



Labor Market Analysis for Program Recommendation

Fire Technology Occupations

Santa Cruz and Monterey Subregion

Prepared by the Bay Region Center of Excellence for Labor Market Research

Associate Program

October 2026

Summary

Recommendation Based on Labor Market Data: ☒ Yes ☐ With Reservations ☐ No		
	Earning Wage Meets Living Wage	Meets Demand
Bay Region	Entry Level Hourly Wage- \$41 Mid-Career Hourly Wage- \$53 Mid-Career Hourly Wage at or above the Bay Living Wage (\$27)? ☒ Yes ☐ No	Demand: 778 Supply: 381 (49% of Demand is Met) Gap: 397 In-Demand? ☒ Yes ☐ No
Santa Cruz and Monterey Subregion	Entry Level Hourly Wage- \$31 Mid-Career Hourly Wage- \$40 Mid-Career Hourly Wage at or above the Subregion Living Wage (\$27)? ☒ Yes ☐ No	Demand: 127 Supply: 26 (20% of Demand is Met) Gap: 101 In-Demand? ☒ Yes ☐ No

Note: An occupation is considered to provide a living wage if the mid-career wage is at or above the amount required for a single adult to be economically self-sufficient within a specified region. In this report, living wage estimates are based on the California Self-Sufficiency Standard. The Bay Region Center of Excellence is gradually transitioning to the MIT Living Wage Calculator. During this transition, we include estimates in the methodology section from both sources for reference and comparison. As a rule of thumb, an occupation will be considered **in-demand** when the supply is less than 75% of the demand and the labor market gap exceeds 40 openings (a reasonable regional threshold for starting a new program), but this approach may not apply in all cases. For definitions of demand, supply, and living wage, please scroll to the bottom of the report under **Definitions**.

Recommendation

The labor market data supports this proposed program. The occupations meet both the Bay Region and Santa Cruz and Monterey subregion living wage at the mid-career level. An additional 397 students are needed in the Bay Region and 101 students in the Santa Cruz and Monterey subregion to complete their program. Lastly, only 49% of labor market demand is being met in the Bay Region, and 20% of demand is being met in the Santa Cruz and Monterey subregion overall.

Introduction

This report provides student outcomes data on employment and earnings for TOP 2133.00 - Fire Technology programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at subregion in the state and region.

This report profiles Fire Technology Associate in Science Occupations in the 12 county Bay Region and in the Santa Cruz and Monterey subregion. This report includes occupations with one skill level. Middle-skill occupations require a certificate, or an associate degree, or it may require a bachelor's degree, but 33% or fewer of current workers in these roles hold one.

First-Line Supervisors of Firefighting and Prevention Workers (33-1021): Directly supervise and coordinate activities of workers engaged in firefighting and fire prevention and control.

Typical Entry-Level Education: Postsecondary nondegree award

Skill Level: Middle-Skill

Work Experience Required: Less than 5 years

Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 53%

Firefighters (33-2011): Control and extinguish fires or respond to emergency situations where life, property, or the environment is at risk. Duties may include fire prevention, emergency medical service, hazardous material response, search and rescue, and disaster assistance.

Typical Entry-Level Education: Postsecondary nondegree award

Skill Level: Middle-Skill

Work Experience Required: None

Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 57%

Forest Fire Inspectors and Prevention Specialists (33-2022): Enforce fire regulations, inspect forest for fire hazards, and recommend forest fire prevention or control measures. May report forest fires and weather conditions.

Typical Entry-Level Education: High school diploma or equivalent

Skill Level: Middle-Skill

Work Experience Required: Less than 5 years

Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 45%

Occupational Demand

Table 1. Employment Outlook for Fire Technology Associate in Science Occupations in the Bay Region

Occupation	2025 Jobs	2030 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid- Career Hourly Wage
Forest Fire Inspectors and Prevention Specialists	73	81	8	11%	44	9	\$29	\$37
First-Line Supervisors of Firefighting and Prevention Workers	1,607	1,723	116	7%	640	128	\$55	\$70
Firefighters	7,262	7,702	439	6%	3,205	641	\$38	\$50
Total	8,942	9,506	564	6%	3,889	778	\$41	\$53

Source: Lightcast 2026.3

Bay Region includes: Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

Table 2. Employment Outlook for Fire Technology Associate in Science Occupations in the Santa Cruz and Monterey Subregion

Occupation	2025 Jobs	2030 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid- Career Hourly Wage
Forest Fire Inspectors and Prevention Specialists	0	0	0	9%	0	0	\$29	\$40
First-Line Supervisors of Firefighting and Prevention Workers	275	292	17	6%	106	21	\$46	\$52
Firefighters	1,215	1,285	69	6%	531	106	\$28	\$37
Total	1,490	1,577	87	6%	637	127	\$31	\$40

Source: Lightcast 2026.3

Santa Cruz and Monterey Subregion includes: Monterey, San Benito, Santa Cruz Counties

Job Postings in the Bay Region and Santa Cruz and Monterey Subregion

Table 3. Number of Job Postings by Occupation for the latest 12 months

Occupation	Bay Region	Santa Cruz and Monterey
Firefighters	179	24
First-Line Supervisors of Firefighting and Prevention Workers	119	23
Forest Fire Inspectors and Prevention Specialists	13	7

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Table 4a. Top Job Titles in Job Postings for Fire Technology Associate in Science Occupations in the Bay Region

Title	Bay	Title	Bay
Firefighters/Paramedics	69	Deputy Fire Marshals	6
Firefighters	68	Deputy Fire Chiefs	5
Battalion Chiefs	18	Reserve Firefighters	5

Fire Chiefs	17	Fire Control Specialists	4
Chief Engineers	11	Auxiliaries	4
Assistant Chiefs	10	Fire Marshals	4
Fire Captains	9	Division Chiefs	4
Wildland Firefighters	8	Fire Battalion Chiefs	4
Academy Training Facilitators	6	Cadets	3

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Table 4b. Top Job Titles in Job Postings for Fire Technology Associate in Science Occupations in the Santa Cruz and Monterey Subregion

Title	Subregion	Title	Subregion
Firefighters	12	Academy Managers	2
Battalion Chiefs	6	Fire Battalion Chiefs	2
Academy Training Facilitators	6	Corrections Captains	2
Wildland Firefighters	5	Deputy Fire Chiefs	1
Firefighters/Paramedics	4	Unit Chiefs	1
Fire Chiefs	4	Infrastructure Technicians	1
Chief Building Officials	2	Assistant Chiefs	1
Deputy Fire Marshals	2	Reserve Firefighters	1
Fire Captains	2		

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Industry Concentration

Table 5. Industries Hiring for Fire Technology Associate in Science Occupations in the Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2025)	Jobs in Industry (2030)	% Change (2025-30)	% Occupation Group in Industry (2025)
Local Government, Excluding Education and Hospitals	8,214	8,749	7%	92%
State Government, Excluding Education and Hospitals	155	167	8%	2%
All Other Support Services	141	145	3%	2%
Federal Government, Military	106	111	5%	1%
Federal Government, Civilian, Excluding Postal Service	74	71	-4%	1%
Convention and Trade Show Organizers	69	68	-1%	1%
Packaging and Labeling Services	56	50	-11%	1%
Security Guards and Patrol Services	26	28	9%	0%
Ambulance Services	15	20	28%	0%
Animal Production	0	0	0%	0%

Source: Lightcast 2026.3

Table 6. Top Employers Posting Fire Technology Associate in Science Occupations in the Bay Region and the Santa Cruz and Monterey Subregion

Employer	Bay	Employer	Santa Cruz and Monterey
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State of California	40	State of California	6
Alameda County	9	Monterey Peninsula College	4
Vector Marketing - Marin County, Ca	8	City Of Watsonville	4
San Ramon Valley Fire Protection District	8	City Of Salinas	4
City Of Berkeley	8	City Of Santa Cruz	4
County Of Marin	6	City Of Hollister	3

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Educational Supply

There are 13 community colleges in the Bay Region issuing 381 awards on average annually (last 3 years ending 2024-25) on TOP 2133.00 - Fire Technology. In the Santa Cruz and Monterey subregion, there are two community colleges that issued 26 awards on average annually (last 3 years) on this TOP code.

There are no other CTE educational institutions and four-year institutions in the Bay Region issuing any awards on average annually (last 3 years) on CIP 43.0203- Fire Science/Fire-fighting.

Table 7. Community College Awards on TOP 2133.00 - Fire Technology in the Bay Region

College	Subregion	Associate Degree	High unit Certificate	Low unit Certificate	Total
Cabrillo	Santa Cruz and Monterey	16	0	0	16
Chabot Hayward	East Bay	8	3	2	13
Gavilan	Silicon Valley	0	0	9	9
Las Positas	East Bay	49	0	60	109
Los Medanos	East Bay	26	0	22	48
Merritt	East Bay	3	0	3	6
Mission	Silicon Valley	29	0	0	29
Monterey	Santa Cruz and Monterey	5	0	5	10
Ohlone	East Bay	0	0	12	12
San Francisco	Mid-Peninsula	12	33	15	60
San Mateo	Mid-Peninsula	16	4	0	20
Santa Rosa	North Bay	21	10	0	31
Solano	North Bay	16	2	0	18
Total		201	52	128	381

Source: CCCCCO DataMart

Note: The annual average for awards is 2022-23 to 2024-25.

Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay Region with 778 annual openings for the Fire Technology Associate in Science occupational cluster and 381 annual (3-year average) awards for an annual undersupply of 397 students. In the Santa Cruz and Monterey subregion, there is also a gap with 127 annual openings and 26 annual (3-year average) awards for an annual undersupply of 101 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 2133.00 - Fire Technology

Metric Outcomes	Bay All CTE Program	State 2133.00	Bay 2133.00	Santa Cruz and Monterey 2133.00
Students with a Job Closely Related to Their Field of Study	75%	75%	71%	NA
Median Annual Earnings for SWP Exiting Students	\$59,448	\$80,376	\$76,364	\$118,308
Median Change in Earnings for SWP Exiting Students	30%	35%	41%	33%
Exiting Students Who Attained the Living Wage	50%	66%	60%	68%

Source: DataVista Program Median of 2021 to 2023.

Skills, Certifications and Education

Table 9. Top Skills in Job Postings for Fire Technology Associate in Science Occupations in the Bay Region

Skill	Posting	Skill	Posting
Firefighting	204	Fire Safety	41
Fire Prevention	137	Chainsaws	36
Emergency Medical Services	121	Good Driving Record	36
Fire Suppression Systems	117	Fire Alarm Systems	34
Fire Protection	107	Forestry	34
Fire Service	85	Resource Management	33
Emergency Response	74	First Aid	31
Cardiopulmonary Resuscitation (CPR)	57	Wildfire Suppression	31
Fire Science	56	Physical Fitness	30
Self-Contained Breathing Apparatus	52	Disaster Response	29

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Table 10. Certifications in Job Postings for Fire Technology Associate in Science Occupations in the Bay Region

Certification	Posting	Certification	Posting
Firefighter I Certification	100	Firefighter II Certification	30
Cardiopulmonary Resuscitation (CPR) Certification	55	American Red Cross (ARC) Certification	17
Basic Life Support (BLS) Certification	55	Automated External Defibrillator (AED) Certification	15
Advanced Cardiovascular Life Support (ACLS) Certification	32	First Aid Certification	13

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Table 11. Education Requirements for Fire Technology Associate in Science Occupations in the Bay Region

Education Level	Job Postings	% of Total
High school or GED	127	51%
Associate degree	48	19%
Bachelor's degree & higher	76	30%

Source: Lightcast 2026.3; "Job Posting Analytics." Oct. 2025 - Sep. 2026

Note: 46% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCC Data Mart and CTE Launchboard.

This report uses living wage estimates from the California Self-Sufficiency Standard. The Bay Region Center of Excellence is gradually transitioning to the Massachusetts Institute of Technology (MIT) Living Wage Calculator, which will become the primary living wage benchmark used in future reports. During this transition, we include both estimates to provide context and allow readers to understand how the selected benchmark affects wage comparisons. Because the California Self-Sufficiency Standard and the MIT Living Wage Calculator use different methodologies, their estimates are not directly interchangeable. The MIT Living Wage Calculator generally produces higher living wage thresholds; therefore, future reports may identify fewer occupations as providing a living wage, even when the underlying occupational wage data has not changed. For comparison, the MIT living wage is \$33 per hour for the Bay Region and \$36 per hour for the Santa Cruz and Monterey subregion. Under the California Self-Sufficiency Standard, the living wage is \$27 per hour for the Bay Region and \$27 per hour for the Santa Cruz and Monterey subregion.

Definitions

Demand refers to average annual openings which includes a combination of both new jobs and replacement jobs between 2025 to 2030. New jobs represent the total number of additional workers required in an occupation, calculated as the difference between the current number of workers and the projected number of unfilled positions. Replacements are jobs that will need to be filled by new hires due to existing workers leaving the occupation. The average annual openings figure is derived by dividing total openings (2025 to 2030) by five years.

Supply refers to the average number of graduates between academic years 2021–2022 and 2023–2024. Graduates include students from community colleges, other two-year private and public institutions, as well as four-year institutions.

Living wage refers to the amount of income required for working families to meet basic needs at a minimally adequate level, considering family composition, ages of children, and geographic differences in costs based on the Self-Sufficiency Standard methodology.

Entry-level wages are the hourly earnings paid to workers who are newly entering an occupation.

Mid-career wages are the hourly earnings paid to workers who have accumulated several years of experience in an occupation, reflecting increased productivity, skill proficiency, and responsibility beyond entry-level roles but short of late-career or senior positions.

Sources

O*Net Online

Lightcast

CTE LaunchBoard www.calpassplus.org

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

CCCC Data Mart

Contacts

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