



Labor Market Analysis for Program Recommendation

Fire Technology Occupations

Silicon Valley Subregion

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

Certificate Program

June 2026

Recommendation Based on Labor Market Data: ☒ Yes ☐ With Reservations ☐ No		
	Earning Wage Meets Living Wage	Meets Demand
Bay Region	Entry Level Hourly Wage- \$43 Mid-Career Hourly Wage- \$57 Mid-Career Hourly Wage at or above the Bay Living Wage (\$27)? ☒ Yes ☐ No	Demand: 769 Supply: 381 (50% of Demand is Met) Gap: 388 In-Demand? ☒ Yes ☐ No
Silicon Valley Subregion	Entry Level Hourly Wage- \$57 Mid-Career Hourly Wage-\$80 Mid-Career Hourly Wage at or above the Subregion Living Wage (\$30)? ☒ Yes ☐ No	Demand: 123 Supply: 38 (31% of Demand is Met) Gap: 85 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. 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 Silicon Valley subregion living wage at the entry and mid-career levels. An additional 388 students are needed in the Bay Region and 85 students in the Silicon Valley subregion to complete their program. Lastly, only 50% of labor market demand is being met in the Bay Region, and 31% of demand is being met in the Silicon Valley 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 Occupations in the 12 county Bay Region and in the Silicon Valley subregion. The occupations classified as 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 Educational: 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: 54%
- **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 Educational: 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: 58%
- **Fire Inspectors and Investigators (33-2021):** Inspect buildings to detect fire hazards and enforce local ordinances and state laws, or investigate and gather facts to determine cause of fires and explosions.
Typical Entry-Level Educational: Postsecondary nondegree award
Skill Level: Middle-Skill
Work Experience Required: 5 years or more
Percentage of individuals 25+ with an associate degree, certificate, or some postsecondary coursework as their highest level of education attainment: 45%
- **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 Educational: 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 Occupations in the Bay Region

Occupation	2024 Jobs	2029 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid-Career Hourly Wage
First-Line Supervisors of Firefighting and Prevention Workers	1,616	1,730	114	7%	638	128	\$57	\$71
Firefighters	6,810	7,224	414	6%	3,003	601	\$40	\$54
Fire Inspectors and Investigators	332	348	15	5%	177	35	\$49	\$59
Forest Fire Inspectors and Prevention Specialists	39	44	4	11%	24	5	\$29	\$45
Total	8,797	9,346	549	6%	3,842	769	\$43	\$57

Source: Lightcast 2026.1

The 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 Occupations in the Silicon Valley Subregion

Occupation	2024 Jobs	2029 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	Entry Level Hourly	Mid-Career Hourly Wage
First-Line Supervisors of Firefighting and Prevention Workers	193	208	15	8%	77	15	\$65	\$91
Firefighters	1,194	1,257	62	5%	516	103	\$57	\$79
Fire Inspectors and Investigators	34	38	3	10%	21	4	\$32	\$59
Forest Fire Inspectors and Prevention Specialists	6	7	0	11%	4	1	\$31	\$45
Total	1,427	1,510	83	6%	618	123	\$57	\$80

Source: Lightcast 2026.1

Silicon Valley Subregion includes: Santa Clara Counties

Job Postings in the Bay Region and Silicon Valley Subregion

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

Occupation	Bay Region	Silicon Valley
Firefighters	139	8
First-Line Supervisors of Firefighting and Prevention Workers	117	22
Fire Inspectors and Investigators	112	13
Forest Fire Inspectors and Prevention Specialists	7	1

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

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

Title	Bay	Title	Bay
Firefighters	56	Deputy Fire Chiefs	8
Firefighters/Paramedics	47	Deputy Fire Marshals	7

Title	Bay	Title	Bay
Fire Alarm Inspectors	29	Fire Alarm and Fire Sprinkler Inspectors	7
Fire Chiefs	22	Fire Prevention Specialists	6
Fire Inspectors	20	Division Chiefs	6
Battalion Chiefs	11	Fire Sprinkler Inspectors	5
Chief Engineers	11	Fire Marshals	5
Fire Extinguisher Technicians	9	Reserve Firefighters	5
Fire Captains	9	Fire Investigators	5

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Table 4b. Top Job Titles in Job Posting for Fire Technology Occupations in the Silicon Valley Subregion

Title	Silicon Valley	Title	Silicon Valley
Fire Alarm Inspectors	4	Managers/Crew Members	2
Division Chiefs	4	Assistant Fire Marshals	2
Firefighters	3	Fire Chiefs	2
Battalion Chiefs	2	Firefighters/Paramedics	1
Deputy Fire Chiefs	2	Store Crew Members	1
Fire Prevention Inspectors	2	Heavy Equipment Operators	1
Assistant Chiefs	2	Plans Examiners	1
Fire Extinguisher Technicians	2	Deputy Fire Marshals	1
Fire Marshals	2	Fire Captains	1

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Industry Concentration

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

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2024)	Jobs in Industry (2029)	% Change (2024-29)	% Occupation Group in Industry (2024)
Local Government, Excluding Education and Hospitals	8,087	8,615	7%	92%
All Other Support Services	146	147	1%	2%
State Government, Excluding Education and Hospitals	136	150	10%	2%
Federal Government, Military	106	111	4%	1%
Convention and Trade Show Organizers	71	71	0%	1%

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2024)	Jobs in Industry (2029)	% Change (2024-29)	% Occupation Group in Industry (2024)
Federal Government, Civilian, Excluding Postal Service	70	69	-1%	1%
Packaging and Labeling Services	46	37	-19%	0%
Security Guards and Patrol Services	41	47	15%	0%
Ambulance Services	11	15	32%	0%

Source: Lightcast 2026.1

Table 6. Top Employers Posting Fire Technology Occupations in the Bay Region and the Silicon Valley Subregion

Employer	Bay	Employer	Silicon Valley
State of California	29	City San Jose	4
Johnson Controls	12	State of California	4
County Of Contra Costa	11	First Alarm	4
Vector Marketing - Marin County, Ca	10	Stanford University	3
City Of Redwood City	10	Santa Clara County Fire Department	3
San Ramon Valley Fire Protection District	10	City Of Milpitas	2

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Educational Supply

There are thirteen 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 Silicon Valley subregion, there are two community colleges that issued 38 awards on average annually (last 3 years) on this TOP code.

There are no other CTE educational institutions in the Bay Region issuing awards on average annually (last 3 years ending 2023-24) on CIP 52.9999- Business, Management, Marketing, and Related Support Services, Other.

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	SC-Monterey	16	0	0	16
Chabot	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	SC-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

College	Subregion	Associate Degree	High unit Certificate	Low unit Certificate	Total
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Source: Data Mart

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 769 annual openings for the Fire Technology occupational cluster and 381 annual (3-year average) awards for an annual undersupply of 388 students. In the Silicon Valley subregion, there is also a gap with 123 annual openings and 38 annual (3-year average) awards for an annual undersupply of 85 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	Silicon Valley 2133.00
Students with a Job Closely Related to Their Field of Study	75%	75%	72%	NA
Median Annual Earnings for SWP Exiting Students	\$58,379	\$71,466	\$78,056	\$67,641
Median Change in Earnings for SWP Exiting Students	31%	35%	38%	38%
Exiting Students Who Attained the Living Wage	50%	63%	61%	56%

Source: DataVista Program Median of 2020 to 2022.

Skills, Certifications and Education

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

Skill	Posting	Skill	Posting
Firefighting	166	Good Driving Record	63
Fire Prevention	152	NFPA (National Fire Protection Association) Codes	62
Fire Suppression Systems	117	Fire Investigation	53
Fire Protection	116	Fire And Life Safety	52
Emergency Medical Services	109	Cardiopulmonary Resuscitation (CPR)	50
Fire Alarm Systems	87	Construction	49
Fire Science	82	Hand Tools	47
Fire Service	81	Self-Contained Breathing Apparatus	41
Fire Safety	66	Alarm Devices	40
Emergency Response	63	Fire Protection Systems	36

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

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

Certification	Posting	Certification	Posting
Valid Driver's License	189	Firefighter II Certification	20
Firefighter I Certification	76	American Red Cross (ARC) Certification	16
Cardiopulmonary Resuscitation (CPR) Certification	52	Automated External Defibrillator (AED) Certification	14
Basic Life Support (BLS) Certification	41	NICET Level I Certification	13
CDL Class C License	39	First Aid Certification	12
Advanced Cardiovascular Life Support (ACLS) Certification	23		

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

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

Education Level	Job Postings	% of Total
High school or GED	152	50%
Associate degree	66	22%
Bachelor's degree & higher	86	28%

Source: Lightcast 2026.1; "Job Posting Analytics." Jun. 2025 - May. 2026

Note: 41% 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.

Definitions

Demand refers to average annual openings which includes a combination of both [new jobs and replacement jobs](#) between 2024 to 2029. 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 (2024 to 2029) 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 Online2

Lightcast

CTE LaunchBoard www.calpassplus.org

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

CCCCO Data Mart

Contacts

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