

Program Endorsement Brief: 2133.10 – Wildland Fire Technology Wildland Firefighter

Los Angeles/Orange County Center of Excellence, September 2021

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met <input type="checkbox"/>	Endorsed: Some Criteria Met <input checked="" type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/> (See comments below)	
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Emerging Occupation(s)			
Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

The Los Angeles/Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to five middle-skill occupations:

- *Forest and conservation technicians (19-4071),*
- *First-line supervisors of firefighting and prevention workers (33-1021),*
- *Firefighters (33-2011),*
- *Fire inspectors and investigators (33-2021), and*
- *Forest fire inspectors and prevention specialists (33-2022)*

Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.¹ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, it is unclear if there is a supply gap in the region for the five fire-related occupations (see next page for details). Despite this, four of the five occupations in this report typically require a postsecondary non-degree or an associate degree for entry and the majority of annual job openings have entry-level wages that exceed the self-sufficiency standard in both Los Angeles and Orange counties. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

¹ 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.

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **944 jobs available annually** in the region due to new job growth and replacements, **which is less than the 2,963 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – In Los Angeles County, **the majority (92%) of annual job openings for the fire-related occupations of interest have entry-level wages above the county's self-sufficiency standard wage** (\$18.10 in Los Angeles County).²
- **Educational Criteria** – Within the LA/OC region, **90% of the annual job openings** for occupations related to fire technology **typically require a postsecondary non-degree award**.
 - National-level educational attainment data indicates **between 37% and 60% of workers in the field have completed some college or an associate degree**.

Supply:

- Due to inconsistencies in reporting automatically awarded, local low-unit certificates, the number of awards conferred may be overstated. Additionally, it is unclear whether these low-unit certificates adequately train for the occupations in this report when compared to higher-unit programs. Therefore, **the three-year average number of awards is overstated**.
 - Between 2017 and 2020, **13 community colleges** in the region have issued awards in programs that have historically trained for the occupations of interest, conferring an average of **2,924 awards**.
 - Supply data includes **6,220 low-unit certificates (6 < 18 semester units), many of which were automatically conferred (also known as auto-awarded) by Santa Ana College between 2017 and 2020**. Awards were automatically conferred to both current and past students who had completed the unit requirements within the past few years. However, this low-unit program may not have adequately prepared students for the occupations within this report, as compared to higher-unit programs at Santa Ana College and throughout the region. Therefore, **the three year-average number of awards is overstated**.
 - Further, data from LaunchBoard indicates that the number of students earning awards from community college firefighting programs is much lower than the number of awards issued. This suggests that students are likely earning multiple awards and thus, **the three-year average number of awards is overstated**.
 - Between 2016 and 2019, one institution conferred an average of **39 awards in program(s) training for the occupation(s) of interest**.

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California on 9/1/2021. For more information, visit: <http://selfsufficiencystandard.org/california>.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the five fire-related occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 7% through 2025. There will be more than 940 job openings per year through 2025 due to job growth and replacements.

This report includes employment projection data by Emsi which uses EDD information. 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. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it 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. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Los Angeles	9,354	9,979	625	7%	772
Orange	2,114	2,244	130	6%	172
Total	11,469	12,223	754	7%	944

Wages

The labor market endorsement in this report considers the entry-level hourly wages for the five fire-related 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 LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County — The majority (92%) of annual openings for the five fire-related occupations have entry-level wages **above** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$17.37 and \$68.93. The only occupation in this report with wages below the county's self-sufficiency standard is *forest and conservation technicians* (\$17.37). Experienced workers can expect to earn wages between \$29.77 and \$102.54, which are higher than the self-sufficiency standard.

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Orange County — The majority (91%) of annual openings for the five fire-related occupations have entry-level wages **above** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$16.08 and \$62.70. The only occupation in this report with wages below the county’s self-sufficiency standard is *forest and conservation technicians* (\$16.08). Experienced workers can expect to earn wages between \$27.66 and \$93.28, which are higher than the self-sufficiency standard.

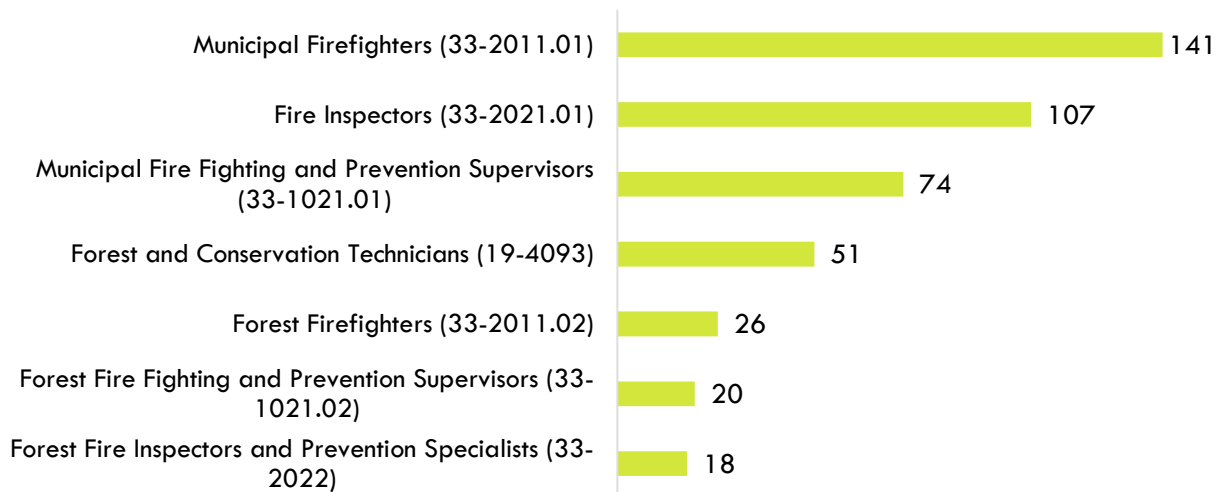
Job Postings

Over the past 12 months, there have been 437 online job postings related to fire technology occupations. Exhibit 2 displays the number of job postings by occupation. The majority of job postings (32%) were for *municipal firefighters* (33-2011.01), followed by *fire inspectors* (33-2021.01) (24%) and *municipal fire fighting and prevention supervisors* (33-1021.01) (17%). Together, the four forest-related occupations/emerging occupations accounted for 26% of job postings: *forest and conservation technicians* (19-4093); *forest firefighters* (33-2011.02), *forest fire fighting and prevention supervisors* (33-1021.02); and *forest fire inspectors and prevention specialists* (33-2022.00).

The highest number of job postings were for firefighter/paramedics, firefighters, forestry technicians, fire inspectors, and firefighter trainees. The top skills were fire protection, fire suppression, repair, cardiopulmonary resuscitation (CPR), and scheduling. The top employers, by number of job postings, in the region were Orange County Fire Authority, Allied Universal, and the U. S. Department of Agriculture, Forest Service.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Exhibit 2: Job postings by occupation (last 12 months)



Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the fire occupations in this report:

- **Associate degree:** *Forest and conservation technicians (19-4071)*
- **Postsecondary non-degree award:** *First-line supervisors of firefighting and prevention workers (33-1021); Firefighters (33-2011); and Fire inspectors and investigators (33-2021)*
- **High school diploma or equivalent:** *Forest fire inspectors and prevention specialists (33-2022)*

In the LA/OC region, the majority of annual job openings (90%) typically require a postsecondary non-degree award. National-level educational attainment data indicates between 37% and 60% of workers in the field have completed some college or an associate degree.

Educational Supply

Community College Supply — Exhibit 3 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes: Forestry (0114.00), Fire Technology (2133.00), Wildland Fire Technology (2133.10), and Fire Academy (2133.50). The colleges with the most completions in the region are Santa Ana, Rio Hondo, and East LA. Over the past 12 months, there was one other related program recommendation request from a regional community college.

NOTE: Supply data includes 6,220 low-unit certificates (6 < 18 semester units) automatically conferred by Santa Ana College from 2017- to 2020. Local awards were automatically conferred to both current and past students who had completed the unit requirements within the past 3-5 years. It is unclear if this number double-counts students who previously exited the program and are already working in the field, or if these students are necessarily prepared to work in occupations related to fire technology, as compared to students who completed higher-unit awards. Since this completion data is included within the regional average supply data, the three year-average number of awards (2,924) is overstated.

Exhibit 3: Regional community college awards (certificates and degrees), 2017-2020

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0114.00	Forestry	Citrus	15	18	32	22
		LA Subtotal	15	18	32	22
Supply Subtotal/Average			15	18	32	22
2133.00	Fire Technology	Compton	1	-	-	0
		East LA	185	162	53	133
		El Camino	44	39	40	41
		Glendale	8	34	43	28
		LA Harbor	3	2	-	2
		LA Valley	16	21	10	16

TOP Code	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
		Long Beach	44	58	44	49
		Mt San Antonio	97	118	82	99
		Pasadena	18	8	2	9
		Rio Hondo	136	168	186	163
		West LA	2	2	8	4
		LA Subtotal	554	612	468	545
		Santa Ana	5,810	524	509	2,281
		OC Subtotal	5,810	524	509	2,281
Supply Subtotal/Average			6,364	1,136	977	2,826
2133.10	Wildland Fire Technology	Rio Hondo	8	22	13	14
		LA Subtotal	8	22	13	14
Supply Subtotal/Average			8	22	13	14
2133.50	Fire Academy	Compton	-	1	-	0
		East LA	9	7	14	10
		El Camino	19	35	27	27
		Rio Hondo	-	-	76	25
		LA Subtotal	28	43	117	63
Supply Subtotal/Average			28	43	117	63
Supply Total/Average			6,415	1,219	1,139	2,924

Non-Community College 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 fire occupations. Exhibit 4 shows the annual and three-year average number of awards conferred by this institution in the related Classification of Instructional Programs (CIP) Code: Fire Services Administration (43.0202). Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, four-year colleges in the region conferred an average of 39 awards annually in related training programs.

Exhibit 4: Regional non-community college awards, 2016-2019

CIP Code	Program	College	2016-17 Awards	2017-18 Awards	2018-19 Awards	3-Year Average
43.0202	Fire Services Administration	CSU-Los Angeles	40	37	40	39
Supply Total/Average			40	37	40	39

Appendix A: Occupational demand and wage data by county

Exhibit 5. Los Angeles County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Forest and Conservation Technicians (19-4071)	531	558	27	5%	65	\$17.37	\$23.10	\$29.77
First-Line Supervisors of Firefighting and Prevention Workers (33-1021)	484	556	72	15%	44	\$68.93	\$90.81	\$102.54
Firefighters (33-2011)	8,021	8,515	494	6%	625	\$36.32	\$44.42	\$63.23
Fire Inspectors and Investigators (33-2021)	212	230	17	8%	24	\$50.34	\$69.10	\$77.78
Forest Fire Inspectors and Prevention Specialists (33-2022)	106	121	15	14%	14	\$35.90	\$45.44	\$55.63
Total	9,354	9,979	625	7%	772			

Exhibit 6. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Forest and Conservation Technicians (19-4071)	124	133	9	7%	16	\$16.08	\$21.43	\$27.66
First-Line Supervisors of Firefighting and Prevention Workers (33-1021)	108	124	16	15%	10	\$62.70	\$82.60	\$93.28
Firefighters (33-2011)	1,808	1,907	99	5%	138	\$33.05	\$40.43	\$57.55
Fire Inspectors and Investigators (33-2021)	48	51	3	6%	5	\$46.28	\$63.52	\$71.51
Forest Fire Inspectors and Prevention Specialists (33-2022)	25	28	3	13%	3	\$32.84	\$41.56	\$50.88
Total	2,114	2,244	130	6%	172			

Exhibit 7. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Forest and Conservation Technicians (19-4071)	656	691	36	5%	81	Associate degree
First-Line Supervisors of Firefighting and Prevention Workers (33-1021)	593	680	87	15%	53	Postsecondary non-degree award
Firefighters (33-2011)	9,829	10,422	593	6%	763	Postsecondary non-degree award
Fire Inspectors and Investigators (33-2021)	261	281	20	8%	30	Postsecondary non-degree award
Forest Fire Inspectors and Prevention Specialists (33-2022)	131	149	18	14%	17	HS diploma or equivalent
Total	11,469	12,223	754	7%	944	

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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