Fire Inspectors and Investigators

Inland Empire/Desert Region (Riverside and San Bernardino counties combined)

This workforce demand report uses state and federal job projection data developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.

Summary

- Community college fire technology programs may prepare students to be fire inspectors and investigators. This occupation is considered **an essential critical infrastructure occupation**.

- Employment for *fire inspectors and investigators* is expected to **increase by 12% between 2019 and 2024**. A total of **8 annual job openings** will be available each year over the five-year timeframe.

- The **10th percentile hourly wage** for this occupation is **$25.57 per hour, above the $19.94 per hour self-sustainable hourly wage** estimate for a single adult with one child in the region.

- There were **129 awards issued** from regional community college programs related to fire technology over the last three academic years.

Introduction

The California Community College fire technology program prepares students for employment through the instruction of the principles and techniques of preventing, controlling, and extinguishing fires, including firefighter operations, maintenance of fire fighting equipment, fire rescue procedures, and applicable laws and regulations (Taxonomy of Programs, 2012). The occupation is closely related to the training offered by this program is the *fire inspectors and investigators*.

Fire Inspectors and Investigators (SOC 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.

Sample job titles: Arson Investigator, Fire and Explosion Investigator, Fire Code Inspector, Fire Inspector, Fire Investigator, Fire Official, Fire Prevention Inspector, Fire Prevention Specialist, Fire Protection Specialist, Fire Safety Inspector

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: Between one and twelve months on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 58%

Fire inspectors and investigators are considered an essential critical infrastructure occupation identified by the Public Policy Institute of California. This classification of occupations is vital in supporting California's basic economic and safety needs (Bohn et al.). Despite the ongoing pandemic, employment demand should continue due to this occupation's critical nature and social distance ability.

Job Opportunities

In 2019, there were 65 fire inspector and investigator jobs in the Inland Empire/Desert Region (IEDR). This occupation is projected to increase employment by 12% through 2024. Employers are expected to have eight annual job openings over the next five years to fill new jobs and backfill jobs that workers are permanently vacating (includes occupational transfers and retirements). Exhibit 1 displays five-year projected job growth in the region.

Exhibit 1: Five-year projections for fire inspectors and investigators, IEDR

2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
65	73	12%	47	8	~20%

Source: EMSI 2020.4

In 2019, there were 1,046 fire inspector and investigator jobs across the state. This occupation is projected to increase employment by 6% through 2024. Employers are expected to have 111 annual job openings over the next five years. Exhibit 2 displays five-year projected job growth in California.

Exhibit 2: Five-year projections for fire inspectors and investigators, California

2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
1,046	1,111	6%	668	111	27%

Source: EMSI 2020.4

Exhibit 3 displays historical (2014 to 2019) and projected (2019-2024) jobs for *fire inspectors and investigators* in the Inland Empire/Desert Region and California. Demand for this occupation is expected to increase nearly twice as fast in the region (up 9%) than in the state (up 5%) over the next five years.

Exhibit 3: Historical and projected jobs for fire inspectors and investigators in the Inland Empire/Desert Region
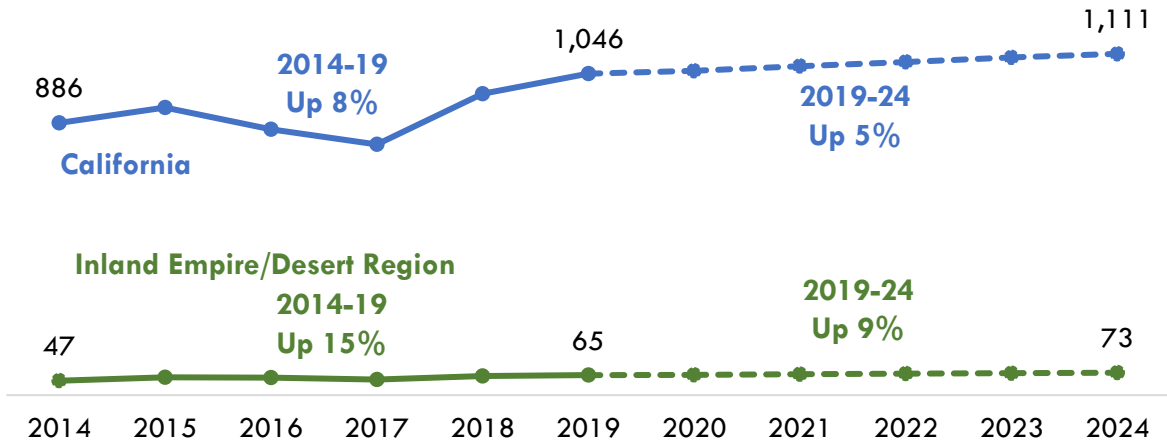
*(green) and California (blue), 2014 – 2024*
Source: EMSI 2020.4

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide a self-sustainable level of income. The Family Needs Calculator estimates that a self-sustainable wage for a single adult with one school-age child is $19.94 per hour or $41,475 annually in Riverside County, $19.49 per hour or $40,539 annually in San Bernardino County (Pearce & Manzer, 2018). For this study, the higher hourly wage requirement in Riverside County is adopted as the self-sufficiently standard for the two-county region.

The 10th percentile hourly wage for *fire inspectors and investigators* is above the Family Needs Calculator self-sustainability rate, indicating that 90% of workers in the field earn wages above the self-sustainability rate. Exhibit 4 displays the hourly earnings for each occupation in the IEDR and California.

Exhibit 4: Hourly earnings for fire inspectors and investigators in the IEDR (green) and California (blue)
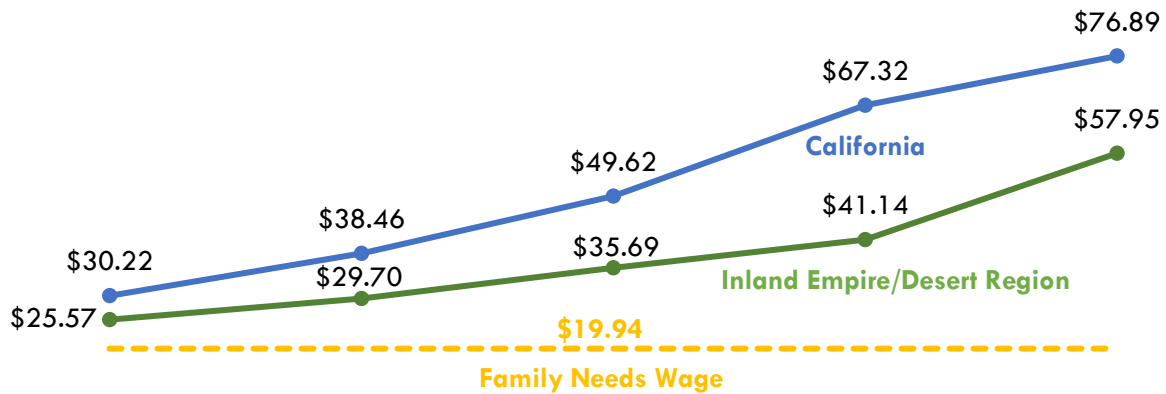
| 10th Percentile Hourly Earnings | 25th Percentile Hourly Earnings | Median Hourly Earnings | 75th Percentile Hourly Earnings | 90th Percentile Hourly Earnings |

California: $30.22, $38.46, $49.62, $67.32, $76.89
Inland Empire/Desert Region: $25.57, $29.70, $35.69, $41.14, $57.95
Family Needs Wage: $19.94

Source: EMSI 2020.4

While the occupational guides developed by the California Labor Market Information Division typically provide benefit information, this information is not available for *fire inspectors and investigators* (Detailed Occupational Guides, 2020).

Job Advertisements

Exhibit 5 displays the number of job ads posted between November 2019 and October 2020 in California. Of the 86 unique job advertisements posted in California, 7% (6 unique ads) were posted in the IEDR. Time to fill information was not available for the IEDR. The average time to fill for *fire inspectors and investigators* in California is 30 days.

Exhibit 5: Job ads and time to fill

Occupation	Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
Fire Inspectors and Investigators	86	32	30

Source: EMSI

Employers, Skills, Education, and Work Experience

Exhibit 6 displays the California employers posted at least five unique advertisements for *fire inspectors and investigators.*

Exhibit 6: Employers posting the most job ads for fire inspectors and investigators

Employers	Unique Job Ads
University of California	9
Liberty Mutual Insurance Company	6
Western States Fire Protection	6
Donan Engineering Co. Inc	5
County of Contra Costa	5
All other employers	55
Total	**86**

Source: EMSI

Exhibit 7 displays a sample of specialized and employability skills employers seek when looking for workers to fill *fire inspector and investigator* positions. Hard skills are occupation-specific skills that employers request for industry or job competency. Common skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job postings may be utilized as a helpful guide for curriculum development.

Exhibit 7: Sample of in-demand skills from employer job ads

Hard Skills	Employability Skills
• NFPA (National Fire Protection Association) Codes	• Investigation
• Fire Prevention	• Communications
• Fire Investigation	• Valid Driver's License
• Fire and Life Safety	• Operations
• Firefighting	• Management
• Fire Safety	• Customer Service
• Fire Suppression Systems	• Professionalism
• Fire Service	• Grammar

Source: EMSI

Exhibit 8 displays the entry-level education typically required to be a *fire inspector and investigator* according to the Bureau of Labor Statistics (BLS), educational attainment for incumbent workers with "some

college, no degree" and an "associate degree" according to the U.S. Census (2016-17) and the real-time minimum advertised education requirement from employer job ads. The share of job ads displaying educational requirement does not sum to 100% because employers request different education levels in combination with certifications or work experience. 42% of employers did not list an education level.

Exhibit 8: Typical entry-level education, educational attainment, and minimum advertised education requirements for fire inspectors and investigators

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
			Number of Job Ads	High school diploma or GED	Associate degree	Bachelor's degree or higher
Fire Inspectors and Investigators	Postsecondary nondegree award	58%	86	31%	14%	24%

Source: EMSI

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework

Exhibit 9 displays the work experience typically required to be *fire inspectors and investigators* and the real-time work experience requirements from employer job ads.

Exhibit 9: Work experience required and real-time work experience requirements

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of Job Ads	0 − 1 year	2 − 3 years	4+ years
Fire Inspectors and Investigators	Five years or more	86	54%	38%	8%

Source: EMSI

Certifications

Fire Inspector Certifications

Fire Inspector 1: The first certification in the California Fire Inspector professional certification series. This certification covers those subject areas and skills necessary to conduct basic routine fire inspections and code enforcement. According to the State Fire Training (SFT) Procedures Manual, individuals must complete the Fire Inspector 1 Certification Task Book and have a minimum of one year's full-time paid experience or

two years of part-time paid experience in a recognized fire agency before Fire Inspector 1 employment (California Office of the State Fire Marshal, p. 188).

Fire Inspector 2: This certification covers those subject areas and skills necessary for an in-depth understanding of the California Building Code, California Fire Code, fire protection systems, building components, and fire problems in special occupancies. According to the State Fire Training (SFT) Procedures Manual, individuals must complete the Fire Inspector 2 Certification Task book and have a minimum of two years' full-time paid experience in a recognized fire agency in California as a fire inspector prior to fire inspector 2 employment (California Office of the State Fire Marshal, p. 190).

Fire Investigator Certifications

Fire Investigator: The fire investigator certification provides the knowledge and skills needed to determine fire origin, conduct scene documentation, and evidence collection, develop an interview plan, and testify in legal proceedings. According to the State Fire Training (SFT) Procedures Manual, individuals must complete the Fire Investigator Certification Task Book and have a minimum of two years' full-time paid experience in a recognized fire agency in California with the primary duty as a Fire Investigator (California Office of the State Fire Marshal, pg. 159). This certification replaced Fire Investigator 1 and 2 beginning on December 31, 2018.

Exhibit 10 displays the certifications required by employers posting job ads for *fire inspectors and investigators* in California. Fire inspectors must complete HAZMAT First Responder Awareness training in addition to fire inspector-specific course work. Fire inspectors are also required to obtain one year of full-time work experience or two years of part-time paid experience before employment. This occupation requires the completion of a task book, which includes all the necessary certifications and tasks to complete before licensure. None of these requirements were listed in online employer job postings. The Office of the

State Fire Marshall website provides detailed information on the certifications required for *fire inspectors and investigators* (Cal Fire, April 2019).

Exhibit 10: Certifications required by employer job ads for fire inspectors and investigators

Occupation	Certifications
Fire Inspectors and Investigators *(n=91)*	• Certified Fire Inspector 1 *(22 ads)* • Certified Fire Inspector *(17 ads)* • Certified Fire Inspector and Explosion Investigator *(16 ads)* • Certified Fire Investigator *(5 ads)* • Certified First Responder *(4 ads)*

Source: EMSI

Student Completions and Program Outcomes

The following section details student completions and program outcomes recorded in fire technology (2133.00) programs. Exhibits 12 displays annual average completion data for the California Community College fire technology programs based on the most recent three academic years.

Exhibit 12: 2016-19, Annual average community college awards for the fire technology programs in the IEDR

2133.00 – Fire Technology	Associate degree	Certificate requiring 30< 60-semester units	Certificate requiring 18< 30-semester units	CCC Annual Average Awards, Academic Years 2016-19
Chaffey	16	-	18	34
Copper Mountain	4	1	0	5
Crafton Hills	16	-	-	16
Desert	5	-	4	9
Moreno Valley	15	-	20	35
Mt. San Jacinto	9	4	-	13
Victor Valley	18	-	-	18
Total	**82**	**4**	**43**	**129**

Source: MIS Data Mart

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP codes and region is provided in Exhibit 13. Dashes indicate there were too few students from which to obtain reliable

program outcome information. The outcome methodology is available in the appendix section of this report.

Exhibit 13: 2133.00 – Fire technology strong workforce program outcomes

Strong Workforce Program Metrics: 2133.00 – Fire Technology Academic Year 2017-18, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2018-19)	3,498	27,464
Completed 9+ career education units in one year (2018-19)	18%	26%
Perkins Economically disadvantaged students (2018-19)	52%	52%
Students who attained a noncredit workforce milestone in a year (2018-19)	-	28%
Students who earned a degree, certificate, or attained apprenticeship (2018-19)	139	1,576
Transferred to a four-year institution (transfers)	20	360
Job closely related to the field of study (2016-17)	71%	73%
Median annual earnings (all exiters)	$54,358	$63,336
Median change in earnings (all exiters)	31%	28%
Attained a living wage (completers and skills-builders)	73%	71%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Contact

Michael Goss, Center of Excellence
Inland Empire/Desert Region
michael.goss@chaffey.edu
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Methodology

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from records provided by California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2020a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2020a).

Job postings data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by

Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job postings often do not reveal the hiring intentions of employers; it is unknown if employers plan to hire one or multiple workers from a single online job posting, or if they are collecting resumes for future hiring needs. A closed job posting may not be the result of a hired worker.

Table 1: 2019 to 2024 job growth, wages, education, training, and work experience required for fire inspectors and investigators, IEDR

Occupation (SOC)	2019 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage Range (25th to 75th percentile)	Median Hourly Wage (50th percentile)	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Fire Inspectors and Investigators (33-2021)	65	8	12%	8	$29.70 to $41.14	$35.69	$78,100	Postsecondary nondegree award & 1-12 months	5 years or more

Source: EMSI 2020.4

Table 2: 2019 to 2024 job growth, wages, education, training, and work experience required for fire inspectors and investigators, California

Occupation (SOC)	2019 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage Range (25th to 75th percentile)	Median Hourly Wage (50th percentile)	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Fire Inspectors and Investigators (33-2021)	1,046	65	6%	111	$38.46 to $67.32	$49.62	$107,300	Postsecondary nondegree award & 1-12 months	5 years or more

Source: EMSI 2020.4