

OCTOBER 2019

LABOR MARKET ANALYSIS

Firefighters and EMTs



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SUMMARY

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills and postsecondary supply for occupations related to firefighters and EMTs for Modesto Junior College. Four occupations were identified:

- Emergency Medical Technicians and Paramedics (SOC 29-2041)
- First-Line Supervisors of Fire Fighting and Prevention Workers (SOC 33-1021)
- Firefighters (SOC 33-2011)
- Fire Inspectors and Investigators (SOC 33-2021)

KEY FINDINGS:

- **Occupational demand** — Nearly 3,105 workers were employed in jobs related to firefighters and EMTs in 2018 in the North Central Valley/Northern Mother Lode subregion. The largest occupation is firefighters with 1,842 workers in 2018, a projected growth rate of 6% over the next five years, and 147 annual openings.
- **Wages** — The entry-level wages for all four occupations exceed the average self-sufficiency wage and living wage for a single adult in the subregion. The occupation earning the highest median wages is fire inspectors and investigators, \$46.53/hour in the subregion and \$47.12/hour in the region.
- **Employers** — Top employers in the region are Pro Transport, Army National Guard, and American Medical Response Incorporated.
- **Job titles** — The most common occupational title in job postings is emergency medical technicians and paramedics. The most common job title is emergency medical technician.
- **Skills and certifications** — The top baseline skill is physical abilities, the top specialized skill is CPR, and the top software skill is Microsoft Office. The most in-demand certification is EMT.
- **Education** — The typical education required for the four occupations is a postsecondary nondegree award.
- **Supply** — Analysis of postsecondary completions in the region shows that on average 486 awards were conferred in the Central Valley/Mother Lode region each year.

An undersupply of firefighters appears to exist in the subregion and region, 83 and 172 workers, respectively. There is an oversupply of 72 EMTs in the region, but an EMT certification is required for all firefighters. An undersupply of 43 EMTs exists in the subregion. The Center of Excellence recommends that Modesto Junior College work with the college's advisory board and local industry in the expansion of programs to address the shortage of firefighters and to evaluate whether an expansion of the college's existing EMT program is needed.

INTRODUCTION

The Central Valley/Mother Lode Center of Excellence was asked by Modesto Junior College to provide labor market information for firefighters and EMTs. Review of the Taxonomy of Programs revealed the following programs are appropriate for this analysis:

- Emergency Medical Services-125000
- Fire Academy-213350
- Fire Technology-213300

The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) region, but regional demand and supply data has been included for broader applicability and use. Analysis of the program and occupational data related to firefighters and EMTs resulted in the identification of four applicable occupations. The Standard Occupational Classification (SOC) System titles and codes used in this report are:

- Emergency Medical Technicians and Paramedics (SOC 29-2041)
- First-Line Supervisors of Fire Fighting and Prevention Workers (SOC 33-1021)
- Firefighters (SOC 33-2011)
- Fire Inspectors and Investigators (SOC 33-2021)

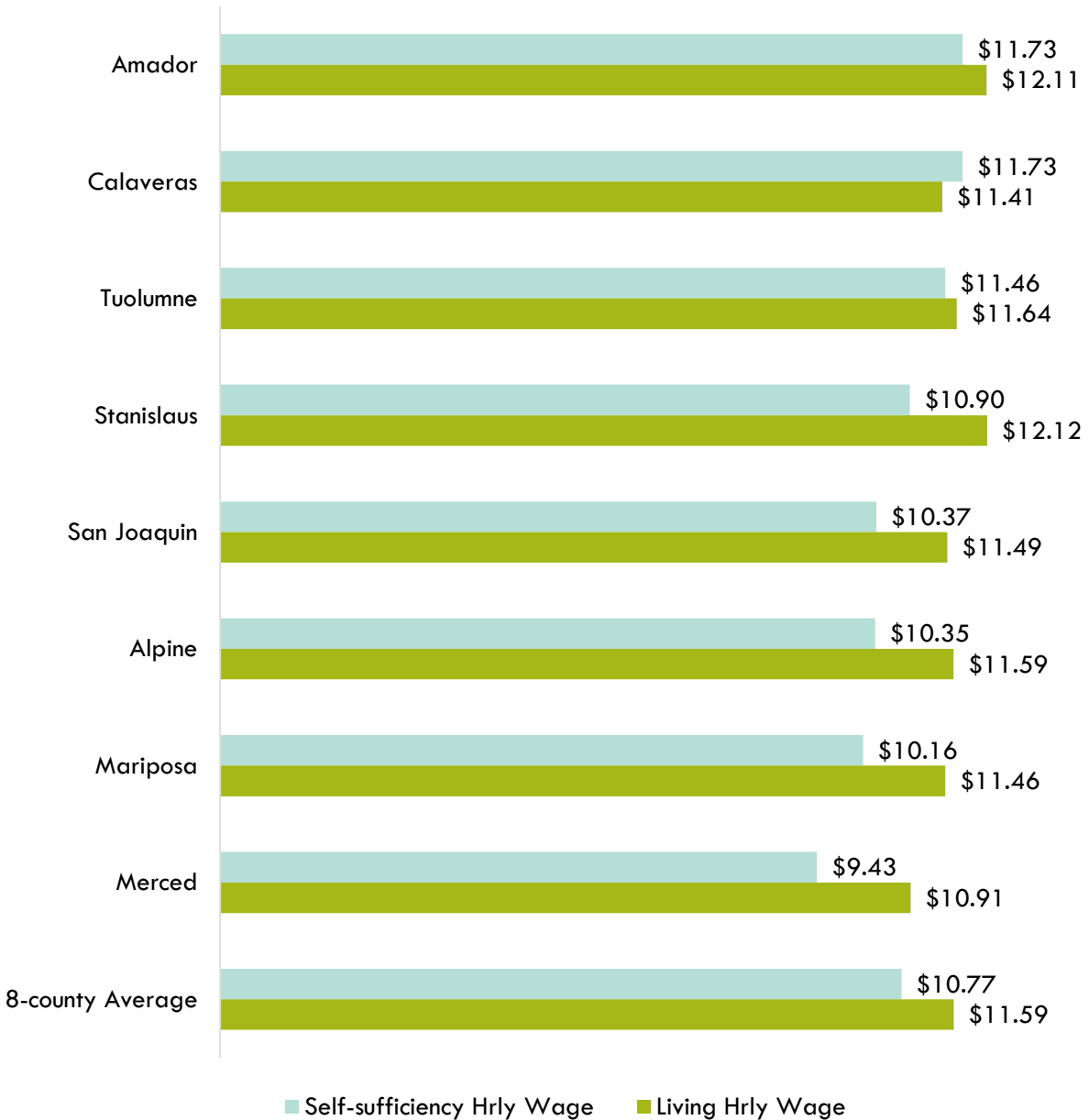
The SOC codes, occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown in Exhibit 1. O*NET data was not available for first-line supervisors of fire-fighting and prevention workers (SOC 33-1021); firefighters (SOC 33-2011); and fire inspectors and investigators (SOC 33-2021).

EXHIBIT 1. SOC titles, job descriptions, sample job titles, knowledge and skills for firefighters/EMTs

SOC TITLE & CODE	DESCRIPTION	SAMPLE JOB TITLES	KNOWLEDGE & SKILLS
Emergency Medical Technicians and Paramedics (SOC 29-2041)	Assess injuries, administer emergency medical care, and extricate trapped individuals. Transport injured or sick persons to medical facilities.	Emergency Medical Technician (EMT); Emergency Medical Technician, Basic (EMT, B); Emergency Medical Technician/Driver (EMT/DRIVER); EMT Intermediate (Emergency Medical Technician, Intermediate); EMT, Paramedic (Emergency Medical Technician, Paramedic); EMT/Dispatcher (Emergency Medical Technician/Dispatcher); First Responder; Flight Paramedic; Multi Care Technician (Multi Care Tech); Paramedic	Knowledge
			Customer and Personal Service Medicine and Dentistry English Language Public Safety and Security Education and Training
			Skills
			Critical Thinking Active Listening Coordination Speaking Service Orientation

The average self-sufficiency wage for a single adult in the North Central Valley/Northern Mother Lode (NCV/NML) subregion is \$10.77/hour, and the current average living wage for a single adult is \$11.59/hour. Self-sufficiency and living wage data by county and the overall eight-county average are shown in Exhibit 2. In the wages sections of this report, Pct. 25 hourly denotes entry-level wages, and median represents experienced wages.

EXHIBIT 2. Self-sufficiency and living wages in the NCV/NML subregion



OCCUPATIONAL DEMAND

The North Central Valley/Northern Mother Lode region employed nearly 3,105 workers in firefighters and EMTs occupations in 2018 (Exhibit 3). The largest occupation is firefighters with 1,842 workers in 2018. This occupation is projected to grow by 6% over the next five years and has the greatest number of projected annual openings, 147.

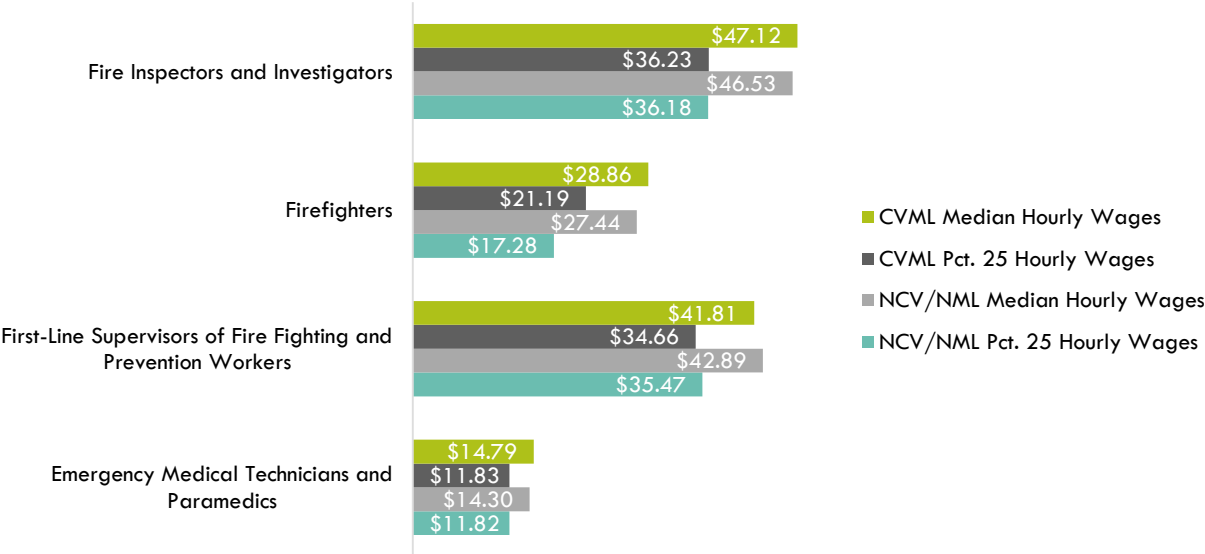
EXHIBIT 3. Firefighters and EMTs employment and occupational projections in the NCV/NML subregion

OCCUPATION	2018 JOBS	2023 JOBS	2018-2023 CHANGE	5-YEAR % CHANGE	ANNUAL OPENINGS
Firefighters	1,842	1,961	119	6%	147
Emergency Medical Technicians and Paramedics	1,107	1,224	117	11%	97
First-Line Supervisors of Fire Fighting and Prevention Workers	131	146	15	11%	12
Fire Inspectors and Investigators	24	28	4	17%	3
TOTAL	3,105	3,360	255	11%	260

WAGES

Exhibit 4 compares the entry-level and experienced wages of the firefighters and EMTs occupations. The entry-level wages for all four occupations exceed the region’s living wage and self-sufficiency wage for one adult. The occupation earning the highest median wages is fire inspectors and investigators, \$46.53/hour in the subregion and \$47.12/hour in the region.

EXHIBIT 4. Entry-level and experienced wage comparison for firefighters and EMTs in the subregion and region



JOB POSTINGS

There were 175 job postings for the four occupations in the North Central Valley/Northern Mother Lode subregion from October 2018 through September 2019. The top employers advertising these job postings are listed in Exhibit 5.

EXHIBIT 5. Top employers of firefighters and EMTs by number of job postings

EMPLOYER	JOB POSTINGS
Pro Transport	7
Army National Guard	7
American Medical Response Incorporated	7
Humana	6
Emergency Medical Services Authority	6
City Stockton	6
State of California	5
Dignity Health	5
ADT Security Services	5
Protransport 1	4

JOB TITLES

Exhibit 6 shows how job postings for the four targeted occupations in the subregion are distributed across five O*NET OnLine occupations. The majority of job postings, 110 in total, use the occupational title emergency medical technicians and paramedics, followed by fire inspectors and investigators, 30 job postings.

EXHIBIT 6. Top occupational titles in job postings for firefighters and EMTs

OCCUPATIONAL TITLE	JOB POSTINGS
Emergency Medical Technicians and Paramedics	110
Fire Inspectors and Investigators	30
First-Line Supervisors of Fire Fighting and Prevention Workers	23
Firefighters	12
Emergency Medical Technicians and Paramedics	110

Analysis of the 175 advertised job titles for the targeted occupations reveals the top title is emergency medical technician, occurring in 27 job postings, followed by paramedic, 20 job postings (Exhibit 7).

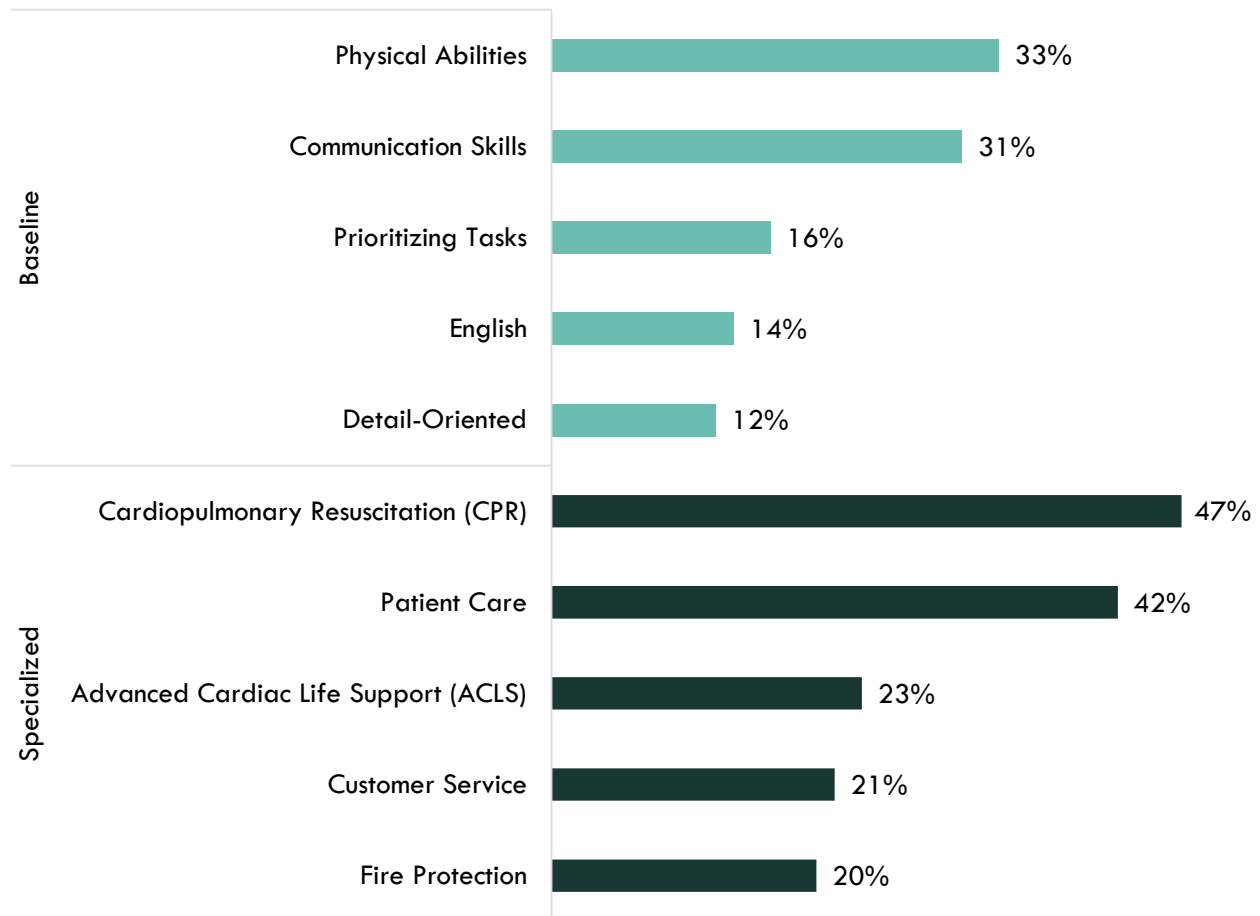
EXHIBIT 7. Top job titles by number of job postings for firefighters and EMTs

JOB TITLE	JOB POSTINGS
Emergency Medical Technician	27
Paramedic	20
Ed Technician	14
Firefighter	10
Fire Chief	10
Healthcare Specialist	9
Emt	9
Inspector	7

SKILLS

Exhibit 8 depicts the top baseline and specialized skills for the four targeted occupations. The three most important baseline skills are physical abilities, 33% of job postings, communication, 31%, and prioritizing tasks, 16%. The top three specialized skills are CPR, 47% of job postings, patient care, 42%, and advanced cardiac life support, 23%.

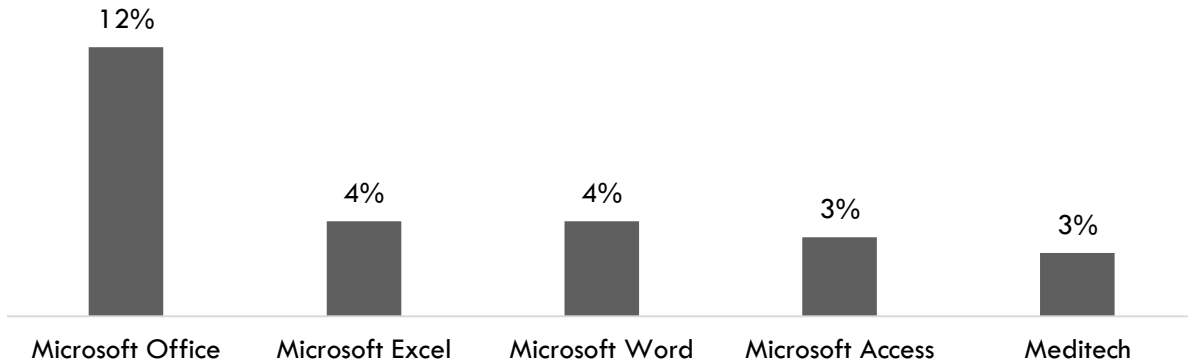
EXHIBIT 8. In-demand baseline and specialized skills for firefighters and EMTs



SOFTWARE SKILLS

Analysis also included the software skills most in demand by employers. Microsoft Office and Excel rank first and second (Exhibit 9).

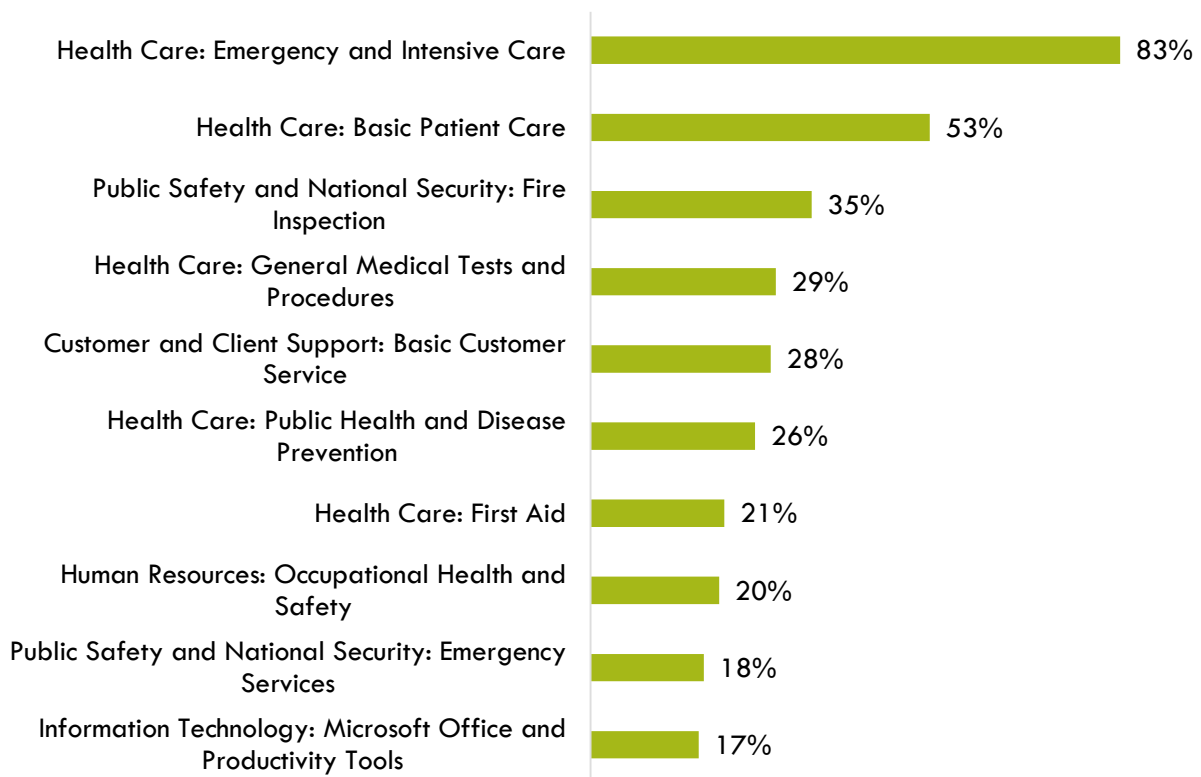
EXHIBIT 9. In-demand software skills for firefighters and EMTs



SKILL CLUSTER PROJECTIONS

Of the 175 job postings, 124 postings contained skill projections. An evaluation of the skill clusters that will have the greatest gains in level of importance shows that the top areas are health care: emergency and intensive care (83%); health care: basic patient care (53%); and public safety and national security: fire inspection (35%) (Exhibit 10).

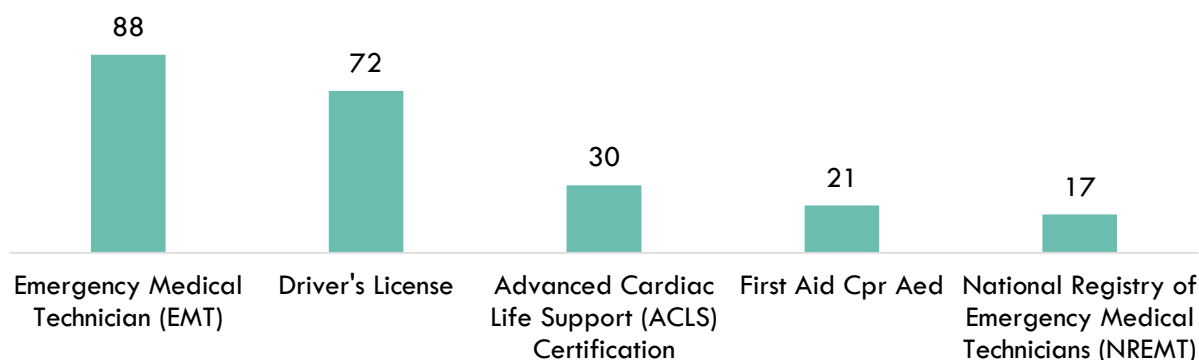
EXHIBIT 10. Skill cluster projections for firefighters and EMTs



CERTIFICATIONS

Of the 175 job postings, 88 indicated a need for a EMT. The next two top certifications are driver's license and Advanced Cardiac Life Support (Exhibit 11).

EXHIBIT 11. Top firefighters and EMTs certifications requested in job postings



EDUCATION, WORK EXPERIENCE AND TRAINING

All four occupations are middle-skill occupations requiring a postsecondary nondegree award and are relevant to community college education (Exhibit 12).

EXHIBIT 12. Education, work experience, training and Current Population Survey results for firefighters and EMTs¹

OCCUPATION	TYPICAL ENTRY-LEVEL EDUCATION	WORK EXPERIENCE REQUIRED	TYPICAL ON-THE-JOB TRAINING	CPS
Emergency Medical Technicians and Paramedics	Postsecondary nondegree award	None	None	66.6%
First-Line Supervisors of Fire Fighting and Prevention Workers	Postsecondary nondegree award	Less than 5 years	Moderate-term	57.9%
Firefighters	Postsecondary nondegree award	None	Long-term	61.1%
Fire Inspectors and Investigators	Postsecondary nondegree award	5 years or more	Moderate-term	51.6%

SUPPLY

Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP codes: Emergency Medical Services-125000; Fire Academy-213350; and Fire Technology-213300. Analysis of the last three years of TOP code data shows that, on average, 486 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 13).

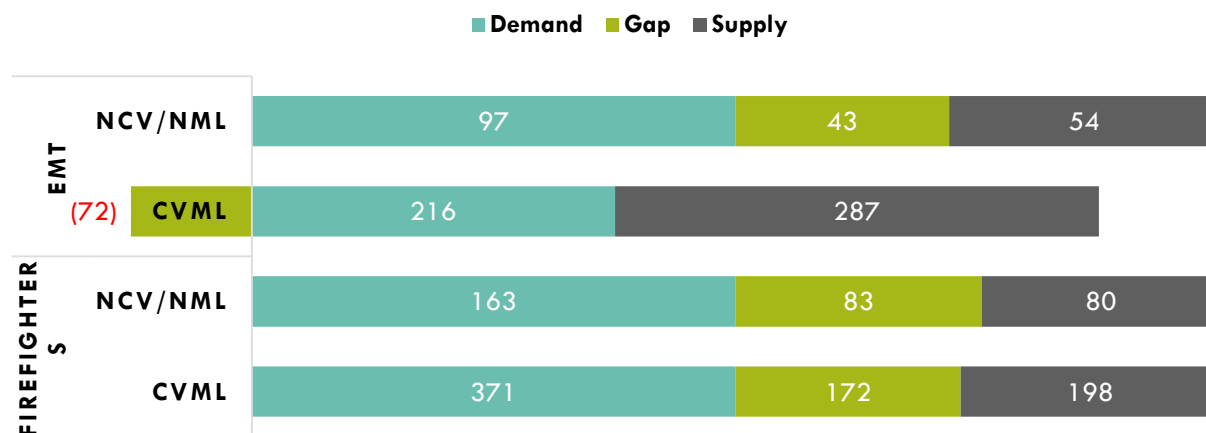
¹ "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

EXHIBIT 13. Postsecondary supply for firefighters and EMTs occupations in the region

TOP TITLE-CODE	COLLEGE	CERTIFICATES	DEGREES	OTHER	SUBTOTAL
Emergency Medical Services-125000	Bakersfield	145			145
	Cerro Coso	7			7
	Columbia	2	1	1	3
	Modesto Junior	51			51
	Porterville	39			39
	Sequoias				42
Fire Academy-213350	Bakersfield	0			0
	Fresno City	46			46
	Modesto Junior	24			24
	Sequoias	17			17
Fire Technology-213300	Bakersfield	15	20		35
	Columbia	14	12		26
	Fresno City	0	7		8
	Merced	1	7		8
	Modesto Junior	6	15		20
	Porterville	1			1
	San Joaquin Delta	0	1		2
	Sequoias	1	10		12
TOTAL		370	73	42	486

An undersupply of firefighters appears to exist in the subregion and region, 83 and 172 workers, respectively; however, there is an oversupply of 72 EMTs in the region and an undersupply of 43 EMTs in the subregion (Exhibit 14).

EXHIBIT 14. Workforce annual demand and supply in the NCV/NML subregion and region for firefighters and EMTs



STUDENT OUTCOMES

Exhibit 15 summarizes employment and wage outcomes from the California Community College Chancellor’s Cal-PASS Plus LaunchBoard for the TOP code related to firefighters and EMTs. Across the region, 158 EMT students and 127 fire academy students received a degree or certificate, and 133 EMT students transferred. A very high percentage of fire academy students, 97%, were employed in the second fiscal quarter after exit, compared to 76% of EMT students. More than 81% of EMT students reported a median change in earnings, and 65% of fire academy students reported a median change in earnings.

EXHIBIT 15: Regional metrics for the TOP codes related to firefighters and EMTs

METRIC	EMERGENCY MEDICAL TECHNOLOGY 125000	FIRE ACADEMY 213350
Students Who Got a Degree or Certificate	158	127
Number of Students Who Transferred	133	*
Employed in the Second Fiscal Quarter after Exit	76% (n=480)	97% (n=71)
Median Change in Earnings	81% (n=259)	65% (n=53)
Attained a Living Wage	57% (n=341)	66% (n=70)
Job Closely Related to Field of Study	*	*
*denotes data not available.		

CONCLUSION

The entry-level wages of the four occupations exceed the NCV/NML subregion’s self-sufficiency and living wages for one adult. There were 175 job postings in the past 12 months for occupations related to firefighters and EMTs in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is physical abilities, and the top specialized skill is CPR.
- The top software skill is Microsoft Office.
- The top certification is a EMT.

An undersupply of firefighters appears to exist in the subregion and region, 83 and 172 workers, respectively. There is an oversupply of 72 EMTs in the region. but an EMT certification is required for all firefighters. An undersupply of 43 EMTS exists in the subregion.

RECOMMENDATION

The Center of Excellence recommends that Modesto Junior College work with the college’s advisory board and local industry in the expansion of programs to address the shortage of firefighters and to evaluated whether an expansion of the college’s EMT program is needed.

APPENDIX A: METHODOLOGY & DATA SOURCES

DATA SOURCES

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor's Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

DATA TYPE	SOURCE
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: economicmodeling.com .
Living Wage	A living wage calculator that estimates the cost of living in a specific community or region: livingwage.mit.edu .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: www.bls.gov/emp/ep_education_tech.htm .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division, labormarketinfo.edd.ca.gov
Job Posting and Skills Data	Burning Glass, http://www.burning-glass.com/
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: www.onetonline.org

Key Terms and Concepts

Annual Job Openings: Annual openings are calculated by dividing the number of years in the projection period by total job openings.

Education Attainment Level: The highest education attainment level of workers age 25 years or older.

Employment Estimate: The total number of workers currently employed.

Employment Projections: Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

Living Wage: The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

Occupation: An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

Percent Change: Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

Replacements: Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

Total Job Openings (New + Replacements): Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

Typical Education Requirement: represents the typical education level most workers need to enter an occupation.

Typical On-The-Job Training: indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.

Wages Family Compositions: The living wage calculator estimates the living wage needed to support families. For single adult families, the adult is assumed to be employed full time. For two adult families where both adults are in the labor force, both adults are assumed to be employed full time. For two adult families where one adult is not in the labor force, one of the adults is assumed to be employed full time while the other non-wage-earning adult provides full-time child care for the family's children. Full-time work is assumed to be year-round, 40 hours per week for 52 weeks, per adult. Families with one child are assumed to have a 'young child' (4 years old). Families with two children are assumed to have a 'young child' and a 'child' (9 years old). Families with three children are assumed to have a 'young child,' a 'child,' and a 'teenager' (15 years old).