North Bay Regional Planning Unit Regional Plan

Program Year 2017-2020



2/1/2017 Plan developed by Racy Ming on behalf of the North Bay Regional Planning Unit.

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.

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.

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

	•	•			# of
	# in labor		#	%	establishme
County	force	# employed	unemployed	unemployed	nts
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
TOTAL	773,750	740,940	32,920	4.3%	54,784

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%.

SOURCE: 2014 American Community Survey

County	Population	Population age 25 & up	Median household income	unemployment rate for PWD	% below poverty
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%
TOTAL	1,438,611	997,331			

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.

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

	Less than HS degree	HS graduate	Some college	AA degree	BA or higher
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%

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.

SOURCE: 2014 American Community Survey

Country	Speak English less than "very	Percentage (less than	Foreign Born	Cnanish	Asian and
County	well''	"very well")	Population	Spanish	PI languages
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%
TOTAL	152,862	10.6%	264,229		

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 Attachment 1, 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.

Source: EMSI

Industry Sector	Jobs in 2016	Jobs in 2026	Job Growth	Job Growth Rate
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%

Industry Sector	Jobs in 2016	Jobs in 2026	Job Growth	Job Growth Rate
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	577,785	648,174	70,389	12.2%
TOTAL	311,103	040,174	70,369	12.270
Percentage	54.1%	55.8%	69.3%	

Industry Sector	Location Quotient (2016)	Total Average Earnings	Gross Regional Product	Establishments (2015)
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		\$66,063	\$72,481,102,692	54,566
TOTAL		φυυ,003	\$72,401,102,092	34,300
Percentage	_		38.0%	57.4%

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

	Percent	·
Industry	Growth	Employees
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

Industry	Percent Growth	Employees
Couriers and Messengers	19.5%	226
Bars and Restaurants	19.3%	8,073

Source: QCEW (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.

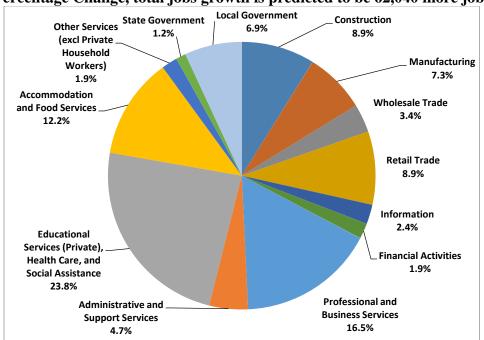
Employment Trends in the NORTH BAY Region: Fastest Growth Industries from 2010-15 (Sources: QCEW (www.edd.ca.gov) and EFA)

Industries	N. Bay	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	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%

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 (<u>www.edd.ca.gov</u>) and Bureau of Labor Statistics (<u>www.bls.gov</u>)

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). 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...

Work In	Employees	% of Total 2014	% of Total 2008
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%
Totals	484,095	100.0%	100.0%

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

Live In	Employees	% of Total 2014	% of Total 2008
N Bay	373,631	66.7%	68.1%
San Fran.	51,862	9.3%	8.2%
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%
Totals	559,813	100.0%	100.0%

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
 - o 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:
 - o 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

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

				Job			
	2015	2025	Growt	Growt	Avg		
Industries	Jobs	Jobs	h Rate	h	Comp	Firms	LQ
Individual and Family	24,41	32,84	34.6%	8,435	\$20,342	13,72	2.75
Services	2	7				0	
General Medical and Surgical	12,44	8,060	-35.2%	-4,381	\$103,26	33	0.66
Hospitals	1				2		
Outpatient Care Centers	10,74	16,76	56.0%	6,020	\$127,18	187	3.42
	3	3			6		
Offices of Physicians	8,454	9,685	14.6%	1,231	\$112,55	852	0.80
					0		
Offices of Dentists	5,248	5,490	4.6%	242	\$61,151	806	1.39
Nursing Care Facilities	5,146	6,178	20.1%	1,032	\$47,157	67	0.76
(Skilled Nursing Facilities)							
Continuing Care Retirement	4,990	7,192	44.1%	2,202	\$36,151	258	1.39
Communities and Assisted		·		·			
Living Facilities							
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	2,486	2,560	3.0%	74	\$43,865	168	1.00
Developmental Disability,	,	•			ŕ		
Mental Health, and Substance							
Abuse Facilities							
Offices of Other Health	2,395	2,853	19.1%	458	\$55,731	527	0.69
Practitioners		·					
Other Ambulatory Health	2,133	3,347	56.9%	1,214	\$59,778	36	1.83
Care Services							
Vocational Rehabilitation	1,512	1,536	1.6%	24	\$29,816	62	1.14
Services		·					
Community Food and	948	1,158	22.2%	210	\$41,941	75	1.47
Housing, and Emergency and		•			ŕ		
Other Relief Services							
Medical and Diagnostic	763	1,050	37.6%	287	\$96,758	64	0.73
Laboratories		·					
Psychiatric and Substance	697	1,146	64.4%	449	\$81,961	2	1.50
Abuse Hospitals							
Other Residential Care	436	215	-50.7%	-221	\$48,280	25	0.65
Facilities							

Specialty (except Psychiatric	325	567	74.5%	242	\$63,736	2	0.35
and Substance Abuse)							
Hospitals							

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

	Region	Lake	Marin	Mendo	Napa	Sonoma	Solano
2015 Jobs	52,527	319	4,045	2,500	12,004	21,802	11,858
2025 Jobs	59,427	400	6,374	2,508	13,822	22,806	13,517
	Region	Lake	Marin	Mendo	Napa	Sonoma	Solano
Growth							
Rate	13%	25%	58%	0%	15%	5%	14%
Job Growth	6,900	81	2,329	8	1,818	1,004	1,659
Avg Comp	\$101,639	\$53,387	\$183,641	\$62,746	\$85,553	\$87,400	\$125,629
Employers	2,061	39	224	133	516	898	251
LQ	1.06	0.24	0.41	0.91	1.81	1.25	1.02
GRP	\$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

	2015	2025	Growth	Job	Avg		
Industries	Jobs	Jobs	Rate	Growth	Comp	Firms	LQ
Beverage Product	19,706	22,522	14.3%	2,816	\$85,938	841	20.42
Manufacturing							
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	3,225	3,221	-0.1%	-4	\$117,463	81	0.76
Product Manufacturing							
Fabricated Metal Product	2,879	3,246	12.7%	367	\$79,776	156	0.50
Manufacturing							
Machinery	2,500	2,649	6.0%	149	\$85,371	78	0.57
Manufacturing							
Miscellaneous	2,044	1,714	-16.1%	-330	\$126,641	137	0.85
Manufacturing							
Nonmetallic Mineral	1,820	1,288	-29.2%	-532	\$67,487	68	1.12
Product Manufacturing							
Wood Product	1,574	1,585	0.7%	11	\$59,935	80	1.00
Manufacturing							
Plastics and Rubber	926	779	-15.9%	-147	\$60,329	31	0.33
Products Manufacturing							

Printing and Related	866	721	-16.7%	-145	\$63,671	100	0.48
Support Activities					ŕ		
Furniture and Related	835	835	0.0%	0	\$59,048	106	0.53
Product Manufacturing							
	2015	2025	Growth	Job	Avg		
Industries	Jobs	Jobs	Rate	Growth	Comp	Firms	LQ
Transportation	519	507	-2.3%	-12	\$77,575	36	0.08
Equipment							
Manufacturing							
Petroleum and Coal	448	382	-14.7%	-66	\$240,063	3	1.00
Products Manufacturing							
Electrical Equipment,	383	534	39.4%	151	\$90,194	24	0.25
Appliance, Component							
Manufacturing							
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	97	151	55.7%	54	\$75,051	9	0.06
Manufacturing							
Textile Mills	79	79	0.0%	0	\$56,206	3	0.17
Leather and Allied	69	55	-20.3%	-14	\$65,987	6	0.57
Product Manufacturing							

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:

	Median	Typical
Occupations	Wage	Ed Level
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 indemand 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.

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.

Strengths and Challenges of the NBEC workforce development system

Partner	Strengths	Challenges
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.

Industry Sector	Pathways
Health Sciences & Medical Technology	Biotechnology; Patient Care
Engineering & Architecture	Engineering Technology Pathway;
	Environmental Engineering Pathway
Business & Finance	Financial Services
H 'd' T ' O D	
Hospitality, Tourism & Recreation	Food Services and Hospitality
Manufacturing and Product Development	Matching and Forming Technologies
Information & Communication	Game and Simulation;
Technologies	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 Attachment B 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 Attachment 3. 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.

Institution	Certificates awarded in 2012	Degrees awarded in 2012	Total program completions in 2012
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	0	169	169
Academy			
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
LeMelange Academy of Hair	41	0	41
Hinton Barber and Beauty College	24	0	24
Bergin University of Canine Studies	0	19	19
TOTAL	4,122	7,443	11,565

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.)

Toward that end, and as outlined in section A, an extensive stakeholder input process was conducted throughout the six county region. 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 Attachment 4 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.

County	Less than HS degree	HS graduate	Some college, no degree	AA degree	BA or higher
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.

County	Less than HS degree	# of people
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
TOTAL FOR RPU	12.5%	124,079

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.

Provider	Adult Secondary Education (ASE)	Adult Basic Ed (ABE)
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	-

Provider	Adult Secondary	Adult Basic Ed
	Education (ASE)	(ABE)
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 identity 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.

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 if 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 purse 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.

County/	Lake	Marin	Mendo-	Napa	Solano	Sonom	REGIO	CA
Area			cino			a	N	
Median	\$19.07	\$27.24	\$18.73	\$22.26	\$23.74	\$22.55	\$23.41	\$24.47
Hourly								
Median	\$39,66	\$56,65	\$38,95	\$46,30	\$49,37	\$46,90	\$48,693	\$50,89
Annual	6	9	8	1	9	4		8

	2016	2026	Growth	New	Replace-	Median	Typical		
Occupation	Jobs	Jobs	Rate	Jobs	ments	Wage	Ed Level		
SECTOR: HEALTH CARE AND SOCIAL ASSISTANCE >> PATHWAY: H							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	172	221	27.80%	48	50	\$22.06	A A / A C		
Assistants	173	221	27.80%	48	59	\$32.06	AA/AS		
Licensed Practical and									
Licensed Vocational	2,618	3,193	22.00%	575	849	\$26.54	SC/CERT		
Nurses									
Firefighters/Paramedics	1,635	1,798	10.00%	163	501	\$25.26	SC/CERT		
Emergency Medical									
Technicians and	1,321	2,112	59.90%	791	296	\$17.50	SC/CERT		
Paramedics									
Nursing									
Assistants/Certified	3,419	4,462	30.50%	1,043	917	\$14.62	SC/CERT		
Nurse Assistants									
Home Health Aides	2,138	3,477	62.60%	1,339	692	\$11.20	SC/CERT		
SECTOR: MANUFACTU	RING >	> PATH	WAY: ADV	ANCED	MANUFAC	TURING (S	SONOMA)		
Engineers, All									
Other/Robotics	276	307	11.20%	31	59	\$48.08	BA/BS		
Engineers									
Engineering									
Technicians, Except									
Drafters, All	264	282	6.80%	18	69	\$29.61	AA/AS		
Other/Manufacturing									
Production Techs									

Occupation	2016 Jobs	2026 Jobs	Growth Rate	New Jobs	Replace- ments	Median Wage	Typical Ed Level
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
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: MANUFACTU	RING >	> PATH	WAY: ADV	<i>ANCED</i>	MANUFAC	TURING (S	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	& TOUR	ISM >>	PATHW	AY: HOS	PITALITY &	& TOURISM	I (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< td=""></hs<>
Bartenders Source: FMSI	2,689	3,107	15.50%	418	1,103	\$11.86	<hs< td=""></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 H.

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.ccco.edu/Consortia/Consortia-List

Strong Workforce: http://doingwhatmatters.ccco.edu/ResourceMap/NorthBay.asp

Appendix A Regional Stakeholder Input Sessions And Invitation List

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

Hospitality and Tourism Cluster

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

	2015	2025	Growth	Job	Avg		
Industries	Jobs	Jobs	Rate	Growth	Comp	Firms	LQ
Restaurants and Other	48,317	55,584	15.0%	7,267	\$24,583	2,577	1.16
Eating Places							
Traveler	12,157	14,749	21.3%	2,592	\$35,665	397	1.61
Accommodation							
Special Food Services	2,029	2,077	2.4%	48	\$25,713	168	0.75
Amusement and Theme	1,211	1,423	17.5%	212	\$25,027	5	1.61
Parks							
Drinking Places	1,109	1,094	-1.4%	-15	\$20,873	142	0.72
(Alcoholic Beverages)							
All Other Amusement	786	843	7.3%	57	\$27,236	106	1.14
and Recreation Industries							
Scenic and Sightseeing	379	456	20.3%	77	\$41,969	11	7.30
Transportation, Land							
RV (Recreational	334	415	24.3%	81	\$30,920	39	1.30
Vehicle) Parks							
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	193	300	55.4%	107	\$32,496	5	1.17
Gardens							
Marinas	165	190	15.2%	25	\$51,559	14	1.19
Casinos (except Casino	163	192	17.8%	29	\$29,251	2	0.46
Hotels)							
Racetracks	143	89	-37.8%	-54	\$41,853	6	1.04
Scenic and Sightseeing	138	158	14.5%	20	\$31,984	8	11.38
Transportation, Other							
Art Dealers	136	81	-40.4%	-55	\$43,942	47	1.95
Nature Parks and Other	116	102	-12.1%	-14	\$49,078	15	2.83
Similar Institutions							
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	66	50	-24.2%	-16	\$77,598	7	0.20
Arrangement and							
Reservation Services							
Amusement Arcades	54	92	70.4%	38	\$18,119	4	0.58

	2015	2025	Growth	Job	Avg		
Industries	Jobs	Jobs	Rate	Growth	Comp	Firms	LQ
Rooming and Boarding	42	71	69.0%	29	\$33,435	7	0.86
Houses							
Recreational Goods	34	30	-11.8%	-4	\$11,843	12	0.62
Rental							
Convention and Visitors	33	26	-21.2%	-7	\$80,349	8	0.90
Bureaus							
Historical Sites	27	30	11.1%	3	\$20,849	5	0.41
Scenic and Sightseeing	17	22	29.4%	5	\$23,218	8	0.29
Transportation, Water							

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

Occupations with the work good in the worth buy region								
	2015	2025	Growth	Job	Median	Typical		
Occupations	Jobs	Jobs	Rate	Growth	Wage	Ed Level		
Waiters and Waitresses	11,856	13,027	9.9%	1,171	\$12.38	<hs< td=""></hs<>		
Combined Food Preparation and	11,265	13,940	23.7%	2,675	\$10.02	<hs< td=""></hs<>		
Serving Workers, Including Fast Food								
Cooks, Restaurant	5,640	6,774	20.1%	1,134	\$12.71	<hs< td=""></hs<>		
Cooks, Fast Food	3,102	2,992	-3.5%	-110	\$9.72	<hs< td=""></hs<>		
Dishwashers	3,079	3,130	1.7%	51	\$10.22	<hs< td=""></hs<>		
Food Preparation Workers	3,053	3,487	14.2%	434	\$10.50	<hs< td=""></hs<>		
Occupations	2015	2025	Growth	Job	Median	Typical		

	Jobs	Jobs	Rate	Growth	Wage	Ed Level
First-Line Supervisors of Food	2,948	3,582	21.5%	634	\$16.29	HS/GED
Preparation and Serving Workers						
Maids and Housekeeping Cleaners	2,890	3,583	24.0%	693	\$11.65	<hs< td=""></hs<>
Dining Room and Cafeteria	2,107	2,366	12.3%	259	\$10.63	<hs< td=""></hs<>
Attendants and Bartender Helpers						
Bartenders	2,037	2,345	15.1%	308	\$11.86	<hs< td=""></hs<>
Hotel, Motel, and Resort Desk Clerks	1,606	1,944	21.0%	338	\$12.64	HS/GED
Cashiers	1,598	1,829	14.5%	231	\$10.78	<hs< td=""></hs<>
Hosts and Hostesses, Restaurant,	1,387	1,580	13.9%	193	\$9.93	<hs< td=""></hs<>
Lounge, and Coffee Shop						
Counter Attendants, Cafeteria, Food	1,200	1,438	19.8%	238	\$11.49	<hs< td=""></hs<>
Concession, and Coffee Shop						
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,	586	726	23.9%	140	\$20.94	HS/GED
General						
Cooks, Short Order	566	586	3.5%	20	\$11.40	<hs< td=""></hs<>
Amusement and Recreation	564	647	14.7%	83	\$10.25	<hs< td=""></hs<>
Attendants						
General and Operations Managers	528	618	17.0%	90	\$47.95	BA/BS
Janitors and Cleaners, Except Maids	467	554	18.6%	87	\$13.26	<hs< td=""></hs<>
and Housekeeping Cleaners						
Food Servers, Nonrestaurant	360	413	14.7%	53	\$12.51	<hs< td=""></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	261	290	11.1%	29	\$19.88	HS/GED
Agents and Travel Clerks						
First-Line Supervisors of	244	300	23.0%	56	\$18.46	HS/GED
Housekeeping and Janitorial Workers						
Bakers	239	279	16.7%	40	\$14.26	<hs< td=""></hs<>
Bookkeeping, Accounting, and	231	243	5.2%	12	\$21.69	SC/CERT
Auditing Clerks						
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< td=""></hs<>
Travel Agents	202	206	2.0%	4	\$17.45	HS/GED
First-Line Supervisors of Office and	199	245	23.1%	46	\$27.26	HS/GED
Administrative Support Workers						
Laundry and Dry-Cleaning Workers	192	242	26.0%	50	\$11.74	<hs< td=""></hs<>
Landscaping and Groundskeeping	183	220	20.2%	37	\$15.16	<hs< td=""></hs<>
Workers						
	2015	2025	Growth	Job	Median	Typical
Occupations	Jobs	Jobs	Rate	Growth	Wage	Ed Level

Landscaping and Groundskeeping	163	179	9.8%	16	\$15.16	<hs< th=""></hs<>
Workers						
Security Guards	146	176	20.5%	30	\$13.41	HS/GED
Waiters and Waitresses	143	163	14.0%	20	\$12.38	<hs< td=""></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< td=""></hs<>
Retail Salespersons	130	132	1.5%	2	\$12.37	<hs< td=""></hs<>
Light Truck or Delivery Services	126	151	19.8%	25	\$16.47	HS/GED
Drivers						
Reservation and Transportation Ticket	125	145	16.0%	20	\$19.88	HS/GED
Agents and Travel Clerks						
Amusement and Recreation	113	136	20.4%	23	\$10.25	<hs< td=""></hs<>
Attendants						
General and Operations Managers	104	117	12.5%	13	\$47.95	BA/BS
Meeting, Convention, and Event	97	120	23.7%	23	\$25.69	BA/BS
Planners						
Nonfarm Animal Caretakers	97	101	4.1%	4	\$14.23	HS/GED

Source: EMSI, 6-County North Bay Region

Education/Skill Level Key

Education Skin Ecter Rej								
Abbrev.	Typical Education Requirement	Skill Level						
<hs< td=""><td>No education requirement</td><td>Lower Skill</td></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

	2015	2025	Growth	Job	Median	Typical Ed
Occupations	Jobs	Jobs	Rate	Growth	Wage	Level
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< td=""></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	2,345	2,852	21.6%	507	\$17.63	HS/GED
Assistants						
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	2,279	2,849	25.0%	570	\$26.54	SC/CERT
Licensed Vocational						
Nurses						
Receptionists and	2,101	2,514	19.7%	413	\$15.95	HS/GED
Information Clerks						
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	1,513	1,718	13.5%	205	\$18.98	HS/GED
Administrative Assistants,						
Except Legal, Medical,						
and Executive						
Childcare Workers	1,452	1,491	2.7%	39	\$13.70	HS/GED
Maids and Housekeeping	1,313	1,504	14.5%	191	\$11.65	<hs< td=""></hs<>
Cleaners						
Medical and Health	1,289	1,504	16.7%	215	\$62.38	BA/BS
Services Managers						
General and Operations	1,195	1,450	21.3%	255	\$47.95	BA/BS
Managers						
First-Line Supervisors of	1,187	1,381	16.3%	194	\$27.26	HS/GED
Office and Administrative						
Support Workers						
Preschool Teachers,	1,129	1,156	2.4%	27	\$15.72	AA/AS
Except Special Education						
Emergency Medical	1,117	1,879	68.2%	762	\$17.50	SC/CERT
Technicians and						
Paramedics						
Janitors and Cleaners,	921	1,016	10.3%	95	\$13.26	<hs< td=""></hs<>
Except Maids and						
Housekeeping Cleaners						
Recreation Workers	896	1,110	23.9%	214	\$12.16	HS/GED
Bookkeeping, Accounting,	846	879	3.9%	33	\$21.69	SC/CERT
and Auditing Clerks						

	2015	2025	Growth	Job	Median	Typical Ed
Occupations	Jobs	Jobs	Rate	Growth	Wage	Level
Physical Therapists	823	922	12.0%	99	\$48.02	Mas/Doc
Cooks, Institution and	813	1,012	24.5%	199	\$14.92	<hs< td=""></hs<>
Cafeteria						
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< td=""></hs<>
Food Servers,	676	834	23.4%	158	\$12.51	<hs< td=""></hs<>
Nonrestaurant						
Maintenance and Repair	652	768	17.8%	116	\$20.94	HS/GED
Workers, General						
First-Line Supervisors of	611	770	26.0%	159	\$18.33	HS/GED
Personal Service Workers						
Medical and Clinical	603	668	10.8%	65	\$23.90	AA/AS
Laboratory Technicians						
Social and Community	573	727	26.9%	154	\$30.42	BA/BS
Service Managers						
Dentists, General	552	603	9.2%	51	\$70.80	Mas/Doc
Medical Records and	550	615	11.8%	65	\$20.45	SC/CERT
Health Information						
Technicians						
Healthcare Social Workers	535	746	39.4%	211	\$32.34	Mas/Doc
Mental Health and	507	615	21.3%	108	\$24.00	BA/BS
Substance Abuse Social						
Workers						
Nurse Practitioners	498	693	39.2%	195	\$59.28	Mas/Doc
Psychiatric Technicians	476	508	6.7%	32	\$27.79	SC/CERT
Customer Service	473	613	29.6%	140	\$18.88	HS/GED
Representatives						
Child, Family, and School	460	586	27.4%	126	\$22.56	BA/BS
Social Workers						
Rehabilitation Counselors	441	559	26.8%	118	\$17.42	Mas/Doc
Family and General	437	505	15.6%	68	\$102.14	Mas/Doc
Practitioners						
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	417	471	12.9%	54	\$43.03	Mas/Doc
School Psychologists						
Phlebotomists	406	461	13.5%	55	\$19.60	SC/CERT
Executive Secretaries and	391	399	2.0%	8	\$28.53	HS/GED
Executive Administrative						
Assistants						

	2015	2025	Growth	Job	Median	Typical Ed
Occupations	Jobs	Jobs	Rate	Growth	Wage	Level
Substance Abuse and	370	459	24.1%	89	\$20.48	BA/BS
Behavioral Disorder						
Counselors						
Surgical Technologists	364	428	17.6%	64	\$28.76	SC/CERT
Human Resources	340	383	12.6%	43	\$32.01	BA/BS
Specialists						
Accountants and Auditors	334	397	18.9%	63	\$36.22	BA/BS
Massage Therapists	328	371	13.1%	43	\$21.83	SC/CERT
Combined Food	324	380	17.3%	56	\$10.02	<hs< td=""></hs<>
Preparation and Serving						
Workers, Including Fast						
Food						
Physician Assistants	322	445	38.2%	123	\$52.69	Mas/Doc
Bus Drivers, School or	315	409	29.8%	94	\$16.34	HS/GED
Special Client						
Pharmacists	308	294	-4.5%	-14	\$68.41	Mas/Doc
Taxi Drivers and	297	387	30.3%	90	\$12.77	<hs< td=""></hs<>
Chauffeurs						
Marriage and Family	291	336	15.5%	45	\$32.29	Mas/Doc
Therapists						
Pharmacy Technicians	285	281	-1.4%	-4	\$20.48	HS/GED
Medical Equipment	282	283	0.4%	1	\$22.18	HS/GED
Preparers						
Administrative Services	272	314	15.4%	42	\$41.48	BA/BS
Managers						
Residential Advisors	268	331	23.5%	63	\$14.68	HS/GED
Interviewers, Except	259	261	0.8%	2	\$20.73	HS/GED
Eligibility and Loan						
Diagnostic Medical	255	264	3.5%	9	\$55.88	AA/AS
Sonographers						
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,	244	272	11.5%	28	\$25.29	Mas/Doc
School, and Vocational						
Counselors						
Education Administrators,	236	241	2.1%	5	\$26.61	BA/BS
Preschool and Childcare						
Center/Program						
Dishwashers	230	275	19.6%	45	\$10.22	<hs< td=""></hs<>
First-Line Supervisors of	225	266	18.2%	41	\$16.29	HS/GED
Food Preparation and						
Serving Workers						

	Jobs	Jobs	Rate	Growth	Wage	Level
Medical and Clinical	223	250	12.1%	27	\$40.01	BA/BS
Laboratory Technologists						
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	209	209	0.0%	0	\$12.53	<hs< td=""></hs<>
Fillers						
Health Educators	207	252	21.7%	45	\$30.37	BA/BS
Community Health	205	263	28.3%	58	\$19.36	HS/GED
Workers						
Waiters and Waitresses	203	260	28.1%	57	\$12.38	<hs< td=""></hs<>
Security Guards	198	210	6.1%	12	\$13.41	HS/GED
File Clerks	198	199	0.5%	1	\$13.31	HS/GED
Chief Executives	192	214	11.5%	22	\$74.43	BA/BS
Speech-Language	190	237	24.7%	47	\$38.54	Mas/Doc
Pathologists						
Cardiovascular	175	160	-8.6%	-15	\$33.03	AA/AS
Technologists and						
Technicians						
Light Truck or Delivery	173	216	24.9%	43	\$16.47	HS/GED
Services Drivers						
Bill and Account	172	200	16.3%	28	\$21.93	HS/GED
Collectors						
Magnetic Resonance	168	147	-12.5%	-21	\$34.95	AA/AS
Imaging Technologists						
Laundry and Dry-Cleaning	167	195	16.8%	28	\$11.74	<hs< td=""></hs<>
Workers						
Payroll and Timekeeping	166	177	6.6%	11	\$21.93	HS/GED
Clerks						
Physical Therapist	160	206	28.8%	46	\$32.06	AA/AS
Assistants						
Surgeons	157	181	15.3%	24	\$113.03	Mas/Doc
Training and Development	155	187	20.6%	32	\$34.10	BA/BS
Specialists						
Market Research Analysts	152	193	27.0%	41	\$37.40	BA/BS
and Marketing Specialists						
Switchboard Operators,	150	110	-26.7%	-40	\$18.41	HS/GED
Including Answering						
Service					h 1 2 - 1	
Dietetic Technicians	146	153	4.8%	7	\$18.01	AA/AS
Opticians, Dispensing	144	176	22.2%	32	\$22.84	HS/GED
	004 = 1	* 0.5 -	ا م ا	I	3.e I	m
	2015	2025	Growth	Job	Median	Typical Ed
Occupations	Jobs	Jobs	Rate	Growth	Wage	Level

Laborers and Freight,	144	155	7.6%	11	\$13.09	<hs< th=""></hs<>
Stock, and Material						
Movers, Hand						
Landscaping and	140	156	11.4%	16	\$15.16	<hs< td=""></hs<>
Groundskeeping Workers						
Ambulance Drivers and	138	224	62.3%	86	\$13.36	HS/GED
Attendants, Except						
Emergency Medical						
Technicians						

Source: EMSI, 6-County North Bay Region

Education/Skill Level Key

Abbrev.	Typical Education Requirement	Skill Level
<hs< td=""><td>No education requirement</td><td>Lower Skill</td></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

Occupations	2015	2025	Growth	Job	Median	Typical
Occupations Packaging and Filling Machine	Jobs 2,807	Jobs 3,469	Rate 23.6%	Growth 662	Wage \$14.02	Ed Level HS/GED
Operators and Tenders	2,807	3,409	23.0%	002	\$14.02	US/GED
Separating, Filtering,	2,553	2,879	12.8%	326	\$18.49	HS/GED
Clarifying, Precipitating, Still	2,333	2,077	12.070	320	ψ10. 1)	IIS/GLD
Machine Setters, Operators,						
Tenders						
Laborers and Freight, Stock,	1,675	1,896	13.2%	221	\$13.09	<hs< td=""></hs<>
and Material Movers, Hand	,	,			·	
First-Line Supervisors of	1,486	1,704	14.7%	218	\$30.42	HS/GED
Production and Operating						
Workers						
Sales Representatives,	1,389	1,543	11.1%	154	\$29.87	HS/GED
Wholesale and Manufacturing,						
Except Technical and Scientific						
Products						
Team Assemblers	1,369	1,498	9.4%	129	\$15.70	HS/GED
General and Operations	1,330	1,456	9.5%	126	\$47.95	BA/BS
Managers						
Retail Salespersons	1,210	1,432	18.3%	222	\$12.37	<hs< td=""></hs<>
Farmworkers and Laborers,	1,104	1,124	1.8%	20	\$11.24	<hs< td=""></hs<>
Crop, Nursery, and Greenhouse	1.007	1 1 1 1	10.70/	100	Φ1 π 2 0	TIG (GED
Demonstrators and Product	1,035	1,144	10.5%	109	\$15.30	HS/GED
Promoters	1.004	1.060	<i>C</i> F 0/	65	Φ10. 5 2	HC
HelpersProduction Workers	1,004	1,069	6.5%	65	\$13.53	<hs< td=""></hs<>
Inspectors, Testers, Sorters,	1,002	1,207	20.5%	205	\$18.07	HS/GED
Samplers, and Weighers Industrial Truck and Tractor	014	1.066	16.6%	150	\$16.41	<hs< td=""></hs<>
Operators Operators	914	1,066	10.0%	152	\$10.41	<n3< td=""></n3<>
Shipping, Receiving, and	863	910	5.4%	47	\$16.79	HS/GED
Traffic Clerks						
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	781	908	16.3%	127	\$20.94	HS/GED
Workers, General						
Packers and Packagers, Hand	758	844	11.3%	86	\$10.66	<hs< td=""></hs<>
Industrial Machinery	711	991	39.4%	280	\$28.38	HS/GED
Mechanics						
Stock Clerks and Order Fillers	703	800	13.8%	97	\$12.53	<hs< td=""></hs<>
Occupations	2015	2025	Growth	Job	Median	Typical

	Jobs	Jobs	Rate	Growth	Wage	Ed Level
Heavy and Tractor-Trailer	683	730	6.9%	47	\$20.94	SC/CERT
Truck Drivers						
Office Clerks, General	613	663	8.2%	50	\$17.45	HS/GED
Mixing and Blending Machine	561	728	29.8%	167	\$15.71	HS/GED
Setters, Operators, and Tenders						
Waiters and Waitresses	545	620	13.8%	75	\$12.38	<hs< td=""></hs<>
Bookkeeping, Accounting, and	541	528	-2.4%	-13	\$21.69	SC/CERT
Auditing Clerks						
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	496	558	12.5%	62	\$16.47	HS/GED
Services Drivers						
Industrial Engineers	495	563	13.7%	68	\$45.37	BA/BS
Welders, Cutters, Solderers,	470	514	9.4%	44	\$20.03	HS/GED
and Brazers						
Sales Managers	451	494	9.5%	43	\$47.02	BA/BS
Secretaries and Administrative	427	465	8.9%	38	\$18.98	HS/GED
Assistants, Except Legal,						
Medical, and Executive						
Customer Service	421	486	15.4%	65	\$18.88	HS/GED
Representatives						
Janitors and Cleaners, Except	413	479	16.0%	66	\$13.26	<hs< td=""></hs<>
Maids and Housekeeping						
Cleaners						
Accountants and Auditors	405	456	12.6%	51	\$36.22	BA/BS
Production, Planning, and	387	439	13.4%	52	\$26.16	HS/GED
Expediting Clerks						
Bakers	366	401	9.6%	35	\$14.26	<hs< td=""></hs<>
Cabinetmakers and Bench	361	368	1.9%	7	\$20.18	HS/GED
Carpenters						
Electrical and Electronic	327	357	9.2%	30	\$19.88	HS/GED
Equipment Assemblers						
Market Research Analysts and	324	394	21.6%	70	\$37.40	BA/BS
Marketing Specialists						
Chemists	306	418	36.6%	112	\$39.49	BA/BS
Cashiers	298	325	9.1%	27	\$10.78	<hs< td=""></hs<>
First-Line Supervisors of Office	298	336	12.8%	38	\$27.26	HS/GED
and Administrative Support						
Workers						
Cutting, Punching, and Press	289	262	-9.3%	-27	\$16.65	HS/GED
Machine Setters, Operators, and						
Tenders, Metal and Plastic						
	2015	2025	Growth	Job	Median	Typical
Occupations	Jobs	Jobs	Rate	Growth	Wage	Ed Level

Purchasing Agents, Except	279	314	12.5%	35	\$30.61	BA/BS
Wholesale, Retail, and Farm						
Products	2.55	211	1.5.00/	4.5	411.0 5	***
Bartenders	266	311	16.9%	45	\$11.86	<hs< td=""></hs<>
Financial Managers	253	294	16.2%	41	\$56.35	BA/BS
Architectural and Engineering	251	262	4.4%	11	\$69.63	BA/BS
Managers						
Sawing Machine Setters,	244	251	2.9%	7	\$15.23	HS/GED
Operators, and Tenders, Wood						
Extruding, Forming, Pressing,	237	246	3.8%	9	\$13.13	HS/GED
and Compacting Machine						
Setters, Operators, and Tenders						
First-Line Supervisors of	220	256	16.4%	36	\$36.82	HS/GED
Mechanics, Installers, and						
Repairers						
Dental Laboratory Technicians	213	189	-11.3%	-24	\$18.05	HS/GED
Cleaners of Vehicles and	211	256	21.3%	45	\$11.02	<hs< td=""></hs<>
Equipment						
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	207	214	3.4%	7	\$28.53	HS/GED
Executive Administrative					,	
Assistants						
Molders, Shapers, and Casters,	202	116	-42.6%	-86	\$16.54	HS/GED
Except Metal and Plastic					·	
Food Preparation Workers	200	240	20.0%	40	\$10.50	<hs< td=""></hs<>
Food Cooking Machine	199	249	25.1%	50	\$15.05	HS/GED
Operators and Tenders		,			7 - 0 1 0 0	
Slaughterers and Meat Packers	195	205	5.1%	10	\$11.96	<hs< td=""></hs<>
Sewing Machine Operators	195	207	6.2%	12	\$13.87	<hs< td=""></hs<>
Sales Representatives,	184	210	14.1%	26	\$39.81	BA/BS
Wholesale and Manufacturing,	101	210	1 1.1 70	20	ψ37.01	D/ I/DS
Technical and Scientific						
Products						
Medical Scientists, Except	178	245	37.6%	67	\$52.68	Mas/Doc
Epidemiologists	170	273	37.070	07	Ψ32.00	Mas/Doc
Cleaning, Washing, and Metal	172	190	10.5%	18	\$15.22	<hs< td=""></hs<>
Pickling Equipment Operators	1/2	170	10.570	10	Ψ13.22	\115
and Tenders						
Marketing Managers	172	209	21.5%	37	\$68.51	BA/BS
Woodworking Machine Setters,	172	159	-7.0%	-12	\$15.18	HS/GED
	1/1	139	-7.0%	-12	Φ13.10	113/GED
Operators, and Tenders, Except						
Sawing Human Passaurass Specialists	170	102	12 00/	22	¢22.01	D A /DC
Human Resources Specialists	170	192	12.9%	22 Tab	\$32.01	BA/BS
Occupations	2015	2025	Growth	Job	Median	Typical
Occupations	Jobs	Jobs	Rate	Growth	Wage	Ed Level

Cutting and Slicing Machine	169	174	3.0%	5	\$14.94	HS/GED
Setters, Operators, and Tenders	1.00	220	24.00/	50	Φ Ω1 Ω2	HC/CED
Maintenance Workers, Machinery	169	228	34.9%	59	\$21.83	HS/GED
Graphic Designers	169	170	0.6%	1	\$26.21	BA/BS
Software Developers, Systems	164	164	0.0%	0	\$59.48	BA/BS
Software	10.	10.	0.070	ŭ	φονιο	21122
Weighers, Measurers,	160	177	10.6%	17	\$12.88	HS/GED
Checkers, and Samplers,						
Recordkeeping						
Electronics Engineers, Except	159	162	1.9%	3	\$49.30	BA/BS
Computer						
Machine Feeders and	157	169	7.6%	12	\$15.21	<hs< td=""></hs<>
Offbearers						
Coating, Painting, and Spraying	154	174	13.0%	20	\$16.00	HS/GED
Machine Setters, Operators, and						
Tenders						
Order Clerks	151	151	0.0%	0	\$17.18	HS/GED
Computer-Controlled Machine	150	195	30.0%	45	\$16.84	HS/GED
Tool Operators, Metal and						
Plastic						
Meat, Poultry, and Fish Cutters	148	116	-21.6%	-32	\$11.95	<hs< td=""></hs<>
and Trimmers						
Merchandise Displayers and	147	176	19.7%	29	\$15.42	HS/GED
Window Trimmers						
First-Line Supervisors of	145	167	15.2%	22	\$22.62	HS/GED
Helpers, Laborers, and Material						
Movers, Hand						
Administrative Services	145	157	8.3%	12	\$41.48	BA/BS
Managers						
Electrical and Electronics	144	161	11.8%	17	\$33.62	AA/AS
Engineering Technicians						
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	139	154	10.8%	15	\$19.69	HS/GED
Sales Workers						
First-Line Supervisors of Non-	136	159	16.9%	23	\$28.15	HS/GED
Retail Sales Workers						
Molding, Coremaking, and	136	114	-16.2%	-22	\$13.91	HS/GED
Casting Machine Setters,						
Operators, and Tenders, Metal						
and Plastic						
Biological Technicians	135	204	51.1%	69	\$26.57	BA/BS
	2015	2025	Growth	Job	Median	Typical
Occupations	Jobs	Jobs	Rate	Growth	Wage	Ed Level

Carpenters	135	137	1.5%	2	\$29.77	HS/GED
Electricians	133	154	15.8%	21	\$35.51	HS/GED
First-Line Supervisors of	133	146	9.8%	13	\$26.29	HS/GED
Transportation and Material-						
Moving Machine and Vehicle						
Operators						
Computer Systems Analysts	133	172	29.3%	39	\$43.65	BA/BS
Industrial Engineering	128	177	38.3%	49	\$27.39	AA/AS
Technicians						
Software Developers,	128	132	3.1%	4	\$52.57	BA/BS
Applications						
Agricultural and Food Science	126	148	17.5%	22	\$20.30	AA/AS
Technicians						
Chemical Technicians	120	179	49.2%	59	\$23.82	AA/AS
Transportation, Storage, and	116	136	17.2%	20	\$44.98	HS/GED
Distribution Managers						
Structural Metal Fabricators	114	132	15.8%	18	\$22.88	HS/GED
and Fitters						
Compliance Officers	110	149	35.5%	39	\$35.53	BA/BS
Network and Computer	110	126	14.5%	16	\$40.57	BA/BS
Systems Administrators						
Computer Hardware Engineers	110	109	-0.9%	-1	\$57.01	BA/BS

Source: EMSI, 6-County North Bay Region

Education/Skill Level Key

Educatio	m/Skin Ecvel Key	
Abbrev.	Typical Education Requirement	Skill Level
<hs< td=""><td>No education requirement</td><td>Lower Skill</td></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

51

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/) operated by the BLS. The data are collected from about 2/3 of all employers over a 3-year cycle.

Level 1: Occupations typically

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

Level 1: Occupations typically requiring no formal educational	2015	2025	Growth	Job	Replace-	Median
credential (<hs)< th=""><th>Jobs</th><th>Jobs</th><th>Rate</th><th>Growth</th><th>ments</th><th>Wage</th></hs)<>	Jobs	Jobs	Rate	Growth	ments	Wage
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	572	710	24.1%	138	260	\$12.38
Service Attendants						
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	698	836	19.8%	138	112	\$11.74
Workers						
Maids and Housekeeping	5,621	6,497	15.6%	876	1,517	\$11.65
Cleaners						
Counter Attendants, Cafeteria,	2,001	2,300	14.9%	299	1,313	\$11.49
Food Concession, and Coffee						
Shop						
Personal Care Aides	8,579	12,603	46.9%	4,024	922	\$11.34
Farmworkers and Laborers,	9,835	9,358	-4.8%	-477	3,105	\$11.24
Crop, Nursery, and Greenhouse						
Home Health	2,138	3,477	62.6%	1,339	692	\$11.20
Aides						
Cleaners of Vehicles and	1,946	2,339	20.2%	393	757	\$11.02
Equipment						

Level 2: Occupations typically requiring a high school diploma or

requiring a high school diploma or	2015	2025	Growth	Job	Replace-	Median
equivalent (HS/GED)	Jobs	Jobs	Rate	Growth	ments	Wage
Police and Sheriff's Patrol	2,005	2,220	10.7%	215	701	\$48.02
Officers						
Electrical Power-Line Installers	455	663	45.7%	208	230	\$47.52
and Repairers						
Correctional Officers and Jailers	2,669	2,800	4.9%	131	756	\$44.15
First-Line Supervisors of	2,015	2,335	15.9%	320	201	\$38.94
Construction Trades and						
Extraction Workers						
Structural Iron and Steel Workers	364	441	21.1%	77	68	\$32.15
First-Line Supervisors of	2,057	2,355	14.5%	298	353	\$30.42
Production and Operating						
Workers						
Machinists	651	789	21.2%	138	212	\$30.05
Telecommunications Line	428	579	35.2%	151	94	\$29.88
Installers and Repairers						
Level 2: Occupations typically	2015	2025	Growth	Job	Replace-	Median
requiring a high school diploma or	Jobs	Jobs	Rate	Growth	ments	Wage

equivalent (HS/GED) Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products 5,165 6,068 17.5% 903 Carpenters 5,279 5,831 10.5% 552 Industrial Machinery Mechanics 1,062 1,421 33.8% 359 First-Line Supervisors of Office and Administrative Support Workers 5,831 6,577 12.8% 746 Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers	2 808 9 330 5 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$29.87 \$29.77 \$28.38 \$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
and Manufacturing, Except Technical and Scientific Products Carpenters 5,279 5,831 10.5% 552 Industrial Machinery Mechanics 1,062 1,421 33.8% 359 First-Line Supervisors of Office and Administrative Support 5,831 6,577 12.8% 746 Workers Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 5,670 6,355 13.4% 698	2 808 9 330 6 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$29.77 \$28.38 \$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
Technical and Scientific Products 5,279 5,831 10.5% 552 Industrial Machinery Mechanics 1,062 1,421 33.8% 359 First-Line Supervisors of Office and Administrative Support 5,831 6,577 12.8% 746 Workers Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers	9 330 5 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$28.38 \$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
Carpenters 5,279 5,831 10.5% 552 Industrial Machinery Mechanics 1,062 1,421 33.8% 359 First-Line Supervisors of Office and Administrative Support Workers 5,831 6,577 12.8% 746 Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 5,891 13.4% 698	9 330 5 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$28.38 \$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
Industrial Machinery Mechanics 1,062 1,421 33.8% 359 First-Line Supervisors of Office and Administrative Support Workers 5,831 6,577 12.8% 746 Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 369	9 330 5 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$28.38 \$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
First-Line Supervisors of Office and Administrative Support Workers 5,831 6,577 12.8% 746 Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 5,670 6,355 13.4% 698	5 944 5 143 8 59 4 78 4 44 2 289 5 1,587	\$27.26 \$26.97 \$23.55 \$22.84 \$21.83 \$21.37
and Administrative Support Workers Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 364 447 22.8% 22.8% 83	5 143 3 59 4 78 4 44 2 289 5 1,587	\$26.97 \$23.55 \$22.84 \$21.83 \$21.37
Workers Bus and Truck Mechanics and Diesel Engine Specialists 739 904 22.3% 165 Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 5,193 5,891 13.4% 698	3 59 4 78 4 44 2 289 5 1,587	\$23.55 \$22.84 \$21.83 \$21.37
Diesel Engine Specialists 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 5,193 5,891 13.4% 698	3 59 4 78 4 44 2 289 5 1,587	\$23.55 \$22.84 \$21.83 \$21.37
Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 364 447 22.8% 22.8% 23	4 78 4 44 2 289 5 1,587	\$22.84 \$21.83 \$21.37
Glaziers 364 447 22.8% 83 Opticians, Dispensing 249 323 29.7% 74 Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers 364 447 22.8% 22.8% 23	4 78 4 44 2 289 5 1,587	\$22.84 \$21.83 \$21.37
Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail Sales Workers 5,193 5,891 13.4% 698	4 44 2 289 5 1,587	\$21.83 \$21.37
Maintenance Workers, Machinery 232 306 31.9% 74 Medical Secretaries 2,562 2,874 12.2% 312 Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail Sales Workers 5,193 5,891 13.4% 698	2 289 5 1,587	\$21.37
Maintenance and Repair Workers, General 5,670 6,355 12.1% 685 Billing and Posting Clerks 1,662 1,942 16.8% 280 First-Line Supervisors of Retail Sales Workers 5,193 5,891 13.4% 698	1,587	
General Jack Sales Workers Jack Sales Ja	ĺ	
General Jack Sales Workers Jack Sales Ja	200	\$20.94
First-Line Supervisors of Retail 5,193 5,891 13.4% 698 Sales Workers	200	
Sales Workers	383	\$20.85
	3 1,247	\$19.69
Community Health Workers 268 333 24.3% 65	61	\$19.36
Secretaries and Administrative 8,438 9,102 7.9% 664	928	\$18.98
Assistants, Except Legal,		
Medical, and Executive		
Customer Service Representatives 5,512 6,558 19.0% 1,046		\$18.88
Separating, Filtering, Clarifying, 2,656 2,991 12.6% 335	5 904	\$18.49
Precipitating, and Still Machine		
Setters, Operators, and Tenders		***
First-Line Supervisors of Personal 870 1,074 23.4% 204	192	\$18.33
Service Workers		* 10.0 =
Inspectors, Testers, Sorters, 1,454 1,792 23.2% 338	3 417	\$18.07
Samplers, and Weighers	1 (10	017.60
Social and Human Service 2,892 3,426 18.5% 534	4 643	\$17.63
Assistants 10.211 11.196 0.507 0.757	2 2 2 1 0	017.45
Office Clerks, General 10,211 11,186 9.5% 975		\$17.45
Shipping, Receiving, and Traffic 2,796 2,984 6.7% 188	630	\$16.79
Clerks Displayer and the second seco	0.4	¢16.67
Photographers 232 341 47.1% 109 Light Truck or Delivery Services 3.218 3.708 11.8% 200	_	\$16.67 \$16.47
Light Truck or Delivery Services 3,318 3,708 11.8% 390 Drivers	602	\$10.47
First-Line Supervisors of Food 3,858 4,600 19.2% 742	2 1,279	\$16.29
Preparation and Serving Workers 3,838 4,000 19.2% 742	2 1,219	\$10.29
Receptionists and Information 4,085 4,595 12.5% 510) 1,184	\$15.95
Clerks	1,104	ψ13.73
Level 2: Occupations typically 2015 2025 Growth Joh	Replace-	N. 1.
requiring a high school diploma or Jobs Jobs Rate Growth	, 150/////	Median

equivalent (HS/GED)						
Mixing and Blending Machine	606	782	29.0%	176	154	\$15.71
Setters, Operators, and Tenders						
Merchandise Displayers and	357	435	21.8%	78	96	\$15.42
Window Trimmers						
Food Cooking Machine Operators	224	279	24.5%	55	54	\$15.05
and Tenders						
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	3,165	3,896	23.1%	731	1,288	\$14.02
Operators and Tenders						
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	1,663	2,006	20.6%	343	998	\$12.64
Clerks						
Recreation Workers	2,052	2,395	16.7%	343	420	\$12.16

Level 3: Occupations typically

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

Level 4: Occupations 2015 2025 Growth Job Replacement Median

typically requiring an	Jobs	Jobs	Rate	Growth	S	Wage
associate degree (AA/AS)						
Registered Nurses	11,27	12,18	8.1%	915	2,787	\$52.99
	1	6				
Chemical Technicians	202	300	48.5%	98	78	\$23.82
Veterinary Technologists and	721	865	20.0%	144	80	\$19.24
Technicians						

Level 5: Occupations typically

requiring a bachelor's degree	2015	2025	Growth	Job	Replace-	Median
(BA/BS)	Jobs	Jobs	Rate	Growth	ments	Wage
Natural Sciences Managers	282	337	19.5%	55	66	\$71.58
General and Operations	10,600	11,835	11.7%	1,235	2,859	\$47.95
Managers						
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	2,172	2,607	20.0%	435	288	\$37.40
Marketing Specialists						
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,	3,163	3,388	7.1%	225	781	\$32.53
Except Special and						
Career/Technical Education						
Elementary School Teachers,	7,226	7,633	5.6%	407	1,650	\$32.34
Except Special Education						
Social and Community Service	700	866	23.7%	166	217	\$30.42
Managers						
Biological Technicians	354	436	23.2%	82	112	\$26.57
Substance Abuse and	437	527	20.6%	90	105	\$20.48
Behavioral Disorder						
Counselors						
Substitute Teachers	3,508	3,718	6.0%	210	684	\$16.89

Level 6: Occupations typically

requiring a graduate degree	2015	2025	Growth	Job	Replace-	Median
(Mas/Doc)	Jobs	Jobs	Rate	Growth	ments	Wage
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

skill Requirements for Top 25 Mild	J	34	,		au			-60	. 01		6''	-1		_	Jul	,01										
	H	П											Sk	IIIS												
Occupations	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	Service Orientation	Social Perceptiveness	Speaking	Time Management	Troubleshooting	Writing
Registered Nurses	•	•	L	•	•	L		•	L	Щ	Ш	•			Ш			•		Ш	•	•	•	Ц		
Heavy and Tractor-Trailer Truck Drivers	╀	•	•		•	٠		Щ	L	Щ	Щ	•	•	•	Ш			•		Щ	L	L	•	•		
Licensed Practical and Licensed	l	•	l	•					•			•						•			•		•			
Vocational Nurses	╀	_	\vdash			_			L		Щ	\vdash			Н	\Box				Н	L			Н		
Emergency Medical Technicians and	•	•		•	•				•			•						•			•	•	•			
Paramedics Medical Assistants	١.	•	\vdash	•	•	\vdash	\vdash	H	\vdash	H	Н	•	\vdash		Н	\vdash	\vdash	•	\vdash	Н	•	•	•	Н		•
	۲	ľ	\vdash	ř	Ť	\vdash	\vdash	\vdash	\vdash	\vdash	Н	ř	\vdash	\vdash	Н	\vdash	\vdash	Ť	\vdash	Н	ř	Ť	•	Н		·
Preschool Teachers, Except Special Education		•		•	•	l				•		•						•			•	•	•	•		
Dental Assistants	•	•	\vdash	\vdash	•	\vdash	Н	•	Н	Н	Н	•	Н	\vdash	Н	\dashv	\vdash	•	Н	Н	•	•	•	Н		•
Firefighters*	t	•	Т	•	•	Т	Т	\vdash	•	Н	Н	•	Н	•	Н	\dashv	\vdash	•	Н	Н	•	•	•	Н	\vdash	Т
First-Line Supervisors of Production and	†	T	T	\vdash		Т	Г	П	Г	П	П	П			Н				П	Н	Т			П		
Operating Workers		•	•	•	•						•							•				•	•	•		•
Computer User Support Specialists	•	•		•	•			•				•						•			•		•			•
Heating, Air Conditioning, and	Γ		Γ										•					•	•							
Refrigeration Mechanics and Installers*	L	Ľ	L	Ĺ	Ĺ	Ĺ	Ĺ	Ш	L	Ш	Ш	Ц			Ш			Ĺ		Ш	L	L		Ц	Ĺ	
Medical and Clinical Laboratory		•								•		•						•		•						
Technicians	\perp	╙	L	_		L	L	Щ	L	Щ	Щ	Ц	Щ	Щ	Щ		Щ	Щ		Щ	L		L	Ц	L	L
Dental Hygienists	•	•	•	•	•	\vdash			\vdash		Щ	•			Щ			•		Щ	•		•	Н		•
Web Developers	•	•	٠		•	L			•		Щ	•			•	•		•		Щ	L			Н		•
Massage Therapists	•	•	\vdash	L	•	\vdash			•		Н	•	\vdash		Н			•	\vdash	Н	•	•	•	Н		•
Medical Records and Health Information		•	•		•	l			•	•		•						•					•	•		•
Technicians Library Technicians	١.	•	\vdash	•	•	\vdash	\vdash	•	\vdash	Н	Н	•	\vdash	\vdash	Н	\vdash	\vdash	•	\vdash	Н	•	\vdash	•	Н	\vdash	•
Paralegals and Legal Assistants	ŀ	·	\vdash	•	•	\vdash	\vdash	Ť	\vdash	\vdash	Н	•	\vdash	\vdash	Н	\dashv	\vdash	•	\vdash	Н	ř		•	Ļ	\vdash	-
Radiologic Technologists	ŀ	-	\vdash	•	•	\vdash	\vdash	\vdash	\vdash	\vdash	Н	÷	\vdash	\vdash	Н		\vdash	•	\vdash	Н	Н	•	•	÷		•
Veterinary Technologists and Technicians	-	+	\vdash	•	•	\vdash	Н	\vdash	\vdash	•	Н	•	Н	Н	Н	\dashv	Н	•	Н	Н	•	•	•	Ĥ	Н	Ť
Respiratory Therapists	ŀ	-	\vdash	Ť	•	\vdash		\vdash	•	ŕ	H	•	Н		Н			•	Н	•	•	•	•	Н		
Telecommunications Equipment Installers	_	\vdash	Н	Т		Н		Н	Н	Н	H	Н	Н		H				Н	H	Н			Н		Н
and Repairers, Except Line Installers	•	•	•		•	l						•		•			•	•	•						•	
Phlebotomists	•	•	Г	•	•	Г	Г	•	Г	П	П	•	П		П			•		П	•	•	•	П		Г
	-	_	_	_		$\overline{}$															$\overline{}$			$\boldsymbol{-}$		
Surgical Technologists	•	•	•	•	•	ı		•		•		•						•			•					

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

^{*} Skills listed for the occupation represent a specialty occupation.

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

g jamana sa is	Knowledge																												
Occupations	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		overnment	Mathematics	Mechanical	Medicine and Dentistry	Personnel and Human Resources	Philosophy and Theology	Physics	Production and Processing	Psychology	Public Safety and Security	Sales and Marketing	Sociology and Anthropology	Telecommunications	Therapy and Counseling	Transportation
Registered Nurses	L	•		L	•	L	L	•		Ц	•	Ц	•			•	Ц	•	Ц				•			•	Ц	٠	Ц
Heavy and Tractor-Trailer Truck Drivers	•			L		L	L	•			•	Ц	•	•	•	•	•		\sqcup	_		Ц		•					•
Licensed Practical and Licensed				•	•	l	l	•			•		•			•		•		•			•	l				•	
Vocational Nurses	\vdash		_	_		\vdash	\vdash	\vdash	\vdash	Ш		Н	\vdash				Н	\vdash	\sqcup	_		Щ	Н	\vdash	\vdash		Щ	Ц	Н
Emergency Medical Technicians and				•				•			•		•			•		•					•	•				•	•
Paramedics Modical Assistants	•	\vdash	\vdash	\vdash		\vdash	•	_	\vdash	\vdash	_	Н	•	\vdash	\vdash	\vdash	Н	•	\vdash	\dashv	\dashv	\vdash	Ļ	-	\vdash	\vdash	\vdash	•	Н
Medical Assistants	ľ	\vdash	\vdash	\vdash	•	\vdash	ľ	•	\vdash	Н	•	Н	ľ	\vdash	Н	Н	Н	•	\dashv	\dashv	\dashv	Н	•	•	\vdash	Н	Н	-	Н
Preschool Teachers, Except Special Education	•					l	l	•			•		•	•						•			•	•		•		•	
Dental Assistants	\vdash	\vdash	\vdash	•	•	\vdash	•	•	\vdash	Н	•	Н	•	\vdash	\vdash	\vdash	Н	•	\dashv	\dashv	\dashv	•	•	\vdash	•	Н	Н	\dashv	Н
Firefighters*	•	\vdash	•	•	Ť	\vdash	ř	•	\vdash	Н	•	Н	•	\vdash	•	\vdash	•	Ť	\dashv	\dashv	•	Ť	Ť	•	Ť	Н	Н	\dashv	Н
First-Line Supervisors of Production and	Н	\vdash	Ť	Ť	\vdash	\vdash	\vdash	Ė	\vdash	\vdash	-	Н	Ť	\vdash	-		H	\vdash	\dashv	\dashv	-	\dashv	Н	ř	\vdash	\vdash	\vdash	\dashv	Н
Operating Workers	•				•	l	•		•		•	•				•	•		•			•		l					
Computer User Support Specialists	•	\vdash	\vdash	\vdash	•	•	•	•	\vdash	\vdash	•	•	•	\vdash		•	H	Н	\forall	\dashv	\dashv	\vdash	Н	\vdash	\vdash	Н	•	\dashv	Н
Heating, Air Conditioning, and	\vdash	\vdash	\vdash	\vdash	\vdash	Т	Н		\vdash	H		Н	Н	\vdash	Н		H	Н	\forall	\dashv	\dashv	\dashv	Н	Т	\vdash	Н	H	\dashv	П
Refrigeration Mechanics and Installers*			•	•		l	•	•	•			•	•			•	•				•			l					
Medical and Clinical Laboratory	Г	_		_	_	Г		•	Г	П		П	•	П		•	П	•	\Box	\neg			П	•	Г	П	П	\sqcap	П
Technicians		•		•	•	L	ľ	•					•			•	$\lfloor \rfloor$	•				•		•					
Dental Hygienists		•		•	•		•	•			•		•				П	•					•		•				
Web Developers	•				•	•	•	•	•		•		•			•									•				
Massage Therapists	٠	•			•			•			•		•					•					•		•			•	
Medical Records and Health Information	•				•						•				•	•	П							•					
Technicians	L	$oxed{oxed}$		L	Ĺ	Ĺ	Ĺ		L	Ш		Ш	Ĺ	Ш			Ц	L	Ш			Ш	Ш	Ĺ	L	Ш	Ш	Ш	Ш
Library Technicians	•				•	٠	•	•	L	•	•	Ц	•		•	•	Ц	L	Ц				Ц	L	L		Щ	Ц	Ш
Paralegals and Legal Assistants	•			L	•	٠	•	•	L	Щ	•	Ц	•		•	•	Ц	L	Ц				•	L	L		Щ	Ц	Щ
Radiologic Technologists	$oxed{oxed}$	•		_	•	L	•	•	$oxed{oxed}$	Щ	•	Ц	•	Щ	Щ	•	Ц	•	Ц	_	•	Ц	•	L	$oxed{oxed}$	Щ	Щ	Щ	Ш
Veterinary Technologists and Technicians	•	•	_		•	L	•	•		Щ	•	Ц	•			•	Ц	•	Щ	_		Щ	Ц	<u> </u>	•	Щ	Щ	Ц	Ш
Respiratory Therapists	\vdash	•	_	•		⊢	•	•	\vdash	Щ	•	Н	•			•	Н	•	Щ	_		Щ	•	L	L	Щ	Щ	•	Н
Telecommunications Equipment Installers					•	l	•	•			•	•	•			•	•							•			•		
and Repairers, Except Line Installers	\vdash			_	_	⊢	Ļ		L	Н	_	Н					Н	_	\sqcup			Щ	Ļ	_	L	Щ	Н	\dashv	\vdash
Phlebotomists	\vdash			•	•	⊢	•	•	\vdash	Н	•	Н	•				Н	•	\sqcup	•		Щ	•	•	\vdash	Щ	Н		Н
Surgical Technologists	_	•		•	_	\vdash	•	•		\vdash	•	Н	•		-		Н	•	\vdash	\dashv	\dashv	\dashv	•	•	H	_	\vdash	•	Н
Psychiatric Technicians	•	$oxed{oxed}$	$oxed{oxed}$	_	•	乚	•	•	oxdot	Щ	•	Ц	•	Щ	•	Щ	Ц	Щ	Ц	_	Ц	Щ	•	•	$oxed{oxed}$	•	Щ	•	Ш

Source: U.S. Department of Labor's Occupational Information Network (O*NET) at 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

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

Business & Community Partners

American Ag Credit

American Canyon Chamber of Commerce

American Medical Response

Annette's Chocolate Factory

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

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

Audubon Society

Autodesk

Bank of Marin

Bay Area Rapid Transit (BART)

Belkorp Ag LabCon

Bell Products Lamb Consulting

Bianc Small Business Development Marker Ed.

Consulting

Marconi Conference Center Bickford Precision Machine & Design Marin Builders Association

BioMarin Marin County Dept. of Health & Human

Bio-Rad Laboratories Services

Bioresearch Technologies Marin County Sheriff's Department **Brad Walton CPA** Marin County Convention & Visitors

Buck Institute for Aging

California Commission on Peace Officers Marin General Hospital

Standards and Training Meadow Wood California Highway Patrol Mendo Bistro

California Human Development Mendocino Community Health Clinic Mendocino Private Industry Council California Machine Works

California Restaurant Association Mere Cie, Inc. Canal Community Clinic Microsoft MIT Media Lab City of Napa

Clear Lake Chamber of Commerce Napa Chamber of Commerce

Napa State Hospital Clover Stornetta Napa Valley Wine Train Collotype Labels North Bay Leadership Council Conservation Corp County of Marin North Coast Builders Exchange **CSW** Engineers North Coast Opportunities CTE Foundation Sonoma County NorthBay Health Care

David Grant Medical Center, Travis Novato Community Hospital

Airforce Base Novo Food Forest

Dominican University of California One Sun

Double Tree - Hilton Oxbow School Economic Development & Financing Oxbow Wine Market

Corporation P&L Specialties Edutopia PAX Scientific Environmental

EMC Piner's Fairfield Police Department Pixar

Fairfield-Suisun Chamber of Commerce Point Reyes National Seashore

PR&P Architects Farmstead

Fireman's Fund Queen of the Valley Hospital Gaia Energy System R. Campbell Molds & Consulting

General Dynamics Rainbow Ag

Golden Living Raptor Pharmaceuticals, Inc. Redwood Children's Services Harvest Market Redwood Credit Union Homeward Bound

Intel Clubhouse Redwood Hill Farm & Creamery JDS Uniphase Resources for Innovation

Junior Achievement San Rafael Chamber of Commerce

Kaiser Permanente **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

Contents

Labor Market Forecast for the 6-County North Bay Region	1
Priority Industry Sectors for the 6-County North Bay Region	19
Occupational Analysis for the 6-County North Bay Region	20
Knowledge and Skills Analysis	23

Labor Market Forecast for the 6-County North Bay Region

Excerpt from a Labor Market Forecast by Robert Eyler, 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. 1

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 2019.²

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.

² 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.

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

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)

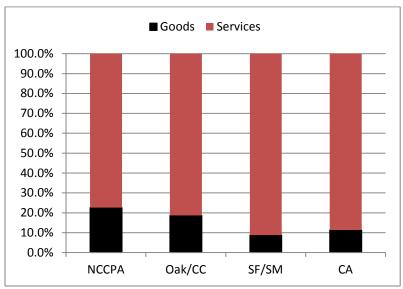
Since 2010, jobs growth has been mainly in services, as the rapid loss of housing and financial wealth changed the construction industry, and pushed many workers toward services initially. From the peak of employment in summer of 2007, there may be as many as 10,000 construction jobs that have yet to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

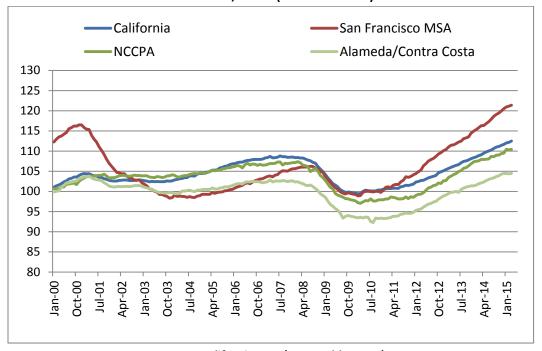
Sector	NCCPA	Oak/CC	SF/SM	CA
Goods	22.7%	18.7%	8.8%	11.4%
Services	77.3%	81.3%	91.2%	88.6%
Overall	100.0%	100.0%	100.0%	100.0%
Overall Jobs Growth	77,500	138,400	212,200	2,009,200



Source: California EDD (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)

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) 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.

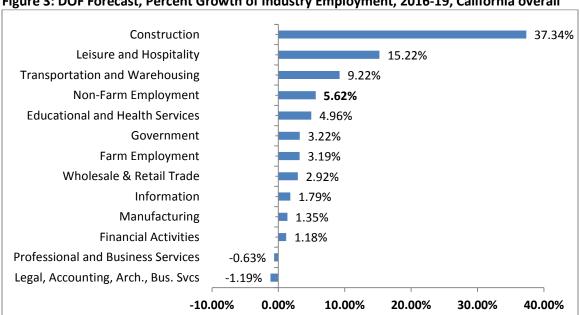


Figure 3: DOF Forecast, Percent Growth of Industry Employment, 2016-19, California overall

Source: California Department of Finance (www.dof.ca.gov)

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

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

Source: Bureau of Labor Statistics

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

		2004-14	2014-24
Industry	Employer	% Growth	% Growth
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 fasted 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

	Percent	
Industry	Growth	Employees
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)

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

California	San Francisco MSA	Oakland MSA	NCCPA Region
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) 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) 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).

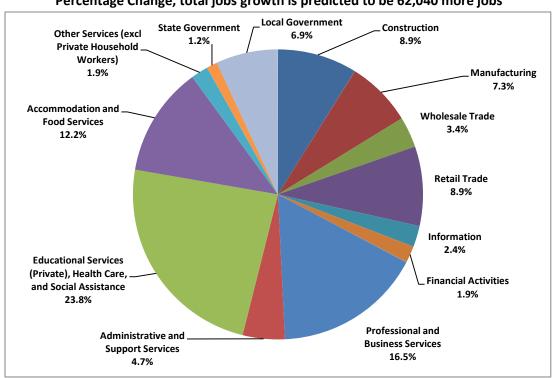
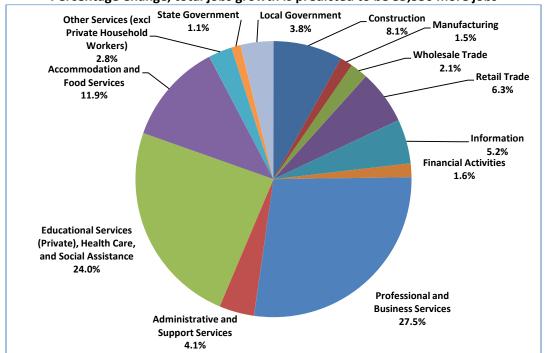


Figure 9: Forecasted Growth of Industry Employment, NCCPA Counties, 2015-2022, Percentage Change, total jobs growth is predicted to be 62,040 more jobs

Sources: California EDD (<u>www.edd.ca.gov</u>) and Bureau of Labor Statistics (<u>www.bls.gov</u>)

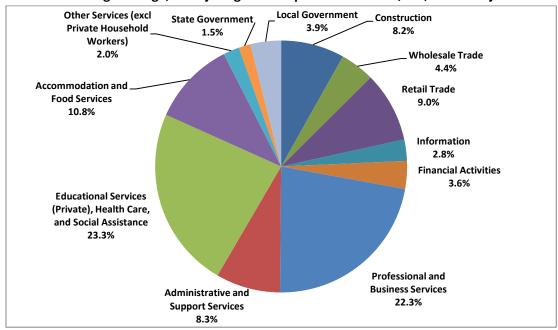
For the state of California overall, manufacturing is projected to lose over 25,000 jobs between 2015 and 2022. Thus, manufacturing is not part of Figure 10. Professional and business services, industries that hire across all services occupations are expected to be a large part of California's job growth, 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) and Bureau of Labor Statistics (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 (<u>www.edd.ca.gov</u>) and Bureau of Labor Statistics (<u>www.bls.gov</u>)

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 inbound 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.

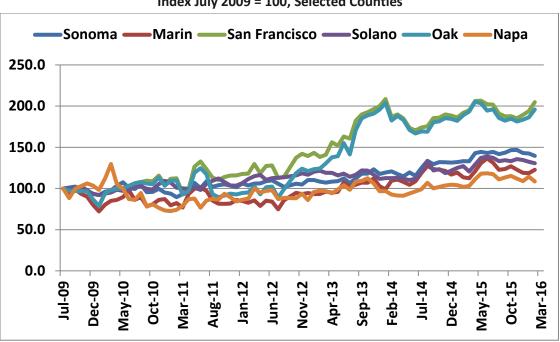


Figure 12: Rental Prices, 2009-2016
Index July 2009 = 100, Selected Counties

Source: Rent Jungle (www.rentjungle.com)

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.

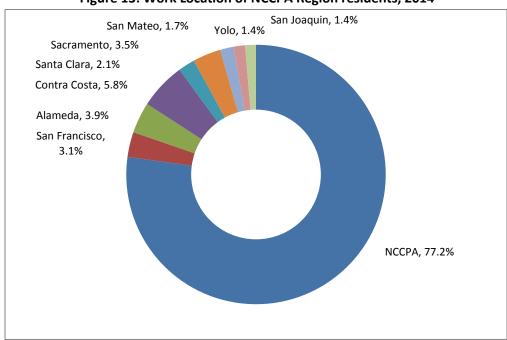


Figure 13: Work Location of NCCPA Region residents, 2014

Source: LEHD (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.

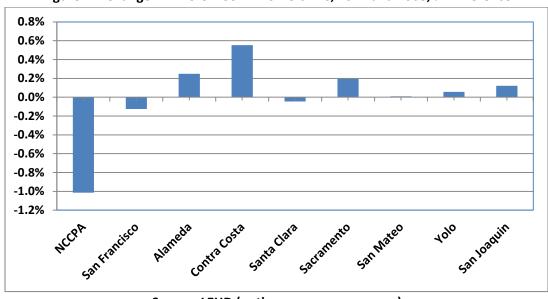


Figure 14: Change in where NCCPA workers live, 2014 and 2008, % Difference

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

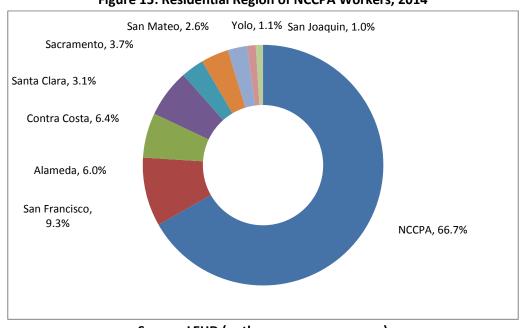


Figure 15: Residential Region of NCCPA Workers, 2014

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.

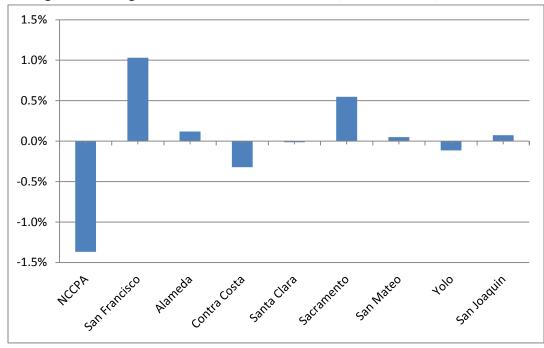


Figure 16: Change in where NCCPA residents work, 2014 and 2008, % Difference

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%
Totals	484,095	100.0%	100.0%

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

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

Live In	Employees	% of Total 2014	% of Total 2008
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%
Totals	559,813	100.0%	100.0%

Source: LEHD (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;
 - o 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/) operated by the Bureau of Labor Statistics (BLS). The data are collected from about 2/3 of all employers over a 3-year cycle.

	2016	2026	2016 - 2026 Growth	2016 - 2026	2016 - 2026 Replace-	Median
Occupation	Jobs	Jobs	Rate	New Jobs	ment Openings	Hourly Earnings
Occupations typically req	uiring no	formal e	ducationa	l credenti	al:	
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

			2016 -	2016 -	2016 - 2026	
			2016 - 2026	2016 - 2026	2016 - 2026 Replace-	Median
	2016	2026	Growth	New	ment	Hourly
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings
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
Occupations typically requi	iring a hig	h school	diploma c	r equival	ent:	
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			21.1/0			
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	5,165	6,068		903	1,169	\$29.87
Products			17.5%			
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	5,831	6,577		746	944	\$27.26
Support Workers	-,	5,5 : :	12.8%			, · · - ·
Bus and Truck Mechanics and Diesel Engine	739	904	22 20/	165	143	\$26.97
Specialists Glaziers	364	447	22.3% 22.8%	83	59	\$23.55
Opticians, Dispensing	249	323	22.8% 29.7%	65 74	78	\$23.33 \$22.84
Maintenance Workers, Machinery	232	306	31.9%	74 74	44	\$21.83
Medical Secretaries	2,562	2,874	12.2%	312	289	\$21.83
Maintenance and Repair Workers, General	5,670	6,355	12.2%	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			24.570			
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	2.656	2 001		225	004	ć10 40
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	3,858	4,600		742	1,279	\$16.29
Serving Workers	,	,	19.2%			
Receptionists and Information Clerks	4,085	4,595	12.5%	510	1,184	\$15.95
Mixing and Blending Machine Setters, Operators,	606	782	20.00/	176	154	\$15.71
and Tenders Merchandise Displayers and Window Trimmers	357	435	29.0% 21.8%	78	96	\$15.42
Food Cooking Machine Operators and Tenders	224	435 279	21.8% 24.5%	78 55	96 54	\$15.42 \$15.05
Residential Advisors	305	375	24.5%	70	108	\$13.03 \$14.68
Driver/Sales Workers	2,052	2,387	23.0% 16.3%	335	383	\$14.50
Tellers	2,032	2,387	10.5%	213	859	\$14.30 \$14.44
Packaging and Filling Machine Operators and			10.370			
Tenders	3,165	3,896	23.1%	731	1,288	\$14.02

			2016 -	2016 -	2016 - 2026	
			2026	2026	Replace-	Median
	2016	2026	Growth	New	ment	Hourly
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings
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
Occupations typically requiring a pos	stseconda	ary certifi	cate or so	me colleg	e/no degree	:
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
Occupations typica	lly requir	ing an as	sociate de	gree:		
Chemical Technicians	202	300	48.5%	98	78	\$23.82
Veterinary Technologists and Technicians	721	865	20.0%	144	80	\$19.24
Occupations typica	lly requir	ing a bac	helor's de	gree:		
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
Occupations typica						
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						•
	,					

Knowledge and Skills Analysis

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

	Skills																									
													314													H
Occupations	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	Service Orientation	Social Perceptiveness	Speaking	Time Management	Troubleshooting	Writing
Registered Nurses	•	•	\vdash	•	•	\vdash	Щ	•	L	\vdash	Щ	٠	_	Щ	Н	_	Ц	•		Щ	•	•	•	L	\vdash	Щ
Heavy and Tractor-Trailer Truck Drivers	L	•	•		•	•		Щ	L		Щ	٠	•	•	Щ	_	Ц	•		Щ	Щ	Щ	•	•		Щ
Licensed Practical and Licensed		•		•	•				•			•						•			•	•	•	•		
Vocational Nurses	\vdash	\vdash	\vdash			\vdash	Н	\vdash	H	\vdash	Н	\vdash	\vdash	Н	Н	\dashv	\dashv	Н		\dashv	\vdash	Н	\vdash	H	\vdash	\vdash
Emergency Medical Technicians and Paramedics	٠	•		•	•				•			٠						•			•	•	•			
Medical Assistants	•	•	Н	•	•	Н			Н			•		Н	Н		\dashv	•			•	•	•	Н		•
Preschool Teachers, Except Special	H		Н			Н			Н			Н	Т	Н	Н		\neg							Н		П
Education		•		•	•					•		•						•			•	•	•	•		
Dental Assistants	•	•	Г		•	П		•		Г		•					П	•			•	•	•		Г	•
Firefighters*		•		•	•				•			•		•				•			•	•	•			П
First-Line Supervisors of Production and	Г			•							•	Г						•				•		•		
Operating Workers	L	•	Ľ	•	•						•	L						•				•	•	•		•
Computer User Support Specialists	•	•	L	•	•			•				٠						•			•		•			•
Heating, Air Conditioning, and				•								l							•							
Refrigeration Mechanics and Installers*	L		L									L														Ш
Medical and Clinical Laboratory	•	•		•	•					•		•						•		•			•			
Technicians	L	L	⊢			L			L	L		┡	L	Н	Н		4				_			L	L	Щ
Dental Hygienists	•	•	•	•	•	L			L	H		•		Н		_	\dashv	•			•		•	H	H	•
Web Developers	•	•	•		•	H			•	H		•	L	Н	•	•	\dashv	•			_			L	H	•
Massage Therapists	•	•	\vdash		•	\vdash	H	Н	•	\vdash	Н	٠	\vdash	Н	Н	\dashv	\dashv	•		\vdash	•	•	•	\vdash	\vdash	•
Medical Records and Health Information Technicians		•	•		•				•	•		•						•					•	•		•
Library Technicians	•	•	Н	•	•	H	Н	•	H	\vdash	\vdash		\vdash	Н	Н	\dashv	\dashv	•		\dashv	•	\vdash	•	H	\vdash	•
Paralegals and Legal Assistants	÷	•	Н	•	•	Н	H	ŕ	Н	Н	Н	÷	\vdash	Н	Н	\dashv	\dashv	•		Н	ŕ	•	•	•	Н	•
Radiologic Technologists	•	•	Н	•	•	\vdash	\vdash	Н	Н	\vdash	\vdash	·	\vdash	Н	Н	\dashv	\dashv	•		\dashv	Н	•	•	•	\vdash	•
Veterinary Technologists and Technicians	•	•	Н	•	•	Н		Н	Н	•	\vdash	•		Н	\forall	\dashv	\dashv	•		\vdash	•	•	•		\vdash	\dashv
Respiratory Therapists	•	•	Н		•	Т	Н		•	Н	\vdash	•		Н	H	\neg	\dashv	•		•	•	•	•	Н	Н	Н
Telecommunications Equipment Installers	Г	\vdash	Г			Т	П	П	Т	Г	Н	Н		Н	H	\neg	Ħ				Т	Н	П	Т		П
and Repairers, Except Line Installers	•	•	•		•							•		•			•	•	•						•	
Phlebotomists	•	•		•	•			•				•						•			•	•	•			
Surgical Technologists	٠	•	•	•	•			•		•		٠						•			•					
Psychiatric Technicians	•	•		•	•					•		•						•			•	•	•			

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

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.

^{*} Skills listed for the occupation represent a specialty occupation.

- 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

	Knowledge																												
Occupations	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		Law and Government	Mathematics	Mechanical	Medicine and Dentistry	Personnel and Human Resources	Philosophy and Theology	Physics	Production and Processing	Psychology	Public Safety and Security	Sales and Marketing	Sociology and Anthropology	Telecommunications	Therapy and Counseling	Transportation
																											_		
Registered Nurses	L	•		L	•	⊢	H	•	Н	Н	•	Н	•		_	•	_	•	\dashv	4	-	_	•		Н	•	\dashv	•	ᆜ
Heavy and Tractor-Trailer Truck Drivers Licensed Practical and Licensed	•	\vdash	\vdash	\vdash	\vdash	\vdash	\vdash	•	Н	$\vdash \vdash$	•	Н	•	•	•	•	•		\vdash	\dashv	\dashv	\dashv	Н	•	Н	Н	\vdash	\dashv	•
Vocational Nurses				•	•	l		•			•		٠			•		•		•			•					•	
Emergency Medical Technicians and	\vdash	\vdash	\vdash	\vdash	\vdash	\vdash	Н	\vdash	\vdash	\vdash	\dashv	Н	\vdash	\vdash	\vdash	\vdash	\vdash	\vdash	\dashv	\dashv	\dashv	\dashv	Н	\vdash	\vdash	Н	\vdash	\dashv	\dashv
Paramedics	l			•		l		•			•	Ш	٠			•		•					•	•			H	•	•
Medical Assistants	•	Г	Т	Г	•	Г	•	•	Н	П	•	П	•	Г			П	•	\top	T	\dashv		•	•	П	П	П	•	ヿ゙
Preschool Teachers, Except Special		Т	Т	Т	Т	Г	Г		П	П		П			П	П	П		\Box		\dashv	П			П		П		ヿ゙
Education	ľ					l	l	•			•	Ш	•	•						•			•	•		•	Н	•	H
Dental Assistants	Г			•	•	Г	•	•		П	•		•					•	П			•	•		•	П	П		П
Firefighters*	•		•	•				•			•		•		•		•				•			•					
First-Line Supervisors of Production and											•	•				•						•							
Operating Workers	L					L			_	Щ							_		_	_	\perp	_	Ш			Ш	Ш	Ш	Ц
Computer User Support Specialists	•	L		L	•	•	٠	•	Ш	Щ	•	•	•			•	Ц		Ц	_	_		Ц			Ш	•	Ш	Ц
Heating, Air Conditioning, and	l		•	•		l		•				•	•			•	•				•						Н		H
Refrigeration Mechanics and Installers*	┡	L		L	L	L	⊢		Н	Н	_	Н	L			Н	Н		\dashv	_	_		Н			Н	\dashv	Н	ᆚ
Medical and Clinical Laboratory	l	•		•	•	l	•	•				Ш	٠			•		•				•		•			Н		H
Technicians	⊢		H	•	•	⊢		•	Н	Н	•	Н	•	H	_	Н	Н	•	\dashv	\dashv	\dashv	-	•	_	•	Н	\vdash	\vdash	\dashv
Dental Hygienists Web Developers		•	\vdash	•	•		•	•		Н	÷	Н	÷	H		•	Н	•	\dashv	\dashv	\dashv	-	•	_	•	Н	\vdash	\vdash	\dashv
	÷	•	H	⊢	•	ř	ŀ	÷	•	Н	÷	Н	÷	\vdash	_	·	Н	•	\dashv	\dashv	\dashv	_	•	_	•	\vdash	\vdash	•	ᅥ
Massage Therapists Medical Records and Health Information	⊢	Ť	H	Н	Ť	⊢	Н	Н	Н	Н	Ť	Н	ř	Н	_	Н	Н	Ť	\dashv	\dashv	\dashv	Н	Ť	_	Ť	\vdash	\vdash	H	\dashv
Technicians	•				•	۰	•	•			•	Ш	٠		•	•								•			Н		
Library Technicians	•	\vdash	\vdash	\vdash	•	•	•	•	Н	•	•	Н	•	Н	•	•	Н	\vdash	\dashv	\dashv	\dashv	\dashv	Н	Н	Н	Н	\dashv	\vdash	\dashv
Paralegals and Legal Assistants	•	Т		Т	•	•	•	•	Н	H	•	Н	•	Н	•	•	Н		\forall	\dashv	\dashv		•	Н	Н	П	\sqcap	П	⊣
Radiologic Technologists	Г	•		Г	•	Г	•	•	П	H	•	Н	•	Г	П	•	Н	•	\dashv	\dashv	•	П	•	П	П	П	\sqcap	\sqcap	ヿ
Veterinary Technologists and Technicians	•	•		Г	•	Г	•	•	П	П	•	П	•	П	П	•	П	•	\sqcap	\dashv	\dashv	П	П	П	•	П	ıΠ	П	T
Respiratory Therapists		•		•			•	•			•		٠			•		•					•					•	╝
Telecommunications Equipment Installers											•	•	•			•	•							•		П	•	П	٦
and Repairers, Except Line Installers	L				Ľ	L	Ľ	Ľ		Ш	_	لـــا	Ľ						Ц				Ш			Ш	Ĺ	┙	╝
Phlebotomists	Ĺ	L		•	•	Ĺ	•	•	\Box	\Box	•	Ц	٠	\Box		\Box	Ш	•	Ц	•			•	•		\Box	Ц	\Box	╝
Surgical Technologists	L	•		•	L	L	٠	•	Ц	Ц	•	Ц	•	$oxed{oxed}$	Ш	Ц	Ц	•	Ш	_	_	Ц	•	•	Ц	Ц	Ш	٠	Ц
Psychiatric Technicians	•	$oxed{oxed}$	_	$oxed{oxed}$	•	匚	•	•	Ш	Ш	•	Ц	•	$oxed{oxed}$	•	Ш	Ц		Ш	_	_	Ц	•	•	Ш	•	Ш	•	Ц

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

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.

^{*} Knowledge listed for the occupation represent a specialty occupation.

- 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)

			2016		2016 - 2026		
			2016 - 2026	2016 -	2016 - 2026 Replace-	Median	
	2016	2026	Growth	2010 - 2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	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	29	27	-6.8%	-2	2	\$16.26	High school diploma or
Operators and Tenders							equivalent
Administrative Law Judges,	73	73	0.0%	0	12	\$49.19	Doctoral or professional
Adjudicators, and Hearing							degree
Officers Administrative Services	1 201	1 520	9.3%	129	274	\$41.48	Pachalar's dagraa
Managers	1,391	1,520	9.5%	129	274	341.40	Bachelor's degree
Adult Basic and Secondary	259	290	12.0%	31	53	\$37.02	Bachelor's degree
Education and Literacy						70	
Teachers and Instructors							
Advertising and Promotions	109	126	15.6%	17	38	\$36.00	Bachelor's degree
Managers						4	
Advertising Sales Agents	248	289	16.5%	41	89	\$23.99	High school diploma or
Aerospace Engineering and	22	29	31.5%	7	7	\$37.02	equivalent Associate's degree
Operations Technicians	22	29	31.3%	,	,	337.02	Associate's degree
Aerospace Engineers	123	125	1.6%	2	38	\$48.86	Bachelor's degree
Agents and Business Managers	67	80	19.3%	13	24	\$34.99	Bachelor's degree
of Artists, Performers, and							· ·
Athletes							
Agricultural and Food Science	241	264	9.5%	23	84	\$20.30	Associate's degree
Technicians	200		= 00/			4.0.00	
Agricultural Equipment	883	930	5.3%	47	265	\$13.96	No formal educational
Operators Agricultural Inspectors	74	75	1.3%	1	20	\$21.63	credential Bachelor's degree
Agricultural Workers, All Other	98	73 77	-21.4%	-21	43	\$18.29	No formal educational
Agricultural Workers, Am Gener	30	,,	21.170		.5	Ψ10. 2 5	credential
Air Traffic Controllers	37	34	-8.1%	-3	14	\$73.46	Associate's degree
Aircraft Cargo Handling	25	26	4.0%	1	-1	\$25.01	High school diploma or
Supervisors							equivalent
Aircraft Mechanics and Service	156	195	25.0%	39	45	\$31.40	Postsecondary
Technicians				_	_		nondegree award
Aircraft Structure, Surfaces,	32	29	-9.5%	-3	3	\$26.40	
Rigging, and Systems Assemblers							equivalent
Airline Pilots, Copilots, and	16	20	24.4%	4	-4	\$76.08	Bachelor's degree
Flight Engineers			,,			ψ. σ.σσ	zuemenen er deg. de
Ambulance Drivers and	157	244	55.3%	87	37	\$13.36	High school diploma or
Attendants, Except Emergency							equivalent
Medical Technicians							
Amusement and Recreation	1,922	2,100	9.3%	178	853	\$10.25	No formal educational
Attendants	63	79	25.3%	16	19	\$109.58	credential Doctoral or professional
Anesthesiologists	03	79	25.5%	10	19	\$109.58	degree
Animal Breeders	26	22	-15.1%	-4	4	\$18.96	High school diploma or
, iiiiiiai E. eede.e			13.17	•	•	Ψ20.00	equivalent
Animal Control Workers	63	69	9.5%	6	14	\$29.87	High school diploma or
							equivalent
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

Note		2046	2026					Torical Follows
Archicologists and Archeologists and Archeologists and Archeologists and Archeologists and Assessors of Archeologists and Archeologists and Assessors of Archeologists and Archeologists and Assessors of Archeologists and	Ossupation							
Archeologists	·							
Appriser's and Assessors of Real Estate	_	40	47	17.070	,	3	γ31.37	waster 5 degree
Real Estate		161	184	14.3%	23	29	\$32.30	Bachelor's degree
Conclidators Architects, Except Landscape 207 247 19.3% 40 45 543.26 Bachelor's degree and Naval Architects, Except Landscape 207 247 19.3% 40 45 543.26 Bachelor's degree Architectural and Civil Drafters 492 507 8.1% 54 219 569.63 Bachelor's degree Architectural and Engineering 666 720 8.1% 54 219 569.63 Bachelor's degree Architectural and Engineering 666 720 8.1% 54 219 569.63 Bachelor's degree Architectural and Engineering 666 720								· ·
Architectural and Civil Drafters	Arbitrators, Mediators, and	41	44	7.4%	3	-3	\$28.00	Bachelor's degree
And Naval Architectural and Civil Drafters 492 507 3.0% 15 74 \$23.10 Associate's degree Architectural and Engineering 666 720 8.1% 54 219 \$69.63 Bachelor's degree Managers Artitota and Engineering 666 720 8.1% 54 219 \$69.63 Bachelor's degree Architectural and Engineering 666 720 8.1% 54 219 \$69.63 Bachelor's degree Artitota and Related Workers 11 12 9.2% 1 -1 \$22.76 No formal educational call Other Assemblers and Fabricators 11 12 9.2% 1 -1 \$22.76 No formal educational call other Assemblers and Fabricators 364 620 9.9% 56 110 \$13.63 High school diploma or equivalent Athletic Trainers 86 96 11.6% 10 18 \$22.31 Bachelor's degree Athrospheric and Space 21 15 24.5% 3 -3 \$48.37 Bachelor's degree Scientists 36 45 25.0% 9 10 \$40.93 Bachelor's degree Audio-Visual and Multimedia 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Audio-Visual and Multimedia 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Bachelor's degree Audio-Visual and Multimedia 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Bachelor's degree Audio-Visual and Multimedia 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Bachelor's degree Audio-Visual and Multimedia 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Balliffs 13 16 23.4% 163 271 21.26 No formal educational credential Balliffs 1.5% 17 55 51.4% High school diploma or equivalent Balliffs 1.5% 17 55 51.4% High school								
Architectural and Givil Drafters		207	247	19.3%	40	45	\$43.26	Bachelor's degree
Architectural and Engineering 666 720 8.1% 54 219 \$69.63 Bachelor's degree Managers Artists and Related Workers, 11 12 9.2% 1 -1 \$22.76 No formal educational calculational calculational calculations 11 12 9.2% 1 -1 \$22.76 No formal educational calculational calculations 11 12 9.2% 1 -1 \$22.76 No formal educational calculational calculations 12 13 22 24.5% 13 -1 \$22.76 S1.63 High school diploma or equivalent Assemblers and Fabricators, 364 620 9.9% 56 130 \$13.63 High school diploma or equivalent Athletic Trainers 8.6 96 11.6% 10 18 \$22.31 Bachelor's degree Athletic Trainers 8.6 96 11.6% 10 18 \$22.31 Bachelor's degree Scientists 3.6 45 25.9% 9 10 \$40.93 Bachelor's degree S23.20 Postsecondary nondegree award Audiologists 36 45 25.0% 9 10 \$40.93 Boctoral or professional degree Bachelor's degree Biological Technicians 354 436 23.2% 82 112 52.57 Bachelor's degree Biological Technicians 354 436 23.2% 82 112 52.57 Bachelor's degree Biological Technicians 26 27 27 27 27 27 27 27		402	E07	2 00/	15	74	¢22.10	Accociato's dograp
Managers								
Art Directors		000	720	0.170	34	219	Ç09.03	bachelor 3 degree
Artists and Related Workers 11 12 9.2% 1 -1 \$22.76 No formal educational credential and property of the proper	_	118	134	13.6%	16	25	\$37.66	Bachelor's degree
All Other	Artists and Related Workers,	11	12	9.2%	1	-1		_
Althletic Trainers	·							credential
Athletic Trainers	Assemblers and Fabricators,	564	620	9.9%	56	130	\$13.63	High school diploma or
Atmospheric and Space 12 15 24.5% 3 -3 \$48.37 Bachelor's degree Scientists	All Other							
Scientists Audio and Video Equipment 273 296 8.4% 23 65 \$23.20 Postsecondary nondegree award Technicians 25.0% 9 10 \$40.93 Doctoral or professional degree Audio-Visual and Multimedia 57 61 7.0% 4 4 \$20.92 Bachelor's degree Collections Specialists Automotive and Watercraft 572 710 24.1% 138 260 \$12.38 No formal educational credential Automotive and Watercraft 572 710 24.1% 138 260 \$12.38 No formal educational credential Automotive Body and Related 543 633 16.6% 90 139 \$24.30 High school diploma or equivalent Automotive Glass Installers 62 74 19.3% 12 10 \$18.82 High school diploma or equivalent Automotive Service 3,176 3,549 11.7% 373 902 \$22.44 Postsecondary Technicians and Mechanics 21 22 4.7% 1 1 \$38.61 Associate's degree Baggage Porters and Bellhops 264 317 20.1% 53 61 \$510.51 High school diploma or equivalent Salaiffs 3 16 23.4% 3 3 3 35.277 High school diploma or equivalent Salaiffs 3 16 23.4% 3 3 3 3 3 3 3 3 3								_
Audio and Video Equipment 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 57 61 7.0% 4 -4 \$20.92 Bachelor's degree Collections Specialists		12	15	24.5%	3	-3	\$48.37	Bachelor's degree
Note		272	206	0.40/	22	65	ć22.20	Danta and dam.
Audiologists 36		2/3	296	8.4%	23	65	\$23.20	
Audio-Visual and Multimedia S7 61 7.0% 4 4 520.92 Bachelor's degree		36	45	25.0%	Q	10	\$40 93	
Audio-Visual and Multimedia 57	Addiologists	30	43	23.070	3	10	Ş - 0.55	
Collections Specialists	Audio-Visual and Multimedia	57	61	7.0%	4	-4	\$20.92	
Service Attendants	Collections Specialists							· ·
Automotive Body and Related Repairers 24.30 16.6% 90 139 \$24.30 High school diploma or equivalent Automotive Glass Installers 62 74 19.3% 12 10 \$18.82 High school diploma or equivalent and Repairers 3,176 3,549 11.7% 373 902 \$22.44 Postsecondary Technicians and Mechanics 21 22 4.7% 1 -1 \$38.61 Associate's degree 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 Saliffs 13 16 23.4% 3 -3 \$32.77 High school diploma or equivalent Saliffs 31 31 31 31 31 31 31 3	Automotive and Watercraft	572	710	24.1%	138	260	\$12.38	No formal educational
Repairers Automotive Glass Installers Automotive Glass Installers Automotive Glass Installers Automotive Service 3,176 3,549 11.7% 373 902 \$22.44 Postsecondary nondegree award Avionics Technicians and Mechanics Avionics Technicians 21 22 4.7% 1 -1 \$38.61 Associate's degree Biolgical Scientists, All Other 1,942 16.8% 280 383 \$20.85 High school diploma or equivalent 18 \$46.66 Doctoral or professional digiograp or equivalent 18 \$46.66 Bachelor's degree Biollegical Engineers 201 224 11.4% 23 368 \$50.68 Bachelor's degree 32.4% 30 30 30 30 30 30 30 3								
Automotive Glass Installers and Repairers 62 74 19.3% 12 10 \$18.82 High school diploma or equivalent equivalent Automotive Service 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 Bill and Account Collectors 766 802 4.7% 17 55 \$14.94<		543	633	16.6%	90	139	\$24.30	
Automotive Service 3,176 3,549 11.7% 373 902 \$2.44 Postsecondary Technicians and Mechanics 21 22 4.7% 1 -1 \$38.61 Associate's degree Automotics 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 Billogical Scientists, All Other 217 215 -0.9% -2 63 \$39.36 Bachelor's degree Biological Scientists, All Other 217 215 -0.9% -2 63 \$39.36 Bachelor's degree Biomedical Engineers 201 224 11.4% 23 68 \$50.68 Bachelor's degree Biolegical Technicians 354 436 23.2% 82 112 \$26.57 Bachelor's degree Biolegical Technicians 201 224 11.4% 23 68 \$50.68 Bachelor's degree Biolegical Engineers 26 32 23.4% 6 5 \$40.03 High school diploma or equivalent 23.4% 24 23.6% 25.05 Bachelor's degree 25.05	•	(2	7.4	10.20/	12	10	ć10.03	•
Automotive Service 3,176 3,549 11.7% 373 902 \$22.44 Postsecondary nondegree award Avionics Technicians and Mechanics 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 High school diploma or equivalent Railiffs 13 16 23.4% 3 -3 \$32.77 High school diploma or equivalent High school diploma or equivalent Railiffs 1,139 1,302 14.3% 163 271 \$14.26 No formal educational credential Rarbers 29 38 31.4% 9 7 \$13.33 Postsecondary nondegree award No formal educational credential Railife Repairers 148 165 11.5% 17 55 \$14.94 High school diploma or equivalent Rilling and Posting Clerks 1,662 1,942 16.8% 280 383 \$20.85 High school diploma or equivalent Rilling and Posting Clerks 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 Biolegrakers 201 224 11.4% 23 68 \$50.68 Bachelor's degree Biolegrakers 201 224 11.4% 23 68 \$50.68 Bachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 201 224 11.4% 23 68 \$50.68 Bachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 \$40.03 High school diploma or equivalent Sides Rachelor's degree Biolegrakers 26 32 23.4% 66 5 5 \$40.03 High sc		62	74	19.3%	12	10	\$18.82	
Technicians and Mechanics 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 Biochemists and Biophysicists 43 84 94.3% 41 18 \$46.66 Doctoral or professional degree Biological Scientists, All Other Biological Technicians 354 436 23.2% 82 112 \$26.57 Bachelor's degree Biological Engineers 26 32 23.4% 66 5 \$40.03 High school diploma or		3.176	3.549	11.7%	373	902	\$22.44	
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 Hig		3,170	3,3 13	11.770	3,3	302	γ22	
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 Biochemists and Biophysicists 43 84 94.3% 41 18 \$46.60 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% 66 5 \$40.03 High school diploma or	Avionics Technicians	21	22	4.7%	1	-1	\$38.61	
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 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 <td< td=""><td>Baggage Porters and Bellhops</td><td>264</td><td>317</td><td>20.1%</td><td>53</td><td>61</td><td>\$10.51</td><td>High school diploma or</td></td<>	Baggage Porters and Bellhops	264	317	20.1%	53	61	\$10.51	High school diploma or
Bakers 1,139 1,302 14.3% 163 271 \$14.26 No formal educational credential credential credential samples. 29 38 31.4% 9 7 \$13.33 Postsecondary nondegree award nondegree award scredential since and s								
Bakers 1,139 1,302 14.3% 163 271 \$14.26 No formal educational credential 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 reducational 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 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<	Bailiffs	13	16	23.4%	3	-3	\$32.77	
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 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	5.1	4.420	4 202	4.4.20/	4.60	274	44.26	•
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 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	Bakers	1,139	1,302	14.3%	163	2/1	\$14.26	
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 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	Rarhers	29	38	31 /1%	Q	7	\$13.33	
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 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	Darbers	23	30	31.470	9	,	Ų13.33	
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 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 Biological 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	Bartenders	2,689	3,107	15.5%	418	1,103	\$11.86	
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 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		,	-, -			,		
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 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	Bicycle Repairers	148	165	11.5%	17	55	\$14.94	High school diploma or
Billing and Posting Clerks 1,662 1,942 16.8% 280 383 \$20.85 High school diploma or equivalent 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								•
Billing and Posting Clerks 1,662 1,942 16.8% 280 383 \$20.85 High school diploma or equivalent 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	Bill and Account Collectors	766	802	4.7%	36	206	\$21.93	
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	D.II. 15 11 61 1	4.662	4.040	46.00/	200	202	420.05	
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	Billing and Posting Clerks	1,662	1,942	16.8%	280	383	\$20.85	
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	Riochemists and Rionhysicists	13	9.4	0/1 2%	<i>1</i> 1	10	\$46.66	
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	biochemists and biophysicists	43	04	34.370	41	10	540.00	
Biological Technicians35443623.2%82112\$26.57Bachelor's degreeBiomedical Engineers20122411.4%2368\$50.68Bachelor's degreeBoilermakers263223.4%65\$40.03High school diploma or	Biological Scientists, All Other	217	215	-0.9%	-2	63	\$39.36	=
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	_							
Boilermakers 26 32 23.4% 6 5 \$40.03 High school diploma or	_							_
	_							_

			2016 -	2015	2016 - 2026		
	2016	2026	2026	2016 -	Replace-	Median	Typical Entry Layel
Occupation	Jobs	2026 Jobs	Growth Rate	2026 New Jobs	ment Openings	Hourly Earnings	Typical Entry Level Education
Bookkeeping, Accounting, and	7,107	6,951	-2.2%	-156	900	\$21.69	Some college, no degree
Auditing Clerks	,	,				·	0,
Brickmasons and Blockmasons	157	213	35.7%	56	20	\$29.35	High school diploma or
Donalds at Task wistons	F4	E.C.	0.00/	-	4.4	ć24 7 2	equivalent
Broadcast Technicians Brokerage Clerks	51 136	56 153	9.9% 12.5%	5 17	14 37	\$21.72 \$29.59	Associate's degree High school diploma or
Blokelage Clerks	150	133	12.5%	17	5/	329.59	equivalent
Budget Analysts	150	158	5.3%	8	39	\$38.07	Bachelor's degree
Building Cleaning Workers, All	52	57	9.6%	5	11	\$19.93	No formal educational
Other							credential
Bus and Truck Mechanics and	739	904	22.3%	165	143	\$26.97	High school diploma or
Diesel Engine Specialists Bus Drivers, School or Special	1,175	1,343	14.3%	168	169	\$16.34	equivalent High school diploma or
Client	1,173	1,343	14.370	100	109	\$10.54	equivalent
Bus Drivers, Transit and	1,144	1,222	6.8%	78	162	\$21.51	High school diploma or
Intercity							equivalent
Business Operations	3,050	3,328	9.1%	278	382	\$33.05	Bachelor's degree
Specialists, All Other Butchers and Meat Cutters	1 106	1 247	12.6%	151	254	\$14.88	No formal educational
Butchers and Meat Cutters	1,196	1,347	12.0%	151	254	\$14.88	credential
Buyers and Purchasing Agents,	124	133	7.2%	9	27	\$32.39	Bachelor's degree
Farm Products						•	ŭ
Cabinetmakers and Bench	436	452	3.7%	16	55	\$20.18	High school diploma or
Carpenters	45	F4	12.20/	C	F	Ć1.C OF	equivalent
Camera Operators, Television, Video, and Motion Picture	45	51	13.3%	6	5	\$16.05	Bachelor's degree
Captains, Mates, and Pilots of	60	47	-21.6%	-13	36	\$38.53	Postsecondary
Water Vessels							nondegree award
Cardiovascular Technologists	205	196	-4.4%	-9	54	\$33.03	Associate's degree
and Technicians Career/Technical Education	22	24	0.20/	1	2	¢22.45	Do shalaria dagraa
Teachers, Middle School	22	24	9.3%	2	-2	\$23.45	Bachelor's degree
Career/Technical Education	113	123	8.8%	10	27	\$26.77	Bachelor's degree
Teachers, Secondary School							-
Cargo and Freight Agents	184	239	29.9%	55	73	\$21.79	High school diploma or
Cornentors	F 270	г 021	10.5%	FF3	909	¢20.77	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	48	61	27.1%	13	17	\$33.05	Bachelor's degree
Photogrammetrists	17 416	10.165	10.00/	1 740	7.050	¢10.70	No formal educational
Cashiers	17,416	19,165	10.0%	1,749	7,850	\$10.78	credential
Cement Masons and Concrete	1,009	1,120	11.0%	111	179	\$23.83	No formal educational
Finishers	,	,				·	credential
Chefs and Head Cooks	1,071	1,219	13.8%	148	173	\$19.90	High school diploma or
Chamical Engineers	C2	00	42.70/	27	24	ĆE 4 02	equivalent
Chemical Engineers Chemical Equipment	63 80	90 171	42.7% 113.1%	27 91	21 42	\$54.83 \$22.15	Bachelor's degree High school diploma or
Operators and Tenders	80	1/1	113.1/0	91	42	322.13	equivalent
Chemical Plant and System	69	110	59.8%	41	36	\$27.21	High school diploma or
Operators							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%	19 164	214	\$74.43	Bachelor's degree
Child, Family, and School	872	1,036	18.8%	164	238	\$22.56	Bachelor's degree

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation Social Workers	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Childcare Workers	3,069	3,115	1.5%	46	1,118	\$13.70	High school diploma or
Chiropractors	110	111	0.9%	1	24	\$33.54	equivalent 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,	824	727	-11.8%	-97	312	\$33.01	High school diploma or
and Investigators							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	217	240	10.6%	23	62	\$15.22	No formal educational credential
and Tenders							
Clergy	188	210	11.7%	22	44	\$26.62	Bachelor's degree
Clinical, Counseling, and	969	1,040	7.3%	71	218	\$43.03	Doctoral or professional
School Psychologists	1 1 2 0	1 104	F 00/	66	205	\$19.40	degree
Coaches and Scouts	1,128	1,194	5.9%	66 33	395	· ·	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	145	168	15.9%	23	22	\$16.97	High school diploma or equivalent
and Repairers							
Combined Food Preparation and Serving Workers,	13,701	16,707	21.9%	3,006	5,017	\$10.02	No formal educational credential
Including Fast Food Commercial and Industrial	84	94	11.9%	10	22	\$31.66	Bachelor's degree
Designers	04	34	11.570	10	22	γ51.00	buchelor 3 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
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	50	63	26.2%	13	17	\$26.04	High school diploma or equivalent
Plastic 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

			2016 -		2016 - 2026		
	2046	2026	2026	2016 -	Replace-	Median	
Occupation	2016 Jobs	2026 Jobs	Growth Rate	2026 New Jobs	ment	Hourly	Typical Entry Level Education
Occupation	1002	1002	Nate	1002	Openings	Earnings	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	1,269	1,455	14.7%	186	176	\$28.49	Some college, no degree
Specialists	,	,				,	
Computer, Automated Teller,	276	271	-1.8%	-5	77	\$21.14	Some college, no degree
and Office Machine Repairers							
Computer-Controlled Machine	159	206	29.5%	47	57	\$16.84	High school diploma or
Tool Operators, Metal and Plastic							equivalent
Concierges	163	193	18.4%	30	36	\$16.72	High school diploma or
Conciciges	103	133	10.470	30	30	Ψ10.7 <i>L</i>	equivalent
Conservation Scientists	105	113	7.6%	8	48	\$35.28	Bachelor's degree
Construction and Building	486	543	11.7%	57	144	\$33.58	High school diploma or
Inspectors							equivalent
Construction and Related	186	206	10.7%	20	33	\$23.91	High school diploma or
Workers, All Other	4 220	F 100	10.00/	0.61	000	ć10.02	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	27	19	-30.1%	-8	8	\$32.66	No formal educational
Operators					_	702.00	credential
Control and Valve Installers	125	128	2.4%	3	55	\$31.75	High school diploma or
and Repairers, Except							equivalent
Mechanical Door	70	0.4	45.00/	40	25	624.54	N 6 1 1 1 1 1
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
cooks, / in certer	30	103	11.2/0		20	Ψ10.33	credential
Cooks, Fast Food	3,239	3,144	-2.9%	-95	996	\$9.72	No formal educational
							credential
Cooks, Institution and	1,430	1,647	15.2%	217	416	\$14.92	No formal educational
Cafeteria	C 040	7 220	10.50/	1 102	1 700	Ć12.71	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
						7	credential
Cooling and Freezing	62	81	30.5%	19	15	\$14.86	High school diploma or
Equipment Operators and							equivalent
Tenders		• • • • •				4	
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
correspondence cierrs	15		13.070	_	_	Ģ10.50	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
Countar Attandants Cafataria	2 001	2 200	14.9%	299	1 212	\$11.49	credential No formal educational
Counter Attendants, Cafeteria, Food Concession, and Coffee	2,001	2,300	14.5%	299	1,313	\$11.49	credential
Shop							o. cuciniui
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

			2016 -		2016 - 2026		
			2016 -	2016 -	2016 - 2026 Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Court, Municipal, and License	541	590	9.1%	49	35	\$22.56	High school diploma or
Clerks Crane and Tower Operators	89	106	19.2%	17	38	\$35.95	equivalent High school diploma or
Cuadit Analysta	226	241	C C0/	15	103	ć2 7 22	equivalent
Credit Analysts	226 71	241 72	6.6%	15	102	\$37.32	Bachelor's degree
Credit Authorizers, Checkers, and Clerks	/1	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
Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	129	131	1.5%	2	32	\$16.27	credential 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
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
Dentists, All Other Specialists	31	32	3.2%	1	-1	\$61.90	equivalent 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	2,625	2,946	12.2%	321	1,408	\$10.63	No formal educational credential
Helpers 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

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Door-to-Door Sales Workers,	44	43	-2.3%	-1	1	\$12.41	No formal educational
News and Street Vendors, and							credential
Related Workers	F.4	F2	2.00/	2	2	625.25	0
Drafters, All Other	51	53	3.9%	2	-2	\$25.35	Associate's degree
Drilling and Boring Machine	22	20	-9.2%	-2	2	\$17.78	High school diploma or
Tool Setters, Operators, and							equivalent
Tenders, Metal and Plastic Driver/Sales Workers	2,052	2 207	16.3%	335	383	\$14.50	High school diploma or
Driver/Sales Workers	2,032	2,387	10.5/0	333	363	\$14.50	High school diploma or equivalent
Drywall and Ceiling Tile	631	576	-8.7%	-55	157	\$29.81	No formal educational
Installers	031	370	0.770	33	137	Ç25.01	credential
Earth Drillers, Except Oil and	82	86	4.9%	4	24	\$28.58	High school diploma or
Gas						7-0.00	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	285	292	2.5%	7	85	\$32.02	Bachelor's degree
Other			2.570	•		Ψ02.02	246.16.0.0 446.66
Education Administrators,	857	915	6.8%	58	259	\$49.30	Master's degree
Elementary and Secondary							G
School							
Education Administrators,	502	551	9.8%	49	153	\$46.37	Master's degree
Postsecondary							
Education Administrators,	333	343	3.0%	10	101	\$26.61	Bachelor's degree
Preschool and Childcare							
Center/Program							
Education, Training, and	715	761	6.4%	46	71	\$18.12	Bachelor's degree
Library Workers, All Other							
Educational, Guidance, School,	1,040	1,136	9.2%	96	230	\$25.29	Master's degree
and Vocational Counselors				_		4	
Electric Motor, Power Tool,	73	80	9.6%	7	22	\$22.74	Postsecondary
and Related Repairers	401	4.47	11 50/	4.0	FC	ć10.00	nondegree award
Electrical and Electronic	401	447	11.5%	46	56	\$19.88	High school diploma or
Equipment Assemblers Electrical and Electronics	112	121	8.1%	9	16	\$30.70	equivalent Associate's degree
Drafters	112	121	0.1/0	9	10	\$30.70	Associate's degree
Electrical and Electronics	345	396	14.8%	51	92	\$33.62	Associate's degree
Engineering Technicians	343	330	14.070	31	32	755.02	Associate 3 degree
Electrical and Electronics	62	66	6.4%	4	11	\$35.43	Postsecondary
Installers and Repairers,			• • • • • • • • • • • • • • • • • • • •			700110	nondegree award
Transportation Equipment							
Electrical and Electronics	309	323	4.5%	14	56	\$28.26	Postsecondary
Repairers, Commercial and							nondegree award
Industrial Equipment							_
Electrical and Electronics	36	54	50.6%	18	8	\$42.59	Postsecondary
Repairers, Powerhouse,							nondegree award
Substation, and Relay							
Electrical Engineers	348	413	18.7%	65	84	\$49.97	Bachelor's degree
Electrical Power-Line Installers	455	663	45.7%	208	230	\$47.52	High school diploma or
and Repairers							equivalent
Electricians	1,914	2,009	5.0%	95	453	\$35.51	High school diploma or
							equivalent
Electromechanical Equipment	95	101	6.3%	6	13	\$14.61	High school diploma or
Assemblers		_		_	_	ـ ـ ـ ـ ـ	equivalent
Electro-Mechanical	32	35	9.3%	3	9	\$26.42	Associate's degree
Technicians	00		22.00/	22	4.0	Ć4 F. C4	Doots a complete
Electronic Equipment	98	66	-32.8%	-32	46	\$15.61	Postsecondary
Installers and Repairers,							nondegree award

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Motor Vehicles Electronic Home	71	69	-2.8%	-2	17	\$19.84	Doctooondon
Entertainment Equipment	/1	09	-2.0%	-2	17	\$15.04	Postsecondary nondegree award
Installers and Repairers							nondegree award
Electronics Engineers, Except	576	613	6.4%	37	132	\$49.30	Bachelor's degree
Computer	370	013	0.170	3,	132	φ 13.30	budileior 3 degree
Elementary School Teachers,	7,226	7,633	5.6%	407	1,650	\$32.34	Bachelor's degree
Except Special Education	,	,			,		Ü
Eligibility Interviewers,	371	404	8.9%	33	43	\$24.38	High school diploma or
Government Programs							equivalent
Embalmers	18	17	-5.7%	-1	1	\$23.79	Postsecondary
							nondegree award
Emergency Management	25	27	8.1%	2	-2	\$41.68	Bachelor's degree
Directors	4 224	2.442	E0 00/	704	206	647.50	Danta and an
Emergency Medical Technicians and Paramedics	1,321	2,112	59.9%	791	296	\$17.50	Postsecondary
	47	50	6.4%	3	11	\$23.81	nondegree award High school diploma or
Engine and Other Machine Assemblers	47	30	0.4%	3	11	\$25.01	equivalent
Engineering Technicians,	264	282	6.8%	18	69	\$29.61	Associate's degree
Except Drafters, All Other	201	202	0.070	10	03	γ2 5.01	7 1000 clate 5 deglee
Engineers, All Other	276	307	11.2%	31	59	\$48.08	Bachelor's degree
Entertainers and Performers,	19	26	36.3%	7	8	\$18.00	No formal educational
Sports and Related Workers,							credential
All Other							
Entertainment Attendants and	42	53	26.5%	11	21	\$12.62	High school diploma or
Related Workers, All Other							equivalent
Environmental Engineering	112	124	10.8%	12	29	\$24.84	Associate's degree
Technicians		• • •	40 ===/			4	
Environmental Engineers	237	267	12.7%	30	72	\$47.18	Bachelor's degree
Environmental Science and	249	277	11.3%	28	112	\$24.26	Associate's degree
Protection Technicians,							
Including Health Environmental Scientists and	576	639	10.9%	63	189	\$39.27	Bachelor's degree
Specialists, Including Health	370	039	10.5/0	03	109	<i>333.21</i>	bacileioi 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
					_	7-0.00	equivalent
Excavating and Loading	125	152	21.5%	27	16	\$32.54	High school diploma or
Machine and Dragline							equivalent
Operators							
Executive Secretaries and	2,967	2,912	-1.9%	-55	385	\$28.53	High school diploma or
Executive Administrative							equivalent
Assistants			4= 00/		_	40= 00	
Exercise Physiologists	13	15	15.3%	2	-2	\$25.93	Bachelor's degree
Extruding and Drawing	78	73	-6.4%	-5	26	\$18.55	High school diploma or
Machine Setters, Operators,							equivalent
and Tenders, Metal and Plastic Extruding and Forming	35	33	-5.7%	-2	2	\$15.38	High school diploma or
Machine Setters, Operators,	33	33	-5.770	-2	2	Ş1J.J0	equivalent
and Tenders, Synthetic and							equivalent
Glass Fibers							
Extruding, Forming, Pressing,	248	258	4.0%	10	110	\$13.13	High school diploma or
and Compacting Machine							equivalent
Setters, Operators, and							
Tenders							
Family and General	484	555	14.7%	71	148	\$102.14	Doctoral or professional
Practitioners							degree

			2016 -	2016	2016 - 2026	NA - dia -	
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Median Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Farm Equipment Mechanics	93	104	11.9%	11	26	\$21.04	High school diploma or
and Service Technicians							equivalent
Farm Labor Contractors	14	17	22.1%	3	-3	\$23.15	No formal educational
5 5 1 101	040	622	22 70/	100	200	427.66	credential
Farmers, Ranchers, and Other Agricultural Managers	818	632	-22.7%	-186	306	\$37.66	High school diploma or equivalent
Farmworkers and Laborers,	9,835	9,358	-4.8%	-477	3,105	\$11.24	No formal educational
Crop, Nursery, and	3,033	3,330	4.070	477	3,103	γ11.2 ⁻	credential
Greenhouse							
Farmworkers, Farm, Ranch,	676	567	-16.1%	-109	275	\$15.01	No formal educational
and Aquacultural Animals							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
Fiberglass Laminators and	18	17	-5.6%	-1	1	\$15.58	credential High school diploma or
Fabricators	10	17	-3.070	-1	1	Ş13.36	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
e	26	4.5	25 40/		10	64407	equivalent
Financial Examiners	36	45 2.546	25.1%	9	10	\$44.97	Bachelor's degree
Financial Managers	2,326 311	2,546 341	9.5% 9.6%	220 30	578	\$56.35	Bachelor's degree
Financial Specialists, All Other Fine Artists, Including Painters,	83	108	30.3%	25	33 21	\$29.74 \$20.74	Bachelor's degree Bachelor's degree
Sculptors, and Illustrators	65	100	30.370	23	21	\$20.74	bacheloi 3 degree
Fire Inspectors and	36	42	16.5%	6	11	\$47.41	Postsecondary
Investigators						•	nondegree award
Firefighters	1,635	1,798	10.0%	163	501	\$25.26	Postsecondary
							nondegree award
First-Line Supervisors of	2,015	2,335	15.9%	320	201	\$38.94	High school diploma or
Construction Trades and Extraction Workers							equivalent
First-Line Supervisors of	363	379	4.4%	16	108	\$53.87	High school diploma or
Correctional Officers						,	equivalent
First-Line Supervisors of	708	656	-7.3%	-52	219	\$20.52	High school diploma or
Farming, Fishing, and Forestry							equivalent
Workers	402	204	12.10/	22	0.2	452.02	.
First-Line Supervisors of Fire Fighting and Prevention	182	204	12.1%	22	92	\$53.82	Postsecondary nondegree award
Workers							nondegree award
First-Line Supervisors of Food	3,858	4,600	19.2%	742	1,279	\$16.29	High school diploma or
Preparation and Serving	,	,			,	•	equivalent
Workers							
First-Line Supervisors of	739	827	11.9%	88	253	\$22.62	High school diploma or
Helpers, Laborers, and							equivalent
Material Movers, Hand First-Line Supervisors of	837	933	11.5%	96	147	\$18.46	High school diploma or
Housekeeping and Janitorial	037	933	11.5/0	30	147	710.40	equivalent
Workers							
First-Line Supervisors of	608	654	7.6%	46	116	\$19.39	High school diploma or
Landscaping, Lawn Service,							equivalent
and Groundskeeping Workers	. -					400	
First-Line Supervisors of	1,750	1,992	13.8%	242	376	\$36.82	High school diploma or
Mechanics, Installers, and Repairers							equivalent

			2016 - 2026	2016 -	2016 - 2026	Median	
	2016	2026	Growth	2016 - 2026 New	Replace- ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
First-Line Supervisors of Non-	847	982	15.9%	135	106	\$28.15	High school diploma or
Retail Sales Workers							equivalent
First-Line Supervisors of Office	5,831	6,577	12.8%	746	944	\$27.26	High school diploma or
and Administrative Support Workers							equivalent
First-Line Supervisors of	870	1,074	23.4%	204	192	\$18.33	High school diploma or
Personal Service Workers		_,•••				7-0.00	equivalent
First-Line Supervisors of Police	202	229	13.4%	27	77	\$60.94	High school diploma or
and Detectives							equivalent
First-Line Supervisors of	2,057	2,355	14.5%	298	353	\$30.42	High school diploma or
Production and Operating Workers							equivalent
First-Line Supervisors of	159	185	16.4%	26	44	\$31.04	High school diploma or
Protective Service Workers, All						7	equivalent
Other							·
First-Line Supervisors of Retail	5,193	5,891	13.4%	698	1,247	\$19.69	High school diploma or
Sales Workers	705	200	44.40/	0.4	274	426.20	equivalent
First-Line Supervisors of	795	886	11.4%	91	271	\$26.29	High school diploma or
Transportation and Material- Moving Machine and Vehicle							equivalent
Operators							
Fish and Game Wardens	24	25	4.2%	1	-1	\$49.33	Bachelor's degree
Fishers and Related Fishing	38	38	0.0%	0	16	\$15.82	No formal educational
Workers							credential
Fitness Trainers and Aerobics	2,039	2,127	4.3%	88	397	\$27.06	High school diploma or
Instructors Flight Attendants	11	22	95.9%	11	3		equivalent High school diploma or
riight Attendants			33.370		3		equivalent
Floor Layers, Except Carpet,	67	80	19.5%	13	11	\$23.25	No formal educational
Wood, and Hard Tiles							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
rioral Designers	130	113	3.170	,	.5	Ψ1 2 .13	equivalent
Food and Tobacco Roasting,	132	162	22.7%	30	31	\$14.17	No formal educational
Baking, and Drying Machine							credential
Operators and Tenders	054	4.420	40.00/	100	220	442.47	
Food Batchmakers	951	1,139	19.8%	188	230	\$13.17	High school diploma or equivalent
Food Cooking Machine	224	279	24.5%	55	54	\$15.05	High school diploma or
Operators and Tenders			,			7-5155	equivalent
Food Preparation and Serving	544	608	11.8%	64	291	\$14.92	No formal educational
Related Workers, All Other						4	credential
Food Preparation Workers	6,008	6,785	12.9%	777	1,806	\$10.50	No formal educational credential
Food Processing Workers, All	143	186	30.0%	43	36	\$12.21	No formal educational
Other						¥	credential
Food Scientists and	145	168	15.9%	23	56	\$33.36	Bachelor's degree
Technologists							
Food Servers, Nonrestaurant	1,160	1,382	19.1%	222	318	\$12.51	No formal educational
Food Service Managers	1,399	1,573	12.4%	174	303	\$23.55	credential High school diploma or
. 304 Service Muliagers	1,555	1,575	12.7/0	1/4	303	Ÿ Z J.JJ	equivalent
Forensic Science Technicians	37	49	32.4%	12	18	\$33.37	Bachelor's degree
Forest and Conservation	210	205	-2.4%	-5	94	\$14.91	Associate's degree
Technicians		4.46	2.60/	-	2-	640.50	Titlebook and all 2011
Forest and Conservation	141	146	3.6%	5	35	\$10.50	High school diploma or

			2016 - 2026	2016	2016 - 2026	Median	
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Workers						<u> </u>	equivalent
Forest Fire Inspectors and	24	26	8.4%	2	-2	\$49.40	High school diploma or
Prevention Specialists						4	equivalent
Foresters	40	42	5.0%	2	19	\$36.71	Bachelor's degree
Forging Machine Setters, Operators, and Tenders, Metal	19	18	-5.3%	-1	1	\$16.96	High school diploma or equivalent
and Plastic							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	42	35	-16.6%	-7	18	\$18.33	High school diploma or
Kettle Operators and Tenders Furniture Finishers	25	28	12.0%	3	-3	\$16.46	equivalent High school diploma or
r diffical e i mishers	25	20	12.070	J	3	Ϋ10. 40	equivalent
Gaming and Sports Book	11	15	34.8%	4	-4	\$18.14	High school diploma or
Writers and Runners							equivalent
Gaming Cage Workers	252	268	6.3%	16	51	\$12.42	High school diploma or
Caming Change Borsons and	167	172	3.0%	5	74	\$12.58	equivalent High school diploma or
Gaming Change Persons and Booth Cashiers	107	1/2	5.0%	5	74	\$12.56	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
Carrier Carrier Manhaus All	01	07	7 40/	C	22	ć12. 7 2	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
0 11/1				-		,	equivalent
Gaming Surveillance Officers	39	38	-2.6%	-1	1	\$18.30	High school diploma or
and Gaming Investigators						4	equivalent
Gas Plant Operators	47	50	6.4%	3	23	\$41.19	High school diploma or equivalent
General and Operations	10,600	11,835	11.7%	1,235	2,859	\$47.95	Bachelor's degree
Managers	10,000	11,033	11.770	1,233	2,033	γ-7.55	buchelor 3 degree
Genetic Counselors	15	16	6.8%	1	-1	\$35.32	Master's degree
Geological and Petroleum	21	27	28.9%	6	9	\$28.55	Associate's degree
Technicians						4.0.40	5 1 1 1 1
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
Gidziers	301	, , ,	22.070	03	33	γ2 3.33	equivalent
Graders and Sorters,	358	344	-3.9%	-14	77	\$11.49	No formal educational
Agricultural Products							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,	109	100	-8.3%	-9	54	\$15.71	High school diploma or
and Buffing Machine Tool	103	100	0.570	J	34	Ϋ13.71	equivalent
Setters, Operators, and							•
Tenders, Metal and Plastic							
Grounds Maintenance	64	69	7.8%	5	13	\$15.41	No formal educational
Workers, All Other	1.046	1 201	22 40/	245	240	¢11 27	credential
Hairdressers, Hairstylists, and Cosmetologists	1,046	1,291	23.4%	245	310	\$11.27	Postsecondary nondegree award
Hazardous Materials Removal	138	175	26.9%	37	36	\$17.58	High school diploma or
Workers							equivalent

			2016 -	2016	2016 - 2026	B d = alta a	
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Median Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Health and Safety Engineers,	69	80	15.9%	11	22	\$41.18	Bachelor's degree
Except Mining Safety							
Engineers and Inspectors	162	160	2.70/	c	40	¢ac aa	Mastaria dagraa
Health Diagnosing and Treating Practitioners, All	162	168	3.7%	6	40	\$36.33	Master's degree
Other							
Health Educators	328	379	15.5%	51	70	\$30.37	Bachelor's degree
Health Technologists and	671	964	43.7%	293	86	\$22.96	High school diploma or
Technicians, All Other	400	246	0.60/	47	42	¢20.22	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
Healthcare Support Workers,	430	450	4.7%	20	93	\$22.78	High school diploma or
All Other							equivalent
Hearing Aid Specialists	29	36	24.4%	7	3	\$27.11	High school diploma or
Heat Treating Equipment	10	12	19.0%	2	-2	\$17.72	equivalent High school diploma or
Setters, Operators, and	10		13.070	_	_	Ψ17.7 2	equivalent
Tenders, Metal and Plastic							
Heating, Air Conditioning, and	714	885	23.9%	171	123	\$24.62	Postsecondary
Refrigeration Mechanics and Installers							nondegree award
Heavy and Tractor-Trailer	4,360	4,987	14.4%	627	800	\$20.94	Postsecondary
Truck Drivers	,	,		-		,	nondegree award
Helpers, Construction Trades,	94	109	15.9%	15	13	\$17.22	No formal educational
All Other	100	220	24.00/	40	24	¢1.C.00	credential
HelpersBrickmasons, Blockmasons, Stonemasons,	196	239	21.9%	43	31	\$16.90	No formal educational credential
and Tile and Marble Setters							Credential
HelpersCarpenters	170	197	15.9%	27	31	\$18.00	No formal educational
	400		4.0 =0/			4	credential
HelpersElectricians	133	155	16.5%	22	25	\$17.59	High school diploma or equivalent
HelpersExtraction Workers	26	27	3.8%	1	-1	\$18.64	High school diploma or
						,	equivalent
HelpersInstallation,	485	559	15.3%	74	168	\$14.93	High school diploma or
Maintenance, and Repair							equivalent
Workers HelpersPainters,	77	94	22.0%	17	13	\$16.14	No formal educational
Paperhangers, Plasterers, and	,,	54	22.070	17	13	Ş10.1 4	credential
Stucco Masons							
HelpersPipelayers, Plumbers,	149	180	20.8%	31	22	\$14.56	High school diploma or
Pipefitters, and Steamfitters HelpersProduction Workers	1 565	1 660	6.6%	103	539	\$13.53	equivalent No formal educational
neipersProduction workers	1,565	1,668	0.0%	103	559	\$15.55	credential
HelpersRoofers	27	31	14.9%	4	6	\$18.06	No formal educational
							credential
Highway Maintenance	228	267	17.1%	39	66	\$23.56	High school diploma or
Workers Home Appliance Repairers	73	86	17.9%	13	22	\$20.27	equivalent High school diploma or
Trome Appliance Repairers	,,	00	17.570	10		Ψ 2 0.27	equivalent
Home Health Aides	2,138	3,477	62.6%	1,339	692	\$11.20	No formal educational
Heate and Heaters.	4 400	1 700	40.00/	200	4 4 4 0	60.00	credential
Hosts and Hostesses, Restaurant, Lounge, and	1,492	1,700	13.9%	208	1,148	\$9.93	No formal educational credential
Coffee Shop							GCUCHUIII
Hotel, Motel, and Resort Desk	1,663	2,006	20.6%	343	998	\$12.64	High school diploma or

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Clerks	476	F04	F 20/	25		640.50	equivalent
Human Resources Assistants,	476	501	5.3%	25	57	\$19.50	Associate's degree
Except Payroll and Timekeeping							
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	1,730	1,525	0.0%	0	0	\$22.71	No formal educational
Hunters and Happers	11	11	0.076	U	O	722.71	credential
Hydrologists	27	29	7.5%	2	9	\$50.66	Bachelor's degree
Industrial Engineering	150	201	33.9%	51	44	\$27.39	Associate's degree
Technicians							
Industrial Engineers	666	764	14.7%	98	218	\$45.37	Bachelor's degree
Industrial Machinery	1,062	1,421	33.8%	359	330	\$28.38	High school diploma or
Mechanics							equivalent
Industrial Production	947	1,048	10.7%	101	291	\$46.09	Bachelor's degree
Managers Industrial Truck and Tractor	1 075	2 122	13.7%	257	504	¢16.41	No formal educational
Operators	1,875	2,132	13.7%	257	504	\$16.41	credential
Information and Record	785	812	3.4%	27	212	\$20.73	High school diploma or
Clerks, All Other	703	012	3.170	_,		Ψ20.73	equivalent
Information Security Analysts	149	169	13.4%	20	21	\$43.45	Bachelor's degree
Inspectors, Testers, Sorters,	1,454	1,792	23.2%	338	417	\$18.07	High school diploma or
Samplers, and Weighers							equivalent
Installation, Maintenance, and	1,056	1,108	4.9%	52	167	\$18.78	High school diploma or
Repair Workers, All Other							equivalent
Instructional Coordinators	730	779	6.7%	49	73	\$32.03	Master's degree
Insulation Workers, Floor,	44	51	15.8%	7	18	\$23.38	No formal educational
Ceiling, and Wall			22 =21			40.00	credential
Insulation Workers, Mechanical	27	36	33.7%	9	12	\$24.34	High school diploma or equivalent
Insurance Appraisers, Auto	42	25	-40.8%	-17	17	\$35.55	Postsecondary
Damage	72	25	40.070	1,	17	γ 55.55	nondegree award
Insurance Claims and Policy	1,212	1,142	-5.8%	-70	424	\$19.18	High school diploma or
Processing Clerks	,	,				,	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
						4.4	degree
Interpreters and Translators	179	239	33.6%	60	35	\$19.71	Bachelor's degree
Interviewers, Except Eligibility	471	504	7.0%	33	112	\$20.73	High school diploma or
and Loan Janitors and Cleaners, Except	9,331	10,189	9.2%	858	1,970	\$13.26	equivalent No formal educational
Maids and Housekeeping	9,331	10,169	9.2%	636	1,970	\$15.20	credential
Cleaners							Credential
Jewelers and Precious Stone	64	60	-6.3%	-4	20	\$20.75	High school diploma or
and Metal Workers						,	equivalent
Judges, Magistrate Judges,	56	60	7.1%	4	9	\$76.69	Doctoral or professional
and Magistrates							degree
Judicial Law Clerks	51	51	0.0%	0	12	\$22.95	Doctoral or professional
			:			40	degree
Kindergarten Teachers, Except	771	813	5.5%	42	233	\$29.89	Bachelor's degree
Special Education Labor Relations Specialists	115	114	-0.9%	-1	39	\$39.04	Bachelor's degree
							No formal educational
Laborers and Freight, Stock,	8,340	9,351	12.1%	1,011	2,643	\$13.09	INO TOTTITAL EQUICATIONAL

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation and Material Movers, Hand	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education credential
Landscape Architects	314	328	4.5%	14	57	\$27.96	Bachelor's degree
Landscaping and	5,862	6,302	7.5%	440	1,168	\$15.16	No formal educational
Groundskeeping Workers	3,002	0,302	7.570	440	1,100	γ13.10	credential
Lathe and Turning Machine	56	54	-3.6%	-2	18	\$18.09	High school diploma or
Tool Setters, Operators, and							equivalent
Tenders, Metal and Plastic							
Laundry and Dry-Cleaning	698	836	19.8%	138	112	\$11.74	No formal educational
Workers	1 152	1 202	12.00/	150	170	¢cc 02	credential
Lawyers	1,153	1,303	13.0%	150	179	\$66.83	Doctoral or professional degree
Layout Workers, Metal and	14	13	-7.1%	-1	1	\$20.29	High school diploma or
Plastic			,,_,	_	_	Ψ=0.23	equivalent
Legal Secretaries	580	572	-1.4%	-8	85	\$24.09	High school diploma or
							equivalent
Legal Support Workers, All	87	93	6.9%	6	20	\$23.88	High school diploma or
Other	400	200	5 20/	40	40	dan a=	equivalent
Legislators	190	200	5.3%	10	43	\$20.27	Bachelor's degree
Library Assistants Clarical	374	396	5.9%	22 30	72 109	\$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	2,618	3,193	22.0%	575	849	\$26.54	Postsecondary
Licensed Vocational Nurses							nondegree award
Life Scientists, All Other	20	22	9.8%	2	-2	\$42.28	Bachelor's degree
Life, Physical, and Social	133	162	21.7%	29	63	\$23.76	Associate's degree
Science Technicians, All Other	623	694	11.4%	71	93	\$13.71	No formal educational
Lifeguards, Ski Patrol, and Other Recreational Protective	023	094	11.4%	/1	95	\$15.71	credential
Service Workers							Credential
Light Truck or Delivery	3,318	3,708	11.8%	390	602	\$16.47	High school diploma or
Services Drivers							equivalent
Loan Interviewers and Clerks	342	384	12.3%	42	65	\$19.75	High school diploma or
	0.4.4	047	0.60/	70	462	625.74	equivalent
Loan Officers	844	917	8.6%	73 10	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
zoonomino ana gare nepamero	J.	٥.	20.070			Ψ-20.5·2	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
		20	20.00/	4.0	20	644.70	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	236	249	5.5%	13	61	\$15.21	No formal educational
Offbearers		5	0.070	13	01	¥10.11	credential
Machinists	651	789	21.2%	138	212	\$30.05	High school diploma or
							equivalent
Magnetic Resonance Imaging	184	164	-10.9%	-20	53	\$34.95	Associate's degree
Technologists Maids and Housekeeping	F 634	6 407	1F C0/	070	1 - 1 - 7	¢11 CF	No formal adventional
Maids and Housekeeping Cleaners	5,621	6,497	15.6%	876	1,517	\$11.65	No formal educational credential
Mail Clerks and Mail Machine	107	110	2.8%	3	25	\$16.14	High school diploma or
Operators, Except Postal	-5,		,	5	23	7-01-1	equivalent
·							

			2016 -	2016	2016 - 2026		
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Median Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Service	1003	3003	nate	3003	Ореннівз	Luiiiiigs	Ladeation
Maintenance and Repair	5,670	6,355	12.1%	685	1,587	\$20.94	High school diploma or
Workers, General	,	,			,		equivalent
Maintenance Workers,	232	306	31.9%	74	44	\$21.83	High school diploma or
Machinery							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
Mankat Daggarah Anakata and	2 4 7 2	2.607	20.00/	425	200	ć27.40	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	358	406	13.4%	48	82	\$32.29	Master's degree
Therapists	330	400	13.470	40	02	γ32.23	Waster 5 degree
Massage Therapists	1,344	1,598	18.9%	254	110	\$21.83	Postsecondary
							nondegree award
Material Moving Workers, All	78	83	6.4%	5	27	\$14.53	No formal educational
Other							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	251	243	-3.2%	-8	82	\$11.95	No formal educational
Cutters and Trimmers Mechanical Door Repairers	75	79	5.3%	4	32	\$21.74	credential High school diploma or
Mechanical Door Repairers	73	75	3.370	4	32	321.74	equivalent
Mechanical Drafters	125	129	3.2%	4	17	\$29.19	Associate's degree
Mechanical Engineering	87	103	18.5%	16	23	\$29.04	Associate's degree
Technicians				_			
Mechanical Engineers	480	570	18.7%	90	168	\$43.98	Bachelor's degree
Media and Communication	21	25	18.8%	4	-4	\$31.97	High school diploma or
Equipment Workers, All Other							equivalent
Media and Communication	137	127	-7.3%	-10	37	\$26.47	High school diploma or
Workers, All Other Medical and Clinical	720	905	10.3%	75	101	ć22.00	equivalent
Laboratory Technicians	730	805	10.3%	/5	191	\$23.90	Associate's degree
Medical and Clinical	288	324	12.5%	36	80	\$40.01	Bachelor's degree
Laboratory Technologists	200	32.	12.570	30	00	φ 10.01	buchelor 3 degree
Medical and Health Services	1,590	1,809	13.8%	219	437	\$62.38	Bachelor's degree
Managers							
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
Madical Equipment Proparers	334	341	2.1%	7	80	\$22.18	nondegree award High school diploma or
Medical Equipment Preparers	334	341	2.1%	,	80	\$22.18	equivalent
Medical Equipment Repairers	132	163	23.4%	31	26	\$26.76	Associate's degree
Medical Records and Health	741	819	10.5%	78	176	\$20.45	Postsecondary
Information Technicians				_		,	nondegree award
Medical Scientists, Except	533	617	15.8%	84	180	\$52.68	Doctoral or professional
Epidemiologists							degree
Medical Secretaries	2,562	2,874	12.2%	312	289	\$21.37	High school diploma or
			0.00/	_		400.00	equivalent
Medical Transcriptionists	132	131	-0.8%	-1	37	\$23.03	Postsecondary
Meeting, Convention, and	489	560	14.5%	71	63	\$25.69	nondegree award Bachelor's degree
Event Planners	- 09	500	17.3/0	/1	03	72J.UJ	Sacricion 3 acgree
Mental Health and Substance	665	768	15.5%	103	178	\$24.00	Bachelor's degree
Abuse Social Workers							Ü

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
O a service of	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation Mental Health Counselors	Jobs	Jobs 600	Rate 23.2%	Jobs 113	Openings	Earnings	Education Master's degree
	487 257		23.2%	78	118	\$23.40	_
Merchandise Displayers and Window Trimmers	357	435	21.8%	78	96	\$15.42	High school diploma or equivalent
Metal Workers and Plastic	77	71	-7.8%	-6	19	\$15.38	High school diploma or
Workers, All Other	//	/1	-7.070	-0	19	713.30	equivalent
Meter Readers, Utilities	223	197	-11.6%	-26	64	\$24.59	High school diploma or
			,,,			7-11-0	equivalent
Microbiologists	129	171	32.5%	42	42	\$39.03	Bachelor's degree
Middle School Teachers,	1,733	1,874	8.1%	141	401	\$30.96	Bachelor's degree
Except Special and	,	,				·	<u> </u>
Career/Technical Education							
Milling and Planing Machine	35	32	-8.7%	-3	3	\$19.12	High school diploma or
Setters, Operators, and							equivalent
Tenders, Metal and Plastic							
Millwrights	78	85	8.9%	7	19	\$27.71	High school diploma or
			20.00/			4	equivalent
Mixing and Blending Machine	606	782	29.0%	176	154	\$15.71	High school diploma or
Setters, Operators, and							equivalent
Tenders Mobile Heavy Equipment	339	376	10.9%	37	87	\$30.56	High school diploma or
Mechanics, Except Engines	333	370	10.5/0	37	67	\$30.30	equivalent
Models	12	15	24.7%	3	-3	\$18.24	No formal educational
Models	12	13	24.770	3	3	γ10.2 ⁻	credential
Molders, Shapers, and Casters,	229	148	-35.3%	-81	142	\$16.54	High school diploma or
Except Metal and Plastic						,	equivalent
Molding, Coremaking, and	153	132	-13.7%	-21	45	\$13.91	High school diploma or
Casting Machine Setters,							equivalent
Operators, and Tenders, Metal							
and Plastic							
Morticians, Undertakers, and	51	58	13.6%	7	17	\$21.43	Associate's degree
Funeral Directors	2.4	40	20.00/	_	_	642.05	N 6 1 1 1 1 1
Motion Picture Projectionists	24	19	-20.9%	-5	5	\$13.95	No formal educational
Motor Vohicle Operators All	438	457	4.3%	19	141	\$19.23	credential No formal educational
Motor Vehicle Operators, All Other	430	437	4.5%	19	141	\$19.25	credential
Motorboat Mechanics and	52	53	1.9%	1	13	\$20.43	High school diploma or
Service Technicians	32	33	1.570	-	13	γ20. 43	equivalent
Motorcycle Mechanics	86	77	-10.5%	-9	31	\$21.85	Postsecondary
•						·	nondegree award
Multimedia Artists and	128	126	-1.6%	-2	34	\$29.99	Bachelor's degree
Animators							
Multiple Machine Tool Setters,	78	91	16.8%	13	16	\$17.96	High school diploma or
Operators, and Tenders, Metal							equivalent
and Plastic							
Museum Technicians and	21	27	28.5%	6	7	\$21.12	Bachelor's degree
Conservators	427	424	2.40/	4	4.4	ć20.00	De als als als als ans
Music Directors and	127	131	3.1%	4	41	\$30.99	Bachelor's degree
Composers Musical Instrument Repairers	26	26	0.0%	0	0	\$22.60	High school diploma or
and Tuners	20	20	0.070	O	U	722.00	equivalent
Musicians and Singers	211	203	-3.8%	-8	88	\$37.88	No formal educational
		_00	3.070	J		Ç37.00	credential
Natural Sciences Managers	282	337	19.5%	55	66	\$71.58	Bachelor's degree
Network and Computer	1,179	1,274	8.1%	95	159	\$40.57	Bachelor's degree
Systems Administrators	•	•					Č
New Accounts Clerks	342	359	5.0%	17	90	\$17.68	High school diploma or
							equivalent

			2016 -	2015	2016 - 2026		
	2016	2026	2026	2016 -	Replace-	Median	Torrigal Catao Laval
Occupation	2016 Jobs	2026 Jobs	Growth Rate	2026 New Jobs	ment Openings	Hourly Earnings	Typical Entry Level Education
Nonfarm Animal Caretakers	1,422	1,591	11.9%	169	319	\$14.23	High school diploma or
	-,	2,002	11.070	200	013	Ψ125	equivalent
Nuclear Medicine	82	66	-19.5%	-16	30	\$53.43	Associate's degree
Technologists							
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
Obstatuisians and	70	84	20.0%	1.4	22	¢00.60	nondegree award
Obstetricians and Gynecologists	70	64	20.0%	14	22	\$98.69	Doctoral or professional degree
Occupational Health and	183	206	12.6%	23	39	\$40.25	Bachelor's degree
Safety Specialists	200		12.075			ψ .σ. <u>=</u> σ	business, a degree
Occupational Health and	35	42	19.9%	7	7	\$25.19	High school diploma or
Safety Technicians							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
0 1-1	F.4		46.00/	24	40	422.00	equivalent
Occupational Therapy Assistants	51	75	46.8%	24	19	\$38.09	Associate's degree
Office and Administrative	1,349	1,421	5.3%	72	373	\$11.55	High school diploma or
Support Workers, All Other	1,545	1,721	3.370	, 2	373	711.55	equivalent
Office Clerks, General	10,211	11,186	9.5%	975	2,318	\$17.45	High school diploma or
							equivalent
Office Machine Operators,	169	158	-6.5%	-11	49	\$15.45	High school diploma or
Except Computer							equivalent
Operating Engineers and	1,458	1,700	16.6%	242	271	\$31.81	High school diploma or
Other Construction Equipment Operators							equivalent
Operations Research Analysts	242	294	21.5%	52	48	\$44.42	Bachelor's degree
Ophthalmic Laboratory	73	84	15.2%	11	19	\$17.33	High school diploma or
Technicians	,,	0.	13.270		13	Ψ17.33	equivalent
Ophthalmic Medical	123	153	24.4%	30	14	\$16.84	Postsecondary
Technicians							nondegree award
Opticians, Dispensing	249	323	29.7%	74	78	\$22.84	High school diploma or
Out and a triata	450	405	22.40/	27	C 4	ĆEO 40	equivalent
Optometrists	158	195	23.4%	37	64	\$58.10	Doctoral or professional
Oral and Maxillofacial	24	24	0.0%	0	0	\$105.55	degree Doctoral or professional
Surgeons	2-7	2-7	0.070	Ü	O	Ģ103.33	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
Outle stists and Donath stists	1.0	40	42.00/	2	2	¢20.44	degree
Orthotists and Prosthetists	16	18	12.8%	2	-2 20	\$30.14	Master's degree
Outdoor Power Equipment and Other Small Engine	111	117	5.4%	6	29	\$17.67	High school diploma or equivalent
Mechanics							equivalent
Packaging and Filling Machine	3,165	3,896	23.1%	731	1,288	\$14.02	High school diploma or
Operators and Tenders	,	,			ŕ		equivalent
Packers and Packagers, Hand	3,228	3,546	9.9%	318	909	\$10.66	No formal educational
							credential
Painters, Construction and	1,760	2,110	19.9%	350	334	\$23.10	No formal educational
Maintenance	206	220	11 70/	าว	42	¢21 77	credential
Painters, Transportation	206	229	11.2%	23	42	\$21.77	High school diploma or

			2016 -	2046	2016 - 2026		
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Median	Typical Entry Loyal
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Hourly Earnings	Typical Entry Level Education
Equipment	3003	30.55	riace	3003	O periiri83	2011111163	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
Photographic Process Workers and Processing Machine	208	170	-18.3%	-38	76	\$14.54	High school diploma or equivalent
Operators 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

Compation 2016 2026 20								
Decumption Jobs Jobs Rate Jobs OpenIngs Earnings Education Secretarion Secretari								
Pipelayers								
Pipelayers 160 177 10.6% 17 24 \$27.94 No formal educational credential and System Operators, 44 43 2.3% -1 20 \$33.21 High school diploma or equivalent Plant and System Operators, 36 154 6.6% -11 32 \$22.90 No formal educational credential and Plastic Planting and Coating Machine 65 71 9.3% 6 19 \$16.39 High school diploma or equivalent Planting and Coating Machine 65 71 9.3% 6 19 \$16.39 High school diploma or equivalent Planting and Coating Machine 72 72 74% 208 219 \$27.65 High school diploma or equivalent Planting and Coating Machine 72 72 74% 208 219 \$25.57 Policity Planting and Coating Machine 72 74 74 74 74 74 74 74	·							
Pipelayers 160	Pile-Driver Operators	21	23	9.5%	2	-2	\$39.75	•
Plant and System Operators,	Pinelavers	160	177	10.6%	17	24	\$27.94	•
Plant and System Operators,	1 ipelayers	100	1//	10.070	1,	2-7	γ27.5 4	
Plasterers and Stucco Masons 165 154 6.6% -11 32 \$2.79 Normal educational credential or cedential or ceden	Plant and System Operators,	44	43	-2.3%	-1	20	\$33.21	
Plating and Coating Machine 65 71 9.3% 6 19 516.39 High school diploma or equivalent								equivalent
Plating and Coating Machine 65 71 9.3% 6 19 \$16.39 High school diploma or equivalent	Plasterers and Stucco Masons	165	154	-6.6%	-11	32	\$22.90	No formal educational
Setters, Operators, and Tenders, Metal and Plastic Plumbers, Pipelfitters, and 1,417 1,625 14.7% 208 219 \$27.65 High school diploma or equivalent Prodictrists 27 29 7.4% 2 2.56674 Doctoral or professional degree Doctoral or professional degree Pollice and Sheriff's Patrol 2,005 2,220 10.7% 215 701 \$48.02 High school diploma or equivalent Pollice, Fire, and Ambulance 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, 200 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 200 18.0 -18.2% -40 67 \$27.53 High school diploma or equivalent Processors, and Processors, and Processors, and Processors Processors, and Processors -20.1% -20.1% -20.1% -20.1% -20.2%								
Fembers, Metal and Plastic Plumbers, Pipelfitters, and 1,417 1,625 14.7% 208 219 \$27.65 High school diploma or steamfitters 27 29 7.4% 2 2-5 \$56.74 Doctoral or professional degree Police and Sheriff's Patrol 2,005 2,220 10.7% 215 701 \$48.02 High school diploma or equivalent Police, Fire, and Ambulance 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 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postaceondary Teachers 4.295 4.877 13.6% 582 818 \$32.68 Doctoral or professional 4.875 4.877 13.6% 582 818 \$32.68 Doctoral or professional 4.875 4.877 4.875		65	71	9.3%	6	19	\$16.39	= -
Plumbers, Pipefitters, and Stamfitters 1,417 1,625 14.7% 208 219 \$27.65 High school diploma or equivalent 2,005 2,220 10.7% 215 701 548.02 High school diploma or equivalent Police, Fire, and Ambulance 419 459 9.5% 40 113 527.27 High school diploma or equivalent Police, Fire, and Ambulance 419 459 9.5% 40 113 527.27 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 Processors, and Processing Processors, and Processing Processors, and Processors Postal Service Mail Sorters -220 180 -18.2% -40 67 527.53 High school diploma or equivalent Processors, and Processing Postal Service Mail Sorters -220 180 -18.2% -40 67 527.53 High school diploma or equivalent -220 -22								equivalent
Podiatrists 27		1 /117	1 625	1/1 70/	208	210	\$27.65	High school diploma or
Police and Sheriff's Patrol 2,005 2,220 10.7% 215 701 \$48.02 High school diploma or equivalent Police, Fire, and Ambulance 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 Carriers 1,408 1,125 -20.1% -283 525 \$28.33 High school diploma or equivalent Postal Service Mail Sorters, Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.8% -10 23 \$32.6% High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.8% -10 23 \$32.6% High school diploma or equivalent Postal Service Mail Sorters, 220 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Power Distributors and 28 31 10.6% 3 10 \$45.67 High school diploma or equivalent Postal Service Mail Sorters, 220 22		1,417	1,023	14.7/0	208	219	\$27.03	
Police and Sheriff's Patrol 2,005 2,220 10.7% 215 701 \$48.02 High school diploma or equivalent Police, Fire, and Ambulance 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, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, 220 180 -18.2% -40 23 \$32.76 High school diploma or equivalent Postal Service Mail Sorters, 4,295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Postsecondary Teachers 4,295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Power Plant Operators 181 245 35.4% 64 76 \$41.39 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 7,712 1,776 3.7% 64 528 \$15.72 Associate's degree Presers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Printing Press Operators 344 319 -7.3% -25 77 \$18.		27	29	7.4%	2	-2	\$56.74	•
Officers equivalent Police, Fire, and Ambulance 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 \$25 \$38.33 High school diploma or equivalent Postal Service Mail Sorters, processing 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent Postal Service Mail Sorters, processing 8 -40 67 \$27.53 High school diploma or equivalent Postrecondary Teachers 4,295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Power Distributors and processing 28 31 10.6% 3 10 \$45.67 High school diploma or equivalent Power Distributors and processing processing statchers 4.295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree							,	
Police, Fire, and Ambulance	Police and Sheriff's Patrol	2,005	2,220	10.7%	215	701	\$48.02	High school diploma or
Dispatchers Clarks 344 277 -19.5% -67 104 \$27.7 116	Officers							equivalent
Postal Service Clerks		419	459	9.5%	40	113	\$27.27	
Postal Service Mail Carriers 1,408 1,125 -20.1% -283 525 528.33 High school diploma or equivalent	•						4	•
Postal Service Mail Carriers 1,408 1,125 -20.1% -283 525 \$28.33 High school diploma or equivalent	Postal Service Clerks	344	277	-19.5%	-67	104	\$27.73	-
Postal Service Mail Sorters, 220 180 -18.2% -40 67 \$27.53 High school diploma or equivalent	Doctal Comica Mail Corriors	1 400	1 125	20.10/	202	F2F	ຕ່ວດ ວວ	•
Postal Service Mail Sorters, and Processing Machine Operators Processors, and Processing Machine Operators Postmasters and Mail 60 50 -16.8% -10 23 \$32.76 High school diploma or equivalent Processors, and Processing Machine Operators Postsecondary Teachers 4,295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Postsecondary Teachers 4,295 4,877 13.6% 582 818 \$32.68 Doctoral or professional degree Power Distributors and 28 31 10.6% 3 10 \$45.67 High school diploma or equivalent Procession Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Print Binding and Finishing 138 115 -16.7% -23 42 \$15.67 High school diploma or equivalent Print Binding and Finishing 138 115 -16.7% -23 42 \$15.67 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Production Officers and Directors 192 229 19.3% 37 71 353.76 Bachelor's degree Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Producers and Directors 192 229 19.3% 37 71 353.56 Bachelor's degree Production Workers, All Other 491 591 20.4% 100 113 513.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 513.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 513.95 High school diploma or eq	Postal Service Mail Carriers	1,408	1,125	-20.1%	-283	525	\$28.33	= -
Processors, and Processing Machine Operators Postmasters and Mail 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 28 31 10.6% 3 10 \$45.67 High school diploma or equivalent Postsecondary Teachers 181 245 35.4% 64 76 \$41.39 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 138 115 -16.7% -23 42 \$15.67 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Productional Treatment Specialists 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 Producers and Directors 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Producers and Directors 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Producers and Directors 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Producers and Directors 491 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Producers and Directors 491 491 591 20.4% 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	Postal Service Mail Sorters	220	180	-18 2%	-40	67	\$27 53	•
Machine Operators	•		100	10.270	.0	0,	Ψ27.33	= -
Superintendents	_							•
Postsecondary Teachers	Postmasters and Mail	60	50	-16.8%	-10	23	\$32.76	High school diploma or
Power Distributors and 28 31 10.6% 3 10 \$45.67 High school diploma or equivalent Problems Power Plant Operators 181 245 35.4% 64 76 \$41.39 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Prescence Institution Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Production Urresting Precent Clerks 194 205 5.7% 11 70 \$21.81 High school diploma or equivalent Probation Officers and 501 531 5.7% 11 70 \$21.81 High school diploma or equivalent Probation Officers and 501 531 5.7% 37 71 \$35.76 Bachelor's degree Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Probation Officers 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 Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent Production Workers, All Other 491 591 20.	Superintendents							•
Power Distributors and Dispatchers Power Plant Operators 181 245 35.4% 64 76 \$41.39 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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	Postsecondary Teachers	4,295	4,877	13.6%	582	818	\$32.68	
Dispatchers Power Plant Operators 181 245 35.4% 64 76 \$41.39 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and Equipment Repairers, All Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except Special Education Pressers, Textile, Garment, and Related Materials Print Binding and Finishing Print Binding and Finishing Print Binding and Finishing Print Binding and Finishing Private Detectives and Investigators Probation Officers and Correctional Treatment Specialists 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 Production Workers, All Other				10.00/			4	S .
Procession Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Prostigators Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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		28	31	10.6%	3	10	\$45.67	-
Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Cother Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary Workers Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 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	•	101	245	25 /1%	64	76	\$41.20	•
Precision Instrument and 41 46 12.1% 5 7 \$38.57 High school diploma or equivalent Equipment Repairers, All Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential repair of the print Binding and Finishing 138 115 -16.7% -23 42 \$15.67 High school diploma or equivalent Print Binding and Finishing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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	rower Flant Operators	101	243	33.470	04	70	341.33	-
Equipment Repairers, All Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary nondegree award Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Producers and Directors 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	Precision Instrument and	41	46	12.1%	5	7	\$38.57	
Other Prepress Technicians and 60 50 -16.7% -10 10 \$21.92 Postsecondary Workers Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or lovestigators Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists Producers and Directors 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	Equipment Repairers, All							
Workers Preschool Teachers, Except 1,712 1,776 3.7% 64 528 \$15.72 Associate's degree Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists Producers and Directors 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								·
Preschool Teachers, Except Special Education Pressers, Textile, Garment, and Related Materials Print Binding and Finishing Printing Press Operators Private Detectives and Investigators Probation Officers and Correctional Treatment Specialists Producers and Directors Producers and Directors Production Workers Production Workers, All Other Pressers, Textile, Garment, 1,772 1,776 1,778 1,770 1,771 2,	Prepress Technicians and	60	50	-16.7%	-10	10	\$21.92	
Special Education Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential Print Binding and Finishing 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 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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								
Pressers, Textile, Garment, 221 253 14.5% 32 57 \$11.49 No formal educational credential credential credential credential credential credential print Binding and Finishing 138 115 -16.7% -23 42 \$15.67 High school diploma or equivalent equivalent Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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		1,712	1,776	3.7%	64	528	\$15.72	Associate's degree
and Related Materials Print Binding and Finishing Print Binding and Finishing Workers Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and Investigators Probation Officers and Correctional Treatment Specialists Producers and Directors 194 205 5.7% 11 70 \$21.81 High school diploma or equivalent Producers and Directors Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or equivalent 114 155 157, 157, 157, 157, 157, 157, 157, 157,		221	252	14 50/	22	F-7	ć11 40	No formed adventional
Print Binding and Finishing Workers Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and Investigators Probation Officers and Correctional Treatment Specialists Producers and Directors 194 205 757 110 207 111 70 \$21.81 High school diploma or equivalent Pivate Detectives and Investigators Probation Officers and Solic Soli		221	253	14.5%	32	5/	\$11.49	
Workers Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 Correctional Treatment Specialists Procurement Clerks 194 205 5.7% 11 70 \$21.81 High school diploma or equivalent Producers and Directors 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		138	115	-16 7%	-23	42	\$15.67	
Printing Press Operators 344 319 -7.3% -25 77 \$18.20 High school diploma or equivalent Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 Correctional Treatment Specialists Procurement Clerks 194 205 5.7% 11 70 \$21.81 High school diploma or equivalent Producers and Directors 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		150	113	10.770	23	72	γ13.07	-
Private Detectives and 141 155 9.9% 14 41 \$28.07 High school diploma or equivalent Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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	Printing Press Operators	344	319	-7.3%	-25	77	\$18.20	
Investigators Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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								-
Probation Officers and 501 531 6.0% 30 102 \$37.56 Bachelor's degree Correctional Treatment Specialists 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	Private Detectives and	141	155	9.9%	14	41	\$28.07	High school diploma or
Correctional Treatment Specialists 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	=							•
Specialists 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		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 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		10/	205	E 70/	11	70	¢21 01	High school diploma or
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	FIOCUIEITIETT CIETAS	194	205	J./70	11	70	\$21.81	-
Production Workers, All Other 491 591 20.4% 100 113 \$13.95 High school diploma or	Producers and Directors	192	229	19.3%	37	71	\$35.76	•
	,	•	•					= -

			2016 - 2026	2016 -	2016 - 2026 Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
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	1,063	1,117	5.1%	54	200	\$28.94	High school diploma or
Community Association	1,003	1,11,	3.170	34	200	720. 54	equivalent
Managers 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
Psychologists, All Other	14	18	27.7%	4	-4	\$50.70	degree Master's degree
Public Address System and	29	38	30.8%	9	10	\$13.16	High school diploma or
Other Announcers	23	30	30.070	3	10	Ş13.10	equivalent
Public Relations and	177	199	12.4%	22	65	\$48.91	Bachelor's degree
Fundraising Managers							
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	839	917	9.3%	78	242	\$30.61	Bachelor's degree
Wholesale, Retail, and Farm Products			5.5.1			7	
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	55	51	-7.3%	-4	27	\$17.13	Bachelor's degree
Announcers					_	4	
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
Rail Car Repairers	36	34	-5.5%	-2	13	\$32.21	High school diploma or
Rail Transportation Workers,	24	24	0.0%	0	11	\$38.55	equivalent High school diploma or
All Other Real Estate Brokers	141	140	-0.7%	-1	19	\$28.86	equivalent High school diploma or
Real Estate Sales Agents	329	336	2.1%	7	43	\$26.45	equivalent High school diploma or
Receptionists and Information Clerks	4,085	4,595	12.5%	510	1,184	\$15.95	equivalent High school diploma or equivalent
Recreation Workers	2,052	2,395	16.7%	343	420	\$12.16	High school diploma or
Recreational Therapists	198	211	6.6%	13	51	\$31.35	equivalent 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
							•

			2016 -		2016 - 2026		
	2016	2026	2026 Growth	2016 - 2026 New	Replace-	Median	Typical Entry Layel
Occupation	Jobs	Jobs	Rate	Jobs	ment Openings	Hourly Earnings	Typical Entry Level Education
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	600	658	9.7%	58	84	\$19.88	High school diploma or
Transportation Ticket Agents		000	31.70	33	0.	Ψ25.00	equivalent
and Travel Clerks							-4-
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	13	10	-22.7%	-3	3	\$26.94	Associate's degree
Technicians							
Retail Salespersons	20,594	23,474	14.0%	2,880	7,695	\$12.37	No formal educational
	20		40 =0/	_		40000	credential
Riggers	32	36	12.5%	4	11	\$26.09	High school diploma or
Dalling Machine Cetters	27	20	F 40/	2	11	Ć1C CE	equivalent
Rolling Machine Setters, Operators, and Tenders, Metal	37	39	5.4%	2	11	\$16.65	High school diploma or equivalent
and Plastic							equivalent
Roofers	986	999	1.3%	13	242	\$24.94	No formal educational
Noorens	300	333	1.570	13	2.2	Ψ2 1.5 1	credential
Rotary Drill Operators, Oil and	18	17	-5.6%	-1	1	\$34.30	No formal educational
Gas							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	450	514	14.2%	64	68	\$16.68	High school diploma or
Other	224	250	11 70/	27	C 4	¢4C C0	equivalent
Sales Engineers	231	258	11.7%	27	64 530	\$46.68	Bachelor's degree
Sales Managers	2,134	2,329	9.1%	195	528	\$47.02	Bachelor's degree
Sales Representatives,	3,545	3,969	12.0%	424	814	\$24.42	High school diploma or
Services, All Other Sales Representatives,	5,165	6,068	17.5%	903	1,169	\$29.87	equivalent High school diploma or
Wholesale and Manufacturing,	3,103	0,008	17.570	903	1,109	723.07	equivalent
Except Technical and Scientific							equivalent
Products							
Sales Representatives,	962	1,142	18.7%	180	219	\$39.81	Bachelor's degree
Wholesale and Manufacturing,							
Technical and Scientific							
Products							
Sawing Machine Setters,	268	277	3.4%	9	93	\$15.23	High school diploma or
Operators, and Tenders, Wood	2.462				=0.4	400 =0	equivalent
Secondary School Teachers,	3,163	3,388	7.1%	225	781	\$32.53	Bachelor's degree
Except Special and Career/Technical Education							
Secretaries and Administrative	8,438	9,102	7.9%	664	928	\$18.98	High school diploma or
Assistants, Except Legal,	0,430	9,102	7.570	004	928	\$10.50	equivalent
Medical, and Executive							equivalent
Securities, Commodities, and	1,161	1,332	14.7%	171	220	\$29.25	Bachelor's degree
Financial Services Sales Agents	, -	,				,	
Security and Fire Alarm	100	111	11.0%	11	30	\$25.40	High school diploma or
Systems Installers							equivalent
Security Guards	2,795	3,293	17.8%	498	438	\$13.41	High school diploma or
-							equivalent
Self-Enrichment Education	1,071	1,275	19.1%	204	226	\$19.81	High school diploma or
Teachers	c=	00	27 22/	25	4=	647.00	equivalent
Semiconductor Processors	67	92	37.3%	25	17	\$17.06	Associate's degree
Separating, Filtering,	2,656	2,991	12.6%	335	904	\$18.49	High school diploma or

Comparison Com								
Catriying, Precipitating, and Still Machine Setters, Operators, and Tenders Septic Tank Servicers and Self Machine Setters, Operators, and Tenders Septic Tank Servicers and Self Machine Setters, Operators, and Tenders Septic Tank Servicers and Sever Pipe Cleaners Service Unit Operators, Oil, 45		2016	2026					
School Clarking Precipitating and Still Machine Setters, Operators, and Tenders Septic Tank Servicers and 99 125 26.3% 26 28 523.82 No formal educational credential Service Unit Operators Oil Oi	Occupation							* * * * * * * * * * * * * * * * * * * *
Still Machine Setters Operators and Trenders Septic Tank Servicers and Park Septic Tank Servicers and Park Sever Pipe Cleaners Service Unit Operators, Oil, Gas, and Mining Set and Exhibit Designers 37 43 16.4% 6 12 S24,77 Sachelor's degree Sewers, Hand Sewe	·	1003	1003	Nate	1003	Openings	Larinigs	
Septic Tank Services and Service (James Service (
Sewer Pipe Cleaners								
Service Unit Operators, Oil, 45		99	125	26.3%	26	28	\$23.82	No formal educational
Sex and Minning Sex and Minning Sex and Minning Sex and Exhibit Designers 37								
Set and Exhibit Designers 37		45	41	-8.8%	-4	19	\$29.22	
Sewers, Hand		27	42	16 40/	6	12	¢24.77	
Sewing Machine Operators 266 290 9.0% 24 21 513.87 No formal educational credential	_						•	_
Sewing Machine Operators 266 290 9.0% 24 21 51.87 No formal educational credential shapped or	Sewers, Hand	18	20	11.0%	2	-2	\$11.90	
Shampoors 24 34 42.0% 10 2 510.95 No formal educational credential	Sewing Machine Operators	266	290	9.0%	24	21	\$13.87	
Sheet Metal Workers	Sewing Machine Operators	200	230	3.070			φ15.07	
Sheet Metal Workers	Shampooers	24	34	42.0%	10	2	\$10.95	No formal educational
Ship Engineers 22 14 -37.1% -8 8 \$32.95 Postsecondary nondegree award Postsecondary nondegree Postseco								credential
Ship Engineers 22	Sheet Metal Workers	418	490	17.2%	72	100	\$32.74	High school diploma or
Shipping, Receiving, and 2,796 2,984 6.7% 188 630 \$16.79 High school diploma or Traffic Clerks Shoe and Leather Workers and 24 23 -4.2% -1 1 514.08 High school diploma or equivalent spanners Signal and Track Switch 17 18 5.7% 1 -1 534.39 High school diploma or equivalent spanners Signal and Track Switch 17 18 5.7% 1 -1 534.39 High school diploma or equivalent spanners Skincare Specialists 272 318 16.9% 46 23 516.75 Postsecondary nondegree award Shoepers and Meat 226 239 5.7% 13 46 511.96 No formal educational credential redential solutional credential spanners Slot Supervisors 38 24 -37.1% -14 14 518.11 High school diploma or equivalent spanners Social and Community Service 700 866 23.7% 166 217 530.42 Bachelor's degree Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent social science Research 71 80 12.7% 9 38 520.95 Bachelor's degree Assistants Social Scientes Research 71 80 12.7% 9 38 520.95 Bachelor's degree Workers, All Other 467 499 6.9% 32 118 533.19 Bachelor's degree Workers, All Other Social Workers, All Other 467 499 6.9% 32 118 533.19 Bachelor's degree Software Developers, 1,411 1,640 16.2% 229 218 552.57 Bachelor's degree Software Developers, 1,411 1,640 16.2% 229 218 552.57 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 559.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 559.48 Bachelor's degree Soliar Photovoltaic Installers 191 209 9.4% 18 34 523.08 High school diploma or equivalent conductor Teachers, All Teachers, 677 736 8.7% 59 134 531.81 Bachelor's degree work Special Education Teachers, All 77 736 8.7% 59 134 531.81 Bachelor's degree Windergree award Special Education Teachers, 677 736 8.7% 59 134 531.81 Bachelor's degree Windergree award Special Education Teachers, 677 736 8.7% 59 134 530.9 Bachelor's degree Windergree award Special Education Teachers, 677 736 8.7% 59 134 530.9 Bachelor's degree Windergree award Special Education Teachers, 677 736 8.8% 59 134 530.9 Bachelor's degree								•
Shipping, Receiving, and 2,796 2,984 6.7% 188 630 516.79 High school diploma or equivalent raffic Clerks 1	Ship Engineers	22	14	-37.1%	-8	8	\$32.95	•
Shoe and Leather Workers and 24 23 -4.2% -1 1 514.08 High school diploma or equivalent Repairers -1 1 514.08 High school diploma or equivalent Signal and Track Switch 17 18 5.7% 1 -1 534.39 High school diploma or equivalent Skincare Specialists 272 318 16.9% 46 23 516.75 Postsecondary nondegree award Skincare Specialists 276 239 5.7% 13 46 511.96 Normal educational credential Slot Supervisors 38 24 -37.1% -14 14 518.11 High school diploma or equivalent Social and Community Service 700 866 23.7% 166 217 530.42 Bachelor's degree Managers Social and Human Service 2.892 3.426 18.5% 534 643 517.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Morkers, All Other Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Morkers, All Other Social Scientists and Related 74 481 9.4% 7 10 \$34.81 Bachelor's degree Sociolagists 11 11 1.640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, Systems 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Solian Plant Scientists 45 52 15.4% 7 17 536.46 Bachelor's degree Solian Plant Scientists 45 52	Chinning Descriping and	2.706	2.004	C 70/	100	620	¢16.70	
Shoe and Leather Workers and Repairers Shoe and Leather Workers and Repairers Signal and Track Switch 17 18 5.7% 1 -1 \$34.39 High school diploma or equivalent Signal and Track Switch 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 226 239 5.7% 13 46 \$11.96 No formal educational credential Slot Supervisors 38 24 -37.1% -14 14 \$18.11 High school diploma or equivalent Social and Community Service 700 866 23.7% 166 217 \$30.42 Bachelor's degree Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Assistants Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Assistants Social Science Research 74 81 9.4% 7 10 \$34.81 Bachelor's degree Social Workers, All Other Social Science Research 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Soliand Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Soliand Plant Scientists 45 52 15.4% 7 17 \$36.46 Bachelor's degree Soliand Plant Scientists 191 209 9.4% 18 34 \$23.08 High school diploma or equivalent Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Soliand Plant Scientists 677 736 8.7% 59 134 \$31.81 Bachelor's degree Soliand Plant Scientists 567 736 8.7% 59 134 \$31.81 Bachelor's degree Soliand Plant Scientis		2,796	2,984	6.7%	188	630	\$16.79	
Repairers Signal and Track Switch 17		24	23	-4 2%	-1	1	\$14.08	•
Signal and Track Switch 17		2-7	23	4.270	-	-	γ1 4.00	•
Repairers Skincare Specialists 272 318 16.9% 46 23 516.75 Postsecondary nondegree award	•	17	18	5.7%	1	-1	\$34.39	•
Slaughterers and Meat 226 239 5.7% 13 46 51.96 No formal educational credential credential solutions Slot Supervisors 38 24 -37.1% -14 14 518.11 High school diploma or equivalent Social and Community Service 700 866 23.7% 166 217 \$30.42 Bachelor's degree Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Workers, All Other Social Workers, All Other 467 499 6.9% 32 118 \$33.19 Bachelor's degree Software Developers, 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Software Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software S								equivalent
Slaughterers and Meat 226 239 5.7% 13 46 \$11.96 No formal educational credential credential Slot Supervisors 38 24 -37.1% -14 14 \$18.11 High school diploma or equivalent Social and Community Service 700 866 23.7% 166 217 \$30.42 Bachelor's degree Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Social Scientists and Related 74 499 6.9% 32 118 \$33.19 Bachelor's degree Sociologists 11 11 1.00% 0 0 \$41.58 Master's degree Sociologists 11 11 1.640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, 1,411 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 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 Poistecondary nondegree award Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 50.93 Bachelor's degree Special Education Teachers, 677 7	Skincare Specialists	272	318	16.9%	46	23	\$16.75	
Packers Slot Supervisors 38 24 -37.1% -14 14 \$18.11 High school diploma or equivalent								
Social and Community Service 700 866 23.7% 166 217 \$30.42 Bachelor's degree	_	226	239	5.7%	13	46	\$11.96	
Social and Community Service 700 866 23.7% 166 217 330.42 Bachelor's degree		20	24	27 1%	1.4	1.4	¢10 11	
Social and Community Service 700 866 23.7% 166 217 \$30.42 Bachelor's degree Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Assistants Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Workers, All Other Social Workers, All Other 467 499 6.9% 32 118 \$33.19 Bachelor's degree Sociologists 11 11 11 0.0% 0 0 \$41.58 Master's degree Software Developers, 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Siot Supervisors	36	24	-37.1/0	-14	14	\$10.11	
Managers Social and Human Service 2,892 3,426 18.5% 534 643 \$17.63 High school diploma or equivalent Social Science Research 71 80 12.7% 9 38 \$20.95 Bachelor's degree Assistants Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree Workers, All Other 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 Sociologists 11 11 0.0% 0 0 \$41.58 Master's degree Software Developers, 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Applications Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 Special Education Teachers, All 0 ther Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree 30.00	Social and Community Service	700	866	23.7%	166	217	\$30.42	•
Social and Human Service							,	
Social Science Research		2,892	3,426	18.5%	534	643	\$17.63	High school diploma or
Assistants Social Scientists and Related 74	Assistants							•
Social Scientists and Related 74 81 9.4% 7 10 \$34.81 Bachelor's degree		71	80	12.7%	9	38	\$20.95	Bachelor's degree
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, Osystems 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Applications Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 7 17 \$36.46 Bachelor's degree Software Developers, Systems 191 209 9.4% 18 34 \$23.08 High school diploma or equivalent Solar Photovoltaic Installers 34 36 5.8% 2 10 \$31.53 <td>7.00.0 turres</td> <td></td> <td>04</td> <td>0.40/</td> <td>_</td> <td>10</td> <td>624.04</td> <td>D </td>	7.00.0 turres		04	0.40/	_	10	624.04	D
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 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software Developers, Systems 1,541 1,608 4.3% 67 7 17 \$36.46 Bachelor's degree Software Developers, Systems 45 52 15.4% 7 17 \$36.46 Bachelor's degree Software Developers, Systems 191 209 9.4% 18 34 \$23.08 High school diploma or equivalent Solar Photovoltaic Installers 34 36 5.8% 2 10 \$31.53		/4	81	9.4%	/	10	\$34.81	Bachelor's degree
Sociologists 11 11 0.0% 0 0 \$41.58 Master's degree Software Developers, 1,411 1,640 16.2% 229 218 \$52.57 Bachelor's degree Applications Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	•	467	199	6.9%	32	110	\$33.10	Rachelor's degree
Software Developers, Applications Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School								-
Applications Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School								-
Software Developers, Systems 1,541 1,608 4.3% 67 234 \$59.48 Bachelor's degree Software 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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School		1, 111	1,010	10.270	223	210	Ψ32.3 7	bucheror o 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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	• •	1,541	1,608	4.3%	67	234	\$59.48	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 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Software							-
Sound Engineering Technicians 34 36 5.8% 2 10 \$31.53 Postsecondary nondegree award Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Soil and Plant Scientists	45	52	15.4%	7	17	\$36.46	Bachelor's degree
Sound Engineering Technicians 34 36 5.8% 2 10 \$31.53 Postsecondary nondegree award Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Solar Photovoltaic Installers	191	209	9.4%	18	34	\$23.08	•
Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School								•
Special Education Teachers, All 151 168 11.2% 17 30 \$23.18 Bachelor's degree Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Sound Engineering Technicians	34	36	5.8%	2	10	\$31.53	
Other Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School	Consist Education Tanaham All	151	1.00	11 20/	17	20	ć22.40	
Special Education Teachers, 677 736 8.7% 59 134 \$31.81 Bachelor's degree Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School		151	108	11.2%	17	30	\$23.18	Bachelor's degree
Kindergarten and Elementary School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School		677	736	8.7%	59	134	\$31.81	Bachelor's degree
School Special Education Teachers, 239 260 8.8% 21 47 \$30.93 Bachelor's degree Middle School		· · ·	. 50	3.770	33	13 .	702.01	20.00
Middle School								
		239	260	8.8%	21	47	\$30.93	Bachelor's degree
Special Education Teachers, 90 113 25.4% 23 20 \$27.30 Bachelor's degree								
	Special Education Teachers,	90	113	25.4%	23	20	\$27.30	Bachelor's degree

			2016 -		2016 - 2026		
			2026	2016 -	Replace-	Median	
On a service of the s	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation Preschool	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Special Education Teachers,	343	378	10.2%	35	69	\$33.54	Bachelor's degree
Secondary School	343	376	10.2/0	33	09	333.34	bachelor's degree
Speech-Language Pathologists	394	460	16.7%	66	110	\$38.54	Master's degree
Stationary Engineers and	170	178	4.7%	8	49	\$33.83	High school diploma or
Boiler Operators	170	170	4.770	Ü	43	γ33.03	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
	-,	_0,000		_,	3,233	7	credential
Stonemasons	55	66	20.0%	11	6	\$25.66	High school diploma or
Ctructural Iron and Ctaal	264	441	21.1%	77	68	Ć22 1F	equivalent
Structural Iron and Steel Workers	364	441	21.1%	//	68	\$32.15	High school diploma or equivalent
Structural Metal Fabricators	170	203	19.4%	33	30	\$22.88	High school diploma or
and Fitters	170	203	13.470	33	30	722.00	equivalent
Substance Abuse and	437	527	20.6%	90	105	\$20.48	Bachelor's degree
Behavioral Disorder		52 .	20.070	30	200	Ψ=00	246.16.61 6 468.66
Counselors							
Substitute Teachers	3,508	3,718	6.0%	210	684	\$16.89	Bachelor's degree
Subway and Streetcar	19	23	20.5%	4	8	\$32.08	High school diploma or
Operators							equivalent
Surgeons	164	187	14.0%	23	50	\$113.03	Doctoral or professional
							degree
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	199	198	-0.5%	-1	32	\$29.16	High school diploma or
Technicians	206	204	4.70/	-	402	ć25 7 0	equivalent
Surveyors	296	301	1.7%	5	102	\$35.70	Bachelor's degree
Switchboard Operators,	390	300	-23.1%	-90	130	\$18.41	High school diploma or
Including Answering Service Tailors, Dressmakers, and	101	107	6.0%	6	36	\$17.11	equivalent No formal educational
Custom Sewers	101	107	0.0%	0	30	\$17.11	credential
Tank Car, Truck, and Ship	13	14	7.9%	1	-1	\$24.00	No formal educational
Loaders	13		7.570	_	-	φ2 1.00	credential
Tapers	203	187	-7.9%	-16	47	\$30.74	No formal educational
						,	credential
Tax Examiners and Collectors,	158	161	1.9%	3	67	\$30.62	Bachelor's degree
and Revenue Agents							
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
	F F F S	5 066	7.50/		1 202	44406	credential
Teacher Assistants	5,552	5,966	7.5%	414	1,392	\$14.96	Some college, no degree
Teachers and Instructors, All	878	983	12.0%	105	178	\$21.58	Bachelor's degree
Other Team Assemblers	1 007	2 121	11 00/	224	425	Ć1F 70	High school diploma or
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	693	884	27.6%	191	73	\$29.52	Postsecondary
Equipment Installers and	053	004	27.0/0	171	/3	723.32	nondegree award
Repairers, Except Line							
Installers							
Telecommunications Line	428	579	35.2%	151	94	\$29.88	High school diploma or
Installers and Repairers							equivalent

			2016 -	2016	2016 - 2026	NA - dia -	
	2016	2026	2026 Growth	2016 - 2026 New	Replace- ment	Median Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
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
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

			2016 -		2016 - 2026		
			2010 -	2016 -	Replace-	Median	
	2016	2026	Growth	2026 New	ment	Hourly	Typical Entry Level
Occupation	Jobs	Jobs	Rate	Jobs	Openings	Earnings	Education
Urban and Regional Planners	229	246	7.4%	17	45	\$38.91	Master's degree
Ushers, Lobby Attendants, and	519	530	2.1%	11	337	\$9.41	No formal educational
Ticket Takers							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
Watch Repairers	12	10	-16.6%	-2	2	\$21.78	credential High school diploma or
Water and Wastewater	653	698	6.9%	45	173	\$32.13	equivalent High school diploma or
Treatment Plant and System Operators							equivalent
Web Developers	543	640	17.9%	97	76	\$37.30	Associate's degree
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,	122	110	-9.9%	-12	46	\$23.30	High school diploma or equivalent
Operators, and Tenders 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.)

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

#1 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
Create policies and practices	1.1 Each County Leadership Team develops	7% increase in students enrolled in the	October	Angela
that facilitate grade 6-16	and implements a work plan that describes	career pathway: 1st year, 2nd year, 3rd year		
pathways and grade 10-14	activities and deadlines to achieve goal which	(June 2016)	March	
course curriculum alignment	includes			
	 Academic & Career planning (Transition to Post-Secondary) 		June	
	Recruitment strategies			
	1.2 Each County Leadership Team develops	7% increase in the number of students in a	October	
	and implements work plan that describes	career pathway receiving a high school		
	activities and deadlines to achieve goals which	diploma (June 2016)	March	
	includesProgram of Study/Pathway Mapping			
	Transition services		June	
	WBL services			

Model

Connect

Involve

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	2.1 Provide support in placement in teacher	Increase the number of teacher externships	December	
development and teacher	externships	from 40 to 60 participating teachers		
externships on integrated CTE	 Assistance in finding employers including 	(August 2016)		
and Core curriculum	regional externship opportunities		June	
	 Creation of common of regional practice 			
	for teacher selection/process/follow up			

2.2 Design and coordinate a Fall Professional Development Event ~ Dec 2nd 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?
Create regional grade 10-14	3.1 Developed online tool for sharing	50% of Pathway Collaboratives utilize tool	December	
pathway communities of	curriculum and resources – by pathway ~	for collaboration		
practice to share pathway	December 2015		June	
resources and strategies				

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

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

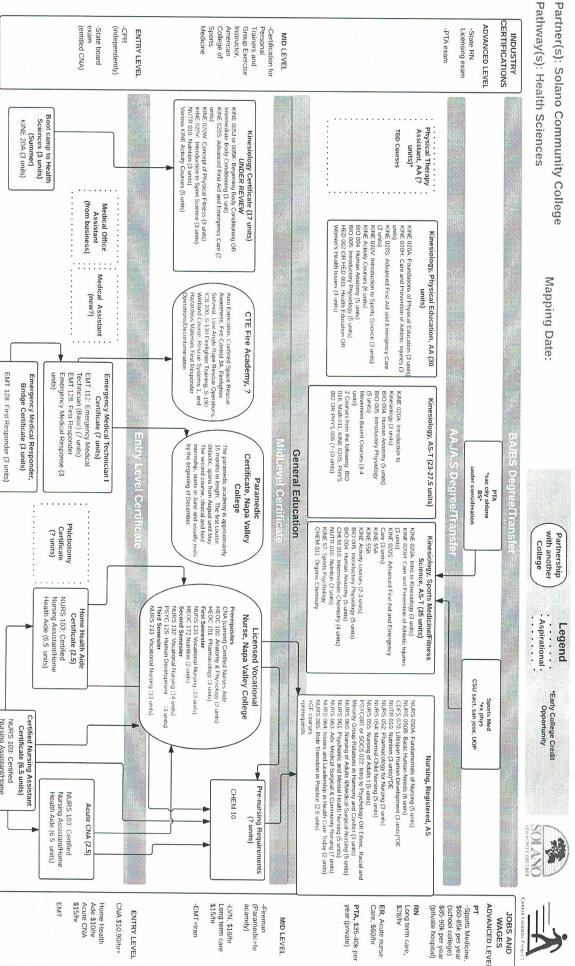
#6 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
Work with WIBs to re-envision	6.1 Align with Sling Shot initiative which will	Support the development of Sling Shot	October	
sector based advisory groups/skill panels	create skill panels for priority pathways	Plan	March	
	6.2 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	

#7 Regional Strategic Activities	Measures	Success Indicators	Reporting	Who?
Work with economic development groups to build	7.1 Engage economic development groups as members of planning team for E&E Summit	Provide annual Education & Economic Summit	December	
upon existing county-level career events to create and sustain a regional Economic			March	
Development Summit	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?
Expand CTSOs and develop Maker events that engage	8.1 Leverage the Mini Maker Faire Program for NCCPA students (III.4)		October	
student leadership groups in	To reserve students (iii. 1)			
addressing local			March	
issues/product development driven by business/industry partners	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	October	
paraiore		2015 (E&E Summit)	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?
Create local, county and regional awareness of College and Career Readiness	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?
Provide governance structure and financial oversight for the alliance	10.1 Develop a Governance Agreement of how the Governance Team conduct business	Ensure all funded partners understand and participate in governance team	October	
amanec			June	
	10.2 Develop financial practices that ensure fiscal responsibility and correct reporting		December	
			March	



DRAFT DATE: 4/12/2016

Nursing Assistant/Home Health Aide (6.5 units)

Pathway(s): Health Sciences
Region: Solano County

High School: American Canyon

Mapping Date:

(E)	-English	Gestalk Vonc Vonc	-English	-English	8000 1 %	English indicates integration D = Duel Enrollment
	-Math 1	jarob Comb	-Math 2	-Math 3	Jacob 1853	Mathematics 'indicates integration 'D = Duel Enrollment
(2)	-Biology	jaren) Land	-Chemistry	Janes Sandi	jeunda Projek	Science * indicates integration *D = Duel Enrollment
(5)	-Big History	More and the contract of the c	-World History	-US History	Economics	History/ Social Science Indicates integration D = Duel Enrollment
<♡		eng.	-Spanish 1	-Spanish 2	-Spanish 3	Language Other Than English 'indicates integration 'D = Duel Enrollment
40	- Visual and Performing - Culinary Arts 1 Arts (mostly 9th) - PE	ignoris, Person	- PE	Francis, Sweet As	- Culnary 1 with permission	Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'indicates integration indicate CTE courses 'D = Duel Enrollment
f#	- Culinary Arts 1 (mostly 9th)	en ekk en ekk ekker	- Culinary Arts 2 (with permission and C or better)	Farm to table: not implemented at full leve yet (starting 2016 2017) - Culinary 3 with completion of Level 1 & 2 (C or better) as 11th graders -On-site garden as source for 1/4 of vegetable and herbs used	- Culinary Arts and Hospitality Management (NVC HOSP 120) - Dual Enrollment NVC BUSI 143 (with completion of Level 1 and 2 with C or better)	Career Technical Courses: Please indicate CTE courses
(2)		ignositi Process		guerit.	Emilia Em	Work-based Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework
(2)		Janua (T.)		groods framed	Possili Possili	Student Supports: Academic interventions, guidance and counseling, college and career planning
*** ***		af S		je me Vesas	Page Service	Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies
40		Parados de Carlos de Carlo		general s	ĝend Par	Outcomes: Cross-disciplinary, pathway specific student -learning outcomes aligned with state standards, post-secondary expectations, and industry standards or requirements





Region: Solano County Pathway(s): Health Sciences

English

* indicates integration

*D = Duel Enrollment

Mathematics
* indicates integration
*D = Duel Enrollment

Science
* indicates integration
*D = Duel Enrollment

High School: Vintage

Language Other Visual & Performing Career Technical Than English Arts / Phys Ed Courses: Please

Wapping Date:

Student Supports: Projects: Curriculum Intg. Academic interventions, and projects aligned to guidance and counselind collaboration.

-Government/	History/ Social Science * indicates integration *D = Duel Enrollment
-Spanish 3	Language Other Than English Indicates integration D = Duel Enrollment
- Culinary 1 with	Visual & Performing Arts / Phys Ed * indicates integration *D = Duel Enrollment
- Culinary Arts and	Career Technical Courses: Please indicate CTE courses
	Coordinated, sequenced and scaled, connected to academic and technical coursework
	Student Supports: Projects: curriculur Academic interventions, and projects aligned to guidance and counseling, key student learning college and career outcomes or industry planning aligned competencies
	ts: Projects: Curriculum s, and projects aligned to ing, key student learning outcomes or industry aligned competencies
	specific student -lea outcomes aligned w standards, post-secu expectations, and in standards or require

Work-based Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework
Student Suppor Academic intervention guidance and counse college and career planning

	outcomes or industry	aligned competencies	ng,

-	Outcomes:
9.1	Cross-disciplinary, pathwa
lum	specific student -learning
to	outcomes aligned with sta
	standards, post-secondar
	expectations, and industry
ň	standards or requirements

-Enç	-En		-Eng
-English 1	English 2	-English 3	-English 4
-Math 1	-Math 2	-Math 3	P.)
-Biology	-Chemistry	-Physics	Januari En _{gri}
-Big History	-World History	-US History	-Government/ Economics
E glink	-Spanish 1	-Spanish 2	-Spanish 3
- Visual and Performing Arts - PE	Smooth Smooth Smooth	genedi e verif	- Culinary 1 with permission
- General Career Exploration*	- Culinary Arts	- Farm to Table	- Culinary Arts and Hospitality Management (NVC HOSP 120) - Dual Enrollment NVC BUSI 143
CO	Epoch Herri Vision	jeveni po nik	janosis E
		graved Generalis	3-3- N3
433	george Herri Herri George	Francis .	žecarda Po _{sta} nija
40	wild. wild. wild. Where	Brook Culti	K. J.





Region: Solano County Pathway(s): Health Sciences

High School: St. Helena Unified

Mapping Date:

Work-based

* indicates integration *D = Duel Enrollment Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'indicates integration indicate CTE courses

Curriculum Intg. / Student Supports: Projects: Curriculum Academic interventions, and projects aligned to guidance and counseling, key student learning college and career outcomes or industry

Outcomes:

· · ·	Cross-disciplinary, pathway
iculum	specific student -learning
ed to	outcomes aligned with state
ing	standards, post-secondary
stry	expectations, and industry
icies	standards or requirements

English indicates integration D = Duel Enrollment	- ERWC English 12 or AP English Literature	- English 11 or aaap - English Language	Energy Zenerii	- English 10 or Honors - Integrated Mth 1, 2 English 10 or 3	Januari Vicana	LDI-4	
Mathematics *indicates integration *D = Duel Enrollment	- Integrated Math 3 - Pre-Calculus	- Integrated Math 2, 3 or Pre-Caulculus	prositi jerositi	- Integrated Mth 1, 2 or 3	Şenet (C)	- Pre-integrated Math - Integrated Math 1 or 2 - Personal Finance - Stats	- AP Stats
Science • indicates integration • D = Duel Enrollment	- Integrated Science - Vet Science - Anatomy and Physiology - AP Biology - Horriculture - Vidculture - Honors Chemistry - Ag. Earth Science - Science and Media	- Biology - Ag. Biology - Chemistry		- Environmental Science (16-17) - Biology	- Ag. Biology		Î _{E.}
History/ Social Science *indicates integration *D = Duel Enrollment	-Economics/ Government or AP Comparative Economics/ Government	- US History or AP US History	fatorit Spanis	- World History or AP World History	Sec. of Share	- Humanities and Freshman Essentials	To Control
Language Other Than English 'indicates integration 'D = Duel Enrollment	- French 4 Honors - AP Spanish - Heritage Spanish 3	- Spanish 3 or French 3	Entract, garante	- Spanish 2 or French	Aurori John Papar	- Spanish 1 or French 1	Çi,i
Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'ndicates integration indicate CTE courses 'D = Duel Enrollment	Second Preside	- Visual and Performing Arts - Art 1- AP Art - Choir	- Band & Jazz Band - Chamber Singers - Guitar - Drama - Adv. Drama - Floral Design	- Athletic P.E. - Weight Training	Unavida Professional Professional	*	
Career Technical Courses: Please indicate CTE courses	- Culinary Arts and Hospitality Management (NVC HOSP 120) - Dual Enrollment NVC BUSI 143	- Farm to Table 16-17	Scotte Species	- Culinary Arts 1-3 - Adv. Ag. Mechanics - Auto CAD	-Exploring Computer Science Survival Ag. Mechanics	Electives: - AVID 10-12 - Yearbook - Leadership	- Primary School Lutor - Ap Psychology - Sudy Skills - Academic Decathlon - Math Support/Dr. Ed.
Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework	install		So vi S possiii		ge & Turk Land	i e	× 3/32
Student Supports: Academic interventions, guidance and counseling, college and career planning	Same of the same o		goodk Jogadi		genid g = 1 or st	:	S. Allies See F.
Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies	Şoodil 33 1 . North		George Pol Septembril		g street satisfy speed		CO
Cross-disciplinary, pathway specific student -learning outcomes aligned with state standards, post-secondary expectations, and industry standards or requirements			Survey on Special States		Jane I. Penang Penang		40





Pathway(s): Advanced Manufacturing Partners: Santa Rosa Junior College and Santa Rosa High Schools

· Aspirational ·

Legend

*Early College Credit Opportunity

INDUSTRY CERTIFICATIONS NIMS NIMS Manual Mechanics CNC (computer control) CNC (computercontrol) CNC (computer control) Manual Mechanics manual mechanics ADVANCED LEVEL ENTRY LEVEL MID LEVEL Certificate of Achievement, Maintenance Machining (total units 19) Course 105 (4 units)
Course 110 (4 units)
Course 140 (7 units)
Course 145 (7 units)
Course 160 (5 units)
WELD 70 (7 units) Manufacturing (total units 49) Certificate Local Skills (>12) CAD/CAM (total units 51.5) PTECH 45 (1.5 units)
PTECH 45 (2 units)
PTECH 57 (2 units)
PTECH 57 (3 units)
Ourse 115 (5 units)
Ourse 126 (5 units)
Ourse 126 (5 units)
Ourse 126 (5 units)
Ourse 140 (2 units)
Ourse 140 (2 units)
Ourse 140 (2 units)
Ourse 150 (5 units)
Ourse 150 (5 units)
Ourse 150 (5 units) Certificate of Achievement, CNC Operation (total units 18) Course 105 (4 units)
Course 115 (5 units)
Course 120 (5 units)
Course 140 (2 units)
Course 145 (2 units) **Machine Tool** (total units 46) Quality (total units 18) Course 105 (4 units)
Course 125 (5 units)
Course 140 (2 units)
Course 145 (2 units)
Course 150 (3 units)
Course 155 (2 units) Certificate of Achievement, ELEC 60A (6 units)
ELEC 60B (6 u Machine Tool Technician (total units 54) Entry Level Certificate A.S Degree/Transfer Mid-Level Certificate General Education Mapping Date: Industrial Maintenance Fundamentals (total units 8) Maintenance Technician (total units 20) Industrial Electronic Technology Fundamentals (total units 9) IM/Mechatronic Mechatronic Technician (total units 27) Mechatronics Fundamentals (total units 9) Automation Fundamentals (total units 9) -Suspensons/leads \$15/hr IM Robotics line) \$12/hr IM (food assembly -Robotics JOBS AND WAGES ADVANCED LEY ENTRY LEVEL MID LEVEL needed An







Pathway(s): Advanced Manufacturing Partners: Santa Rosa Junior College and Santa Rosa High Schools Mapping Date:

Analy High School

10 11 12 -Computer -Programming -Metal work -Intro to welding INSTRUCTION Guest speakers
Local projects for the sc
Suprage
Seminar gifts
Teacher support
Drama production
Community projects
Lagunitas brewery
student projects for bu-WBL Career fair SUPPORT

Naviance college career cademic Principles of Empireering
Accompanie Integrated
Activities and Designated
Activities and Designation
Activ Design October of Engineering Computer Integrated Manufacturing Wood/Construction Construction Construction Construction Construction Construction Construction Technology 1 Respiratory Metal Manufacturing Technology (Metal Manufacturing Technology Metal Manufacturing Technology Metal Manufacturing Technology Metal Annufacturing Technology Metal Manufacturing Metal Metal Manufacturing Metal Metal Manufacturing Metal Metal Manufacturing Metal load/Construction
vostruction Technology I
vostruction Technology I
ginning Meal Manufacturin,
hnology (Metal 1)
sol Art/Advanced
Jackuring Tech (Metal 2)
vict Development &
facturing (Metal 3)
nginerering & Mechanical
(Metal 4)
reference duction to Engineering INSTRUCTION ction to Engineering Technology 1,2,3,4 ineering/ Solid on to Agriculture ng Concepts and Petaluma High School - Metal -Construction Apprentice
-NIMS (National Institute for
-NIMS (National Institute for
-Netalworking Skills)
-FFA Skills (ag) (MFG/ENG) -FFA Skills (ag) (MFG/ENG) Construction Apprentice
-MIMS (National Institute for
Metalworking Skills)
Credentialing
-FFA Skills (ag) (MFG/ENG) Skills USA FFA -Skills USA FFA SCOE Resume Support Skills USA FFA -SCOE Resume Support -Skills USA FFA SUPPORT -Auto 3 Auto 4 Petaluma High School - Auto INSTRUCTION FFA (a-g) Skills USA (mtg/eng) FFA (a-g) Skills USA (mfg/eng) -FFA (a-g) Skills USA (mtg/eng) -FFA (a-g) Skills USA (mfg/eng) SCOE Resume Support Skills USA FFA SCOE Resume Suppor Skills USA FFA SCOE Resume Support
Skills USA FFA SUPPORT CAO1 (F)
-Wood1
-Fashion Design (6)
-Auto
-Sustainable construction (
-Business Management (
work ready certificate) CAO2 (F)
Sewing
Advanced Auto
Business Management
(work ready certificate)
-Wood2 -CAO3 (F) -Adv. Sewing -Wood 3 INSTRUCTION Rancho Cotate High School -Avalar architects
-Wood
-Guest speakers
-Enphase/field trips WBL -Kudu Navig--Field trips SUPPORT

DRAFT 4/12/2016

9

Connect Followin College and Care





Partners: Santa Rosa Junior College and Santa Rosa High Schools Mapping Date: Pathway(s): Advanced Manufacturing

		12	13	10	٥
Elm	INSTRUCTION Project Make	Advanced Project Make Physics/A G Mechanics	Obeign process, sample machines, 2D design, 3D design, 3D design, 3D design, 3D design, 3D design, electronics, supply, sudent-directed STEM projects (Advanced Project Make Content)) Advanced Project Make Content)	Project Make Advanced Project Make Allynacs/A-c Mechanics	Project Make Advanced Project Make Physics/A-G Mechanics
Elmo High School	WBL			ALL STUDENTS EXCLORITY INVESTIGATION When ready sales For exercise and other For exercise and othe	
hool	SUPPORT			Alavance (career/sell exploration) special Carmeling -Special Carmelin	
Elmo High School STUDENT	INSTRUCTION	h/Materials on pue	Appeted Project Based for Dock Stations soundwaves design design production soldering Bassiva Treble	Frebuchet Baild Frebuchet Baild Freshorted France Accederation Velocity Adechanical Advantage CAD (computer aided graph) Schlebung Design & Baild Proto-Spring Design Madmeffrisch	(Year I) Survey Class Project Make Class Project Make Class We cover a wide range of Opec, including Aur Flighthilitateropynamics Oboost materialselet. Ca2 HP to weight allon, anetopynamics, unspring weight CAD (Computer Aided Design)
Piner High School	WBL	ineror the (possib) proving needs ground) Worker unen (local pipe fittes, etc.) Maker demonstration			
hool	SUPPORT	Course, curriculum Collaboration with other Collaboration with other Collaboration with other Collaboration of the Collaboration	-Make Chlu - Make Chu - Physic Science class links and support		
Santa	INSTRUCTION	-Manutacturing 5-6 -Mig 1-2 -Mig 1-2 -CNC Plasma Cutling Venezial Mill Latine	Milg 5.6 Mandiduring 3.4 Milg 1.2 steel fabrication	Mig 3-4 Manufacturing 1-2 Weeking GTAW - Hand Power Tods	Adig 1-2 Welding oy fund SMAW Sheet Media Fab Fegring Hand Tools
Santa Rosa High School	WBL	AVEBE Career Fair -WYOTECH -SRTC		-NCBE career his	
School	STUDENT SUPPORT	Cate of Trade Exploration Post Set Trade Exploration Post Set Trade Trade Exploration Post Search/Logistics and Trade Tr	Career Fairs Career Fairs Career Fairs Career Fairs Career Fairs	Careeffode Anzeness -Post Secondary EduOpportunity Awareness -Job Search/Application -Work Ethics	Careerfrade Awareness Post Secondary Etni. Opportunity Awareness Job Search Applications Work Ethics
Sonoma	INSTRUCTION	Metabis III suderintassigned work based projects (can be taken 8 seen) (3 years)	Metals II Advanced sheet metal Advanced velding Advanced mathem work - inspiritual - tool grinding/drill lists	E 7,000 Met 1888 se de la Colonia de mero de la colonia per de COS (COS), por la colonia de COS (COS),	Alexals I (1 semester) (all levels) (arthority)
Sonoma Valley High School	WBL	Feld fings 11, 12 Guest Speakers (all levels)	Field Trips 11. 12		
(4.3)	STUDENT	S-cholarsh in immalian Caneer Center passes. Discussions on specific schools	Obscussions on advancing in training and education	200 BEAU 200 BEBER 200 BEBER 200 BEAU 200 BEBER 20	Available careers in MFC -Skills used
Windsor High	INSTRUCTION	ILM2 STEM (2015-2016 Y 10) Pro-And C015-2016 = Wo) ILM2 Pro-And C015-2016 = Wo) ILM2 Oppa Meda Academy (2015 16 = Wr ID) Advanced High Tech Doesgin & Fasticiation (profes ILM2) Among A Academy Culinay & Hospitality - 1 IZ prigm for 10 years	-11/12 STEM (2015-2016 = Y/3) -11/12 Pre-Med (2015-2016 = Y/6) -11/12 Depta Meda Academy (2015-16 = Y/6 10) -40/anced High Frech Design & Fabrication (grades 11/12) -(high year & Lacketty) -(high year & Lacketty) -(high year & Lacketty)	-9/10 STEM prgm (2015-16 = Yr 1) -9/10 Exercise - Science (2015-16 = Yr 2) -Indistanii Ari II -(2015-2016 = Yr A) -(2015-2016 = Yr A) -(2015-2016 = Yr A) -(2015-2016 = Yr A)	-9/10 STEM prym (2015-16 - Yr 1) -9/10 Exercise Science (2015-16 - Yr 2) -Industrial Art 1 -Endustrial
Windsor High School	WBL	STEM: work-based projects on an abs professionals outside professionals in Fidelity and professionals in Fidelity and professionals in Fidelity and professional			
Chool	STUDENT	STEM, workhandt STEM, workhandt STEM, index and in genetic school neight from the controlled in the			

DRAFT 4/12/2016

9

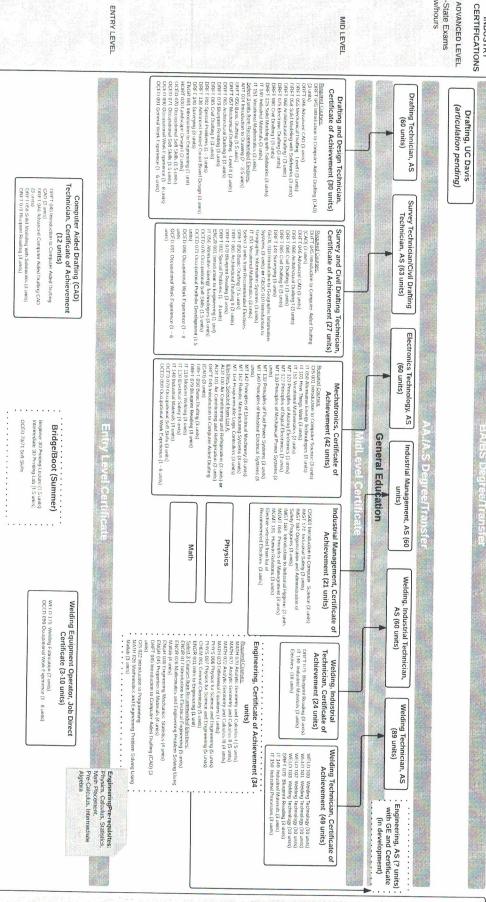




College(s): Solano Community College Pathway(s): Advanced Manufacturing

w/hours





DRAFT DATE: 4/12/2016







JOBS AND WAGES

-Drafting Manager \$?/hr \$60-65k per year ADVANCED LEVEL

Technician, Designer, #?/hrDrafting MID LEVEL

\$?/hr \$15-20/hr(with Survey Technician benefits)

-Technician, \$?/hr -Licensed Surveyer

\$100/hr

ENTRY LEVEL

Pathway(s): Advanced Manufacturing Organization(s): Benicia High School

Mapping Date:

	UD CI	Sirved Jirtha Manney	grande grande	juš. N	English * indicates integration *D = Duel Enrollment
	45	Special Specia	George Joseph	jandi Padi	Mathematics ation *indicates integration nent *D = Duel Enrollment
	CD	gasinis Programi	Noord Journali	jasah NeX	Science * indicates integration *D = Duel Enrollment
		French French Reason	Source de la constitución de la	6.5 brong	History/ Social Science indicates integration D = Duel Enrollment
	8.13	Gestado Gestado Gestado	onessis. per es	gará H	Language Other Than English 'indicates integration 'D = Duel Enrollment
	CO	facials Survey	Emend Leavest		Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'ndicates integration 'D = Duel Enrollment 'D = Duel Enrollment
	-Robotics -Intro to Eng. and Architecture (OVC) -Computer Technology	-Robotics -Intro to Eng. and Architecture (OVC)	-Robotics -Intro to Eng. and Architecture (OVC)	-Robotics -Intro to Eng. and Architecture (OVC)	Gareer Technical Courses: Please indicate CTE courses
	150	Sparred Control of Con	-DVC articulation	-Internships -Job Shadow -Guest Speaker	Work-based Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework
	-Robotics Team CS Club	Grander Krande	-Elementary School trip/ Robotics Mentoring	-College Career Counselor -College Visits/Presentations	Student Supports: Academic interventions, guidance and counseling, college and career
	(20)	greends Consum	forces of the second	finis 19-55	Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies
ABBIDOO.	(2)	freeld general hearth	Goal: Expand program and increase internships	-PBL: Project to redesign library with math classes - present designs to industry	Outcomes: Cross-disciplinary, pathway specific student -learning outcomes aligned with state standards, post-secondary expectations, and industry standards or requirements.





Pathway(s): Advanced Manufacturing Organization(s): Vanden High School

Vapping Date:

				1
in distribution	(C)	proces	founds (1)	English *indicates integration *D = Duel Enrollment
	Quacrito Amenic Variant	frank jeunsh	Secreta Paris	Mathematics indicates integration D = Duel Enrollment
Ø	Francisco Marian Variant	gened) famedi	famili Na	Science * indicates integration 'D = Duel Enrollment
Ø	Javeda Canado Canado	lanció James	Second Puri	History/ Social Science indicates integration D = Duel Enrollment
C D	garah Kang	Jacobi Jacobi	Jacob Pull	Language Other Than English *indicates integration *D = Duel Enrollment
(.0)	(someth general Greeces	Çalandı Çenaris	general E Navi	Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'indicates integration indicate CTE courses 'D = Duel Enrollment
-Introduction to Manufacturing Techonology	-Engineering & Manufacturing Technology	Principles of Engineering - Robotics	-Automation Engineering	Career Technical Courses: Please indicate CTE courses
Ø	-Guest Speaker	Heid trips Industry Mentor(s) Summer Internship(s)	-Job Shadow & Internship	Work-based Learning: Coordinated, sequenced and scaled, comnected to academic and technical coursework
¢	-Avid?	 	-College students as alumni mentors	Student Supports: Academic interventions, guidance and counseling, college and career planning
i o constant i de disenta	-Vex Robotics (Engineering Binders)	(after school)	-Physics Integrated Project -Acoustics	Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies
E 2009	OSHA-10 Cert	Technology Pathway Standards	Joseph Jo	Outcomes: Cross-disciplinary, pathway specific sudent -learning outcomes aligned with state standards, post-secondary expectations, and industry standards or requirements
	Introduction to Manufacturing Technonology S S S S S S S S S S S S S S S S S S	Engineering & Guest Speaker -Avid? (Engineering Binders) Inchnology Inchnology Inchnology Introduction to Manufacturing Introduction to Manufacturing Inchnology Introduction to Manufacturing Introduction to Manufactur	Engineering - Robotics Industry Mercar(s) - Summer (internship(s)) - Avex Robotics - Summer (internship(s)) - Avex Robotics - Summer (internship(s)) - Avex Robotics - Summer (internship(s)) - Avex Robotics	Automation Advantation Automation





Pathway(s): Advanced Manufacturing Organization(s): Vacaville High School

Wapping Date:

0		for sold proton source		everall pose shi		English * indicates integration *D = Duel Enrollment
in the second		Faces of Fac		journ) Japan	James Paul	Mathematics * indicates integration *D = Duel Enrollment
(3)		gerrich Land		pound parents	jamak Managar	Science * indicates integration *D = Duel Enrollment
		Janes. States Sugard		Filtered personals		History/ Social Science *indicates integration *D = Duel Enrollment
CO		gorandi general research		tand pant	famile NO	Language Other Than English 'indicates integration 'D = Duel Enrollment
CD		for soil.		forests (cores)	fanis Pad	Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'indicates integration indicate CTE courses 'D = Duel Enrollment
(Beg/int)	-Mechanical & Architectural Drafting	Joseph Control	-Principles of Engineering-Robotics	-Engineering & Architectural Design (Advanced) (DRFT50)	-Automation Engineering (New Class)	Career Technical Courses: Please indicate CTE courses
-Six-Flags -Bay Area Science Festival (AT&T Park) -Maker Faire (Oakland & Benicia)	Summer Externships -Meyers	-Phillippi Civil Engineer -Genentech Collaboration/Mentoring Collaboration/Mentoring - Genentech	Field Trips: -Meyers Warehouse -Schilling Deep Sea Robotics	Summer Internships with: -NASA-AMES at Moffet Field -Migrant Workers Kids Robotics Workshop -City of Fairfield Planning	James Ports	Work-based Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework
-College credits in drafting	Articulation: -with SCC	(ma)	-Job Shadow w/District Principles of Engineering: -Level 1 -Level 2	Articulation:with SC (maybe=mechatronics and automation) David Morton A.P. Physics A.P. Computer Science	100 100	Student Supports: Academic interventions, guidance and counseling, college and career planning
Arch Draft)	-Beg and Intermediate Drafting (Mech and	general gerting general	Engineering- Robotics -Level 1	First Robotics: -after school -Team-sport of the mind Advanced Arch Design -(U.C. a-g art)	-Advanced Automation with PLC's=in development with Vanden and County	Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies
Ø	-AEROSPACE Engineering at Travis	Joseph Sand	-Improve Jobs with Internships and Industry	Collaboration with IndustryGenerated -Phillippi Engineering	long (A)	Outcomes: Cross-disciplinary, pathway specific sudera - learning outcomes aligned with state standards, post-secondary expectations, and industy standards or requirements

DRAFT DATE: 4/12/2016





Project Career Oject

Pathway(s): Advanced Manufacturing Organization(s): Vacaville High School

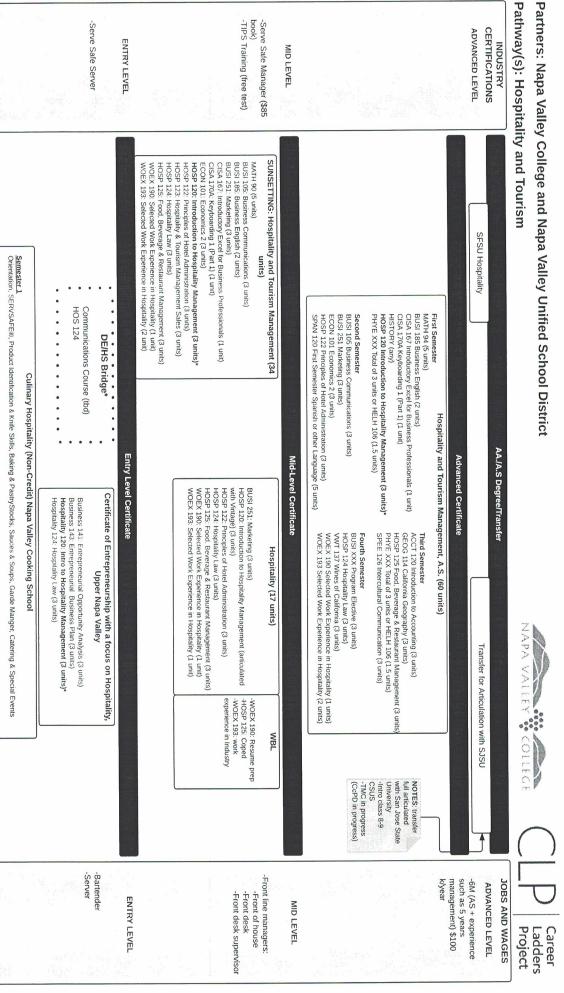
Mapping Date:

435	See 1000 See 1000 See 1000	lio Ad Jamedi	Section (Control	English *indicates integration *D = Duel Enrollment
¢\$	foordi pirite News	founds . Journs	junds (No.)	Mathematics * indicates integration *D = Duel Enrollment
	Emercia Const	Backer Geografia	Janes.	Science * indicates integration *D = Duel Enrollment
(23	greening George	Secondario Secondario	Jest N	History/ Social Science * indicates integration *D = Duel Enrollment
	Princip Comp	francis francis	bani Cel	Language Other Than English *indicates integration *D = Duel Enrollment
43	ganda Jenesa Venesa	g touring groups	jenis ProD	Visual & Performing Career Technical Arts / Phys Ed Courses: Please 'indicates integration indicate CTE courses 'D = Duel Enrollment
Engineering Design	Principles of Engineering	-AE: Aerospace Eng -Guest Spee -CEA: Civil Engineering -Field Trips* and Architecture -Digital Electronics	-Computer Science and -Guest Speakers* Software Engineering -Field Trips*	Career Technical Courses: Please indicate CTE courses
-Field Trips*	Guest Speakers* Field Trips*	Guest Speakers* J-Field Trips*	d-Guest Speakers*	Work-based Learning: Coordinated, sequenced and scaled, connected to academic and technical coursework
Fair -Car Design -Peer Tutoring for Math -Puzzle Cube	College and Career Peer Tutoring for Math	-College and Career Fair -Peer Tutoring for Math	College and Career Fair -Peer Tutoring for Math	Student Supports: Academic interventions, guidance and counseling, college and career planning
-Car Design -Puzzle Cube	-Compound Machine -Solar Power for Cars -Robotics -Bridges -Bridges -Fluid Mechanics	-Bread Bono (sp?) -PLD -Arduino -Trum Table(sp?) -Logic -Static Machine		Curriculum Intg. / Projects: Curriculum and projects aligned to key student learning outcomes or industry aligned competencies
-Inventor -Design Process -CAD Experience*	-Understanding of Major Engineering Fields -Interest in an Engineering Field	-PLC* -Use signals (high/low) in actual situations	facesh Prod	Outcomes: Cross-disciplinary, pathway specific student, learning outcomes aligned with state standards, post-secondary expectations, and industry standards or requirements





Pathway(s): Hospitality and Tourism



DRAFT: 3/30/2016

*Early College Credit Opportunity

Wine Appreciation, Butchery, Charcuterie, Artisan Baking, Intensive French Technique, Food and Beverage Costing, Mediterranean Cuisine, Asian Cuisine, Advanced Pastry, Modern Culinary Techniques, American Regional Cuisine

Partners: Napa Valley College and Napa Valley Unified School District

Pathway(s): Hospitality and Tourism

NAPA VALLEY

Career Ladders Project

-21st Century Skill Set Introduction Time Management -Sense of Urgency -Honesty -Attitude -Safety -Santation -Accountability	-21st Century Skill Set Implementation Set Implementation Computer Skills -Critical Thinking -Concessions	-21st Century Skill Set Expected -Soft directed study -Motivation -Accountability -Concessions	-21st Century Skill Set Refined Professionalism -Technical Skills of trade -Accountability -Catering -Concessions	WBL
		Assistants to Biology Instructor tor Concurrent work in our school gardens (receive some element of document credit)	-Local Internship Opportunities (with American Canyon and/or Vallejo Limits) -Students attending US College Course (specifically Hospitally) @ no charge	Student Suppot/DE
	-Serve Safe	-Culinary 2 -multi-course menu prep and execution for staff -service of above menu for staff -Campus catering (includes before, after and during school	-Campus Catering (includes before, after, and during school hours) -Serve safe	Projects
-Career Awareness -Exploration	-Exploration -Guest speakers	Internships* -Field trips -Job shadows	-Catering Projects on campus & private events off campus	WBL
			-Articulation to HOSP 120 for credit	WBL SupportDE Projects
Culinary 1: con't *Nutrition-Intro to Chem *Tourism Development *Sustainable Practices	Culinary 1: *Salety and Sanitation-food handlers cert *Career Exploration - Career Mapping	Culinary 2: *YEP Business Plan *Global Cuisines *Farm to table Ag in the Economy	Culinary 3: Entrepreneurship -menu dev -cost dev -customer service	Projects
-Exploration	-Guest Speakers -Yr 1	Job Shadows -Field trips -Yr 2	-Internships -Field Trips -Student run business	WBL
-Avid	-Avid			Student Suppot/DE
-Beginning Knife skills -Food Handler -Sanitation Power Point -Intro to Culinary Skills (skills, terminology, math, measuring, cooking styles)		-Sustainability -Food Systems -Nutrition -Cost Control -Catering	-Global Cuisine -Project Management -Sustainability -Entrepreneurship -Catering	Projects

9

10

11

12

NBEC Stakeholder Input Invitation List, by Workforce Development Board

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

American Canyon Family Resource Center Edward Jones

City of Napa, Economic Development Employment Development Department

MCE Greenlining

Napa Chamber of Commerce Hispanic Chamber of Commerce

Napa County Board of Supervisors

Napa County Office of Education

Napa Valley Adult Ed

Homewell Senior Care

Hospice By the Bay

Kaiser Permanente

Napa Valley College Marin Board of Supervisors
NapaLearns Marin Builders Association
Northern CA Laborers Union Marin Building Trades

Pathway Home Marin County Health and Human Services

Silverado Resort and Spa Marin County Office of Education
Sustainable Napa County Marin County Probation Department

Visit Napa Valley Marin Economic Forum
California Human Development Marin General Hospital

CTPP Marin Small Business Development Center

Employment Development Department Matrix

Lake County Office of Education Mission College and Health Workforce Initiative Bay Area

Mendocino Community College Novato Unified School District

Mendocino County Department of Social Services PolicyLink

Mendocino PIC (one stop operator)

San Rafael Chamber of Commerce

Scotts Valley Tribal TANF
San Rafael City Schools
State of California Department of Rehabilitation
Sheet Metal JATC104

Yuba Community College Sonoma Mendocino & Lake Counties Bldg Trades Council

Alliance for Boys and Men of Color SparkPoint Marin

AutoDesk State of California Department of Rebilitation

Brightline Defense Tam Adult School

Buckelew Programs (serving people with disabilities) University of San Francisco

Canal Alliance (serving immigrant community) Wells Fargo

College of Marin

Mendocino County

Bank of America Employment Development Department

California Department of Rehabilitation Experience Works

California Human Development (Farmworker Services) Leland Kraemer Real Estate

California Indian Manpower Consortium International Brotherhood of Elictrical Workers, Local 551

Drip Works Mendocino Coast Chamber of Commerce

Economic Development and Finance Corporation Mendocino Community College

Mendocino Community College AEBG **Redwood Community Services** Mendocino County Board of Supervisors State Farm Insurance, Willits

Mendocino County Economic Development/Planning an & Braingil Myorkforce

Mendocino County Office of Education **Ukiah Chamber of Commerce** Mendocino Private Industry Council Ukiah Valley Agency for Habilitation

National Association of Letter Carriers Branch 1563 West Company SBDC

North Coast Opportunities CSBG / Strong Mountain Printinglita Chamber of Commerce

Ready, Set, Go

Solano County

A Place to Live La Clinica

Abundant Place Legal Services of Northern California

Area Agency on Aging Serving Napa and Solano LIFT 3 Support Group Berkeley Food and Housing Project Mission Solano

California Department of Corrections and Rehabilitation Mount Calvary Baptist Church

California Department of Industrial Relations Pace Solano

California Department of Rehabilitation Paradise Valley Estates

California Human Development Salvation Army California Tribal TANF Partnership Solano Coalition

Center for Change Supervising Deputy Probation Officer Solano Community College

Center for Employment Opportunities Solano County

Child Start Inc Solano County Adult Education Consortium Project

Children's Network Solano County Family Stabilization Children's Network Solano County Public Health Division City of Fairfield Solano County- Health and Social Services City of Vacaville

Solano County Library City of Vallejo

Solano County Office of Education Community Action North Bay

Solano Diversified Services

Court Appointed Special Advocates of Solano County Solano Economic Development Corporation

Department of Social Services (Solano County) Solano Family **Dixon Family Services**

Solano Family & Children's Services **Dixon Library**

Suisun City Library **Dreamcatchers Empowerment Network**

Superior Court of California, County of Solano **EDD**

Vacaville Adult School **Experience Works**

Vacaville Education Extension Program Fighting Back Partnership Vacaville Family Resource Center

Five Keys Schools and Programs Vacaville FIRST/FRC **FSUSD** Vacaville Public Library

Goodwill East Bay Vacaville Unified School District Home Base

Vallejo Housing Authority Job Corps

KAAGAPAY, Solano Behavioral Health Filipino Outreach Project Workforce Services

Who's Hiring Solano

Sonoma County

4-H Youth Development

A Better Way Empire College
Adopt a Special Kid (AASK) Exchange Bank

Adult Education Consortium Experience Works, Inc.

Alternative Family Service (AFS) Face-to-Face
Anova Center for Education Facility Development Corporation

Apple One Employment Services Get To Work

Becoming Independent Geyserville Community Child Care Center
Ben Terry Foundation Goodwill Industries of the Redwood Empire

Big Brothers Big Sisters of the North Bay Graton Day Labor Center

Boys & Girls Club of Rohnert Park Healdsbrug Chamber of Commerce

Boys & Girls Clubs of Central Sonoma County

Healdsburg Boys & Girls Club

Boys & Girls Clubs of Petaluma Healdsburg District Hospital

Healdsburg Unified School District

Buckelew Healdsburg Unified School District
California Department of Rehabilitation Hispanic Chamber of Commerce

California Employment Development Department Horizon Personnel

California Human Development Corporation Humane Society of Sonoma County

California Parenting Institute (CPI)

California Rural Legal Assistance

California Youth Outreach

Interview Team

Jewish Community Free Clinic

Jewish Family & Children's Services

Catholic Charities JGC Truck Driving Training

Cement Masons Local 300 Jim Cassio & Associates
Center for Social & Environmental Stewardship Job Link

Certified Employment Group John Muir Charter Schools

Children & Families Commission (First 5) Kaiser Permanente

Chop's Teen Club

Cloverdale Rancheria

Cloverdale, City of

Labor Ready

Latino Service Providers

CLP Resources Inc Legal Aid of Sonoma County
Committee on the Shelterless (COTS)
Lilliput Children's Services

Community Action Partnership of Sonoma County

Mark West Area Chamber of Commerce and Visitors Center

Community Child Care Council Mary's Pizza Shack
Conservation Corps North Bay Mentor Me Petaluma
Cotati Chamber of Commerce Migrant Education
Cotati, City of MV Transportation

Craft Consulting
Creekside Convalescent Hospital

Nelson Staffing
New Ways to Work

CTE Foundation Nimble Rx

Day Reporting Center

Dept of Health Services - Teen Parent Connections

North Bay Black Chamber of Commerce

North Bay Employment Connection

Drug Abuse Alternatives Center

North Bay Industries

North Bay Labor Council

North Bay Leadership Council Sonoma County Economic Development Board

North Bay Regional Center Sonoma County Family YMCA

North Coast Builders' Exchange

On The Move

Sonoma County Indian Health Center

Sonoma County Legal Services Foundation

Operating Engineers Local #3

Sonoma County Library Adult Literacy Program

Our House Sonoma County Lodging Association
P&L Specialties Sonoma County Office of Education
Perfect Timing Personnel Services Sonoma County Probation Camp

Petaluma Adult School Sonoma State University

Petaluma Boys & Girls Club Sonoma Valley Chamber of Commerce

Petaluma Chamber of Commerce Sonoma Valley Teen Services

Petaluma Health Center Sonoma Valley Youth & Family Services

Petaluma People Services Center Sonoma, City of Petaluma Youth Network SonomaWORKS

Petaluma, City of SRJC Extended Opportunity Programs & Services (EOPS)

Professional Association of Sonoma County for Human Resolutesh Community Health

(PASCO) St. Joseph's Hospital - Sonoma County

Puente Mentoring Program Staff Chex

R House Stand By Me Mentoring Recourse Mediation Services Sunny Hills Services

Recruiting Associates Network

Redwood Caregiver Resource Center

Redwood Credit Union

Task Force on the Homeless
Teen Parent Connection
The Personnel Perspective

Redwood Empire Electrical Workers Union, Local 551 The Ratto Group
Redwood Empire Food Bank Tips to Succeed

ResCare TLC Child & Family Services

River to Coast Children's Services

Tomorrow's Leaders Today

Robert Half Management Resouces Trades Introduction Program (TIP)
Rohnert Park Public Safety Youth & Family Services
Rohnert Park, City of Valley of the Moon Boys & Girls Clubs

Santa Rosa Chamber of Commerce VOICES of Sonoma County

Santa Rosa Junior College

Volunteer Center of Sonoma County
Santa Rosa Recreation & Parks

West County Community Services
West County Health Center

Santa Rosa, City of Windsor Chamber of Commerce and Visitors Center

Sebastopol Chamber of Commerce and Sebastopol Visiton Teen Center

Sebastopol Community Cultural Center Windsor Youth & Family Services

Sebastopol, City of Windsor, Town of

Seneca Family of Agencies Women's Recovery Services

Small Precision Tools Ya-Ka-Ama

SMART Local #104 Yale Abrams Consulting Social Advocates for Youth YWCA Sonoma County

Sonoma Alliance

Sonoma County Community Development