

LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION



C·O·E

CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

FIRE FIGHTING OCCUPATIONS IN THE GREATER SACRAMENTO REGION

North (Greater Sacramento)
Center of Excellence

FEBRUARY 2022

TABLE OF CONTENTS

Summary.....	3
Introduction.....	4
Occupational Demand.....	5
Wages.....	7
Job Postings.....	7
Occupations and Job Titles.....	7
Employers.....	9
Certifications, Skills, and Experience.....	9
Education and Training.....	12
Educational Supply.....	13
Community College Supply.....	13
Other Postsecondary Supply.....	15
Findings.....	16
Recommendations.....	17
Appendix A. Methodology and Sources.....	18

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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 - jobs 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 and on-the-job training requirements.

Key findings include:

- The North (Greater Sacramento) subregion held 2,779 jobs in 2020. Fire fighting jobs are projected to increase by 7% over the next five years, adding 203 new jobs to the subregion by 2025.
- Over the next five years, fire fighting jobs are projected to have 252 annual openings in the North (Greater Sacramento) subregion.
- Wage data shows that fire fighting occupations earn \$9 to \$22 above the subregion's living wage of \$14.53 per hour.
- Awards data analysis shows that North (Greater Sacramento) training providers conferred an average of 220 awards (certificates and associate degrees) in fire fighting programs over the last three academic years.

Recommendations include:

- Due to near parity in job demand and program supply, the North/Far North Center of Excellence recommends caution in developing and implementing new fire fighting programs.
- The North (Greater Sacramento) Center of Excellence recommends that community colleges interested in establishing new fire fighting training programs partner with local fire fighting agencies to ensure job placement for students once they've completed the program.

INTRODUCTION

The North (Greater Sacramento) Center of Excellence (COE) 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:

- These middle-skill occupations require more education and training beyond a high school diploma but less than a four-year degree:
 - First-Line Supervisors of Firefighting and Prevention Workers (33-1021)
 - Firefighters (33-2011)
 - Fire Inspectors and Investigators (33-2021)
 - Forest Fire Inspectors and Prevention Specialists (33-2022)

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

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

The corresponding Classification of Instructional Program (CIP) title(s) and code(s) are:

- Fire Science/Fire-fighting (43.0203)

OCCUPATIONAL DEMAND

Exhibit 1 summarizes the five-year projected job growth for middle-skill and high-skill occupations in the North, North/Far North, and California.

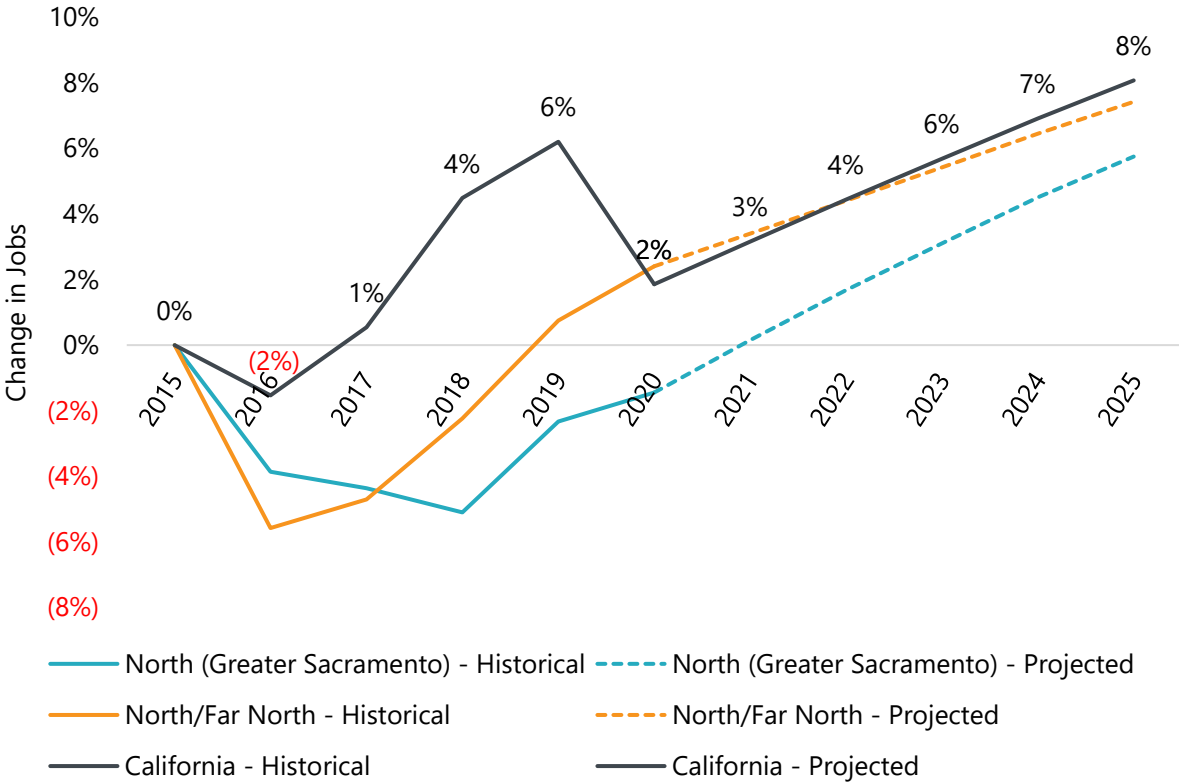
Exhibit 1. Employment and projected demand, 2020-2025

Occupation	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	2020-2025 Annual Openings
First-Line Supervisors of Firefighting and Prevention Workers	311	338	27	9%	26
Firefighters	2,348	2,513	165	7%	212
Fire Inspectors and Investigators	71	77	5	7%	8
Forest Fire Inspectors and Prevention Specialists	49	55	6	13%	6
North (Greater Sacramento)	2,779	2,982	203	7%	252
First-Line Supervisors of Firefighting and Prevention Workers	567	601	34	6%	45
Firefighters	4,208	4,403	195	5%	361
Fire Inspectors and Investigators	147	154	7	5%	16
Forest Fire Inspectors and Prevention Specialists	59	67	9	15%	8
North/Far North	4,981	5,225	244	5%	430
First-Line Supervisors of Firefighting and Prevention Workers	2,949	3,226	277	9%	252
Firefighters	32,772	34,619	1,846	6%	2,863
Fire Inspectors and Investigators	843	912	69	8%	102

Occupation	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	2020-2025 Annual Openings
Forest Fire Inspectors and Prevention Specialists	489	559	71	14%	67
California	37,053	39,316	2,263	6%	3,284

Exhibit 2 compares the percent change in jobs between 2015 through 2020 and the projected changes through 2025. The rate of change is indexed to the total number of jobs in 2015.

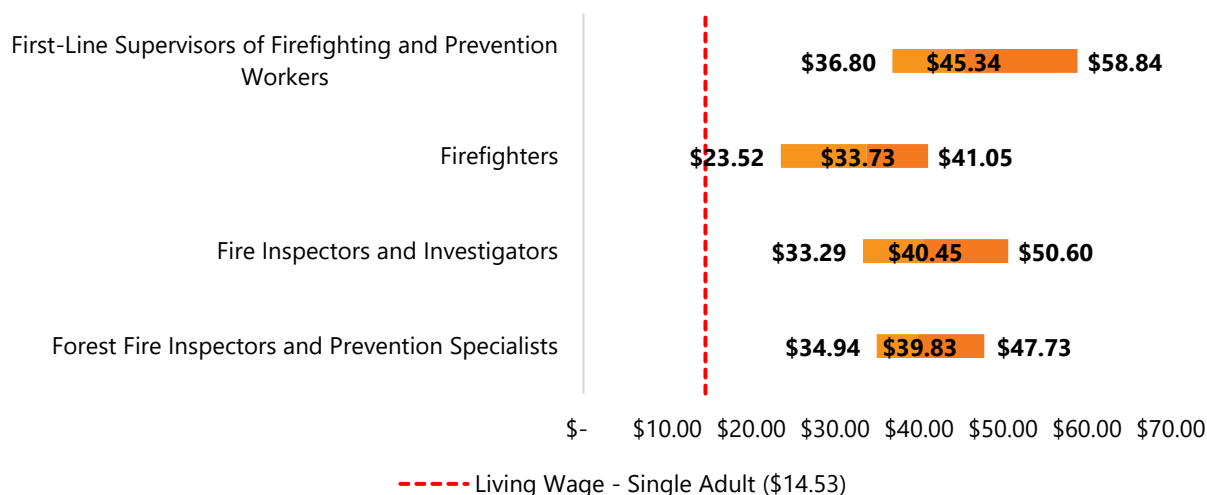
Exhibit 2. Changes in employment, 2015-2025



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 - \$14.53 per hour.¹

Exhibit 3. Comparison of wages by occupation, 2021



JOB POSTINGS

This section 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 North COE identified 183 online job postings for the selected occupations in the Greater Sacramento subregion. Job postings data comes from Burning Glass Labor Insights and represents new listings posted online within the last year, from February 1, 2021, to January 31, 2022.

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	83	45%

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.

Occupation	Job Postings	Share of Job Postings
First-Line Supervisors of Firefighting and Prevention Workers	53	29%
Fire Inspectors and Investigators	38	21%
Forest Fire Inspectors and Prevention Specialists	9	5%
Total Job Postings	183	100%

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

Exhibit 5. Top jobs titles

Job Title	Job Postings	Share of Job Postings
Fire Captain	9	5%
Firefighter	6	3%
Firefighter/First Responder	6	3%
Fire Chief	5	3%
District Ranger	4	2%
Fire Alarm/Fire Sprinkler Inspector	4	2%
Fire Inspector II	4	2%
Wildland Firefighter	4	2%
Fire Chief, Airport Fire	3	2%
Firefighter Paramedic	3	2%

Employers

Exhibit 6 shows the top 10 employers with the most job postings for the selected occupations. All job postings included an employer.

Exhibit 6. Employers with the most job postings

Employer	Job Postings	Share of Job Postings
Wildfire Defense Systems	22	12%
Sacramento Metropolitan Fire District	14	8%
Daily Dispatch	10	5%
Chloeta	10	5%
Western States Fire Protection	5	3%
University Of California	5	3%
Shingle Springs Rancheria	5	3%
North Tahoe Fire	5	3%
State of California	4	2%
University California Davis	4	2%

Certifications, Skills, and Experience

Exhibit 7 shows the most relevant certifications requested by employers for the selected occupations. Twenty percent (n = 36) of job postings did not include certification information.

Exhibit 7. Most in-demand certifications

Certification	Job Postings	Share of Job Postings
Fire Fighter I	79	43%
Emergency Medical Technician (EMT)	57	31%
Wildland Firefighter I	35	19%
Fire Inspector I	21	11%

Certification	Job Postings	Share of Job Postings
Firefighter II	20	11%
Cdl Class C	18	10%

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
Fire Protection	56	31%
Fire Suppression	55	30%
Budgeting	33	18%
Cardiopulmonary Resuscitation (CPR)	32	17%
Incident Command System	30	16%
Safety Training	23	13%
Repair	22	12%
Personnel Management	21	11%
Life Support	19	10%
Personal Protective Equipment (PPE)	19	10%

Exhibit 9 shows the employer-preferred minimum level of education for job postings for the selected occupations. Forty-five percent (n = 83) of job postings did not include a preferred education level.

Exhibit 9. Employer-preferred minimum education levels

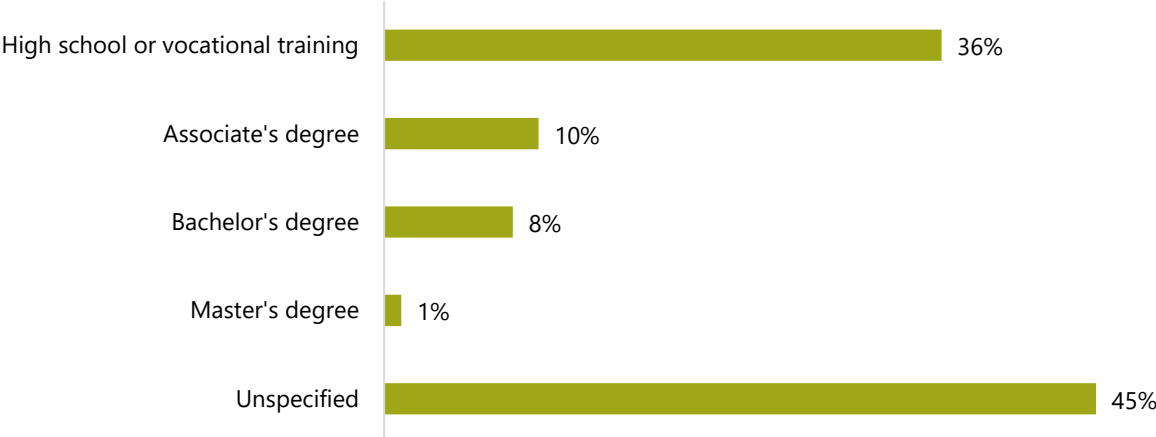
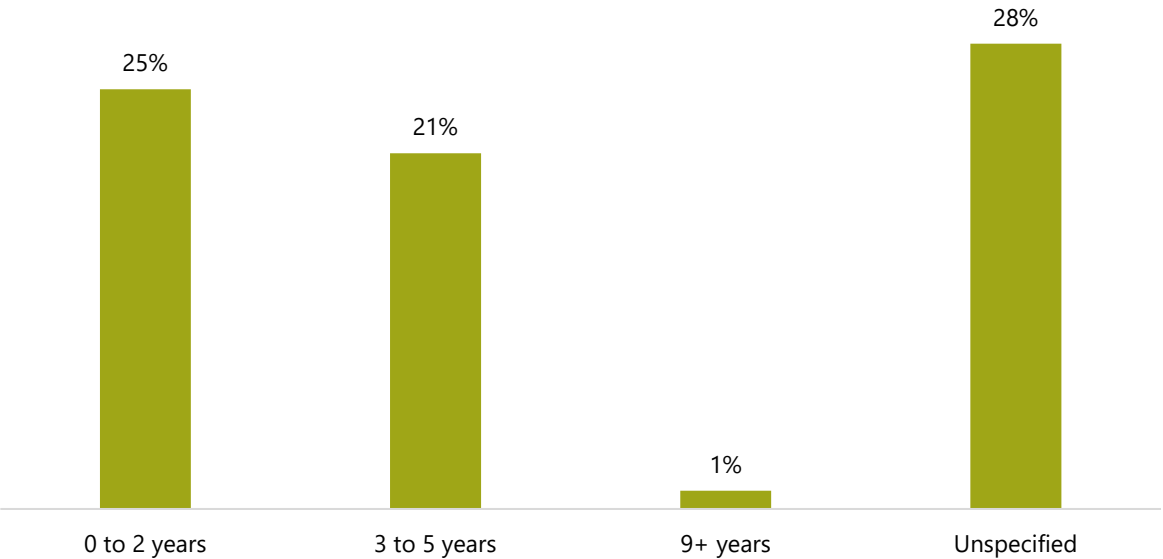


Exhibit 10 shows the experience levels required by employers for job postings for the selected occupations. Fifty-two percent (n = 96) of job postings did not include a preferred education level.

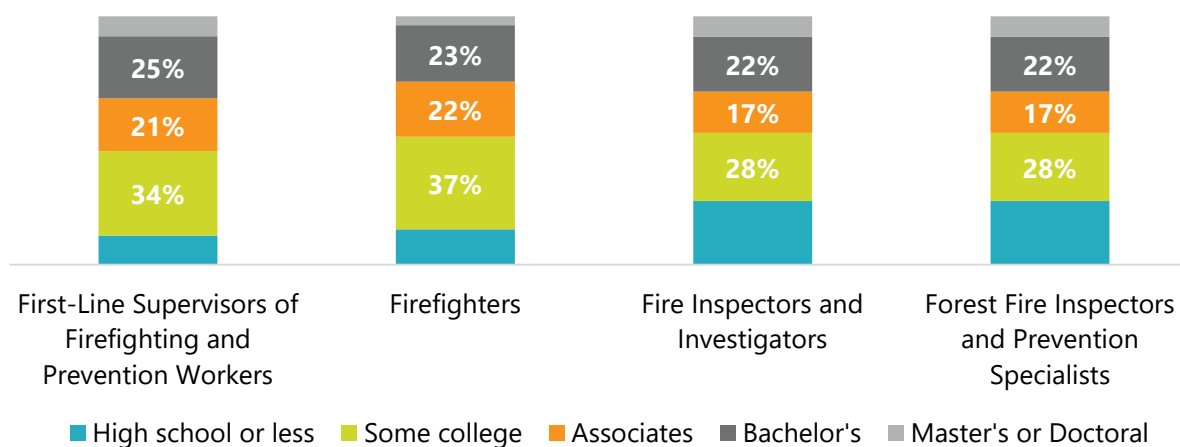
Exhibit 10. Employer-preferred experience levels



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
Fire Inspectors and Investigators	Postsecondary nondegree award	Five years or more	Moderate-term on-the-job training
Forest Fire Inspectors and Prevention Specialists	High school diploma or equivalent	Less than five years	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 Academy (2133.50)	Fire Science/Fire-fighting (43.0203)
Fire Technology (2133.00)	

Community College Supply

Exhibits 14 and 15 compare the average number of certificates and degrees conferred in selected community college programs over the last three academic years.

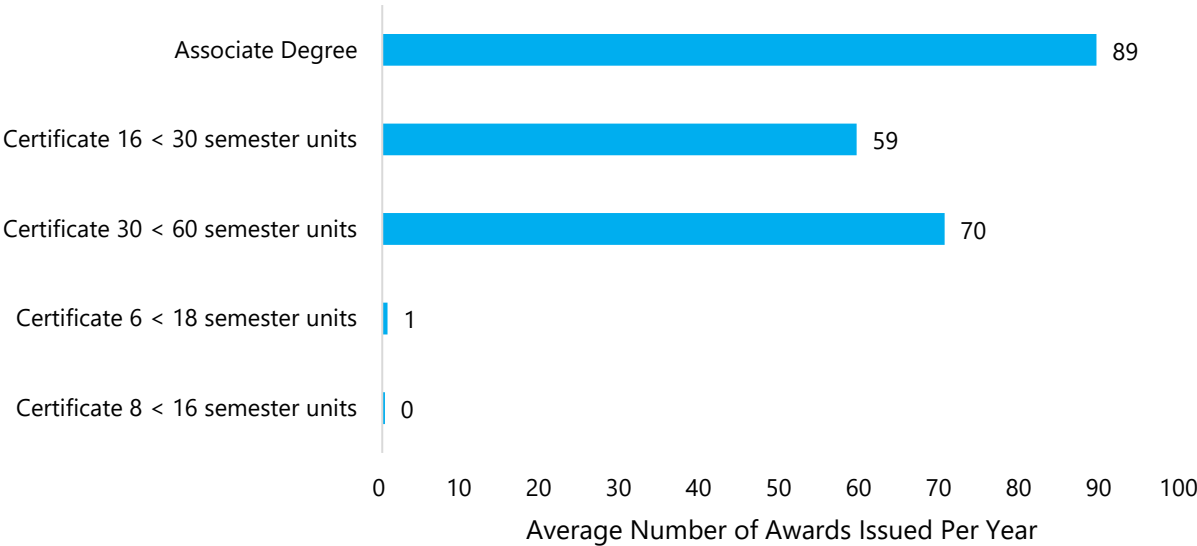
Exhibit 14. Annual average community college awards by program, 2017-18 through 2019-20

Program - TOP Code	College	Annual Awards 2018-19	Annual Awards 2019-20	Annual Awards 2020-21	3-Yr Annual Awards Average
Fire Academy (2133.50)	Lake Tahoe	22	19	5	15
	Sierra	--	40	60	33
	Yuba	19	20	45	28
	Subtotal	41	79	110	76
Fire Technology (2133.00)	American River	27	28	40	32
	Cosumnes River	6	13	5	8
	Folsom Lake	7	2	2	4
	Lake Tahoe	3	1	5	3
	Sierra	48	115	116	93

Program - TOP Code	College	Annual Awards 2018-19	Annual Awards 2019-20	Annual Awards 2020-21	3-Yr Annual Awards Average
	Yuba	3	4	6	4
	Subtotal	67	135	134	144
	Grand Total	108	214	244	220

Note: Due to rounding, some totals may not correspond with the sum of the separate figures.

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



Other Postsecondary Supply

Exhibit 16 lists non-community college fire fighting training programs in the North (Greater Sacramento) area. Please note that this list is not exhaustive, and completion data is unavailable.

Exhibit 16. Other North (Greater Sacramento) Fire Fighting Training Programs

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

- This report focuses on four occupations in the fire fighting pathway, including first-line supervisors of firefighting and prevention workers, firefighters, fire inspectors and investigators, and fore fire inspectors and prevention specialists.
- The North (Greater Sacramento) subregion held 2,779 jobs in 2020. Fire fighting jobs are projected to increase by 7% over the next five years, adding 203 new jobs to the subregion by 2025.
 - A significant share of this job growth is due to firefighters. Eighty percent of the new jobs (165 out of 203 jobs) will be for firefighters.
- Over the next five years, fire fighting jobs are projected to have 252 annual openings in the North (Greater Sacramento) subregion.
 - Eighty-four percent of the job openings will be for firefighters (212 out of 252 annual openings).
- Wage data shows that fire fighting occupations earn \$9 to \$22 above the subregion's living wage of \$14.53 per hour.
- According to real-time labor market information, there were about 183 online job postings for firefighting occupations between February 1, 2021, and January 31, 2022. Nearly three-quarters of the job posting was for firefighters and supervisors of firefighters.
- Between 45% and 59% of incumbent workers in fire fighting occupations have educational attainment levels consistent with community college offerings (some college or associate degrees). Another 22% to 25% of workers in these occupations hold a bachelor's degree.
- Six North (Greater Sacramento) community colleges offer degrees and certificates in programs related to fire fighting. Together, these programs conferred an average of 220 awards (certificates and associate degrees) in fire fighting programs over the last three academic years (2018-19 through 2020-21).

RECOMMENDATIONS

- Based on a three-year average of annual awards in North (Greater Sacramento) subregion fire fighting programs and projected yearly openings, the supply gap analysis shows that the region is nearing parity between training supply and occupational demand.
 - Together, community colleges and other postsecondary training providers issued an average of 220 awards over the last three years.
 - There are 252 projected annual openings for firefighting jobs.
- The North/Far North Center of Excellence recommends caution in developing and implementing new fire fighting programs.
- The North (Greater Sacramento) Center of Excellence recommends that community colleges interested in establishing new fire fighting training programs partner with local fire fighting agencies to ensure job placement for students once they've completed the program.

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

APPENDIX A. METHODOLOGY AND SOURCES

This report identified Occupations 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 2021.4; QCEW Employees, Non-QCEW Employees, and Self-Employed.

<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.

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"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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