Labor Market Analysis for Program Recommendation: 0116.00/Agricultural Power Equipment Technology (*Agriculture Equipment Technician (AS)*)

CVML Center of Excellence, May 2025

FOR LABOR MARKET RESEARCH
CENTRAL VALLEY/MOTHER LODE

Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met ☒	Endorsed: Some LMI Criteria Met ☐	Not LMI Endorsed ☐

Program LMI Endorsement Criteria		
	Yes ☑	No ☐
Supply Gap:	*Comments:* There are projected to be 294 **annual job openings** throughout the SCV/SML subregion for *agricultural equipment mechanics-related occupations*, which **are more than the three-year average of 241 awards conferred by educational institutions.**	
	Yes ☑	No ☐
Living Wage: (Entry-Level, 25th)	*Comments:* The two *agricultural equipment mechanics-related occupations* in this report have an entry-level hourly wage **above the SCV/SML living wage of $16.08.**	
	Yes ☑	No ☐
Education:	*Comments:* The typical entry-level education for the two *agricultural equipment mechanics-related occupations* is a high school diploma or equivalent. However, 39% **have completed some college or an associate degree as their highest level of education**.	

Emerging Occupation(s)	
Yes ☐	*No* ☑
Comments: N/A	

The Central Valley/Mother Lode Center of Excellence for Labor Market Research (CVML COE) prepared this report to determine whether there is a supply gap in the South Central Valley/Southern Mother Lode regional labor market related to the following middle-skill occupations:

- Farm Equipment Mechanics and Service Technicians
- Mobile Heavy Equipment Mechanics, Except Engines

Middle-skill occupations typically require a community college education while above middle-skill occupations typically require at least a bachelor's degree.

Based on the available data, there appears to be a supply gap for the two *agricultural equipment mechanics-related occupations* included in this report. In addition to the typical entry-level hourly wages for both occupations being above the SCV/SML subregion living wage, the typical entry-level education requirements for these occupations are a high school diploma or equivalent – yet 39% of incumbent workers have completed some college or an associate degree as their highest level of education. **Due to all of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the two *agricultural equipment mechanics-related occupations*.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25th percentile)	Typical Entry-Level Education	Community College Educational Attainment
Farm Equipment Mechanics and Service Technicians (49-3041)	NCV/NML: 57 SCV/SML: 121	NCV/NML: 154 SCV/SML: 241	NCV/NML: $21.51 SCV/SML: $19.73	High school diploma or equivalent	39%
Mobile Heavy Equipment Mechanics, Except Engines (49-3042)	NCV/NML: 93 SCV/SML: 173		NCV/NML: $28.80 SCV/SML: $26.98	High school diploma or equivalent	39%
Total	**444**	**395**	**-**	**-**	**-**

Demand:

- The number of jobs related to the two *agricultural equipment mechanics-related occupations* is projected to increase 5% through 2028. There will be 294 annual job openings in the SCV/SML subregion.
- The two *agricultural equipment mechanics-related occupations* have an entry-level hourly wage above the living wage of $16.08 in the SCV/SML subregion.
- There were 357 online job postings for *agricultural equipment mechanics-related occupations* over the past 12 months.
- The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for the two *agricultural equipment mechanics-related occupations*.
- National-level educational attainment data indicates that 39% of incumbent workers in the field have completed some community college or an associate degree as their highest level of education.

Supply:

- Between 2021 and 2024, there was an average of 241 awards conferred by community colleges in the SCV/SML subregion.
- Between 2020 to 2023, there were no non-community college institutions in the SCV/SML subregion that conferred awards in relevant programs.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for *agricultural equipment mechanics-related occupations* from 2018 through 2028. Employment in these occupations experienced a 16% increase in 2023 (SCV/SML), compared to the no change (0% increase) across all occupations in California. These occupations experienced an additional 2% increase in 2024 (SCV/SML), identical to the 2% increase across all occupations in California that year. Employment projections through 2028 for *agricultural equipment mechanics-related occupations* are expected to remain steady each year (growth) in the SCV/SML subregion.

Exhibit 2: Annual Percent Change in Jobs for Agricultural Equipment Mechanics-related Occupations, 2018-2028

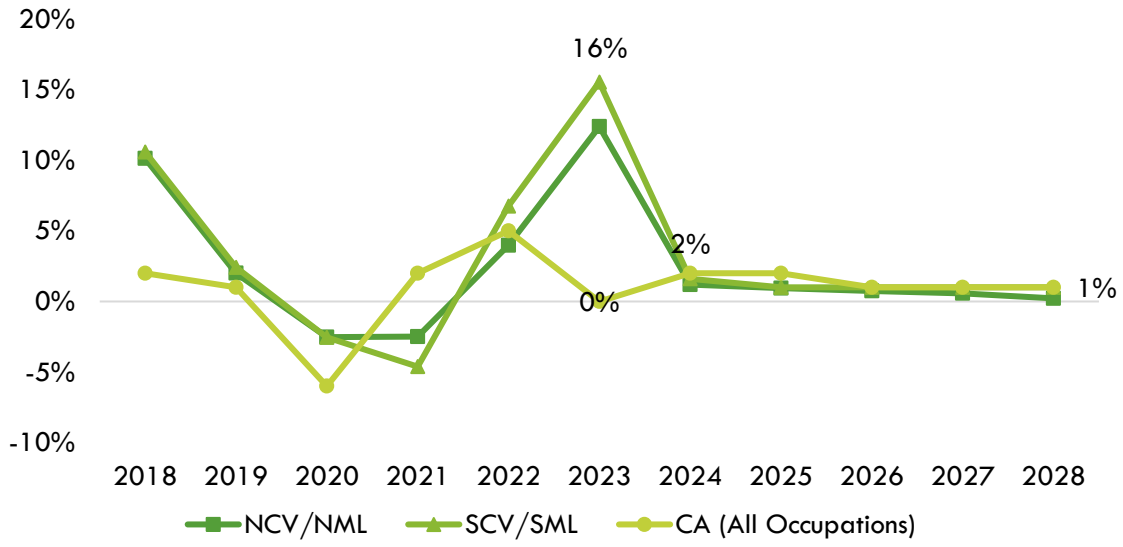


Exhibit 3 shows the five-year occupational demand projections for the two *agricultural equipment mechanics-related occupations*. In the SCV/SML subregion, the number of jobs for *agricultural equipment mechanics-related occupations* is projected to increase by 5% through 2028. There are projected to be 294 jobs available annually in the SCV/SML subregion.

Exhibit 3: Occupational Demand in NCV/NML, SCV/SML and CVML[1]

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
NCV/NML	1,604	1,664	60	4%	150
SCV/SML	3,110	3,267	157	5%	294
CVML	**4,714**	**4,931**	**217**	**5%**	**444**

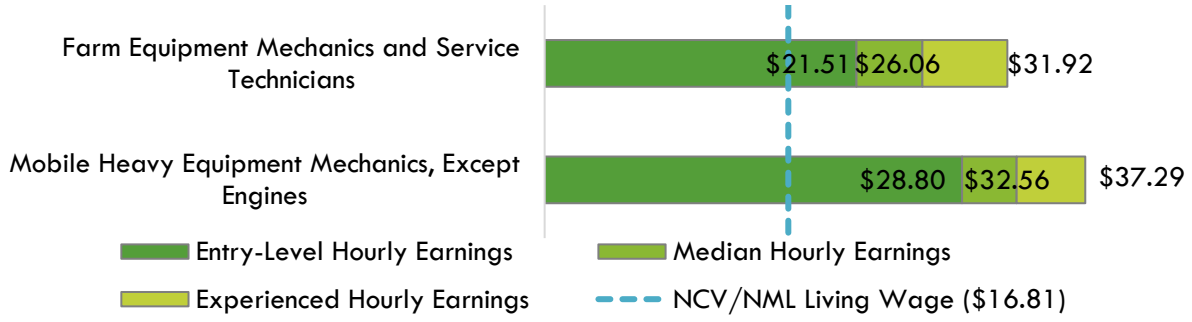
[1] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for *agricultural equipment mechanics-related occupations* as they relate to the subregions and region's living wage. NCV/NML, SCV/SML and CVML wages are included below to provide a complete analysis of the subregions and region.

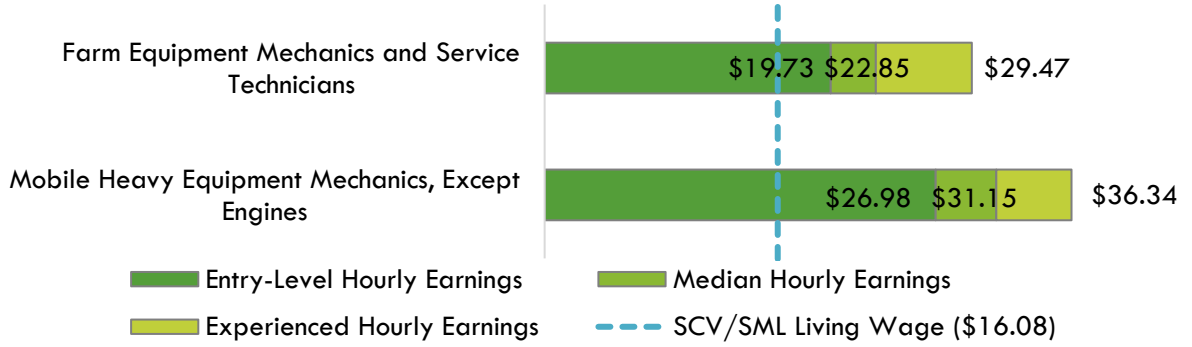
The two *agricultural equipment mechanics-related occupations* have an entry-level hourly wage above the living wage for one adult in the NCV/NML subregion ($16.81). The NCV/NML average wage for these occupations is $31.26, which is below the average statewide wage of $36.55. Exhibit 4a shows the wage range for *agricultural equipment mechanics-related occupations* and how they compare to the NCV/NML subregion's living wage.

Exhibit 4a: Wages by Occupation in NCV/NML



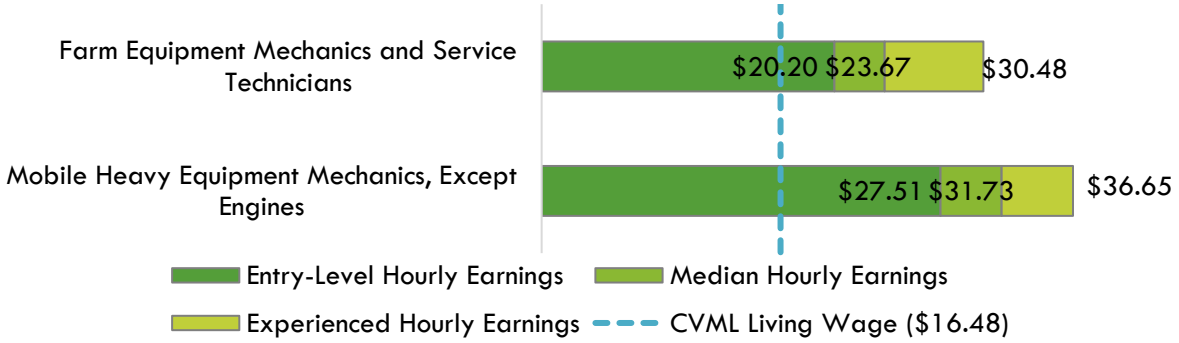
The two *agricultural equipment mechanics-related occupations* have an entry-level hourly wage above the living wage for one adult in the SCV/SML subregion ($16.08). The SCV/SML average wage for these occupations is $29.09, which is below the average statewide wage of $36.55. Exhibit 4b shows the wage range for *agricultural equipment mechanics-related occupations* and how they compare to the SCV/SML subregion's living wage.

Exhibit 4b: Wages by Occupation in SCV/SML



The two *agricultural equipment mechanics-related occupations* have an entry-level hourly wage above the living wage for one adult in the CVML region ($16.48). The CVML average wage for these occupations is $29.83, which is below the average statewide wage of $36.55. Exhibit 5 shows the wage range for *agricultural equipment mechanics-related occupations* and how they compare to the CVML region's living wage.

Exhibit 5: Wages by Occupation in CVML



Job Postings:

Important Online Job Postings Data Note: *Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.*[2] *For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.*

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

There were 357 online job postings for the two agricultural equipment mechanics-related occupations listed in the past 12 months. Exhibit 6 shows the job postings for the two occupations studied in this report.

Exhibit 6: Number of Job Postings by Occupation (n=357)

Occupation	Job Postings	Percentage of Job Postings
Mobile Heavy Equipment Mechanics, Except Engines	337	94%
Farm Equipment Mechanics and Service Technicians	20	6%

[2] K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), https://link.springer.com/book/10.1007/978-81-322-3972-7.

The top employers in the region for *agricultural equipment mechanics-related occupations,* by number of job postings, are shown in Exhibit 7.

Exhibit 7: Top Employers by Number of Job Postings (n=357)

Employer	Job Postings	Percentage of Job Postings
Quinn Company	27	8%
State of California	18	5%
GPAC	12	3%
Aerotek	11	3%
Western Equipment	8	2%
EquipmentShare	7	2%
JB Hunt	7	2%
Concentric	6	2%
Omni Underground	6	2%
JBT	5	1%

The top specialized, common, and software skills for *agricultural equipment mechanics-related occupations* listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 8.

Exhibit 8: Top Skills by Number of Job Postings (n=357)

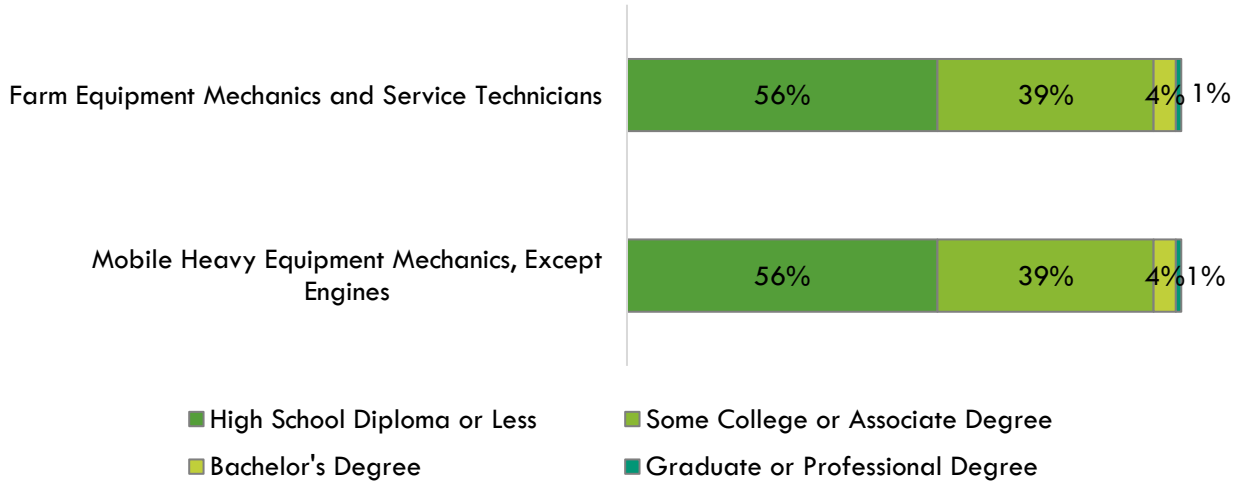
Top Specialized Skills	Top Common Skills	Top Software Skills
Heavy Equipment (149)	Troubleshooting (Problem Solving) (143)	Microsoft Outlook (20)
Hydraulics (66)	Communication (116)	Microsoft Excel (16)
Diesel Engines (63)	Lifting Ability (73)	Microsoft Office (14)
Electrical Systems (56)	Customer Service (67)	Microsoft PowerPoint (9)
Hand Tools (55)	Good Driving Record (61)	Microsoft Word (7)
Equipment Repair (55)	Management (57)	Inventory Control Systems (6)
Mechanics (54)	Professionalism (46)	Project Management Software (6)
HVAC (47)	Writing (38)	Apache Struts (4)
Preventive Maintenance (44)	Problem Solving (37)	IBM Maximo (3)
Power Tool Operation (43)	Punctuality (35)	Fleet Maintenance Software (2)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for the two *agricultural equipment mechanics-related occupations*. National-level educational attainment data indicates that 39% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 9 shows the educational attainment for the two agricultural equipment mechanics-related occupations.

Of the 357 online job postings, 52% (equivalent to 187 postings) of cumulative job postings for *agricultural equipment mechanics-related occupations* listed a minimum education requirement in the SCV/SML subregion. Of the 187 postings, 89% (167) requested a high school diploma or GED.

Exhibit 9: National-level Educational Attainment for Agricultural Equipment Mechanics-related Occupations



Educational Supply

Community College Supply:

Exhibits 10a and 10b show the annual and three-year average number of awards conferred by community colleges in the programs that have historically trained for the two occupations included in this report. The colleges with the most completions are Reedley (South), San Joaquin Delta (North), and Merced (North).

Exhibit 10a: NCV/NML Community College Awards (Certificates and Degrees) 2021-22 through 2023-24

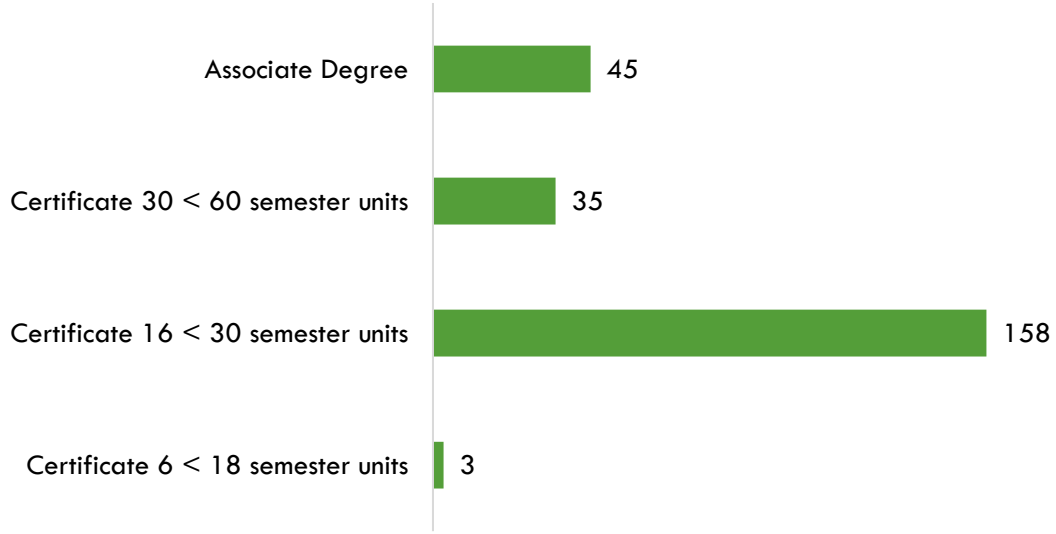
TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
0116.00	Agricultural Power Equipment Technology	Merced	47	66	58	57
		Modesto	20	20	22	21
		San Joaquin Delta	5	-	1	2
		Subtotal/Average	**72**	**86**	**81**	**80**
0947.00	Diesel Technology	San Joaquin Delta	11	9	11	10
		Subtotal/Average	**11**	**9**	**11**	**10**
0947.20	Heavy Equipment Maintenance	San Joaquin Delta	32	68	91	64
		Subtotal/Average	**32**	**68**	**91**	**64**
NCV/NML Supply Grand Total			**115**	**163**	**183**	**154**

Exhibit 10b: SCV/SML Community College Awards (Certificates and Degrees) 2021-22 through 2023-24

TOP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
0116.00	Agricultural Power Equipment Technology	Bakersfield	17	17	20	18
		Reedley	229	222	169	207
		Sequoias	10	-	4	5
		Subtotal/Average	**256**	**239**	**193**	**229**
0947.00	Diesel Technology	Fresno City	-	1	1	1
		Subtotal/Average	**-**	**1**	**1**	**1**
0947.20	Heavy Equipment Maintenance	Coalinga	7	10	17	11
		Subtotal/Average	**7**	**10**	**17**	**11**
SCV/SML Supply Grand Total			**263**	**250**	**211**	**241**

Exhibit 11 shows the annual average community college awards by type from 2021-22 through 2023-24. Of the 241 awards conferred in the SCV/SML subregion, 66% (158) of the awards were for a certificate 16 < 30 semester units.

Exhibit 11: Annual Average Community College Awards by Type, 2021-2024



Non-Community College Supply:

For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for the two occupations studied in this report. Exhibits 12a and 12b show the annual and three-year average number of awards conferred by non-community college institutions in programs that have historically trained for the occupations of interest.

Between 2020 and 2023, there were no non-community colleges in the NCV/NML subregion that conferred any awards annually in related training programs. There were also no awards conferred in the SCV/SML subregion.

Exhibit 12a: NCV/NML Subregional Non-Community College Awards, 2020-2023

No awards conferred in the NCV/NML subregion

Exhibit 12b: SCV/SML Subregional Non-Community College Awards, 2020-2023

No awards conferred in the SCV/SML subregion

Appendix A: Methodology

The CVML COE prepared this report by analyzing data from occupations and education programs.

Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

Using a TOP-SOC crosswalk, the CVML COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- 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.

The CVML COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the CVML COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	The living wage is derived from the Insight Center's California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://selfsufficiencystandard.org/California/ Wage figures are used by the CCCCO to calculate the percentage of students that attained the regional living wage.
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions
Student Metrics and Demographics	DataVista, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://datavista.cccco.edu/

Data Type	Source
Population and Occupation Demographics	The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml

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