 2004 and 2014. The projected demand and largest growth in health care careers will be for RNs; nursing aides; orderlies, and attendants; home health aides; medical assistants; and dental assistants. Employment in these top five occupations is expected to grow by 124,000 workers. Educational requirements vary widely among the health care occupations. RNs require a bachelor's or associate degree. Nursing aides and home health aides may require a high school diploma or General Equivalency Diploma (GED) certificate and vocational or job-related course work to obtain State certification. Health Care occupations require workers to have high skill levels in:

- Active learning,
- Active listening,
- Critical thinking,
- Instructing,
- Learning strategies,
- Reading comprehension,
- Social perceptiveness,
- Speaking,
- Time management, and
- Writing.

Hospitality Industry (Accommodation and Food Services)

The top 20 high-growth occupations in the hospitality industry are expected to grow by more than 201,000 between 2004 and 2014. The largest growth occupations in the hospitality industry are: waiters and waitresses, combined food preparation and serving workers, food preparation workers, fast food cooks, and restaurant cooks.

These top five occupations are expected to grow by 118,000 workers. The many part-time, low-wage, and low-skilled occupations in the hospitality industry drive high turnover creating additional employment opportunities. Employers are challenged to continuously recruit employees with the skills most essential to the largest growth hospitality industry occupations. The top ten skills are:

- Active listening,
- Coordination,
- Critical thinking,
- Instructing,
- Mathematics,
- Reading comprehension,
- Service orientation,
- Social perceptiveness,
- Speaking, and
- Time management.

Communication is a core skill needed by hospitality industry workers. Employers report that English-speaking applicants are particularly difficult to find.

Information Technology

The Information Technology Association of America states that 92 percent of IT workers are now employed in industries outside of IT. Most of the twelve high-growth IT occupations identified require a bachelor's degree or higher – only computer support specialists and related specialists such as those who work in computer labs require an associate degree. One emerging professional occupation within this field is computer and information research scientists, which require a doctorate degree. Information technology jobs require workers to have high levels of basic skills that will allow them to quickly acquire and use new information. These skills include:

- Active learning,
- Active listening,
- Complex problem solving,
- Critical thinking, and
- Reading comprehension.

Other important skills shared by IT workers in high-demand occupations include:

- Judgment and decision making,
- Time management, and
- Troubleshooting.

Manufacturing

Of the 20 manufacturing occupations with the largest expected employment growth, over half require less than an associate degree, with most requiring on-the-job training or work experience. Forty percent of the high-growth occupations require a bachelor's degree or higher, and one requires an associate degree. Regardless of training level,

all of these identified occupations share essential skill requirements:

- Active learning,
- Active listening,
- Critical thinking,
- Mathematics,
- Reading comprehension,
- Speaking, and
- Time management.

Professional workers in the manufacturing industry also require additional core skills such as:

- Judgment and decision making, and
- Complex problem solving.

Technician and production workers in the manufacturing industry share discrete skill requirements such as:

- Equipment maintenance,
- Equipment selection, and
- Monitoring.

Retail

Employment of the top 20 high-growth occupations in California's retail trade industry is expected to grow by more than 221,000 between 2004 and 2014. The projected demand in retail careers will be for retail salespersons; cashiers; first-line supervisors/managers of retail sales workers; automotive service technicians and mechanics; and packers and packagers, hand. These five occupations alone account for an increase of approximately 162,000 workers (73 percent of the top 20 high-growth occupations). Educational requirements vary widely among the retail occupations. Some retail manager positions require a bachelor's degree. Automotive service technicians and mechanics may require specialized, vocational, or apprenticeship training for certification. Retail salespersons and cashiering jobs generally require a high school diploma or GED certificate. Retail occupations are very diverse and require workers with high skill levels in:

- Active learning,
- Active listening,
- Critical thinking,
- Instructing,
- Mathematics,
- Reading comprehension,
- Service orientation,
- Social perceptiveness,
- Speaking, and
- Time management.

Transportation
Employment in California for the 20 transportation occupations with the largest growth is forecast to gain over 50,000 workers from 2004 through 2014. The top ten of these occupations will account for more than 40,000 workers. Four of these occupations – truck drivers, heavy and tractor-trailer; truck drivers, light or delivery services; laborers and freight, stock, and material movers, hand; and industrial truck and tractor operators – will be responsible for an increase of about 29,000 workers. The occupations with the most growth during the projections period also include shipping, receiving, and traffic Clerks; general and operations managers; aircraft mechanics and service technicians; packers and packagers, hand; customer service representatives; and bus and truck mechanics and diesel engine specialists.

Educational requirements vary among these transportation occupations. General and operations managers and airline pilots; copilots; and flight Engineers require a bachelor's degree. Truck drivers, light or delivery services; industrial and tractor operators; bus drivers, school; and 10 other occupations require various levels of OJT. Required skills for these jobs can be wide-ranging and, in some instances, mid-to high-level, such as:

- Active listening,
- Coordination,
- Critical thinking,
- Reading comprehension,
- Social perceptiveness,
- Speaking, and
- Time management.

Overall Skills Needs
Despite the range of jobs identified in each industry, and the range of skills needed for the differing jobs, it is interesting to note that certain skills are commonly required across industries. They are listed below, along with the O*NET definitions of these skills:

- *Active listening* – Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- *Coordination* – Adjusting actions in relation to others' actions.
- *Critical thinking* – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.
- *Judgment and decision-making* – Considering the relative costs and benefits of potential actions to choose the most appropriate one.
- *Mathematics* – Using mathematics to solve problems.
- *Reading comprehension* – Understanding written sentences and paragraphs in work-related documents.
- *Speaking* – Talking to others to convey information effectively (in most instances, the ability to communicate in English is explicitly stated or inferred).
- *Time management* – Managing one's own time and the time of others.

More broadly, the full range of skills required across industries is consistent with the still applicable workplace competencies and foundation skills identified in 1992 by the Secretary's Commission on Achieving Necessary Skills (SCANS) report, *Learning a Living: A Blueprint for High Performance; A SCANS Report for America 2000.* The SCANS Report identifies five workplace competencies and three basic foundation skills and personal qualities that are needed for job performance. They are detailed in Table 4 below.

Table 4

SCANS WORKPLACE KNOW-HOW
Workplace Competencies Effective workers can productively use: • **Resources**—they know how to allocate time, money, materials, space, and staff. • **Interpersonal skills**—they can work on teams, teach others, serve customers, lead, negotiate and work well with people from culturally diverse backgrounds. • **Information**—they can acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information. • **Systems**—they understand social, organizational, and technological systems; they can monitor and correct performance and they can design or improve systems. • **Technology**—they can select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment. **Foundation Skills** Competent workers in the high-performance workplace need: • **Basic Skills**—reading, writing, arithmetic and mathematics, speaking and listening. • **Thinking Skills**—the ability to learn, to reason, to think creatively, to make decisions, and to solve problems. • **Personal Qualities**—individual responsibility, self-esteem and self-management, sociability and integrity.

The skills and skill needs of the workforce identified by the SCANs report were validated recently, and found "sorely lacking." A detailed survey of 431 human resources officials conducted in April and May 2006 by the Conference Board examined both academic and more advanced "applied" skills. The survey was to examine employers' views on the readiness of new entrants to the US workforce, including recently hired high school graduates, two-year colleges or technical schools, and four-year colleges. Nearly three-quarters of survey participants (70 percent) cited deficiencies among incoming high school graduates in "applied" skills, such as professionalism and work ethic, defined as "demonstrating personal accountability, effective work habits, e.g. punctuality, working productively with others, time and workload management."[4]

[4] http://www.conference-board.org/utilities/pressDetail.cfm?press_ID=2971

What are the current and projected demographics of the available labor pool (including the incumbent workforce) both now and over the next decade?

California is the nation's most populous state, with the California Department of Finance estimating 37.4 million state residents as of July 1, 2006. California no longer has one ethnic group comprising a majority of its population. The 2000 census reported that 47 percent of residents were white, 33 percent Hispanic, 11 percent Asian, and 6.5 percent black. Not surprisingly, California also has the nation's largest labor force and working-age population. In 2006, the EDD reported a working-age population (civilian, non-institutional, persons age 16 years and over) of 27.3 million, of which 17.8 million were in the labor force – 16.9 million employed and 0.9 million unemployed. This translates into a labor force participation rate of just over 65 percent.

Age, Ethnicity, and Educational Characteristics of the California Labor Pool

The demographic composition of California's labor pool differs in two main respects from the nation as a whole. First, it is slightly younger and second, it has a substantially larger percentage of Hispanics. These two differences are projected to continue into the next decade. California also has a highly skilled labor force, but one that contains a large number of foreign born and non-English speaking residents. For instance, in 2006, one-third of California workers were foreign born, and one-tenth of all California workers lived in households where all adults spoke only Spanish.

Age

In December 2006, 37.3 percent of the California labor force was 34 years old or younger, compared to 36.3 percent for the entire nation. Conversely, 37.7 percent of the California labor force was 45 years of age and older, compared to 40.1 percent for the nation. However, while slightly younger, California's labor force will still experience the national phenomena of an aging labor force. California's working-age population is projected to grow by 3.9 million; from approximately 29.3 million in 2007 to 33.2 million in 2017 (see Table 5). Only 116,000 of this 3.9 million increase (or 3 percent) is from people aged 16-24, while over 2.7 million of the 3.9 million (or 70 percent) is from people aged 55 years and older. Labor force participation rates are generally highest in the 25-54 years age category, usually around 80 percent, whereas the rates are much lower for the youngest and oldest workers, around 40 percent for those ages 16-24 and 30 percent for those 55 years and older.

Ethnicity

California has a highly diverse population and labor force, especially compared to the nation as a whole. For example, Hispanics comprised 32.5 percent of the California labor force in December 2006, compared to 13.5 percent for the nation. Broken out by the most prevalent ethnicity and race, the California labor force was 45.4 percent white, 32.5 percent Hispanic, 12.4 percent Asian, and 6.0 percent black. For the nation, it was 68.3 percent white, 13.5 percent Hispanic, 11.4 percent black, and 4.4 percent Asian. In 2017, the projected California working-aged population will have an even greater representation of Hispanic persons, with 38.3 percent projected to be Hispanic, slightly more than the 38.0 percent figure for Whites. The Asian working-

aged population will be 13.3 percent and the Black population 6.7 percent (see Table 5).

Table 5

DEMOGRAPHICS OF CALIFORNIA LABOR POOL
WORKING-AGE POPULATION (AGE 16 & OVER)
2007 AND 2017

Demographic	Number of Persons-2007	Percentage of Persons	Number of Persons-2017	Percentage of Persons
Ethnicity/Race				
White	13,138,222	44.8%	12,616,423	38.0%
Hispanic	9,801,623	33.5%	12,728,444	38.3%
Asian	3,576,503	12.2%	4,425,559	13.3%
Black	1,931,970	6.6%	2,221,883	6.7%
All Others	851,564	2.9%	1,238,289	3.7%
Total	29,299,882	100%	33,230,548	100%
Age				
16-24	5,080,980	17.3%	5,194,554	15.6%
25-54	16,262,610	55.5%	17,345,105	52.2%
55 and older	7,956,292	27.2%	10,690,889	32.2%
Total	29,299,882	100%	33,230,548	100%

SOURCE: California Department of Finance. Percentages do not always equal 100 percent because of rounding.

Education

The California labor force is highly skilled. In 2006, two-fifths (40.5 percent) of employed Californians had a college degree, over three quarters (77.3 percent) of whom had a bachelor's degree or higher. On the other hand, there were a large number of California adults with little education (16 percent of workers 25 to 54 years had not received a high school diploma or GED). The employment opportunities of many adults are also limited by poor English skills. One-third of California workers were foreign born in 2006. One-tenth of California workers in 2006 lived in a household where all adults spoke only Spanish.

Implications/Issues

A number of implications or issues arise when examining California's available labor pool both now and over the next decade. These relate both to age and ethnicity. While California will likely have a younger labor pool than other states in the next decade, it will still have to deal with an aging labor force, and the challenges that it can produce. More specifically, how does California replace aging workers? Some possible answers are to: 1) ask or provide incentives for older workers to work longer, 2) target training of younger workers to industries especially threatened by an aging labor force, 3) encourage more immigration from other states, and 4) mobilize and develop underemployed or undereducated Californians to replace the aging workforce.

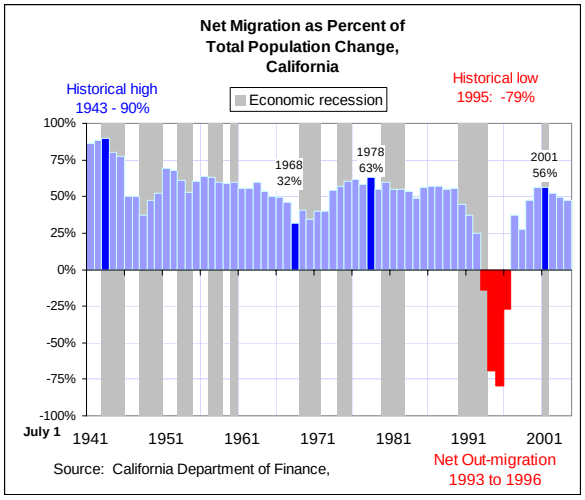
Regarding ethnicity, California's diverse population presents both challenges and opportunities. Its diverse population reflects the fact that many people throughout the world see California as a "land of opportunity," one that welcomes outsiders and offers them chances to succeed that are difficult to match elsewhere. Therefore, California starts out with a natural recruitment advantage that can be tapped if needed. On the other hand, there are challenges that a diverse labor force uniquely presents. For example, foreign immigrants often lack English-language skills, which can initially limit their opportunities. Moreover, they sometimes have difficulties adapting to American culture.

What steps does the State need to take to address these challenges? Two easy to suggest, but not always easy to implement, answers are to: 1) offer more English-as-a-Second Language courses, and 2) develop and employ managers, supervisors, and trainers who are culturally attuned or sensitive to their diverse labor force.

Is the State experiencing any "in migration" or "out migration" of workers that impact the labor pool?

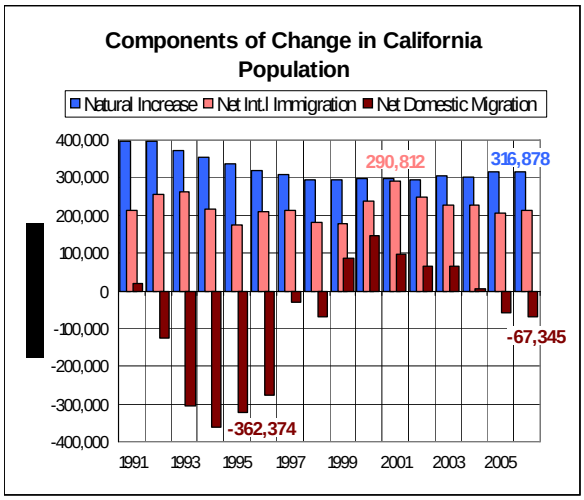
The State experiences migrant flows that impact the labor pool. From 1975 to 2004, net migration (in-migration less out-migration) exceeded 200,000 persons per year in 23 out of the 30 years. Net migration accounted for more than half of the State's population growth in 17 of the 30 years and for at least a quarter of the total change in 26 of these 30. However, net migration slowed to around 145,000 in both 2005 and 2006. The large number of migrants and their demographic and skill characteristics affect labor market conditions and pose challenges to employment and training programs.

Historically, net in-migration has contributed to half of the State's labor force growth. Net in-migration (in-migration less out-migration) has been an engine of California labor force growth since the settlers and gold miners of the 1800s.



As recently as 2003 (July 1, 2002 to July 1, 2003) net in-migration contributed 293,000 new California residents. This was 49 percent of the total population change of 597,000. This estimate includes all legal and unauthorized foreign immigrants, residents who left the State to live abroad, and the balance of people moving to and from California within the United States. However, California's rate of net in-migration has slowed in recent years due to domestic out-migration from the State. In 2006 (July 1, 2005 to July 1, 2006), net in-migration contributed 145,600 new California residents. This was 31 percent of the total population change of 462,500.

Net migration[5] accounted for the majority of California population increases throughout its history. The above graph depicts State population change from 1941 to 2004. Net migration was the majority source of population change in 42 of these 64 years.



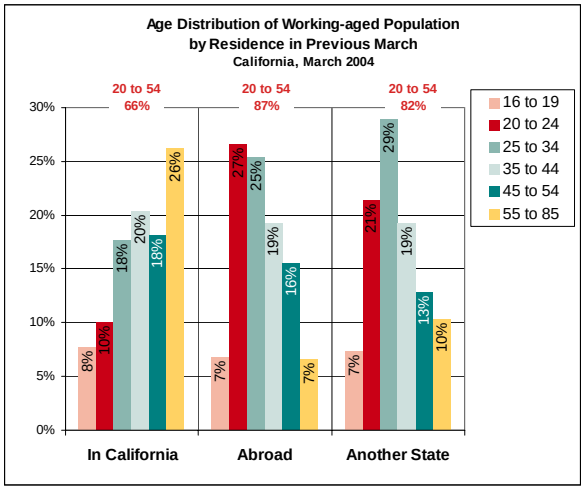
Traditionally, international and domestic net migrations to the State have been positive, with international net migration the larger of the two. However, domestic net migration, which varies more year-by-year according to economic conditions, turned negative in recent years.

From July 2005 to July 2006, net immigration, the sum of movements between California, other states, and foreign countries, contributed 145,600 persons, or 31 percent of the overall population growth. Whereas net immigration from abroad contributed 212,900 new Californians, domestic net out-migration totaled 67,300.

As the chart above illustrates, net international immigration has been relatively stable, hovering around 200,000 persons in most years since 1991. In contrast, domestic migration has varied considerably, from a net out-migration of 362,400 to net in-migration of 146,000. The seven years of domestic net out-migration from 1992 through 1998 were during and following the 1990-93 recession. That recession was more severe and protracted in California than any other state in the nation. California's high costs of living, and more particularly, its high housing costs, were a key contributing factor to the domestic out-migration in 2005 and 2006.

Compared to the existing population, migrants are more likely to be in the ages of high labor force participation.

In March 2004, over one-quarter of Californians who lived here in the preceding year were 55 years and older – an age when labor force participation is very low. Just two-thirds of this population was ages 20 to 54 years. On the other hand, 87 percent of Californians who moved from abroad were ages 20 to 54 years. This age group made up a similarly large share of Californians who had moved from another state in the last year.



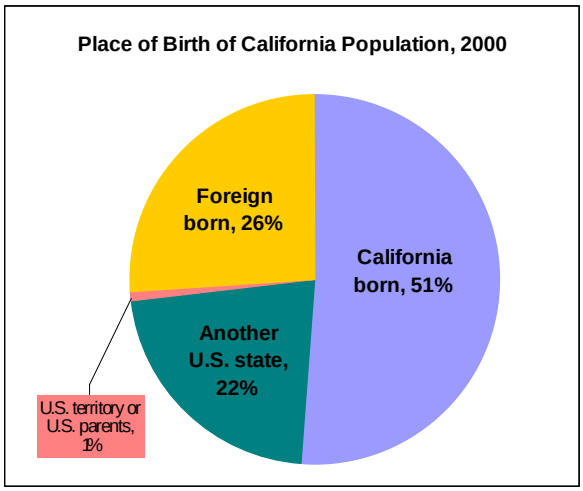
The younger age distribution suggests migrants have somewhat higher labor force participation rates than the resident

[4] As opposed to natural increase, births less deaths.

population. The data from 2004 bear this out. Domestic migrants, in particular, have a participation rate of 75 percent, ten percentage points higher than the rate among residents. Hence, without making exact tabulations, we conclude net in-migration is likely to have contributed at least half of the state's labor force growth in recent years.

As a result of high annual in-migration, almost half of the California population was born outside the state.

Migration is a flow concept. The cumulative affect of the large numbers of migrants is seen in data relating to the entire population – a stock concept. As the chart at right illustrates, as of the 2000 Census, 22 percent of California residents had been born in another state and 26 percent had been born abroad.



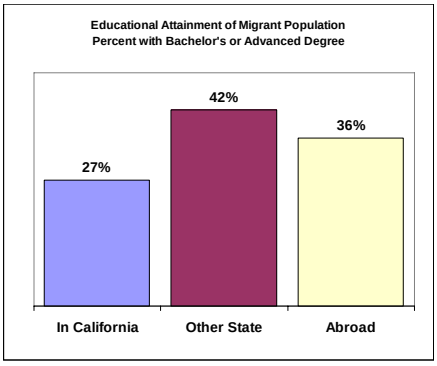
California is a diverse state where the in-migration and out-migration of the labor force varies from area to area.

Fifty-six of California's 58 counties experienced population growth from 2005 to 2006. International in-migration contributed to population growth in 57 of 58 counties. However, 21 of California's 58 counties experienced net domestic out-migration. By and large, these were coastal, highly urban counties where high housing costs are pushing workers to live elsewhere. Many of these workers are settling in interior regions of California where housing costs are cheaper. Each of the counties in the Central Valley and Inland Empire experienced net domestic in-migration in 2006. Because of differences in local area labor markets, it will be necessary for Local Boards to address the needs of their migrant populations individually.

Demographic characteristics of persons moving to California affect labor markets and pose a special challenge for State training programs.

For education and training programs, it is important to know the education, skills, and work experience brought by in-migrants. Generally, in-migrants tend to be better educated than those who were California residents in the previous year. Facility with English by language group is shown in the table. It indicates that persons speaking Spanish and those speaking Asian/Pacific Islander languages have higher proportions of their groups with little or no English language skills.

Language spoken	Percent of population	Percent of group who speak English not well or not at all
English only	61%	--
Spanish	26%	31%
Indo-European languages	4%	13%
Asian/Pacific Island Language	9%	24%
Other languages	1%	11%



Based on an analysis of both the projected demand for skills and the available and projected labor pool, what skill gaps is the State experiencing today and what skill gaps are projected over the next decade?

As noted above, the LMID prepares short-term (two-year) industry and occupational employment projections annually, as well as long-term (ten-year) employment projections biennially, following the biennial production of the national employment projections. The most current available short-term projections cover the period 2005-07, and the most current available long-term projections cover the period 2004-2014.

In addition, the LMID has been evaluating new analytical tools to supplement these employment projections to better enable the State to identify both current and projected skills gaps. These new tools will be described in this section, and examples of how they can be used will be provided.

It is important to state, though, that there is no proven methodology for projecting skills gaps ten years ahead. Even documenting existing skills gaps is not as easy as it may appear. While there are often reports of shortages of workers in certain industries, much of this information is anecdotal. Moreover, the reasons why a labor shortage may exist are rarely clear. Is it:

- A lack of qualified workers?
- An unwillingness of employers to pay a high enough wage to attract workers? or
- Working conditions so demanding that almost no wage would be high enough to attract sufficient workers?

Also, there should be a distinction drawn between the terms “skills gap” and “skills shortage.” Sometimes “skills gap” refers to skill deficiencies of employees working within a firm, whereas a “skills shortage” means a shortage of suitably skilled people available in the labor market. Because the questions being asked in this section appear to pertain to a shortage of skilled workers in the labor market, the term “skills shortage” will be used in the following discussion.

Finally, it should be noted that, while any analysis of skills shortages at the State level is important for general planning purposes, similar analyses at the local and regional levels is of equal importance. This is particularly true in an economy and labor market as large and diverse as California’s. Consequently, this analysis is intended to serve as an evolving approach to identifying current and future skills shortages that should assist State- and local-level planners in the information it presents, and local-level planners in continuing with their own analyses.

Current and Projected Skills Shortages

Summarizing the findings from the projections data presented above, the fastest growing occupations over the long-term are concentrated in health care, construction, education, and computer-related fields, and include occupations such as RNs,

computer support specialists, truck drivers, and elementary and secondary school teachers.

What remains to be discussed is how successful California has been in filling these jobs currently, and how successful it will be in filling these jobs over the next decade. In answering these questions, the LMID is utilizing three analytical tools to help pinpoint skills shortages both currently and in the years ahead. One of these tools involves an analysis of worker earnings, another taps education and training completion data to compare the current supply of new workers with the current demand for workers, and a third relies on employer-reported labor shortages.

These three analytical tools use additional data sources to evaluate possible skills shortages and can be briefly identified as:

1. Wage Change Indicator,
2. Completers Data, and
3. Employer Reported Shortages.

1. Wage Change as an Indicator of Labor Supply

Economists studying labor supply and demand issues have searched for methods that could help identify industries that may have experienced labor (or skills) shortages. One new method looks at available data on employment, unemployment rates, and wages to assess the existence of or potential for shortages in a particular labor market. For example, strong growth in employment in a particular industry or occupation over time is likely to reflect a rise in demand for workers requiring a specific level of education and/or experience. Similarly, low unemployment rates and rapidly rising "relative" wages may imply that the demand for workers in that industry or occupation exceeds the supply and that the labor market may experience a labor shortage.

Following this line of thinking, the LMID investigated whether the longitudinal patterns revealed by employment and annual earnings at the industry level could be used as an indicator of a persistent labor shortage and whether the responsiveness of the labor market to such a shortage could be studied. The economic premise underlying this research is that labor shortages are ultimately reflected in relatively high wage increases.

Based on the difference between employment levels and wages paid by employers in a sub-industry compared to the industry overall, the LMID constructed a supply indicator (SI) to predict potential labor shortages.[6] Table 6 below lists the top 20 industries picked by the SI to experience a likely labor shortage. The five industries bolded in the table are also among the industries projected to have the fastest employment growth between 2004-2014, suggesting that the SI may be a useful tool in identifying potential labor shortages.

[6] See the LMID Working Paper, "Nominal Wage Change: An Indicator of Labor Supply," September 2005, at http://www.labormarketinfo.edd.ca.gov/admin/uploadedPublications/588_NominalWageChange.pdf.

Table 6

TOP 20 INDUSTRIES PREDICTED BY SUPPLY INDICATOR TO EXPERIENCE LIKELY LABOR SHORTAGES
Computer and Peripheral Equipment Manufacturing
Semiconductor and Other Electronic Component Manufacturing
Other Electrical Equipment and Component Manufacturing
Software Publishers
Wireless Telecommunications Carriers (except Satellite)
Pharmaceutical and Medicine Manufacturing
Health and Personal Care Stores
Traveler Accommodation
Electronics and Appliance Stores
Full-Service Restaurants
Employment Services
Securities and Commodity Contracts Intermediation and Brokerage
Industrial Machinery Manufacturing
Electronic Shopping and Mail-Order Houses
Electrical and Electronic Goods Merchant Wholesalers
Computer Systems Design and Related Services
Support Activities for Crop Production
Nursing Care Facilities
Investigation and Security Services
Commercial and Service Industry Machinery Manufacturing

2. *Completers Data as a Skills Shortage Tool*

Another new tool that the LMID has been researching as an indicator of skills shortages is program completer's data developed by Georgia State University under a now-expired contract with the DOL as part of the National Occupational Supply-Demand Consortium project. The Consortium has developed a web site that provides tables, by occupation, of program completers by program of study and training, and by degree level. These "supply" figures are collected from the National Center for Educational Statistics. On the same site are tables of "demand" figures collected from the DOL on: 1) occupational characteristics, 2) occupational projections, 3) wage trends, and 4) occupational employment by the top five industries.

One clear value of this tool is that it allows for a quick comparison of current levels of program completers with both current and projected occupational demand for a wide array of occupations. Moreover, the tool offers both national and statewide figures. The Consortium's website can be found at: http://www.occsupplydemand.org. Using RNs in California as an example, the web site reports that almost 8,000 individuals completed RN in California in 2003-04, well short of the 10,910 average annual openings for RNs as estimated by the DOL in 2004 (see Table 7).

While the Consortium work holds promise in creating an easily accessible tool that can provide a quick snapshot of current supply and demand numbers, there are a number of limitations that must be recognized. First, of course, is that the numbers must be reasonably accurate. The Consortium's data may contain gaps and inaccuracies and should be compared to other supply sources when available. For example, the 8,000 RN program completers that the Consortium cites in Table 7 are much higher than the approximately 6,100 graduates from RN programs that the California Board of Registered Nursing released for California in 2003-04.

Second, even if the program completion numbers are accurate, knowing how to use them for comparative purposes requires careful thought. For instance, using state numbers alone may not make sense for certain occupations, especially for jobs that require a four-year college degree and beyond. Some analysts believe that there is a national and international market for occupations requiring a four-year degree – that these graduates are much more willing and able to travel from their current home to take a job. This may also be true for some occupations requiring less than a four-year degree. For example, the California Board of Registered Nurses reported that in 2002-03, 50 percent of RN licenses issued in California were to individuals educated in another state, and another 15 percent were issued to those educated internationally. Therefore, one may need to look beyond state numbers to compare a state's supply-demand figures for a given occupation.

Finally, while reliable program completion figures could be helpful in examining the current supply-demand (or skills shortages) situation, it has limited value in assessing the situation ten years ahead. Even a carefully interpreted analysis of accurate completion figures can only suggest that there may or may not be a shortage today, and possibly in the future if the completion figures do not change. However, there is no established method to project program completion figures ten years from now as is done for occupational openings.

3. Employer Reported Shortages

Besides exploring the use of the SI and the Consortium's *experimental* website as new tools for measuring skills shortages, the LMID continues to examine existing tools that shed light on current shortages. For example, for around 15 years, the LMID and local partners surveyed employers to collect occupational information for occupations chosen by the Local Areas as important to their areas. The local partner then produced an area occupational report that presented a wide array of occupational information including: wages and benefits, work activities, education and training needed, annual job openings, and demand for and availability of qualified workers.[7] In gathering information for the last item, employers were asked two questions:

[6] Because of budget cutbacks, this information is still being collected, but LMID alone administers the surveys, selects a limited number of occupations surveyed, with advice from local workforce training providers and others, and presents the results on its web site.

- How difficult is it to find experienced and qualified applicants?
- How difficult is it to find inexperienced but qualified applicants?

The results of these "difficulty in recruiting qualified applicants" questions present additional anecdotal information and are especially valuable because of their sub-state or local coverage. When used with other skills shortage indicators, this employer provided information could be a useful analytical tool.

Identifying Skills Shortages

Using the analytical tools discussed above, the LMID analyzed the high-growth occupations identified above (where program completer's data and employer-reported shortages data are available), to try and identify occupations that probably are experiencing current shortages and may experience shortages over the coming decade.

The results in Table 7 below suggest that California may well be experiencing current shortages for most of the occupations listed. Only four of the occupations – heating, air conditioning, and refrigeration technicians; general and operations managers; medical assistants; and police and sheriff's patrol officers – show more program completers than average annual openings. However, even these four had a majority of employers reporting difficulty in recruiting such workers. In addition, a majority of employers reported recruiting difficulties for 11 of the 14 occupations where employer data were available. Finally, five of the 15 occupations – computer software engineers; dental hygienists; home health aides; medical assistants; and RNs – are prominent occupations in three of the top 20 industries predicted by the SI to experience likely labor shortages (see Table 6 above).

The evidence presented in the table, even noting the limitations of the program completers and recruiting qualified workers data, suggests that California is experiencing a current shortage of workers in most of these 15 occupations. In addition, until the program completion numbers increase or employers take other steps to recruit more qualified workers, it is possible that shortages will continue over the next decade if projected growth estimates prove accurate.

Not included in this analysis are the general skills, often referred to as soft and basic skills that are required across industries and across occupations. These skills shortages, as identified commonly by employers, are addressed in the skills analysis of this plan and summarized within the table on SCANS skills, and reference to the Conference Board's recent survey of human resources officials.

Table 7

POTENTIAL SHORTAGES IN CALIFORNIA FOR SELECTED OCCUPATIONS				
Occupation	**Program Completers (2003-04)**	**Average Annual Openings (2004-2014)**	**Projected 2004-2014 Growth**	**Employers Reporting Moderate to Much Difficulty Recruiting Experienced Workers (2005-06)***
Accountants and Auditors	4,312	5,330	Average	86%
Automotive Mechanics	3,254	3,790	Faster than average	87%
Carpenters	44	7,310	Faster than average	87%
Computer Software Engineers, Applications & Systems Software	1,665	7,600	Much faster than average	91%
Dental Hygienists	434	830	Much faster than average	N/A
Elementary School Teachers	1,532	8,300	Average	60%
Heating, Air Conditioning, and Refrigeration Mechanics and Install.	1,032	470	Much faster than average	N/A
Home Health Aides	83	1,970	Much faster than average	96%

Table 7 continued

Occupation	Program Completers (2003-04)	Average Annual Openings (2004-2014)	Projected 2004-2014 Growth	Employers Reporting Moderate to Much Difficulty Recruiting Experienced Workers (2005-06)*
General and Operations Managers	33,900	8,590	Average	51%
Medical Assistants	13,590	2,760	Much faster than average	82%
Office Clerks, General	318	13,420	Average	48%
Police and Sheriff's Patrol Officers	5,490	3,170	Faster than average	N/A
Registered Nurses	7,959	10,910	Faster than average	94%
Secondary School Teachers	1,839	5,550	Faster than average	83%
Truck Drivers, Heavy and Tractor-Trailer	667	5,180	Faster than average	N/A

*Percent of employers surveyed in 2005/06 reporting "difficulty finding applicants with prior work experience who met minimum hiring requirements." Most employers reported that they require prior work experience.

*Annual average percentage answering "difficulty in finding qualified but inexperienced applicants" question in the years 2001-2003. Number in parenthesis is the annual average number of local regions providing data. A local region can be a county, multiple counties, or a Local Area.
**Number of local regions is for calendar year 2003 only.

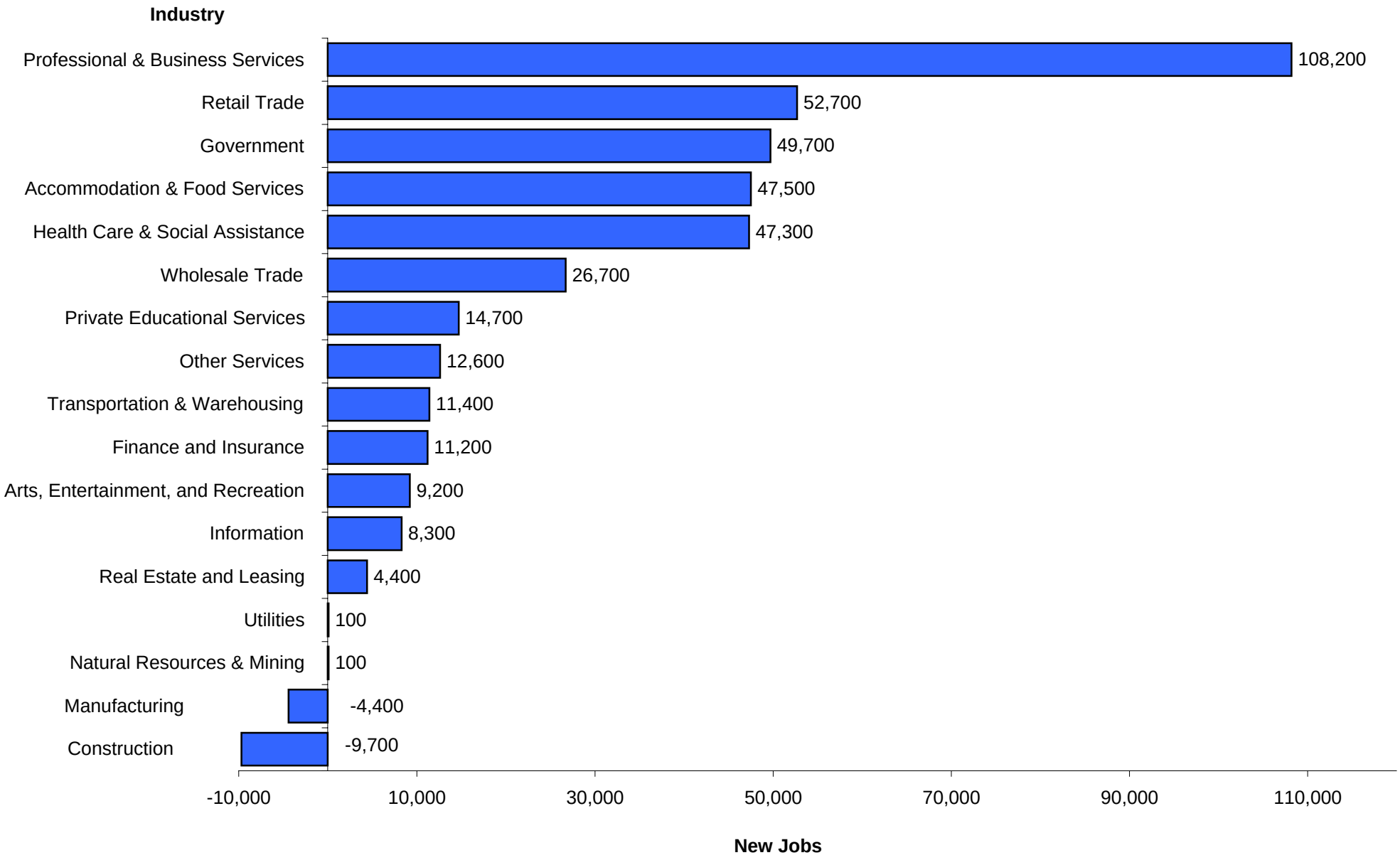
Conclusion

While California has a good idea of what jobs are apt to grow over the next decade, the tools available to predict whether there will be enough qualified workers to fill those jobs are currently limited. By exploring new analytical tools, such as program completion numbers, and by taking a fresh look at existing sources of information, such as employer-reported difficulties in finding qualified workers, California hopes to develop a more systematic approach for recognizing both current and future skills

shortages. New sources of information include the DOL ETA websites for the WIRED initiatives and information at **http://www.doleta.gov** and **http://www.workforce3one.org** .

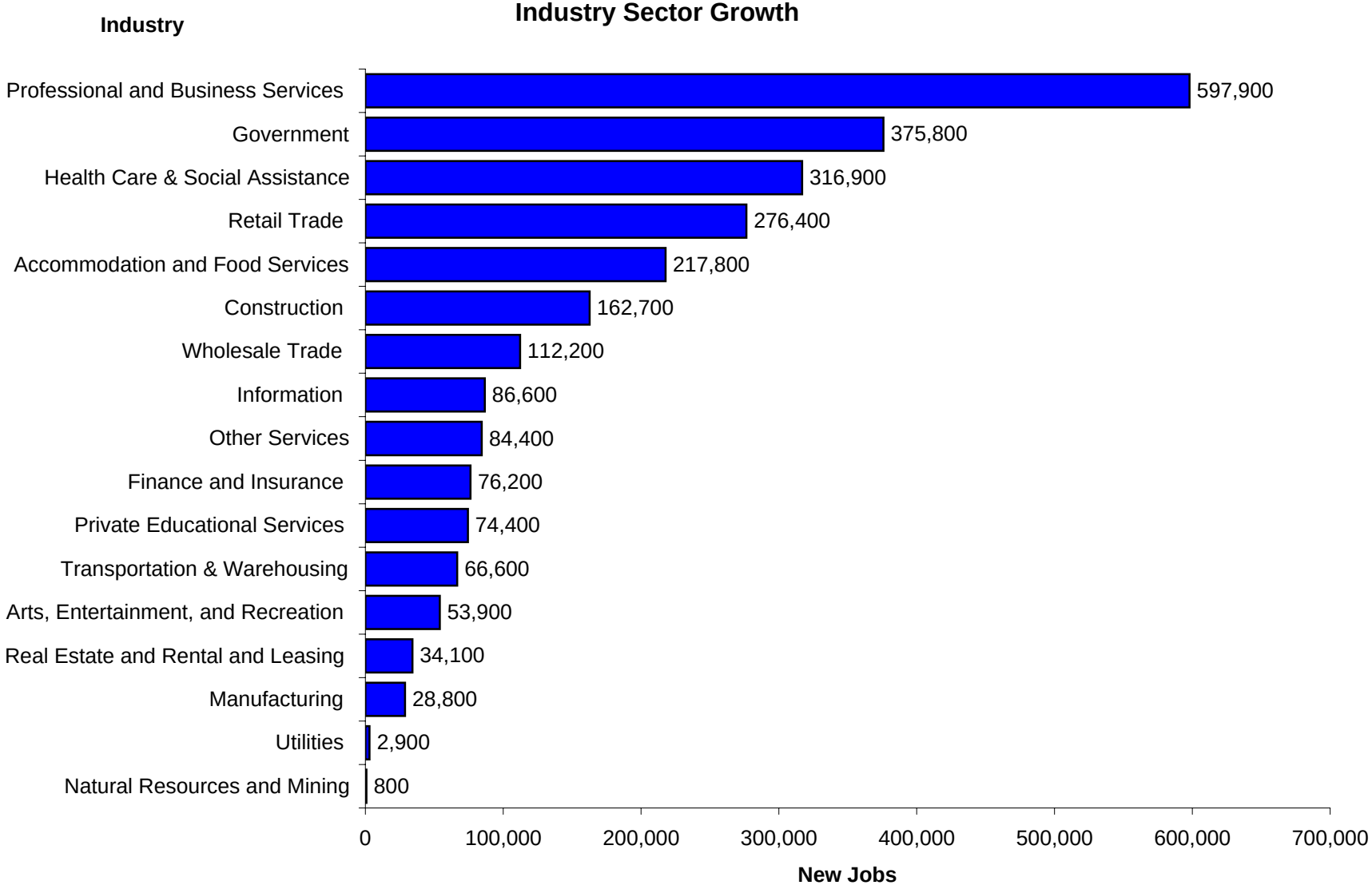
Given the available tools, it appears that California is not training enough homegrown residents currently to fill such jobs as RNs, carpenters, elementary school teachers, and truck drivers. Whether current statewide shortages exist in those occupations is less certain. The example of RNs licensed in California in 2001, most of whom were educated outside the State, demonstrates that qualified workers are willing to come and employers are willing to recruit beyond our borders for certain occupations. Thus, California must be cautious in making definitive statements about skills shortages today, and especially cautious about making them a decade from now.

California Short-Term Industry Projections 2005-07
Industry Sector Growth



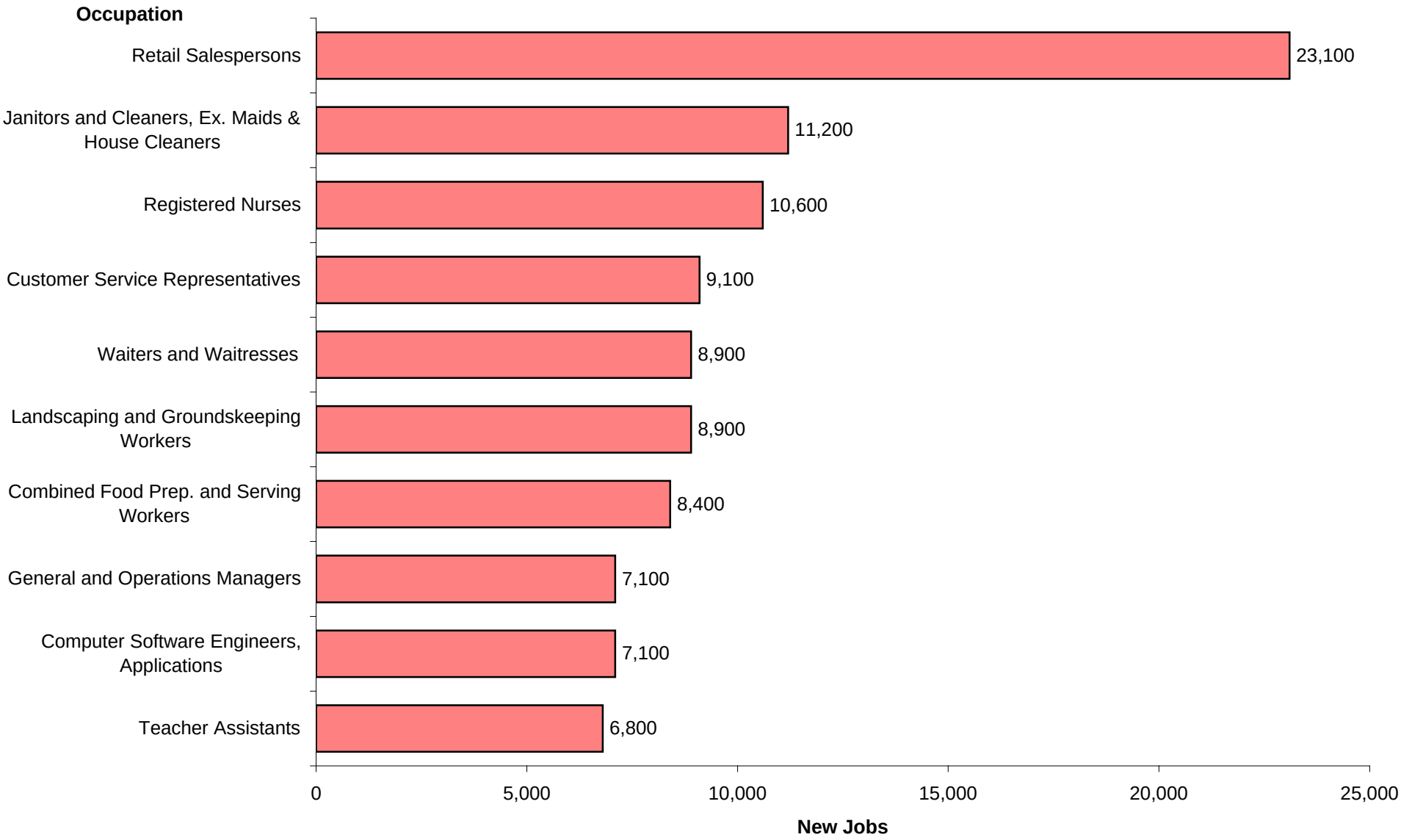
Source: State of California, Labor Market Information Division

California Long-Term Industry Projections 2004-2014
Industry Sector Growth



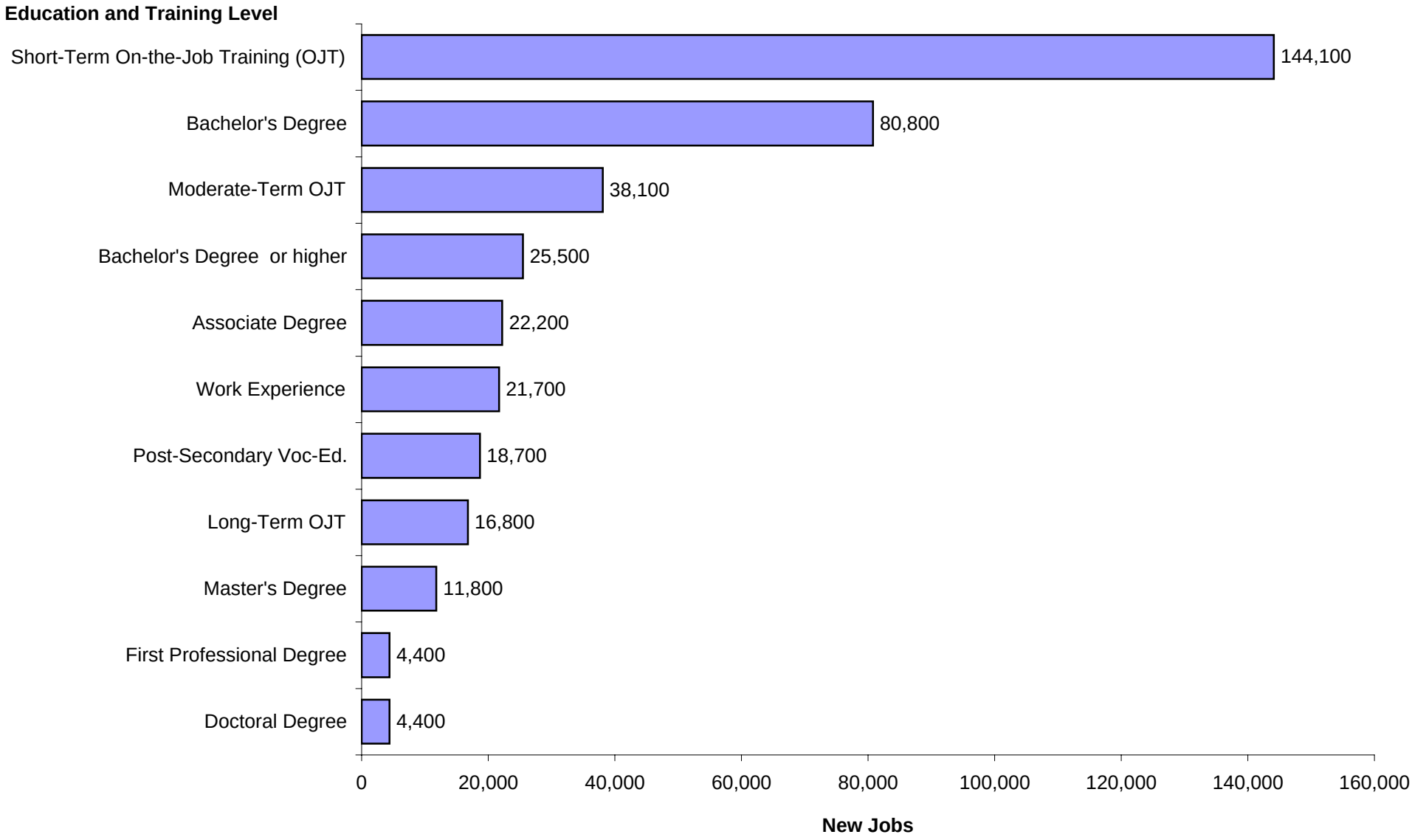
Source: State of California, Labor Market Information Division

California Short-Term Occupational Projections 2005-07
Ten Largest Growing Occupations



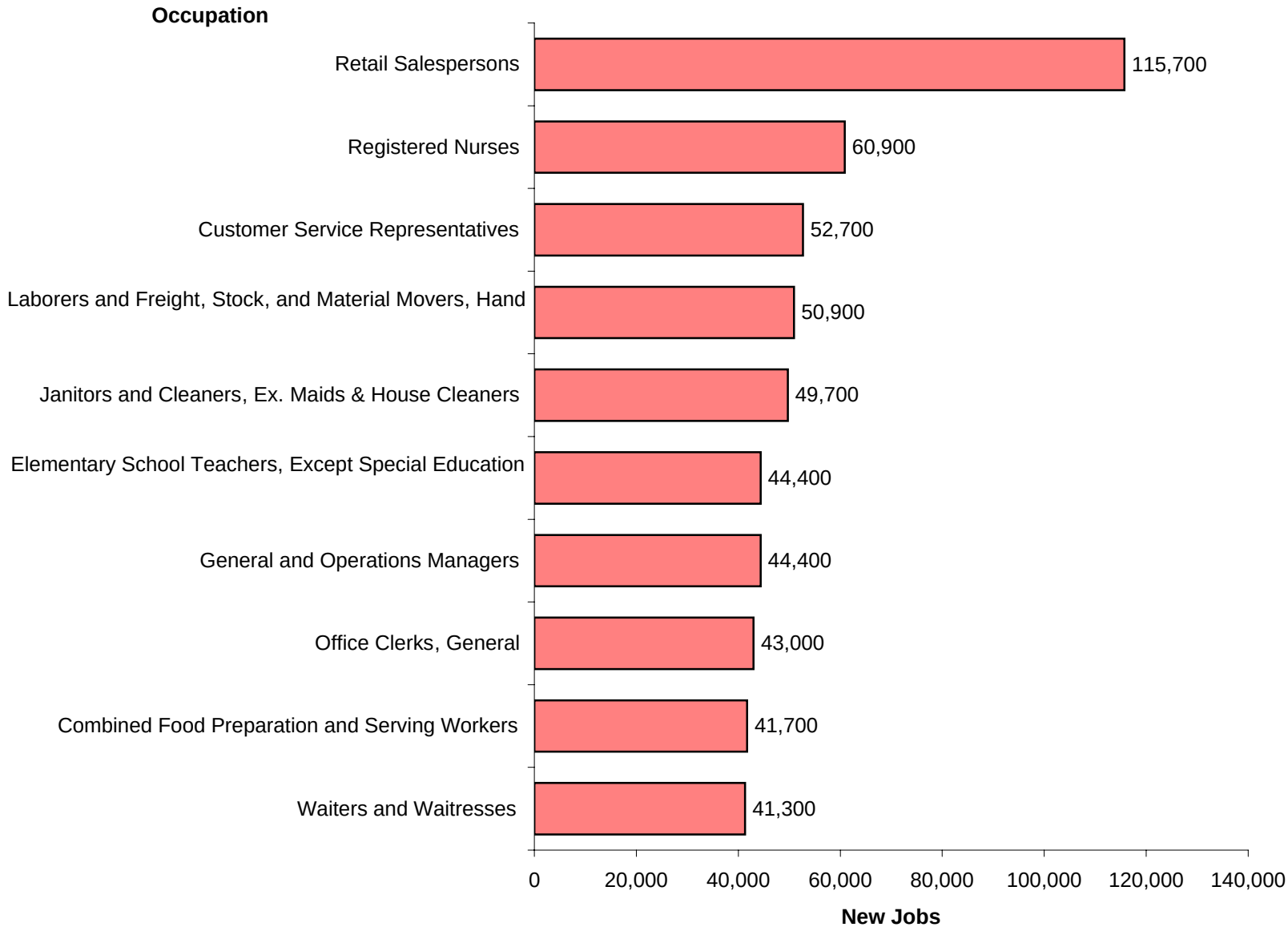
Source: State of California, Labor Market Information Division

California Short-Term Occupational Projections 2005-07
Employment Growth By Education and Training Level



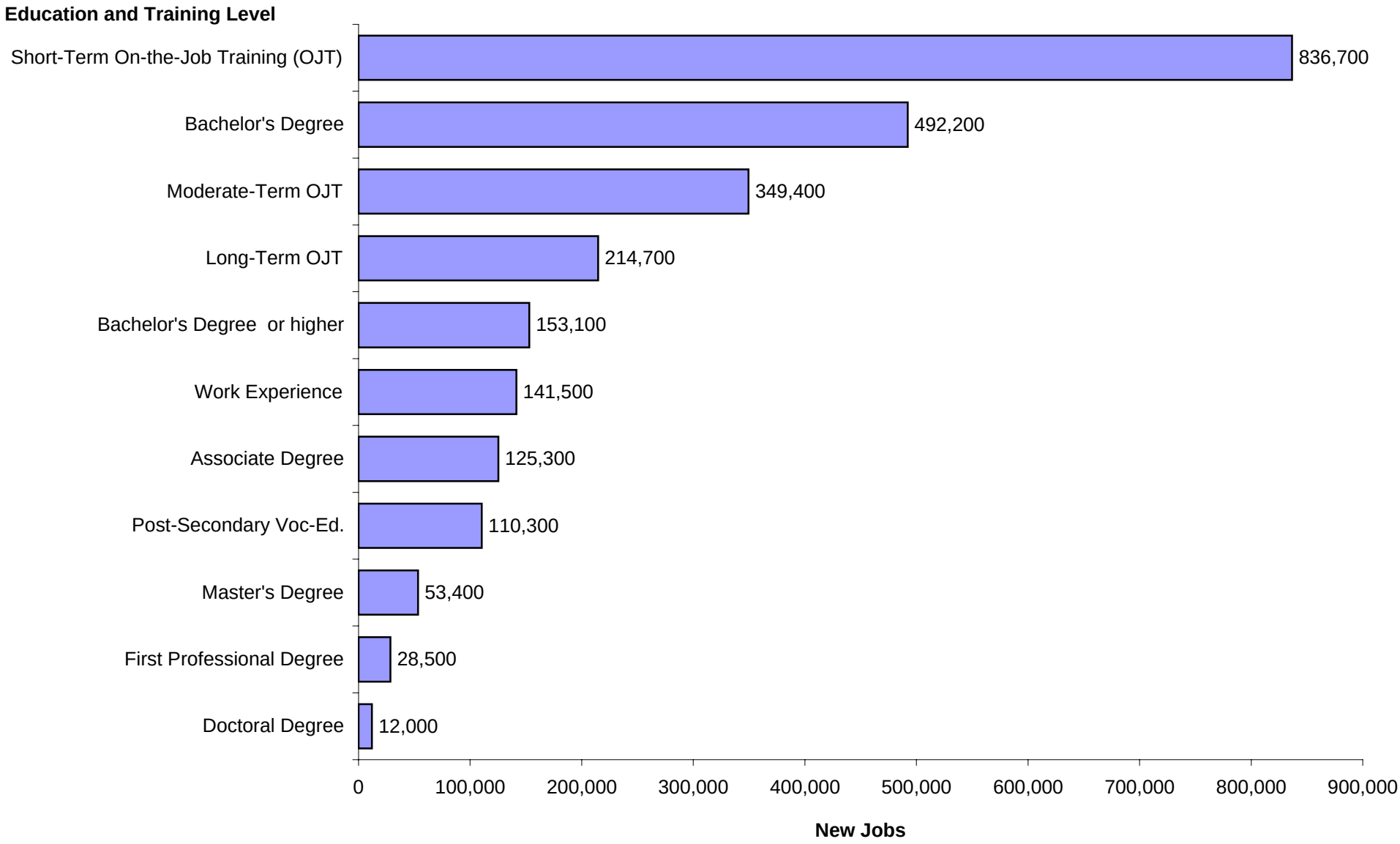
Source: State of California, Labor Market Information Division

California Long-Term Occupational Projections 2004-14
Ten Largest Growing Occupations



Source: State of California, Labor Market Information Division

California Long-Term Occupational Projections 2004-14
Employment Growth By Education and Training Level



Source: State of California, Labor Market Information Division

Comparison of Growing Occupations in California
Base Year 2004 to Projected Year 2014

Fastest Growing* (Percentage Growth)	Education / Training Level	Largest Growing* (Adding the Most Jobs)
Home Health Aides (47.8% or 19,700 jobs)		Retail Salespersons (115,700 jobs)
Crossing Guards (25.5% or 1,300 jobs)	**Short-term on-the-job training (one month or less)**	Laborers and Freight, Stock, and Material Movers, Hand (50,900 jobs)
Cutters and Trimmers, Hand (25.0% 0r 1,600 jobs)		Janitors and Cleaners, Except Maids and Housekeeping Cleaners (49,700 jobs)
Retail Salespersons (24.4% or 115,700 jobs)		Office Clerks, General (43,000 jobs)
Nonfarm Animal Caretakers (24.3% or 3,400 jobs)		Combined Food Preparation and Serving Workers, Including Fast Food (41,700 jobs)
Dental Assistants (40.9% or 16,900 jobs)		Customer Service Representatives (52,700 jobs)
Medical Assistants (35.7% or 18,200 jobs)	**Moderate-term on-the-job training (one to 12 months)**	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products (30,500 jobs)
Social and Human Service Assistants (28.8% or 8,000 jobs)		Executive Secretaries and Administrative Assistants (29,900 jobs)
Fence Erectors (27.3% or 1,500 jobs)		Truck Drivers, Heavy and Tractor-Trailer (28,400 jobs)
Customer Service Representatives (26.4% or 52,700 jobs)		Medical Assistants (18,200 jobs)
Tile and Marble Setters (31.0% or 5,400 jobs)	**Long-term**	Carpenters (41,300 jobs)
Heating, Air Conditioning, and Refrigeration Mechanics and Installers (26.9% or 4,700 jobs)	**on-the-job-training (12 months or more)**	Maintenance and Repair Workers, General (23,900 jobs)
Fire Fighters (26.2% or 6,900 jobs)		Cooks, Restaurant (16,800 jobs)
Cement Masons and Concrete Finishers (23.9% or 6,800 jobs)		Police and Sheriff's Patrol Officers (12,700 jobs)
Plumbers, Pipefitters, and Steamfitters (23.2% or 12,700 jobs)		Plumbers, Pipefitters, and Steamfitters (12,700 jobs)
Construction and Building Inspectors (25.5% or 2,800 jobs)	**Work experience in a related occupation**	First-Line Supervisors/Managers of Office and Administrative Support Workers (17,400 jobs)
First-Line Supervisors/Managers of Transportation and Material-Moving Machine and Vehicle Operators (22.5% or 5,000 jobs)		First-Line Supervisors/Managers of Retail Sales Workers (16,500 jobs)
First-Line Supervisors/Managers of Housekeeping and Janitorial Workers (21.3% or 4,400 jobs)		First-Line Supervisors/Managers of Food Preparation and Serving Workers (15,800 jobs)
Self-Enrichment Education Teachers (21.1% or 7,200 jobs)		First-Line Supervisors/Managers of Construction Trades and Extraction Workers (13,700 jobs)
First-Line Supervisors/Managers of Fire Fighting and Prevention Workers (20.0% or 1,500 jobs)		First-Line Supervisors/Managers of Mechanics, Installers, and Repairers (8,100 jobs)
Gaming Dealers (38.5% or 3,500 jobs)	**Postsecondary vocational training**	Automotive Service Technicians and Mechanics (16,600 jobs)
Fitness Trainers and Aerobics Instructors (27.6% or 7,400 jobs)		Preschool Teachers, Except Special Education (11,800 jobs)
Vocational Education Teachers, Postsecondary (27.5% or 3,600 jobs)		Licensed Practical and Licensed Vocational Nurses (11,200 jobs)
Emergency Medical Technicians and Paramedics (26.5% or 3,100 jobs)		Fitness Trainers and Aerobics Instructors (7,400 jobs)
Surgical Technologists (24.5% or 2,300 jobs)		Real Estate Sales Agents (5,600 jobs)

Comparison of Growing Occupations in California
Base Year 2004 to Projected Year 2014

Fastest Growing* (Percentage Growth)	Education / Training Level	Largest Growing* (Adding the Most Jobs)
Dental Hygienists (41.7% or 8,300 jobs)	**Associate degree**	Registered Nurses (60,900 jobs)
Veterinary Technologists and Technicians (30.3% or 2,000 jobs)		Computer Support Specialists (14,900 jobs)
Paralegals and Legal Assistants (28.5% or 7,300 jobs)		Dental Hygienists (8,300 jobs)
Registered Nurses (26.4% or 60,900 jobs)		Paralegals and Legal Assistants (7,300 jobs)
Medical Records and Health Information Technicians (25.9% or 3,600 jobs)		Electrical and Electronic Engineering Technicians (4,700 jobs)
Network Systems and Data Communications Analysts (59.1% or 14,300 jobs)	**Bachelor's degree**	Elementary School Teachers, Except Special Education (44,400 jobs)
Computer Software Engineers, Applications (46.4% or 39,200 jobs)		Computer Software Engineers, Applications (39,200 jobs)
Computer Software Engineers, Systems Software (45.8% or 23,400 jobs)		Accountants and Auditors (29,500 jobs)
Network and Computer Systems Administrators (41.9% or 12,400 jobs)		Secondary School Teachers, Except Special and Vocational Education (24,800 jobs)
Database Administrators (41.6% or 4,700 jobs)		Computer Software Engineers, Systems Software (23,400 jobs)
Agents and Business Managers of Artists, Performers, and Athletes (33.9% or 2,000 jobs)	**Bachelor's degree or higher plus work experience**	General and Operations Managers (44,400 jobs)
Computer and Information Systems Managers (28.1% or 9,800 jobs)		Management Analysts (15,200 jobs)
Compensation and Benefits Managers (27.6% or 1,600 jobs)		Financial Managers (12,300 jobs)
Sales Managers (24.7% or 12,200 jobs)		Sales Managers (12,200 jobs)
Producers and Directors (24.5% or 4,800 jobs)		Computer and Information Systems Managers (9,800 jobs)
Health Specialties Teachers, Postsecondary (32.9 % or 2,400 jobs)	**Master's degree**	Market Research Analysts (5,400 jobs)
Art, Drama, and Music Teachers, Postsecondary (32.2% or 1,900 jobs)		Educational, Vocational, and School Counselors (4,600 jobs)
Physical Therapists (29.1% or 3,900 jobs)		Physical Therapists (3,900 jobs)
Substance Abuse and Behavioral Disorder Counselors (26% or 2,500 jobs)		Instructional Coordinators (3,300 jobs)
Instructional Coordinators (25.0% or 3,300 jobs)		Mental Health Counselors (3,000 jobs)
Medical Scientists, Except Epidemiologists (35.5% or 5,500 jobs)	**Doctoral degree**	Medical Scientists, Except Epidemiologists (5,500 jobs)
Clinical, Counseling, and School Psychologists (22.3% or 5,400 jobs)		Clinical, Counseling, and School Psychologists (5,400 jobs)
Computer and Information Scientists, Research (19.3% or 1,100 jobs)		Computer and Information Scientists, Research (1,100 jobs)
Pharmacists (24.1% or 5,700 jobs)	**First professional degree**	Lawyers (12,800 jobs)
Chiropractors (19.2% or 1,000 jobs)		Pharmacists (5,700 jobs)
Family and General Practitioners (16.3% or 1,500 jobs)		Dentists, General (1,900 jobs)
Lawyers (15.7% or 12,800 jobs)		Family and General Practitioners (1,500 jobs)
Surgeons (13.8% or 800 jobs)		Chiropractors (1,000 jobs)

* Excludes "All Other" categories and occupations with employment less than 5,000 in 2004.

Source: State of California, Employment Development Department
Labor Market Information Division, (916) 262-2162

TOP SKILLS REQUIRED IN CALIFORNIA INDUSTRIES

Attachment H

(Italicized skills are common across industries)

Automotive	Biotechnology	Construction	Financial	Geospatial	Health Care
• Active learning • *Active listening* • *Coordination* • *Critical thinking* • Instructing • *Judgment and decision making* • *Reading comprehension* • Social perceptiveness • *Speaking* • *Time management* and • Troubleshooting	• Active learning • *Active listening* • *Coordination* • *Critical thinking* • *Judgment and decision making* • Monitoring • *Reading comprehension* • Social perceptiveness • *Speaking* • *Time management* and • Writing	• Active learning • *Active listening* • *Coordination* • *Critical thinking* • Equipment selection • Installation • *Judgment and decision making* • *Mathematics* • *Reading comprehension* • *Speaking* and • *Time management*	• Active learning • *Active listening* • *Critical thinking* • *Judgment and decision making* • *Mathematics* • *Reading comprehension* • Service orientation • *Speaking* and • *Time management and* • Writing	• Active learning • *Active listening* • Complex problem solving • *Coordination* • *Critical thinking* • Equipment selection • *Judgment and decision making* • *Mathematics* • *Reading comprehension* • *Speaking* • Technology design • *Time management* and • Troubleshooting	• Active learning • *Active listening* • *Critical thinking* • Instructing • Learning strategies • *Reading comprehension* • Social perceptiveness • *Speaking* • *Time management* and • Writing

Source: Labor Market Information Division

Industry breakout from High Growth Training Initiative
Occupational Selection: California Projections of Employment 2004-14
Occupational Skills: Occupational Information Network (O*NET)

TOP SKILLS REQUIRED IN CALIFORNIA INDUSTRIES

Attachment H

(Italicized skills are common across industries)

Hospitality	**Information Technology**	**Manufacturing**	**Retail**	**Transportation**
• *Active listening* • *Coordination* • *Critical thinking* • Instructing • *Mathematics* • *Reading comprehension* • Service orientation • Social perceptiveness • *Speaking* and • *Time management*	• Active learning • *Active listening* • Complex problem solving • *Critical thinking* • *Judgment and decision making* • *Reading comprehension* • *Time management* and • Troubleshooting	• Active learning • *Active listening* • *Critical thinking* • *Mathematics* • *Reading comprehension* • *Speaking* and • *Time management* Professional workers' additional requirements: • *Judgment and decision making* and • Complex problem solving Technician/Production Workers' shared skills: • Equipment maintenance • Equipment selection and • Monitoring	• Active learning • *Active listening* • *Critical thinking* • Instructing • *Mathematics* • *Reading comprehension* • Service orientation • Social perceptiveness • *Speaking* and • *Time management*	• *Active listening* • *Coordination* • *Critical thinking* • *Reading comprehension* • Social perceptiveness • *Speaking* and • *Time management*

Source: Labor Market Information Division

Industry breakout from High Growth Training Initiative
Occupational Selection: California Projections of Employment 2004-14
Occupational Skills: Occupational Information Network (O*NET)