

Program Endorsement Brief:

Manufacturing Maintenance Technicians in the Far North region

North/Far North Center of Excellence, June 2020

OVERVIEW

This report provides an overview of the labor market demand and related educational program supply for occupations related to manufacturing maintenance technicians in the 15-county Far North region, the 22-county North/Far North, and California.

SUMMARY OF KEY FINDINGS

- Manufacturing maintenance technicians are projected to have 532 job openings per year over the next five years. Eighty-one percent of those openings will be for general maintenance and repair workers.
- Hourly wages for the selected occupations are typically above both the Far North living wage (\$10.87 per hour) and the state minimum wage (\$12 per hour).
- Most of the studied occupations require at least a moderate length of on-the-job training. Millwrights, in particular, need an apprenticeship.
- There is one postsecondary training provider for programs related to manufacturing maintenance technicians in the Far North.

The report contains the following sections:

- Occupational demand,
- Wages and job postings,
- Education and training,
- Regional program supply, and
- Findings and recommendations.

INTRODUCTION

The North/Far North Center of Excellence was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following middle-skill occupations:

- Industrial machinery mechanics (49-9041.00)
- Maintenance workers, machinery (49-9043.00)
- Millwrights (49-9044.00)
- Maintenance and repair workers, general (49-9071.00)

A review of related programs revealed the following Taxonomy of Programs (TOP) code(s) are appropriate for inclusion in this report:

- Industrial systems technology and maintenance (0945.00)

The corresponding Classification of Instructional Programs (CIP) code(s) are:

- Industrial mechanics and maintenance technology (47.0303)

OCCUPATIONAL DEMAND

The following Standard Occupational Classification (SOC) codes related to the proposed program were included in the demand analysis:¹

49-9041.00 - Industrial Machinery Mechanics

Description: Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems.

49-9043.00 - Maintenance Workers, Machinery

Description: Lubricate machinery, change parts, or perform other routine machinery maintenance

49-9044.00 - Millwrights

Description: Install, dismantle, or move machinery and heavy equipment according to layout plans, blueprints, or other drawings.

49-9071.00 - Maintenance and Repair Workers, General

Description: Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may include pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs

¹O*NET OnLine. U.S. Department of Labor Education & Training Administration. Accessed November 22, 2019. <https://www.onetonline.org/>.

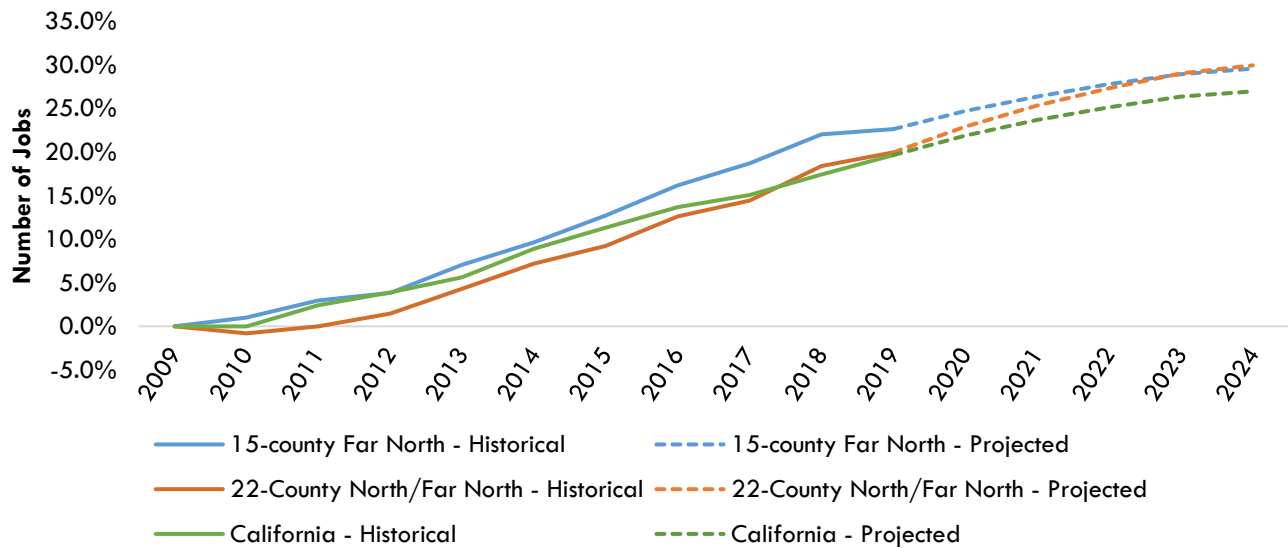
Exhibit 1 summarizes the job trends by SOC codes in the 15-county Far North region, the 22-county North/Far North, and across California.²

Exhibit 1. Employment and projected occupational demand³

Occupation	SOC	2009 Jobs	2019 Jobs	2024 Jobs	2019-2024 % Change	Annual Openings
Industrial Machinery Mechanics	49-9041	449	621	667	7.5%	74
Maintenance Workers, Machinery	49-9043	105	147	150	2.7%	20
Millwrights	49-9044	80	125	134	7.7%	15
Maintenance and Repair Workers, General	49-9071	3,239	3,857	4,066	5.4%	423
FAR NORTH	TOTALS	3,872	4,749	5,018	5.7%	532
Industrial Machinery Mechanics	49-9041	1,411	1,859	2,024	8.9%	214
Maintenance Workers, Machinery	49-9043	396	460	499	8.6%	60
Millwrights	49-9044	331	456	494	8.4%	50
Maintenance and Repair Workers, General	49-9071	10,669	12,591	13,629	8.2%	1,406
NORTH/FAR NORTH	TOTALS	12,807	15,366	16,646	8.3%	1,729
Industrial Machinery Mechanics	49-9041	21,053	27,720	28,741	3.7%	2,978
Maintenance Workers, Machinery	49-9043	5,883	7,484	7,827	4.6%	942
Millwrights	49-9044	2,532	3,104	3,369	8.5%	337
Maintenance and Repair Workers, General	49-9071	127,053	149,002	158,825	6.6%	16,144
CALIFORNIA	TOTALS	156,521	187,310	198,761	6.1%	20,401

Exhibit 2 compares the rates of change in the total number of jobs between 2009 and 2019 across the Far North. It also compares occupational demand projections from 2019 through 2024 across the same areas. The rate of change is indexed to the base year 2009 total number of jobs.

Exhibit 2. Rate of Change for Selected Occupations⁴



² The 7-county North region includes El Dorado, Placer, Nevada, Sacramento, Sutter, Yolo and Yuba. The 15-county Far North region includes the Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama and Trinity counties. The 22-county North/Far North region is the combination of the 7-county North and 15-county Far North regions.

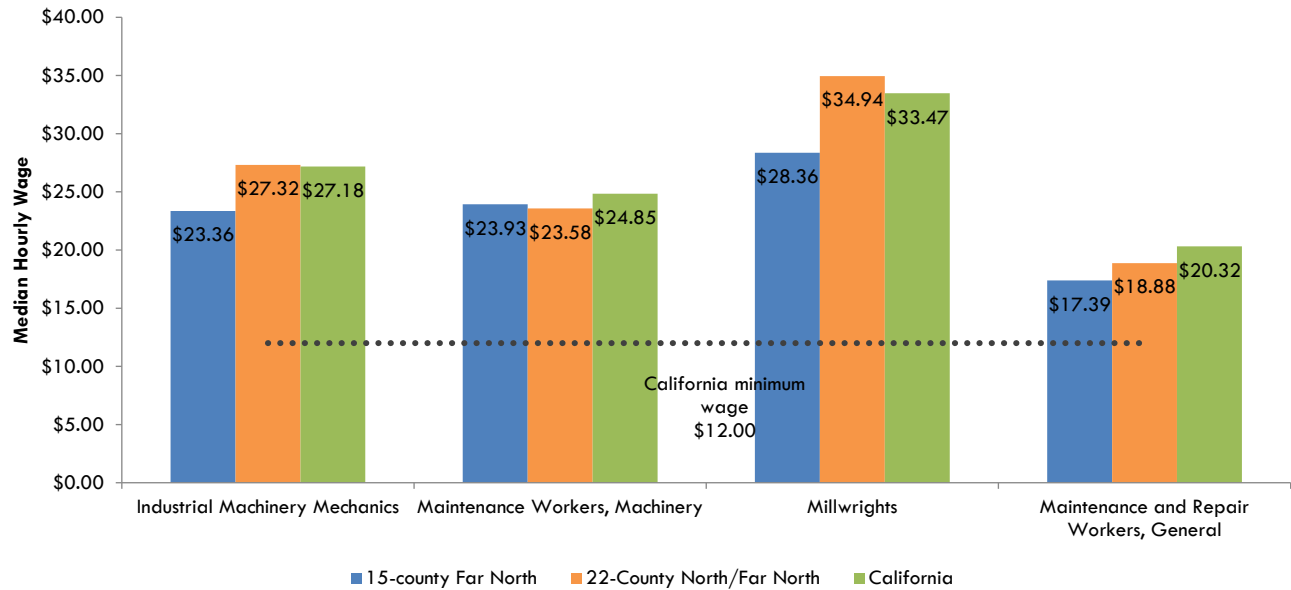
³ Emsi 2020.2; QCEW Employees, Non-QCEW Employees and Self-Employed.

⁴ Ibid.

WAGES

Exhibit 3 compares the median hourly wages of the selected occupations in the study regions to the statewide minimum wage of \$12 per hour. The Far North living wage of \$10.87 per hour is currently less than the state's minimum wage.⁵

Exhibit 3. Wages for selected occupations⁶



JOB POSTINGS

Burning Glass found 536 job postings across the Far North for the selected occupations. This data represents job listings posted online within the last year, from June 1, 2019, through May 31, 2020.

Exhibit 4 shows the number of job postings by location at the city level. All job postings had a place.

Exhibit 4. Job postings location by county⁷

City	Job Postings	Share of Job Postings
Redding, CA	78	15%
Chico, CA	77	14%
Oroville, CA	43	8%
Ukiah, CA	27	5%
Eureka, CA	26	5%
Corning, CA	23	4%
Crescent City, CA	22	4%
Red Bluff, CA	20	4%
Quincy, CA	16	3%
Scotia, CA	14	3%

⁵ "Family Needs Calculator (Formerly the Self-Sufficiency Standard)." Insight Center for Community Economic Development, February 2018. <https://insightccd.org/2018-family-needs-calculator/>.

⁶ Emsi 2020.2; QCEW Employees, Non-QCEW Employees and Self-Employed.

⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool," <http://www.burning-glass.com>, 2019.

Exhibit 5 shows the top job titles for the selected occupations. All job postings included a job title.

Exhibit 5. Top job titles by number of job postings⁸

Job Title	Job Postings	Share of Job Postings
Maintenance Technician	110	21%
Maintenance Worker	34	6%
Service Technician	31	6%
Mechanic	27	5%
Maintenance Mechanic	26	5%
Millwright	25	5%
Maintenance	24	4%
Maintenance Engineer	18	3%
Repair Technician	16	3%
Custodian	14	3%

Exhibit 6 shows the skills most in-demand for the selected occupations. Eighty-eight percent of job postings included skills information.

Exhibit 6. Top skills by number of job postings⁹

Specialized Skills	Job Postings	Share of Job Postings
Repair	370	78%
Plumbing	208	44%
Painting	156	33%
HVAC	149	31%
Carpentry	141	30%
Predictive / Preventative Maintenance	108	23%
Machinery	106	22%
Welding	106	22%
Cleaning	89	19%
Hand Tools	76	16%
Foundational Skills	Job Postings	Share of Job Postings
Physical Abilities	170	36%
Preventive Maintenance	160	34%
Troubleshooting	96	20%
Communication Skills	85	18%
Detail-Oriented	79	17%
Teamwork / Collaboration	67	14%
Computer Literacy	66	14%
English	60	13%
Organizational Skills	58	12%
Problem Solving	47	10%
Data & Software Skills	Job Postings	Share of Job Postings
Microsoft Office	37	8%
Microsoft Outlook	25	5%
Microsoft Excel	24	5%
Lockout / Tagout (LOTO)	20	4%
Microsoft Word	15	3%

⁸ Ibid.

⁹ Ibid.

EDUCATION AND TRAINING

Exhibit 7 shows the education requirements, on-the-job training, and work experience requirements for entry-level positions in the selected occupations.

Exhibit 7. Typical education, training, and work experience for selected occupations¹⁰

Occupations	SOC	Typical Entry-Level Education	Typical On-The-Job Training	Work Experience Required
Industrial Machinery Mechanics	49-9041	High school diploma or equivalent	None	Long-term on-the-job training
Maintenance Workers, Machinery	49-9043	High school diploma or equivalent	None	Long-term on-the-job training
Millwrights	49-9044	High school diploma or equivalent	None	Apprenticeship
Maintenance and Repair Workers, General	49-9071	High school diploma or equivalent	None	Moderate-term on-the-job training

Exhibit 8 shows the average level of educational attainment for workers 25 years and older by occupation across the U.S.

Exhibit 8. Typical educational attainment for selected occupations, nationally¹¹



PROGRAM SUPPLY

Exhibit 9 compares the average number of certificates and degrees conferred by selected community college programs over the last three academic years. There are no associate degrees awarded in the analyzed programs.

Exhibit 10. Annual average of awards conferred by training providers, 2016-2019¹²

Industrial systems technology and maintenance (0945.00)	Certificates			
	2016-17	2017-18	2018-19	Average
Shasta	0	1	--	1
Totals	0	1	--	1

¹⁰ Emsi 2020.2; QCEW Employees, Non-QCEW Employees and Self-Employed.

¹¹ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation." U.S. Bureau of Labor Statistics. U.S. Department of Labor, September 4, 2019. <https://www.bls.gov/emp/tables/educational-attainment.htm>.

¹² Ibid.

FINDINGS

- Between 2009 and 2019, jobs for manufacturing maintenance technicians increased by 23% in the Far North.
- Jobs for manufacturing maintenance technicians in the Far North are projected to increase by 6% over the next five years, adding 269 new jobs by 2024.
- Manufacturing maintenance technicians are projected to have 532 job openings per year over the next five years. Eighty-one percent of those openings will be for general maintenance and repair workers.
- Hourly wages for the selected occupations are typically above both the Far North living wage (\$10.87 per hour) and the state minimum wage (\$12 per hour). Median hourly wages range from a low of \$17.39 for general maintenance and repair workers to a high of \$28.36 for millwrights.
- While the typical entry-level education for manufacturing maintenance technicians is a high school diploma, most of the selected occupations require at least a moderate length of on-the-job training. Millwrights, in particular, require an apprenticeship.
- There is one Far North postsecondary training provider for programs related to manufacturing maintenance technicians. Shasta College conferred an average of one certificate in related training programs between 2016 and 2019.

RECOMMENDATIONS

- Based on a three-year average of annual awards in related Far North manufacturing maintenance technician programs (one certificate) and projected yearly openings for manufacturing maintenance technicians (532 openings), the region appears to have room for new training programs.

COE Recommendation		
Move forward with program	Program is not recommended	Additional information needed
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

METHODOLOGY

Occupations in this report were identified using O*Net. Findings in this report were determined using labor market data from the Bureau of Labor Statistics (BLS), U.S. Census Bureau data from Emsi, and jobs posting data from Burning Glass.

APPENDIX A: DATA SOURCES

Sources used for data analysis purposes in this report include:

- U.S. Department of Labor/Employment and Training Administration (DOLETA) O*NET Online
- Burning Glass, Labor Insight/Jobs
- Economic Modeling Specialists, International (EMSI)
- California Employment Development Department, Labor Market Information Division (EDD, LMID)
- Bureau of Labor Statistics, Occupational Employment Statistics (OES)
- California Community Colleges Chancellor's Office, Cal-PASS Plus LaunchBoard
- Living Insight Center for Community Economic Development, Self-Sufficiency Standard Tool for California
- California Community Colleges Chancellor's Office Management Information Systems (MIS Data Mart)
- U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

For more information, please contact:

Ebony J. Benzing, Manager
Center of Excellence, North/Far North Region
Ebony.Benzing@losrios.edu

