May 2021

Labor Market Analysis

Aviation Maintenance Technology

POWERED BY

California Community Colleges

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CENTERS OF EXCELLENCE
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Prepared by the Central Valley/Mother Lode Center of Excellence

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COVID-19 Statement: This report includes employment projection data by Emsi. 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 or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they 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. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

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Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

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

- 49-3011, Aircraft Mechanics and Service Technicians
- 51-2011, Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
- 49-2091, Avionics Technicians
  17-3021, Aerospace Engineering and Operations Technologists and Technicians

Key findings:

- **Occupational demand —** Nearly 1,770 workers were employed in jobs related to aviation maintenance technology in 2019 in the South Central Valley/Southern Mother Lode (SCV/SML) subregion. The largest occupation is aircraft mechanics and service technicians with 1,393 workers in 2019, a projected growth rate of 12% over the next five years, and 146 annual openings.

- **Wages —** Avionics technicians earn the highest entry-level wage, $32.91/hour in the subregion and $31.57/hour in the region.

- **Employers —** Employers with the most job postings in the subregion are DynCorp International, Iap Worldwide Services, and Crate & Barrel.

- **Occupational titles —** The most common occupational title in job postings in the subregion is aircraft mechanics and service technicians. The most common job title is avionics technician.

- **Skills and certifications —** The top baseline skill is physical abilities, the top specialized skill is repair, and the top software skill is Microsoft Office. The most in-demand certification is a security clearance.

- **Education —** A high school diploma or equivalent is typically required for aircraft structure, surfaces, rigging, and systems assemblers and a postsecondary nondegree award is typically required for aircraft mechanics and service technicians. The remaining two occupations typically require an associate degree.

- **Supply —** Analysis of postsecondary completions in the region shows that on average 42 awards were conferred in the Central Valley/Mother Lode region each year.

Based on a comparison of occupational demand and supply, there is an undersupply of 141 trained workers in the subregion and 171 workers in the region. The Center of Excellence recommends that Reedley College work with the college's advisory board, and local industry in the expansion of programs to address the shortage of aviation maintenance technology workers in the region.

Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Reedley College to provide labor market information for aviation maintenance technology. The geographical focus for this report is the South Central Valley/Southern Mother Lode (SCV/SML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the SCV/SML subregion is $10.30/hour.[1] Analysis of the program and occupational data related to aviation maintenance technology resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 49-3011, Aircraft Mechanics and Service Technicians
- 51-2011, Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
- 49-2091, Avionics Technicians
- 17-3021, Aerospace Engineering and Operations Technologists and Technicians

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O*NET OnLine are shown below.

Aircraft Mechanics and Service Technicians
Job Description: Diagnose, adjust, repair, or overhaul aircraft engines and assemblies, such as hydraulic and pneumatic systems.
Knowledge: Mechanical, English Language, Engineering and Technology, Customer and Personal Service, Mathematics
Skills: Equipment Maintenance, Repairing, Operation Monitoring, Troubleshooting, Complex Problem Solving

Aircraft Structure, Surfaces, Rigging, and Systems Assemblers
Job Description: Assemble, fit, fasten, and install parts of airplanes, space vehicles, or missiles, such as tails, wings, fuselage, bulkheads, stabilizers, landing gear, rigging and control equipment, or heating and ventilating systems.
Knowledge: Education and Training, Mathematics, English Language, Mechanical, Design
Skills: Quality Control Analysis, Active Listening, Critical Thinking, Monitoring, Complex Problem Solving

Avionics Technicians
Job Description: Install, inspect, test, adjust, or repair avionics equipment, such as radar, radio, navigation, and missile control systems in aircraft or space vehicles.
Knowledge: Computers and Electronics, Mechanical, English Language, Engineering and Technology, Customer and Personal Service
Skills: Equipment Maintenance, Repairing, Troubleshooting, Critical Thinking, Operation Monitoring

Aerospace Engineering and Operations Technologists and Technicians
Job Description: Operate, install, adjust, and maintain integrated computer/communications systems, consoles, simulators, and other data acquisition, test, and measurement instruments and equipment, which are used to launch, track, position, and evaluate air and space vehicles. May record and interpret test data.
Knowledge: Mechanical, Engineering and Technology, Mathematics, Production and Processing, Customer and Personal Service
Skills: Critical Thinking, Operation Monitoring, Quality Control Analysis, Reading Comprehension, Active Listening

[1] The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: https://insightcced.org/tools-metrics/self-sufficiency-standard-tool-for-california/.

Occupational Demand

The South Central Valley/Southern Mother Lode subregion employed 1,767 workers in aviation maintenance technology occupations in 2019 (Exhibit 1). The largest occupation is aircraft mechanics and service technicians with 1,393 workers in 2019. This occupation is projected to grow by 12% over the next five years and has the greatest number of projected annual openings, 146.

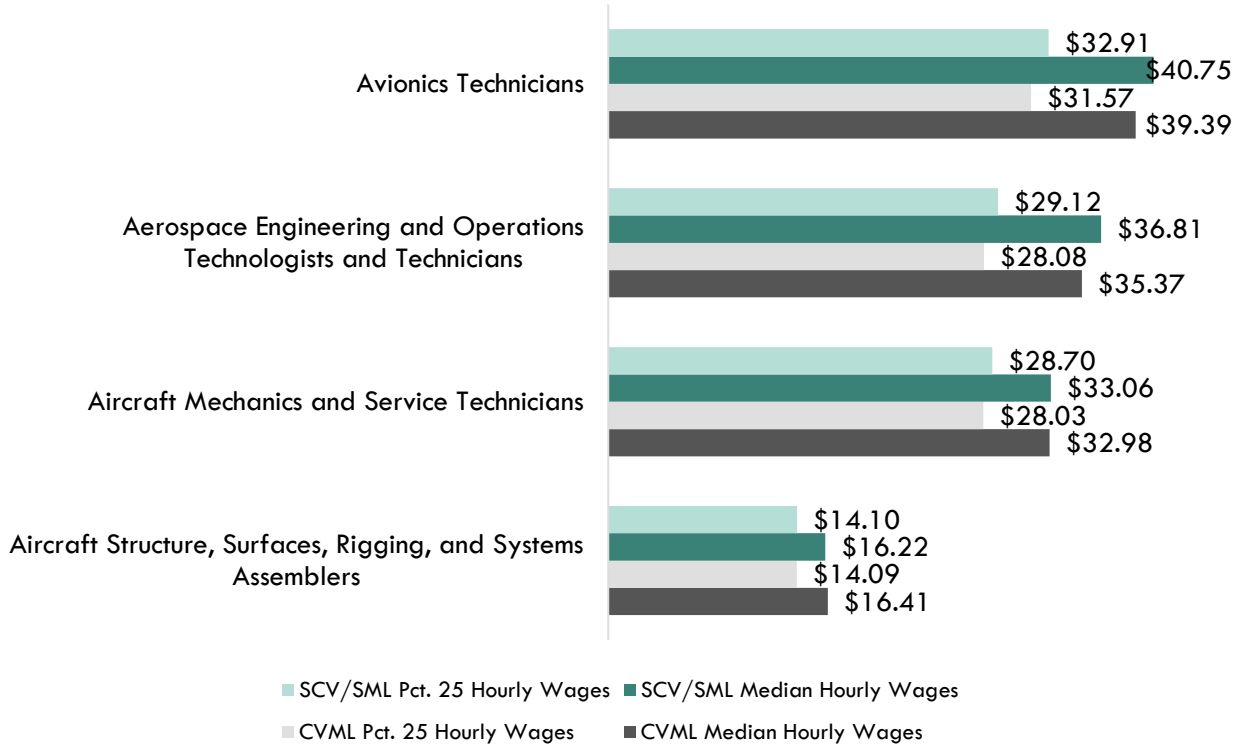
Exhibit 1. Aviation maintenance technology employment and occupational projections in the SCV/SML subregion

Occupation	2019 Jobs	2024 Jobs	5-Year Change	5-Year % Change	Annual Openings
Aircraft Mechanics and Service Technicians	1,393	1,567	173	12%	146
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	170	177	7	4%	17
Avionics Technicians	183	199	16	9%	17
Aerospace Engineering and Operations Technologists and Technicians	20	26	6	29%	3
TOTAL	**1,767**	**1,969**	**202**	**11%**	**183**

Wages

Exhibit 2 compares the entry-level and experienced wages of the aviation maintenance technology occupations. Avionics technicians earn the highest entry-level wage, $32.91/hour in the subregion and $31.57/hour in the region.

Exhibit 2. Entry-level and experienced wage comparison in the SCV/SML subregion and region



Median salary data from Emsi shows that avionics technicians earn the highest median salary in the subregion, $84,758, followed by aerospace engineering and operations technologists and technicians, $76,575.

Exhibit 3. Median salaries for aviation maintenance technology occupations in the subregion

Occupation	Median Salary
Avionics Technicians	$84,758.17
Aerospace Engineering and Operations Technologists and Technicians	$76,575.09
Aircraft Mechanics and Service Technicians	$68,758.78
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	$33,737.56

Job Postings

There were 206 job postings for the four occupations in the SCV/SML subregion from November 2020 to April 2021.[2] The employers with the most job postings are listed in Exhibit 4.

Exhibit 4. Top employers of aviation maintenance technology by number of job postings

Employer	Job Postings	% Job Postings
DynCorp International	14	8%
Iap Worldwide Services	11	6%
Crate & Barrel	9	5%
Employnet	9	5%
Vertex Aerospace	7	4%
General Atomics	6	4%
National Assemblers	6	4%
Advantage Sales & Marketing	5	3%
Indotronix International Corporation	5	3%
L3Harris	5	3%

Exhibit 4 shows how job postings for the targeted occupations in the SCV/SML subregion are distributed across four O*NET OnLine occupations. The occupational title aircraft mechanics and service technicians is listed in 92 job postings. Note how this occupational title dominates the job posting results, along with aircraft structure, surfaces, rigging, and systems assemblers. Common job titles in postings include avionics technician in nine job postings, furniture assembler tips in nine job postings, and harness shop assembler in six job postings.

[2] Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

Exhibit 5. Top occupational titles in job postings for aviation maintenance technology

Occupational Title	Job Postings	% of Job Postings
Aircraft Mechanics and Service Technicians	92	45%
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	86	42%
Avionics Technicians	26	13%
Aerospace Engineering and Operations Technicians	2	1%

Education

Of the 206 job postings, 97 listed an education level preferred for the positions being filled. Of those, 97% requested high school or vocational training, 6% requested an associate degree, and 3% requested a bachelor's degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

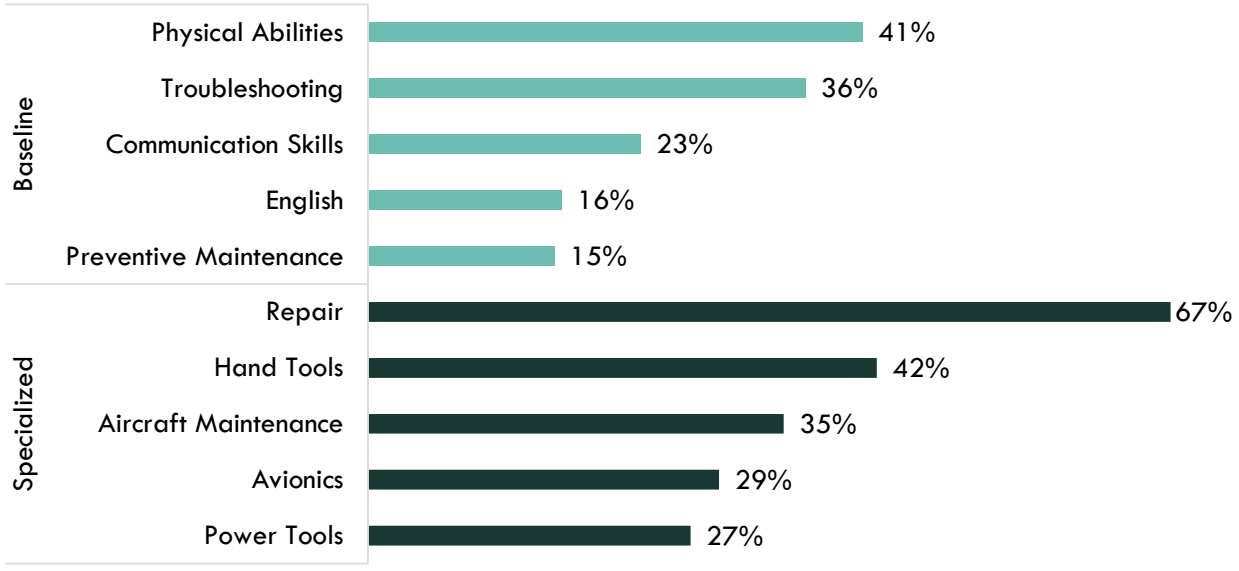
Exhibit 6. Education levels requested in job postings for aviation maintenance technology

Education Level	Job Postings	% of Job Postings
High school or vocational training	94	97%
Associate degree	6	6%
Bachelor's degree	3	3%
Master's degree	1	1%

Baseline and Specialized Skills

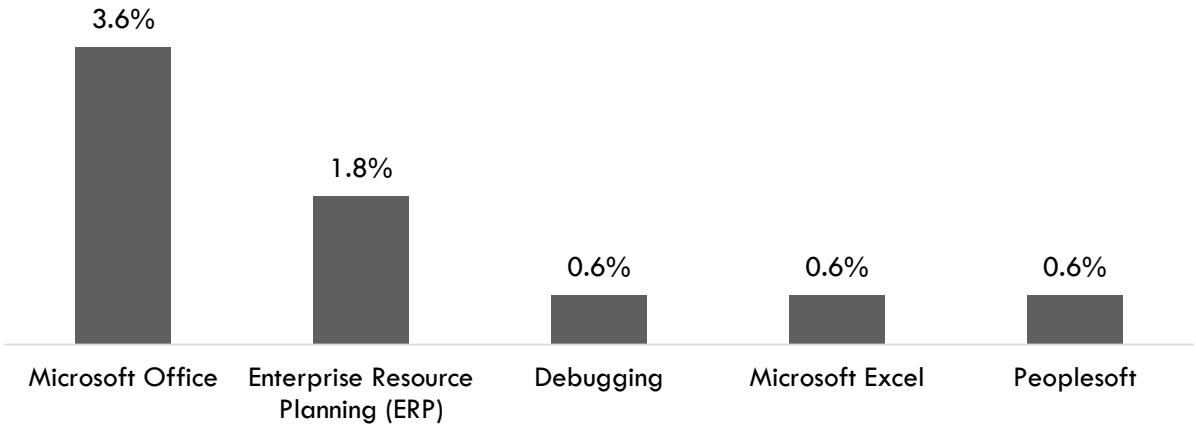
Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are physical abilities, 41% of job postings, troubleshooting, 36%, and communication, 23%. The top three specialized skills are repair, 67% of job postings, hand tools, 42%, and aircraft maintenance, 35%.

Exhibit 7. In-demand aviation maintenance technology baseline and specialized skills



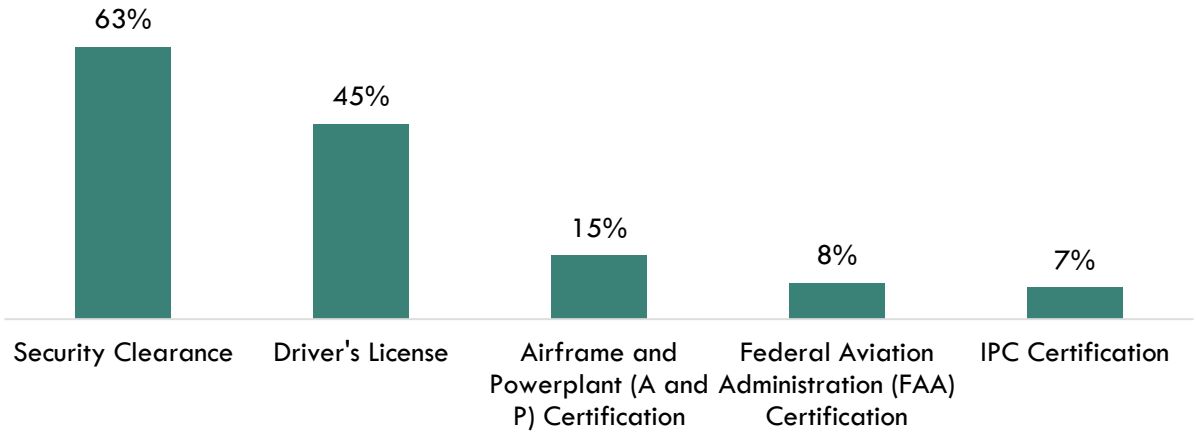
Software Skills
Analysis also included the software skills most in demand by employers. Microsoft Office and Enterprise Resource Planning were the top two software skills identified in job postings (Exhibit 8).

Exhibit 8. In-demand aviation maintenance technology software skills



Certifications
Of the 206 job postings, 95 contained certification data. Among those, 63% indicated a need for a security clearance. The next top certifications are driver's license and Airframe and Powerplant Certification (Exhibit 9). (Due to the low number of job postings with certifications listed, the chart below may not be representative of the full sample.)

Exhibit 9. Top aviation maintenance technology certifications requested in job postings



Education, Work Experience & Training

A high school diploma or equivalent is typically required for aircraft structure, surfaces, rigging, and systems assemblers and a postsecondary nondegree award is typically required for aircraft mechanics and service technicians (Exhibit 10). The remaining two occupations typically require an associate degree.

Exhibit 10. Education, work experience, training, and Current Population Survey results for aviation maintenance technology occupations[3]

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Aircraft Mechanics and Service Technicians	Postsecondary nondegree award	None	None	60.0%
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	High school diploma or equivalent	None	Moderate-term	39.9%
Avionics Technicians	Associate degree	None	None	63.9%
Aerospace Engineering and Operations Technologists and Technicians	Associate degree	None	None	53.5%

[3] "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, https://www.bls.gov/cps/.

Supply

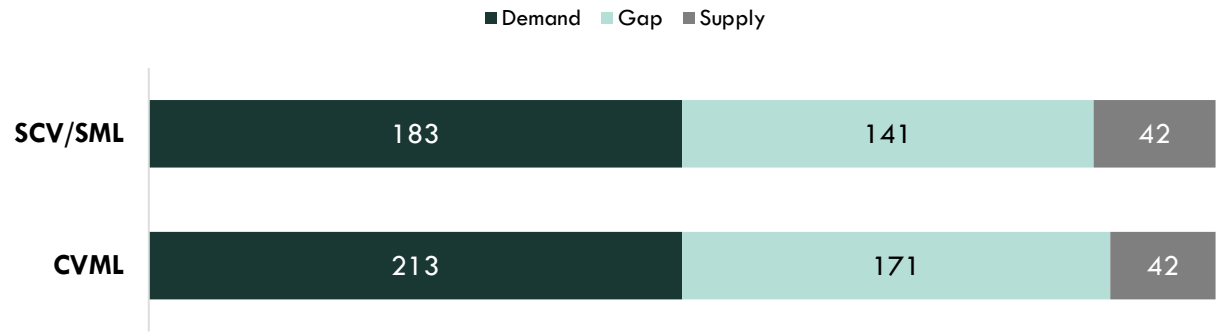
Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP and CIP codes and titles: 095000 - Aeronautical and Aviation Technology and 47.0607 - Airframe Mechanics and Aircraft Maintenance Technology/Technician. Analysis of the last three years of data shows that, on average, 42 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

Exhibit 11. Postsecondary supply for aviation maintenance technology occupations in the region

TOP and CIP Code - Title	Colleges	Associate Degree	Certificate 60+ Semester Units	Subtotal
095000 - Aeronautical and Aviation Technology	Reedley College	3	6	9
	Sequoias	0		0
47.0607 - Airframe Mechanics and Aircraft Maintenance Technology/Technician	San Joaquin Valley College-Visalia	32		32
TOTAL		**36**	**6**	**42**

There is an undersupply of 141 aviation maintenance technology workers in the SCV/SML subregion and 171 workers in the region (Exhibit 12).

Exhibit 12. Aviation maintenance technology workforce annual demand and supply in the SCV/SML subregion and region



Student Outcomes

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor's Cal-PASS Plus LaunchBoard for the TOP code related to aviation maintenance technology. There were 12 aeronautical and aviation technology students who received a degree or certificate or attained apprenticeship journey status; 71% of students obtained a job closely related to their field of study, 29% reported a median change in earnings, and 42% attained a living wage.

Exhibit 13. Regional metrics for the TOP code related to aviation maintenance technology

Metric	Aeronautical and Aviation Technology 095000
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	12
Number of Students Who Transferred	*
Job Closely Related to Field of Study	71%
Median Change in Earnings	29%
Attained a Living Wage	42%
* denotes data not available.	

Conclusion

The entry-level wages of the four occupations exceed the SCV/SML subregion's average living wage. There were 206 job postings in the past six months for occupations related to aviation maintenance technology 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 repair.
- The top software skill is Microsoft Office.
- The top certification is a security clearance.
  There is an undersupply of trained workers, a shortage of 141 in the SCV/SML subregion and 171 in the region.

Recommendation

Based on these findings, it is recommended that Reedley College work with the college's advisory board, and local industry in the expansion or development of programs to address the shortage of aviation maintenance technology in the region.

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.
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: https://www.bls.gov/emp/tables/educational-attainment.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: 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: 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.