

PROGRAM ENDORSEMENT BRIEF



C·O·E

CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

WILDLAND FIRE TRAINING IN THE GREATER SACRAMENTO REGION

North (Greater Sacramento)
Center of Excellence

JULY 2021

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SUMMARY

The North/Far North Center of Excellence for Labor Market Research prepared this report to provide a labor market analysis of educational supply and occupational demand for middle-skilled career pathways in the North (Greater Sacramento) subregion. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers.

This report primarily focuses on training that leads to jobs in middle-skilled occupations - that is, occupations that typically require education beyond a high school diploma but less than a Bachelor's degree - but may include higher-skilled occupations for training pathways that lead to a bachelor's degree. Lowered skilled occupations are rarely considered in this type of analysis due to the lessened barriers for entry-level work, such as no formal education requirements and no requirements for on-the-job training.

Key findings include:

- The North (Greater Sacramento) region held 2,870 firefighting jobs in 2019. Jobs are projected to increase by 6% over the next five years, adding approximately 160 new jobs to the subregion by 2024.
- Firefighting occupations are projected to have nearly 250 annual openings in the North (Greater Sacramento) region.
- Wage data shows that traditional firefighting occupations earn at least double the subregion's single adult living wage.
- North (Greater Sacramento) community colleges conferred an average of 209 awards (certificates and associate degrees) over the last three academic years.

INTRODUCTION

The North (Greater Sacramento) Center of Excellence was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following Standard Occupational Classification (SOC) occupations and codes:

- Firefighters (33-2011)
- First-Line Supervisors of Firefighting and Prevention Workers (33-1021)
- Forest and Conservation Technicians (19-4071)
 - This occupation relates to firefighters in national forests and parks service. Specific federal organizations, such as the U.S. Forest Service and the Bureau of Land Management, classify firefighters as forest and conservation technicians.

A review of related programs revealed the following program(s) and Taxonomy of Programs (TOP) code(s) are appropriate for inclusion in this report:

- Fire Technology (2133.00)
- Wildland Fire Technology (2133.10)
- Fire Academy (2133.50)

The corresponding Classification of Instructional Programs (CIP) code(s) are:

- Fire Prevention and Safety Technology/Technician (43.0201)
- Wildland/Forest Firefighting and Investigation (43.0206)
- First Science/Firefighting (43.0203)

OCCUPATIONAL DEMAND

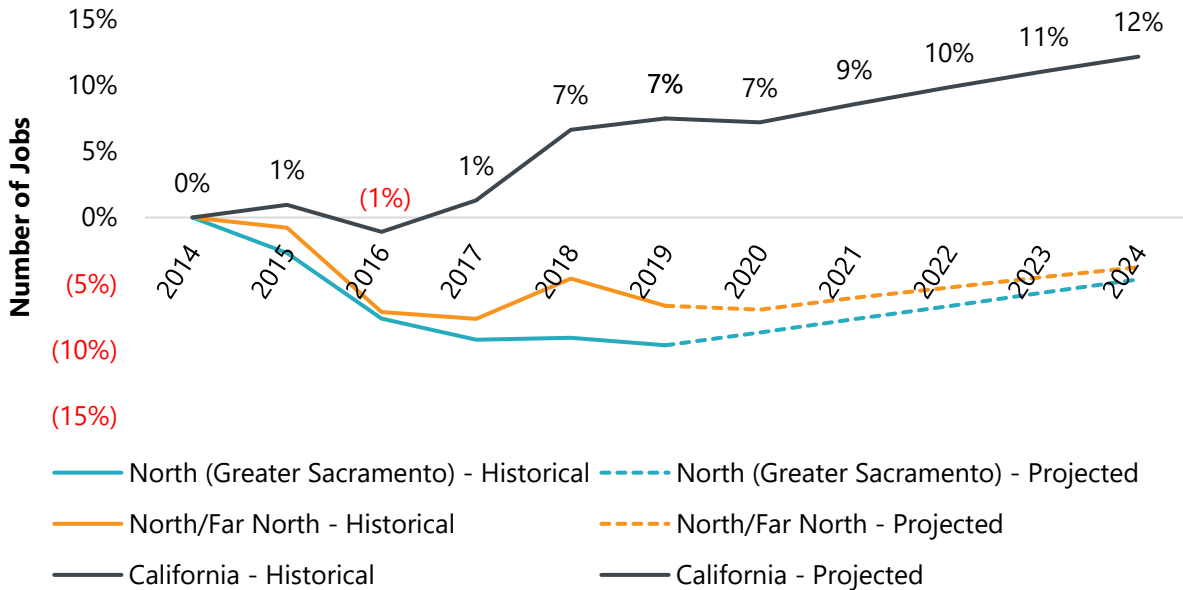
Exhibit 1 summarizes the five-year projected job growth for middle-skill and above middle-skill occupations in the North (Greater Sacramento) selected occupations, North/Far North, and California.

Exhibit 1. Employment and projected demand, 2019-2024

Occupation	2019 Jobs	2024 Jobs	2019-2024 Jobs Change	2019-2024 Jobs % Change	2019-2024 Annual Openings
First-Line Supervisors of Firefighting and Prevention Workers	239	259	20	8%	18
Firefighters	2,287	2,426	139	6%	180
Forest and Conservation Workers	344	343	(1)	(0%)	51
North (Greater Sacramento)	2,870	3,028	158	6%	249
First-Line Supervisors of Firefighting and Prevention Workers	448	470	22	5%	32
Firefighters	3,911	4,046	135	3%	292
Forest and Conservation Workers	1,074	1,087	13	1%	161
North/Far North	5,433	5,603	170	3%	485
First-Line Supervisors of Firefighting and Prevention Workers	3,202	3,412	211	7%	232
Firefighters	34,189	35,609	1,420	4%	2,549
Forest and Conservation Workers	2,872	2,989	116	4%	442
California	40,263	42,010	1,748	4%	3,223

Exhibit 2 compares the percent change in jobs between 2014 through 2019 and the projected changes through 2024. The rate of change is indexed to the total number of jobs in 2014.

Exhibit 2. Changes in employment, 2014-2024



WAGES

Exhibit 3 compares the entry-level, median, and experienced wages for the selected occupations to the North (Greater Sacramento) living wage for a single adult - \$13.18 per hour.¹

Exhibit 3. Comparison of wages by occupation, 2019



¹ Living wage is defined as the level of income a single adult with no children must earn to meet basic needs, including food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs. The 25th-percentile and 75th-percentile hourly wages are used as proxy for entry-level and experienced-level wages.

JOB POSTINGS

This section of the report analyzes recent data from online job postings (real-time LMI). Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends.

The NFN COE identified 222 online job postings for the selected occupations in the North (Greater Sacramento) region. Job postings data comes from Burning Glass Labor Insights and represents new listings posted online within the last year, from July 1, 2020, to June 30, 2021.

Occupations and Job Titles

Exhibit 4 details the number of online job postings for the selected occupations.

Exhibit 4. Number of job postings by occupation

Occupation	Job Postings	Share of Job Postings
Firefighters	62	28%
First-Line Supervisors of Firefighting and Prevention Workers	49	22%
Forest and Conservation Technicians	111	50%
Total Job Postings	222	100%

Exhibit 5 shows the top 10 job titles with the most job postings and the share of job postings. All job postings included a job title.

Exhibit 5. Top jobs titles

Job Title	Job Postings	Share of Job Postings
Forestry Technician	14	6%
Firefighter/First Responder	8	4%
Fire Engine Operator (FEO)	7	3%
Forest Patrol	7	3%
Fire Chief	4	2%
Firefighter/Paramedic	4	2%

Job Title	Job Postings	Share of Job Postings
Standing Guard	4	2%
District/Zone Fire Management Officer	3	1%
Firefighter	3	1%
Firefighter, Airport Fire	3	1%

Employers

Exhibit 6 shows the top 10 employers with the most job postings for the selected occupations. Nine percent (n = 20) of job postings did not include an employer.

Exhibit 6. Employers with the most job postings

Employer	Job Postings	Share of Job Postings
US Forest Service	40	18%
US Department of Agriculture	20	9%
Sacramento Metropolitan Fire District	9	4%
State of California	7	3%
Fire Fighter Type (U.S. Navy)	5	2%
County of Sacramento	9	4%
Daily Dispatch ²	4	2%
Bureau of Land Management	4	2%
Alpine Land Information Services	4	2%
Wilton Fire Protection District	3	1%

² Daily Dispatch is an online news source for U.S. Fire Service. Job postings included here are for the following employers: Placer Hills Fire Protection District, Sacramento County Airport Fire, South Placer District, and Cosumnes Community Service District.

Certifications, Skills, and Experience

Exhibit 7 shows the most relevant certifications requested by employers for the selected occupations. Thirty-seven percent (n = 82) of job postings did not include certification information.

Exhibit 7. Most in-demand certifications

Certification	Job Postings	Share of Job Postings
Emergency Medical Technician (EMT)	42	19%
Fire Fighter I	29	13%
Wildland Firefighter I	27	12%
Paramedic Certification	16	7%
Firefighter II	15	7%
Cdl Class C	15	7%
Aerial Rescue and Fire Fighting (ARFF)	12	5%
Fire Officer I	10	5%
Cdl Class B	9	4%
HazMat Operations	5	2%

Exhibit 8 shows the specialized skills most requested by employers for the selected occupations.

Exhibit 8. Most in-demand specialized skills

Specialized Skill	Skill Postings	Share of Skill Postings
Personnel Management	73	33%
Fire Suppression	59	27%
Range Management	47	21%
Repair	36	16%
Fire Protection	33	15%

Specialized Skill	Skill Postings	Share of Skill Postings
Scheduling	32	14%
Budgeting	29	13%
Natural Resources	27	12%
Cardiopulmonary Resuscitation (CPR)	26	12%
Global Positioning System (GPS)	25	11%

Exhibit 9 shows the minimum level of education required by employers for job postings for the selected occupations. Forty-five percent (n = 101) of job postings did not include a preferred education level.

Exhibit 9. Employer-preferred minimum education levels

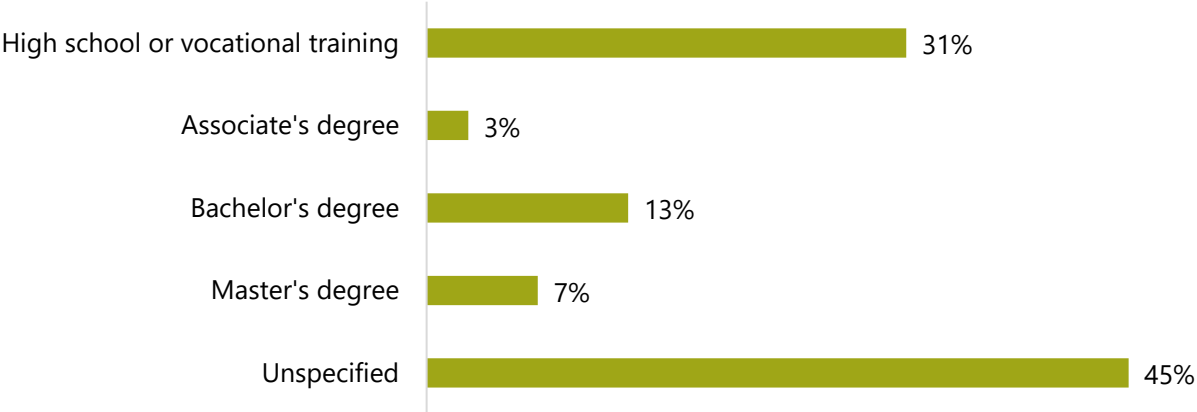
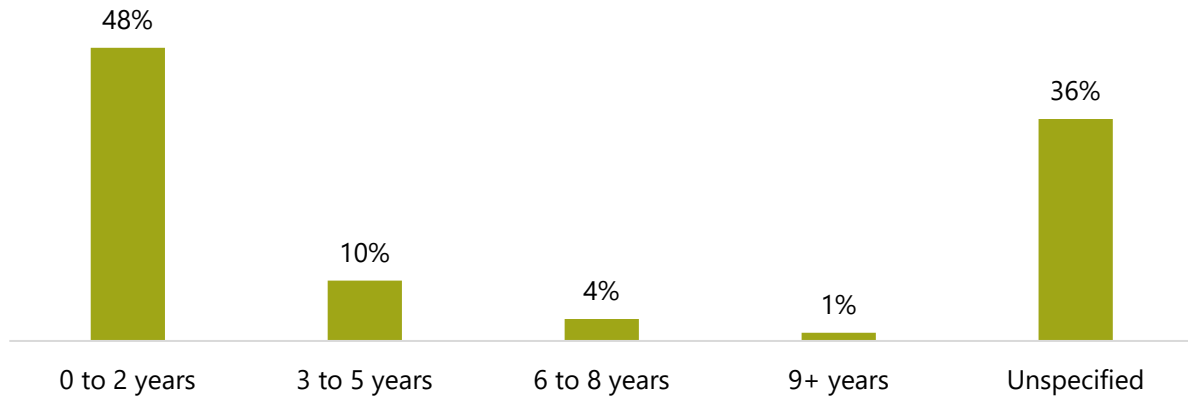


Exhibit 10 shows the experience levels required by employers for job postings for the selected occupations. Thirty-six percent (n = 81) of job postings did not include a preferred education level.

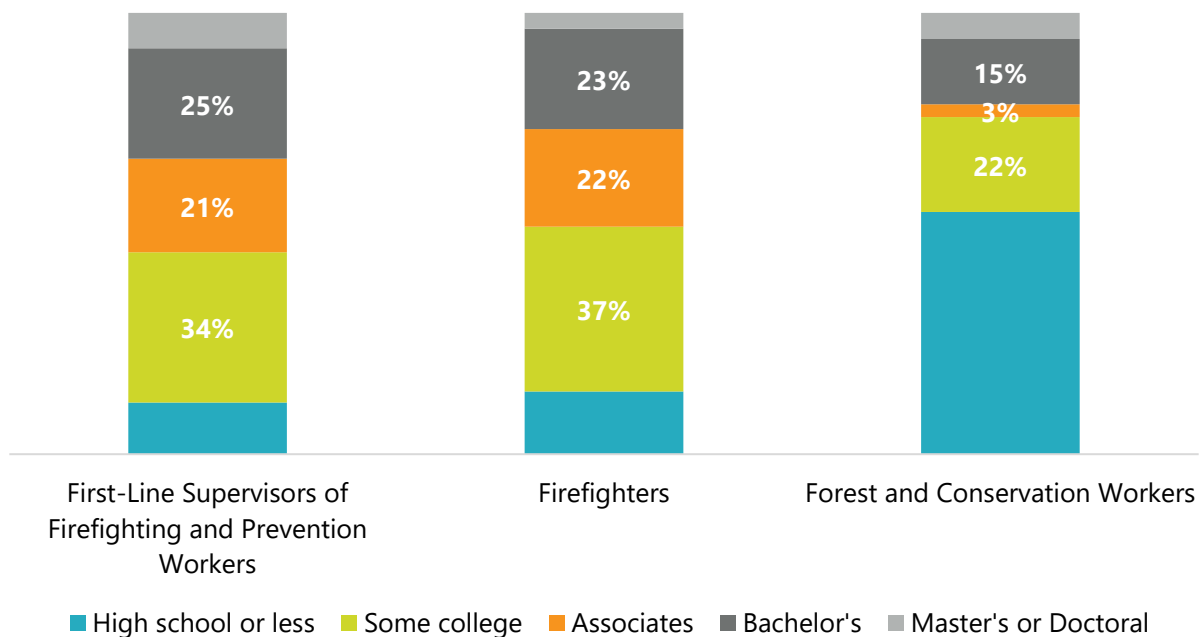
Exhibit 10. Employer-preferred experience levels



EDUCATION AND TRAINING

The U.S. Census Bureau and Bureau of Labor Statistics collected data on education achieved by workers employed in occupations. Exhibit 11 shows the national-level educational attainment of the current workforce in the selected occupations.

Exhibit 11. National worker educational attainment for selected occupations, 2019



The Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which the BLS publishes projections data. Exhibit 12 shows the skill level and entry-level job requirements for the selected occupations.

Exhibit 12. Typical education, work experience, and on-the-job training requirements

Occupation	Typical Entry-level Education	Work Experience Required	On-the-job Training Required
First-Line Supervisors of Firefighting and Prevention Workers	Postsecondary nondegree award	Less than five years	Moderate-term on-the-job training
Firefighters	Postsecondary nondegree award	None	Long-term on-the-job training
Forest and Conservation Workers	H.S. Diploma or equivalent	None	Moderate-term on-the-job training

EDUCATIONAL SUPPLY

Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes. Exhibit 13 shows the TOP and CIP codes for educational programs related to the selected occupations.

Exhibit 13. TOP and CIP codes for training programs related to the selected occupations

TOP Programs and Codes	Aligned CIP Programs and Codes
Fire Technology (2133.00)	Fire Prevention and Safety Technology/Technician (43.0201)
Wildland Fire Technology (2133.10)	Wildland/Forest Firefighting and Investigation (43.0206)
Fire Academy (2133.50)	First Science/Firefighting (43.0203)

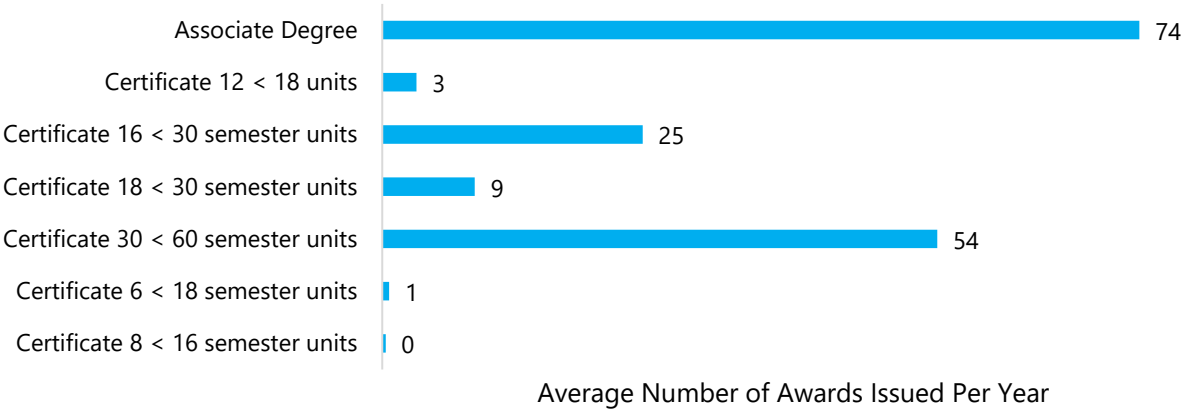
Community College Supply

Exhibits 14 and 115 compare the average number of certificates and degrees conferred in selected community college programs over the last three academic years.

Exhibit 14. Annual average community college awards by program, 2017-18 through 2019-20

Program - TOP Code	College	Annual Awards 2017-18	Annual Awards 2018-19	Annual Awards 2019-20	3-Yr Annual Awards Average
Fire Technology (2133.00)	American River	19	27	28	25
	Cosumnes River	4	6	13	23
	Folsom Lake	20	7	2	29
	Lake Tahoe	1	3	1	5
	Sierra	35	48	115	66
	Yuba	1	3	4	8
	Subtotal	84	94	163	156
Fire Academy (2133.50)	Lake Tahoe	14	22	19	18
	Sierra	--	--	40	13
	Yuba	28	19	20	22
	Subtotal	42	41	79	53
	Grand Total	126	135	242	209

Exhibit 15. Annual average community college awards by type, 2017-18 through 2019-20



Other Postsecondary Supply

Exhibit 16 provides a list of non-community college firefighting training programs in North (Greater Sacramento). Only the U.S. Department of Agriculture specifically mentioned Wildland fire training. Please note that completion data is not available for these programs.

Exhibit 16. Public-partnership fire training programs in Greater Sacramento

Training Provider	Location	Programs Offered
California Department of Forestry and Fire Protection (CAL FIRE)	Yuba, CA	State Fire Training
California Fire & Rescue Training Authority	Rancho Cordova, CA	Fire Academy Multiple other offerings
California Firefighter Joint Apprenticeship Committee (Cal-JAC)	Sacramento, CA	Fire Academy
Northern California Regional Public Safety Training Authority (NCRPSTA) in conjunction with the City of Sacramento Fire Department	Sacramento, CA	Emergency Vehicle Operations Fire Academy
U.S. Department of Agriculture - Wildland Fire Training and Conference Center	Sacramento, CA	Wildland Firefighter Apprenticeship Program

FINDINGS

- The North (Greater Sacramento) region held 2,870 firefighting jobs in 2019.
- U.S. Forest Service and the Bureau of Land Management regularly classify workers with firefighting skills as forest and conservation workers. These jobs represented about 12% of firefighting jobs in the Greater Sacramento region.
- North (Greater Sacramento) firefighter jobs are projected to increase by 6% over the next five years, adding approximately 160 new jobs to the subregion by 2024. Jobs for firefighting occupations are projected to grow faster in the North (Greater Sacramento) subregion than California. Most job growth will be among firefighters - with 139 new jobs added by 2024.
- Over the next five years, firefighting occupations are projected to have nearly 250 annual openings in the North (Greater Sacramento) region. Most job openings will be for firefighters - with 180 yearly openings through 2024.
- Wage data shows that traditional firefighting occupations earn at least double the subregion's living wage of \$13.18 per hour. Entry-level wages for firefighters start at \$26 per hour, while supervisors make nearly \$37 per hour.
- While some federal agencies classify firefighters as forest and conservation workers, wages are particularly low for this group of workers. Entry-level wages for forest and conservation workers start at just over \$12 per hour, one dollar below the region's living wage for a single adult.
- According to real-time labor market information, there were about 222 online job postings for firefighting occupations between July 1, 2020, and June 30, 2021. Half of the job postings (n = 111) were for forest and conservation workers.
- A significant share of job postings (31%) were found in federal agencies - including the U.S. Forest Service, the U.S. Department of Agriculture, the Bureau of Land Management, and the U.S. Navy - suggesting that federal agencies play a crucial role in the employment of firefighting occupations.
- Between 25% and 59% of incumbent firefighting workers have education attainment levels consistent with community college offerings (some college or associate degrees).
- Six of eight North (Greater Sacramento) community colleges offer degrees and certificates in firefighting training programs. Together, these programs conferred an average of 209 awards (certificates and associate degrees) over the last three academic years.

RECOMMENDATIONS

- Based on a three-year average of annual awards in North (Greater Sacramento) region firefighter training programs and projected yearly openings, the supply gap analysis shows that the region is nearing a balance between supply and demand.
 - Together, community colleges issued an average of 209 awards over the last three years.
 - There are 250 projected annual openings for firefighting occupations.
 - The gap between annual openings and awards is just under 20%, meaning that a 20% increase in awards (approximately 40 more awards) would result in labor market parity.
- However, California's changing climate and resulting wildfires will potentially increase the demand for firefighters trained in wildland fire management techniques.³
- The North/Far North Center of Excellence recommends moving forward with the program.
- Given that half of the job postings were concentrated in the forest and conservation workers occupation, the North/Far North Center of Excellence also recommends working with specific federal agencies, such as the U.S. Forest Service and the Bureau of Land Management, to understand better needs and hiring processes.
 - Obtaining living wages will undoubtedly be a challenge within these organizations. Increasing federal firefighter pay is currently a topic in the U.S. Senate.

COE Recommendation		
Move forward with the program	Proceed with caution	Program is not recommended
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

³"Climate Change is Central to California's Wildfires," Accessed July 6, 2021, <https://www.scientificamerican.com/article/climate-change-is-central-to-californias-wildfires/>

APPENDIX A. METHODOLOGY AND SOURCES

Occupations in this report were identified using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and O*Net OnLine. This report's findings were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

Cal-PASS Plus LaunchBoard. California Community Colleges Chancellor's Office.
<https://www.calpassplus.org/LaunchBoard/Home.aspx>.

Emsi. <https://www.economicmodeling.com/>. EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors).

Educational Attainment for Workers 25 Years and Older by Detailed Occupation, 2016-2017. Bureau of Labor Statistics. <https://www.bls.gov/emp/tables/educational-attainment.htm#>.

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"Taxonomy of Programs." California Community Colleges Chancellor's Office. June 2012, 6th Edition. <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Educational-Services-and-Support/Academic-Affairs/What-we-do/Curriculum-and-Instruction-Unit/Files/TOPmanual6200909corrected12513pdf.ashx>

"TOP-CIP-SOC Crosswalk." Centers of Excellence for Labor Market Research. November 2015 Edition. <http://coecc.net/>

COVID-19 Statement: This report includes employment projection data by EMSI. EMSI's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

Important Disclaimer: All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

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Centers of Excellence for Labor Market Research, Economic and
Workforce Development Program



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