

April 2021

# Labor Market Analysis

## Manufacturing Leadership

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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.

*If for any reason this document is not accessible or if you have specific needs for readability, please contact us and we will do our utmost to accommodate you with a modified version. To make a request, contact Nora Seronello by phone at (209) 575-6894 or by email [seronellon@mjc.edu](mailto:seronellon@mjc.edu).*

# 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 manufacturing leadership. Six occupations related to manufacturing leadership were identified for Modesto Junior College:

- 11-1021, General and Operations Managers
- 53-1047, First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors
- 49-1011, First-Line Supervisors of Mechanics, Installers, and Repairers
- 11-3011, Administrative Services and Facilities Managers
- 11-3071, Transportation, Storage, and Distribution Managers
- 11-3051, Industrial Production Managers

## Key findings:

- **Occupational demand** — Nearly 13,800 workers were employed in jobs related to manufacturing leadership in 2019 in the North Central Valley/Northern Mother Lode (NCV/NML) subregion. The largest occupation is general and operations managers with 6,766 workers in 2019, a projected growth rate of 3% over the next five years, and 587 annual openings.
- **Wages** — Transportation, storage, and distribution managers earn the highest entry-level wage, \$37.50/hour in the subregion and \$33.73/hour in the region.
- **Employers** — Employers with the most job postings in the subregion are Amazon, Anthem Blue Cross, and Dollar Tree.
- **Occupational titles** — The most common occupational title in job postings in the subregion is general and operations managers. The most common job title is warehouse supervisor.
- **Skills and certifications** — The top baseline skill is communication, the top specialized skill is scheduling, and the top software skill is Microsoft Office. The most in-demand certification is a driver's license.
- **Education** — A high school education is typically required for first-line supervisors of transportation and material moving workers, except aircraft cargo handling supervisors; first-line supervisors of mechanics, installers, and repairers; and transportation, storage, and distribution managers. A bachelor's degree is typically required for the remaining three occupations.
- **Supply** — Analysis of postsecondary completions in the region shows that on average 348 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 1,127 trained workers in the subregion and 2,904 workers in the region. The Center of Excellence recommends that Modesto Junior College work with the Advanced Manufacturing and, Business and Entrepreneurship Regional Directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of manufacturing leadership workers in the region.

# Introduction

The Central Valley/Mother Lode Center of Excellence was asked by Modesto Junior College to provide labor market information for manufacturing leadership. The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) 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 NCV/NML subregion is \$10.30/hour.<sup>1</sup> Analysis of the program and occupational data related to manufacturing leadership resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 11-1021, General and Operations Managers
- 53-1047, First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors
- 49-1011, First-Line Supervisors of Mechanics, Installers, and Repairers
- 11-3011, Administrative Services and Facilities Managers
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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. O\*NET data was not available for First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors; and Administrative Services and Facilities Managers.

## **General and Operations Managers**

**Job Description:** Plan, direct, or coordinate the operations of public or private sector organizations, overseeing multiple departments or locations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Usually manage through subordinate supervisors. Excludes First-Line Supervisors.

**Knowledge:** Administration and Management, Customer and Personal Service, Personnel and Human Resources, English Language, Mathematics

**Skills:** Active Listening, Coordination, Monitoring, Social Perceptiveness, Speaking

## **First-Line Supervisors of Mechanics, Installers, and Repairers**

**Job Description:** Directly supervise and coordinate the activities of mechanics, installers, and repairers. May also advise customers on recommended services. Excludes team or work leaders.

**Knowledge:** Mechanical, Customer and Personal Service, Administration and Management, Public Safety and Security, English Language

**Skills:** Management and Personnel Resources, Monitoring, Critical Thinking, Coordination, Speaking

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<sup>1</sup> 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://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

### **Transportation, Storage, and Distribution Managers**

**Job Description:** Plan, direct, or coordinate transportation, storage, or distribution activities in accordance with organizational policies and applicable government laws or regulations. Includes logistics managers.

**Knowledge:** Transportation, Administration and Management, Customer and Personal Service, English Language, Mathematics

**Skills:** Critical Thinking, Speaking, Monitoring, Reading Comprehension, Active Listening

### **Industrial Production Managers**

**Job Description:** Plan, direct, or coordinate the work activities and resources necessary for manufacturing products in accordance with cost, quality, and quantity specifications.

**Knowledge:** Production and Processing, Administration and Management, Customer and Personal Service, Personnel and Human Resources, English Language

**Skills:** Critical Thinking, Monitoring, Speaking, Coordination, Time Management

## Occupational Demand

The North Central Valley/Northern Mother Lode subregion employed 13,761 workers in manufacturing leadership occupations in 2019 (Exhibit 1). The largest occupation is general and operations managers with 6,766 workers in 2019. This occupation is projected to grow by 3% over the next five years and has the greatest number of projected annual openings, 587.

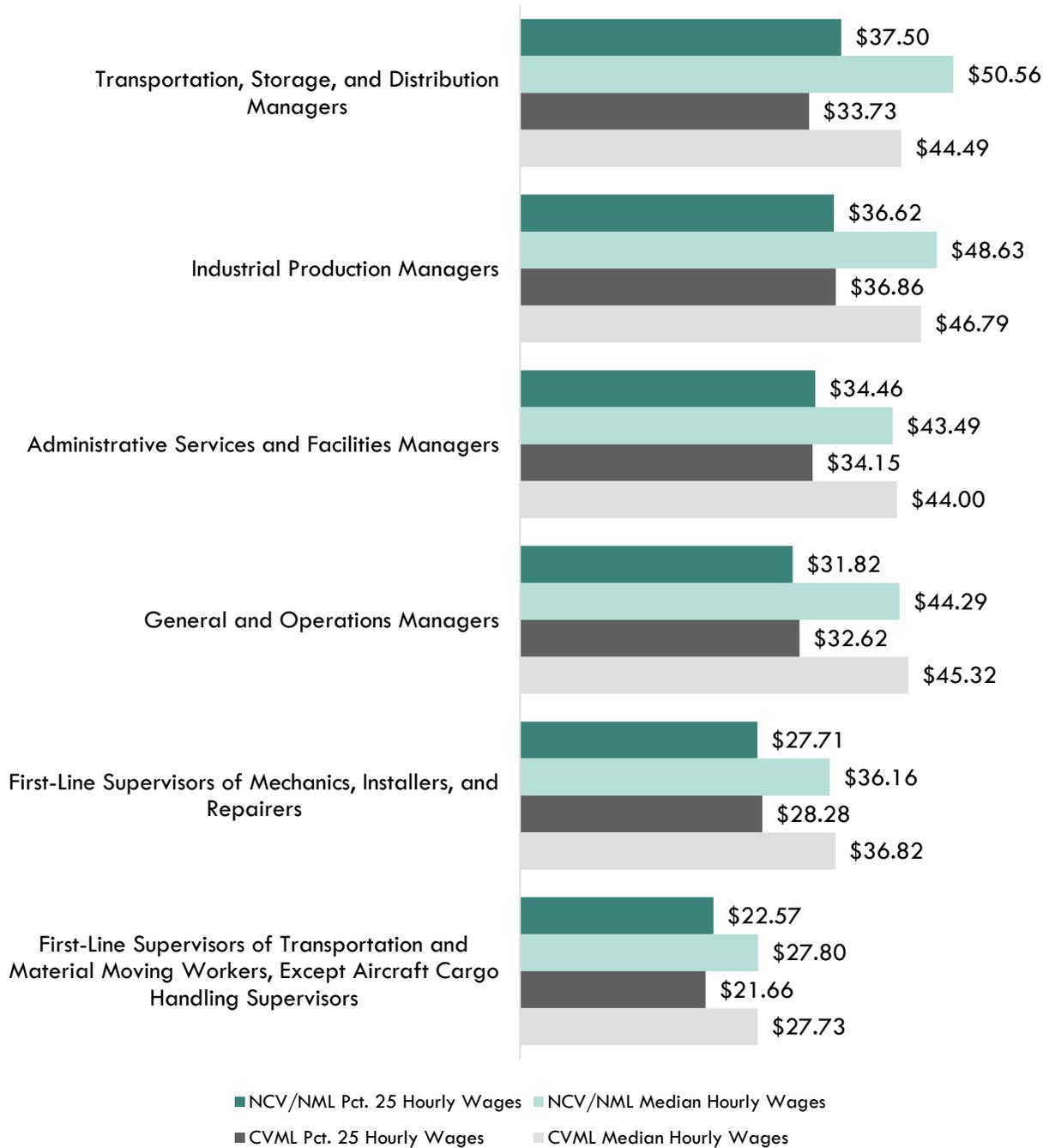
**Exhibit 1. Manufacturing leadership employment and occupational projections in the NCV/NML subregion**

Occupation	2019 Jobs	2024 Jobs	5-Year Change	5-Year % Change	Annual Openings
General and Operations Managers	6,766	6,987	221	3%	587
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	2,751	3,407	656	24%	405
First-Line Supervisors of Mechanics, Installers, and Repairers	1,753	1,839	86	5%	164
Administrative Services and Facilities Managers	989	1,015	26	3%	86
Transportation, Storage, and Distribution Managers	802	936	134	17%	84
Industrial Production Managers	700	693	(7)	(1%)	47
<b>TOTAL</b>	<b>13,761</b>	<b>14,876</b>	<b>1,115</b>	<b>8%</b>	<b>1,374</b>

# Wages

Exhibit 2 compares the entry-level and experienced wages of the manufacturing leadership occupations. Transportation, storage, and distribution managers earn the highest entry-level wage, \$37.50/hour in the subregion and \$33.73/hour in the region.

**Exhibit 2. Entry-level and experienced wage comparison in the NCV/NML subregion and region**



Median salary data from Emsi shows that transportation, storage, and distribution managers earn the highest median salary, more than \$105,172 annually, followed by industrial production managers, more than \$101,150 annually.

**Exhibit 3. Median salaries for manufacturing leadership occupations**

Occupation	Median Salary
Transportation, Storage, and Distribution Managers	\$105,172.22
Industrial Production Managers	\$101,150.55
General and Operations Managers	\$92,120.33
Administrative Services and Facilities Managers	\$90,449.71
First-Line Supervisors of Mechanics, Installers, and Repairers	\$75,209.29
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	\$57,832.21

## Job Postings

There were 2,556 job postings for the six occupations in the NCV/NML subregion from October 2020 to March 2021.<sup>2</sup> The employers with the most job postings are listed in Exhibit 4.

**Exhibit 4. Top employers of manufacturing leadership workers by number of job postings**

Employer	Job Postings	% Job Postings
Amazon	71	3%
Anthem Blue Cross	59	3%
Dollar Tree	32	1%
Penske	28	1%
Kehe	24	1%
Danaher Corporation	22	1%
Kehe Distributors	22	1%
CVS Health	20	1%
Avalon Health Care	19	1%
Medline Industries	18	1%

Exhibit 4 shows how job postings for the targeted occupations in the NCV/NML subregion are distributed across 10 O\*NET OnLine occupations. The occupational title general and operations managers is listed in 654 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings include warehouse supervisor in 90 job postings, operations manager in 71 job postings, and maintenance supervisor in 68 job postings.

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<sup>2</sup> 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 manufacturing leadership**

Occupational Title	Job Postings	% of Job Postings
General and Operations Managers	654	26%
First-Line Supervisors of Mechanics, Installers, and Repairers	401	16%
Storage and Distribution Managers	264	10%
Financial Managers, Branch or Department	212	8%
Human Resources Managers	184	7%
Quality Control Systems Managers	136	5%
Administrative Services Managers	135	5%
Treasurers and Controllers	130	5%
First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	104	4%
Industrial Production Managers	89	3%

**Education**

Of the 2,556 job postings, 1,850 listed an education level preferred for the positions being filled. Among those, 74% requested a bachelor's degree, 39% requested high school or vocational training, and 12% requested a master's degree. Only 9% requested an associate 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%.

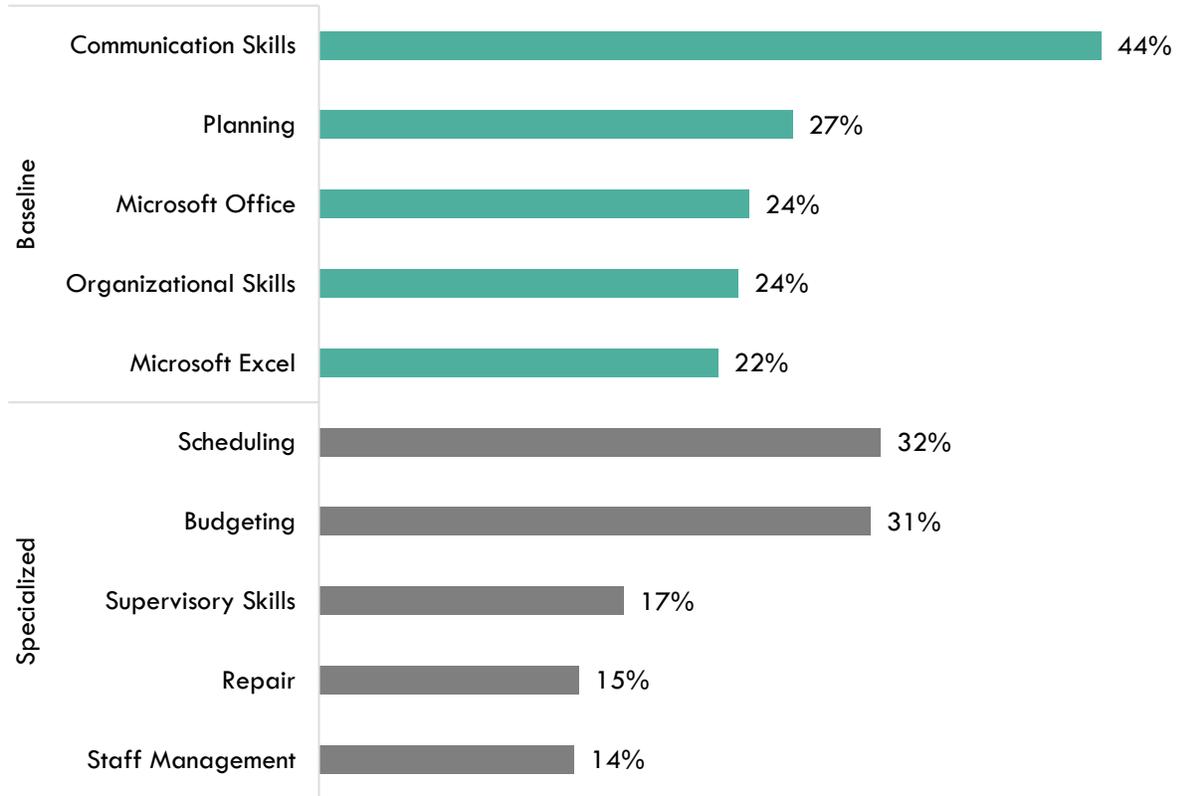
**Exhibit 6. Education levels requested in job postings for manufacturing leadership**

Education Level	Job Postings	% of Job Postings
Bachelor's degree	1,360	74%
High school or vocational training	722	39%
Master's degree	217	12%
Associate degree	166	9%
Doctoral degree	35	2%

**Baseline and Specialized Skills**

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are communication, 44% of job postings, planning, 27%, and Microsoft Office, 24%. The top three specialized skills are scheduling, 32% of job postings, budgeting, 31%, and supervisory skills, 17%.

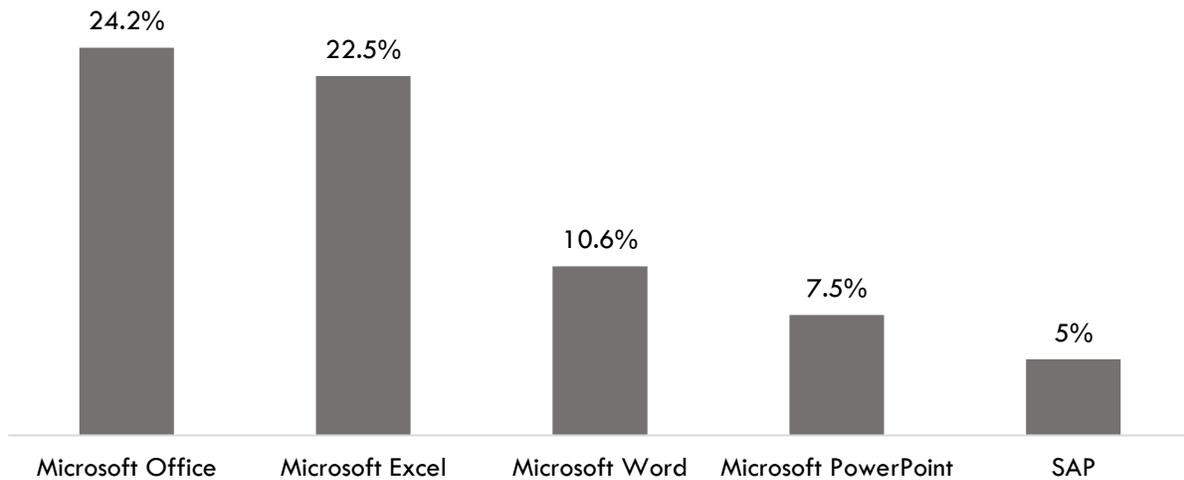
**Exhibit 7. In-demand manufacturing leadership baseline and specialized skills**



**Software Skills**

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

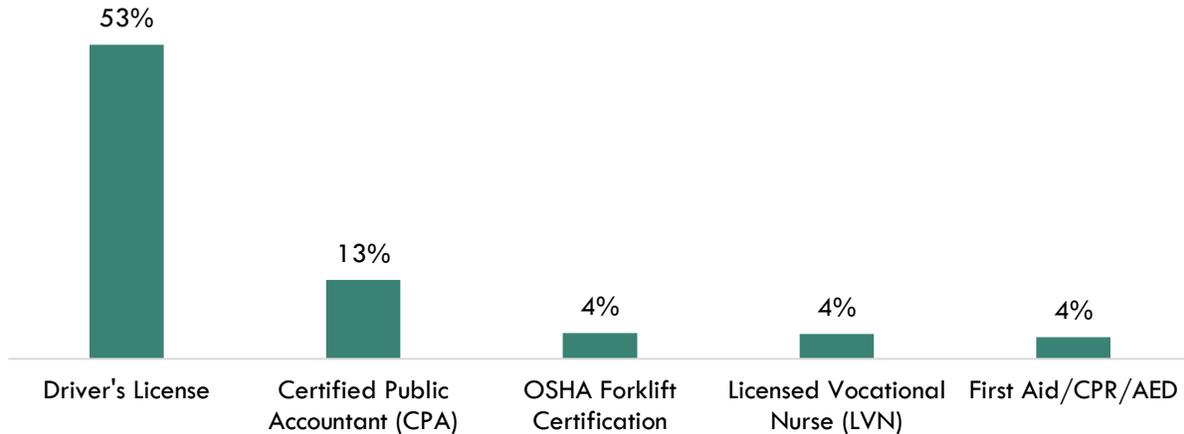
**Exhibit 8. In-demand manufacturing leadership software skills**



### Certifications

Of the 2,556 job postings, 711 contained certification data. Among those, 53% indicated a need for a driver's license. The next top certifications are Certified Public Accountant and OSHA Forklift 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 manufacturing leadership certifications requested in job postings**



## Education, Work Experience & Training

A high school education is typically required for first-line supervisors of transportation and material moving workers, except aircraft cargo handling supervisors; first-line supervisors of mechanics, installers, and repairers; and transportation, storage, and distribution managers (Exhibit 10). A bachelor's degree is typically required for the remaining three occupations.

**Exhibit 10. Education, work experience, training, and Current Population Survey results for manufacturing leadership occupations<sup>3</sup>**

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
General and Operations Managers	Bachelor's degree	5 years or more	None	34.7%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	None	39.1%
First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	Less than 5 years	None	42.8%
Administrative Services and Facilities Managers	Bachelor's degree	Less than 5 years	None	37.3%
Transportation, Storage, and Distribution Managers	High school diploma or equivalent	5 years or more	None	35.0%
Industrial Production Managers	Bachelor's degree	5 years or more	None	30.2%

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

# Supply

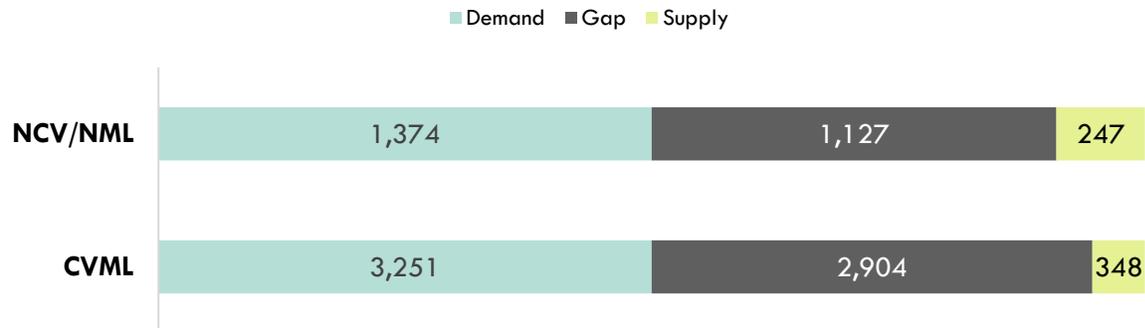
Analysis of program data from the California Community Colleges Chancellor’s Office Data Mart included the TOP codes and titles: 050100 - Business and Commerce, General; and 051000 - Logistics and Materials Transportation. Analysis of the last three years of data shows that, on average, 348 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11).

**Exhibit 11. Postsecondary supply for manufacturing leadership occupations in the region**

TOP Code - Title	Colleges	Associate Degree	Associate for Transfer Degree	Certificate 18 < 30 Semester Units	Certificate 30 < 60 Semester Units	Certificate 6 < 18 Semester Units	Noncredit Award 144 < 192 Hours	Subtotal
050100 - Business and Commerce, General	Bakersfield					23		23
	Cerro Coso		23					23
	Clovis			0				0
	Columbia	5						5
	Merced	19				2		21
	Porterville	5						5
	Reedley College				6			6
	San Joaquin Delta	160			56			216
	Sequoias	10				1		11
	Taft	14						14
051000 - Logistics and Materials Transportation	Fresno City						17	17
	Modesto	0		1		1		2
	San Joaquin Delta	1		3				3
<b>TOTAL</b>		<b>214</b>	<b>23</b>	<b>66</b>	<b>3</b>	<b>24</b>	<b>17</b>	<b>348</b>

There is an undersupply of 1,127 manufacturing leadership workers in the NCV/NML subregion and 2,904 workers in the region (Exhibit 12).

**Exhibit 12. Manufacturing leadership workforce annual demand and supply in the NCV/NML 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 codes related to manufacturing leadership. Of note, there were 290 business and commerce, general students who received a degree or certificate or attained apprenticeship journey status and 564 who transferred; 65% of students obtained a job closely related to their field of study; 38% reported a median change in earnings; and 62% attained a living wage.

**Exhibit 13. Regional metrics for the TOP codes related to manufacturing leadership**

Metric	Business and Commerce, General	Logistics and Materials Transportation
	050100	051000
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	290	28
Number of Students Who Transferred	564	*
Job Closely Related to Field of Study	65%	83%
Median Change in Earnings	38%	20%
Attained a Living Wage	62%	67%
* denotes data not available.		

# Conclusion

The entry-level wages of the six occupations exceed the NCV/NML subregion's average living wage. There were 2,556 job postings in the past six months for occupations related to manufacturing leadership in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is communication, and the top specialized skill is scheduling.
- The top software skill is Microsoft Office.
- The top certification is a driver's license.

There is an undersupply of trained workers, a shortage of 1,127 in the NCV/NML subregion and 2,904 in the region.

# Recommendation

Based on these findings, it is recommended that Modesto Junior College work with the Advanced Manufacturing and, Business and Entrepreneurship Regional Directors, the college's advisory board, and local industry in the expansion of programs to address the shortage of manufacturing leadership 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: <a href="http://economicmodeling.com">economicmodeling.com</a> .
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: <a href="https://www.bls.gov/emp/tables/educational-attainment.htm">https://www.bls.gov/emp/tables/educational-attainment.htm</a> .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: <a href="http://labormarketinfo.edd.ca.gov">labormarketinfo.edd.ca.gov</a> .
Job Posting and Skills Data	Burning Glass: <a href="http://burning-glass.com/">burning-glass.com/</a> .
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: <a href="http://onetonline.org">onetonline.org</a> .

## 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.