



Labor Market Analysis: 2133.10 – Wildland Fire Technology 43.0206 – Wildland/Forest Firefighting and Investigation *Wildland Fire Technology – Certificate requiring 8 to < 16 semester units* Los Angeles Center of Excellence, May 2026

Program Endorsement:	Endorsed: All Criteria Met ☐	Endorsed: Some Criteria Met ☒	Not Endorsed ☐
Program Endorsement Criteria			
Supply Gap:	Yes ☐	No ☒ (Supply met; see below)	
Living Wage: (Entry-Level, 25 th)	Yes ☒	No ☐	
Education:	Yes ☒	No ☐	
Emerging Occupation(s)			
Yes ☐		No ☒	

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations¹ or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there does not initially appear to be a supply gap for the four identified middle-skill firefighting occupations in the region. However, of the 1,252 average annual awards issued related to fire technology, 36 were bachelor's degrees, 330 were associate degrees, 633 were certificates greater than 16 units, and 253 were low-unit certificates. Although hiring preferences for entry-level firefighters vary by agency type (Federal, State/Cal-Fire, Local/Municipal/County, or Private), it is unlikely that these 253 low-unit certificates alone are sufficient for employment as a firefighter, which brings the realistic estimate of supply for fire technology jobs down to 999 average annual awards. While this adjusted number of awards conferred is still greater than the number of job openings, the talent supply is within the COE's acceptable margin (the number of the number of awards issued is 25% over or under the number of annual openings) and is therefore considered "supply met" rather than a "supply gap." For this reason, real-time labor market data is included in this report as well – to provide a more nuanced view of the regional job market for middle-skill firefighting occupations. Furthermore, entry-level wages exceed the self-sufficiency standard wage in Los Angeles County,

¹ Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree. The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

and more than one-third of workers in the field have completed an associate degree or some college as their highest level of educational attainment.

Recommendation: Due to two of the three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.

Key Findings

Supply Gap

- 870 annual job openings are projected in the region through 2029. This number is less than the three-year average of 1,252 total awards conferred by educational institutions in the region.
 - Of the 1,252 average annual awards issued related to fire technology, 36 were bachelor's degrees, 330 were associate degrees, 633 were certificates greater than 16 units, and 253 were low-unit certificates. Although hiring preferences for entry-level firefighters vary by agency type (Federal, State/Cal-Fire, Local/Municipal/County, or Private), it is unlikely that these 253 low-unit certificates alone are sufficient for employment as a firefighter. It is also possible that these are up-skilling certificates issued to individuals already employed as firefighters. **Therefore, a more accurate and realistic estimate of supply for fire technology is 999 average annual awards.**
 - Although there are more high-unit (16+ units) awards conferred than job openings, the data suggests that the **demand has been met for these occupations within the LA/OC region** since the three-year average number of awards (supply) is within the COE's 25% margin of annual job openings (demand).
 - Over the past 12 months, there were 323 online job postings related to middle-skill firefighting occupations. The highest number of job postings were for firefighters, firefighters/paramedics, wildland firefighters, fire preventions specialists, and rescue technicians.

Living Wage

- All four occupations have entry-level wages **above** Los Angeles County's self-sufficiency standard hourly wage (\$24.03/hour).²

Educational Attainment

- 99% of the annual job openings typically require a postsecondary non-degree award for middle-skill occupations related to firefighting in the LA/OC region.
- 47%-59% of workers in the field have completed some college or an associate degree, according to national educational attainment data.

Community college supply

- 11 community colleges issued awards related to fire technology in the greater LA/OC region.

² Center for Women's Welfare, University of Washington. (2024). *The self-sufficiency standard for California 2024*. <http://selfsufficiencystandard.org/California>.

- 1,216 awards (degrees and certificates) were conferred on average each year between 2023 and 2025.

Other postsecondary supply

- 1 educational institution in the LA/OC region has conferred bachelor's awards in programs related to fire technology over the past three years.
- 36 bachelor's awards were conferred on average each year by other postsecondary institutions throughout the greater LA/OC region between 2022 and 2024.

TARGET OCCUPATIONS

LA COE prepared this report to provide regional labor market and postsecondary supply data related to four middle-skill occupations. [For full occupation descriptions, please see Appendix.](#)

- **First-Line Supervisor of Firefighting and Prevention Workers (33-1021)** ³
- **Firefighters (33-2011)** ⁴
- **Fire Inspectors and Investigators (33-2021)** ⁵
- **Forest Fire Inspectors and Prevention Specialists (33-2022)** ⁶

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these middle-skill firefighting occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 7% through 2029. There will be nearly 900 job openings per year through 2029 due to job growth and replacements. The majority of jobs in 2024 for these middle-skill firefighting occupations (81%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties⁷

Geography	2024 Jobs	2029 Jobs	2024-2029 Change	2024-2029 % Change	Annual Openings
Los Angeles	8,200	8,729	529	6%	702
Orange	1,904	2,050	146	8%	168
Total	10,104	10,779	675	7%	870

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. The average percentage of workers aged 55+ across all occupations in the Los Angeles/Orange County region is 26%; occupations with a larger share

³ [First-Line Supervisors of Firefighting and Prevention Workers \(bls.gov\)](#)

⁴ [Firefighters \(bls.gov\)](#)

⁵ [Fire Inspectors \(bls.gov\)](#)

⁶ [Ibid.](#)

⁷ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

of workers aged 55 and older typically have greater replacement needs to offset the amount of impending retirements. On average, 81% of workers across all occupations in California are employed full-time.

Exhibit 2: Detailed employment and occupational demand, Los Angeles County⁸

Occupation	2024 Jobs	2029 Jobs	5-Yr % Change	Annual Openings	% Aged 55 and older	% Full Time Workers
First-Line Supervisors of Firefighting and Prevention Workers	1,864	1,981	6%	140	20%	100%
Firefighters	6,096	6,489	6%	538	8%	100%
Fire Inspectors and Investigators	197	211	7%	19	28%	Data unavailable
Forest Fire Inspectors and Prevention Specialists	44	48	9%	4	Insf. Data	Data unavailable
Total	8,200	8,729	6%	702	-	-

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill firefighting occupations in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater Los Angeles/Orange County region.

Los Angeles County

All four occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$24.03 in Los Angeles County). Typical entry-level hourly wages are in a range between \$28.08 and \$59.07. (Exhibit 3). Experienced workers can expect to earn wages between \$54.66 and \$83.85.

Exhibit 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
First-Line Supervisors of Firefighting and Prevention Workers	\$59.07	\$83.84	\$83.85	\$174,400
Firefighters	\$38.66	\$48.54	\$63.20	\$101,000

⁸ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Fire Inspectors and Investigators	\$28.08	\$44.36	\$59.82	\$92,300
Forest Fire Inspectors and Prevention Specialists	\$34.02	\$47.06	\$54.66	\$97,900

*Rounded to the nearest \$100

Orange County

The majority, 97%, of annual openings for these middle-skill firefighting occupations have entry-level wages above the self-sufficiency standard wage for one adult (\$27.13 in Orange County). Typical entry-level hourly wages are in a range between \$25.84 and \$53.55 (Exhibit 4).

Three occupations have entry-level wages above the self-sufficiency standard wage:

- *First-line supervisors of firefighting and prevention workers, \$53.55*
- *Firefighters, \$35.09*
- *Forest fire inspectors and prevention specialists, \$31.55*

Experienced workers can expect to earn wages between \$50.69 and \$76.01, which are higher than the self-sufficiency standard.

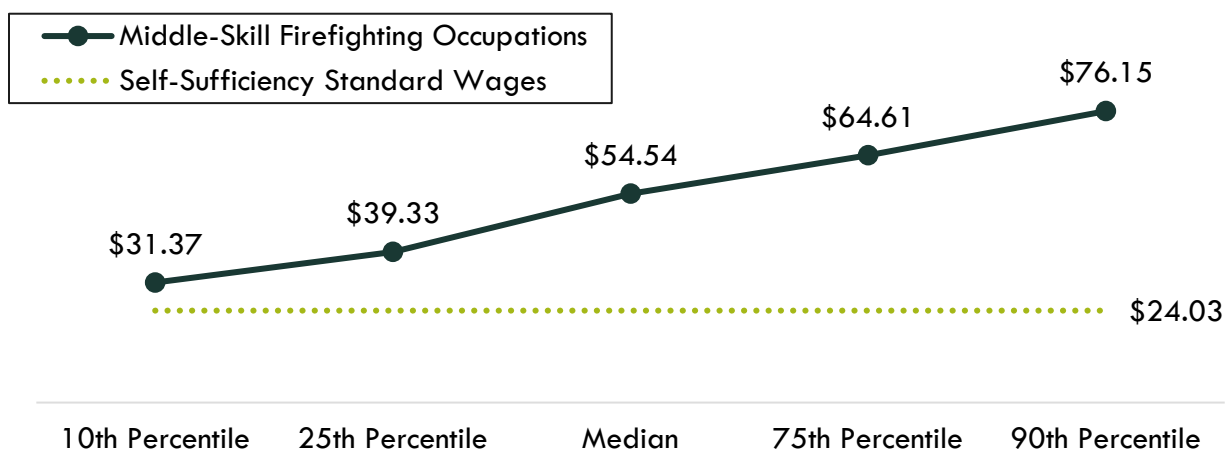
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
First-Line Supervisors of Firefighting and Prevention Workers	\$53.55	\$76.01	\$76.01	\$158,100
Firefighters	\$35.09	\$44.07	\$57.38	\$91,700
Fire Inspectors and Investigators	\$25.84	\$40.81	\$55.04	\$84,900
Forest Fire Inspectors and Prevention Specialists	\$31.55	\$43.65	\$50.69	\$90,800

*Rounded to the nearest \$100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are \$39.33; this is above the living wage for one single adult in Los Angeles County (\$24.03). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

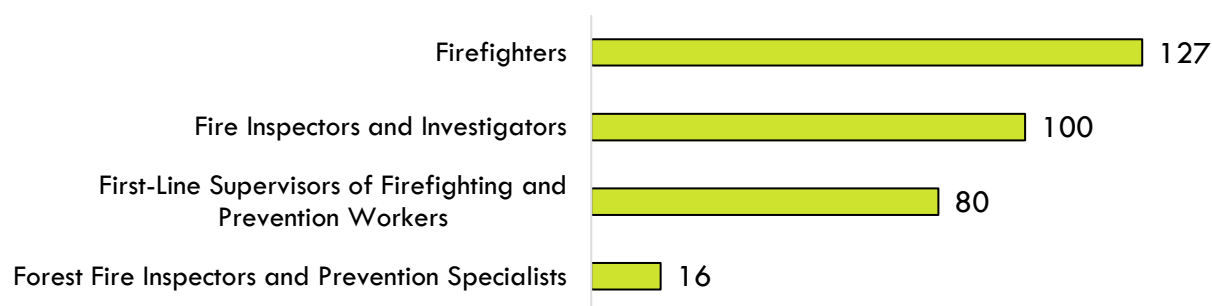
Exhibit 5: Average hourly earnings for target occupations, Los Angeles and Orange counties



JOB POSTINGS

There were 323 online job postings related to middle-skill firefighting occupations listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (39%) were for *firefighters*, followed by *fire inspectors and investigators* (31%) and *first-line supervisors of firefighting and prevention workers* (25%).

Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
• Firefighters • Firefighters/paramedics • Wildland firefighters • Fire prevention specialists • Rescue technicians • Fire extinguisher technicians • Fire marshals • Fire protection inspectors	• Fire prevention • Firefighting • Fire protection • Fire suppression systems • Fire safety • NFPA (National Fire Protection Association) codes • Fire science	• Orange County Fire Authority • Total Safety • United States Forest Service • County of Los Angeles • State of California • City of Torrance • UniFirst

In the greater Los Angeles/Orange County region, 58% of the target job postings listed a minimum educational requirement. Exhibit 8 details the number and percentage of job postings by educational level.

Exhibit 8: Education levels requested in job postings for target occupations, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	22	12%
Associate degree	40	22%
High school diploma or vocational training	124	67%

EDUCATIONAL ATTAINMENT

In the greater Los Angeles/Orange County region, the majority of annual job openings (99%) typically require a postsecondary non-degree award (Exhibit 9). Furthermore, the national-level data indicates between 47% and 59% of workers in the field have completed some college or an associate degree as their highest level of educational attainment. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

Exhibit 9: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
First-Line Supervisors of Firefighting and Prevention Workers	Postsecondary non-degree award
Firefighters	Postsecondary non-degree award
Fire Inspectors and Investigators	Postsecondary non-degree award
Forest Fire Inspectors and Prevention Specialists	High school diploma or equivalent

EDUCATIONAL SUPPLY

Community College Supply

Exhibit 10 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Santa Ana, Rio Hondo, and East LA.

Exhibit 10: Regional community college awards (certificates and degrees), 2023-2025

TOP Code	Program	College	2022-23 Awards	2023-24 Awards	2024-25 Awards	3-Year Average
2133.00	Fire Technology	East LA	21	14	13	16
		El Camino	26	45	60	44
		Glendale	23	15	19	19
		LA Harbor	-	-	2	1
		LA Valley	8	16	21	15
		Long Beach	89	55	63	69
		Mt San Antonio	100	95	105	100
		Pasadena	-	10	17	9
		Rio Hondo	180	156	188	175
		West LA	8	8	9	8
		LA Subtotal	455	414	497	455
		Santa Ana	360	420	509	430
		OC Subtotal	360	420	509	430
		Supply Subtotal/Average			815	834
2133.10	Wildland Fire Technology	Mt San Antonio	-	-	1	0
		Rio Hondo	11	14	15	13
		LA Subtotal	11	14	16	14
Supply Subtotal/Average			11	14	16	14
2133.50	Fire Academy	East LA	175	160	315	217
		El Camino	10	14	40	21
		Rio Hondo	77	74	86	79
		LA Subtotal	262	248	441	317
Supply Subtotal/Average			262	248	441	317
Supply Total/Average			1,088	1,096	1,463	1,216

Of these 1,216 average annual awards fire technology awards issued by regional community colleges, 330 were associate degrees (27%), 633 were certificates greater than 16 units (52%), and 253 were low-unit certificates (21%). Although hiring preferences for entry-level firefighters vary by agency type (Federal, State/Cal-Fire, Local/Municipal/County, or Private), it is unlikely

that these 253 low-unit certificates are sufficient for employment as a firefighter. Therefore, a more accurate and realistic estimate of community college supply for fire technology is 963 average annual community college awards. The breakdown of award types is displayed in Exhibit 11.

Exhibit 11: Community college awards by award type, 2023-2025

Award Type	# of Colleges Issuing Awards	3-Year Average Award Total	% of Total Awards
Associate degree	11	330	27%
Certificate 30 < 60 semester units	5	22	2%
Certificate 16 < 30 semester units	10	611	50%
Certificate 6 < 18 semester units	1	253	21%
Supply Total/Average	11	1,216	100%

Other Postsecondary Supply

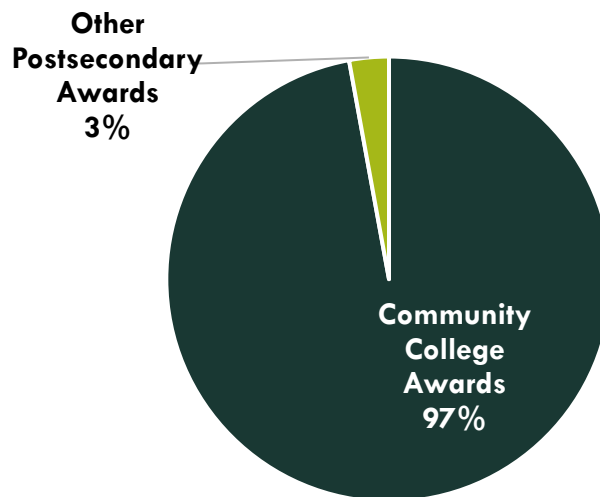
For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for firefighting. Exhibit 12 shows the number of awards conferred by this institution in relevant programs. Due to different data collection periods, the most recent data is from 2022 to 2024. Between 2022 and 2024, other postsecondary college institutions in the region conferred an average of 36 bachelor's degrees.

Exhibit 12: Other regional postsecondary awards, 2022-2024

CIP Code	Program	Postsecondary Institution	2021-22 Awards	2022-23 Awards	2023-24 Awards	3-Year Average
43.0202	Fire Services Administration	CSU-Los Angeles	32	39	38	36
Supply Total/Average			32	39	38	36

Exhibit 13 shows the proportion of community college awards conferred in the greater Los Angeles/Orange County region compared to the number of other postsecondary awards for the programs in this report. The majority of awards conferred in these programs are awarded by community colleges in the greater Los Angeles/Orange County region.

Exhibit 13: Percentage of community college awards compared to other postsecondary institution awards in the Los Angeles/Orange County region



APPENDIX: OCCUPATION DESCRIPTIONS

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- **First-Line Supervisor of Firefighting and Prevention Workers (33-1021)** Directly supervise and coordinate activities of workers engaged in firefighting and fire prevention and control.⁹
- **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.¹⁰
- **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.¹¹
- **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.¹²

⁹ [First-Line Supervisors of Firefighting and Prevention Workers \(bls.gov\)](#)

¹⁰ [Firefighters \(bls.gov\)](#)

¹¹ [Fire Inspectors \(bls.gov\)](#)

¹² [Ibid.](#)

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**DATA SOURCES**

- O*NET Online
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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