



# North Bay Regional Plan

2016-2017

## **LIST OF REGIONAL PARTNERS WHO ARE PARTY TO THE PLAN**

The North Bay Regional Planning Unit (RPU) is comprised of the counties of Lake, Marin, Mendocino, Napa, Solano and Sonoma. Within the RPU, the Workforce Alliance of the North Bay is a Joint Powers Agency representing three counties (Marin, Napa, Lake) under one workforce development board. Each of the other member counties operates its own workforce development board. Mendocino County is currently exploring the possibility of joining the Alliance, but a final decision will not be made until June 2017. The North Bay RPU is also commonly referred to as NBEC, or the North Bay Employment Connection, and has been collaborating regionally since 2000.

The geographic spread of the RPU is vast, covering 9,498 square miles and stretching from Marin County just north of the Golden Gate Bridge northward over 180 miles through Sonoma and Mendocino Counties on the Pacific Coast, and through Solano, Napa, and Lake Counties on the eastern border of the RPU. These six counties are home to 1.44 million people and approximately 147,000 businesses.

The regional planning partners who took part in the development of the plan include the following required parties:

- Industry sector leaders, including associations, business organizations, and organized labor from the region's priority industry sectors
- Regionally organized Local Boards
- Local economic development agencies
- Regional consortia of community colleges
- Regional consortia of adult education providers
- Representatives of K-12 Career and Technical Education (CTE) programs funded by either federal Perkins funds or various state-specific CTE funding streams
- Department of Rehabilitation

In addition to the above organizations, input was solicited from county welfare agencies, EDD, elected officials, community based organizations serving those with high need and barriers to employment, youth serving organizations, staff, and other interested parties. Stakeholder input sessions were held throughout the region in every county in fall 2016, including at meetings of local workforce boards, community college Strong Workforce sessions, chief local elected official meetings, and partner convenings. Stakeholders were also encouraged to submit written input if unable to attend a session in person. Attendees at the sessions were asked to help identify any existing gaps in the workforce development system, propose possible solutions, and identify ways that resources can be better coordinated and leveraged. This plan incorporates those discussions. Please see Appendix A for a list of meetings, dates, and invitees where input for the regional plan was solicited.

This regional plan was also available for a thirty-day public comment period. No comments were received.

NBEC is not petitioning for a regional planning partner modification.

## A. REGIONAL ECONOMIC AND BACKGROUND ANALYSIS

### Demographic Profile

Given the large size of the RPU, the demographic profile of the labor force as well as the local economy varies significantly throughout the region. Sonoma is the most populous county with 484,878 residents and 268,100 in the labor force, and Lake County is the least populous county, with 64,655 residents and 30,060 in the labor force. The unemployment rate ranges from a high of 6% in Lake County to a low of 3.3% in Marin. The following table summarizes numbers employed and unemployed, as well as the number of companies in each county.

<b>County</b>	<b># in labor force</b>	<b># employed</b>	<b># unemployed</b>	<b>% unemployed</b>	<b># of establishments</b>
Lake	30,060	28,250	1,820	6.0%	2,944
Marin	145,100	140,400	4,800	3.3%	12,213
Mendocino	40,590	38,690	1,900	4.7%	4,140
Napa	78,400	75,400	3,000	3.8%	5,664
Solano	211,500	200,200	11,300	5.3%	10,591
Sonoma	268,100	258,000	10,100	3.8%	19,233
<b>TOTAL</b>	<b>773,750</b>	<b>740,940</b>	<b>32,920</b>	<b>4.3%</b>	<b>54,784</b>

SOURCE: CA LMID, Sept 2016/2012 Survey of Business Owners/EMSI

The amount of poverty in each community also varies across the region, with higher deprivation existing in the more rural areas. Lake County has the highest percentage of its population living below the federal poverty line, at 24.3%, as well as the lowest median income at \$35,997. Marin County has the lowest percentage of its population living in poverty at 8.8%, and the highest median income at \$91,529. Mendocino County experiences the highest unemployment rate for people with disabilities at 30.1%; Marin County has the lowest at 7.9%.

<b>County</b>	<b>Population</b>	<b>Population age 25 &amp; up</b>	<b>Median household income</b>	<b>unemployment rate for PWD</b>	<b>% below poverty</b>
Lake	64,655	46,293	\$35,997	16.4%	24.3%
Marin	252,409	185,016	\$91,529	7.9%	8.8%
Mendocino	87,841	61,225	\$43,290	30.1%	20.2%
Napa	136,484	93,628	\$70,925	17.2%	10.3%
Solano	413,344	274,874	\$76,341	14.8%	13.1%
Sonoma	483,878	336,295	\$63,799	11.6%	12.3%
<b>TOTAL</b>	<b>1,438,611</b>	<b>997,331</b>			

SOURCE: 2014 America Community Survey

Not unexpectedly, the educational attainment rates of the population also vary widely by county. Overall, the region has a lower percentage of high school non-completers than the state average. Across the region, approximately 124,000 have less than a high school degree. Lake has the highest percentage of the population with a high school diploma or less at 43.4%, followed closely by Mendocino with 40.5%, compared to the state overall at 39.2%. Within the region, Marin's

population has the highest percentage with a baccalaureate degree or higher at 54.8%, followed by Sonoma at 32.6%, compared to the state average of 31%. Not surprisingly, this highly skilled workforce is taking part in the Bay Area regional economy, but high housing costs and long commutes are major challenges to the workforce and economic development, issues identified in multiple stakeholder sessions.

	<b>Less than HS degree</b>	<b>HS graduate</b>	<b>Some college</b>	<b>AA degree</b>	<b>BA or higher</b>
California	18.5%	20.7%	22.0%	7.8%	31.0%
Lake	15.1%	28.3%	39.4%	11.0%	16.2%
Marin	7.5%	12.2%	19.0%	6.5%	54.8%
Mendocino	14.1%	26.4%	28.7%	8.2%	22.5%
Napa	17.2%	19.2%	22.5%	9.2%	31.9%
Solano	12.4%	24.1%	29.5%	9.7%	24.3%
Sonoma	13.2%	20.1%	25.3%	8.9%	32.6%

SOURCE: FactFinder.Census.gov (2010 Census) Pop age 25 and older

Within the RPU, approximately 153,000 speak English less than very well, and 264,000 were born outside of the United States. The region overall has far lower percentages of limited English speakers than the state figure of 43.7%. Napa County has the highest percentage in the region of those who speak English “less than very well,” at 16.3%. For those who speak a language other than English at home, Spanish is the most commonly spoken language with over 40% in every county, although groups of Asian language speakers also exist, particularly in Sonoma and Marin Counties.

<b>County</b>	<b>Speak English less than “very well”</b>	<b>Percentage (less than “very well”)</b>	<b>Foreign Born Population</b>	<b>Spanish</b>	<b>Asian and PI languages</b>
Lake	3,664	5.7%	5,886	40.6%	24.8%
Marin	22,969	9.1%	48,477	46.4%	42.6%
Mendocino	8,608	9.8%	11,707	49.7%	31.1%
Napa	22,247	16.3%	32,296	49.6%	38.1%
Solano	46,295	11.2%	84,535	40.6%	36.9%
Sonoma	52,743	10.9%	81,328	45.6%	41.7%
<b>TOTAL</b>	<b>152,862</b>	<b>10.6%</b>	<b>264,229</b>		

SOURCE: 2014 American Community Survey

### **Labor Market Analysis and Forecast**

Because of space limitations, the following is a brief overview of North Bay regional economic conditions including existing and emerging sectors and occupations, labor market forecasts, employment needs of employers in the region, and other labor market trends. Much more detailed data for the six county region is available in Appendix J, including context within the state and national economic trends, priority industry sector data, occupational analysis and knowledge and skills analysis.

## Employment Forecasts for the North Bay Region

Regional forecasts take into account national forecasts and use them as a basis for local predictions. Unsurprisingly, similar patterns emerge for the North Bay RPU compared to nationwide:

- Healthcare is likely to be a leading industry for jobs growth;
- Manufacturing is likely to be declining in durable goods (machines and business capital), while growing in non-durable goods outside of textiles (food and beverage especially); and
- Service-providing jobs are likely to be growing faster than goods-producing industry employment, though construction jobs are likely to be growing between 2014 and 2024 versus the years of 2010-2014.

The current, long-term forecast from EDD has these key elements for the North Bay region:

- Healthcare jobs grow throughout the state, including the Bay Area and the North Bay;
- Accommodations and food services, the mix of hotels, motels, and restaurants, will also grow in all regions;
- Manufacturing jobs are predicted to fall in California by over 40,000 workers, but grow in the North Bay and San Francisco Bay Area. Faster growth is predicted in the North Bay region than the Bay Area;
- Construction growth is expected across California;
- Retail and wholesale jobs growth is also predicted in all regions; and
- Government jobs at the state and local level are also projected to grow.

The top five industries in the North Bay projected to have the most job growth in the next ten years are healthcare and social assistance, accommodation and food services, retail trade, manufacturing, and construction. In terms of gross numbers, healthcare is expected to see the greatest growth with 18,554 jobs. The total growth for these top five industries is projected to be 48,776, accounting for almost 70% of the expected total job growth over the next decade. The manufacturing industry has the highest average earning at \$100,620, and construction and accommodation and food services have the largest “ripple effect” on the rest of the economy. Please see the following two tables for greater detail.

**Top 5 Industries in Solano County with Projected Job Growth in the Next 10 Years**

<b>Industry Sector</b>	<b>Jobs in 2016</b>	<b>Jobs in 2026</b>	<b>Job Growth</b>	<b>Job Growth Rate</b>
Health Care and Social Assistance	89,599	108,153	18,554	20.7%
Accommodation and Food Services	64,546	74,642	10,096	15.6%
Retail Trade	71,722	79,926	8,204	11.4%

<b>Industry Sector</b>	<b>Jobs in 2016</b>	<b>Jobs in 2026</b>	<b>Job Growth</b>	<b>Job Growth Rate</b>
Manufacturing	52,876	59,688	6,812	12.9%
Construction	33,964	39,074	5,110	15.0%
SUB-TOTAL	312,706	361,484	48,776	
REGION TOTAL	577,785	648,174	70,389	12.2%
<i>Percentage</i>	<i>54.1%</i>	<i>55.8%</i>	<i>69.3%</i>	

<b>Industry Sector</b>	<b>Location Quotient (2016)</b>	<b>Total Average Earnings</b>	<b>Gross Regional Product</b>	<b>Establishments (2015)</b>
Health Care and Social Asst	1.16	\$64,161	\$6,065,984,099	17,200
Accommodation / Food Services	1.19	\$26,424	\$2,330,110,407	3,330
Retail Trade	1.10	\$40,504	\$4,263,783,149	4,526
Manufacturing	1.06	\$100,620	\$11,368,984,655	2,070
Construction	1.25	\$77,042	\$3,541,719,086	4,200
SUB-TOTAL			\$27,570,581,395	31,326
REGION TOTAL		\$66,063	\$72,481,102,692	54,566
<i>Percentage</i>			<i>38.0%</i>	<i>57.4%</i>

Source: EMSI

The next figure shows the fastest growing industries since 2010 for the North Bay region. Construction and real estate jobs shifted out of the labor market and gave way to more retail and other services jobs. The construction industry comeback is evident in these data. Notice that social assistance jobs (including non-profit organizations that provide health care) grew, as did biotechnology. Manufacturing has seen job growth in food and beverage makers; the wine industry, which links agriculture to manufacturing to tourism and retail, remains a foundation of jobs for this region, reflected in beverage manufacturing and agricultural support jobs.

**Fastest Growing Industries (Top 12), 2010-15, Percentage Growth  
Payroll Employment by Employers, Number of Workers, North Bay Region**

<b>Industry</b>	<b>Percent Growth</b>	<b>Employees</b>
Rental and Leasing Services	192.7%	794
Life Sciences	112.3%	3,145
Agriculture & Forestry Support	41.5%	2,313
Support Activities for Transportation	39.9%	392
Utilities	36.6%	517
Food Manufacturing	25.5%	1,532
Construction	22.9%	5,895
Beverage Manufacturing	20.6%	3,225
Motor Vehicle and Parts Dealers	20.5%	1,335

<b>Industry</b>	<b>Percent Growth</b>	<b>Employees</b>
Miscellaneous Store Retailers	20.3%	669
Couriers and Messengers	19.5%	226
Bars and Restaurants	19.3%	8,073

Source: QCEW ([www.edd.ca.gov](http://www.edd.ca.gov))

An economic theme in the North Bay is the connection with the Bay Area more generally. The next figure shows the recovery period and the emergence from the recession in terms of jobs performance; this table also shows the industries expecting the fastest growth of jobs from the type of business or employer. Bay Area comparisons are with San Francisco (SF), San Mateo (SM), Alameda, and Contra Costa (CC) Counties.

**Employment Trends in the NORTH BAY Region:  
Fastest Growth Industries from 2010-15**

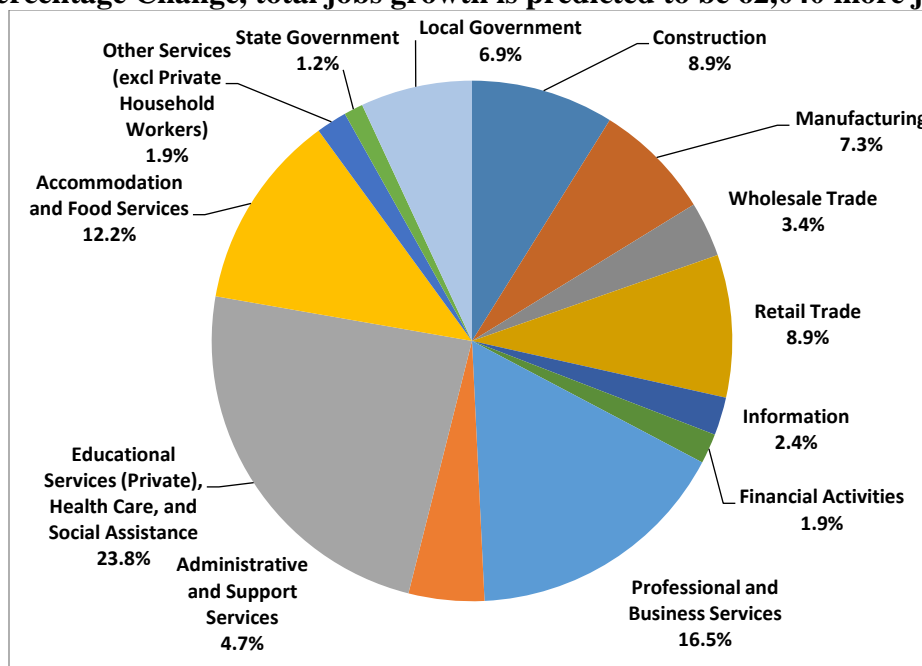
<b>Industries</b>	<b>N. Bay</b>	<b>CA</b>	<b>SF</b>	<b>SM</b>	<b>Alameda</b>	<b>CC</b>
Rental and Leasing Services	192.7%	9.7%	-5.5%	22.6%	14.7%	3.5%
Life Sciences	112.3%	29.6%	33.5%	68.0%	33.9%	31.9%
Broadcasting (except Internet)	47.2%	6.6%	23.8%	59.5%	32.8%	196.8%
Agriculture & Forestry Support	41.5%	9.0%	28.0%	-11.8%	14.2%	8.7%
Support Activities for Transportation	39.9%	5.3%	17.3%	7.3%	-69.6%	-32.2%
Utilities	36.6%	-3.6%	103.1%	-11.2%	9.1%	-7.6%
Food Manufacturing	25.5%	-3.8%	-2.5%	-3.1%	-39.0%	
Construction	22.9%	5.9%	-5.8%	-5.0%	4.4%	6.8%
Beverage Manufacturing	20.6%	1.2%	-6.0%	-9.0%	-13.8%	23.4%
Motor Vehicle and Parts Dealers	20.5%	35.9%	209.2%	58.4%	16.3%	215.6%
Miscellaneous Store Retailers	20.3%	8.0%	1.5%	-0.4%	13.8%	6.9%
Couriers and Messengers	19.5%	14.4%	48.4%	24.0%	17.7%	-0.5%
Food Services & Drinking Places	19.3%	-2.7%	-14.9%	5.4%	-11.1%	-3.1%
Hotels and Motels	18.6%	12.1%	-5.0%	97.1%	4.9%	6.5%
Nursing and Residential Care Facilities	17.7%	14.1%	15.6%	11.8%	14.3%	14.3%
Wood Product Manufacturing	17.6%	33.5%	-17.0%	6.0%	17.3%	-11.8%
Fabricated Metal Product Manufacturing	17.5%	8.6%	11.4%	3.2%	15.6%	5.4%
Administrative and Support Services	16.4%	-8.6%	-1.3%	-26.4%	-30.6%	-19.8%
Performing Arts and Spectator Sports	15.4%	10.1%	18.1%	6.6%	13.6%	25.3%

(Sources: QCEW (<http://www.edd.ca.gov>) and EFA)

The similarities of the North Bay, San Francisco and East Bay suggest that jobs growth will be similar also; the percentage change in jobs since the recession's end have similar themes across these areas.

Recent industry employment performance, combined with occupation employment performance and other factors, lead to considerations about employer hiring after 2016. The national level forecast is in place through 2024, but the regional and local forecasts are different enough to raise some doubts about how the national economic trends reflect the local economy. The next figure shows the predicted performance of industry employment from 2015 to 2022. The percentages represent the proportion of overall growth by industry; for example, manufacturing is predicted to be 7.3 percent of the overall employment growth of the six counties in the North Bay region (62,040 more jobs by 2022).

**Forecasted Growth of Industry Employment, North Bay Counties, 2015-2022,  
Percentage Change, total jobs growth is predicted to be 62,040 more jobs**



Sources: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov)) and Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov))

### Commute Patterns

Housing and transportation infrastructure play an important role in how integrated the regional workforce can be. For example, Sonoma, Marin, Solano, and Napa Counties are all relatively well-connected by various freeways and highways. Mendocino and Lake Counties are more challenged in terms of access to major labor markets and employers, outside of government or retail, due to distance.

Housing and transportation naturally link labor markets between county economies. People travel between the core counties on a daily basis; Mendocino and Lake Counties have more outflow of workers than inflow, much like any other rural areas that are adjacent to more populated areas. If rent is less expensive in the North Bay, and jobs pay more in the core Bay Area, people will commute.



These data are a reminder that people flow over county lines for work and also outside the North Bay region for jobs. In many cases, the workforce system trains and educates individuals who will not work in the North Bay region but may live within the region. Monitoring the commute data helps gauge the flows of labor and how occupations and employment may be different locally versus regionally.

These data are split by where people live and where they work, with three categories based on a specific place (for example, Napa County):

1. People work in Napa County and live in Napa County;
2. People work in Napa County and live in another county (inbound commuters); or
3. People live in Napa County and work in another county (outbound commuters).

In terms of people flow, outbound commuters reduce the locally-available workforce. These are local residents leaving the area for work, suggesting there are better economic opportunities elsewhere. In the North Bay, as of 2014 (the latest data available), over 77 percent of North Bay residents also work within the North Bay's six counties. The remaining places where regional residents work are spread throughout northern California. Compared to pre-recession (2008), there are fewer people that work and live locally, meaning more outbound commuters in the North Bay counties.

The next two figures tell a different story (Source: LEHD - [onthemap.ces.census.gov](http://onthemap.ces.census.gov)). These data are about who comes to work in the North Bay region. From the perspective of local employment, given the number of people, only 66.7% of those that work in the North Bay region also live there, and the rest come from other places to work locally. There have been a surge of inbound commuters to San Francisco and Sacramento, and an outflow of workers from the North Bay to other places as commuters.

#### **Working Residents that Live in the North Bay, Work in...**

<b>Work In</b>	<b>Employees</b>	<b>% of Total 2014</b>	<b>% of Total 2008</b>
N. Bay	373,577	77.2%	78.2%
San Francisco	15,069	3.1%	3.2%
Alameda	18,682	3.9%	3.6%
Contra Costa	28,148	5.8%	5.3%
Santa Clara	10,121	2.1%	2.1%
Sacramento	16,874	3.5%	3.3%
San Mateo	8,101	1.7%	1.7%
Yolo	6,985	1.4%	1.4%
San Joaquin	6,538	1.4%	1.2%
<b>Totals</b>	<b>484,095</b>	<b>100.0%</b>	<b>100.0%</b>

#### **People that Work in the North Bay, Live in...Selected Areas**

<b>Live In</b>	<b>Employees</b>	<b>% of Total 2014</b>	<b>% of Total 2008</b>
N Bay	373,631	66.7%	68.1%
San Fran.	51,862	9.3%	8.2%

<b>Live In</b>	<b>Employees</b>	<b>% of Total 2014</b>	<b>% of Total 2008</b>
Alameda	33,743	6.0%	5.9%
C Costa	36,051	6.4%	6.8%
Santa Clara	17,225	3.1%	3.1%
Sacramento	20,815	3.7%	3.2%
San Mateo	14,654	2.6%	2.6%
Yolo	6,410	1.1%	1.3%
San Joaquin	5,422	1.0%	0.9%
<b>Totals</b>	<b>559,813</b>	<b>100.0%</b>	<b>100.0%</b>

An important data point is the difference between the totals in the above tables: **approximately 75,800 more people leave the North Bay counties than come into them for work.** This underscores the idea of training a workforce where a significant number do not work locally, but are working in the greater Bay Area regional economy.

### **Labor Market Forecasting Summary**

- Health-care jobs, tourism and professional services (legal, accounting, etc.) have seen the most growth in services jobs
- State and national forecasts foresee continued jobs growth through 2022 on average
  - Manufacturing is the one industry predicted to see job losses through 2022; however
  - That prediction does not hold for the NCCPA counties, which have positive manufacturing jobs growth through 2022, primarily in food and beverage manufacturing
- Commuting confounds planning for any region, and the NCCPA region has a history of outbound commuting to the larger, core Bay Area employers:
  - As many as 75,000 people per year may leave the NCCPA counties in net to work outside these areas, most to the core Bay Area counties; and
  - Through Solano County, the reach of outbound commuting of local residents reaches Sacramento, San Joaquin and Yolo counties as well.

### **Priority Sectors and Occupational Analysis**

Based on the preceding labor market forecast, five industries (or industry clusters) can be identified as having a prominent place in the economy of the 6-county North Bay Region:

- Construction (NAICS 23)
- Healthcare & Social Assistance (NAICS 62)
- Hospitality & Tourism (cluster)
- Manufacturing (NAICS 31)
- Professional, Scientific, and Technical Services (NAICS 54)

For purposes of this regional plan, the following analysis focuses on **Healthcare and Social Assistance; and Manufacturing**. An analysis for Hospitality and Tourism is available as Appendix B. Through state Slingshot funding, the North Bay RPU is in the process of launching industry sector partnerships in those two sectors. (The process for selecting the sectors and for launching the industry partnerships is described in greater detail in Section C.)

## Health Care and Social Assistance

The Health Care and Social Assistance industry sector is comprised of establishments providing health care and social assistance for individuals. The sector includes both health care and social assistance because it is sometimes difficult to distinguish between the boundaries of these two activities as some establishments provide both health care and social assistance services.

The Health Care and Social Assistance sector provides nearly 89,000 jobs in the region and is projected to add another 18,000+ jobs over the next decade, based on a robust 21% projected growth rate. The sector is growing in all the region's counties, with the strongest growth (28% over the next decade) expected in Lake County.

The average compensation (including benefits) is about \$64,000 per year. The highest average compensation in the region is found in Solano County, while the lowest average compensation is found in Lake and Mendocino Counties.

The Location Quotient (LQ) for the sector is 1.15, which indicates that this is an export industry sector and a key economic driver for the region's economy.

### Health Care and Social Assistance Sector

	<b>Region</b>	<b>Lake</b>	<b>Marin</b>	<b>Mendo</b>	<b>Napa</b>	<b>Sonoma</b>	<b>Solano</b>
<b>2015 Jobs</b>	88,764	4,378	16,669	5,477	8,227	30,487	23,526
<b>2025 Jobs</b>	107,134	5,597	19,831	6,629	9,751	36,387	28,939
<b>Growth Rate</b>	21%	28%	19%	21%	19%	19%	23%
<b>Job Growth</b>	18,370	1,219	3,162	1,152	1,524	5,900	5,413
<b>Avg Comp</b>	\$64,227	\$35,597	\$67,188	\$42,288	\$62,617	\$62,661	\$75,157
<b>Employers</b>	17,367	1,907	2,529	1,660	1,295	5,899	4,077
<b>LQ</b>	1.15	2.09	1.09	1.29	0.8	1.13	1.31
<b>GRP</b>	\$6,731.1M	\$183.3M	\$1,470.3M	\$278.9M	\$619.5M	\$2,236.4M	\$1,930.2M

Source: EMSI

The industries in this sector range from hospitals to child day care services. The largest industry is Individual and Family Services (with 24,000+ jobs in the region), followed by General Medical and Surgical Hospitals (12,000+ jobs), and Outpatient Care Centers (11,000 jobs).

While Individual and Family Services is a large industry, it is also the lowest paying industry with an average compensation (including benefits) of about \$20,000 per year.

The fastest growing industries in this sector include Specialty Hospitals (75% growth projected for this region over the next decade), Psychiatric and Substance Abuse Hospitals (64%), Other Ambulatory Health Care Services (57%), Outpatient Care Centers (56%), and Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly (44%).

As healthcare services continue to shift from hospital to outpatient services, the General Medical and Surgical Hospitals industry is projected to decline from about 12,000 jobs to 8,000 jobs over the next decade. However, because hospitals employ so many workers and many of them will be

entering retirement age over the next decade, they will continue to have a strong demand for new workers.

### Top Industries within the Health Care and Social Assistance Sector

Industries	2015 Jobs	2025 Jobs	Growth Rate	Job Growth	Avg Comp	Firms	LQ
Individual and Family Services	24,412	32,847	34.6%	8,435	\$20,342	13,720	2.75
General Medical and Surgical Hospitals	12,441	8,060	-35.2%	-4,381	\$103,262	33	0.66
Outpatient Care Centers	10,743	16,763	56.0%	6,020	\$127,186	187	3.42
Offices of Physicians	8,454	9,685	14.6%	1,231	\$112,550	852	0.80
Offices of Dentists	5,248	5,490	4.6%	242	\$61,151	806	1.39
Nursing Care Facilities (Skilled Nursing Facilities)	5,146	6,178	20.1%	1,032	\$47,157	67	0.76
Continuing Care Retirement Communities and Assisted Living Facilities	4,990	7,192	44.1%	2,202	\$36,151	258	1.39
Child Day Care Services	2,867	2,847	-0.7%	-20	\$34,602	392	0.83
Home Health Care Services	2,768	3,641	31.5%	873	\$47,398	91	0.49
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	2,486	2,560	3.0%	74	\$43,865	168	1.00
Offices of Other Health Practitioners	2,395	2,853	19.1%	458	\$55,731	527	0.69
Other Ambulatory Health Care Services	2,133	3,347	56.9%	1,214	\$59,778	36	1.83
Vocational Rehabilitation Services	1,512	1,536	1.6%	24	\$29,816	62	1.14
Community Food and Housing, and Emergency and Other Relief Services	948	1,158	22.2%	210	\$41,941	75	1.47
Medical and Diagnostic Laboratories	763	1,050	37.6%	287	\$96,758	64	0.73
Psychiatric and Substance Abuse Hospitals	697	1,146	64.4%	449	\$81,961	2	1.50
Other Residential Care Facilities	436	215	-50.7%	-221	\$48,280	25	0.65
Specialty (except Psychiatric and Substance Abuse) Hospitals	325	567	74.5%	242	\$63,736	2	0.35

Source: EMSI

### Top Occupations within the Health Care and Social Assistance Sector

The largest occupations in this sector include Registered Nurses (nearly 9,000 jobs in the region) and Personal Care Aides (8,000+ jobs), followed by Medical Assistants and Nursing Assistants (3,000+ jobs each).

The fastest growing occupations (with at least 100 jobs in this sector) include Emergency Medical Technicians and Paramedics (68% growth rate projected for this region over the next decade), Home Health Aides (64%), Ambulance Drivers and Attendants (62%), and Personal Care Aides (50%).

The highest-paying middle skill occupations in this sector (for this region) include Diagnostic Medical Sonographers (\$56 per hour), Registered Nurses (\$53), Dental Hygienists (\$46), Radiologic Technologists (\$44), and Respiratory Therapists (\$42). Some might argue that Registered Nurse is a higher skill occupation rather than a middle skill occupation. But we're choosing to count it as a middle skill occupation because the majority of RNs have an Associate Degree (rather than a Bachelor's Degree).

See Appendix C for a comprehensive table with data on the occupations within the Health Care and Social Assistance Sector.

## **Manufacturing**

The Manufacturing industry sector is comprised of establishments engaged in the mechanical, physical, or chemical transformation of materials, substances, or components into new products. It includes both durable goods and non-durable goods manufacturers. This sector also includes establishments engaged in both manufacturing and selling products to the general public (a bakery, for example). Advanced Manufacturing is a subset of the industry that employs advanced manufacturing technologies, processes, or materials in the manufacture of their products.

The manufacturing sector provides over 52,000 jobs in the region and is projected to add another 6,900 jobs over the next decade, based on a slightly-higher-than-average 13% projected growth rate. The sector is projected to grow in all of the region's counties except for Mendocino County, where the sector is projected to sustain its current number of manufacturing jobs over the next decade.

The average compensation (including benefits) is just over \$101,000 per year. The highest average compensation in the region is found in Marin and Solano Counties, while the lowest average compensation is found in Lake and Mendocino Counties.

The Location Quotient (LQ) for the sector is 1.06, which indicates that this is an export industry sector and a key economic driver for the region's economy.

## **Manufacturing Sector**

	<b>Region</b>	<b>Lake</b>	<b>Marin</b>	<b>Mendo</b>	<b>Napa</b>	<b>Sonoma</b>	<b>Solano</b>
<b>2015 Jobs</b>	52,527	319	4,045	2,500	12,004	21,802	11,858
<b>2025 Jobs</b>	59,427	400	6,374	2,508	13,822	22,806	13,517

	<b>Region</b>	<b>Lake</b>	<b>Marin</b>	<b>Mendo</b>	<b>Napa</b>	<b>Sonoma</b>	<b>Solano</b>
<b>Growth Rate</b>	13%	25%	58%	0%	15%	5%	14%
<b>Job Growth</b>	6,900	81	2,329	8	1,818	1,004	1,659
<b>Avg Comp</b>	\$101,639	\$53,387	\$183,641	\$62,746	\$85,553	\$87,400	\$125,629
<b>Employers</b>	2,061	39	224	133	516	898	251
<b>LQ</b>	1.06	0.24	0.41	0.91	1.81	1.25	1.02
<b>GRP</b>	\$12,746.6M	\$42.5M	\$1,819.7M	\$303.4M	\$2,065.3M	\$3,926.2M	\$4,589M

Source: EMSI

The industries in this sector range from winemakers to primary metal manufacturers. The largest industries are Beverage Product Manufacturing (nearly 20,000 jobs in the region), Food Manufacturing (about 7,500 jobs), and Chemical Manufacturing (over 6,000 jobs).

The latter is also the sector's highest paying industry with an average compensation (including benefits) of just over \$231,000 per year.

The fastest growing industries in this sector include Primary Metal Manufacturing (56% growth rate projected for this region over the next decade), Chemical Manufacturing (48%), and Electrical Equipment, Appliance and Component Manufacturing (39%).

#### **Top Industries within the Manufacturing Sector**

<b>Industries</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Avg Comp</b>	<b>Firms</b>	<b>LQ</b>
Beverage Product Manufacturing	19,706	22,522	14.3%	2,816	\$85,938	841	20.42
Food Manufacturing	7,583	9,075	19.7%	1,492	\$62,427	181	1.22
Chemical Manufacturing	6,370	9,403	47.6%	3,033	\$231,125	69	1.92
Computer and Electronic Product Manufacturing	3,225	3,221	-0.1%	-4	\$117,463	81	0.76
Fabricated Metal Product Manufacturing	2,879	3,246	12.7%	367	\$79,776	156	0.50
Machinery Manufacturing	2,500	2,649	6.0%	149	\$85,371	78	0.57
Miscellaneous Manufacturing	2,044	1,714	-16.1%	-330	\$126,641	137	0.85
Nonmetallic Mineral Product Manufacturing	1,820	1,288	-29.2%	-532	\$67,487	68	1.12
Wood Product Manufacturing	1,574	1,585	0.7%	11	\$59,935	80	1.00
Plastics and Rubber Products Manufacturing	926	779	-15.9%	-147	\$60,329	31	0.33
Printing and Related Support Activities	866	721	-16.7%	-145	\$63,671	100	0.48

<b>Industries</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Avg Comp</b>	<b>Firms</b>	<b>LQ</b>
Furniture and Related Product Manufacturing	835	835	0.0%	0	\$59,048	106	0.53
Transportation Equipment Manufacturing	519	507	-2.3%	-12	\$77,575	36	0.08
Petroleum and Coal Products Manufacturing	448	382	-14.7%	-66	\$240,063	3	1.00
Electrical Equipment, Appliance, Component Manufacturing	383	534	39.4%	151	\$90,194	24	0.25
Apparel Manufacturing	318	379	19.2%	61	\$77,058	18	0.60
Textile Product Mills	184	168	-8.7%	-16	\$49,476	27	0.39
Paper Manufacturing	104	134	28.8%	30	\$90,276	6	0.07
Primary Metal Manufacturing	97	151	55.7%	54	\$75,051	9	0.06
Textile Mills	79	79	0.0%	0	\$56,206	3	0.17
Leather and Allied Product Manufacturing	69	55	-20.3%	-14	\$65,987	6	0.57

Source: EMSI

### **Top Occupations within the Manufacturing Sector**

The largest occupations in this sector include Packaging and Filling Machine Operators and Tenders (about 2,800 jobs in the region), Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders (just over 2,500 jobs), Laborers and Freight, Stock, and Material Movers, Hand (just over 1,600 jobs), and First-Line Supervisors of Production and Operating Workers (nearly 1,500 jobs).

The fastest growing occupations (with at least 100 jobs in this sector) include Biological Technicians (51% growth rate projected for this region over the next decade), Chemical Technicians (49%), and Industrial Machinery Mechanics (39%).

The highest-paying middle skill occupations in this sector (for this region) include Electrical and Electronics Engineering Technicians (\$34 per hour), Industrial Engineering Technicians (\$27), Chemical Technicians (\$24), Bookkeeping, Accounting, and Auditing Clerks (\$22), Heavy and Tractor-Trailer Truck Drivers (\$21), and Agricultural and Food Science Technicians (\$20).

See Appendix D for a comprehensive table with data on the occupations within the Manufacturing Sector.

### **Priority Occupations**

Priority Occupations are those that pay at or above the region's median wage and reflect those occupations on our Top Demand Occupations list and/or on one of our Top Occupations lists for our Priority Industry Sectors (see comprehensive data tables for all candidate occupations in Appendix E:

<b>Occupations</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Diagnostic Medical Sonographers	\$55.88	AA/AS
Registered Nurses	\$52.99	AA/AS
Dental Hygienists	\$46.06	AA/AS
Radiologic Technologists	\$43.62	AA/AS
Respiratory Therapists	\$42.30	AA/AS
Magnetic Resonance Imaging Technologists	\$34.95	AA/AS
Electrical and Electronics Engineering Technicians	\$33.62	AA/AS
Cardiovascular Technologists and Technicians	\$33.03	AA/AS
Physical Therapist Assistants	\$32.06	AA/AS
Telecommunications Equipment Installers and Repairers, Except Line Installers	\$29.52	SC/CERT
Surgical Technologists	\$28.76	SC/CERT
Psychiatric Technicians	\$27.79	SC/CERT
Industrial Engineering Technicians	\$27.39	AA/AS
Licensed Practical and Licensed Vocational Nurses	\$26.54	SC/CERT
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$24.62	SC/CERT
Medical and Clinical Laboratory Technicians	\$23.90	AA/AS
Chemical Technicians	\$23.82	AA/AS

### **Knowledge and Skills Analysis**

In analyzing knowledge and skill requirements for middle skill occupations and higher, there are clearly a wide variety of requirements. However, some knowledge and skills are more common than others, and represent competencies that are in-demand by the North Bay's employers. They include:

- Active Listening Skills - Giving full attention to what other people are saying, taking time to understand the points being made, and asking questions as appropriate.
- Critical Thinking Skills - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension Skills - Understanding written sentences and paragraphs in work related documents.
- Monitoring Skills - Monitoring/Assessing performance of oneself, other individuals, or organizations to make improvements or to take corrective action.
- Speaking Skills - Talking to others to convey information effectively.
- Active Learning Skills - Understanding the implications of new information for both current and future problem-solving and decision-making.
- Coordination Skills - Adjusting actions in relation to others' actions.
- Service Orientation Skills - Actively looking for ways to help people.
- Social Perceptiveness Skills - Being aware of others' reactions and understanding why they react as they do.
- Customer and Personal Service Knowledge - Knowledge of principles and processes for providing customer and personal services.



- English Language Knowledge - Knowledge of the structure and content of the English language, including the meaning and spelling of words, composition, and grammar.
- Education and Training Knowledge - Knowledge of principles and methods for curriculum and training design, teaching and instruction.
- Clerical Knowledge - Knowledge of administrative procedures and systems, such as word processing, file/records management, and other office procedures.
- Computers and Electronics Knowledge - Knowledge of computer hardware and software.
- Mathematics Knowledge - Knowledge of arithmetic, which may include algebra, geometry, calculus, or statistics, and their applications.
- Psychology Knowledge - Knowledge of human behavior and performance; individual differences in ability, personality, and interests; learning and motivation.
- Administration and Management Knowledge - Knowledge of management principles involved in strategic planning, resource allocation, human resources, and leadership.
- Medicine and Dentistry Knowledge - Knowledge of the information and techniques needed to diagnose and treat human injuries, diseases, and deformities.

See Appendix F for tables detailing the skills and knowledge necessary for the region's in-demand occupations.

### **Workforce Development Activities**

The North Bay workforce development system includes four Workforce Boards, six community college districts, five adult education consortia, six county offices of education, six county welfare departments, dozens of economic development entities hundreds community based organizations, numerous state agencies, and organizations representing labor. This section provides an overview of workforce and education activities in the region, client populations and an assessment of the strengths and weaknesses of the core partners.

**Workforce Development Boards:** The North Bay RPU includes the workforce boards of Mendocino, Solano, and Sonoma Counties, as well as a Joint Powers Agency representing Marin, Napa, and Lake Counties. The Workforce Boards operate to ensure the provision and coordination of WIOA Title I services in the four local workforce development areas, as designated by the Governor. Local Boards provide day to day administrative and policy oversight for the delivery of services to job seekers and businesses. The client population of Workforce Boards includes adult, dislocated worker, youth, and universal access clients, as well as businesses in the region, with an emphasis on those in priority sectors.

**Employment Development Department (EDD):** EDD administers the WIOA Title I, federal Wagner-Peyser Act (WPA, WIOA Title III), labor market information, Disability Insurance, Paid Family Leave, Unemployment Insurance (UI), Trade Adjustment Assistance (TAA), and youth, disability, and veterans programs. EDD is collocated within the AJCC in every local area, although not necessarily in every AJCC. The client population of EDD includes UI and disability insurance claimants, job seekers through Wagner Peyser, veterans, people with disabilities, youth, and TAA participants.

**Community Colleges:** The community colleges in the North Bay are a primary provider of workforce training. Among the programs offered by the community colleges are those

administered with Carl D. Perkins Act funds, as well as CTE programs, the community college CalWORKs program, and Disabled Student Programs and Services. In 2012 the North Bay community colleges awarded 3,521 certificates (three of four from Santa Rosa Junior College) and 3,722 degrees. The client population of the community colleges is very diverse, including students who: seek to transfer to four year institutions; lack basic skills; need short term vocational training; take community based education courses for personal enrichment.

**Adult Education Consortia:** Adult education programs provide adult basic and secondary education skills including English, math, and ESL foundational competencies needed to enter postsecondary education and citizenship preparation. Services in the North Bay include but are not limited to: adult secondary education, adult basic education, CTE courses, remediation at community colleges, English as a Second Language courses, classes for adults with disabilities, and high school equivalency/GED preparation. Clients include limited English proficient individuals; those lacking basic skills; and people with disabilities. Services and number of clients served (by type) are discussed in much greater detail in Section E: Accessibility and Inclusivity.

**K-12 Education System:** The North Bay public K-12 system includes 89 districts and six County Offices of Education. This system offers some CTE courses, which integrate core academic knowledge with technical and occupational knowledge to provide students with a pathway to postsecondary education and careers. Students with disabilities may be served in the Workability Program, which provides an array of transition services to middle and high school students, including work experience for high school students. The system also serves English language learners and their families. For data on the number of students, numbers receiving free and reduced lunch, numbers enrolled in special education, and other wellness indicators, please see [kidsdata.org](http://kidsdata.org).

**Economic Development organizations:** Economic development organizations in the North Bay range from the Sonoma county-wide Economic Development Board to entities representing individual cities or industries, like the Napa Vintners' Association. Economic development partners may provide services including labor market information and analysis, business attraction, retention and expansion services, site selection, permit streamlining, clearing of regulatory hurdles, small business assistance, international trade development, and assistance in accessing state government programs.

**Department of Rehabilitation (DOR):** DOR works in partnership with consumers and other stakeholders to provide services and advocacy resulting in employment, independent living, and equality for individuals with disabilities in California. DOR provides services throughout the North Bay region. DOR provides a comprehensive menu of services to clients, including but not limited to counseling and guidance, vocational and other training services, evaluation of physical and mental impairments, supported employment services, tools, equipment, and other supportive services, assistance technology devices, and benefits counseling. DOR clients include individuals who may have the following disabilities: blind or visually impaired; cognitive disabilities; learning disabilities; intellectual or developmental disabilities; deaf or hard of hearing; physical disabilities; psychiatric disabilities; traumatic brain injury; and other disabilities.

The following table delineates some of the strengths and weaknesses of the core WIOA partners in the region. Through the regional stakeholder meetings as well as the regular, ongoing

partnerships, a number of common threads have emerged. Every organization deals with the challenge of not enough resources, although for some this challenge is more significant than others. Furthermore, organizations can always continue to improve in the area of cross organizational partnering and not working in silos.

<b>Strengths and Challenges of the NBEC workforce development system</b>		
<b>Partner</b>	<b>Strengths</b>	<b>Challenges</b>
Workforce Boards	Seasoned staff and leadership; business-led boards; performance driven	Complex regulations that are difficult to convey to the board; limited funding
EDD	Good local relationships and collaborations	Not enough staff to provide services for the region
Community college system	Strong name recognition; many excellent workforce training programs	Speed at which curriculum can be changed to meet needs of industry
Adult education	Flexible; increased focus on CTE	Need for services is greater than resources available
K-12 education	Embedded within local communities	Tension between dual missions of preparing students for 4 year degrees and CTE
Economic development	Excellent source of data; connections with business community	Resources and type of efforts vary greatly across the region
Dept of Rehabilitation	Good local relationships and collaborations	Limited local decision making ability; very constrained in who they can enroll

Addressing the education and skill needs of individuals with barriers to employment will be discussed in greater detail in section E: Accessibility and Inclusivity.

## **B. REGIONAL SECTOR PATHWAYS**

In order to address upward income mobility within the NBEC region and to improve economic self-sufficiency, significant shifts in workforce development strategies are needed that focus more squarely on building a pipeline that can transition low-skill students and jobseekers into middle skill jobs/careers. But without consistent, continuous and authentic industry leadership, workforce strategies run the risk of not adequately or accurately responding to true demand. As a result, jobseekers will continue to miss the mark in terms of marketable skills and will continue to be stuck in low-quality jobs.

To address these challenges, NBEC is engaged in two key initiatives. The Northern California Career Pathways Alliance (NCCPA) is a \$15 million, 5-year grant to the region from the state Department of Education's California Career Pathways Trust (CPT), created by Assembly Bill 86. The NCCPA is a collaborative alliance of the County Offices of Education, Community Colleges, Workforce Investment Boards, local schools and businesses in the 6 county North Bay, and its goal is "to create a regional approach to Career Pathways that inspire students through high-quality experiences in school and in professional workplace settings, engage more employers in

education, and provide the region with the focused, diverse and highly-qualified workforce needed for a vibrant economy.”

The second major initiative underway in the North Bay is the North Bay Business Sector Alliance (NBBSA), funded by the California Workforce Development Board’s Slingshot Initiative. In order to strengthen regional economic prosperity and improve income mobility by creating stronger relationships between businesses and community partners within key industry sectors, NBBSA’s vision is to create and foster regional industry sector partnerships, establish a region-wide staff capacity-building effort to create Sector Specialists, and create an identification/recognition amongst businesses of the local Workforce Development Boards (WDB) as comprehensive business “solution providers.” Both initiatives are described in further detail below.

### **Northern California Career Pathways Alliance (NCCPA)**

Through funding from the CPT, the NCCPA will invest \$15 million over five years plus an additional \$10 million in cash and in kind contributions from the community and businesses to create and enhance education pathways for high school and community college students. The governance committee of NCCPA consists of six County Offices of Education, five Community Colleges, and the four Workforce Development Boards of NBEC. In addition, NCCPA includes 165 employers and community partners. (Please see Appendix G for a complete listing of partner organizations and businesses.) NCCPA is providing services and supports to 22 school districts throughout the region, and working in eight industry sectors and 16 career pathways. The table below outlines the sectors and pathways.

<b>Industry Sector</b>	<b>Pathways</b>
Health Sciences & Medical Technology	Biotechnology; Patient Care
Engineering & Architecture	Engineering Technology Pathway; Environmental Engineering Pathway
Business & Finance	Financial Services
Hospitality, Tourism & Recreation	Food Services and Hospitality
Manufacturing and Product Development	Matching and Forming Technologies
Information & Communication Technologies	Game and Simulation; Information Support & Services
Public Services	Public Safety
Agriculture and Natural Resources	Agricultural Business; Agricultural Mechanics; Agriscience

In preparing for the NCCPA effort, education partners utilized their industry advisory committees at both the high school and community college levels to assess industry workforce needs, and to determine whether existing training and education programs in the region were meeting those needs. As outlined in the labor market and economic analysis in section two, the economic needs of the region are diverse, as well as the conditions in each community which may help to facilitate

success. Based on industry input, data analysis and an environmental scan of local conditions, the above sectors and pathways were identified.

NCCPA is working to meet the following objectives (Please see Appendix H for the 2015-16 NCCPA Regional Plan):

- Create policies and practices that facilitate grade 6-16 pathways and grade 10-14 course curriculum alignment
- Provide professional development and teacher externships on integrated CTE and core curriculum
- Create regional grade 10-14 pathway communities of practice to share pathway resources and strategies
- Facilitate transitions from secondary to postsecondary education
- Strengthen meaningful partnerships with business and industry that includes Work Based Learning (WBL) internships, involving student in field trips / job shadows to industry sites and engaging business/industry in working with teachers to ensure alignment and relevance of course curriculum and projects
- Work with WDBs to re-envision sector based advisory groups/skill panels
- Work with economic development groups to build upon existing county-level career events to create and sustain a regional Economic Development Summit
- Expand and develop maker events (which emphasize learning-through-doing particularly with novel uses of technologies) that engage student leadership groups in addressing local issues/product development driven by business/industry partners
- Create local, county and regional awareness of college and career readiness
- Provide governance structure and financial oversight for the alliance

In addition to the ongoing industry advisory groups at the community colleges and K-12 levels, the NCCPA hosted a major employer convening in May 2015, in Santa Rosa, CA. On October 24, 2016, the NBBSA co-hosted with NCCPA a convening for healthcare and manufacturing employers in Napa, CA. Industry representatives who attended included Kaiser Permanente, Northbay Healthcare, Synder Filtration, ICON Aircraft, Altec Industries, and Ghiringhelli Specialty Foods. Economic development, education, labor, and Employment Training Panel representatives were also in attendance. The agenda included a panel discussion of industry champions highlight the benefits of industry sector partnerships (ISP's) facilitated by consultant Lindsey Woolsey, a group discussion on what is needed in the region to support industry growth, and highlights of current resources in place to support the development of regional ISPs and a call to action for next achievable steps. The summit generated general interest/commitments from community partners and industry representatives to establish ISPs in the North Bay. The group decided that the Napa-Solano Healthcare ISP launch meeting would be held during first few weeks of December 2016, with others to follow in early 2017. The primary function of the Workforce Boards in the NCCPA effort is to continuously reinforce the need for the voice of businesses to be driving the direction of career pathway development. Toward that end, the North Bay Business Sector Alliance (NBBSA) will provide a complementary "deeper dive" into a number of the sectors selected by NCCPA.

### **North Bay Business Sector Alliance (NBBSA)**

NBEC was awarded \$1 million from the Slingshot Initiative to coordinate with community partners (education and economic development) to establish regional Industry Sector Partnerships that put business out front to identify specific industry priorities, workforce challenges and opportunities. NBBSA will focus on engaging industry representatives to foster “Business Champions” and create Industry Sector Partnerships (ISP), which will advise community partners on industry workforce trends and demands. Although still in the early stages, the NBBSA will allow NBEC to ensure that the voice of businesses are integral in determining policy priorities and strategies; that there is a robust mechanism by which businesses help to identify training and education deficiencies and the approaches to solving them; that businesses help to identify the career pathways most critical to regional economic success and any necessary adjustments to further develop career pathway programs to meet regional industry needs; and that industry leads the discussion and process on determining industry-valued and recognized post secondary credentials.

In preparation for this initiative, each member workforce board conducted an analysis of labor market and economic data to determine two to three priority sectors locally. Across the region, the two sectors which had priority in more than one county and were identified as part of the project deliverables are **Healthcare** (all six counties), **Manufacturing** (three counties). Other sectors which may also be explored include Hospitality (efforts already underway in Napa), Agriculture and Public Sector.

NBEC has engaged a nationally renowned technical assistance consultant, Lindsey Woolsey, to guide the launch of Industry Sector Partnerships (ISP) in each of the six counties. Through initial launch forums, NBEC will strive to identify Business Champions to take the lead on advising and collaborating with education, training, workforce development, and economic development partners to address specific industry needs. Representing the interests of fellow business stakeholders, they will advise partnering entities on the creation of new workforce development approaches and help identify other key industry priorities. Ideally, the Business Champions will engage and recruit other high profile industry leaders to promote strategies and initiatives aimed at addressing the major challenges of key North Bay industry sectors.

In order to effect systemic change to the way business engagement occurs in the North Bay, NBEC is committed to a major staff development effort through NBBSA. NBEC will deploy a region-wide staff capacity-building training program focused on effective and sustainable business engagement practices, and will elevate staff knowledge of specific industry sectors to create “Sector Specialists.” This investment in training will advance the skills sets of professional staff charged with carrying forward specific NBBSA activities 1) ISP launch forums 2) Industry Sector Specialists 3) Implementation and use of new business engagement technology. This investment in staff and technology are critical components of ensuring the sustainability of efforts incubated under NBBSA.

In addition to the October 2016 joint NCCPA/NBBSA employer convening described above, the Napa-Lake Workforce Board launched a Hospitality ISP in early 2016 using the ISP methodology championed by Ms. Woolsey. The ISP launch was well attended with about 15 prospective industry partners representing various Napa Valley employers – mostly restaurants, hotels and resorts. Community support partners were also on hand for the ISP launch, but were in listening

mode as the industry leaders talked about their needs, challenges and opportunities, and made commitments to work together on areas of common priority ranging from workforce, to marketing, to regulatory topics. Since then, the partnership, now called Napa HIP (for “Hospitality Industry Partnership”) has held a number of convenings with industry partners to develop and prioritize their working agenda for the partnership. The November 2016 convening expanded to include a group of community support partners and a focus was put on the issue of hospitality training programs available to the industry. Another topic of discussion for the Napa HIP industry partners has been the lack of affordable housing. While this may seem to be more of a social services concern, the industry partners have made it clear that it is an issue that negatively affects their workers, their businesses, and their industry.

The launch of the Napa-Solano Healthcare ISP, on December 15, 2016, was attended by 28 employers and 25 stakeholder entities. Almost 20 healthcare employers were present, including Kaiser Permanente, Sutter Solano Medical Center, Napa State Hospital, La Clinica De La Raza, and the Hospital Council of Northern & Central California. Industry representatives in attendance decided to establish and support the Healthcare ISP, and established five priority areas of action:

- Innovation (shared financial & system of care resources)
- Use of Shared Information/Data
- Launch a Residency Program
- Ageing Population Issues (Senior Support Services)
- Workforce Training & Education

The Marin/Sonoma Healthcare ISP launch will take place in February 2017. A Manufacturing Solano/Napa ISP launch is planned for spring 2017.

By March 2018, NBEC has committed to the following:

1. Establish Industry Sector Partnerships in each of the workforce board areas.
2. Identify/recruit Business Champions for selected industry sectors.
3. Deploy a region-wide staff capacity-building training program focused on new effective and sustainable business engagement practices.
4. Elevate staff knowledge of specific industry sector workforce development systems and opportunities to create “Sector Specialists.”
5. Implement new technology for coordinated business engagement.
6. Host two regional summits to highlight the economic and community benefits of ISPs.

In summary, the goals of NBBSA are a critical component of this regional strategic plan. NBEC envisions the NBBSA initiative as its flagship initiative to ensure that business needs are guiding workforce development efforts. The NBBSA will undoubtedly spawn numerous initiatives impacting many parties in both workforce and economic development fields. Matching appropriate education/training and employment efforts with demonstrated local/regional demand with businesses will raise the skills sets of workers, and in a more timely fashion meet the hiring/upskilling needs of businesses.

Critical outcomes will include: 1) enhancing worker earnings and benefits; 2) increasing employment productivity/stability/longevity (which benefits both worker and business); and 3) building robust local and regional economies.

### **Existing Career Pathways Programs**

As identified in the NCCPA table above, career pathway programs have been identified for each of the targeted sectors. The development of these pathways is the primary work of the NCCPA initiative and is ongoing in nature. Staff have begun mapping several of the pathways; in particular, the advanced manufacturing, healthcare, and hospitality pathway maps can be found as Appendix K through Appendix O. The pathway maps are in draft form, but at a minimum illustrate some of the identified certificates and training institutions for priority occupations. With the development of Industry Sector Partnerships via NBBSA, NBEC intends to solicit Business Champion and other industry expert input into the continuing refinement of the region's career pathway programs. This feedback will be shared via the NCCPA collaborative with education and economic development partners, in order to inform any necessary adjustments in order to meet regional industry needs.

## **C. INDUSTRY-VALUED POST-SECONDARY CREDENTIAL ATTAINMENT**

As mentioned previously, the region's education partners have ongoing industry advisory groups of business leaders to provide input into curriculum development and to ensure that credentials offered are industry-recognized and valued. The NCCPA and NBBSA initiatives are serving as opportunities to ensure that businesses lead this discussion and process, that the credentials and training being emphasized in career pathways (as described earlier in this plan) remain relevant, and that any necessary adjustments are made along the way. NBEC anticipates that its Industry Sector Partnerships and identified business champions will be an integral component in ensuring that the system is industry-driven. Through the work of the ISP's and gained labor market intelligence, the regional planning partners will be able to establish goals for the number of industry recognized credentials produced in the region. The education and training partners will be able to track the credential attainment numbers through their reporting systems, and the NBEC RPU will be able to track its contribution to the overall state goal of one million new credentials statewide over the next decade.

The below table lists the postsecondary education and training institutions in the region and the number of completers they each have for their various certificate and degree programs in a recent year (2012). Note that apprenticeship programs are not included in this list because, while they are a significant source for quality workforce training, their apprentices are already employed. The institutions on this list are those whose students – for the most part – have not yet started to work in their chosen professions. At the program level, the completer numbers from these institutions can help determine the projected balance between worker supply and demand so that oversupplying the labor market can be avoided or minimized.



**Post-Secondary Education and Training  
Institutions throughout the North Bay Region**

<b>Institution</b>	<b>Certificates awarded in 2012</b>	<b>Degrees awarded in 2012</b>	<b>Total program completions in 2012</b>
Santa Rosa Junior College	3,012	1,665	4,677
Sonoma State University	0	2,074	2,074
Solano Community College	180	996	1,176
Napa Valley College	224	561	785
Dominican University of California	0	554	554
Touro University California	0	419	419
Pacific Union College	1	307	308
College of Marin	67	252	319
Mendocino College	48	248	296
Blake Austin College	212	0	212
California Maritime Academy	0	169	169
Empire College	120	126	246
Lytles Redwood Empire Beauty College	99	0	99
Milan Institute of Cosmetology-Fairfield	84	0	84
San Francisco Theological Seminary	10	53	63
LeMélange Academy of Hair	41	0	41
Hinton Barber and Beauty College	24	0	24
Bergin University of Canine Studies	0	19	19
<b>TOTAL</b>	<b>4,122</b>	<b>7,443</b>	<b>11,565</b>

Of the 11,565 postsecondary program completers in 2012, about two out of three completed certificates or associate degree. About 30% completed a bachelor's degree or higher.

#### **D. ACCESSIBILITY AND INCLUSIVITY**

Resources will always be too limited for any one entity to be alone in tackling the challenges facing the workforce development system. Therefore, the NBEC leadership will continue to collaborate with partners to ensure that resources are leveraged to the fullest extent possible, and that job seekers are able to access the resources needed for their success. In addition to the WIOA core partners, the North Bay region is reliant on a robust and critical system of community based organizations (CBO's) to reach and work with groups that have some of the most significant

barriers to employment. CBO's participate in program development, outreach, and specialized supportive services, in coordination with one-stop partner groups across the region. By working with these community-embedded organizations and ensuring appropriate referral and co-enrollment, the workforce system is better able to assist individuals with accessing regional sector pathways and connecting them with needed supportive services and resources to ensure that they will remain in relevant programs as they work their way through career pathways. (As supportive services and client case management are primarily delivered at the local level, please see the attached local plans for further detail.)

The most common partnerships with CBO's focus on additional wrap-around supports for vulnerable populations in order to enhance their accessibility to the workforce system and ensure their inclusion in the workforce. CBO's that work closely with WDBs in the region include Homeward Bound of Marin, which serves homeless individuals and has partnered to offer vocational training in a priority industry and supportive services to WIOA clients. Solano and Marin work with SparkPoint, who augments services through financial literacy and credit counseling. Regionally, the Housing and Economic Rights Advocates (HERA) and Legal Services of Northern California work in collaboration with multiple counties to provide legal support to reduce barriers to employment. CenterPoint is another regional CBO that focuses on individuals involved in the justice system throughout northern California and works with NBEC partners to host a regional re-entry resource and career fair for ex-offenders.

Additional coordination with CBO's can be found in youth programming throughout the region. Voices in Napa is the competitively procured WIOA youth service provider and works with at-risk youth involved with the foster care, mental health, and juvenile justice systems. Sonoma County partners with Social Advocates for Youth, West County Community Services, Petaluma People's Services, the Center for Social and Environmental Stewardship, and Conservation Corp North Bay in the implementation of their youth programs. Solano County works with the Dream Center for youth outreach, To Be Successful for tutoring and mentorship, and the Children's Network of Solano County for community alignment among youth employment. Mendocino partners with Redwood Quality Management and Mendocino County Youth Project to reach at risk youth and provide wrap around services.

CBO partners are an integral part of the pipeline to direct clients into regional sector pathways, either by directly providing training for in-demand occupations themselves, exposing youth clients to careers in demand sectors or providing wrap-around services to reduce barriers to employment. Every WDB in the region includes CBO members on its board. Additionally, the Career Services Provider in Mendocino and Lake Counties is a CBO. As outlined in section A, an extensive stakeholder input process was conducted throughout the six county region that included a number of CBO partners. Additional stakeholders and organizations representing populations with barriers to employment and/or historically disadvantaged communities took part in these sessions. Furthermore, AEBG consortia staff were invited and attended within every workforce board's area. As part of the public comment process, the draft regional and local plans were made available online. Please see Appendix I for a complete list of stakeholders invited to participate in the planning process.

The following is a description of the need for basic skills education in the RPU, the types of services being offered, and plans for addressing unmet needs.

### **Basic Skills Education**

The North Bay RPU has lower percentages of people who have not completed high school, compared to the state average. Overall the percentage of high school graduates is higher than the state average, although Marin's figure appears low because of their high percentage of college graduates. With regards to percentages who have earned their bachelor's degree or higher, wide variation exists within the region, with Marin having the most Bachelor degreed (or higher) population (54.8%) and the more rural counties having the lowest percentages (Lake, 16.2%, Mendocino 22.5%) compared to 31% statewide. The table below is for those ages 25 and older.

**Education Level Percentages of Individuals 25 and older**

<b>County</b>	<b>Less than HS degree</b>	<b>HS graduate</b>	<b>Some college, no degree</b>	<b>AA degree</b>	<b>BA or higher</b>
California	18.5%	20.7%	22.0%	7.8%	31.0%
Lake	15.1%	28.3%	39.4%	11.0%	16.2%
Marin	7.5%	12.2%	19.0%	6.5%	54.8%
Mendocino	14.1%	26.4%	28.7%	8.2%	22.5%
Napa	17.2%	19.2%	22.5%	9.2%	31.9%
Solano	12.4%	24.1%	29.5%	9.7%	24.3%
Sonoma	13.2%	20.1%	25.3%	8.9%	32.6%

SOURCE: FactFinder.Census.gov

As detailed in Section B, 10.6% of the region's population over the age of five speak English "less than well," compared to 43.7% statewide. Of those with LEP, Spanish is the most commonly spoken language across all counties in the region, with Asian languages having a significant presence in a few of the counties. (Further detail on serving individuals with LEP and the challenges common across the RPU appears later in this section.)

For those who have less than a high school degree, the following table provides both the percentage and number of people for each county.

<b>County</b>	<b>Less than HS degree</b>	<b># of people</b>
Lake	15.1%	6,990
Marin	7.5%	13,876
Mendocino	14.1%	8,633
Napa	17.2%	16,104
Solano	12.4%	34,084
Sonoma	13.2%	44,391
<b>TOTAL FOR RPU</b>	<b>12.5%</b>	<b>124,079</b>

To meet the educational needs of these individuals, a range of adult basic education services are offered across the region, although there is variation from county to county, and even within

individual counties. Services include but are not limited to: adult secondary education, adult basic education, remediation at community colleges, English as a Second Language courses, classes for adults with disabilities, and high school equivalency/GED preparation.

High School Equivalency preparation is offered by the following adult schools in the RPU: Petaluma Adult School (Sonoma County); Tamalpais Adult School (Marin County); Novato Adult School (Marin County); Vallejo Regional Education Center (Solano County); Fairfield-Suisun Adult School (Solano County); Vacaville Education Extension Program (Solano County); Ukiah Adult School (Mendocino/Lake); Kelseyville Adult School (Mendocino/Lake); Anderson Valley Adult School (Mendocino/Lake); Napa Valley Adult Education (Napa County).

Although figures were not available for every type of adult education service, the following is a sampling of enrollment numbers across the region. It is apparent that resources are insufficient to meet the apparent demand, as indicated by the number of individuals who have not achieved a high school diploma or equivalent. For example, 44,391 individuals in Sonoma County have less than a high school diploma, compared to the figures below for the numbers being served at Petaluma Adult School.

<b>Provider</b>	<b>Adult Secondary Education (ASE)</b>	<b>Adult Basic Ed (ABE)</b>
Petaluma Adult School	348	82
Tamalpais Adult School	200	194
Novato Adult School	100	173
Marin County Office of Ed	-	499
College of Marin	-	2,248
Vallejo Regional Ed Center	580	262
Fairfield Suisun Adult School	849	343
Vacaville Education Extension Program	400	-
Solano Community College	-	English 2,249 (FTE's)
Solano Community College	-	Math 1,575 (FTE's)
Napa State Hospital Education Center	-	160-250

In addition to the need for more resources, the vast geographical spread of the region as well as within individual counties presents a big challenge in the provision of adult basic education. For example, in Sonoma County, Petaluma Joint Unified High School District in the south part of the county is the only secondary provider of services leading to a high school diploma. While they offer online and independent study programs, students must be able to provide their own transportation to the school site for registration and testing services.

In addition to geographical challenges, community colleges in the region are finding that the majority of students are not prepared for college level course work. For example, based on student performance on Napa College's placement exam, 84.8% placed below the college- level coursework in English, and in math, 93.9% placed below college level coursework. The College of Marin (COM) Assessment Office reported that 77.3% of students tested below college-readiness on the English test, and in math, 84.2%. Community colleges find a significant demand for remediation courses, which often have waitlists because of insufficient resources to meet demand.

Education partners, Workforce Development Boards, economic development organizations and businesses throughout the region have been working together for a number of years to identify system gaps and solutions. Partners are working to streamline and coordinate intake, assessment, and referrals of individuals needing basic skills remediation, and to accelerate the progress of students.

Information has been gleaned through the work of AEBG Consortia, career technical education advisory groups, Workforce Board convenings, and labor market data and analysis. With regards to adult basic education, the following gaps have been identified across program areas:

1. Bridges, transitions and pathways. There is a strong need for bridges between institutions, transitions from one institution to another and pathways that lead to the academic and career goals being met.
2. Geographic Access. Both across the RPU and within individual counties, distance to services presents a challenge to students.
3. Capacity and Resources. Recent budget cuts and on-going rapid changes in teaching methods, technology and subject matter content have created a high demand for capacity and resource building in both the infrastructure and professional development.
4. Comprehensive Student Support Systems. The complex lives of students, the ever increasing demand for focused learning, and the intricacies of navigating education systems require a comprehensive approach to student support.
5. Service Delivery. From outreach to course content to job placement and follow up, every point of service delivery has some gaps for some students.
6. Common Data/Accountability Systems and Communications – Data driven policy and approaches require solid information. Students, in order to make informed decisions require up to date information on their interests, aptitudes abilities and progress, as well as current academic and career options. Faculty needs an efficient and effective method for tracking student progress, for communicating clearly with students and one another, and understanding good outcomes.

To address these gaps, streamline and coordinate intake, assessment, and referrals of individuals needing basic skills remediation, and accelerate student progress, AB 86 plans in the North Bay include, but are not limited to:

1. Improve communication and curriculum alignment between community college and adult education programs
2. Increase the number and variety of adult education courses across all program areas
3. Increase the geographic diversity where courses and classes are held
4. Increase outreach and engagement across the region and particularly to underserved adult learners
5. Increase student support services and resources to assist students in meeting their designated goals such as transitioning to post-secondary education, counseling referrals, childcare, income assistance, and physical and mental health
6. Embed bridge curriculum for adult learners with disabilities and students gaining basic skills/education prior to the transition into post-secondary education

7. Enhance courses that address the soft-skills of students including resume writing, professional presence, interviewing skills, and teamwork
8. Increase outreach to workforce trainers to discover and create basic skills courses that meet the needs of students working toward vocational certificates or licenses

Given the significant barrier that a lack of basic skills presents to employment as well as progress toward prosperity, NBEC will continue to collaborate with our regional education partners and assist as possible with advancing the above strategies. In particular, WDBs will look for ways to support efforts to align curriculum that support industry specific pathways, including providing relevant labor market information; assist with student outreach and the provision of supportive services, including transportation support; and partner in convenings of stakeholders, particularly members of the business community. Individual AJCC's may provide WIOA enrolled clients with supportive services, or refer them to other partners such as the Department of Rehabilitation, County Welfare Agencies, or community based organizations, as appropriate.

### **Alignment with Regional Sector Pathways**

Although some strong models exist in the RPU, work remains to ensure that adult basic education programs are integrated into and feeding students into sector pathways. The most notable gaps in the area of short-term CTE are the need for more direct coordination with other program areas, and for direct links to ever changing demands of local businesses. Although the quality of the existing CTE programs is commendable, strong and consistent connections are lacking between these programs and local businesses to identify emerging high employment potential careers. As described in Section C, NBEC will work to address these issues through the NCCPA and NBBSA initiatives. Adult education and CTE providers will be included in information sharing from those efforts, to assist them with the development of industry-recognized and "stackable" certificates. Although half of the RPU counties do not have apprenticeship training centers within their boundaries (Lake, Mendocino, Marin), stakeholders across the RPU identified the need for courses that introduce adult education students to the wide variety of opportunities in the trades. This need is being addressed by a Proposition 39 grant for the Trades Introduction Program (TIP). Through a collaboration with the Workforce Alliance North Bay (WDB of Marin/Napa/Lake) and the Marin Building and Construction Trades Council, the RPU is participating in a planning grant for a pre-apprenticeship program which provides education and orientation for adults interested in becoming a trade apprentice. Classes are being offered throughout the North Bay region and are based on the Multi-Craft Core Curriculum designed by the National Building Trades Department of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO). Initial data on the placement of students into apprenticeships or jobs following the course has been excellent – the first cohort's placement rate exceeded the goal at 126%, with all 19 completers ending up in construction-related employment.

The following are strategies identified by AEBG consortia and through the regional stakeholder sessions to strengthen the connection of adult education, CTE, and regional sector pathways:

- Expand and develop career pathways consisting of courses and training programs based on high priority sectors as determined by the WDBs' sector strategy work.
- Continuously communicate and collaborate with agencies involved in federal, state and county-wide career pathway and sector strategy initiatives.

- Include and integrate employability skills ('soft skills') training, plus career readiness training (e.g. resume writing, interviewing, etc.) within the CTE programs to prepare students for work-based learning activities and the workplace.
- Work with WDBs, K-12, community colleges and other career pathway partners to effectively market the trades and middle-skilled career pathways (e.g. post-secondary training programs).
- Address the shortage of work and training sites by collaborating with employers in high demand industries.
- Create articulation agreements for CTE between adult education and community colleges.

Toward the goal of ensuring that CBO's and other partner organizations work closely with WDB's to connect clients to regional sector pathways, a number of CBO's are involved in the industry sector partnership work being conducted in the NBEC region. The Napa-Solano Healthcare Industry Sector Partnership works with healthcare related CBOs in the region including the Children's Network of Solano County, Solano Coalition for Better Health, Live Healthy Napa County, First 5 of Solano County, and Child Start Inc.

### **Services for Individuals with Limited English Proficiency (LEP)**

English language development courses are available throughout the region, via community colleges, adult schools, and community based organizations. Of particular note, Mendocino College was recently designated a Hispanic Serving Institution. Additionally, Mendocino College received a High School Equivalency Program (HEP) grant which specifically provides migrant workers with curriculum and support in preparing for and taking a High School Equivalency test.

Despite pockets of excellence, several challenges are common across the RPU. Due to decreased funding, all counties in the region report an inadequate number of classes are available to meet existing need. The following sampling of ESL enrollment numbers at some of the major adult education providers illustrates the small numbers served, given the apparent level of need based on Census data.

- Petaluma Adult School, Sonoma County - 566
- College of Marin, Marin County – 564 (credit courses)
- Tamalpais Adult School Marin County - 300
- Novato Adult School, Marin County - 125
- Solano College, Solano County 85
- Vallejo Regional Education Center, Solano County - 300
- Fairfield-Suisun Adult School, Solano County - 399

Another challenge is that given the vast geographical spread of the RPU as well as individual counties, more classes are needed in remote areas to adequately fill the need for English language instruction. All areas are also grappling with how to offer classes in ways that are supportive of individuals with jobs and families.

In order to reach all English learners, information and services need to be provided in smaller non-English language communities through a variety of modes. Service hubs that are located in

population centers and meet several family needs such as health care and social services can provide information and English language courses to constituents if space is available. Underutilized classroom space in neighborhood elementary schools where parents and family members can avail themselves of English language instruction while their young children are attending school are also attractive options.

NBEC recognizes the importance of English language acquisition for individuals to be able to successfully participate in community, citizenship, and jobs. As such, NBEC will look for ways to support the following list of recommendations from regional adult education consortiums:

- Support the expansion of the number and geographic locations of ESL classes throughout the region, particularly GED preparation for non-native English speakers
- Expand child care and transportation support for participants (supportive services)
- Provide staff development to train AJCC staff on the system of educational resources for English Learners as well as the transition to community college level work
- Create and implement contextualized ESL/CTE programs that have industry certification options
- Provide bilingual outreach services to better inform public of adult ESL education and training programs in the region

#### **Accessibility for People with Disabilities (PWD)**

Local boards are working closely with partners to ensure the accessibility and participation in regional sector pathway programs for people with disabilities (PWD). As part of the AB 86 planning process, education partners throughout the RPU (community colleges, adult schools, AEBG consortia) mapped programs and any existing gaps in services for PWD.

The following example highlights a theme across the RPU – the need for bridge programs and curriculum which help individuals transition from high school or adult education to community college level work. The Marin County Office of Education's Workability and Transition Partnership programs provide pre-employment and marketable job skills training, employment placement, and follow up to assist PWD in pursuing their goals and meeting their needs. Stakeholders identified the primary gap in programs for PWD as the need for a bridge program and curriculum to provide enhanced academic support for those who are able to pursue community college coursework. The AEBG Consortium recommended addressing this gap through developing more systematic and consistent collaboration between the Workability Program and the College of Marin Student Accessibility Services.

Geographic limitations to services is another theme throughout the RPU. Many of the services for PWD are provided by non-academic community based organizations. More conversation needs to take place to identify what types of educational services are needed for PWD and how those services will be distributed and delivered throughout the RPU. In some counties, partners are working toward implementing an intake and navigator system established in geographically strategic locations, with resources and options for PWD to offer consistent information, guidance, and support.

Throughout the RPU, Workforce Boards and service providers partner closely with organizations serving PWD, which provide programs that play a critical role in providing opportunities for this



population to gain marketable job skills, find placement opportunities, and obtain ongoing support for maintaining employment and living independently. Opportunities for partnering to ensure accessibility include, but are not limited to: one stop steering committees and other partner meetings and community convenings; Workforce Board membership; and co-location in AJCC's. These points of collaboration serve to ensure that stakeholders are aware of the system of resources available to job seekers, and that cross referrals occur as seamlessly as possible.

A number of years ago, the original NBEC consortium of Marin, Napa, Solano and Sonoma Counties was awarded a five year grant from the Department of Labor, Project INCLUSION, to enhance the employment resources for people with disabilities in the region. As a result, the infrastructure of the regional one stop system was enhanced with better services for this target population in mind, including contractual arrangements with community based organizations serving PWD; assistive technology in the one stop centers; and staff training. Staff training has been on going, and future staff development will particularly focus on assisting people with barriers to employment in accessing career pathways.

### **TANF/CalWORKs**

With regards to TANF/CalWORKs, every workforce board within NBEC works with the county welfare agency. The service providers in Marin, Sonoma, and Napa Counties are within the same budget center as Welfare to Work, and the Solano WDB has contracted with Solano County in the past to serve CalWORKs clients. As such, a lot of strategic alignment has already taken place, with co-enrollment of CalWORKs clients into WIOA. Looking toward the future, CalWORKs staff will be included as possible in sector trainings under NBBSA to ensure that they also have the knowledge and background to guide their clients toward regional sector pathways which will assist them in progressing toward livable wage jobs and careers.

## **E. JOB QUALITY**

The Workforce Boards in the NBEC RPU are committed to assisting job seekers with careers that move them toward greater economic prosperity, and working with employers who offer jobs with good wages and benefits. A comparison of median hourly wages throughout the region to the priority occupations in the targeted sector pathways illustrates alignment with that commitment. The median wage over the entire RPU is \$23.41/hour. As to be expected, entry level positions have lower than median wages, but they are the initial steps in career pathways leading to higher earnings, and may be appropriate entry points for some job seekers. Please see the following two tables.

<b>Median Averages in the NBEC RPU</b>								
County/ Area	Lake	Marin	Mendo- cino	Napa	Solano	Sonoma	REGION	CA
Median Hourly	\$19.07	\$27.24	\$18.73	\$22.26	\$23.74	\$22.55	\$23.41	\$24.47
Median Annual	\$39,666	\$56,659	\$38,958	\$46,301	\$49,379	\$46,904	\$48,693	\$50,898
Occupation	2016 Jobs	2026 Jobs	Growth Rate	New Jobs	Replace- ments	Median Wage	Typical Ed Level	

*SECTOR: HEALTH CARE AND SOCIAL ASSISTANCE >> PATHWAY: HEALTH SCIENCES*

Registered Nurses	11,271	12,186	8.10%	915	2,787	\$52.99	BA/BS
Physical Therapists	937	1,041	11.10%	104	270	\$48.02	Mas/Doc
Physical Therapist Assistants	173	221	27.80%	48	59	\$32.06	AA/AS
Licensed Practical and Licensed Vocational Nurses	2,618	3,193	22.00%	575	849	\$26.54	SC/CERT
Firefighters/Paramedics	1,635	1,798	10.00%	163	501	\$25.26	SC/CERT
Emergency Medical Technicians and Paramedics	1,321	2,112	59.90%	791	296	\$17.50	SC/CERT
Nursing Assistants/Certified Nurse Assistants	3,419	4,462	30.50%	1,043	917	\$14.62	SC/CERT
Home Health Aides	2,138	3,477	62.60%	1,339	692	\$11.20	SC/CERT

*SECTOR: MANUFACTURING >> PATHWAY: ADVANCED MANUFACTURING (SONOMA)*

Engineers, All Other/Robotics Engineers	276	307	11.20%	31	59	\$48.08	BA/BS
Engineering Technicians, Except Drafters, All Other/Manufacturing Production Techs	264	282	6.80%	18	69	\$29.61	AA/AS
Industrial Machinery Mechanics	1,062	1,421	33.80%	359	330	\$28.38	HS/GED
Electro-Mechanical Technicians/Robotics Technicians	32	35	9.30%	3	9	\$26.42	AA/AS
<b>Occupation</b>	<b>2016 Jobs</b>	<b>2026 Jobs</b>	<b>Growth Rate</b>	<b>New Jobs</b>	<b>Replacements</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Computer Numerically Controlled Machine Tool Programmers	50	63	26.20%	13	17	\$26.04	HS/GED
Computer-Controlled Machine Tool Operators	159	206	29.50%	47	57	\$16.84	HS/GED

*SECTOR: MANUFACTURING >> PATHWAY: ADVANCED MANUFACTURING (SOLANO)*

Architectural and Engineering Managers/Drafting Managers	666	720	8.10%	54	219	\$69.63	BA/BS
Engineers, All Other/Mechatronics Engineers	276	307	11.20%	31	59	\$48.08	BA/BS

Commercial and Industrial Designers	84	94	11.90%	10	22	\$31.66	BA/BS
Electrical and Electronics Drafters	112	121	8.10%	9	16	\$30.70	AA/AS
First-Line Supervisors of Production and Operating Workers	2,057	2,355	14.50%	298	353	\$30.42	HS/GED
Mechanical Drafters	125	129	3.20%	4	17	\$29.19	AA/AS
Surveying and Mapping Technicians	199	198	-0.50%	-1	32	\$29.16	HS/GED

*SECTOR: HOSPITALITY & TOURISM >> PATHWAY: HOSPITALITY & TOURISM (NAPA)*

Lodging Managers	288	341	18.40%	53	67	\$26.63	HS/GED
Food Service Managers	1,399	1,573	12.40%	174	303	\$23.55	HS/GED
First-Line Supervisors of Personal Service Workers	870	1,074	23.40%	204	192	\$18.33	HS/GED
Concierges	163	193	18.40%	30	36	\$16.72	HS/GED
First-Line Supervisors of Food Preparation and Serving Workers	3,858	4,600	19.20%	742	1,279	\$16.29	HS/GED
Hotel, Motel, and Resort Desk Clerks	1,663	2,006	20.60%	343	998	\$12.64	HS/GED
Waiters and Waitresses	13,323	14,712	10.40%	1,389	6,819	\$12.38	<HS
Bartenders	2,689	3,107	15.50%	418	1,103	\$11.86	<HS

Source: EMSI

In addition to front-lining employers who are within the targeted sectors and pathways, business services staff in the region may conduct an analysis of potential business customers in order to prioritize those that pay higher wages and offer benefits. This analysis may include the following:

- A successful multi-year business history;
- History of hiring individuals with barriers to employment;
- Immediate job opportunities, with avenues for job advancement;
- Preferably higher-than-entry-level opportunities;
- Starting pay at \$12.00 per hour or higher;
- Employee benefits;
- Demonstrated ability to supervise and oversee a training or orientation effort

**Incumbent worker training:** In addition to benefiting existing employees by moving them to jobs with higher sustainable wages, a robust career ladder strategy for incumbent workers can open entry-level positions to be filled with un- and underemployed individuals. Workforce boards throughout the region are at varying stages of offering incumbent worker training, with the more experienced boards sharing policies and procedures and best practices within the RPU. Going forward, when offering incumbent worker trainings, business services units will take into account whether 1) the business falls within a targeted sector and 2) whether an incumbent worker training will help to ensure the participants' progression along career pathways.

## **F. REGIONAL ASSESSMENT**

The State CalJOBS system has the ability to track occupational areas of training for Title I enrolled participants, and then record whether the job placement that follows is in that occupation. This data is regularly examined by WDB staff to ensure that staff are best matching jobseekers to quality training in demand occupations, and that training schools or providers produce highly qualified graduates that are readily hired by industry.

As other WIOA-Titled programs come online to utilize CalJOBS, an expanded ability will be created to similarly analyze the effectiveness of multiple training programs, and direct efforts at continuous improvement.

## **G. FEDERAL WIOA PLANNING REQUIREMENTS NOT COVERED BY STATE PLAN**

As described previously, NBEC has a long and successful history of working together for the greater good of the North Bay region. Despite - or maybe because - the group regularly meets and collaborates out of a collective desire to do so, rather than because of any formal agreements, NBEC is in the vanguard of regional workforce development efforts in the state. The group, which also includes the EDD regional manager, shares the values of collaboration, inclusivity, efficiency and innovation. A range of administrative and programmatic efforts have been successfully undertaken together, and include: grant writing, grant administration, staff development, procurement, the publication of Occupational Outlook analyses, a joint website, and a Trades Introduction Program, to name a few. The NBEC partnership has a long history of producing results, and looks forward to exploring further possibilities under the A-H RPU requirements.

The following A-H RPU requirements have been addressed earlier in the plan: preparation of a regional plan; the development and implementation of sector initiatives (pages 18-23) ; the collection and analysis of regional labor market data, in conjunction with the State (pages 2-16, plus appendices); the coordination of transportation and other supportive services (29, 31, local plans); and coordination of services with economic development (1, 17-18, 20-21, 27).

In 2016, the NBEC Directors agreed to collectively negotiate each local area's performance goals with the State, during a group telephone conference. Over the course of 2017, the NBEC Directors will explore the establishment of regional service strategies, including the potential use of cooperative service delivery agreements and formal cost sharing arrangements to pool administrative costs, if necessary. With the pending retirement of two of the Workforce Board Directors, the group consensus is that it is important to take the necessary time to have these discussions and explore options, and allow new incoming Directors the opportunity to be part of the decision making process.

## **H. Regional Service Agreements – None at this time. See section G.**

## **I. Community College SWP and AEBG related attachments**

The AEBG plans for consortia in the NBEC region as well as the community college Strong Workforce Program documents were reviewed for the preparation of this plan. In the interest of conservation, and upon the advice of EDD assigned regional advisor Tim Reynaga, we are providing the links to those documents rather than hard copies.

AEBG Consortia:

<http://aebg.cccco.edu/Consortia/Consortia-List>

Community College Strong Workforce Documents:

<http://www.doingwhatmatters.cccco.edu/ResourceMap/NorthBay.aspx>

Bay Region Strong Workforce Program – Regional Plan:

<https://tinyurl.com/zxaqk4y>

**Appendix A  
Regional Stakeholder Input Sessions  
And Invitation List**

<b>Date</b>	<b>Description</b>	<b>Attendance</b>
11/3/16	College of Marin Nursing program advisory committee, Kentfield CA	6 attendees, including Kaiser Permanente, Marin General, Mission College, USF, College of Marin
11/4/16	Napa County stakeholder session @ Strong Workforce meeting, Napa College, Napa CA	17 attendees, including business, education, WDB, economic development
11/9/16	Mendocino County stakeholder session @ Workforce Development Board meeting, Ukiah CA	15 attendees, Workforce Board members as well as Strong Workforce
11/9/16	Sonoma County stakeholder session @ Workforce Development Board meeting, Santa Rosa CA	20 WDB and 16 staff and community attendees
11/9/16	Marin Adult Education Consortium, San Rafael CA	8 attendees, representing K-12, adult education, and community college
11/17/16	College of Marin CIS/Business Systems program advisory committee, Novato CA	8 attendees representing business, education, workforce development, MCOE
11/18/16	Lake County stakeholder input @ one stop partner meeting, Lakeport CA	6 attendees, representing DOR, DSS, Tribal TANF, EDD
12/1/16	Solano County stakeholder session, Fairfield CA	11 attendees, representing Tribal TANF, education, CBO's, county welfare agency
12/6/16	Marin County stakeholder session, San Rafael CA	24 attendees, representing business, economic development, county welfare agency, EDD, education, CBOs
12/8/16	Solano stakeholder session, Vallejo CA	19 attendees, representing education, DOR, public libraries, public health, county welfare agency, EDD, CBOs, economic development

Please see Appendix I for a complete list of organizations invited to provide stakeholder input.

## Appendix B

### Hospitality and Tourism Labor Market Analysis

The Hospitality and Tourism industry cluster is comprised of establishments providing accommodation and food services for immediate consumption, and tourism services. For the purposes of this analysis, we will focus mostly on the accommodation and food services sector which accounts for approximately 93% of the jobs in the cluster, and the vast majority of its projected job growth as well.

The Hospitality and Tourism cluster provides 64,000 to 69,000 jobs in the region and is projected to add another 10,000+ jobs over the next decade, based on a faster-than-average 16% projected growth rate. The industry cluster is growing in all of the region's counties except for Lake County, where the cluster is projected to lose just over 100 hospitality jobs over the next decade. Looking more closely at Lake County, however, it would be a reasonable guess that the projected job losses – most of which may have already occurred – are a result of the recent devastating fires in that area.

The average compensation in the region (including benefits) is about \$27,000 per year. The highest average compensation is found in Napa County, while the lowest average compensation is found in Lake and Solano Counties.

The Location Quotient (LQ) for the sector is 1.19, which indicates that this is an export industry cluster and a key economic driver for the region's economy.

<b>Hospitality and Tourism Cluster</b>							
	<b>Region</b>	<b>Lake</b>	<b>Marin</b>	<b>Mendo</b>	<b>Napa</b>	<b>Sonoma</b>	<b>Solano</b>
<b>2015 Jobs</b>	63,988*	1,045	12,745	3,918	12,661	21,356	12,264
<b>2025 Jobs</b>	73,991	932	14,613	4,305	15,840	24,159	14,141
<b>Growth Rate</b>	16%	-11%	15%	10%	25%	13%	15%
<b>Job Growth</b>	10,003	-113	1,868	387	3,179	2,803	1,877
<b>Avg Comp</b>	\$26,699	\$18,133	\$29,336	\$22,039	\$35,422	\$24,677	\$20,696
<b>Employers</b>	3,330	110	686	307	377	1,157	693
<b>LQ</b>	1.19	0.71	1.18	1.32	1.76	1.13	0.97
<b>GRP</b>	\$2,599.7M	\$34.1M	\$558M	\$145.3M	\$676.1M	\$806.2M	\$380M

Source: EMSI, Accommodation and Food Services Sector (\*Tourism industries add another 4,660 jobs to the cluster (not reflected in the above table), but the additional data are not available by county and so are not included in the above table.)

The industries in this cluster range from hotels and restaurants to convention and visitors bureaus. The largest industries are Restaurants and Other Eating Places (over 48,000 jobs in the region), and Traveler Accommodations (12,000+ jobs).

The cluster's highest paying industries include Convention and Visitors Bureaus and All Other Travel Arrangement and Reservation Services with average compensations (including benefits) of \$80,000 and \$78,000 per year, respectively. Many of the industries in this cluster have low average compensations which is due to the preponderance of part-time and relatively low-paying "service jobs."

The fastest growing industries in this cluster include Tour Operators (42% growth rate projected for this region over the next decade), RV (Recreational Vehicle) Parks (24%), Museums (24%), and Traveler Accommodation (21%).

**Top Industries within the Hospitality and Tourism Cluster**

<b>Industries</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Avg Comp</b>	<b>Firms</b>	<b>LQ</b>
Restaurants and Other Eating Places	48,317	55,584	15.0%	7,267	\$24,583	2,577	1.16
Traveler Accommodation	12,157	14,749	21.3%	2,592	\$35,665	397	1.61
Special Food Services	2,029	2,077	2.4%	48	\$25,713	168	0.75
Amusement and Theme Parks	1,211	1,423	17.5%	212	\$25,027	5	1.61
Drinking Places (Alcoholic Beverages)	1,109	1,094	-1.4%	-15	\$20,873	142	0.72
All Other Amusement and Recreation Industries	786	843	7.3%	57	\$27,236	106	1.14
Scenic and Sightseeing Transportation, Land	379	456	20.3%	77	\$41,969	11	7.30
RV (Recreational Vehicle) Parks	334	415	24.3%	81	\$30,920	39	1.30
Museums	287	355	23.7%	68	\$43,488	36	0.77
Travel Agencies	266	256	-3.8%	-10	\$61,506	51	0.75
Tour Operators	261	371	42.1%	110	\$43,112	29	2.31
Zoos and Botanical Gardens	193	300	55.4%	107	\$32,496	5	1.17
Marinas	165	190	15.2%	25	\$51,559	14	1.19
Casinos (except Casino Hotels)	163	192	17.8%	29	\$29,251	2	0.46
Racetracks	143	89	-37.8%	-54	\$41,853	6	1.04
Scenic and Sightseeing Transportation, Other	138	158	14.5%	20	\$31,984	8	11.38
Art Dealers	136	81	-40.4%	-55	\$43,942	47	1.95
Nature Parks and Other Similar Institutions	116	102	-12.1%	-14	\$49,078	15	2.83
Other Spectator Sports	106	115	8.5%	9	\$47,114	14	1.15
Sports Teams and Clubs	81	146	80.2%	65	\$65,186	8	0.22
All Other Travel Arrangement and Reservation Services	66	50	-24.2%	-16	\$77,598	7	0.20
Amusement Arcades	54	92	70.4%	38	\$18,119	4	0.58
Rooming and Boarding Houses	42	71	69.0%	29	\$33,435	7	0.86
Recreational Goods Rental	34	30	-11.8%	-4	\$11,843	12	0.62
Convention and Visitors Bureaus	33	26	-21.2%	-7	\$80,349	8	0.90



<b>Industries</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Avg Comp</b>	<b>Firms</b>	<b>LQ</b>
Historical Sites	27	30	11.1%	3	\$20,849	5	0.41
Scenic and Sightseeing Transportation, Water	17	22	29.4%	5	\$23,218	8	0.29

Source: EMSI, Harvard Hospitality and Tourism Cluster

### **Top Occupations within the Hospitality and Tourism Cluster**

The largest occupations in this cluster include Waiters and Waitresses (about 11,900 jobs in the region), Combined Food Preparation and Serving Workers (just over 11,000 jobs), Restaurant Cooks (about 5,600 jobs), Fast Food Cooks (about 3,100 jobs), Dishwashers (just over 3,000 jobs), Food Preparation Workers (just over 3,000 jobs), First-Line Supervisors of Food Preparation and Serving Workers (about 3,000 jobs), and Maids and Housekeeping Cleaners (about 2,900 jobs).

The fastest growing occupations (with at least/approximately 100 jobs in this cluster) include Laundry and Dry-Cleaning Workers (26% growth rate projected for this region over the next decade), Maids and Housekeeping Cleaners (24%), General Maintenance and Repair Workers (24%), Combined Food Preparation and Serving Workers (24%), and Meeting, Convention, and Event Planners (24%).

The highest-paying middle skill occupations in this sector (for this region) include Massage Therapists and Bookkeeping, Accounting, and Auditing Clerks (both \$22 per hour). Some occupations in this cluster are dominated by minimum wage jobs but also include tip earnings than can vary widely. In some cases, tips can add an additional 10% to one's earnings; in other cases, tips can double one's earnings. So, to an extent, the apparent lack of high-paying jobs in this cluster is clouded by the issue of (largely hidden) tip earnings.

### **Hospitality and Tourism Cluster Occupations with the Most Jobs in the North Bay Region**

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Waiters and Waitresses	11,856	13,027	9.9%	1,171	\$12.38	<HS
Combined Food Preparation and Serving Workers, Including Fast Food	11,265	13,940	23.7%	2,675	\$10.02	<HS
Cooks, Restaurant	5,640	6,774	20.1%	1,134	\$12.71	<HS
Cooks, Fast Food	3,102	2,992	-3.5%	-110	\$9.72	<HS
Dishwashers	3,079	3,130	1.7%	51	\$10.22	<HS
Food Preparation Workers	3,053	3,487	14.2%	434	\$10.50	<HS
First-Line Supervisors of Food Preparation and Serving Workers	2,948	3,582	21.5%	634	\$16.29	HS/GED
Maids and Housekeeping Cleaners	2,890	3,583	24.0%	693	\$11.65	<HS
Dining Room and Cafeteria Attendants and Bartender Helpers	2,107	2,366	12.3%	259	\$10.63	<HS
Bartenders	2,037	2,345	15.1%	308	\$11.86	<HS
Hotel, Motel, and Resort Desk Clerks	1,606	1,944	21.0%	338	\$12.64	HS/GED

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Cashiers	1,598	1,829	14.5%	231	\$10.78	<HS
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1,387	1,580	13.9%	193	\$9.93	<HS
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1,200	1,438	19.8%	238	\$11.49	<HS
Food Service Managers	1,129	1,280	13.4%	151	\$23.55	HS/GED
Chefs and Head Cooks	816	917	12.4%	101	\$19.90	HS/GED
Driver/Sales Workers	601	741	23.3%	140	\$14.50	HS/GED
Maintenance and Repair Workers, General	586	726	23.9%	140	\$20.94	HS/GED
Cooks, Short Order	566	586	3.5%	20	\$11.40	<HS
Amusement and Recreation Attendants	564	647	14.7%	83	\$10.25	<HS
General and Operations Managers	528	618	17.0%	90	\$47.95	BA/BS
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	467	554	18.6%	87	\$13.26	<HS
Food Servers, Nonrestaurant	360	413	14.7%	53	\$12.51	<HS
Massage Therapists	286	328	14.7%	42	\$21.83	SC/CERT
Lodging Managers	274	327	19.3%	53	\$26.63	HS/GED
Reservation and Transportation Ticket Agents and Travel Clerks	261	290	11.1%	29	\$19.88	HS/GED
First-Line Supervisors of Housekeeping and Janitorial Workers	244	300	23.0%	56	\$18.46	HS/GED
Bakers	239	279	16.7%	40	\$14.26	<HS
Bookkeeping, Accounting, and Auditing Clerks	231	243	5.2%	12	\$21.69	SC/CERT
Baggage Porters and Bellhops	223	272	22.0%	49	\$10.51	HS/GED
Tour Guides and Escorts	212	251	18.4%	39	\$14.29	HS/GED
Cashiers	207	226	9.2%	19	\$10.78	<HS
Travel Agents	202	206	2.0%	4	\$17.45	HS/GED
First-Line Supervisors of Office and Administrative Support Workers	199	245	23.1%	46	\$27.26	HS/GED
Laundry and Dry-Cleaning Workers	192	242	26.0%	50	\$11.74	<HS
Landscaping and Groundskeeping Workers	183	220	20.2%	37	\$15.16	<HS
Landscaping and Groundskeeping Workers	163	179	9.8%	16	\$15.16	<HS
Security Guards	146	176	20.5%	30	\$13.41	HS/GED
Waiters and Waitresses	143	163	14.0%	20	\$12.38	<HS
Office Clerks, General	141	163	15.6%	22	\$17.45	HS/GED
Cooks, Institution and Cafeteria	139	167	20.1%	28	\$14.92	<HS
Retail Salespersons	130	132	1.5%	2	\$12.37	<HS
Light Truck or Delivery Services Drivers	126	151	19.8%	25	\$16.47	HS/GED

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Reservation and Transportation Ticket Agents and Travel Clerks	125	145	16.0%	20	\$19.88	HS/GED
Amusement and Recreation Attendants	113	136	20.4%	23	\$10.25	<HS
General and Operations Managers	104	117	12.5%	13	\$47.95	BA/BS
Meeting, Convention, and Event Planners	97	120	23.7%	23	\$25.69	BA/BS
Nonfarm Animal Caretakers	97	101	4.1%	4	\$14.23	HS/GED

Source: EMSI, 6-County North Bay Region

### Education/Skill Level Key

<b>Abbrev.</b>	<b>Typical Education Requirement</b>	<b>Skill Level</b>
<HS	No education requirement	Lower Skill
HS/GED	High school diploma or GED	Lower Skill
SC/CERT	Some college or a postsecondary certificate	Middle Skill
AA/AS	Associate of arts or sciences degree	Middle Skill
BA/BS	Bachelor of arts or sciences degree	Higher Skill
Mas/Doc	Master's or doctoral degree	Higher Skill

**Appendix C**  
**Health Care and Social Assistance Sector**  
**Occupations With the Most Jobs in the North Bay Region**

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Registered Nurses	8,974	9,701	8%	727	\$52.99	AA/AS
Personal Care Aides	8,096	12,137	49.9%	4,041	\$11.34	<HS
Medical Assistants	3,295	4,025	22.2%	730	\$18.55	SC/CERT
Nursing Assistants	3,045	4,044	32.8%	999	\$14.62	SC/CERT
Social and Human Service Assistants	2,345	2,852	21.6%	507	\$17.63	HS/GED
Dental Assistants	2,301	2,443	6.2%	142	\$21.61	SC/CERT
Medical Secretaries	2,294	2,584	12.6%	290	\$21.37	HS/GED
Licensed Practical and Licensed Vocational Nurses	2,279	2,849	25.0%	570	\$26.54	SC/CERT
Receptionists and Information Clerks	2,101	2,514	19.7%	413	\$15.95	HS/GED
Home Health Aides	2,068	3,398	64.3%	1,330	\$11.20	SC/CERT
Office Clerks, General	1,947	2,254	15.8%	307	\$17.45	HS/GED
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,513	1,718	13.5%	205	\$18.98	HS/GED
Childcare Workers	1,452	1,491	2.7%	39	\$13.70	HS/GED
Maids and Housekeeping Cleaners	1,313	1,504	14.5%	191	\$11.65	<HS
Medical and Health Services Managers	1,289	1,504	16.7%	215	\$62.38	BA/BS
General and Operations Managers	1,195	1,450	21.3%	255	\$47.95	BA/BS
First-Line Supervisors of Office and Administrative Support Workers	1,187	1,381	16.3%	194	\$27.26	HS/GED
Preschool Teachers, Except Special Education	1,129	1,156	2.4%	27	\$15.72	AA/AS
Emergency Medical Technicians and Paramedics	1,117	1,879	68.2%	762	\$17.50	SC/CERT
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	921	1,016	10.3%	95	\$13.26	<HS
Recreation Workers	896	1,110	23.9%	214	\$12.16	HS/GED
Bookkeeping, Accounting, and Auditing Clerks	846	879	3.9%	33	\$21.69	SC/CERT
Physical Therapists	823	922	12.0%	99	\$48.02	Mas/Doc
Cooks, Institution & Cafeteria	813	1,012	24.5%	199	\$14.92	<HS

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Billing and Posting Clerks	795	979	23.1%	184	\$20.85	HS/GED
Radiologic Technologists	778	772	-0.8%	-6	\$43.62	AA/AS
Teacher Assistants	763	850	11.4%	87	\$14.96	SC/CERT
Dental Hygienists	694	754	8.6%	60	\$46.06	AA/AS
Food Preparation Workers	686	729	6.3%	43	\$10.50	<HS
Food Servers, Nonrestaurant	676	834	23.4%	158	\$12.51	<HS
Maintenance and Repair Workers, General	652	768	17.8%	116	\$20.94	HS/GED
First-Line Supervisors of Personal Service Workers	611	770	26.0%	159	\$18.33	HS/GED
Medical and Clinical Laboratory Technicians	603	668	10.8%	65	\$23.90	AA/AS
Social and Community Service Managers	573	727	26.9%	154	\$30.42	BA/BS
Dentists, General	552	603	9.2%	51	\$70.80	Mas/Doc
Medical Records and Health Information Technicians	550	615	11.8%	65	\$20.45	SC/CERT
Healthcare Social Workers	535	746	39.4%	211	\$32.34	Mas/Doc
Mental Health and Substance Abuse Social Workers	507	615	21.3%	108	\$24.00	BA/BS
Nurse Practitioners	498	693	39.2%	195	\$59.28	Mas/Doc
Psychiatric Technicians	476	508	6.7%	32	\$27.79	SC/CERT
Customer Service Representatives	473	613	29.6%	140	\$18.88	HS/GED
Child, Family, and School Social Workers	460	586	27.4%	126	\$22.56	BA/BS
Rehabilitation Counselors	441	559	26.8%	118	\$17.42	Mas/Doc
Family and General Practitioners	437	505	15.6%	68	\$102.14	Mas/Doc
Respiratory Therapists	435	362	-16.8%	-73	\$42.30	AA/AS
Mental Health Counselors	420	530	26.2%	110	\$23.40	Mas/Doc
Clinical, Counseling, and School Psychologists	417	471	12.9%	54	\$43.03	Mas/Doc
Phlebotomists	406	461	13.5%	55	\$19.60	SC/CERT
Executive Secretaries and Executive Administrative Assistants	391	399	2.0%	8	\$28.53	HS/GED
Substance Abuse and Behavioral Disorder Counselors	370	459	24.1%	89	\$20.48	BA/BS
Surgical Technologists	364	428	17.6%	64	\$28.76	SC/CERT
Human Resources Specialists	340	383	12.6%	43	\$32.01	BA/BS
Accountants and Auditors	334	397	18.9%	63	\$36.22	BA/BS

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Massage Therapists	328	371	13.1%	43	\$21.83	SC/CERT
Combined Food Preparation and Serving Workers, Including Fast Food	324	380	17.3%	56	\$10.02	<HS
Physician Assistants	322	445	38.2%	123	\$52.69	Mas/Doc
Bus Drivers, School or Special Client	315	409	29.8%	94	\$16.34	HS/GED
Pharmacists	308	294	-4.5%	-14	\$68.41	Mas/Doc
Taxi Drivers and Chauffeurs	297	387	30.3%	90	\$12.77	<HS
Marriage and Family Therapists	291	336	15.5%	45	\$32.29	Mas/Doc
Pharmacy Technicians	285	281	-1.4%	-4	\$20.48	HS/GED
Medical Equipment Preparers	282	283	0.4%	1	\$22.18	HS/GED
Administrative Services Managers	272	314	15.4%	42	\$41.48	BA/BS
Residential Advisors	268	331	23.5%	63	\$14.68	HS/GED
Interviewers, Except Eligibility and Loan	259	261	0.8%	2	\$20.73	HS/GED
Diagnostic Medical Sonographers	255	264	3.5%	9	\$55.88	AA/AS
Dietitians and Nutritionists	249	318	27.7%	69	\$37.13	BA/BS
Occupational Therapists	249	303	21.7%	54	\$44.81	Mas/Doc
Educational, Guidance, School, and Vocational Counselors	244	272	11.5%	28	\$25.29	Mas/Doc
Education Administrators, Preschool and Childcare Center/Program	236	241	2.1%	5	\$26.61	BA/BS
Dishwashers	230	275	19.6%	45	\$10.22	<HS
First-Line Supervisors of Food Preparation and Serving Workers	225	266	18.2%	41	\$16.29	HS/GED
Medical and Clinical Laboratory Technologists	223	250	12.1%	27	\$40.01	BA/BS
Physical Therapist Aides	220	252	14.5%	32	\$15.23	HS/GED
Financial Managers	215	248	15.3%	33	\$56.35	BA/BS
Internists, General	213	232	8.9%	19	\$111.79	Mas/Doc
Stock Clerks and Order Fillers	209	209	0.0%	0	\$12.53	<HS
Health Educators	207	252	21.7%	45	\$30.37	BA/BS
Community Health Workers	205	263	28.3%	58	\$19.36	HS/GED
Waiters and Waitresses	203	260	28.1%	57	\$12.38	<HS
Security Guards	198	210	6.1%	12	\$13.41	HS/GED

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
File Clerks	198	199	0.5%	1	\$13.31	HS/GED
Chief Executives	192	214	11.5%	22	\$74.43	BA/BS
Speech-Language Pathologists	190	237	24.7%	47	\$38.54	Mas/Doc
Cardiovascular Technologists and Technicians	175	160	-8.6%	-15	\$33.03	AA/AS
Light Truck or Delivery Services Drivers	173	216	24.9%	43	\$16.47	HS/GED
Bill and Account Collectors	172	200	16.3%	28	\$21.93	HS/GED
Magnetic Resonance Imaging Technologists	168	147	-12.5%	-21	\$34.95	AA/AS
Laundry and Dry-Cleaning Workers	167	195	16.8%	28	\$11.74	<HS
Payroll and Timekeeping Clerks	166	177	6.6%	11	\$21.93	HS/GED
Physical Therapist Assistants	160	206	28.8%	46	\$32.06	AA/AS
Surgeons	157	181	15.3%	24	\$113.03	Mas/Doc
Training and Development Specialists	155	187	20.6%	32	\$34.10	BA/BS
Market Research Analysts and Marketing Specialists	152	193	27.0%	41	\$37.40	BA/BS
Switchboard Operators, Including Answering Service	150	110	-26.7%	-40	\$18.41	HS/GED
Dietetic Technicians	146	153	4.8%	7	\$18.01	AA/AS
Opticians, Dispensing	144	176	22.2%	32	\$22.84	HS/GED
Laborers and Freight, Stock, and Material Movers, Hand	144	155	7.6%	11	\$13.09	<HS
Landscaping and Groundskeeping Workers	140	156	11.4%	16	\$15.16	<HS
Ambulance Drivers and Attendants, Except Emergency Medical Technicians	138	224	62.3%	86	\$13.36	HS/GED

Source: EMSI, 6-County North Bay Region

### Education/Skill Level Key

<b>Abbrev.</b>	<b>Typical Education Requirement</b>	<b>Skill Level</b>
<HS	No education requirement	Lower Skill
HS/GED	High school diploma or GED	Lower Skill
SC/CERT	Some college or a postsecondary certificate	Middle Skill
AA/AS	Associate of arts or sciences degree	Middle Skill
BA/BS	Bachelor of arts or sciences degree	Higher Skill
Mas/Doc	Master's or doctoral degree	Higher Skill

**Appendix D**  
**Manufacturing Sector**  
**Occupations With the Most Jobs in the North Bay Region**

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Packaging and Filling Machine Operators and Tenders	2,807	3,469	23.6%	662	\$14.02	HS/GED
Separating, Filtering, Clarifying, Precipitating, Still Machine Setters, Operators, Tenders	2,553	2,879	12.8%	326	\$18.49	HS/GED
Laborers and Freight, Stock, and Material Movers, Hand	1,675	1,896	13.2%	221	\$13.09	<HS
First-Line Supervisors of Production and Operating Workers	1,486	1,704	14.7%	218	\$30.42	HS/GED
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,389	1,543	11.1%	154	\$29.87	HS/GED
Team Assemblers	1,369	1,498	9.4%	129	\$15.70	HS/GED
General and Operations Managers	1,330	1,456	9.5%	126	\$47.95	BA/BS
Retail Salespersons	1,210	1,432	18.3%	222	\$12.37	<HS
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,104	1,124	1.8%	20	\$11.24	<HS
Demonstrators and Product Promoters	1,035	1,144	10.5%	109	\$15.30	HS/GED
Helpers--Production Workers	1,004	1,069	6.5%	65	\$13.53	<HS
Inspectors, Testers, Sorters, Samplers, and Weighers	1,002	1,207	20.5%	205	\$18.07	HS/GED
Industrial Truck and Tractor Operators	914	1,066	16.6%	152	\$16.41	<HS
Shipping, Receiving, and Traffic Clerks	863	910	5.4%	47	\$16.79	HS/GED
Food Batchmakers	860	1,034	20.2%	174	\$13.17	HS/GED
Industrial Production Managers	787	870	10.5%	83	\$46.09	BA/BS
Maintenance and Repair Workers, General	781	908	16.3%	127	\$20.94	HS/GED
Packers and Packagers, Hand	758	844	11.3%	86	\$10.66	<HS
Industrial Machinery Mechanics	711	991	39.4%	280	\$28.38	HS/GED
Stock Clerks and Order Fillers	703	800	13.8%	97	\$12.53	<HS
Heavy and Tractor-Trailer Truck Drivers	683	730	6.9%	47	\$20.94	SC/CERT
Office Clerks, General	613	663	8.2%	50	\$17.45	HS/GED



<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Mixing and Blending Machine Setters, Operators, and Tenders	561	728	29.8%	167	\$15.71	HS/GED
Waiters and Waitresses	545	620	13.8%	75	\$12.38	<HS
Bookkeeping, Accounting, and Auditing Clerks	541	528	-2.4%	-13	\$21.69	SC/CERT
Driver/Sales Workers	516	600	16.3%	84	\$14.50	HS/GED
Machinists	509	613	20.4%	104	\$30.05	HS/GED
Light Truck or Delivery Services Drivers	496	558	12.5%	62	\$16.47	HS/GED
Industrial Engineers	495	563	13.7%	68	\$45.37	BA/BS
Welders, Cutters, Solderers, and Brazers	470	514	9.4%	44	\$20.03	HS/GED
Sales Managers	451	494	9.5%	43	\$47.02	BA/BS
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	427	465	8.9%	38	\$18.98	HS/GED
Customer Service Representatives	421	486	15.4%	65	\$18.88	HS/GED
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	413	479	16.0%	66	\$13.26	<HS
Accountants and Auditors	405	456	12.6%	51	\$36.22	BA/BS
Production, Planning, and Expediting Clerks	387	439	13.4%	52	\$26.16	HS/GED
Bakers	366	401	9.6%	35	\$14.26	<HS
Cabinetmakers and Bench Carpenters	361	368	1.9%	7	\$20.18	HS/GED
Electrical and Electronic Equipment Assemblers	327	357	9.2%	30	\$19.88	HS/GED
Market Research Analysts and Marketing Specialists	324	394	21.6%	70	\$37.40	BA/BS
Chemists	306	418	36.6%	112	\$39.49	BA/BS
Cashiers	298	325	9.1%	27	\$10.78	<HS
First-Line Supervisors of Office and Administrative Support Workers	298	336	12.8%	38	\$27.26	HS/GED
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	289	262	-9.3%	-27	\$16.65	HS/GED
Purchasing Agents, Except Wholesale, Retail, and Farm Products	279	314	12.5%	35	\$30.61	BA/BS
Bartenders	266	311	16.9%	45	\$11.86	<HS

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Financial Managers	253	294	16.2%	41	\$56.35	BA/BS
Architectural and Engineering Managers	251	262	4.4%	11	\$69.63	BA/BS
Sawing Machine Setters, Operators, and Tenders, Wood	244	251	2.9%	7	\$15.23	HS/GED
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	237	246	3.8%	9	\$13.13	HS/GED
First-Line Supervisors of Mechanics, Installers, and Repairers	220	256	16.4%	36	\$36.82	HS/GED
Dental Laboratory Technicians	213	189	-11.3%	-24	\$18.05	HS/GED
Cleaners of Vehicles and Equipment	211	256	21.3%	45	\$11.02	<HS
Mechanical Engineers	208	235	13.0%	27	\$43.98	BA/BS
Printing Press Operators	207	187	-9.7%	-20	\$18.20	HS/GED
Executive Secretaries and Executive Administrative Assistants	207	214	3.4%	7	\$28.53	HS/GED
Molders, Shapers, and Casters, Except Metal and Plastic	202	116	-42.6%	-86	\$16.54	HS/GED
Food Preparation Workers	200	240	20.0%	40	\$10.50	<HS
Food Cooking Machine Operators and Tenders	199	249	25.1%	50	\$15.05	HS/GED
Slaughterers and Meat Packers	195	205	5.1%	10	\$11.96	<HS
Sewing Machine Operators	195	207	6.2%	12	\$13.87	<HS
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	184	210	14.1%	26	\$39.81	BA/BS
Medical Scientists, Except Epidemiologists	178	245	37.6%	67	\$52.68	Mas/Doc
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	172	190	10.5%	18	\$15.22	<HS
Marketing Managers	172	209	21.5%	37	\$68.51	BA/BS
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	171	159	-7.0%	-12	\$15.18	HS/GED
Human Resources Specialists	170	192	12.9%	22	\$32.01	BA/BS
Cutting and Slicing Machine Setters, Operators, and Tenders	169	174	3.0%	5	\$14.94	HS/GED
Maintenance Workers, Machinery	169	228	34.9%	59	\$21.83	HS/GED

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Graphic Designers	169	170	0.6%	1	\$26.21	BA/BS
Software Developers, Systems Software	164	164	0.0%	0	\$59.48	BA/BS
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	160	177	10.6%	17	\$12.88	HS/GED
Electronics Engineers, Except Computer	159	162	1.9%	3	\$49.30	BA/BS
Machine Feeders and Offbearers	157	169	7.6%	12	\$15.21	<HS
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	154	174	13.0%	20	\$16.00	HS/GED
Order Clerks	151	151	0.0%	0	\$17.18	HS/GED
Computer-Controlled Machine Tool Operators, Metal and Plastic	150	195	30.0%	45	\$16.84	HS/GED
Meat, Poultry, and Fish Cutters and Trimmers	148	116	-21.6%	-32	\$11.95	<HS
Merchandise Displayers and Window Trimmers	147	176	19.7%	29	\$15.42	HS/GED
First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	145	167	15.2%	22	\$22.62	HS/GED
Administrative Services Managers	145	157	8.3%	12	\$41.48	BA/BS
Electrical and Electronics Engineering Technicians	144	161	11.8%	17	\$33.62	AA/AS
Chief Executives	142	144	1.4%	2	\$74.43	BA/BS
Biomedical Engineers	140	158	12.9%	18	\$50.68	BA/BS
Management Analysts	139	169	21.6%	30	\$41.11	BA/BS
First-Line Supervisors of Retail Sales Workers	139	154	10.8%	15	\$19.69	HS/GED
First-Line Supervisors of Non-Retail Sales Workers	136	159	16.9%	23	\$28.15	HS/GED
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	136	114	-16.2%	-22	\$13.91	HS/GED
Biological Technicians	135	204	51.1%	69	\$26.57	BA/BS
Carpenters	135	137	1.5%	2	\$29.77	HS/GED
Electricians	133	154	15.8%	21	\$35.51	HS/GED
First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	133	146	9.8%	13	\$26.29	HS/GED

<b>Occupations</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Median Wage</b>	<b>Typical Ed Level</b>
Computer Systems Analysts	133	172	29.3%	39	\$43.65	BA/BS
Industrial Engineering Technicians	128	177	38.3%	49	\$27.39	AA/AS
Software Developers, Applications	128	132	3.1%	4	\$52.57	BA/BS
Agricultural and Food Science Technicians	126	148	17.5%	22	\$20.30	AA/AS
Chemical Technicians	120	179	49.2%	59	\$23.82	AA/AS
Transportation, Storage, and Distribution Managers	116	136	17.2%	20	\$44.98	HS/GED
Structural Metal Fabricators and Fitters	114	132	15.8%	18	\$22.88	HS/GED
Compliance Officers	110	149	35.5%	39	\$35.53	BA/BS
Network and Computer Systems Administrators	110	126	14.5%	16	\$40.57	BA/BS
Computer Hardware Engineers	110	109	-0.9%	-1	\$57.01	BA/BS

Source: EMSI, 6-County North Bay Region

#### **Education/Skill Level Key**

<b>Abbrev.</b>	<b>Typical Education Requirement</b>	<b>Skill Level</b>
<HS	No education requirement	Lower Skill
HS/GED	High school diploma or GED	Lower Skill
SC/CERT	Some college or a postsecondary certificate	Middle Skill
AA/AS	Associate of arts or sciences degree	Middle Skill
BA/BS	Bachelor of arts or sciences degree	Higher Skill
Mas/Doc	Master's or doctoral degree	Higher Skill

## Appendix E

### Top Demand Occupations, NBEC RPU

The table below includes a list of the Top Demand Occupations for the 6-County North Bay Region (including Lake, Marin, Mendocino, Napa, Solano and Sonoma counties) based on current data from EMSI (Economic Modeling Specialists Intl.) and BLS (Bureau of Labor Statistics).

*Demand Occupation* means that it meets our criteria of being ranked in the top 10% of all occupations for at least one of three demand indicators:

1. Fastest job growth rate (with minimum occupation size of 200+ jobs)
2. Most new jobs
3. Most replacement openings

In addition, occupations with extremely low pay (less than \$11/hour median) were eliminated from the list.

Being identified as a Demand Occupation, however, doesn't necessarily mean that (for each one) there will be employment opportunities locally, or that the occupations have the potential to pay a living wage. Demand Occupations simply means that employers in the region have a substantial need for qualified workers in these types of jobs. But beyond that, it is not an assessment of the *quality* of those jobs.

*Replacements* is when job openings are projected to occur due to workers retiring or otherwise leaving the occupation or labor force. As such, Replacement Openings create net employment opportunities for qualified job seekers. In the North Bay Region, about 69% of all net employment opportunities are due to Replacement Openings, with 31% due to new job growth. Replacement Openings is not the same thing as turnover, although it is a part of turnover.

*Median Wages* are based on wage data from the Occupational Employment Statistics (OES) Program ([www.bls.gov/oes/](http://www.bls.gov/oes/)) operated by the BLS. The data are collected from about 2/3 of all employers over a 3-year cycle.

<b>Level 1: Occupations typically requiring no formal educational credential (&lt;HS)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Painters, Construction and Maintenance	1,760	2,110	19.9%	350	334	\$23.10
Construction Laborers	4,338	5,199	19.8%	861	989	\$19.92
Landscaping and Groundskeeping Workers	5,862	6,302	7.5%	440	1,168	\$15.16
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9,331	10,189	9.2%	858	1,970	\$13.26
Laborers and Freight, Stock, and Material Movers, Hand	8,340	9,351	12.1%	1,011	2,643	\$13.09

<b>Level 1: Occupations typically requiring no formal educational credential (&lt;HS)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Counter and Rental Clerks	3,432	3,687	7.4%	255	890	\$12.90
Cooks, Restaurant	6,048	7,230	19.5%	1,182	1,786	\$12.71
Stock Clerks and Order Fillers	9,311	10,583	13.7%	1,272	3,188	\$12.53
Waiters and Waitresses	13,323	14,712	10.4%	1,389	6,819	\$12.38
Automotive and Watercraft Service Attendants	572	710	24.1%	138	260	\$12.38
Retail Salespersons	20,594	23,474	14.0%	2,880	7,695	\$12.37
Bartenders	2,689	3,107	15.5%	418	1,103	\$11.86
Laundry and Dry-Cleaning Workers	698	836	19.8%	138	112	\$11.74
Maids and Housekeeping Cleaners	5,621	6,497	15.6%	876	1,517	\$11.65
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2,001	2,300	14.9%	299	1,313	\$11.49
Personal Care Aides	8,579	12,603	46.9%	4,024	922	\$11.34
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	9,835	9,358	-4.8%	-477	3,105	\$11.24
Home Health Aides	2,138	3,477	62.6%	1,339	692	\$11.20
Cleaners of Vehicles and Equipment	1,946	2,339	20.2%	393	757	\$11.02

<b>Level 2: Occupations typically requiring a high school diploma or equivalent (HS/GED)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Police and Sheriff's Patrol Officers	2,005	2,220	10.7%	215	701	\$48.02
Electrical Power-Line Installers and Repairers	455	663	45.7%	208	230	\$47.52
Correctional Officers and Jailers	2,669	2,800	4.9%	131	756	\$44.15
First-Line Supervisors of Construction Trades and Extraction Workers	2,015	2,335	15.9%	320	201	\$38.94
Structural Iron and Steel Workers	364	441	21.1%	77	68	\$32.15
First-Line Supervisors of Production and Operating Workers	2,057	2,355	14.5%	298	353	\$30.42
Machinists	651	789	21.2%	138	212	\$30.05
Telecommunications Line Installers and Repairers	428	579	35.2%	151	94	\$29.88
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	5,165	6,068	17.5%	903	1,169	\$29.87
Carpenters	5,279	5,831	10.5%	552	808	\$29.77

<b>Level 2: Occupations typically requiring a high school diploma or equivalent (HS/GED)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Industrial Machinery Mechanics	1,062	1,421	33.8%	359	330	\$28.38
First-Line Supervisors of Office and Administrative Support Workers	5,831	6,577	12.8%	746	944	\$27.26
Bus and Truck Mechanics and Diesel Engine Specialists	739	904	22.3%	165	143	\$26.97
Glaziers	364	447	22.8%	83	59	\$23.55
Opticians, Dispensing	249	323	29.7%	74	78	\$22.84
Maintenance Workers, Machinery	232	306	31.9%	74	44	\$21.83
Medical Secretaries	2,562	2,874	12.2%	312	289	\$21.37
Maintenance and Repair Workers, General	5,670	6,355	12.1%	685	1,587	\$20.94
Billing and Posting Clerks	1,662	1,942	16.8%	280	383	\$20.85
First-Line Supervisors of Retail Sales Workers	5,193	5,891	13.4%	698	1,247	\$19.69
Community Health Workers	268	333	24.3%	65	61	\$19.36
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,438	9,102	7.9%	664	928	\$18.98
Customer Service Representatives	5,512	6,558	19.0%	1,046	1,500	\$18.88
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2,656	2,991	12.6%	335	904	\$18.49
First-Line Supervisors of Personal Service Workers	870	1,074	23.4%	204	192	\$18.33
Inspectors, Testers, Sorters, Samplers, and Weighers	1,454	1,792	23.2%	338	417	\$18.07
Social and Human Service Assistants	2,892	3,426	18.5%	534	643	\$17.63
Office Clerks, General	10,211	11,186	9.5%	975	2,318	\$17.45
Shipping, Receiving, and Traffic Clerks	2,796	2,984	6.7%	188	630	\$16.79
Photographers	232	341	47.1%	109	94	\$16.67
Light Truck or Delivery Services Drivers	3,318	3,708	11.8%	390	602	\$16.47
First-Line Supervisors of Food Preparation and Serving Workers	3,858	4,600	19.2%	742	1,279	\$16.29
Receptionists and Information Clerks	4,085	4,595	12.5%	510	1,184	\$15.95
Mixing and Blending Machine Setters, Operators, and Tenders	606	782	29.0%	176	154	\$15.71
Merchandise Displayers and Window Trimmers	357	435	21.8%	78	96	\$15.42

<b>Level 2: Occupations typically requiring a high school diploma or equivalent (HS/GED)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Food Cooking Machine Operators and Tenders	224	279	24.5%	55	54	\$15.05
Residential Advisors	305	375	23.0%	70	108	\$14.68
Driver/Sales Workers	2,052	2,387	16.3%	335	383	\$14.50
Tellers	2,023	2,236	10.5%	213	859	\$14.44
Packaging and Filling Machine Operators and Tenders	3,165	3,896	23.1%	731	1,288	\$14.02
Childcare Workers	3,069	3,115	1.5%	46	1,118	\$13.70
Security Guards	2,795	3,293	17.8%	498	438	\$13.41
Food Batchmakers	951	1,139	19.8%	188	230	\$13.17
Hotel, Motel, and Resort Desk Clerks	1,663	2,006	20.6%	343	998	\$12.64
Recreation Workers	2,052	2,395	16.7%	343	420	\$12.16

<b>Level 3: Occupations typically requiring some college or a postsecondary cert. (SC/CERT)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Telecommunications Equipment Installers and Repairers, Except Line Installers	693	884	27.6%	191	73	\$29.52
Licensed Practical and Licensed Vocational Nurses	2,618	3,193	22.0%	575	849	\$26.54
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	714	885	23.9%	171	123	\$24.62
Automotive Service Technicians and Mechanics	3,176	3,549	11.7%	373	902	\$22.44
Bookkeeping, Accounting, and Auditing Clerks	7,107	6,951	-2.2%	-156	900	\$21.69
Dental Assistants	2,365	2,511	6.2%	146	606	\$21.61
Heavy and Tractor-Trailer Truck Drivers	4,360	4,987	14.4%	627	800	\$20.94
Medical Assistants	3,534	4,295	21.5%	761	836	\$18.55
Emergency Medical Technicians and Paramedics	1,321	2,112	59.9%	791	296	\$17.50
Teacher Assistants	5,552	5,966	7.5%	414	1,392	\$14.96
Nursing Assistants	3,419	4,462	30.5%	1,043	917	\$14.62
Hairdressers, Hairstylists, and Cosmetologists	1,046	1,291	23.4%	245	310	\$11.27



<b>Level 4: Occupations typically requiring an associate degree (AA/AS)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Registered Nurses	11,271	12,186	8.1%	915	2,787	\$52.99
Chemical Technicians	202	300	48.5%	98	78	\$23.82
Veterinary Technologists and Technicians	721	865	20.0%	144	80	\$19.24

<b>Level 5: Occupations typically requiring a bachelor's degree (BA/BS)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Natural Sciences Managers	282	337	19.5%	55	66	\$71.58
General and Operations Managers	10,600	11,835	11.7%	1,235	2,859	\$47.95
Personal Financial Advisors	986	1,187	20.4%	201	284	\$44.74
Operations Research Analysts	242	294	21.5%	52	48	\$44.42
Chemists	523	683	30.6%	160	138	\$39.49
Market Research Analysts and Marketing Specialists	2,172	2,607	20.0%	435	288	\$37.40
Dietitians and Nutritionists	344	419	21.8%	75	30	\$37.13
Accountants and Auditors	4,282	4,803	12.2%	521	1,216	\$36.22
Secondary School Teachers, Except Special and Career/Technical Education	3,163	3,388	7.1%	225	781	\$32.53
Elementary School Teachers, Except Special Education	7,226	7,633	5.6%	407	1,650	\$32.34
Social and Community Service Managers	700	866	23.7%	166	217	\$30.42
Biological Technicians	354	436	23.2%	82	112	\$26.57
Substance Abuse and Behavioral Disorder Counselors	437	527	20.6%	90	105	\$20.48
Substitute Teachers	3,508	3,718	6.0%	210	684	\$16.89

<b>Level 6: Occupations typically requiring a graduate degree (Mas/Doc)</b>	<b>2015 Jobs</b>	<b>2025 Jobs</b>	<b>Growth Rate</b>	<b>Job Growth</b>	<b>Replacements</b>	<b>Median Wage</b>
Nurse Practitioners	556	761	36.9%	205	160	\$59.28
Physician Assistants	356	485	36.2%	129	97	\$52.69
Occupational Therapists	322	385	19.5%	63	70	\$44.81
Postsecondary Teachers	4,295	4,877	13.6%	582	818	\$32.68
Healthcare Social Workers	607	825	35.9%	218	183	\$32.34
Mental Health Counselors	487	600	23.2%	113	118	\$23.40
Rehabilitation Counselors	492	614	24.8%	122	121	\$17.42

## Appendix F

### Knowledge and Skills Necessary for Top 25 Middle Skill, Middle Wage Occupations

Skill Requirements for Top 25 Middle-Skill, Middle-Wage or Higher Occupations

Occupations	Skills																			
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Installation	Instructing	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Monitoring	Operation and Control	Operation Monitoring	Operations Analysis	Programming	Quality Control Analysis	Reading Comprehension	Repairing	Science
Registered Nurses	•	•		•	•			•				•					•			•
Heavy and Tractor-Trailer Truck Drivers		•	•		•	•						•	•	•			•			•
Licensed Practical and Licensed Vocational Nurses		•		•	•				•			•					•			•
Emergency Medical Technicians and Paramedics	•	•		•	•				•			•					•			•
Medical Assistants	•	•		•	•							•					•			•
Preschool Teachers, Except Special Education		•		•	•					•		•					•			•
Dental Assistants	•	•			•			•				•					•			•
Firefighters*		•		•	•				•			•	•				•			•
First-Line Supervisors of Production and Operating Workers		•	•	•	•						•						•			•
Computer User Support Specialists	•	•		•	•			•				•					•			•
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*		•		•	•	•	•						•			•	•			•
Medical and Clinical Laboratory Technicians	•	•	•	•	•					•		•					•		•	
Dental Hygienists	•	•	•	•	•							•					•			•
Web Developers	•	•	•		•				•			•		•	•		•			•
Massage Therapists	•	•			•				•			•					•			•
Medical Records and Health Information Technicians		•	•		•				•	•		•					•			•
Library Technicians	•	•		•	•			•				•					•			•
Paralegals and Legal Assistants	•	•		•	•							•					•			•
Radiologic Technologists	•	•		•	•							•					•			•
Veterinary Technologists and Technicians	•	•		•	•					•		•					•			•
Respiratory Therapists	•	•			•				•			•					•		•	•
Telecommunications Equipment Installers and Repairers, Except Line Installers	•	•	•		•							•	•			•	•			•
Phlebotomists	•	•		•	•			•				•					•			•
Surgical Technologists	•	•	•	•	•			•		•		•					•			•
Psychiatric Technicians	•	•		•	•					•		•					•			•

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

\* Skills listed for the occupation represent a specialty occupation.

# Knowledge Requirements for Top 25 Middle-Skill, Middle-Wage or Higher Occupations

Occupations	Knowledge																			
	Administration and Management	Biology	Building and Construction	Chemistry	Clerical	Communications and Media	Computers and Electronics	Customer and Personal Service	Design	Economics and Accounting	Education and Training	Engineering and Technology	English Language	Geography	Law and Government	Mathematics	Mechanical	Medicine and Dentistry	Personnel and Human Resources	Philosophy and Theology
Registered Nurses		•		•			•		•		•	•				•	•			•
Heavy and Tractor-Trailer Truck Drivers	•						•		•		•	•	•	•	•	•	•		•	•
Licensed Practical and Licensed Vocational Nurses				•	•		•		•		•	•				•	•			•
Emergency Medical Technicians and Paramedics				•			•		•		•	•				•	•			•
Medical Assistants	•			•		•	•		•		•	•					•	•		•
Preschool Teachers, Except Special Education	•						•		•		•	•	•					•	•	•
Dental Assistants				•	•		•	•		•	•	•					•	•	•	
Firefighters*	•	•	•	•			•		•		•	•		•			•	•		
First-Line Supervisors of Production and Operating Workers	•			•		•	•	•		•	•					•	•			
Computer User Support Specialists	•			•	•	•	•		•	•	•	•				•				•
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*			•	•			•	•		•	•					•	•			
Medical and Clinical Laboratory Technicians		•		•	•		•	•				•				•	•			
Dental Hygienists		•		•	•		•	•		•	•	•					•	•		
Web Developers	•			•	•	•	•	•	•	•	•	•				•			•	
Massage Therapists	•	•		•			•		•		•	•					•	•		•
Medical Records and Health Information Technicians	•			•	•	•	•		•		•	•						•		
Library Technicians	•			•	•	•	•	•	•	•	•	•								
Paralegals and Legal Assistants	•			•	•	•	•		•		•	•						•		
Radiologic Technologists		•		•	•	•	•		•		•	•					•	•		
Veterinary Technologists and Technicians	•	•		•	•	•	•		•		•	•					•	•		
Respiratory Therapists		•	•			•	•		•		•	•					•	•		•
Telecommunications Equipment Installers and Repairers, Except Line Installers				•		•	•		•	•	•	•				•	•		•	
Phlebotomists				•	•		•	•		•	•	•					•	•		
Surgical Technologists		•		•		•	•		•		•	•					•	•		•
Psychiatric Technicians	•			•		•	•		•		•	•	•					•	•	•

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

\* Knowledge listed for the occupation represent a specialty occupation.

## **Appendix G**

### **Northern CA Career Pathways Alliance Partner List**

#### **Governing Partners**

##### Sonoma County

Sonoma County Office of Education:  
Lead Agency  
Santa Rosa Junior College  
Sonoma County Workforce Investment Board

##### Lake County

Lake County Office of Education  
Mendocino-Lake Community College  
Workforce Alliance of the North Bay

##### Mendocino County

Mendocino County Office of Education  
Mendocino College  
Mendocino County Workforce Investment Board

##### Marin County

Marin County Office of Education  
College of Marin  
Workforce Alliance of the North Bay

##### Napa County

Napa County Office of Education  
Napa Valley College  
Workforce Alliance of the North Bay

##### Solano County

Solano County Office of Education  
Solano Community College  
The Workforce Investment Board of Solano County

#### **K-12 Partners**

##### Sonoma County

Cloverdale Unified School District  
Cotati-Rohnert Park Unified School District  
Healdsburg Unified School District  
Petaluma Joint Union High School District  
Santa Rosa City High School District  
Sonoma Valley Unified School District  
West Sonoma County Union High School  
Windsor Unified School District

##### Marin County

Novato Unified School District  
San Rafael City Schools  
Shoreline Unified School District  
Tamalpais Union High School District

##### Mendocino County

Fort Bragg Unified School District  
Ukiah Unified School District  
Willits Unified School District

##### Napa County

Napa Valley Unified School District  
St Helena Unified School District

##### Solano County

Benicia Unified School District  
Dixon Unified School District  
Fairfield-Suisun Unified School District  
Mare Island Technology Academy  
Vacaville Unified School District  
Travis Unified School District

## **Business & Community Partners**

[American Ag Credit](#)  
[American Canyon Chamber of Commerce](#)  
[American Medical Response](#)  
[Annette's Chocolate Factory](#)  
[Audubon Society](#)  
[Autodesk](#)  
[Bank of Marin](#)  
[Bay Area Rapid Transit \(BART\)](#)  
[Belkorp Ag](#)  
[Bell Products](#)  
[Bianc Small Business Development Consulting](#)  
[Bickford Precision Machine & Design](#)  
[BioMarin](#)  
[Bio-Rad Laboratories](#)  
[Bioresearch Technologies](#)  
[Brad Walton CPA](#)  
[Buck Institute for Aging](#)  
[California Commission on Peace Officers Standards and Training](#)  
[California Highway Patrol](#)  
[California Human Development](#)  
[California Machine Works](#)  
[California Restaurant Association](#)  
[Canal Community Clinic](#)  
[City of Napa](#)  
[Clear Lake Chamber of Commerce](#)  
[Clover Stornetta](#)  
[Collotype Labels](#)  
[Conservation Corp](#)  
[County of Marin](#)  
[CSW Engineers](#)  
[CTE Foundation Sonoma County](#)  
[David Grant Medical Center, Travis Airforce Base](#)  
[Dominican University of California](#)  
[Double Tree - Hilton](#)  
[Economic Development & Financing Corporation](#)  
[Edutopia](#)  
[EMC](#)  
[Fairfield Police Department](#)  
[Fairfield-Suisun Chamber of Commerce](#)  
[Farmstead](#)

[Fireman's Fund](#)  
[Gaia Energy System](#)  
[General Dynamics](#)  
[Golden Living](#)  
[Harvest Market](#)  
[Homeward Bound](#)  
[Intel Clubhouse](#)  
[JDS Uniphase](#)  
[Junior Achievement](#)  
[Kaiser Permanente](#)  
[LabCon](#)  
[Lamb Consulting](#)  
[Marker Ed.](#)  
[Marconi Conference Center](#)  
[Marin Builders Association](#)  
[Marin County Dept. of Health & Human Services](#)  
[Marin County Sheriff's Department](#)  
[Marin County Convention & Visitors Bureau](#)  
[Marin General Hospital](#)  
[Meadow Wood](#)  
[Mendo Bistro](#)  
[Mendocino Community Health Clinic](#)  
[Mendocino Private Industry Council](#)  
[Mere Cie, Inc.](#)  
[Microsoft](#)  
[MIT Media Lab](#)  
[Napa Chamber of Commerce](#)  
[Napa State Hospital](#)  
[Napa Valley Wine Train](#)  
[North Bay Leadership Council](#)  
[North Coast Builders Exchange](#)  
[North Coast Opportunities](#)  
[NorthBay Health Care](#)  
[Novato Community Hospital](#)  
[Noyo Food Forest](#)  
[One Sun](#)  
[Oxbow School](#)  
[Oxbow Wine Market](#)  
[P&L Specialties](#)  
[PAX Scientific Environmental](#)  
[Piner's](#)  
[Pixar](#)  
[Point Reyes National Seashore](#)  
[PR&P Architects](#)  
[Queen of the Valley Hospital](#)

R. Campbell Molds & Consulting  
Rainbow Ag  
Raptor Pharmaceuticals, Inc.  
Redwood Children's Services  
Redwood Credit Union  
Redwood Hill Farm & Creamery  
Resources for Innovation  
San Rafael Chamber of Commerce  
Small Precision Tools  
Social Advocates for Youth  
Solano County District Attorney's Office  
Solano County Library  
Solano County Probation  
Solano Economic Development Corporation  
Solano Resource Conservation District  
Sonoma County Department of Health Services  
Sonoma County Economic Development Board  
Sonoma County Farm Bureau  
Sonoma County Winegrape Commission  
Sonoma State University  
Strategic Energy Innovations (SEI)  
Straus Farms  
Suisun Fire Department  
Sunpower  
Sutter Health  
Timeline Media Productions  
Touro University  
Traditional Medicinals  
Travis Air Force Base  
Travis Credit Union  
Tschida Engineering, Inc.  
UC Davis Biotechnology Program & BioTech System  
UC Davis, California Animal Health & Food Safety Laboratory  
Ukiah Valley Medical Center/Adventist Health  
Vacaville Fire Department  
Vacaville Public Education Foundation  
Walter Creek Ranch  
West County Health Centers  
XOM

Preparing all students for college, career & life!

### Appendix H

NCCPA REGIONAL WORK PLAN				
<b>Vision</b>	All students are prepared for college, career & life.			
<b>Mission</b>	The NCCPA facilitates the creation of integrated educational pathways and career success for high school and community college students, while fostering economic and workforce development to benefit students, employers, and the community			
<b>Strategic Themes:</b>	<b><i>K14 Program of Study</i></b>	<b><i>Transition to Post Secondary</i></b>	<b><i>Post Secondary Completion</i></b>	<b><i>Work Based Learning Industry Engagement</i></b>
<b>Strategic Results:</b>	Create policies and practices that facilitate grade 6-16 pathways and grade 10-14 course curriculum alignment	Provide intentional transition services at the high school site to ensure college and career success		Strengthen meaningful partnerships with business and industry that ensure alignment and relevance

#1 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Create policies and practices that facilitate grade 6-16 pathways and grade 10-14 course curriculum alignment</b>	1.1 Each County Leadership Team develops and implements a work plan that describes activities and deadlines to achieve goal which includes <ul style="list-style-type: none"> <li>Academic &amp; Career planning (Transition to Post-Secondary)</li> <li>Recruitment strategies</li> </ul>	7% increase in students enrolled in the career pathway: 1 <sup>st</sup> year, 2 <sup>nd</sup> year, 3 <sup>rd</sup> year (June 2016)	October	Angela
			March	
			June	
	1.2 Each County Leadership Team develops and implements work plan that describes activities and deadlines to achieve goals which includes <ul style="list-style-type: none"> <li>Program of Study/Pathway Mapping</li> <li>Transition services</li> <li>WBL services</li> </ul>	7% increase in the number of students in a career pathway receiving a high school diploma (June 2016)	October	
			March	
			June	

• Model      • Connect      • Involve



Preparing all students for college, career & life!

	1.3 Comprehensively collect, track and analyze student-level data – 9 through 16	Track data on at least 50% of pathway student transition rates to post secondary	October	
		Collect baseline employment outcome data for each pathway (as data is available)	March	
		Identify employment needs based on employment outcome data and employment outlook data	June	
	1.4 Each CC facilitates HS/CC pathway faculty articulation meetings (a minimum of 2 times) to discuss pathway alignment and hinge courses (entry level college courses)	X% increase in students participating in early college credit (June 2016)	December	
			June	
	1.5 Engage with business and industry to identify and align pathway and economic needs	Ensure a minimum of 2 industry professionals per pathway attend the E&E Summit	December	
			March	

#2 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
Provide professional development and teacher externships on integrated CTE and Core curriculum	2.1 Provide support in placement in teacher externships <ul style="list-style-type: none"> <li>Assistance in finding employers including regional externship opportunities</li> <li>Creation of common of regional practice for teacher selection/process/follow up</li> </ul>	Increase the number of teacher externships from 40 to 60 participating teachers (August 2016)	December	
			June	

• Model      • Connect      • Involve



**Preparing all students for college, career & life!**

	2.2 Design and coordinate a Fall Professional Development Event ~ Dec 2 <sup>nd</sup>  Design and coordinate the Spring Education & Economic Development Summit & Student Expo ~ April	Provide regional professional development opportunities 3X per year (Fall/Spring/Summer)	October	
			December	
			June	
	2.3 Create a menu of professional development workshops/technical assistance that can be provided locally (county or site level) through regional vendors/connections	Improvement of pathway quality- 25% of pathway programs report movement on the pathway rubric: <i>Definitions for High Quality Pathways</i>	October	
			December	
			June	

#3 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Create regional grade 10-14 pathway communities of practice to share pathway resources and strategies</b>	3.1 Developed online tool for sharing curriculum and resources – by pathway ~ December 2015	50% of Pathway Collaboratives utilize tool for collaboration	December	
			June	

#4 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Facilitate transitions from secondary to postsecondary education</b>	4.1 Create glossary of terms/definitions to build common language	100% of Governance Team in agreement and sharing common definitions by Oct 2015	October	
			March	
	4.2 Facilitate job-a-like communities of practice to share best practice, challenges and successes (i.e. COE Lead group, CC Dean group)	Each community of practice reports annually successes and adopted best practices	December	
			June	
	4.3 Facilitate quarterly COE/CC best practice meetings – tied to existing COE/CC Community of Practice meetings	Share successful models that can be adopted by other counties in region	December	
			June	

• Model      • Connect      • Involve



Preparing all students for college, career & life!

#5 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Strengthen meaningful partnerships with business and industry that includes WBL internships, involving student in field trips / job shadows to industry sites and engaging business/industry in working with teachers to ensure alignment and relevance of course curriculum and projects</b>	5.1 Design WBL manual in a digital format that provides suggestions and tools for WBL activities	Completed manual presented at Spring E&E Summit	October	
			March	
			June	
	5.2 Develop and coordinate technology to enhance WBL opportunities	Successful cclnspire launch ~ November / 50% of WBL staff utilize Nepris a minimum of 3X in the year	October	
			March	
	5.3 Locate and develop regional partnership opportunities with larger employers	Provide new regional WBL activities to a minimum of 2 pathways	December	
			June	

#6 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Work with WIBs to re-envision sector based advisory groups/skill panels</b>	6.1 Align with Sling Shot initiative which will create skill panels for priority pathways	Support the development of Sling Shot Plan	October	
			March	
	6.2 B/E Liaisons will provide contact info for one or more specific employers; Provide contact info for one or more groups of employers; Connect the WBL Specialists with specific employers interested in WBL activities; and produce and disseminate labor market information and needs assessment results.	Conduct needs assessment and roundtables in 2 industry sectors per county	December	
			June	

#7 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
----------------------------------	----------	--------------------	-----------	------

• Model      • Connect      • Involve



**Preparing all students for college, career & life!**

<b>Work with economic development groups to build upon existing county-level career events to create and sustain a regional Economic Development Summit</b>	7.1 Engage economic development groups as members of planning team for E&E Summit	Provide annual Education & Economic Summit	December	
			March	
	7.2 Promote E&E Summit amongst constituents of economic development group	Track and develop baseline data of Education and Economic Summit participants by industry groups	March	
			June	

#8 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Expand CTSOs and develop Maker events that engage student leadership groups in addressing local issues/product development driven by business/industry partners</b>	8.1 Leverage the Mini Maker Faire Program for NCCPA students (III.4)		October	
			March	
	8.2 Region-wide student leadership events – regional student collaboration (III.4)	Organize and create a Pathway Expo for Middle and High school students ~ May 2015 (E&E Summit)	October	
			March	
	8.3 Conduct a CTSO inventory	Ensure CTSOs exist in each of the 5 Fast track Pathways	December	
			June	

#9 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
----------------------------------	----------	--------------------	-----------	------

- Model
- Connect
- Involve

**Preparing all students for college, career & life!**

<b>Create local, county and regional awareness of College and Career Readiness</b>	9.1 Design and provide NCCPA promotional materials to NCCPA partners / staff	Standard postcard and information sheet made available to stakeholders by Sept 1 2015	October	
	9.2 Develop promotional videos for each NCCPA pathway to be used for recruitment	Provide short engaging pathway videos in the 5 priority pathways by June 2016	December March	
	9.3 Provide regional representation / presentations to various initiatives, workforce develop organizations, industry groups (i.e. SB1070, NBLC, NBEC)	Engage regional groups to assist/promote with NCCPA initiative  Leverage additional funding for Pathway programs	Ongoing	

#10 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
<b>Provide governance structure and financial oversight for the alliance</b>	10.1 Develop a Governance Agreement of how the Governance Team conduct business	Ensure all funded partners understand and participate in governance team	October	
			June	
	10.2 Develop financial practices that ensure fiscal responsibility and correct reporting		December	
			March	

• Model      • Connect      • Involve

**Appendix I**  
**NBEC Stakeholder Input Invitation List, by Workforce Development Board**

**North Bay Workforce Alliance (Napa, Lake, Marin Counties)**

American Canyon Family Resource Center	College of Marin
City of Napa, Economic Development MCE	Edward Jones
Napa Chamber of Commerce	Employment Development Department
Napa County Board of Supervisors	Greenlining
Napa County Office of Education	Hispanic Chamber of Commerce
Napa Valley Adult Ed	Homewell Senior Care
Napa Valley College	Hospice By the Bay
NapaLearns	Kaiser Permanente
Northern CA Laborers Union	Marin Board of Supervisors
Pathway Home	Marin Builders Association
Silverado Resort and Spa	Marin Building Trades
Sustainable Napa County	Marin County Health and Human Services
Visit Napa Valley	Marin County Office of Education
California Human Development CTPP	Marin County Probation Department
Employment Development Department	Marin Economic Forum
Lake County Office of Education	Marin General Hospital
Mendocino Community College	Marin Small Business Development Center
Mendocino County Department of Social Services	Matrix
Mendocino PIC (one stop operator)	Mission College and Health Workforce Initiative Bay Area
Scotts Valley Tribal TANF	Novato Unified School District
State of California Department of Rehabilitation	PolicyLink
Yuba Community College	San Rafael Chamber of Commerce
Alliance for Boys and Men of Color	San Rafael City Schools
AutoDesk	Sheet Metal JATC104
Brightline Defense	Sonoma Mendocino & Lake Counties Bldg Trades Council
Buckelew Programs (serving people with disabilities)	SparkPoint Marin
Canal Alliance (serving immigrant community)	State of California Department of Rehabilitation
	Tam Adult School
	University of San Francisco
	Wells Fargo

### **Mendocino County**

Bank of America  
California Department of Rehabilitation  
California Human Development  
(Farmworker Services)  
California Indian Manpower Consortium  
Drip Works  
Economic Development and Finance  
Corporation  
Employment Development Department  
Experience Works  
Leland Kraemer Real Estate  
International Brotherhood of Electrical  
Workers, Local 551  
Mendocino Coast Chamber of Commerce  
Mendocino Community College  
Mendocino Community College AEBG  
Mendocino County Board of Supervisors

Mendocino County Economic  
Development/Planning and Building  
Mendocino County Office of Education  
Mendocino Private Industry Council  
National Association of Letter Carriers  
Branch 1563  
North Coast Opportunities CSBG / Strong  
Mountain Printing, Inc  
Ready, Set, Go  
Redwood Community Services  
State Farm Insurance, Willits  
Strong Workforce  
Ukiah Chamber of Commerce  
Ukiah Valley Agency for Habilitation  
West Company SBDC  
Willits Chamber of Commerce

### **Solano County**

A Place to Live  
Abundant Place  
Area Agency on Aging Serving Napa and  
Solano  
Berkeley Food and Housing Project  
California Department of Corrections and  
Rehabilitation  
California Department of Industrial  
Relations  
California Department of Rehabilitation  
California Human Development  
California Tribal TANF Partnership  
Center for Change Supervising Deputy  
Probation Officer  
Center for Employment Opportunities  
Child Start Inc  
Children's Network  
Children's Network  
City of Fairfield  
City of Vacaville  
City of Vallejo  
Community Action North Bay

Court Appointed Special Advocates of  
Solano County  
Department of Social Services (Solano  
County)  
Dixon Family Services  
Dixon Library  
Dreamcatchers Empowerment Network  
EDD  
Experience Works  
Fighting Back Partnership  
Five Keys Schools and Programs  
FSUSD  
Goodwill East Bay  
Home Base  
Job Corps  
KAAGAPAY, Solano Behavioral Health  
Filipino Outreach Project  
La Clinica  
Legal Services of Northern California  
LIFT 3 Support Group  
Mission Solano  
Mount Calvary Baptist Church

Pace Solano  
Paradise Valley Estates  
Salvation Army  
Solano Coalition  
Solano Community College  
Solano County  
Solano County Adult Education  
Consortium Project  
Solano County Family Stabilization  
Solano County Public Health Division  
Solano County- Health and Social  
Services  
Solano County Library  
Solano County Office of Education  
Solano Diversified Services

Solano Economic Development  
Corporation  
Solano Family  
Solano Family & Children's Services  
Suisun City Library  
Superior Court of California, County of  
Solano  
Vacaville Adult School  
Vacaville Education Extension Program  
Vacaville Family Resource Center  
Vacaville FIRST/FRC  
Vacaville Public Library  
Vacaville Unified School District  
Vallejo Housing Authority  
Vallejo Workforce Services  
Who's Hiring Solano

## **Sonoma County**

4-H Youth Development  
A Better Way  
Adopt a Special Kid (AASK)  
Adult Education Consortium  
Alternative Family Service (AFS)  
Anova Center for Education  
Apple One Employment Services  
Becoming Independent  
Ben Terry Foundation  
Big Brothers Big Sisters of the North Bay  
Boys & Girls Club of Rohnert Park  
Boys & Girls Clubs of Central Sonoma County  
Boys & Girls Clubs of Petaluma  
Bucklew  
California Department of Rehabilitation  
California Employment Development Department  
California Human Development Corporation  
California Parenting Institute (CPI)  
California Rural Legal Assistance  
California Youth Outreach  
Catholic Charities  
Cement Masons Local 300  
Center for Social & Environmental Stewardship  
Certified Employment Group  
Children & Families Commission (First 5)  
Chop's Teen Club  
Cloverdale Rancheria  
Cloverdale, City of  
CLP Resources Inc  
Committee on the Shelterless (COTS)  
Community Action Partnership of Sonoma County  
Community Child Care Council  
Conservation Corps North Bay  
Cotati Chamber of Commerce  
Cotati, City of  
Craft Consulting  
Creekside Convalescent Hospital  
CTE Foundation  
Day Reporting Center  
Dept of Health Services - Teen Parent Connections  
Drug Abuse Alternatives Center  
Empire College



Exchange Bank  
Experience Works, Inc.  
Face-to-Face  
Facility Development Corporation  
Get To Work  
Geyserville Community Child Care Center  
Goodwill Industries of the Redwood Empire  
Graton Day Labor Center  
Healdsburg Chamber of Commerce  
Healdsburg Boys & Girls Club  
Healdsburg District Hospital  
Healdsburg Unified School District  
Hispanic Chamber of Commerce  
Horizon Personnel  
Humane Society of Sonoma County  
Interview Team  
Jewish Community Free Clinic  
Jewish Family & Children's Services  
JGC Truck Driving Training  
Jim Cassio & Associates  
Job Link  
John Muir Charter Schools  
Kaiser Permanente  
La Luz Center  
Labor Ready  
Latino Service Providers  
Legal Aid of Sonoma County  
Lilliput Children's Services  
Mark West Area Chamber of Commerce and Visitors Center  
Mary's Pizza Shack  
Mentor Me Petaluma  
Migrant Education  
MV Transportation  
Nelson Staffing  
New Ways to Work  
Nimble Rx  
North Bay Black Chamber of Commerce  
North Bay Employment Connection  
North Bay Industries  
North Bay Labor Council  
North Bay Leadership Council  
North Bay Regional Center  
North Coast Builders' Exchange  
On The Move

Operating Engineers Local #3  
Our House  
P&L Specialties  
Perfect Timing Personnel Services  
Petaluma Adult School  
Petaluma Boys & Girls Club  
Petaluma Chamber of Commerce  
Petaluma Health Center  
Petaluma People Services Center  
Petaluma Youth Network  
Petaluma, City of  
Professional Association of Sonoma County for Human Resources  
(PASCO)  
Puente Mentoring Program  
R House  
Recourse Mediation Services  
Recruiting Associates Network  
Redwood Caregiver Resource Center  
Redwood Credit Union  
Redwood Empire Electrical Workers Union, Local 551  
Redwood Empire Food Bank  
ResCare  
River to Coast Children's Services  
Robert Half Management Resources  
Rohnert Park Public Safety Youth & Family Services  
Rohnert Park, City of  
Santa Rosa Chamber of Commerce  
Santa Rosa Junior College  
Santa Rosa Recreation & Parks  
Santa Rosa Violence Prevention Partnership  
Santa Rosa, City of  
Sebastopol Chamber of Commerce and Sebastopol Visitor Center  
Sebastopol Community Cultural Center  
Sebastopol, City of  
Seneca Family of Agencies  
Small Precision Tools  
SMART Local #104  
Social Advocates for Youth  
Sonoma Alliance  
Sonoma County Community Development  
Sonoma County Economic Development Board  
Sonoma County Family YMCA  
Sonoma County Indian Health Center  
Sonoma County Legal Services Foundation

Sonoma County Library Adult Literacy Program  
Sonoma County Lodging Association  
Sonoma County Office of Education  
Sonoma County Probation Camp  
Sonoma State University  
Sonoma Valley Chamber of Commerce  
Sonoma Valley Teen Services  
Sonoma Valley Youth & Family Services  
Sonoma, City of  
SonomaWORKS  
SRJC Extended Opportunity Programs & Services (EOPS)  
St. Joseph Community Health  
St. Joseph's Hospital - Sonoma County  
Staff Chex  
Stand By Me Mentoring  
Sunny Hills Services  
Task Force on the Homeless  
Teen Parent Connection  
The Personnel Perspective  
The Ratto Group  
Tips to Succeed  
TLC Child & Family Services  
Tomorrow's Leaders Today  
Trades Introduction Program (TIP)  
United Way of the Wine Country  
Valley of the Moon Boys & Girls Clubs  
VOICES of Sonoma County  
Volunteer Center of Sonoma County  
West County Community Services  
West County Health Center  
Windsor Chamber of Commerce and Visitors Center  
Windsor Teen Center  
Windsor Youth & Family Services  
Windsor, Town of  
Women's Recovery Services  
Ya-Ka-Ama  
Yale Abrams Consulting  
YWCA Sonoma County

## Appendix J

### Contents

Labor Market Forecast for the 6-County North Bay Region .....	76
Priority Industry Sectors for the 6-County North Bay Region .....	94
Occupational Analysis for the 6-County North Bay Region .....	95
Knowledge and Skills Analysis .....	10

## Labor Market Forecast for the 6-County North Bay Region

**Excerpt from a Labor Market Forecast by Robert Eyster, PhD, Economic Forensics and Analytics**

*Note that in this forecast, all references to the “NCCPA” are references to the six North Bay counties, including Sonoma, Solano, Napa, Mendocino, Marin and Lake. NCCPA is an acronym for Northern California Career Pathway Alliance, for which this forecast was originally prepared.*

California’s Employment Development Department (EDD) is currently predicting the NCCPA region will employ over 668,300 workers by the end of 2022. At the end of 2015, the current estimate was approximately 567,900 workers. The actual and predicted data implies growth of over 100,000 more employees in the next seven years.

The California Department of Finance (DOF) provides an economic outlook for the United States and California through 2019 as of March 2016. Jobs growth is forecasted to be approximately 1.4 percent annual growth for the whole state. The four main areas of growth since 2010 are:

- Health Care and Social Assistance
- Accommodation and Food Services
- Professional, Scientific, and Technical Services
- Manufacturing

### **The National and State Economic Forecasts in Brief: 2016-17**

The recession of 2008-10 has been labeled the “Great Recession”; for specific areas, the recession’s stop and start dates continue to be debated. Part of emerging from recession’s shadow is jobs growth. Hiring workers generally works as: (1) employers offer jobs; (2) employees qualify for such jobs then apply; and (3) workers are hired based on occupations for which they are trained and job matching.

The Federal Reserve recently provided labels for the last five economic cycles providing context in considering the current recovery:

- The Dot-Com Boom (1994-2000): the dawn of the internet in earnest, and the birth of the social media age;
- The Dot-Com Bust (2001-2003): a brief recession due to speculative bubbles bursting in equity markets, inflation and rising interest rates, and a terrorist act that remains with us today and beyond;
- The Housing Boom (2003 – 2007): a brief economic recovery and expansion based on credit expansion and house-building growth, low interest rates following the dot-com bust, and house/commercial real estate building accelerating;
- The Great Recession (2008-2010): the largest recession since the Great Depression, but a slowly fading memory in much of the NCCPA region given jobs and housing market recoveries; and
- The Tepid Recovery (2011-Present): due to the Great Recession’s depth and breadth, the American economy’s recovery has been slow and steady while over a long period of time, the compounded growth rate has been slower than any recovery period since the 1970s.<sup>1</sup>

---

<sup>1</sup> Please see <https://www.federalreserve.gov/monetarypolicy/beigebook/beigebook201603.htm> for a recent take on the current recovery period.

The economic recovery (job growth as compared to job losses) since 2010 has given way to economic expansion (jobs growth across many different industries) as of 2016, where jobs growth has come into almost every major employment category and personal incomes and housing wealth are on the rise across these counties. Economic conditions in 2016 point to some themes that may affect this region:

- A possible global economic slowdown, starting in Asia and South America, but affecting the global economy, may shift tourism and other trade flows away from the United States and California such that jobs growth in related industries slow down;
- Commodity prices have fallen, which has helped support overall inflation pressure in the United States and delayed interest rates rising, but...
- Uncertainty about interest rates rising in the United States may inhibit business growth, which would slow down jobs growth; and
- Wage growth is now rising in pace with local and regional price levels in California across a broad base of industries and is forecasted for continued growth through 2019.<sup>2</sup>

In the regional economy, there are some trends and things to watch for also, some of which are connected to the national and state economies:

- Housing prices, both to purchase and rent, have increased rapidly since 2013 and have led to concerns over wage levels providing support for employees living locally;
- Some counties have increased inbound and outbound commuting, increasing traffic congestion on major corridors;
  - The SMART rail opens in late 2016 as a new mass transit option between Sonoma and Marin counties connecting with the core Bay Area;
- Job placement and matching to demanded skills has local employers questioning local labor's fit for local businesses;
- Median household income levels have slowly increased in trend, and in real terms per capita personal income has increased consistently since 2011.

While the national and state economies look good through 2019, there are some global issues that have affected job market growth and the overall economic forecasts. Such projected slower growth means different business decision-making and planning, reflecting more uncertainty by employers.

---

<sup>2</sup> Senate Bill 3 passed in April 2016 initiated a state-side, minimum wage increase through 2023. The effects on hiring patterns in occupations that are affected by this change may change forecasts also.

## Labor Market Data: What it tells and what it does not

Labor market data are split into four major categories of employers:

1. Agriculture and primary products industries
2. Goods-producing industries (mainly construction and manufacturing)
3. Service-providing industries
4. Government (including public education)

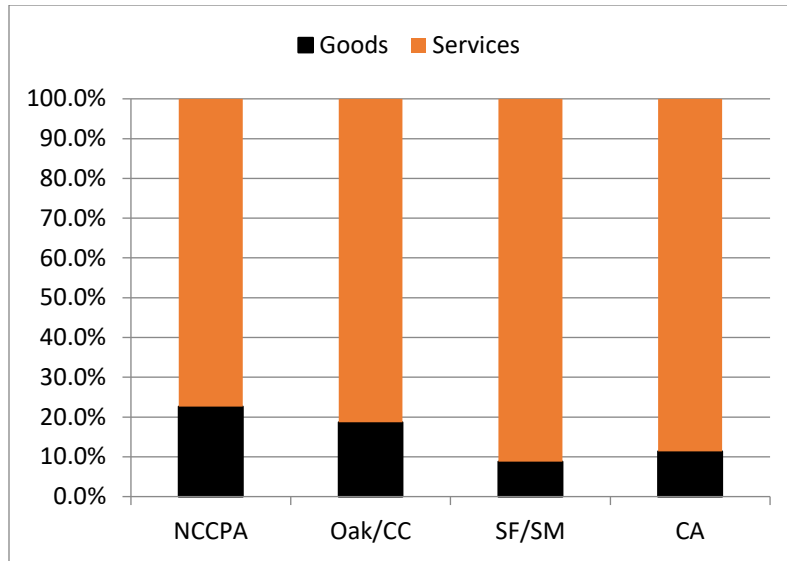
Since 2010, jobs growth has been mainly in services, as the rapid loss of housing and financial wealth changed the construction industry, and pushed many workers toward services initially. From the peak of employment in summer of 2007, there may be as many as 10,000 construction jobs that have yet to come back as of April 2016 for California overall.

Services are both a blessing and curse in labor markets when more services jobs growth takes place. Services do not generally access markets outside the local community, short of tourism. There are smaller effects on the local economy when services grow versus goods-producing jobs, like construction. When construction jobs slowed down between 2007 and 2012, so did the “multiplier” effect in the American economy. While some jobs that are characterized as services are the first step in construction and manufacturing (design, engineering, etc.), the majority of service jobs are meant to serve local consumers, which include local businesses, workers, residents, and tourists. These services also include health care, retail, professional services (accounting and legal), restaurants, hotels, and many other services focused on local markets. Construction and manufacturing tend to have broader markets, as does agriculture.

Figure 1 shows that the growth of jobs since 2010 has been heavier toward services *outside* of the NCCPA region than inside, where much of the goods market has been in non-durable manufacturing, mainly food and beverage manufacturing jobs.

**Figure 1: Growth of Employment in Selected Areas, % change of total growth**  
**Regional Employment, 2010-2016, Goods versus Services**

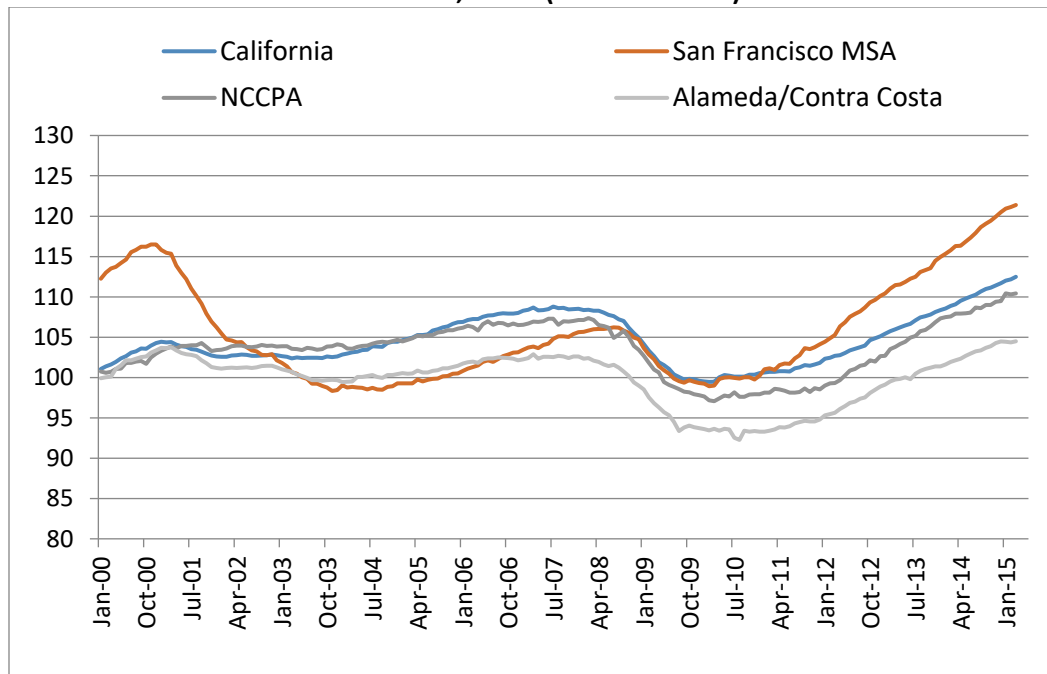
Sector	NCCPA	Oak/CC	SF/SM	CA
Goods	22.7%	18.7%	8.8%	11.4%
Services	77.3%	81.3%	91.2%	88.6%
Overall	100.0%	100.0%	100.0%	100.0%
<b>Overall Jobs Growth</b>	<b>77,500</b>	<b>138,400</b>	<b>212,200</b>	<b>2,009,200</b>



Source: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov))

The Great Recession affected jobs, incomes and housing values all at the same time; this recovery period is finally – as of 2016 – getting the NCCPA region and California overall back to pre-recession levels of jobs. Figure 2 provides a way to see the cyclic relationship among employers in California overall, the Bay Area, and in the NCCPA region.

**Figure 2: Employment in Selected Areas, NCCPA and Regional Employment  
2000-2015, Index (Jan 2011 = 100)**



Source: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov))



The recession of the early 2000s pushed overall employment in the San Francisco metropolitan statistical area down quickly from its peaks to the bottom of two recessions in seven years by 2008. The cyclic movements are similar on purpose: these are regional economies tied to each other through commuters. These are based on payroll and occupational employment. For comparison, as of April 2016, the US economy is in its seventh year of economic recovery.

Monitoring regional labor markets is a critical step in matching or shifting curricula to match students and recent graduates' demands as well as employers' needs. Recent labor market performance does inform forecasts for the state and local economies. What the next section does is look at forecasts at the national and state level for hiring by industry sector or employer, and then compares the NCCPA region to the Bay Area and California overall as to the types of industries with the most growth, and at least through 2022 (though national data is currently predicted to 2024 by the Bureau of Labor Statistics).

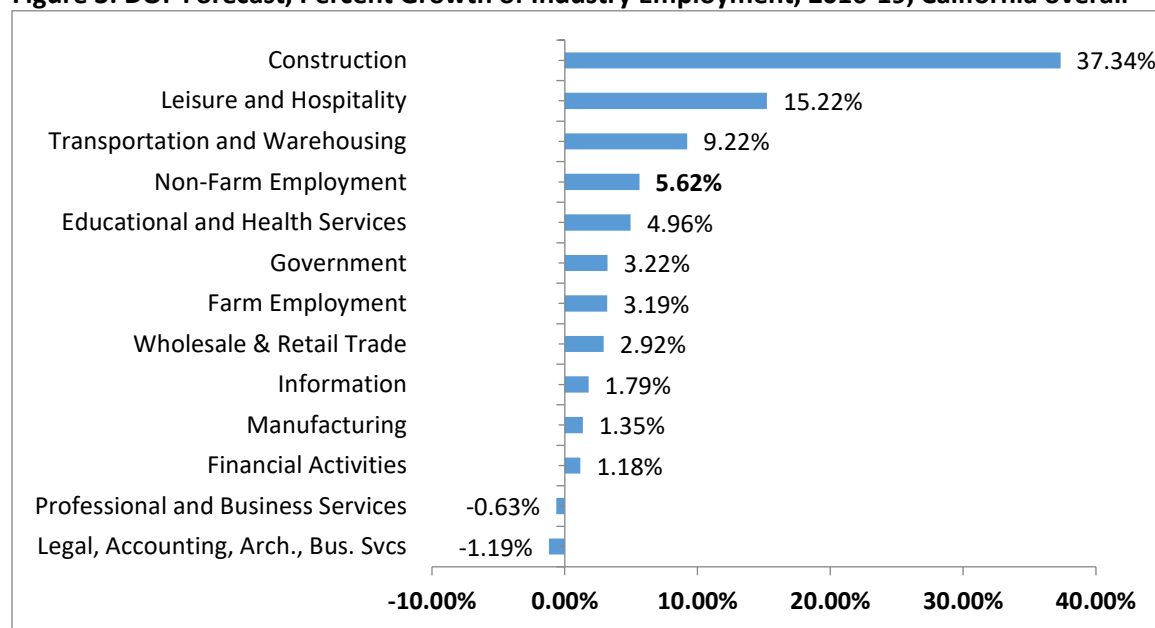
### **Recent Employment Forecasts: Regional and State**

The California Department of Finance (DOF) forecast is an important tool used by policy makers in Sacramento as the basis for economic decision making. In terms of labor market data, there are industry forecasts that go as far as 2022 as of April 2015 in California, made by the California Employment Development Department (EDD).

Figure 3 shows the major industry highlights of the most recent DOF forecast in 2016 to 2019 for California overall. The Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov)) provides jobs forecasts for the national economy through 2024 as of April 2016. Figures 2 and 3 provide a sample of the fastest predicted jobs growth by industry and also those with the fastest decline.

From both the DOF and BLS forecasts, we see that manufacturing is likely to move more slowly over time. In terms of goods-producing industries, construction may grow quickly in California through 2019, while growing more modestly in the United States overall. For goods-producing jobs that may hire vocational workers as well as those in STEM (to engineer the products to be manufactured), the opportunities in California may be limited, but better than other places in the United States.

**Figure 3: DOF Forecast, Percent Growth of Industry Employment, 2016-19, California overall**



Source: California Department of Finance ([www.dof.ca.gov](http://www.dof.ca.gov))

**Figure 4: Fast Growing Industry Employers, United States, 2014-24**

Industry	Employer	2004-14 % Growth	2014-24 % Growth
Health	Home health care services	5.0	<b>4.8</b>
Health	Outpatient care centers	4.7	<b>4.1</b>
Health	Offices of other health practitioners	4.0	<b>3.8</b>
Health	Other ambulatory health care services	3.4	<b>3.4</b>
Health	Ambulatory health care services	3.0	<b>3.1</b>
Health	Medical and diagnostic laboratories	2.7	<b>2.8</b>
Consult	Management, scientific, and technical consulting services	5.0	<b>2.4</b>
Tech	Software publishers	2.9	<b>2.3</b>
Support	Facilities support services	1.3	<b>2.2</b>
Tech	Computer systems design and related services	4.5	<b>2.1</b>
Health	Offices of physicians	1.9	<b>1.9</b>
Health	Offices of dentists	1.6	<b>1.7</b>
Logistics	Local government passenger transit	1.1	<b>1.5</b>
Support	Office administrative services	3.6	<b>1.4</b>
Tech	Wireless telecommunications carriers (except satellite)	-2.0	<b>1.3</b>
Health	Individual and family services	6.3	<b>1.3</b>
Self	Non-farm, self-employed workers	-1.0	<b>0.7</b>

Source: Bureau of Labor Statistics

**Figure 5: Fastest Declining Industry Employers Nationally, 2014-24**

<b>Industry</b>	<b>Employer</b>	<b>2004-14 % Growth</b>	<b>2014-24 % Growth</b>
Manufac	Electric lighting equipment manufacturing	-3.3	-1.6
Manufac	Other chemical product and preparation manufacturing	-2.4	-1.7
Manufac	Rubber product manufacturing	-2.5	-1.7
Manufac	Household appliance manufacturing	-4	-1.7
Retail	Wired telecommunications carriers	-1.7	-1.7
Manufac	Clay product and refractory manufacturing	-4.8	-1.8
Manufac	Computer and peripheral equipment manufacturing	-2.5	-1.8
Manufac	Foundries	-2.6	-1.9
Manufac	Spring and wire product manufacturing	-3.4	-1.9
Manufac	Hardware manufacturing	-4.4	-2.1
Manufac	Pulp, paper, and paperboard mills	-3.3	-2.2
Manufac	Other miscellaneous manufacturing	-2.5	-2.2
Manufac	Glass and glass product manufacturing	-2.7	-2.4
Manufac	Audio and video equipment manufacturing	-5.3	-2.6
News	Newspaper, periodical, book, and directory publishers	-4.8	-2.8
Manufac	Communications equipment manufacturing	-4.2	-2.9
Manufac	Manufacturing and reproducing magnetic and optical media	-8.6	-2.9
Logistics	Postal Service	-2.7	-3.2
Manufac	Tobacco manufacturing	-7.3	-3.9
Manufac	Apparel, leather, and allied manufacturing	-6.2	-5.9

**Source: Bureau of Labor Statistics**

Two themes become apparent from these data:

- Industries predicted to grow throughout the national economy include health care and technology services:
  - The faster-growing industry employers nationally do not include manufacturing, construction, or many other “goods-producing” businesses; and
  - The fastest-declining industries are, in contrast, tilt toward manufacturing and dying industries otherwise (newspaper publishers and postal service jobs).
- Growth from 2004 to 2014 may or may not suggest continued growth over the next ten years:
  - Self-employment is one category that fell in the 2004-2014 period, which included the Great Recession, but is predicted to grow; and
  - For declining industries, manufacturing jobs have been shed across the country in the last ten years and are predicted to continue due to comparative and competitive advantages across the world.

Regional forecasts take the national forecasts and use them as a basis for local predictions. While such predictions for California and its counties are not due until later in 2016 to go through 2024, we should expect some similar patterns to emerge:

- Health care is likely to be a leading industry for jobs growth;
- Manufacturing is likely to be declining in durable goods (machines and business capital), while growing in non-durable goods outside of textiles (food and beverage especially); and
- Service-providing jobs are likely to be growing faster than goods-producing industry employment, though construction jobs are likely to be growing between 2014 and 2024 versus the years of 2010-2014.

### **Employment Forecasts in the local region**

California's Employment Development Department (EDD) makes short-term, occupational projections for industry employment annually and long-term bi-annual projections. Unfortunately, these forecasts are not necessarily at the county level (they are for Napa, Sonoma and Solano only, as the other counties are in regions). The current, long-term forecast has key elements for the NCCPA region to watch:

- Professional and Business services, with an emphasis on computer-based design and technical jobs, is predicted to grow in the Bay Area counties of San Francisco, San Mateo, Alameda, and Contra Costa faster than the NCCPA region and the state overall;
- Health Care jobs grow throughout the state, including the Bay Area and the NCCPA region;
- Accommodations and food services, the mix of hotels, motels, and restaurants, will also grow in all regions;
- Manufacturing jobs are predicted to fall in California overall by over 40,000 workers, but grow faster in the NCCPA region than the Bay Area, though growth is predicted in both regions;
- Construction growth is coming across California;
- Retail and wholesale jobs growth is also predicted in all regions; and
- Government jobs at the state and local level are also projected to grow.

Figure 6 shows the fastest growing industries since 2010 for the NCCPA region. Construction and real estate jobs shifted out of the labor market and gave way to more retail and other services jobs. Construction's comeback is evident in these data. Notice that social assistance jobs (including non-profit organizations that provide health care) grew, as did biotechnology. Manufacturing has seen job growth in food and beverage makers; the wine industry, which links agriculture to manufacturing to tourism and retail, remains a foundation of jobs for this region, reflected in beverage manufacturing and agricultural support jobs.

**Figure 6: Fastest Growing Industries (Top 13), 2010-15, Percentage Growth Payroll Employment by Employers, Number of Workers, NCCPA Region**

<b>Industry</b>	<b>Percent Growth</b>	<b>Employees</b>
Rental and Leasing Services	192.7%	794
Life Sciences	112.3%	3,145
Agriculture & Forestry Support	41.5%	2,313
Support Activities for Transportation	39.9%	392
Utilities	36.6%	517
Food Manufacturing	25.5%	1,532
Construction	22.9%	5,895
Beverage Manufacturing	20.6%	3,225
Motor Vehicle and Parts Dealers	20.5%	1,335
Miscellaneous Store Retailers	20.3%	669
Couriers and Messengers	19.5%	226
Bars and Restaurants	19.3%	8,073

Source: QCEW ([www.edd.ca.gov](http://www.edd.ca.gov))

**Figure 7: Fastest Growing Industries (Top 15), 2010-15 Payroll Employment by Employers, Selected Areas, In Descending Order**

<b>California</b>	<b>San Francisco MSA</b>	<b>Oakland MSA</b>	<b>NCCPA Region</b>
Funds, Trusts & Financial Vehicles	Primary Metal Manufacturing	Textile Mills	Furniture/Home Stores
Private Households	Broadcasting (except Internet)	Primary Metal Manufacturing	Forestry and Logging
Rail Transportation	Computer and Elec Product Mfg	Broadcasting (except Internet)	Educational Services
Postal Service	Printing and Related Activities	Computer and Elec Product Mfg	Food Manufacturing
Leather/Allied Product Manufacture	Banks and Credit Unions	Printing and Support Activities	Mining (except Oil and Gas)
Petroleum & Coal Manufacturing	Paper Manufacturing	Banks and Credit Unions	Crop Production
Support Activities for Mining	Utilities	Paper Manufacturing	Health and Personal Care Stores
Telecommunications	Animal Production/Aquaculture	Utilities	Electrical Equip and Appliances
Lessors, Intangible Assets	Plastics/Rubber Manufacture	Animal Production/ Aquaculture	Chemical Manufacturing
Electronics and Appliance Stores	Fishing, Hunting and Trapping	Plastics/Rubber Manufacturing	Insurance Carriers & Related
Apparel Manufacturing	Clothing Stores	Fishing, Hunting and Trapping	Wholesalers, Durable Goods
Monetary Authorities - Central Bank	Sporting Goods/Book Stores	Clothing Stores	Miscellaneous Store Retailers
Textile Mills	Hospitals	Sporting Goods/Book Stores	Membership Orgs & Associations
Primary Metal Manufacturing	Textile Product Mills	Hospitals	Food and Beverage Stores
Broadcasting (except Internet)	Motion Picture/Sound Industries	Textile Product Mills	General Merchandise Stores

Sources: QCEW ([www.edd.ca.gov](http://www.edd.ca.gov)) and EFA

What these tables show is not only recent job growth (Figure 6), but also comparisons to the Bay Area (Figure 7). Notice the similarities across the regions in Figure 7 as to the major areas of jobs growth, especially among San Francisco's metro area (San Francisco and San Mateo counties), the East Bay (Alameda and Contra Costa counties), and the NCCPA region, versus California overall. One of the themes of this forecast is the linkages among the NCCPA counties and the Bay Area more generally. Figure 8 shows the recovery period and the emergence from recession in terms of jobs performance; this table also shows the industries expecting the fastest growth of jobs from the type of business or employer.

**Figure 8: Employment Trends in the NCCPA Region:**

### Fastest Growth Industries from 2010-15, NCCPA Focus

Industries	NCCPA	CA	SF	SM	Alameda	CC
Rental and Leasing Services	192.7%	9.7%	-5.5%	22.6%	14.7%	3.5%
Life Sciences	112.3%	29.6%	33.5%	68.0%	33.9%	31.9%
Broadcasting (except Internet)	47.2%	6.6%	23.8%	59.5%	32.8%	196.8%
Agriculture & Forestry Support Activity	41.5%	9.0%	28.0%	-11.8%	14.2%	8.7%
Support Activities for Transportation	39.9%	5.3%	17.3%	7.3%	-69.6%	-32.2%
Utilities	36.6%	-3.6%	103.1%	-11.2%	9.1%	-7.6%
Food Manufacturing	25.5%	-3.8%	-2.5%	-3.1%	-39.0%	
Construction	22.9%	5.9%	-5.8%	-5.0%	4.4%	6.8%
Beverage Manufacturing	20.6%	1.2%	-6.0%	-9.0%	-13.8%	23.4%
Motor Vehicle and Parts Dealers	20.5%	35.9%	209.2%	58.4%	16.3%	215.6%
Miscellaneous Store Retailers	20.3%	8.0%	1.5%	-0.4%	13.8%	6.9%
Couriers and Messengers	19.5%	14.4%	48.4%	24.0%	17.7%	-0.5%
Food Services and Drinking Places	19.3%	-2.7%	-14.9%	5.4%	-11.1%	-3.1%
Hotels and Motels	18.6%	12.1%	-5.0%	97.1%	4.9%	6.5%
Nursing and Residential Care Facilities	17.7%	14.1%	15.6%	11.8%	14.3%	14.3%
Wood Product Manufacturing	17.6%	33.5%	-17.0%	6.0%	17.3%	-11.8%
Fabricated Metal Product Manufacturing	17.5%	8.6%	11.4%	3.2%	15.6%	5.4%
Administrative and Support Services	16.4%	-8.6%	-1.3%	-26.4%	-30.6%	-19.8%
Performing Arts and Spectator Sports	15.4%	10.1%	18.1%	6.6%	13.6%	25.3%
Printing and Related Support Activities	14.8%	-8.5%	-14.2%	-9.1%	15.9%	-16.9%
Furniture and Home Furnishings Stores	14.7%	9.2%	30.7%	32.5%	7.8%	-16.2%
Food and Beverage Stores	13.7%	21.3%	27.4%	18.9%	24.8%	20.3%
Nonmetallic Mineral Product Mfg	12.8%	17.5%	34.9%	30.2%	25.6%	10.2%
Building Material & Garden Supply Stores	12.4%	8.3%	14.2%	0.3%	3.6%	-6.6%
Ambulatory Health Care Services	12.4%	16.0%	16.4%	19.4%	15.3%	11.2%

Sources: QCEW ([www.edd.ca.gov](http://www.edd.ca.gov)) and EFA

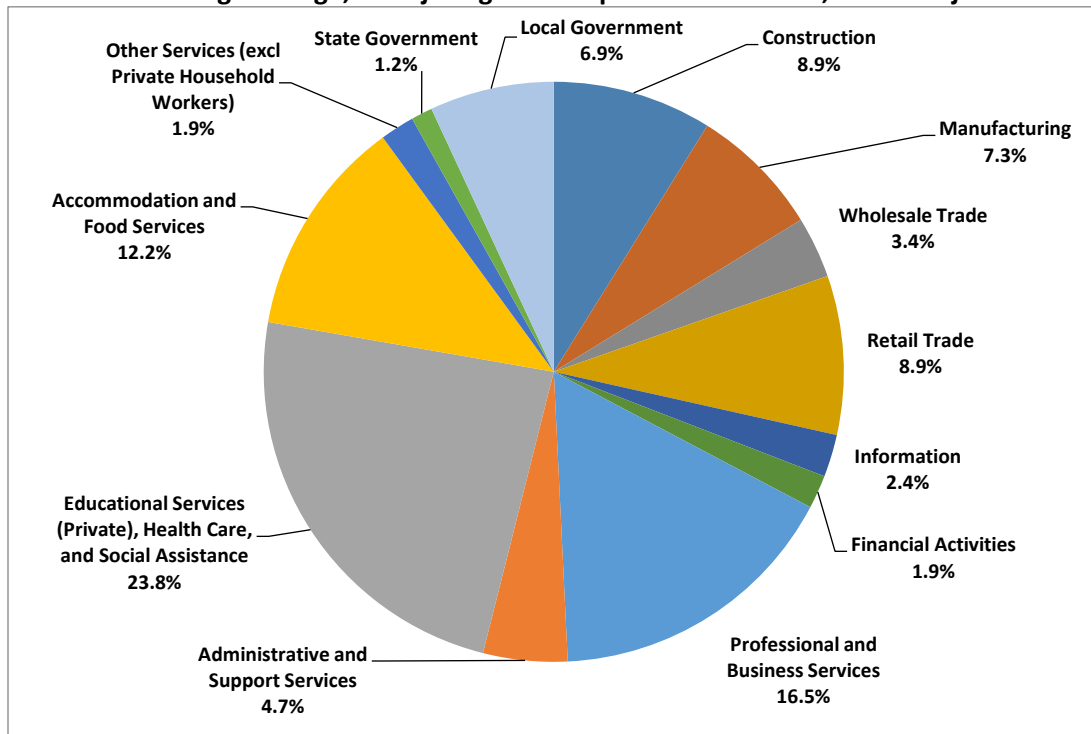
The employment trends begin in 2011 as the bottom of the recent recession and show what has happened during the economic recovery thus far. The similarities of the North Bay, San Francisco and East Bay suggest that jobs growth will be similar also; the percentage change in jobs since the recession's end have similar themes across these areas.

### Forecasts for Industry Employment

Recent industry employment performance, combined with occupation employment performance and other factors, leads us to considerations about employer hiring after 2016. The national level forecast is in place through 2024, but the regional and local forecasts are different enough to raise some doubts about how the national economic trends reflect the local economy. Figure 9 shows the predicted performance of industry employment from 2015 to 2022. The percentages represent the proportion of overall growth by industry; for example, manufacturing is predicted to be 7.3 percent of the overall employment growth of the six counties in the NCCPA region (62,040 more jobs by 2022).

**Figure 9: Forecasted Growth of Industry Employment, NCCPA Counties, 2015-2022,**

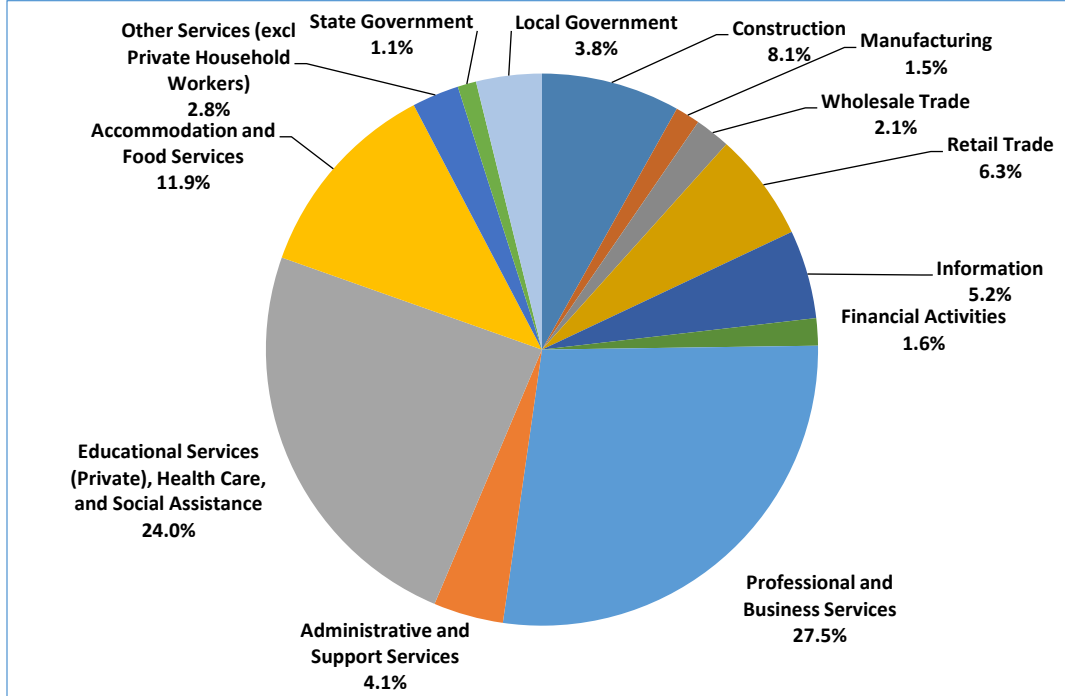
**Percentage Change, total jobs growth is predicted to be 62,040 more jobs**



Sources: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov)) and Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov))

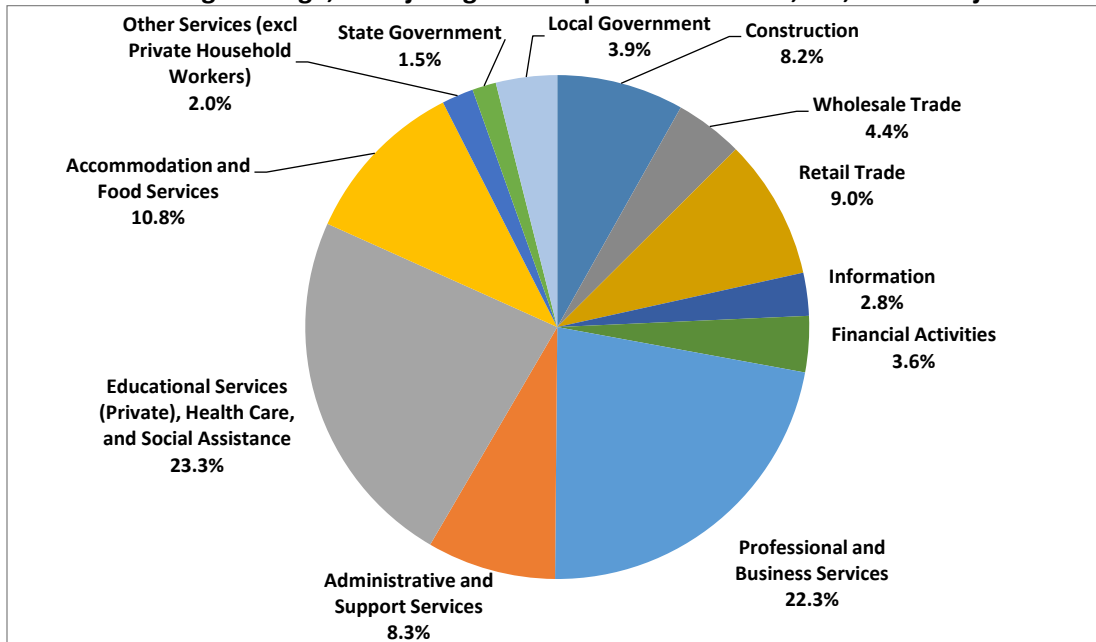
For the state of California overall, manufacturing is projected to lose over 25,000 jobs between 2015 and 2022. Thus, manufacturing is not part of Figure 10. Professional and business services, industries that hire across all services occupations are expected to be a large part of California's job growth, as are retail and tourism services. For the Bay Area, professional and businesses services are the major part of the forecast also, as San Francisco becomes more of a technology and financial hub for the world. Retail jobs growth is a similar proportion to the state economy, and manufacturing is also seen as rising, where that is a mix of biotechnology, food and beverage, and other non-durables.

**Figure 10: Forecasted Growth of Industry Employment, San Francisco MSA Counties, 2015-2022, Percentage Change, total jobs growth is predicted to be 85,350 more jobs**



Sources: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov)) and Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov))

**Figure 11: Forecasted Growth of Industry Employment, California, 2015-2022, Percentage Change, total jobs growth is predicted to be 1,699,320 more jobs**



Sources: California EDD ([www.edd.ca.gov](http://www.edd.ca.gov)) and Bureau of Labor Statistics ([www.bls.gov](http://www.bls.gov))



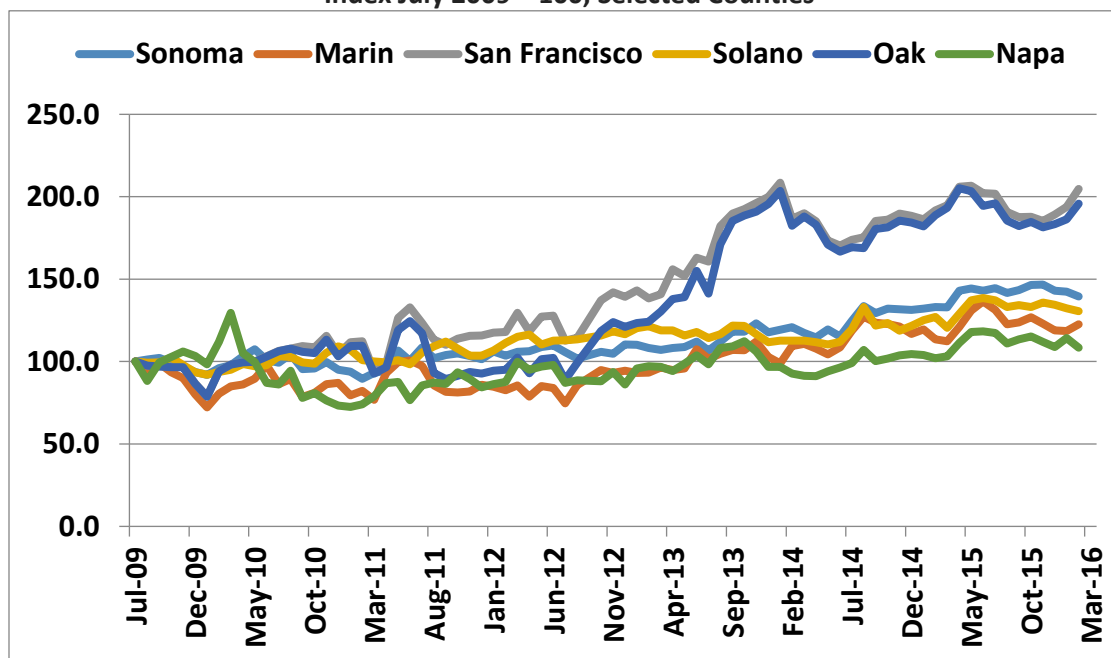
Labor markets are connected to each other through the flow of commuters. The volume of commuting can make for a more complex set of requirements in planning educational programs for local (defined as within the same county or set of counties) students to be available for local employers. Low-cost commuting options makes it difficult to keep students and residents local for work opportunities if larger wage and salary opportunities are within commuting distance. Part of that commuting cost is housing.

### Housing and Transportation: A Deeper Dive

While this forecast is not meant to be a polemic on housing markets or transportation systems, we need to realize that infrastructure does play a role in how integrated the regional workforce can be. For example, Sonoma, Marin, Solano, and Napa counties are all relatively well-connected by various freeways and highways. Mendocino and Lake counties are somewhat more challenged in terms of access to major labor markets and employers, outside of government or retail, due to distance. Growth of employment in Lake and Mendocino County is likely to rely more on local demographics than in-bound commuters from more-populated areas in the NCCPA region; the more rural areas may be more challenged in terms of finding pathways to jobs with more global connections because of out-bound commuters living locally and working elsewhere.

Housing and transportation naturally link labor markets between county economies. People travel between the core counties on a daily basis; Mendocino and Lake counties have more outflow of workers than inflow, much like any other rural areas that are adjacent to more populated areas. Figure 12 shows how quickly San Francisco and East Bay (Oak) rents have ascended; if rent is less expensive in the North Bay, and jobs pay more in the core Bay Area, when the cost of transportation is low, people commute.

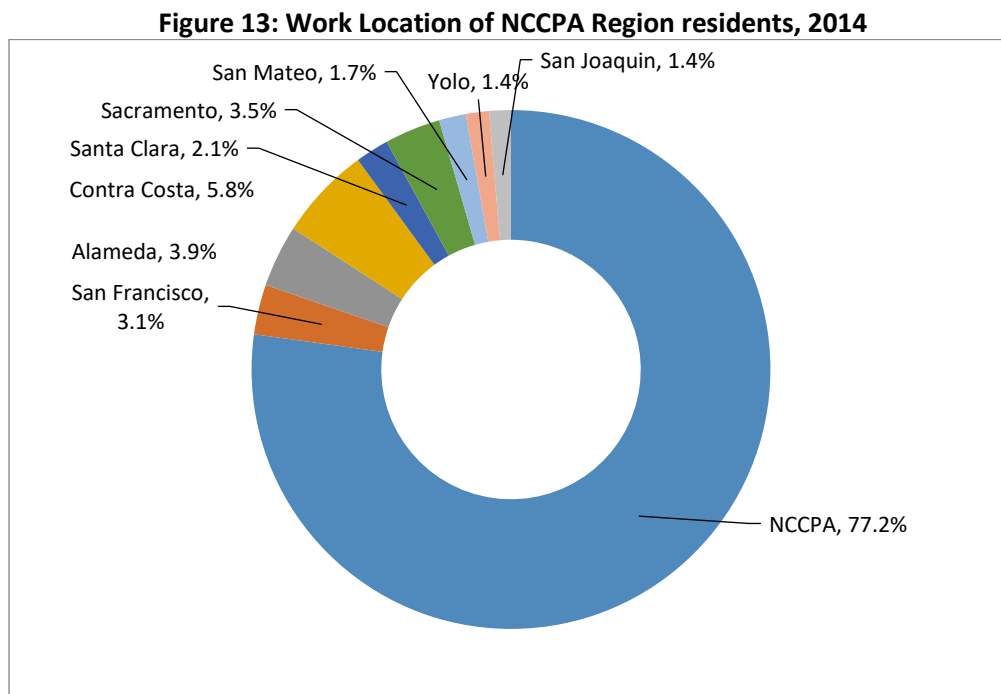
**Figure 12: Rental Prices, 2009-2016**  
Index July 2009 = 100, Selected Counties



Source: Rent Jungle ([www.rentjungle.com](http://www.rentjungle.com))

The data on commuting workers does not drill down to the employer level from the industry-sector level, but can provide simple guidance as to where people come from and go. There will always be a flow of workers over county borders. These data come from the Census Bureau and its continuing data study called “Longitudinal Employment and Housing Dynamics” data or LEHD (see <http://onthemap.ces.census.gov> for more).

These data are important because they remind us that people flow over county lines for work and also outside the NCCPA region for jobs. In many cases, schools and community colleges teach and educate students that will not work in the NCCPA region but may live in this region. Monitoring the commute data helps gauge the flows of labor and how occupations and employment may be different locally versus regionally.



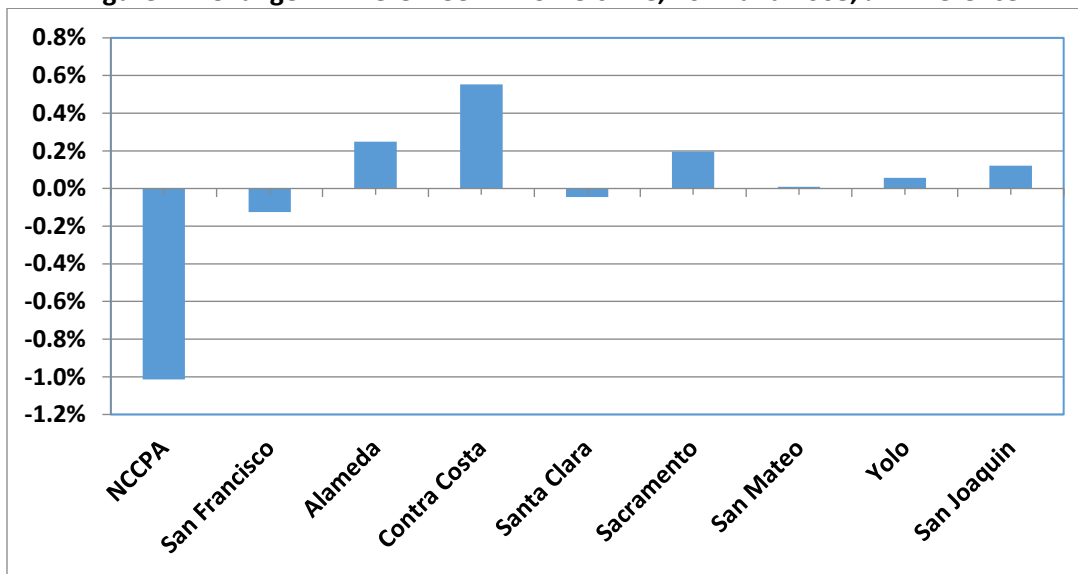
**Source: LEHD ([onthemap.ces.census.gov](http://onthemap.ces.census.gov))**

These data are split by where people live and where they work, and there are three categories based on a specific place (say Napa County):

1. People work in Napa County and live in Napa County;
2. People work in Napa County and live in another county (inbound commuters); or
3. People live in Napa County and work in another county (outbound commuters).

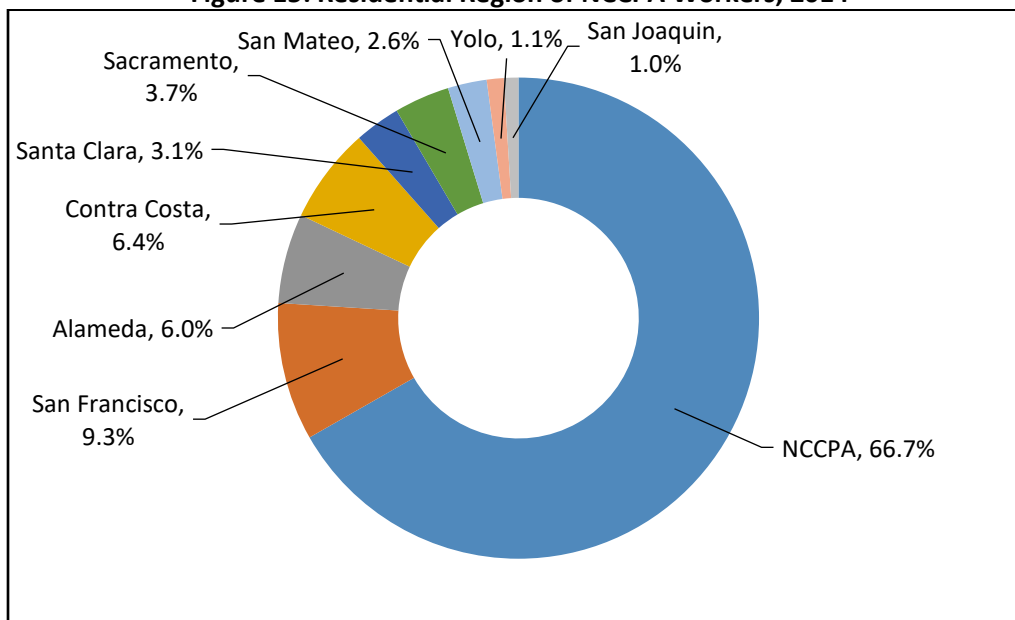
In terms of people flow, outbound commuters reduce the locally-available workforce. These are local residents leaving the area for work, suggesting there are better economic opportunities elsewhere. In the NCCPA region, as of 2014 (the latest data available), over 77 percent of workers living locally also work locally, within the NCCPA's six counties. The remaining places where regional residents work are spread throughout northern California (Figure 13). Figure 14 shows what has happened to these flows since 2008 (pre-recession). Notice there is fewer people that work and live locally, meaning more outbound commuters in the NCCPA counties.

**Figure 14: Change in where NCCPA workers live, 2014 and 2008, % Difference**



Source: LEHD (onthemap.ces.census.gov)

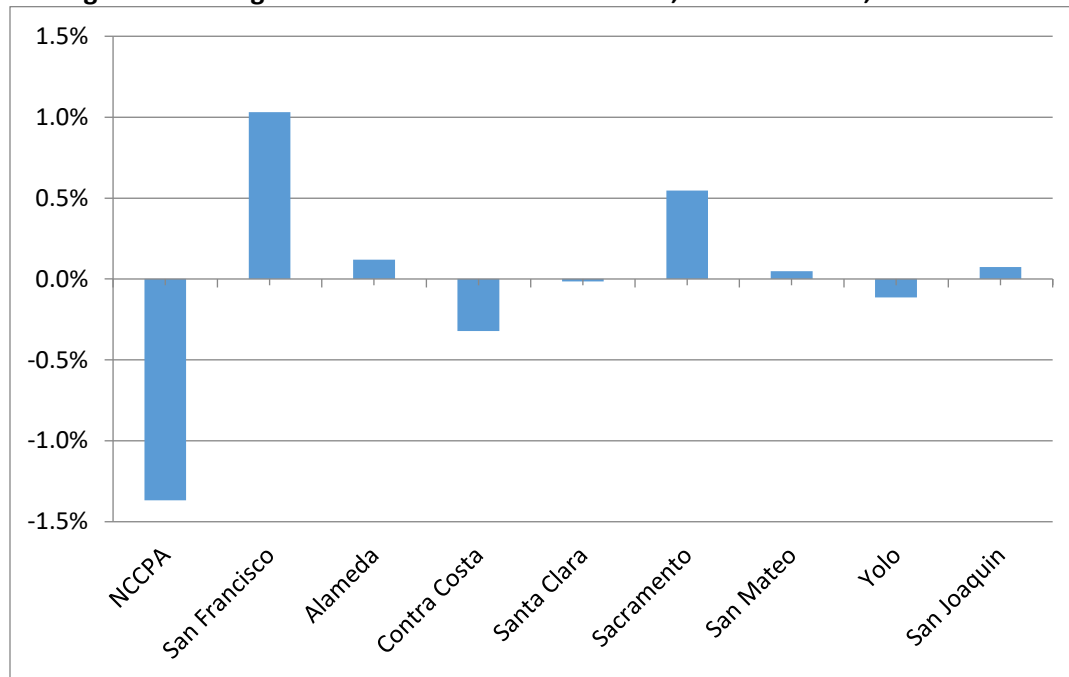
**Figure 15: Residential Region of NCCPA Workers, 2014**



Source: LEHD (onthemap.ces.census.gov)

Figures 15 and 16 tell a different story. These data are about who comes to work in the NCCPA region. From the perspective of local employment, given the number of people working (see Figure 17 and 18), only 66.7 percent of those that work in the NCCPA region also live there, and the rest come from other places to work locally. Notice in Figure 16, there have been a surge in inbound commuters to San Francisco and Sacramento, and an outflow of workers from the NCCPA to other places as commuters.

**Figure 16: Change in where NCCPA residents work, 2014 and 2008, % Difference**



Source: LEHD (onthemap.ces.census.gov)

**Figure 17: Working Residents that Live in the NCCPA Counties, Work in...  
Selected Areas**

Work In	Employees	% of Total 2014	% of Total 2008
NCCPA	373,577	77.2%	78.2%
San Francisco	15,069	3.1%	3.2%
Alameda	18,682	3.9%	3.6%
Contra Costa	28,148	5.8%	5.3%
Santa Clara	10,121	2.1%	2.1%
Sacramento	16,874	3.5%	3.3%
San Mateo	8,101	1.7%	1.7%
Yolo	6,985	1.4%	1.4%
San Joaquin	6,538	1.4%	1.2%
<b>Totals</b>	<b>484,095</b>	<b>100.0%</b>	<b>100.0%</b>

Source: LEHD (onthemap.ces.census.gov)

**Figure 18: Working Residents that Work in the NCCPA Counties, Live in...Selected Areas**

<b>Live In</b>	<b>Employees</b>	<b>% of Total 2014</b>	<b>% of Total 2008</b>
NCCPA	373,631	66.7%	68.1%
San Francisco	51,862	9.3%	8.2%
Alameda	33,743	6.0%	5.9%
Contra Costa	36,051	6.4%	6.8%
Santa Clara	17,225	3.1%	3.1%
Sacramento	20,815	3.7%	3.2%
San Mateo	14,654	2.6%	2.6%
Yolo	6,410	1.1%	1.3%
San Joaquin	5,422	1.0%	0.9%
<b>Totals</b>	<b>559,813</b>	<b>100.0%</b>	<b>100.0%</b>

Source: LEHD ([onthemap.ces.census.gov](http://onthemap.ces.census.gov))

A subtle data point is the difference between the totals in Figures 17 and 18: **approximately 75,800 more people leave the NCCPA counties than come into them for work**. This underscores the idea of training a workforce that currently does not work locally for over 75,000 local residents. These places are all connected by transportation infrastructure, which suggests that people are willing to travel to jobs, and that regional shifts in employment and occupational demand may draw workers from beyond and to the NCCPA counties.

### Connecting the Dots

One of the themes of this forecast is that the NCCPA counties are not only connected to each other, these areas also provide a workforce for the greater Bay Area. How these counties can retain the students taught here is subject to broader economic forces that seek local workers for work outside this area. The employment forecast for California suggests that specific industries are going to grow between 2016 and 2022. Those include:

- Construction
- Health Care and Social Assistance
- Logistics and Warehousing
- Leisure and Hospitality

The national forecast is similar, but leans more toward health care and away from manufacturing. For the NCCPA counties, the current forecast through 2022 suggests the following employers will be seeking more workers at faster growth rates than other industries:

- Education and Health Care
- Professional and Business Services
- Leisure and Hospitality
- Retail Trade
- Construction

Manufacturing is likely to play a role in the NCCPA counties, but more toward food and beverage manufacturing, where the regional wine industry is a dominant player. Jobs growth has been in these five industries, suggesting that the forecasts are categorically correct. However, this growth pattern has been the same for decades; outbound commuting for other industries has been on the rise since 2008.

Occupational growth since 2010 has happened across all industries throughout these counties and across skills. Negative growth figures suggest there is either room to grow or there is trouble retaining workers educated in certain pathways for local jobs. Commute patterns suggest that may be the case.

## Summary

- Services-producing industries have performed better than goods-producing in terms of job growth since the recent recession ended
  - The shadow of construction's losses is slowly fading, but should continue to fade in the 2015 data and beyond; and
  - Manufacturing has grown in these six counties, but has been primarily in food and beverage manufacturing.
- Health-care jobs, tourism and professional services (legal, accounting, etc.) have been the dominant services jobs growing
- State and national forecasts foresee continued jobs growth through 2022 on average
  - There may be slower years than others, but there is still no recession predicted for the US or California economies through at least 2019;
  - Manufacturing is the one industry predicted to see job losses through 2022; however
  - That prediction does not hold for the NCCPA counties, which have positive manufacturing jobs growth through 2022.
- High-skill and low-skilled workers have been the most in demand since 2010, with middle-skill workers remaining in the middle:
  - This is not a shocker given most of the jobs market is high-skill (Bachelor's degree or higher) and low-skill (HS diploma or less); and
  - For community colleges, the challenge is the return to pathways that end at the community college, given recent demand evidence for such workers.
- Commuting confounds planning for any region, and the NCCPA region has a history of outbound commuting to the larger, core Bay Area employers:
  - As many as 75,000 people per year may leave the NCCPA counties in net to work outside these areas, most to the core Bay Area counties; and
  - Through Solano County, the reach of outbound commuting of local residents reaches Sacramento, San Joaquin and Yolo counties as well.

## Priority Industry Sectors for the 6-County North Bay Region

Based on the preceding labor market forecast, five industries (or industry clusters) can be identified as *Priority Industry Sectors* for the 6-county North Bay Region:

- Construction (NAICS 23)
- Manufacturing (NAICS 31)
- Professional, Scientific, and Technical Services (NAICS 54)
- Healthcare & Social Assistance (NAICS 62)
- Hospitality & Tourism (cluster)

In addition, two other industries can be identified as *Priority Industry Sectors in Specific Counties* (within the region):

- Lake County: Utilities (NAICS 22)
- Marin County: Information (NAICS 51)

The Hospitality & Tourism cluster includes the following industries:

NAICS INDUSTRY

487 Scenic and Sightseeing Transportation

561510 Travel Agencies

561520 Tour Operators

561591 Convention and Visitors Bureaus

7111 Performing Arts Companies

7112 Spectator Sports

7113 Promoters of Performing Arts, Sports, and Similar Events

7114 Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures

7115 Independent Artists, Writers, and Performers

7121 Museums, Historical Sites, and Similar Institutions

7131 Amusement Parks and Arcades

7132 Gambling Industries

7139 Other Amusement and Recreation Industries

7211 Traveler Accommodation

7212 RV (Recreational Vehicle) Parks and Recreational Camps

7213 Rooming and Boarding Houses

7223 Special Food Services

7224 Drinking Places (Alcoholic Beverages)

7225 Restaurants and Other Eating Places

## Occupational Analysis for the 6-County North Bay Region

This section includes a list of the Top 100 Demand Occupations for the 6-County North Bay Region (including Lake, Marin, Mendocino, Napa, Solano and Sonoma counties). “Demand Occupation” means that it meets our criteria of being ranked in the top 10% of all occupations for at least one of three demand indicators: a) fastest job growth rate (with minimum occupation size of 200+ jobs), b) most new jobs, and c) most replacement openings. In addition, occupations with extremely low pay (less than \$11/hr median) were eliminated from the list.

Being identified as a Demand Occupation, however, doesn’t necessarily mean that (for each one) there will be employment opportunities locally, or that the occupations have the potential to pay a living wage. Demand Occupations simply means that employers in the region have a substantial need for qualified workers in these types of jobs. It is not an assessment of the *quality* of those jobs.

Replacement Openings is when job openings are projected to occur due to workers retiring or otherwise leaving the occupation or labor force. As such, Replacement Openings create net employment opportunities for qualified job seekers. In the North Bay Region, about 69% of all net employment opportunities are due to Replacement Openings, with 31% due to new job growth. Replacement Openings is not the same thing as turnover, although it is a part of turnover.

Median Hourly Earnings are based on wage data from the Occupational Employment Statistics (OES) Program ([www.bls.gov/oes/](http://www.bls.gov/oes/)) operated by the Bureau of Labor Statistics (BLS). The data are collected from about 2/3 of all employers over a 3-year cycle.

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings
<b>Occupations typically requiring no formal educational credential:</b>						
Painters, Construction and Maintenance	1,760	2,110	19.9%	350	334	\$23.10
Construction Laborers	4,338	5,199	19.8%	861	989	\$19.92
Landscaping and Groundskeeping Workers	5,862	6,302	7.5%	440	1,168	\$15.16
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9,331	10,189	9.2%	858	1,970	\$13.26
Laborers and Freight, Stock, and Material Movers, Hand	8,340	9,351	12.1%	1,011	2,643	\$13.09
Counter and Rental Clerks	3,432	3,687	7.4%	255	890	\$12.90
Cooks, Restaurant	6,048	7,230	19.5%	1,182	1,786	\$12.71
Stock Clerks and Order Fillers	9,311	10,583	13.7%	1,272	3,188	\$12.53
Waiters and Waitresses	13,323	14,712	10.4%	1,389	6,819	\$12.38
Automotive and Watercraft Service Attendants	572	710	24.1%	138	260	\$12.38
Retail Salespersons	20,594	23,474	14.0%	2,880	7,695	\$12.37
Bartenders	2,689	3,107	15.5%	418	1,103	\$11.86
Laundry and Dry-Cleaning Workers	698	836	19.8%	138	112	\$11.74
Maids and Housekeeping Cleaners	5,621	6,497	15.6%	876	1,517	\$11.65
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2,001	2,300	14.9%	299	1,313	\$11.49
Personal Care Aides	8,579	12,603	46.9%	4,024	922	\$11.34
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	9,835	9,358	-4.8%	-477	3,105	\$11.24
Home Health Aides	2,138	3,477	62.6%	1,339	692	\$11.20
Cleaners of Vehicles and Equipment	1,946	2,339	20.2%	393	757	\$11.02



Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings
<b>Occupations typically requiring a high school diploma or equivalent:</b>						
Police and Sheriff's Patrol Officers	2,005	2,220	10.7%	215	701	\$48.02
Electrical Power-Line Installers and Repairers	455	663	45.7%	208	230	\$47.52
Correctional Officers and Jailers	2,669	2,800	4.9%	131	756	\$44.15
First-Line Supervisors of Construction Trades and Extraction Workers	2,015	2,335	15.9%	320	201	\$38.94
Structural Iron and Steel Workers	364	441	21.1%	77	68	\$32.15
First-Line Supervisors of Production and Operating Workers	2,057	2,355	14.5%	298	353	\$30.42
Machinists	651	789	21.2%	138	212	\$30.05
Telecommunications Line Installers and Repairers	428	579	35.2%	151	94	\$29.88
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	5,165	6,068	17.5%	903	1,169	\$29.87
Carpenters	5,279	5,831	10.5%	552	808	\$29.77
Industrial Machinery Mechanics	1,062	1,421	33.8%	359	330	\$28.38
First-Line Supervisors of Office and Administrative Support Workers	5,831	6,577	12.8%	746	944	\$27.26
Bus and Truck Mechanics and Diesel Engine Specialists	739	904	22.3%	165	143	\$26.97
Glaziers	364	447	22.8%	83	59	\$23.55
Opticians, Dispensing	249	323	29.7%	74	78	\$22.84
Maintenance Workers, Machinery	232	306	31.9%	74	44	\$21.83
Medical Secretaries	2,562	2,874	12.2%	312	289	\$21.37
Maintenance and Repair Workers, General	5,670	6,355	12.1%	685	1,587	\$20.94
Billing and Posting Clerks	1,662	1,942	16.8%	280	383	\$20.85
First-Line Supervisors of Retail Sales Workers	5,193	5,891	13.4%	698	1,247	\$19.69
Community Health Workers	268	333	24.3%	65	61	\$19.36
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,438	9,102	7.9%	664	928	\$18.98
Customer Service Representatives	5,512	6,558	19.0%	1,046	1,500	\$18.88
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2,656	2,991	12.6%	335	904	\$18.49
First-Line Supervisors of Personal Service Workers	870	1,074	23.4%	204	192	\$18.33
Inspectors, Testers, Sorters, Samplers, and Weighers	1,454	1,792	23.2%	338	417	\$18.07
Social and Human Service Assistants	2,892	3,426	18.5%	534	643	\$17.63
Office Clerks, General	10,211	11,186	9.5%	975	2,318	\$17.45
Shipping, Receiving, and Traffic Clerks	2,796	2,984	6.7%	188	630	\$16.79
Photographers	232	341	47.1%	109	94	\$16.67
Light Truck or Delivery Services Drivers	3,318	3,708	11.8%	390	602	\$16.47
First-Line Supervisors of Food Preparation and Serving Workers	3,858	4,600	19.2%	742	1,279	\$16.29
Receptionists and Information Clerks	4,085	4,595	12.5%	510	1,184	\$15.95
Mixing and Blending Machine Setters, Operators, and Tenders	606	782	29.0%	176	154	\$15.71
Merchandise Displayers and Window Trimmers	357	435	21.8%	78	96	\$15.42
Food Cooking Machine Operators and Tenders	224	279	24.5%	55	54	\$15.05
Residential Advisors	305	375	23.0%	70	108	\$14.68
Driver/Sales Workers	2,052	2,387	16.3%	335	383	\$14.50
Tellers	2,023	2,236	10.5%	213	859	\$14.44
Packaging and Filling Machine Operators and Tenders	3,165	3,896	23.1%	731	1,288	\$14.02
Childcare Workers	3,069	3,115	1.5%	46	1,118	\$13.70

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings
Security Guards	2,795	3,293	17.8%	498	438	\$13.41
Food Batchmakers	951	1,139	19.8%	188	230	\$13.17
Hotel, Motel, and Resort Desk Clerks	1,663	2,006	20.6%	343	998	\$12.64
Recreation Workers	2,052	2,395	16.7%	343	420	\$12.16
<b>Occupations typically requiring a postsecondary certificate or some college/no degree:</b>						
Telecommunications Equipment Installers and Repairers, Except Line Installers	693	884	27.6%	191	73	\$29.52
Licensed Practical and Licensed Vocational Nurses	2,618	3,193	22.0%	575	849	\$26.54
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	714	885	23.9%	171	123	\$24.62
Automotive Service Technicians and Mechanics	3,176	3,549	11.7%	373	902	\$22.44
Bookkeeping, Accounting, and Auditing Clerks	7,107	6,951	-2.2%	-156	900	\$21.69
Dental Assistants	2,365	2,511	6.2%	146	606	\$21.61
Heavy and Tractor-Trailer Truck Drivers	4,360	4,987	14.4%	627	800	\$20.94
Medical Assistants	3,534	4,295	21.5%	761	836	\$18.55
Emergency Medical Technicians and Paramedics	1,321	2,112	59.9%	791	296	\$17.50
Teacher Assistants	5,552	5,966	7.5%	414	1,392	\$14.96
Nursing Assistants	3,419	4,462	30.5%	1,043	917	\$14.62
Hairdressers, Hairstylists, and Cosmetologists	1,046	1,291	23.4%	245	310	\$11.27
<b>Occupations typically requiring an associate degree:</b>						
Chemical Technicians	202	300	48.5%	98	78	\$23.82
Veterinary Technologists and Technicians	721	865	20.0%	144	80	\$19.24
<b>Occupations typically requiring a bachelor's degree:</b>						
Natural Sciences Managers	282	337	19.5%	55	66	\$71.58
Registered Nurses	11,271	12,186	8.1%	915	2,787	\$52.99
General and Operations Managers	10,600	11,835	11.7%	1,235	2,859	\$47.95
Personal Financial Advisors	986	1,187	20.4%	201	284	\$44.74
Operations Research Analysts	242	294	21.5%	52	48	\$44.42
Chemists	523	683	30.6%	160	138	\$39.49
Market Research Analysts and Marketing Specialists	2,172	2,607	20.0%	435	288	\$37.40
Dietitians and Nutritionists	344	419	21.8%	75	30	\$37.13
Accountants and Auditors	4,282	4,803	12.2%	521	1,216	\$36.22
Secondary School Teachers, Except Special and Career/Technical Education	3,163	3,388	7.1%	225	781	\$32.53
Elementary School Teachers, Except Special Education	7,226	7,633	5.6%	407	1,650	\$32.34
Social and Community Service Managers	700	866	23.7%	166	217	\$30.42
Biological Technicians	354	436	23.2%	82	112	\$26.57
Substance Abuse and Behavioral Disorder Counselors	437	527	20.6%	90	105	\$20.48
Substitute Teachers	3,508	3,718	6.0%	210	684	\$16.89
<b>Occupations typically requiring a graduate degree:</b>						
Nurse Practitioners	556	761	36.9%	205	160	\$59.28
Physician Assistants	356	485	36.2%	129	97	\$52.69
Occupational Therapists	322	385	19.5%	63	70	\$44.81
Postsecondary Teachers	4,295	4,877	13.6%	582	818	\$32.68
Healthcare Social Workers	607	825	35.9%	218	183	\$32.34
Mental Health Counselors	487	600	23.2%	113	118	\$23.40
Rehabilitation Counselors	492	614	24.8%	122	121	\$17.42

Source: EMSI (Economic Modeling Specialists Intl.)

## Knowledge and Skills Analysis

Skill Requirements for Top 25 Middle-Skill, Middle-Wage or Higher Occupations

Occupations	Skills																			
	Active Learning	Active Listening	Complex Problem Solving	Coordination	Critical Thinking	Equipment Maintenance	Installation	Instructing	Judgment and Decision Making	Learning Strategies	Management of Personnel Resources	Monitoring	Operation and Control	Operation Monitoring	Operations Analysis	Programming	Quality Control Analysis	Reading Comprehension	Repairing	Science
Registered Nurses	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Heavy and Tractor-Trailer Truck Drivers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Licensed Practical and Licensed Vocational Nurses	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Emergency Medical Technicians and Paramedics	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Medical Assistants	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Preschool Teachers, Except Special Education	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dental Assistants	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Firefighters*	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
First-Line Supervisors of Production and Operating Workers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Computer User Support Specialists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Medical and Clinical Laboratory Technicians	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dental Hygienists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Web Developers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Massage Therapists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Medical Records and Health Information Technicians	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Library Technicians	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Paralegals and Legal Assistants	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Radiologic Technologists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Veterinary Technologists and Technicians	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Respiratory Therapists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Telecommunications Equipment Installers and Repairers, Except Line Installers	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Phlebotomists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Surgical Technologists	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Psychiatric Technicians	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

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

\* Skills listed for the occupation represent a specialty occupation.

In looking at this set of middle skill occupations, clearly there is a wide variety of skill requirements. However, some skills are more common than others, and represent skills that are in demand by our region's employers – at least in the context of middle skill occupations. Those “most common skill needs” include:

- 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.
- Critical Thinking - Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Reading Comprehension - Understanding written sentences and paragraphs in work related documents.
- Monitoring - Monitoring/Assessing performance of oneself, other individuals, or organizations to make improvements or take corrective action.
- Speaking - Talking to others to convey information effectively.
- Active Learning - Understanding the implications of new information for both current and future problem-solving and decision-making.
- Coordination - Adjusting actions in relation to others' actions.
- Service Orientation - Actively looking for ways to help people.
- Social Perceptiveness - Being aware of others' reactions and understanding why they react as they do.

Knowledge Requirements for Top 25 Middle-Skill, Middle-Wage or Higher Occupations

Occupations	Knowledge																			
	Administration and Management	Biology	Building and Construction	Chemistry	Clerical	Communications and Media	Computers and Electronics	Customer and Personal Service	Design	Economics and Accounting	Education and Training	Engineering and Technology	English Language	Geography	Law and Government	Mathematics	Mechanical	Medicine and Dentistry	Personnel and Human Resources	Philosophy and Theology
Registered Nurses		•			•			•			•		•						•	
Heavy and Tractor-Trailer Truck Drivers	•							•			•		•	•	•	•			•	
Licensed Practical and Licensed Vocational Nurses				•	•			•			•		•					•		•
Emergency Medical Technicians and Paramedics				•				•			•		•					•	•	•
Medical Assistants	•			•			•	•			•		•					•	•	•
Preschool Teachers, Except Special Education	•						•				•		•	•				•	•	•
Dental Assistants				•	•		•	•			•		•					•	•	•
Firefighters*	•	•	•				•				•		•		•			•	•	
First-Line Supervisors of Production and Operating Workers	•			•			•	•			•				•			•		
Computer User Support Specialists	•			•	•	•	•				•		•							•
Heating, Air Conditioning, and Refrigeration Mechanics and Installers*			•	•			•	•			•	•				•		•		
Medical and Clinical Laboratory Technicians		•		•	•		•	•				•						•	•	
Dental Hygienists		•		•	•		•	•			•		•					•	•	
Web Developers	•			•	•	•	•	•			•		•						•	
Massage Therapists	•	•		•			•				•		•					•	•	•
Medical Records and Health Information Technicians	•			•	•	•	•				•		•					•		
Library Technicians	•			•	•	•	•				•		•							
Paralegals and Legal Assistants	•			•	•	•	•				•		•					•		
Radiologic Technologists		•		•		•	•				•		•					•	•	
Veterinary Technologists and Technicians	•	•		•		•	•				•		•						•	
Respiratory Therapists		•	•			•	•				•		•					•		•
Telecommunications Equipment Installers and Repairers, Except Line Installers				•		•	•				•	•						•		•
Phlebotomists			•	•		•	•				•		•					•	•	
Surgical Technologists		•		•		•	•				•		•					•	•	•
Psychiatric Technicians	•			•		•	•				•		•					•	•	•

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

\* Knowledge listed for the occupation represent a specialty occupation.

In looking at the same set of middle skill occupations, there is also a wide variety of knowledge area requirements. However, just like with skills, some knowledge areas are more common than others. These represent the “most common knowledge areas” that are in demand by our region’s employers (for middle skill occupations):

- Customer and Personal Service - Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- English Language - Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.

- Education and Training - Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups, and the measurement of training effects.
- Clerical - Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography and transcription, designing forms, and other office procedures and terminology.
- Computers and Electronics - Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming.
- Mathematics - Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Psychology - Knowledge of human behavior and performance; individual differences in ability, personality, and interests; learning and motivation; psychological research methods; and the assessment and treatment of behavioral and affective disorders.
- Administration and Management - Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.
- Medicine and Dentistry - Knowledge of the information and techniques needed to diagnose and treat human injuries, diseases, and deformities. This includes symptoms, treatment alternatives, drug properties and interactions, and preventive health-care measures.

### **Work-Readiness Skills**

In addition to the skill and knowledge requirements discussed in this section, employers also commonly state a deficiency in the work-readiness skills of their job candidates and entry level workers. While many work-readiness skills are developed through work experience, employers consistently voice a strong preference for job candidates to have developed work-readiness skills through their school or college experience, or through their local workforce development system.

What are work-readiness skills? They are sometimes referred to as job-readiness skills, or career-readiness skills, or employability skills, or soft skills. Work-readiness skills are general skills that are necessary for success in the labor market and workplace, regardless of one's job or industry. Work-readiness skills can be categorized and defined as follows:

1. Applied Knowledge—the thoughtful integration of academic knowledge and technical skills, put to practical use in the workplace.
  - a. Applied academic skills enable employees to put skills based on academic disciplines and learning - such as reading, writing, mathematical strategies and procedures, and scientific principles and procedures - to practical use in the workplace.
  - b. Critical thinking skills enable employees to analyze, reason, solve problems, plan, organize, and make sound decisions in their work.
2. Effective Relationships—the interpersonal skills and personal qualities that enable individuals to interact effectively with clients, coworkers, and supervisors.
  - a. Interpersonal skills include the ability to collaborate as a member of a team or work independently, as appropriate; communicate effectively; maintain a positive attitude; and contribute to the overarching goals of the workplace.

- b. Personal qualities that contribute to effective relationships include responsibility, self-discipline, flexibility, integrity, and initiative. Other essential qualities are a sense of professionalism and self-worth; willingness to learn; and acceptance of responsibility for one's own professional growth.
- 3. Workplace Skills—the analytical and organizational skills and understandings that employees need to successfully perform work tasks. These include: managing time and other resources; understanding, evaluating, and using a variety of information; communicating effectively with others in multiple formats (speaking, writing, listening); understanding relationships among the components of a system; and applying information technology appropriately and effectively.

**Appendix Table 1: 2016-2026 Occupational Employment Projections for the  
6-County North Bay Region (sorted alphabetically by occupation title)**

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Accountants and Auditors	4,282	4,803	12.2%	521	1,216	\$36.22	Bachelor's degree
Actors	234	219	-6.4%	-15	125	\$17.82	Some college, no degree
Actuaries	48	42	-12.4%	-6	23	\$43.83	Bachelor's degree
Adhesive Bonding Machine Operators and Tenders	29	27	-6.8%	-2	2	\$16.26	High school diploma or equivalent
Administrative Law Judges, Adjudicators, and Hearing Officers	73	73	0.0%	0	12	\$49.19	Doctoral or professional degree
Administrative Services Managers	1,391	1,520	9.3%	129	274	\$41.48	Bachelor's degree
Adult Basic and Secondary Education and Literacy Teachers and Instructors	259	290	12.0%	31	53	\$37.02	Bachelor's degree
Advertising and Promotions Managers	109	126	15.6%	17	38	\$36.00	Bachelor's degree
Advertising Sales Agents	248	289	16.5%	41	89	\$23.99	High school diploma or equivalent
Aerospace Engineering and Operations Technicians	22	29	31.5%	7	7	\$37.02	Associate's degree
Aerospace Engineers	123	125	1.6%	2	38	\$48.86	Bachelor's degree
Agents and Business Managers of Artists, Performers, and Athletes	67	80	19.3%	13	24	\$34.99	Bachelor's degree
Agricultural and Food Science Technicians	241	264	9.5%	23	84	\$20.30	Associate's degree
Agricultural Equipment Operators	883	930	5.3%	47	265	\$13.96	No formal educational credential
Agricultural Inspectors	74	75	1.3%	1	20	\$21.63	Bachelor's degree
Agricultural Workers, All Other	98	77	-21.4%	-21	43	\$18.29	No formal educational credential
Air Traffic Controllers	37	34	-8.1%	-3	14	\$73.46	Associate's degree
Aircraft Cargo Handling Supervisors	25	26	4.0%	1	-1	\$25.01	High school diploma or equivalent
Aircraft Mechanics and Service Technicians	156	195	25.0%	39	45	\$31.40	Postsecondary nondegree award
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	32	29	-9.5%	-3	3	\$26.40	High school diploma or equivalent
Airline Pilots, Copilots, and Flight Engineers	16	20	24.4%	4	-4	\$76.08	Bachelor's degree
Ambulance Drivers and Attendants, Except Emergency Medical Technicians	157	244	55.3%	87	37	\$13.36	High school diploma or equivalent
Amusement and Recreation Attendants	1,922	2,100	9.3%	178	853	\$10.25	No formal educational credential
Anesthesiologists	63	79	25.3%	16	19	\$109.58	Doctoral or professional degree
Animal Breeders	26	22	-15.1%	-4	4	\$18.96	High school diploma or equivalent
Animal Control Workers	63	69	9.5%	6	14	\$29.87	High school diploma or equivalent



Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Animal Scientists	40	35	-12.5%	-5	18	\$37.87	Bachelor's degree
Animal Trainers	71	76	7.1%	5	28	\$25.71	High school diploma or equivalent
Anthropologists and Archeologists	40	47	17.6%	7	5	\$31.57	Master's degree
Appraisers and Assessors of Real Estate	161	184	14.3%	23	29	\$32.30	Bachelor's degree
Arbitrators, Mediators, and Conciliators	41	44	7.4%	3	-3	\$28.00	Bachelor's degree
Architects, Except Landscape and Naval	207	247	19.3%	40	45	\$43.26	Bachelor's degree
Architectural and Civil Drafters	492	507	3.0%	15	74	\$23.10	Associate's degree
Architectural and Engineering Managers	666	720	8.1%	54	219	\$69.63	Bachelor's degree
Art Directors	118	134	13.6%	16	25	\$37.66	Bachelor's degree
Artists and Related Workers, All Other	11	12	9.2%	1	-1	\$22.76	No formal educational credential
Assemblers and Fabricators, All Other	564	620	9.9%	56	130	\$13.63	High school diploma or equivalent
Athletic Trainers	86	96	11.6%	10	18	\$22.31	Bachelor's degree
Atmospheric and Space Scientists	12	15	24.5%	3	-3	\$48.37	Bachelor's degree
Audio and Video Equipment Technicians	273	296	8.4%	23	65	\$23.20	Postsecondary nondegree award
Audiologists	36	45	25.0%	9	10	\$40.93	Doctoral or professional degree
Audio-Visual and Multimedia Collections Specialists	57	61	7.0%	4	-4	\$20.92	Bachelor's degree
Automotive and Watercraft Service Attendants	572	710	24.1%	138	260	\$12.38	No formal educational credential
Automotive Body and Related Repairers	543	633	16.6%	90	139	\$24.30	High school diploma or equivalent
Automotive Glass Installers and Repairers	62	74	19.3%	12	10	\$18.82	High school diploma or equivalent
Automotive Service Technicians and Mechanics	3,176	3,549	11.7%	373	902	\$22.44	Postsecondary nondegree award
Avionics Technicians	21	22	4.7%	1	-1	\$38.61	Associate's degree
Baggage Porters and Bellhops	264	317	20.1%	53	61	\$10.51	High school diploma or equivalent
Bailiffs	13	16	23.4%	3	-3	\$32.77	High school diploma or equivalent
Bakers	1,139	1,302	14.3%	163	271	\$14.26	No formal educational credential
Barbers	29	38	31.4%	9	7	\$13.33	Postsecondary nondegree award
Bartenders	2,689	3,107	15.5%	418	1,103	\$11.86	No formal educational credential
Bicycle Repairers	148	165	11.5%	17	55	\$14.94	High school diploma or equivalent
Bill and Account Collectors	766	802	4.7%	36	206	\$21.93	High school diploma or equivalent
Billing and Posting Clerks	1,662	1,942	16.8%	280	383	\$20.85	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Biochemists and Biophysicists	43	84	94.3%	41	18	\$46.66	Doctoral or professional degree
Biological Scientists, All Other	217	215	-0.9%	-2	63	\$39.36	Bachelor's degree
Biological Technicians	354	436	23.2%	82	112	\$26.57	Bachelor's degree
Biomedical Engineers	201	224	11.4%	23	68	\$50.68	Bachelor's degree
Boilermakers	26	32	23.4%	6	5	\$40.03	High school diploma or equivalent
Bookkeeping, Accounting, and Auditing Clerks	7,107	6,951	-2.2%	-156	900	\$21.69	Some college, no degree
Brickmasons and Blockmasons	157	213	35.7%	56	20	\$29.35	High school diploma or equivalent
Broadcast Technicians	51	56	9.9%	5	14	\$21.72	Associate's degree
Brokerage Clerks	136	153	12.5%	17	37	\$29.59	High school diploma or equivalent
Budget Analysts	150	158	5.3%	8	39	\$38.07	Bachelor's degree
Building Cleaning Workers, All Other	52	57	9.6%	5	11	\$19.93	No formal educational credential
Bus and Truck Mechanics and Diesel Engine Specialists	739	904	22.3%	165	143	\$26.97	High school diploma or equivalent
Bus Drivers, School or Special Client	1,175	1,343	14.3%	168	169	\$16.34	High school diploma or equivalent
Bus Drivers, Transit and Intercity	1,144	1,222	6.8%	78	162	\$21.51	High school diploma or equivalent
Business Operations Specialists, All Other	3,050	3,328	9.1%	278	382	\$33.05	Bachelor's degree
Butchers and Meat Cutters	1,196	1,347	12.6%	151	254	\$14.88	No formal educational credential
Buyers and Purchasing Agents, Farm Products	124	133	7.2%	9	27	\$32.39	Bachelor's degree
Cabinetmakers and Bench Carpenters	436	452	3.7%	16	55	\$20.18	High school diploma or equivalent
Camera Operators, Television, Video, and Motion Picture	45	51	13.3%	6	5	\$16.05	Bachelor's degree
Captains, Mates, and Pilots of Water Vessels	60	47	-21.6%	-13	36	\$38.53	Postsecondary nondegree award
Cardiovascular Technologists and Technicians	205	196	-4.4%	-9	54	\$33.03	Associate's degree
Career/Technical Education Teachers, Middle School	22	24	9.3%	2	-2	\$23.45	Bachelor's degree
Career/Technical Education Teachers, Secondary School	113	123	8.8%	10	27	\$26.77	Bachelor's degree
Cargo and Freight Agents	184	239	29.9%	55	73	\$21.79	High school diploma or equivalent
Carpenters	5,279	5,831	10.5%	552	808	\$29.77	High school diploma or equivalent
Carpet Installers	99	109	10.1%	10	16	\$24.65	No formal educational credential
Cartographers and Photogrammetrists	48	61	27.1%	13	17	\$33.05	Bachelor's degree
Cashiers	17,416	19,165	10.0%	1,749	7,850	\$10.78	No formal educational credential
Cement Masons and Concrete Finishers	1,009	1,120	11.0%	111	179	\$23.83	No formal educational credential

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Chefs and Head Cooks	1,071	1,219	13.8%	148	173	\$19.90	High school diploma or equivalent
Chemical Engineers	63	90	42.7%	27	21	\$54.83	Bachelor's degree
Chemical Equipment Operators and Tenders	80	171	113.1%	91	42	\$22.15	High school diploma or equivalent
Chemical Plant and System Operators	69	110	59.8%	41	36	\$27.21	High school diploma or equivalent
Chemical Technicians	202	300	48.5%	98	78	\$23.82	Associate's degree
Chemists	523	683	30.6%	160	138	\$39.49	Bachelor's degree
Chief Executives	1,196	1,215	1.6%	19	214	\$74.43	Bachelor's degree
Child, Family, and School Social Workers	872	1,036	18.8%	164	238	\$22.56	Bachelor's degree
Childcare Workers	3,069	3,115	1.5%	46	1,118	\$13.70	High school diploma or equivalent
Chiropractors	110	111	0.9%	1	24	\$33.54	Doctoral or professional degree
Civil Engineering Technicians	442	478	8.1%	36	113	\$29.95	Associate's degree
Civil Engineers	1,044	1,162	11.3%	118	331	\$47.46	Bachelor's degree
Claims Adjusters, Examiners, and Investigators	824	727	-11.8%	-97	312	\$33.01	High school diploma or equivalent
Cleaners of Vehicles and Equipment	1,946	2,339	20.2%	393	757	\$11.02	No formal educational credential
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	217	240	10.6%	23	62	\$15.22	No formal educational credential
Clergy	188	210	11.7%	22	44	\$26.62	Bachelor's degree
Clinical, Counseling, and School Psychologists	969	1,040	7.3%	71	218	\$43.03	Doctoral or professional degree
Coaches and Scouts	1,128	1,194	5.9%	66	395	\$19.40	Bachelor's degree
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	173	196	13.3%	23	36	\$16.00	High school diploma or equivalent
Coil Winders, Tapers, and Finishers	13	17	31.1%	4	-4	\$14.70	High school diploma or equivalent
Coin, Vending, and Amusement Machine Servicers and Repairers	145	168	15.9%	23	22	\$16.97	High school diploma or equivalent
Combined Food Preparation and Serving Workers, Including Fast Food	13,701	16,707	21.9%	3,006	5,017	\$10.02	No formal educational credential
Commercial and Industrial Designers	84	94	11.9%	10	22	\$31.66	Bachelor's degree
Commercial Pilots	188	272	44.6%	84	59	\$50.69	High school diploma or equivalent
Community and Social Service Specialists, All Other	319	395	23.9%	76	73	\$23.31	Master's degree
Community Health Workers	268	333	24.3%	65	61	\$19.36	High school diploma or equivalent
Compensation and Benefits Managers	38	41	7.9%	3	12	\$52.96	Bachelor's degree
Compensation, Benefits, and Job Analysis Specialists	310	324	4.5%	14	80	\$32.87	Bachelor's degree
Compliance Officers	971	1,068	10.0%	97	145	\$35.53	Bachelor's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Computer and Information Research Scientists	54	62	14.9%	8	9	\$55.58	Doctoral or professional degree
Computer and Information Systems Managers	844	973	15.3%	129	108	\$60.64	Bachelor's degree
Computer Hardware Engineers	262	278	6.1%	16	57	\$57.01	Bachelor's degree
Computer Network Architects	197	227	15.3%	30	30	\$56.04	Bachelor's degree
Computer Network Support Specialists	360	408	13.3%	48	50	\$28.82	Associate's degree
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	50	63	26.2%	13	17	\$26.04	High school diploma or equivalent
Computer Occupations, All Other	357	396	10.9%	39	48	\$39.32	Bachelor's degree
Computer Operators	108	102	-5.6%	-6	6	\$21.38	High school diploma or equivalent
Computer Programmers	700	677	-3.3%	-23	195	\$44.23	Bachelor's degree
Computer Systems Analysts	1,388	1,562	12.5%	174	190	\$43.65	Bachelor's degree
Computer User Support Specialists	1,269	1,455	14.7%	186	176	\$28.49	Some college, no degree
Computer, Automated Teller, and Office Machine Repairers	276	271	-1.8%	-5	77	\$21.14	Some college, no degree
Computer-Controlled Machine Tool Operators, Metal and Plastic	159	206	29.5%	47	57	\$16.84	High school diploma or equivalent
Concierges	163	193	18.4%	30	36	\$16.72	High school diploma or equivalent
Conservation Scientists	105	113	7.6%	8	48	\$35.28	Bachelor's degree
Construction and Building Inspectors	486	543	11.7%	57	144	\$33.58	High school diploma or equivalent
Construction and Related Workers, All Other	186	206	10.7%	20	33	\$23.91	High school diploma or equivalent
Construction Laborers	4,338	5,199	19.8%	861	989	\$19.92	No formal educational credential
Construction Managers	1,113	1,220	9.6%	107	197	\$48.48	Bachelor's degree
Continuous Mining Machine Operators	27	19	-30.1%	-8	8	\$32.66	No formal educational credential
Control and Valve Installers and Repairers, Except Mechanical Door	125	128	2.4%	3	55	\$31.75	High school diploma or equivalent
Conveyor Operators and Tenders	79	91	15.2%	12	25	\$21.54	No formal educational credential
Cooks, All Other	98	109	11.2%	11	28	\$16.59	No formal educational credential
Cooks, Fast Food	3,239	3,144	-2.9%	-95	996	\$9.72	No formal educational credential
Cooks, Institution and Cafeteria	1,430	1,647	15.2%	217	416	\$14.92	No formal educational credential
Cooks, Restaurant	6,048	7,230	19.5%	1,182	1,786	\$12.71	No formal educational credential
Cooks, Short Order	736	781	6.1%	45	204	\$11.40	No formal educational credential

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Cooling and Freezing Equipment Operators and Tenders	62	81	30.5%	19	15	\$14.86	High school diploma or equivalent
Correctional Officers and Jailers	2,669	2,800	4.9%	131	756	\$44.15	High school diploma or equivalent
Correspondence Clerks	13	11	-15.0%	-2	2	\$18.98	High school diploma or equivalent
Cost Estimators	1,048	1,179	12.5%	131	322	\$32.04	Bachelor's degree
Costume Attendants	22	23	4.6%	1	10	\$24.57	High school diploma or equivalent
Counselors, All Other	147	170	15.7%	23	35	\$19.53	Master's degree
Counter and Rental Clerks	3,432	3,687	7.4%	255	890	\$12.90	No formal educational credential
Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	2,001	2,300	14.9%	299	1,313	\$11.49	No formal educational credential
Couriers and Messengers	279	316	13.3%	37	38	\$15.10	High school diploma or equivalent
Court Reporters	42	44	4.8%	2	11	\$31.32	Postsecondary nondegree award
Court, Municipal, and License Clerks	541	590	9.1%	49	35	\$22.56	High school diploma or equivalent
Crane and Tower Operators	89	106	19.2%	17	38	\$35.95	High school diploma or equivalent
Credit Analysts	226	241	6.6%	15	102	\$37.32	Bachelor's degree
Credit Authorizers, Checkers, and Clerks	71	72	1.4%	1	-1	\$21.68	High school diploma or equivalent
Credit Counselors	167	184	10.2%	17	29	\$21.10	Bachelor's degree
Crossing Guards	264	306	15.9%	42	51	\$17.87	No formal educational credential
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	129	131	1.5%	2	32	\$16.27	High school diploma or equivalent
Curators	46	56	21.6%	10	16	\$27.96	Master's degree
Customer Service Representatives	5,512	6,558	19.0%	1,046	1,500	\$18.88	High school diploma or equivalent
Cutters and Trimmers, Hand	31	31	0.0%	0	0	\$14.12	No formal educational credential
Cutting and Slicing Machine Setters, Operators, and Tenders	221	228	3.2%	7	53	\$14.94	High school diploma or equivalent
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	367	343	-6.5%	-24	74	\$16.65	High school diploma or equivalent
Dancers	35	40	14.3%	5	13	\$15.51	No formal educational credential
Data Entry Keyers	636	647	1.7%	11	94	\$15.20	High school diploma or equivalent
Database Administrators	369	400	8.4%	31	84	\$44.83	Bachelor's degree
Demonstrators and Product Promoters	1,755	1,973	12.4%	218	562	\$15.30	High school diploma or equivalent
Dental Assistants	2,365	2,511	6.2%	146	606	\$21.61	Postsecondary nondegree award

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Dental Hygienists	712	776	9.0%	64	123	\$46.06	Associate's degree
Dental Laboratory Technicians	249	228	-8.4%	-21	82	\$18.05	High school diploma or equivalent
Dentists, All Other Specialists	31	32	3.2%	1	-1	\$61.90	Doctoral or professional degree
Dentists, General	567	619	9.2%	52	122	\$70.80	Doctoral or professional degree
Designers, All Other	10	13	29.0%	3	-3	\$31.29	Bachelor's degree
Desktop Publishers	28	25	-10.6%	-3	3	\$22.67	Associate's degree
Detectives and Criminal Investigators	129	145	12.4%	16	33	\$38.98	High school diploma or equivalent
Diagnostic Medical Sonographers	283	297	5.0%	14	59	\$55.88	Associate's degree
Dietetic Technicians	184	195	6.0%	11	19	\$18.01	Associate's degree
Dietitians and Nutritionists	344	419	21.8%	75	30	\$37.13	Bachelor's degree
Dining Room and Cafeteria Attendants and Bartender Helpers	2,625	2,946	12.2%	321	1,408	\$10.63	No formal educational credential
Directors, Religious Activities and Education	117	131	12.0%	14	36	\$21.15	Bachelor's degree
Dishwashers	3,649	3,774	3.4%	125	1,622	\$10.22	No formal educational credential
Dispatchers, Except Police, Fire, and Ambulance	790	886	12.2%	96	211	\$19.91	High school diploma or equivalent
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	44	43	-2.3%	-1	1	\$12.41	No formal educational credential
Drafters, All Other	51	53	3.9%	2	-2	\$25.35	Associate's degree
Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	22	20	-9.2%	-2	2	\$17.78	High school diploma or equivalent
Driver/Sales Workers	2,052	2,387	16.3%	335	383	\$14.50	High school diploma or equivalent
Drywall and Ceiling Tile Installers	631	576	-8.7%	-55	157	\$29.81	No formal educational credential
Earth Drillers, Except Oil and Gas	82	86	4.9%	4	24	\$28.58	High school diploma or equivalent
Economists	58	67	15.5%	9	17	\$47.64	Master's degree
Editors	228	233	2.2%	5	91	\$31.45	Bachelor's degree
Education Administrators, All Other	285	292	2.5%	7	85	\$32.02	Bachelor's degree
Education Administrators, Elementary and Secondary School	857	915	6.8%	58	259	\$49.30	Master's degree
Education Administrators, Postsecondary	502	551	9.8%	49	153	\$46.37	Master's degree
Education Administrators, Preschool and Childcare Center/Program	333	343	3.0%	10	101	\$26.61	Bachelor's degree
Education, Training, and Library Workers, All Other	715	761	6.4%	46	71	\$18.12	Bachelor's degree
Educational, Guidance, School, and Vocational Counselors	1,040	1,136	9.2%	96	230	\$25.29	Master's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Electric Motor, Power Tool, and Related Repairers	73	80	9.6%	7	22	\$22.74	Postsecondary nondegree award
Electrical and Electronic Equipment Assemblers	401	447	11.5%	46	56	\$19.88	High school diploma or equivalent
Electrical and Electronics Drafters	112	121	8.1%	9	16	\$30.70	Associate's degree
Electrical and Electronics Engineering Technicians	345	396	14.8%	51	92	\$33.62	Associate's degree
Electrical and Electronics Installers and Repairers, Transportation Equipment	62	66	6.4%	4	11	\$35.43	Postsecondary nondegree award
Electrical and Electronics Repairers, Commercial and Industrial Equipment	309	323	4.5%	14	56	\$28.26	Postsecondary nondegree award
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	36	54	50.6%	18	8	\$42.59	Postsecondary nondegree award
Electrical Engineers	348	413	18.7%	65	84	\$49.97	Bachelor's degree
Electrical Power-Line Installers and Repairers	455	663	45.7%	208	230	\$47.52	High school diploma or equivalent
Electricians	1,914	2,009	5.0%	95	453	\$35.51	High school diploma or equivalent
Electromechanical Equipment Assemblers	95	101	6.3%	6	13	\$14.61	High school diploma or equivalent
Electro-Mechanical Technicians	32	35	9.3%	3	9	\$26.42	Associate's degree
Electronic Equipment Installers and Repairers, Motor Vehicles	98	66	-32.8%	-32	46	\$15.61	Postsecondary nondegree award
Electronic Home Entertainment Equipment Installers and Repairers	71	69	-2.8%	-2	17	\$19.84	Postsecondary nondegree award
Electronics Engineers, Except Computer	576	613	6.4%	37	132	\$49.30	Bachelor's degree
Elementary School Teachers, Except Special Education	7,226	7,633	5.6%	407	1,650	\$32.34	Bachelor's degree
Eligibility Interviewers, Government Programs	371	404	8.9%	33	43	\$24.38	High school diploma or equivalent
Embalmers	18	17	-5.7%	-1	1	\$23.79	Postsecondary nondegree award
Emergency Management Directors	25	27	8.1%	2	-2	\$41.68	Bachelor's degree
Emergency Medical Technicians and Paramedics	1,321	2,112	59.9%	791	296	\$17.50	Postsecondary nondegree award
Engine and Other Machine Assemblers	47	50	6.4%	3	11	\$23.81	High school diploma or equivalent
Engineering Technicians, Except Drafters, All Other	264	282	6.8%	18	69	\$29.61	Associate's degree
Engineers, All Other	276	307	11.2%	31	59	\$48.08	Bachelor's degree
Entertainers and Performers, Sports and Related Workers, All Other	19	26	36.3%	7	8	\$18.00	No formal educational credential
Entertainment Attendants and Related Workers, All Other	42	53	26.5%	11	21	\$12.62	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Environmental Engineering Technicians	112	124	10.8%	12	29	\$24.84	Associate's degree
Environmental Engineers	237	267	12.7%	30	72	\$47.18	Bachelor's degree
Environmental Science and Protection Technicians, Including Health	249	277	11.3%	28	112	\$24.26	Associate's degree
Environmental Scientists and Specialists, Including Health	576	639	10.9%	63	189	\$39.27	Bachelor's degree
Epidemiologists	17	19	11.9%	2	-2	\$43.27	Master's degree
Etchers and Engravers	23	23	0.0%	0	0	\$16.09	High school diploma or equivalent
Excavating and Loading Machine and Dragline Operators	125	152	21.5%	27	16	\$32.54	High school diploma or equivalent
Executive Secretaries and Executive Administrative Assistants	2,967	2,912	-1.9%	-55	385	\$28.53	High school diploma or equivalent
Exercise Physiologists	13	15	15.3%	2	-2	\$25.93	Bachelor's degree
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	78	73	-6.4%	-5	26	\$18.55	High school diploma or equivalent
Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	35	33	-5.7%	-2	2	\$15.38	High school diploma or equivalent
Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	248	258	4.0%	10	110	\$13.13	High school diploma or equivalent
Family and General Practitioners	484	555	14.7%	71	148	\$102.14	Doctoral or professional degree
Farm Equipment Mechanics and Service Technicians	93	104	11.9%	11	26	\$21.04	High school diploma or equivalent
Farm Labor Contractors	14	17	22.1%	3	-3	\$23.15	No formal educational credential
Farmers, Ranchers, and Other Agricultural Managers	818	632	-22.7%	-186	306	\$37.66	High school diploma or equivalent
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	9,835	9,358	-4.8%	-477	3,105	\$11.24	No formal educational credential
Farmworkers, Farm, Ranch, and Aquacultural Animals	676	567	-16.1%	-109	275	\$15.01	No formal educational credential
Fashion Designers	28	32	14.5%	4	8	\$27.79	Bachelor's degree
Fence Erectors	198	242	22.2%	44	46	\$17.98	No formal educational credential
Fiberglass Laminators and Fabricators	18	17	-5.6%	-1	1	\$15.58	High school diploma or equivalent
File Clerks	597	587	-1.7%	-10	133	\$13.31	High school diploma or equivalent
Film and Video Editors	73	57	-21.9%	-16	30	\$33.12	Bachelor's degree
Financial Analysts	753	829	10.1%	76	163	\$41.46	Bachelor's degree
Financial Clerks, All Other	87	95	9.2%	8	25	\$19.58	High school diploma or equivalent



Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Financial Examiners	36	45	25.1%	9	10	\$44.97	Bachelor's degree
Financial Managers	2,326	2,546	9.5%	220	578	\$56.35	Bachelor's degree
Financial Specialists, All Other	311	341	9.6%	30	33	\$29.74	Bachelor's degree
Fine Artists, Including Painters, Sculptors, and Illustrators	83	108	30.3%	25	21	\$20.74	Bachelor's degree
Fire Inspectors and Investigators	36	42	16.5%	6	11	\$47.41	Postsecondary nondegree award
Firefighters	1,635	1,798	10.0%	163	501	\$25.26	Postsecondary nondegree award
First-Line Supervisors of Construction Trades and Extraction Workers	2,015	2,335	15.9%	320	201	\$38.94	High school diploma or equivalent
First-Line Supervisors of Correctional Officers	363	379	4.4%	16	108	\$53.87	High school diploma or equivalent
First-Line Supervisors of Farming, Fishing, and Forestry Workers	708	656	-7.3%	-52	219	\$20.52	High school diploma or equivalent
First-Line Supervisors of Fire Fighting and Prevention Workers	182	204	12.1%	22	92	\$53.82	Postsecondary nondegree award
First-Line Supervisors of Food Preparation and Serving Workers	3,858	4,600	19.2%	742	1,279	\$16.29	High school diploma or equivalent
First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	739	827	11.9%	88	253	\$22.62	High school diploma or equivalent
First-Line Supervisors of Housekeeping and Janitorial Workers	837	933	11.5%	96	147	\$18.46	High school diploma or equivalent
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	608	654	7.6%	46	116	\$19.39	High school diploma or equivalent
First-Line Supervisors of Mechanics, Installers, and Repairers	1,750	1,992	13.8%	242	376	\$36.82	High school diploma or equivalent
First-Line Supervisors of Non- Retail Sales Workers	847	982	15.9%	135	106	\$28.15	High school diploma or equivalent
First-Line Supervisors of Office and Administrative Support Workers	5,831	6,577	12.8%	746	944	\$27.26	High school diploma or equivalent
First-Line Supervisors of Personal Service Workers	870	1,074	23.4%	204	192	\$18.33	High school diploma or equivalent
First-Line Supervisors of Police and Detectives	202	229	13.4%	27	77	\$60.94	High school diploma or equivalent
First-Line Supervisors of Production and Operating Workers	2,057	2,355	14.5%	298	353	\$30.42	High school diploma or equivalent
First-Line Supervisors of Protective Service Workers, All Other	159	185	16.4%	26	44	\$31.04	High school diploma or equivalent
First-Line Supervisors of Retail Sales Workers	5,193	5,891	13.4%	698	1,247	\$19.69	High school diploma or equivalent
First-Line Supervisors of Transportation and Material-	795	886	11.4%	91	271	\$26.29	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Moving Machine and Vehicle Operators							
Fish and Game Wardens	24	25	4.2%	1	-1	\$49.33	Bachelor's degree
Fishers and Related Fishing Workers	38	38	0.0%	0	16	\$15.82	No formal educational credential
Fitness Trainers and Aerobics Instructors	2,039	2,127	4.3%	88	397	\$27.06	High school diploma or equivalent
Flight Attendants	11	22	95.9%	11	3		High school diploma or equivalent
Floor Layers, Except Carpet, Wood, and Hard Tiles	67	80	19.5%	13	11	\$23.25	No formal educational credential
Floor Sanders and Finishers	12	15	25.1%	3	-3	\$22.09	No formal educational credential
Floral Designers	138	145	5.1%	7	43	\$12.19	High school diploma or equivalent
Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	132	162	22.7%	30	31	\$14.17	No formal educational credential
Food Batchmakers	951	1,139	19.8%	188	230	\$13.17	High school diploma or equivalent
Food Cooking Machine Operators and Tenders	224	279	24.5%	55	54	\$15.05	High school diploma or equivalent
Food Preparation and Serving Related Workers, All Other	544	608	11.8%	64	291	\$14.92	No formal educational credential
Food Preparation Workers	6,008	6,785	12.9%	777	1,806	\$10.50	No formal educational credential
Food Processing Workers, All Other	143	186	30.0%	43	36	\$12.21	No formal educational credential
Food Scientists and Technologists	145	168	15.9%	23	56	\$33.36	Bachelor's degree
Food Servers, Nonrestaurant	1,160	1,382	19.1%	222	318	\$12.51	No formal educational credential
Food Service Managers	1,399	1,573	12.4%	174	303	\$23.55	High school diploma or equivalent
Forensic Science Technicians	37	49	32.4%	12	18	\$33.37	Bachelor's degree
Forest and Conservation Technicians	210	205	-2.4%	-5	94	\$14.91	Associate's degree
Forest and Conservation Workers	141	146	3.6%	5	35	\$10.50	High school diploma or equivalent
Forest Fire Inspectors and Prevention Specialists	24	26	8.4%	2	-2	\$49.40	High school diploma or equivalent
Foresters	40	42	5.0%	2	19	\$36.71	Bachelor's degree
Forging Machine Setters, Operators, and Tenders, Metal and Plastic	19	18	-5.3%	-1	1	\$16.96	High school diploma or equivalent
Fundraisers	162	196	20.9%	34	25	\$26.26	Bachelor's degree
Funeral Attendants	117	117	0.0%	0	39	\$13.41	High school diploma or equivalent
Funeral Service Managers	24	26	8.2%	2	-2	\$31.89	Associate's degree
Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	42	35	-16.6%	-7	18	\$18.33	High school diploma or equivalent
Furniture Finishers	25	28	12.0%	3	-3	\$16.46	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Gaming and Sports Book Writers and Runners	11	15	34.8%	4	-4	\$18.14	High school diploma or equivalent
Gaming Cage Workers	252	268	6.3%	16	51	\$12.42	High school diploma or equivalent
Gaming Change Persons and Booth Cashiers	167	172	3.0%	5	74	\$12.58	High school diploma or equivalent
Gaming Dealers	426	448	5.2%	22	119	\$10.31	High school diploma or equivalent
Gaming Managers	33	35	6.0%	2	-2	\$33.01	High school diploma or equivalent
Gaming Service Workers, All Other	81	87	7.4%	6	23	\$13.73	High school diploma or equivalent
Gaming Supervisors	73	82	12.4%	9	27	\$25.45	High school diploma or equivalent
Gaming Surveillance Officers and Gaming Investigators	39	38	-2.6%	-1	1	\$18.30	High school diploma or equivalent
Gas Plant Operators	47	50	6.4%	3	23	\$41.19	High school diploma or equivalent
General and Operations Managers	10,600	11,835	11.7%	1,235	2,859	\$47.95	Bachelor's degree
Genetic Counselors	15	16	6.8%	1	-1	\$35.32	Master's degree
Geological and Petroleum Technicians	21	27	28.9%	6	9	\$28.55	Associate's degree
Geoscientists, Except Hydrologists and Geographers	169	186	10.1%	17	56	\$43.19	Bachelor's degree
Glaziers	364	447	22.8%	83	59	\$23.55	High school diploma or equivalent
Graders and Sorters, Agricultural Products	358	344	-3.9%	-14	77	\$11.49	No formal educational credential
Graphic Designers	1,011	1,077	6.5%	66	253	\$26.21	Bachelor's degree
Grinding and Polishing Workers, Hand	86	83	-3.5%	-3	25	\$12.85	No formal educational credential
Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	109	100	-8.3%	-9	54	\$15.71	High school diploma or equivalent
Grounds Maintenance Workers, All Other	64	69	7.8%	5	13	\$15.41	No formal educational credential
Hairdressers, Hairstylists, and Cosmetologists	1,046	1,291	23.4%	245	310	\$11.27	Postsecondary nondegree award
Hazardous Materials Removal Workers	138	175	26.9%	37	36	\$17.58	High school diploma or equivalent
Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	69	80	15.9%	11	22	\$41.18	Bachelor's degree
Health Diagnosing and Treating Practitioners, All Other	162	168	3.7%	6	40	\$36.33	Master's degree
Health Educators	328	379	15.5%	51	70	\$30.37	Bachelor's degree
Health Technologists and Technicians, All Other	671	964	43.7%	293	86	\$22.96	High school diploma or equivalent
Healthcare Practitioners and Technical Workers, All Other	199	216	8.6%	17	42	\$30.22	Postsecondary nondegree award
Healthcare Social Workers	607	825	35.9%	218	183	\$32.34	Master's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Healthcare Support Workers, All Other	430	450	4.7%	20	93	\$22.78	High school diploma or equivalent
Hearing Aid Specialists	29	36	24.4%	7	3	\$27.11	High school diploma or equivalent
Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	10	12	19.0%	2	-2	\$17.72	High school diploma or equivalent
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	714	885	23.9%	171	123	\$24.62	Postsecondary nondegree award
Heavy and Tractor-Trailer Truck Drivers	4,360	4,987	14.4%	627	800	\$20.94	Postsecondary nondegree award
Helpers, Construction Trades, All Other	94	109	15.9%	15	13	\$17.22	No formal educational credential
Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	196	239	21.9%	43	31	\$16.90	No formal educational credential
Helpers--Carpenters	170	197	15.9%	27	31	\$18.00	No formal educational credential
Helpers--Electricians	133	155	16.5%	22	25	\$17.59	High school diploma or equivalent
Helpers--Extraction Workers	26	27	3.8%	1	-1	\$18.64	High school diploma or equivalent
Helpers--Installation, Maintenance, and Repair Workers	485	559	15.3%	74	168	\$14.93	High school diploma or equivalent
Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	77	94	22.0%	17	13	\$16.14	No formal educational credential
Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	149	180	20.8%	31	22	\$14.56	High school diploma or equivalent
Helpers--Production Workers	1,565	1,668	6.6%	103	539	\$13.53	No formal educational credential
Helpers--Roofers	27	31	14.9%	4	6	\$18.06	No formal educational credential
Highway Maintenance Workers	228	267	17.1%	39	66	\$23.56	High school diploma or equivalent
Home Appliance Repairers	73	86	17.9%	13	22	\$20.27	High school diploma or equivalent
Home Health Aides	2,138	3,477	62.6%	1,339	692	\$11.20	No formal educational credential
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1,492	1,700	13.9%	208	1,148	\$9.93	No formal educational credential
Hotel, Motel, and Resort Desk Clerks	1,663	2,006	20.6%	343	998	\$12.64	High school diploma or equivalent
Human Resources Assistants, Except Payroll and Timekeeping	476	501	5.3%	25	57	\$19.50	Associate's degree
Human Resources Managers	480	535	11.4%	55	149	\$51.29	Bachelor's degree
Human Resources Specialists	1,798	1,923	7.0%	125	454	\$32.01	Bachelor's degree
Hunters and Trappers	11	11	0.0%	0	0	\$22.71	No formal educational credential
Hydrologists	27	29	7.5%	2	9	\$50.66	Bachelor's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Industrial Engineering Technicians	150	201	33.9%	51	44	\$27.39	Associate's degree
Industrial Engineers	666	764	14.7%	98	218	\$45.37	Bachelor's degree
Industrial Machinery Mechanics	1,062	1,421	33.8%	359	330	\$28.38	High school diploma or equivalent
Industrial Production Managers	947	1,048	10.7%	101	291	\$46.09	Bachelor's degree
Industrial Truck and Tractor Operators	1,875	2,132	13.7%	257	504	\$16.41	No formal educational credential
Information and Record Clerks, All Other	785	812	3.4%	27	212	\$20.73	High school diploma or equivalent
Information Security Analysts	149	169	13.4%	20	21	\$43.45	Bachelor's degree
Inspectors, Testers, Sorters, Samplers, and Weighers	1,454	1,792	23.2%	338	417	\$18.07	High school diploma or equivalent
Installation, Maintenance, and Repair Workers, All Other	1,056	1,108	4.9%	52	167	\$18.78	High school diploma or equivalent
Instructional Coordinators	730	779	6.7%	49	73	\$32.03	Master's degree
Insulation Workers, Floor, Ceiling, and Wall	44	51	15.8%	7	18	\$23.38	No formal educational credential
Insulation Workers, Mechanical	27	36	33.7%	9	12	\$24.34	High school diploma or equivalent
Insurance Appraisers, Auto Damage	42	25	-40.8%	-17	17	\$35.55	Postsecondary nondegree award
Insurance Claims and Policy Processing Clerks	1,212	1,142	-5.8%	-70	424	\$19.18	High school diploma or equivalent
Insurance Sales Agents	973	1,108	13.9%	135	331	\$27.11	High school diploma or equivalent
Insurance Underwriters	120	104	-13.3%	-16	42	\$31.42	Bachelor's degree
Interior Designers	146	167	14.4%	21	39	\$28.46	Bachelor's degree
Internists, General	238	259	8.8%	21	68	\$111.79	Doctoral or professional degree
Interpreters and Translators	179	239	33.6%	60	35	\$19.71	Bachelor's degree
Interviewers, Except Eligibility and Loan	471	504	7.0%	33	112	\$20.73	High school diploma or equivalent
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	9,331	10,189	9.2%	858	1,970	\$13.26	No formal educational credential
Jewelers and Precious Stone and Metal Workers	64	60	-6.3%	-4	20	\$20.75	High school diploma or equivalent
Judges, Magistrate Judges, and Magistrates	56	60	7.1%	4	9	\$76.69	Doctoral or professional degree
Judicial Law Clerks	51	51	0.0%	0	12	\$22.95	Doctoral or professional degree
Kindergarten Teachers, Except Special Education	771	813	5.5%	42	233	\$29.89	Bachelor's degree
Labor Relations Specialists	115	114	-0.9%	-1	39	\$39.04	Bachelor's degree
Laborers and Freight, Stock, and Material Movers, Hand	8,340	9,351	12.1%	1,011	2,643	\$13.09	No formal educational credential
Landscape Architects	314	328	4.5%	14	57	\$27.96	Bachelor's degree
Landscaping and Groundskeeping Workers	5,862	6,302	7.5%	440	1,168	\$15.16	No formal educational credential

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	56	54	-3.6%	-2	18	\$18.09	High school diploma or equivalent
Laundry and Dry-Cleaning Workers	698	836	19.8%	138	112	\$11.74	No formal educational credential
Lawyers	1,153	1,303	13.0%	150	179	\$66.83	Doctoral or professional degree
Layout Workers, Metal and Plastic	14	13	-7.1%	-1	1	\$20.29	High school diploma or equivalent
Legal Secretaries	580	572	-1.4%	-8	85	\$24.09	High school diploma or equivalent
Legal Support Workers, All Other	87	93	6.9%	6	20	\$23.88	High school diploma or equivalent
Legislators	190	200	5.3%	10	43	\$20.27	Bachelor's degree
Librarians	374	396	5.9%	22	72	\$30.98	Master's degree
Library Assistants, Clerical	329	359	9.1%	30	108	\$15.14	High school diploma or equivalent
Library Technicians	485	518	6.8%	33	241	\$19.99	Postsecondary nondegree award
Licensed Practical and Licensed Vocational Nurses	2,618	3,193	22.0%	575	849	\$26.54	Postsecondary nondegree award
Life Scientists, All Other	20	22	9.8%	2	-2	\$42.28	Bachelor's degree
Life, Physical, and Social Science Technicians, All Other	133	162	21.7%	29	63	\$23.76	Associate's degree
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	623	694	11.4%	71	93	\$13.71	No formal educational credential
Light Truck or Delivery Services Drivers	3,318	3,708	11.8%	390	602	\$16.47	High school diploma or equivalent
Loan Interviewers and Clerks	342	384	12.3%	42	65	\$19.75	High school diploma or equivalent
Loan Officers	844	917	8.6%	73	162	\$35.74	Bachelor's degree
Locker Room, Coatroom, and Dressing Room Attendants	62	72	16.1%	10	28	\$12.95	High school diploma or equivalent
Locksmiths and Safe Repairers	94	84	-10.6%	-10	56	\$19.91	High school diploma or equivalent
Lodging Managers	288	341	18.4%	53	67	\$26.63	High school diploma or equivalent
Logging Equipment Operators	164	153	-6.7%	-11	60	\$18.39	High school diploma or equivalent
Logging Workers, All Other	55	39	-29.0%	-16	28	\$14.72	High school diploma or equivalent
Logisticians	312	355	13.8%	43	47	\$38.41	Bachelor's degree
Machine Feeders and Offbearers	236	249	5.5%	13	61	\$15.21	No formal educational credential
Machinists	651	789	21.2%	138	212	\$30.05	High school diploma or equivalent
Magnetic Resonance Imaging Technologists	184	164	-10.9%	-20	53	\$34.95	Associate's degree
Maids and Housekeeping Cleaners	5,621	6,497	15.6%	876	1,517	\$11.65	No formal educational credential
Mail Clerks and Mail Machine Operators, Except Postal Service	107	110	2.8%	3	25	\$16.14	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Maintenance and Repair Workers, General	5,670	6,355	12.1%	685	1,587	\$20.94	High school diploma or equivalent
Maintenance Workers, Machinery	232	306	31.9%	74	44	\$21.83	High school diploma or equivalent
Management Analysts	2,241	2,472	10.3%	231	335	\$41.11	Bachelor's degree
Managers, All Other	1,074	1,190	10.8%	116	251	\$58.91	Bachelor's degree
Manicurists and Pedicurists	679	775	14.1%	96	59	\$10.18	Postsecondary nondegree award
Market Research Analysts and Marketing Specialists	2,172	2,607	20.0%	435	288	\$37.40	Bachelor's degree
Marketing Managers	824	928	12.6%	104	208	\$68.51	Bachelor's degree
Marriage and Family Therapists	358	406	13.4%	48	82	\$32.29	Master's degree
Massage Therapists	1,344	1,598	18.9%	254	110	\$21.83	Postsecondary nondegree award
Material Moving Workers, All Other	78	83	6.4%	5	27	\$14.53	No formal educational credential
Materials Engineers	43	52	20.8%	9	16	\$52.66	Bachelor's degree
Materials Scientists	13	16	23.3%	3	-3	\$50.92	Bachelor's degree
Meat, Poultry, and Fish Cutters and Trimmers	251	243	-3.2%	-8	82	\$11.95	No formal educational credential
Mechanical Door Repairers	75	79	5.3%	4	32	\$21.74	High school diploma or equivalent
Mechanical Drafters	125	129	3.2%	4	17	\$29.19	Associate's degree
Mechanical Engineering Technicians	87	103	18.5%	16	23	\$29.04	Associate's degree
Mechanical Engineers	480	570	18.7%	90	168	\$43.98	Bachelor's degree
Media and Communication Equipment Workers, All Other	21	25	18.8%	4	-4	\$31.97	High school diploma or equivalent
Media and Communication Workers, All Other	137	127	-7.3%	-10	37	\$26.47	High school diploma or equivalent
Medical and Clinical Laboratory Technicians	730	805	10.3%	75	191	\$23.90	Associate's degree
Medical and Clinical Laboratory Technologists	288	324	12.5%	36	80	\$40.01	Bachelor's degree
Medical and Health Services Managers	1,590	1,809	13.8%	219	437	\$62.38	Bachelor's degree
Medical Appliance Technicians	53	51	-3.8%	-2	17	\$21.52	High school diploma or equivalent
Medical Assistants	3,534	4,295	21.5%	761	836	\$18.55	Postsecondary nondegree award
Medical Equipment Preparers	334	341	2.1%	7	80	\$22.18	High school diploma or equivalent
Medical Equipment Repairers	132	163	23.4%	31	26	\$26.76	Associate's degree
Medical Records and Health Information Technicians	741	819	10.5%	78	176	\$20.45	Postsecondary nondegree award
Medical Scientists, Except Epidemiologists	533	617	15.8%	84	180	\$52.68	Doctoral or professional degree
Medical Secretaries	2,562	2,874	12.2%	312	289	\$21.37	High school diploma or equivalent
Medical Transcriptionists	132	131	-0.8%	-1	37	\$23.03	Postsecondary nondegree award

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Meeting, Convention, and Event Planners	489	560	14.5%	71	63	\$25.69	Bachelor's degree
Mental Health and Substance Abuse Social Workers	665	768	15.5%	103	178	\$24.00	Bachelor's degree
Mental Health Counselors	487	600	23.2%	113	118	\$23.40	Master's degree
Merchandise Displayers and Window Trimmers	357	435	21.8%	78	96	\$15.42	High school diploma or equivalent
Metal Workers and Plastic Workers, All Other	77	71	-7.8%	-6	19	\$15.38	High school diploma or equivalent
Meter Readers, Utilities	223	197	-11.6%	-26	64	\$24.59	High school diploma or equivalent
Microbiologists	129	171	32.5%	42	42	\$39.03	Bachelor's degree
Middle School Teachers, Except Special and Career/Technical Education	1,733	1,874	8.1%	141	401	\$30.96	Bachelor's degree
Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	35	32	-8.7%	-3	3	\$19.12	High school diploma or equivalent
Millwrights	78	85	8.9%	7	19	\$27.71	High school diploma or equivalent
Mixing and Blending Machine Setters, Operators, and Tenders	606	782	29.0%	176	154	\$15.71	High school diploma or equivalent
Mobile Heavy Equipment Mechanics, Except Engines	339	376	10.9%	37	87	\$30.56	High school diploma or equivalent
Models	12	15	24.7%	3	-3	\$18.24	No formal educational credential
Molders, Shapers, and Casters, Except Metal and Plastic	229	148	-35.3%	-81	142	\$16.54	High school diploma or equivalent
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	153	132	-13.7%	-21	45	\$13.91	High school diploma or equivalent
Morticians, Undertakers, and Funeral Directors	51	58	13.6%	7	17	\$21.43	Associate's degree
Motion Picture Projectionists	24	19	-20.9%	-5	5	\$13.95	No formal educational credential
Motor Vehicle Operators, All Other	438	457	4.3%	19	141	\$19.23	No formal educational credential
Motorboat Mechanics and Service Technicians	52	53	1.9%	1	13	\$20.43	High school diploma or equivalent
Motorcycle Mechanics	86	77	-10.5%	-9	31	\$21.85	Postsecondary nondegree award
Multimedia Artists and Animators	128	126	-1.6%	-2	34	\$29.99	Bachelor's degree
Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	78	91	16.8%	13	16	\$17.96	High school diploma or equivalent
Museum Technicians and Conservators	21	27	28.5%	6	7	\$21.12	Bachelor's degree
Music Directors and Composers	127	131	3.1%	4	41	\$30.99	Bachelor's degree
Musical Instrument Repairers and Tuners	26	26	0.0%	0	0	\$22.60	High school diploma or equivalent



Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Musicians and Singers	211	203	-3.8%	-8	88	\$37.88	No formal educational credential
Natural Sciences Managers	282	337	19.5%	55	66	\$71.58	Bachelor's degree
Network and Computer Systems Administrators	1,179	1,274	8.1%	95	159	\$40.57	Bachelor's degree
New Accounts Clerks	342	359	5.0%	17	90	\$17.68	High school diploma or equivalent
Nonfarm Animal Caretakers	1,422	1,591	11.9%	169	319	\$14.23	High school diploma or equivalent
Nuclear Medicine Technologists	82	66	-19.5%	-16	30	\$53.43	Associate's degree
Nurse Anesthetists	103	125	21.3%	22	27	\$113.68	Master's degree
Nurse Midwives	46	54	17.6%	8	12	\$62.88	Master's degree
Nurse Practitioners	556	761	36.9%	205	160	\$59.28	Master's degree
Nursing Assistants	3,419	4,462	30.5%	1,043	917	\$14.62	Postsecondary nondegree award
Obstetricians and Gynecologists	70	84	20.0%	14	22	\$98.69	Doctoral or professional degree
Occupational Health and Safety Specialists	183	206	12.6%	23	39	\$40.25	Bachelor's degree
Occupational Health and Safety Technicians	35	42	19.9%	7	7	\$25.19	High school diploma or equivalent
Occupational Therapists	322	385	19.5%	63	70	\$44.81	Master's degree
Occupational Therapy Aides	27	31	14.8%	4	9	\$20.69	High school diploma or equivalent
Occupational Therapy Assistants	51	75	46.8%	24	19	\$38.09	Associate's degree
Office and Administrative Support Workers, All Other	1,349	1,421	5.3%	72	373	\$11.55	High school diploma or equivalent
Office Clerks, General	10,211	11,186	9.5%	975	2,318	\$17.45	High school diploma or equivalent
Office Machine Operators, Except Computer	169	158	-6.5%	-11	49	\$15.45	High school diploma or equivalent
Operating Engineers and Other Construction Equipment Operators	1,458	1,700	16.6%	242	271	\$31.81	High school diploma or equivalent
Operations Research Analysts	242	294	21.5%	52	48	\$44.42	Bachelor's degree
Ophthalmic Laboratory Technicians	73	84	15.2%	11	19	\$17.33	High school diploma or equivalent
Ophthalmic Medical Technicians	123	153	24.4%	30	14	\$16.84	Postsecondary nondegree award
Opticians, Dispensing	249	323	29.7%	74	78	\$22.84	High school diploma or equivalent
Optometrists	158	195	23.4%	37	64	\$58.10	Doctoral or professional degree
Oral and Maxillofacial Surgeons	24	24	0.0%	0	0	\$105.55	Doctoral or professional degree
Order Clerks	868	900	3.7%	32	242	\$17.18	High school diploma or equivalent
Orderlies	113	116	2.7%	3	29	\$19.78	High school diploma or equivalent
Orthodontists	31	33	6.5%	2	-2	\$98.89	Doctoral or professional degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Orthotists and Prosthetists	16	18	12.8%	2	-2	\$30.14	Master's degree
Outdoor Power Equipment and Other Small Engine Mechanics	111	117	5.4%	6	29	\$17.67	High school diploma or equivalent
Packaging and Filling Machine Operators and Tenders	3,165	3,896	23.1%	731	1,288	\$14.02	High school diploma or equivalent
Packers and Packagers, Hand	3,228	3,546	9.9%	318	909	\$10.66	No formal educational credential
Painters, Construction and Maintenance	1,760	2,110	19.9%	350	334	\$23.10	No formal educational credential
Painters, Transportation Equipment	206	229	11.2%	23	42	\$21.77	High school diploma or equivalent
Painting, Coating, and Decorating Workers	27	30	11.1%	3	-3	\$17.26	No formal educational credential
Paper Goods Machine Setters, Operators, and Tenders	38	44	15.8%	6	7	\$16.58	High school diploma or equivalent
Paperhangers	12	15	24.3%	3	-3	\$20.48	No formal educational credential
Paralegals and Legal Assistants	672	752	11.9%	80	158	\$28.05	Associate's degree
Parking Enforcement Workers	34	30	-11.7%	-4	4	\$31.87	High school diploma or equivalent
Parking Lot Attendants	273	331	21.3%	58	175	\$10.37	No formal educational credential
Parts Salespersons	780	862	10.5%	82	185	\$14.97	No formal educational credential
Paving, Surfacing, and Tamping Equipment Operators	150	188	25.3%	38	45	\$27.29	High school diploma or equivalent
Payroll and Timekeeping Clerks	915	913	-0.2%	-2	258	\$21.93	High school diploma or equivalent
Pediatricians, General	130	143	10.0%	13	38	\$97.15	Doctoral or professional degree
Personal Care Aides	8,579	12,603	46.9%	4,024	922	\$11.34	No formal educational credential
Personal Care and Service Workers, All Other	176	204	15.9%	28	43	\$13.40	High school diploma or equivalent
Personal Financial Advisors	986	1,187	20.4%	201	284	\$44.74	Bachelor's degree
Pest Control Workers	312	333	6.7%	21	88	\$19.09	High school diploma or equivalent
Pesticide Handlers, Sprayers, and Applicators, Vegetation	117	138	17.9%	21	23	\$18.52	High school diploma or equivalent
Petroleum Engineers	17	22	29.6%	5	5	\$56.66	Bachelor's degree
Petroleum Pump System Operators, Refinery Operators, and Gaugers	123	112	-8.9%	-11	58	\$38.44	High school diploma or equivalent
Pharmacists	1,037	1,016	-2.0%	-21	280	\$68.41	Doctoral or professional degree
Pharmacy Aides	348	320	-8.1%	-28	104	\$15.06	High school diploma or equivalent
Pharmacy Technicians	1,259	1,294	2.8%	35	161	\$20.48	High school diploma or equivalent
Phlebotomists	463	525	13.4%	62	106	\$19.60	Postsecondary nondegree award
Photographers	232	341	47.1%	109	94	\$16.67	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Photographic Process Workers and Processing Machine Operators	208	170	-18.3%	-38	76	\$14.54	High school diploma or equivalent
Physical Scientists, All Other	31	33	6.5%	2	-2	\$55.82	Bachelor's degree
Physical Therapist Aides	245	276	12.7%	31	78	\$15.23	High school diploma or equivalent
Physical Therapist Assistants	173	221	27.8%	48	59	\$32.06	Associate's degree
Physical Therapists	937	1,041	11.1%	104	270	\$48.02	Doctoral or professional degree
Physician Assistants	356	485	36.2%	129	97	\$52.69	Master's degree
Physicians and Surgeons, All Other	592	741	25.2%	149	183	\$89.48	Doctoral or professional degree
Physicists	34	38	11.7%	4	7	\$62.39	Doctoral or professional degree
Pile-Driver Operators	21	23	9.5%	2	-2	\$39.75	High school diploma or equivalent
Pipelayers	160	177	10.6%	17	24	\$27.94	No formal educational credential
Plant and System Operators, All Other	44	43	-2.3%	-1	20	\$33.21	High school diploma or equivalent
Plasterers and Stucco Masons	165	154	-6.6%	-11	32	\$22.90	No formal educational credential
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	65	71	9.3%	6	19	\$16.39	High school diploma or equivalent
Plumbers, Pipefitters, and Steamfitters	1,417	1,625	14.7%	208	219	\$27.65	High school diploma or equivalent
Podiatrists	27	29	7.4%	2	-2	\$56.74	Doctoral or professional degree
Police and Sheriff's Patrol Officers	2,005	2,220	10.7%	215	701	\$48.02	High school diploma or equivalent
Police, Fire, and Ambulance Dispatchers	419	459	9.5%	40	113	\$27.27	High school diploma or equivalent
Postal Service Clerks	344	277	-19.5%	-67	104	\$27.73	High school diploma or equivalent
Postal Service Mail Carriers	1,408	1,125	-20.1%	-283	525	\$28.33	High school diploma or equivalent
Postal Service Mail Sorters, Processors, and Processing Machine Operators	220	180	-18.2%	-40	67	\$27.53	High school diploma or equivalent
Postmasters and Mail Superintendents	60	50	-16.8%	-10	23	\$32.76	High school diploma or equivalent
Postsecondary Teachers	4,295	4,877	13.6%	582	818	\$32.68	Doctoral or professional degree
Power Distributors and Dispatchers	28	31	10.6%	3	10	\$45.67	High school diploma or equivalent
Power Plant Operators	181	245	35.4%	64	76	\$41.39	High school diploma or equivalent
Precision Instrument and Equipment Repairers, All Other	41	46	12.1%	5	7	\$38.57	High school diploma or equivalent
Prepress Technicians and Workers	60	50	-16.7%	-10	10	\$21.92	Postsecondary nondegree award

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Preschool Teachers, Except Special Education	1,712	1,776	3.7%	64	528	\$15.72	Associate's degree
Pressers, Textile, Garment, and Related Materials	221	253	14.5%	32	57	\$11.49	No formal educational credential
Print Binding and Finishing Workers	138	115	-16.7%	-23	42	\$15.67	High school diploma or equivalent
Printing Press Operators	344	319	-7.3%	-25	77	\$18.20	High school diploma or equivalent
Private Detectives and Investigators	141	155	9.9%	14	41	\$28.07	High school diploma or equivalent
Probation Officers and Correctional Treatment Specialists	501	531	6.0%	30	102	\$37.56	Bachelor's degree
Procurement Clerks	194	205	5.7%	11	70	\$21.81	High school diploma or equivalent
Producers and Directors	192	229	19.3%	37	71	\$35.76	Bachelor's degree
Production Workers, All Other	491	591	20.4%	100	113	\$13.95	High school diploma or equivalent
Production, Planning, and Expediting Clerks	971	1,102	13.5%	131	282	\$26.16	High school diploma or equivalent
Proofreaders and Copy Markers	39	38	-2.6%	-1	1	\$18.57	Bachelor's degree
Property, Real Estate, and Community Association Managers	1,063	1,117	5.1%	54	200	\$28.94	High school diploma or equivalent
Prosthodontists	15	16	6.6%	1	-1	\$54.02	Doctoral or professional degree
Protective Service Workers, All Other	574	606	5.6%	32	85	\$14.38	High school diploma or equivalent
Psychiatric Aides	102	149	45.9%	47	32	\$15.77	High school diploma or equivalent
Psychiatric Technicians	1,273	1,178	-7.5%	-95	281	\$27.79	Postsecondary nondegree award
Psychiatrists	218	226	3.7%	8	69	\$133.14	Doctoral or professional degree
Psychologists, All Other	14	18	27.7%	4	-4	\$50.70	Master's degree
Public Address System and Other Announcers	29	38	30.8%	9	10	\$13.16	High school diploma or equivalent
Public Relations and Fundraising Managers	177	199	12.4%	22	65	\$48.91	Bachelor's degree
Public Relations Specialists	673	776	15.3%	103	88	\$29.85	Bachelor's degree
Pump Operators, Except Wellhead Pumpers	23	22	-4.4%	-1	14	\$24.79	High school diploma or equivalent
Purchasing Agents, Except Wholesale, Retail, and Farm Products	839	917	9.3%	78	242	\$30.61	Bachelor's degree
Purchasing Managers	203	228	12.3%	25	51	\$50.51	Bachelor's degree
Radiation Therapists	70	75	7.1%	5	18	\$51.99	Associate's degree
Radio and Television Announcers	55	51	-7.3%	-4	27	\$17.13	Bachelor's degree
Radio, Cellular, and Tower Equipment Installers and Repairs	57	65	14.0%	8	8	\$28.88	Associate's degree
Radiologic Technologists	883	881	-0.2%	-2	187	\$43.62	Associate's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Rail Car Repairers	36	34	-5.5%	-2	13	\$32.21	High school diploma or equivalent
Rail Transportation Workers, All Other	24	24	0.0%	0	11	\$38.55	High school diploma or equivalent
Real Estate Brokers	141	140	-0.7%	-1	19	\$28.86	High school diploma or equivalent
Real Estate Sales Agents	329	336	2.1%	7	43	\$26.45	High school diploma or equivalent
Receptionists and Information Clerks	4,085	4,595	12.5%	510	1,184	\$15.95	High school diploma or equivalent
Recreation Workers	2,052	2,395	16.7%	343	420	\$12.16	High school diploma or equivalent
Recreational Therapists	198	211	6.6%	13	51	\$31.35	Bachelor's degree
Recreational Vehicle Service Technicians	68	64	-5.9%	-4	31	\$19.42	High school diploma or equivalent
Refuse and Recyclable Material Collectors	560	650	16.1%	90	154	\$21.92	No formal educational credential
Registered Nurses	11,271	12,186	8.1%	915	2,787	\$52.99	Bachelor's degree
Rehabilitation Counselors	492	614	24.8%	122	121	\$17.42	Master's degree
Reinforcing Iron and Rebar Workers	192	259	34.9%	67	35	\$28.54	High school diploma or equivalent
Religious Workers, All Other	34	40	17.9%	6	8	\$16.97	Bachelor's degree
Reporters and Correspondents	99	88	-11.1%	-11	42	\$19.57	Bachelor's degree
Reservation and Transportation Ticket Agents and Travel Clerks	600	658	9.7%	58	84	\$19.88	High school diploma or equivalent
Residential Advisors	305	375	23.0%	70	108	\$14.68	High school diploma or equivalent
Respiratory Therapists	549	494	-10.0%	-55	190	\$42.30	Associate's degree
Respiratory Therapy Technicians	13	10	-22.7%	-3	3	\$26.94	Associate's degree
Retail Salespersons	20,594	23,474	14.0%	2,880	7,695	\$12.37	No formal educational credential
Riggers	32	36	12.5%	4	11	\$26.09	High school diploma or equivalent
Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	37	39	5.4%	2	11	\$16.65	High school diploma or equivalent
Roofers	986	999	1.3%	13	242	\$24.94	No formal educational credential
Rotary Drill Operators, Oil and Gas	18	17	-5.6%	-1	1	\$34.30	No formal educational credential
Roustabouts, Oil and Gas	67	68	1.5%	1	16	\$23.26	No formal educational credential
Sailors and Marine Oilers	53	40	-24.4%	-13	26	\$19.41	No formal educational credential
Sales and Related Workers, All Other	450	514	14.2%	64	68	\$16.68	High school diploma or equivalent
Sales Engineers	231	258	11.7%	27	64	\$46.68	Bachelor's degree
Sales Managers	2,134	2,329	9.1%	195	528	\$47.02	Bachelor's degree
Sales Representatives, Services, All Other	3,545	3,969	12.0%	424	814	\$24.42	High school diploma or equivalent

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	5,165	6,068	17.5%	903	1,169	\$29.87	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	962	1,142	18.7%	180	219	\$39.81	Bachelor's degree
Sawing Machine Setters, Operators, and Tenders, Wood	268	277	3.4%	9	93	\$15.23	High school diploma or equivalent
Secondary School Teachers, Except Special and Career/Technical Education	3,163	3,388	7.1%	225	781	\$32.53	Bachelor's degree
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	8,438	9,102	7.9%	664	928	\$18.98	High school diploma or equivalent
Securities, Commodities, and Financial Services Sales Agents	1,161	1,332	14.7%	171	220	\$29.25	Bachelor's degree
Security and Fire Alarm Systems Installers	100	111	11.0%	11	30	\$25.40	High school diploma or equivalent
Security Guards	2,795	3,293	17.8%	498	438	\$13.41	High school diploma or equivalent
Self-Enrichment Education Teachers	1,071	1,275	19.1%	204	226	\$19.81	High school diploma or equivalent
Semiconductor Processors	67	92	37.3%	25	17	\$17.06	Associate's degree
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2,656	2,991	12.6%	335	904	\$18.49	High school diploma or equivalent
Septic Tank Servicers and Sewer Pipe Cleaners	99	125	26.3%	26	28	\$23.82	No formal educational credential
Service Unit Operators, Oil, Gas, and Mining	45	41	-8.8%	-4	19	\$29.22	No formal educational credential
Set and Exhibit Designers	37	43	16.4%	6	12	\$24.77	Bachelor's degree
Sewers, Hand	18	20	11.0%	2	-2	\$11.90	No formal educational credential
Sewing Machine Operators	266	290	9.0%	24	21	\$13.87	No formal educational credential
Shampooers	24	34	42.0%	10	2	\$10.95	No formal educational credential
Sheet Metal Workers	418	490	17.2%	72	100	\$32.74	High school diploma or equivalent
Ship Engineers	22	14	-37.1%	-8	8	\$32.95	Postsecondary nondegree award
Shipping, Receiving, and Traffic Clerks	2,796	2,984	6.7%	188	630	\$16.79	High school diploma or equivalent
Shoe and Leather Workers and Repairers	24	23	-4.2%	-1	1	\$14.08	High school diploma or equivalent
Signal and Track Switch Repairers	17	18	5.7%	1	-1	\$34.39	High school diploma or equivalent
Skincare Specialists	272	318	16.9%	46	23	\$16.75	Postsecondary nondegree award
Slaughterers and Meat Packers	226	239	5.7%	13	46	\$11.96	No formal educational credential

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Slot Supervisors	38	24	-37.1%	-14	14	\$18.11	High school diploma or equivalent
Social and Community Service Managers	700	866	23.7%	166	217	\$30.42	Bachelor's degree
Social and Human Service Assistants	2,892	3,426	18.5%	534	643	\$17.63	High school diploma or equivalent
Social Science Research Assistants	71	80	12.7%	9	38	\$20.95	Bachelor's degree
Social Scientists and Related Workers, All Other	74	81	9.4%	7	10	\$34.81	Bachelor's degree
Social Workers, All Other	467	499	6.9%	32	118	\$33.19	Bachelor's degree
Sociologists	11	11	0.0%	0	0	\$41.58	Master's degree
Software Developers, Applications	1,411	1,640	16.2%	229	218	\$52.57	Bachelor's degree
Software Developers, Systems Software	1,541	1,608	4.3%	67	234	\$59.48	Bachelor's degree
Soil and Plant Scientists	45	52	15.4%	7	17	\$36.46	Bachelor's degree
Solar Photovoltaic Installers	191	209	9.4%	18	34	\$23.08	High school diploma or equivalent
Sound Engineering Technicians	34	36	5.8%	2	10	\$31.53	Postsecondary nondegree award
Special Education Teachers, All Other	151	168	11.2%	17	30	\$23.18	Bachelor's degree
Special Education Teachers, Kindergarten and Elementary School	677	736	8.7%	59	134	\$31.81	Bachelor's degree
Special Education Teachers, Middle School	239	260	8.8%	21	47	\$30.93	Bachelor's degree
Special Education Teachers, Preschool	90	113	25.4%	23	20	\$27.30	Bachelor's degree
Special Education Teachers, Secondary School	343	378	10.2%	35	69	\$33.54	Bachelor's degree
Speech-Language Pathologists	394	460	16.7%	66	110	\$38.54	Master's degree
Stationary Engineers and Boiler Operators	170	178	4.7%	8	49	\$33.83	High school diploma or equivalent
Statistical Assistants	23	21	-8.7%	-2	2	\$26.87	Bachelor's degree
Statisticians	89	118	32.6%	29	19	\$41.96	Master's degree
Stock Clerks and Order Fillers	9,311	10,583	13.7%	1,272	3,188	\$12.53	No formal educational credential
Stonemasons	55	66	20.0%	11	6	\$25.66	High school diploma or equivalent
Structural Iron and Steel Workers	364	441	21.1%	77	68	\$32.15	High school diploma or equivalent
Structural Metal Fabricators and Fitters	170	203	19.4%	33	30	\$22.88	High school diploma or equivalent
Substance Abuse and Behavioral Disorder Counselors	437	527	20.6%	90	105	\$20.48	Bachelor's degree
Substitute Teachers	3,508	3,718	6.0%	210	684	\$16.89	Bachelor's degree
Subway and Streetcar Operators	19	23	20.5%	4	8	\$32.08	High school diploma or equivalent
Surgeons	164	187	14.0%	23	50	\$113.03	Doctoral or professional degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Surgical Technologists	409	478	16.9%	69	44	\$28.76	Postsecondary nondegree award
Survey Researchers	95	99	4.2%	4	16	\$25.73	Master's degree
Surveying and Mapping Technicians	199	198	-0.5%	-1	32	\$29.16	High school diploma or equivalent
Surveyors	296	301	1.7%	5	102	\$35.70	Bachelor's degree
Switchboard Operators, Including Answering Service	390	300	-23.1%	-90	130	\$18.41	High school diploma or equivalent
Tailors, Dressmakers, and Custom Sewers	101	107	6.0%	6	36	\$17.11	No formal educational credential
Tank Car, Truck, and Ship Loaders	13	14	7.9%	1	-1	\$24.00	No formal educational credential
Tapers	203	187	-7.9%	-16	47	\$30.74	No formal educational credential
Tax Examiners and Collectors, and Revenue Agents	158	161	1.9%	3	67	\$30.62	Bachelor's degree
Tax Preparers	305	306	0.3%	1	84	\$27.45	High school diploma or equivalent
Taxi Drivers and Chauffeurs	921	1,100	19.4%	179	198	\$12.77	No formal educational credential
Teacher Assistants	5,552	5,966	7.5%	414	1,392	\$14.96	Some college, no degree
Teachers and Instructors, All Other	878	983	12.0%	105	178	\$21.58	Bachelor's degree
Team Assemblers	1,897	2,121	11.8%	224	435	\$15.70	High school diploma or equivalent
Technical Writers	200	229	14.5%	29	49	\$34.32	Bachelor's degree
Telecommunications Equipment Installers and Repairers, Except Line Installers	693	884	27.6%	191	73	\$29.52	Postsecondary nondegree award
Telecommunications Line Installers and Repairers	428	579	35.2%	151	94	\$29.88	High school diploma or equivalent
Telemarketers	453	468	3.3%	15	106	\$11.96	No formal educational credential
Telephone Operators	36	27	-25.3%	-9	9	\$25.07	High school diploma or equivalent
Tellers	2,023	2,236	10.5%	213	859	\$14.44	High school diploma or equivalent
Terrazzo Workers and Finishers	23	24	4.4%	1	-1	\$27.03	High school diploma or equivalent
Textile Bleaching and Dyeing Machine Operators and Tenders	11	10	-8.9%	-1	1		High school diploma or equivalent
Textile Cutting Machine Setters, Operators, and Tenders	28	30	7.1%	2	-2	\$12.17	High school diploma or equivalent
Textile, Apparel, and Furnishings Workers, All Other	14	18	28.2%	4	-4	\$15.49	High school diploma or equivalent
Therapists, All Other	31	38	22.6%	7	3	\$27.12	Bachelor's degree
Tile and Marble Setters	241	275	14.1%	34	39	\$23.16	No formal educational credential
Tire Repairers and Changers	436	465	6.6%	29	162	\$13.76	High school diploma or equivalent



Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Title Examiners, Abstractors, and Searchers	207	201	-2.9%	-6	57	\$32.62	High school diploma or equivalent
Tool and Die Makers	53	55	3.8%	2	-2	\$24.43	High school diploma or equivalent
Tool Grinders, Filers, and Sharpeners	29	27	-6.9%	-2	2	\$18.63	High school diploma or equivalent
Tour Guides and Escorts	344	396	15.1%	52	149	\$14.29	High school diploma or equivalent
Traffic Technicians	12	13	8.6%	1	-1	\$31.58	High school diploma or equivalent
Training and Development Managers	81	93	14.9%	12	27	\$56.00	Bachelor's degree
Training and Development Specialists	656	752	14.6%	96	173	\$34.10	Bachelor's degree
Transit and Railroad Police	68	70	2.9%	2	23	\$50.26	High school diploma or equivalent
Transportation Attendants, Except Flight Attendants	123	125	1.6%	2	26	\$16.13	High school diploma or equivalent
Transportation Inspectors	85	89	4.7%	4	23	\$30.36	High school diploma or equivalent
Transportation Security Screeners	25	26	4.0%	1	-1	\$29.79	High school diploma or equivalent
Transportation Workers, All Other	48	56	16.8%	8	27	\$20.45	High school diploma or equivalent
Transportation, Storage, and Distribution Managers	442	485	9.7%	43	103	\$44.98	High school diploma or equivalent
Travel Agents	218	222	1.8%	4	57	\$17.45	High school diploma or equivalent
Travel Guides	17	18	5.9%	1	-1	\$17.30	High school diploma or equivalent
Tree Trimmers and Pruners	255	278	9.0%	23	55	\$18.33	High school diploma or equivalent
Umpires, Referees, and Other Sports Officials	40	46	14.9%	6	14	\$13.25	High school diploma or equivalent
Upholsterers	48	51	6.2%	3	14	\$18.82	High school diploma or equivalent
Urban and Regional Planners	229	246	7.4%	17	45	\$38.91	Master's degree
Ushers, Lobby Attendants, and Ticket Takers	519	530	2.1%	11	337	\$9.41	No formal educational credential
Veterinarians	479	537	12.1%	58	84	\$53.08	Doctoral or professional degree
Veterinary Assistants and Laboratory Animal Caretakers	404	463	14.6%	59	95	\$13.63	High school diploma or equivalent
Veterinary Technologists and Technicians	721	865	20.0%	144	80	\$19.24	Associate's degree
Waiters and Waitresses	13,323	14,712	10.4%	1,389	6,819	\$12.38	No formal educational credential
Watch Repairers	12	10	-16.6%	-2	2	\$21.78	High school diploma or equivalent
Water and Wastewater Treatment Plant and System Operators	653	698	6.9%	45	173	\$32.13	High school diploma or equivalent
Web Developers	543	640	17.9%	97	76	\$37.30	Associate's degree

Occupation	2016 Jobs	2026 Jobs	2016 - 2026 Growth Rate	2016 - 2026 New Jobs	2016 - 2026 Replace- ment Openings	Median Hourly Earnings	Typical Entry Level Education
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	490	533	8.8%	43	152	\$12.88	High school diploma or equivalent
Welders, Cutters, Solderers, and Brazers	879	991	12.7%	112	269	\$20.03	High school diploma or equivalent
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	122	110	-9.9%	-12	46	\$23.30	High school diploma or equivalent
Wholesale and Retail Buyers, Except Farm Products	665	730	9.8%	65	222	\$22.95	Bachelor's degree
Wind Turbine Service Technicians	58	131	126.4%	73	17	\$27.81	Some college, no degree
Woodworkers, All Other	17	18	5.8%	1	-1	\$15.79	High school diploma or equivalent
Woodworking Machine Setters, Operators, and Tenders, Except Sawing	183	173	-5.5%	-10	68	\$15.18	High school diploma or equivalent
Word Processors and Typists	254	228	-10.2%	-26	26	\$20.42	High school diploma or equivalent
Writers and Authors	158	180	13.9%	22	29	\$24.72	Bachelor's degree
Zoologists and Wildlife Biologists	135	138	2.2%	3	38	\$31.05	Bachelor's degree
TOTAL	576,499	646,108	12.1%	69,609	156,598	\$23.41	

Source: EMSI (Economic Modeling Specialists Intl.)