

# LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION



C·O·E

CENTERS OF EXCELLENCE  
FOR LABOR MARKET RESEARCH

## CONSTRUCTION PROJECT MANAGEMENT IN THE FAR NORTH

Far North  
Center of Excellence

SEPTEMBER 2022

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## SUMMARY

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The Far North Center of Excellence for Labor Market Research prepared this report to provide a labor market analysis of educational supply and occupational demand for middle-skilled career pathways in the Far North subregion. This report aims to determine if demand in the local labor market is unmet by the supply from existing community college programs and other postsecondary training providers.

This report primarily focuses on training that leads to jobs in middle-skilled occupations - jobs that typically require education beyond a high school diploma but less than a bachelor's degree - but may include higher-skilled occupations for training pathways that lead to a bachelor's degree. Lowered skilled occupations are rarely considered in this analysis due to the lessened barriers for entry-level work, such as no formal education and on-the-job training requirements.

Key findings include:

- The Far North subregion held more than 4,000 construction project management jobs in 2021. These jobs are projected to increase by 7% over the next five years, adding nearly 300 new jobs to the subregion by 2026.
- Jobs in the construction project management group are projected to grow faster in the Far North subregion than in California between 2021 and 2026.
- Over the next five years, construction project management jobs will have 439 annual openings across the Far North.
- Wage data shows that construction project management occupations earn \$5 to \$15 above the single adult living wage of \$12.74 per hour. Almost all occupations have entry-level wages close to or above the living wage to sustain a small family.
- There are seemingly very few community college programs focused on project management or construction project management in the Far North.

# INTRODUCTION

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The Far North Center of Excellence (COE) was asked to provide labor market information for a proposed program at a regional community college. This report focuses on the following Standard Occupational Classification (SOC) occupations and codes:

- These middle-skill occupations require more education and training beyond a high school diploma but less than a four-year degree:
  - Civil Engineering Technologists and Technicians (17-3022)
  - First-Line Supervisors of Construction Trades and Extraction Workers (47-1011)
  - Construction and Building Inspectors (47-4011)
- Students who transfer and earn a four-year degree could pursue the following high-skill occupations:
  - Construction Managers (11-9021)
  - Project Management Specialists (13-1082)

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

- Civil and Construction Management (0957.00)
- Construction Inspection (0957.20)

The corresponding Classification of Instructional Program (CIP) title(s) and code(s) are:

- Building/Construction Site Management/Manager (46.0412)
- Construction Management, General (52.2001)
- Construction Project Management (52.2002)
- Building/Home/Construction Inspection/Inspector (46.0403)

# OCCUPATIONAL DEMAND

Exhibit 1 summarizes the five-year projected job growth for middle-skill and high-skill occupations in the Far North, North/Far North, and California.

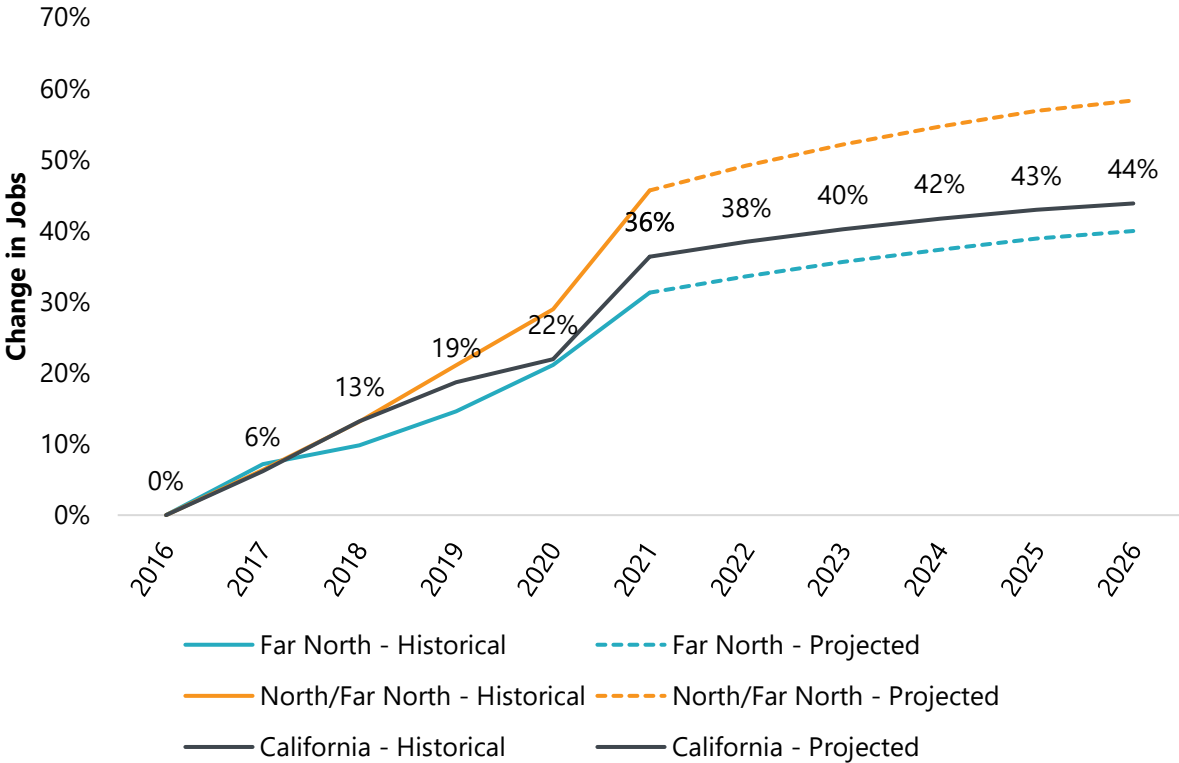
**Exhibit 1. Employment and projected demand, 2021-2026**

Occupation	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	2021-2026 Annual Openings
Construction Managers	1,508	1,632	124	8%	136
Project Management Specialists	815	898	83	10%	78
Civil Engineering Technologists and Technicians	246	247	1	0%	23
First-Line Supervisors of Construction Trades and Extraction Workers	1,479	1,563	84	6%	169
Construction and Building Inspectors	285	279	(5)	(2%)	33
<b>Far North</b>	<b>4,333</b>	<b>4,619</b>	<b>286</b>	<b>7%</b>	<b>439</b>
Construction Managers	6,364	7,068	704	11%	616
Project Management Specialists	5,945	6,419	474	8%	540
Civil Engineering Technologists and Technicians	924	956	32	3%	93
First-Line Supervisors of Construction Trades and Extraction Workers	8,044	8,781	737	9%	958
Construction and Building Inspectors	1,321	1,337	16	1%	160
<b>North/Far North</b>	<b>22,598</b>	<b>24,561</b>	<b>1,963</b>	<b>9%</b>	<b>2,367</b>
Construction Managers	61,682	67,166	5,484	9%	5,652

Occupation	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	2021-2026 Annual Openings
Project Management Specialists	86,600	91,388	4,788	6%	7,372
Civil Engineering Technologists and Technicians	6,609	6,815	206	3%	665
First-Line Supervisors of Construction Trades and Extraction Workers	77,761	80,517	2,756	4%	8,160
Construction and Building Inspectors	12,780	13,031	251	2%	13,031
<b>California</b>	<b>245,432</b>	<b>258,917</b>	<b>13,485</b>	<b>5%</b>	<b>34,880</b>

Exhibit 2 compares the percent change in jobs between 2016 through 2021 and the projected changes through 2026. The rate of change is indexed to the total number of jobs in 2016.

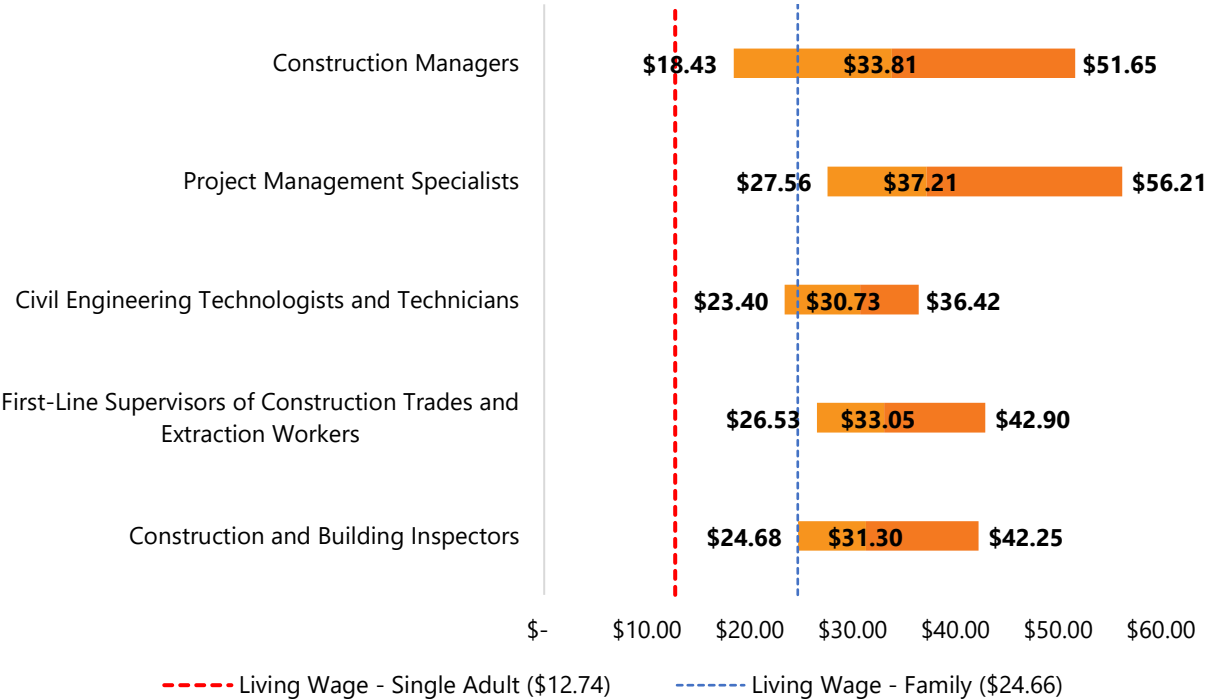
**Exhibit 2. Changes in employment, 2016-2026**



# WAGES

Exhibit 3 compares the selected occupations' entry-level, median, and experienced wages to the Far North living wage for a single adult (\$12.74 per hour) and a small family<sup>1</sup> (\$24.66 per hour).

**Exhibit 3. Comparison of wages by occupation, 2021**



# JOB POSTINGS

This section analyzes recent data from online job postings (real-time LMI). Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends.

The Far North COE identified 318 online job postings for the selected occupations in the 15-county Far North subregion. Job posting data comes from Lightcast (formerly EMSI Burning Glass) and represents new listings posted online within the last year, from September 1, 2021, to August 31, 2022.

<sup>1</sup> A small family is defined as a single adult and one school aged child (between the ages of 5 and 12 years).

## Occupations and Job Titles

Exhibit 4 details the number of online job postings for the selected occupations.

### Exhibit 4. Number of job postings by occupation

Occupation	Job Postings	Share of Job Postings
Construction Managers	115	36%
Project Management Specialists	94	30%
First-Line Supervisors of Construction Trades and Extraction Workers	42	13%
Civil Engineering Technologists and Technicians	34	11%
Construction and Building Inspectors	33	10%
<b>Total Job Postings</b>	<b>318</b>	<b>100%</b>

Exhibit 5 shows the top 10 job titles with the most job postings and the share. All job postings included a job title.

### Exhibit 5. Top jobs titles

Job Title	Job Postings	Share of Job Postings
Project Managers	25	8%
Power Generation Technicians	23	7%
Superintendents	14	4%
Building Inspectors	11	3%
Construction Managers	11	3%
Engineering Technicians	9	3%
Foremen	8	3%
Civil Engineering Technicians	8	3%
Subcontractor Installers	8	3%
Construction Superintendents	7	2%



## Employers

Exhibit 6 shows the top 10 employers with the most job postings for the selected occupations. Staffing and recruitment companies have been removed from the search results.

### Exhibit 6. Employers with the most job postings

Employer	Job Postings	Share of Job Postings
PG&E	26	8%
D.R. Horton	12	4%
California State University, Chico	7	2%
Bureau of Reclamation	6	2%
Bristol-Myers Squibb	5	2%
The Wright Group	5	2%
US Forest Service	5	2%
MGE Underground	5	2%
City Of Chico	4	1%
Leidos	4	1%

## Certifications, Skills, and Experience

Exhibit 7 shows the most relevant certifications requested by employers for the selected occupations.

### Exhibit 7. Most in-demand certifications

Certification	Job Postings	Share of Job Postings
Project Management Professional Certification	14	4%
Security Clearance	8	3%
Associate Project Management	3	1%
Certified Construction Manager	2	1%

Certification	Job Postings	Share of Job Postings
Certified Associate In Project Management	1	0%

Exhibit 8 shows the top 10 skills across three categories for the studied occupations: specialized, human-centered, and technical skills. Specialized skills are specific to the occupation and represent job-specific competencies. Baseline skills are foundational skills that cross occupations and industries, and many baseline skills are also considered soft skills. Technical skills refer to the specific software and technology regularly encountered on the job.

**Exhibit 8. Most in-demand specialized skills**

Top 10 Specialized Skills	Top 10 Baseline Skills	Top 10 Technical Skills
Construction	Communications	Microsoft Office
Construction Management	Management	Microsoft Excel
Subcontracting	Valid Driver's License	Microsoft Word
Project Schedules	Coordinating	SAP Applications
Procurement	Planning	Microsoft Outlook
Contract Management	Operations	Microsoft PowerPoint
Cost Estimation	Leadership	Geographic Information Systems
Accounting	Budgeting	Microsoft Project
Invoicing	Written Communication	AutoCAD
Project Management	Scheduling	Primavera (Software)

Exhibit 9 shows employers' minimum level of education for job postings for the selected occupations. Forty-eight percent (n = 153) of job postings did not include a preferred education level.

**Exhibit 9. Employer-preferred minimum education levels**

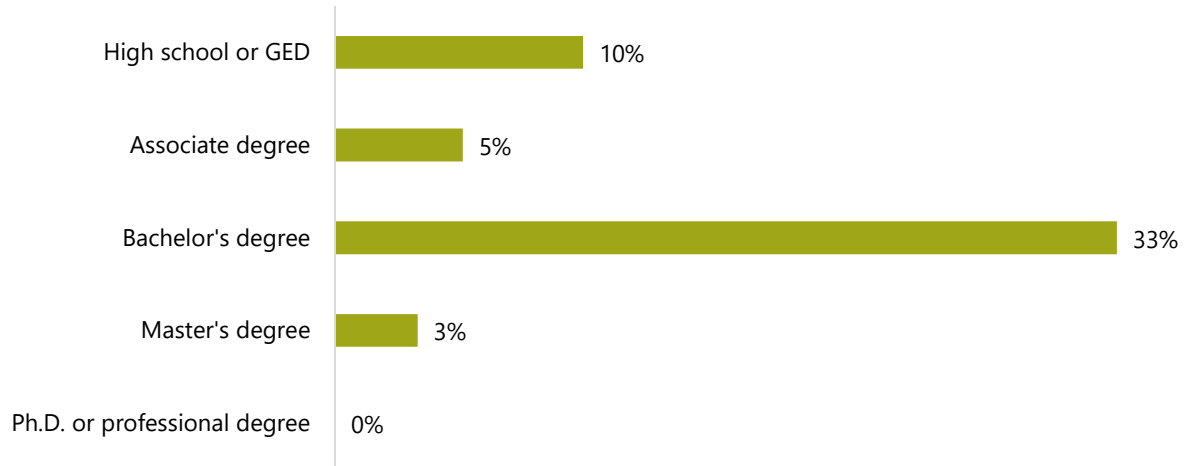
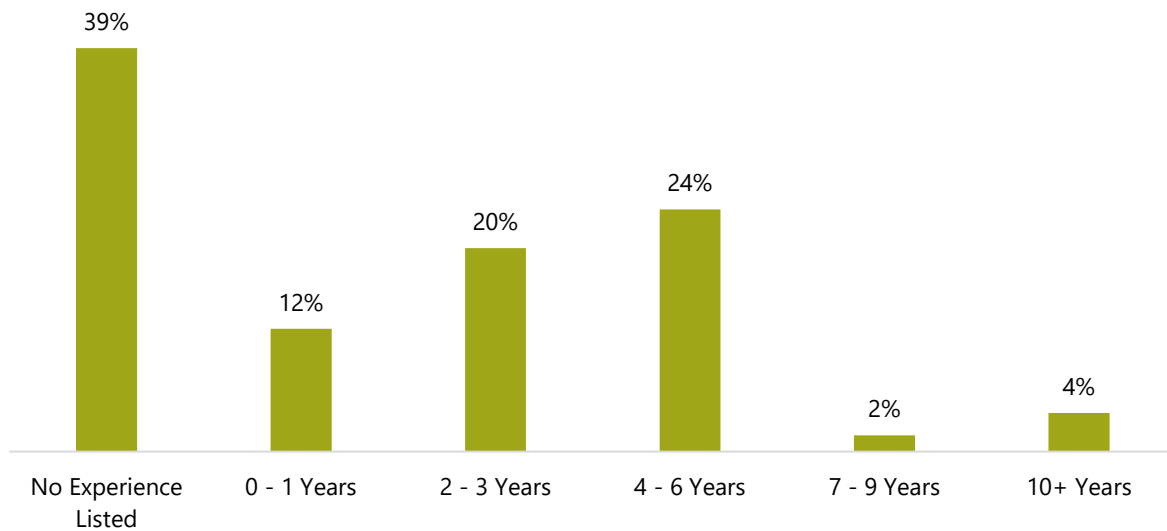


Exhibit 10 shows the experience levels required by employers for job postings for the selected occupations. All job postings included a preferred experience level.

**Exhibit 10. Employer-preferred experience levels**



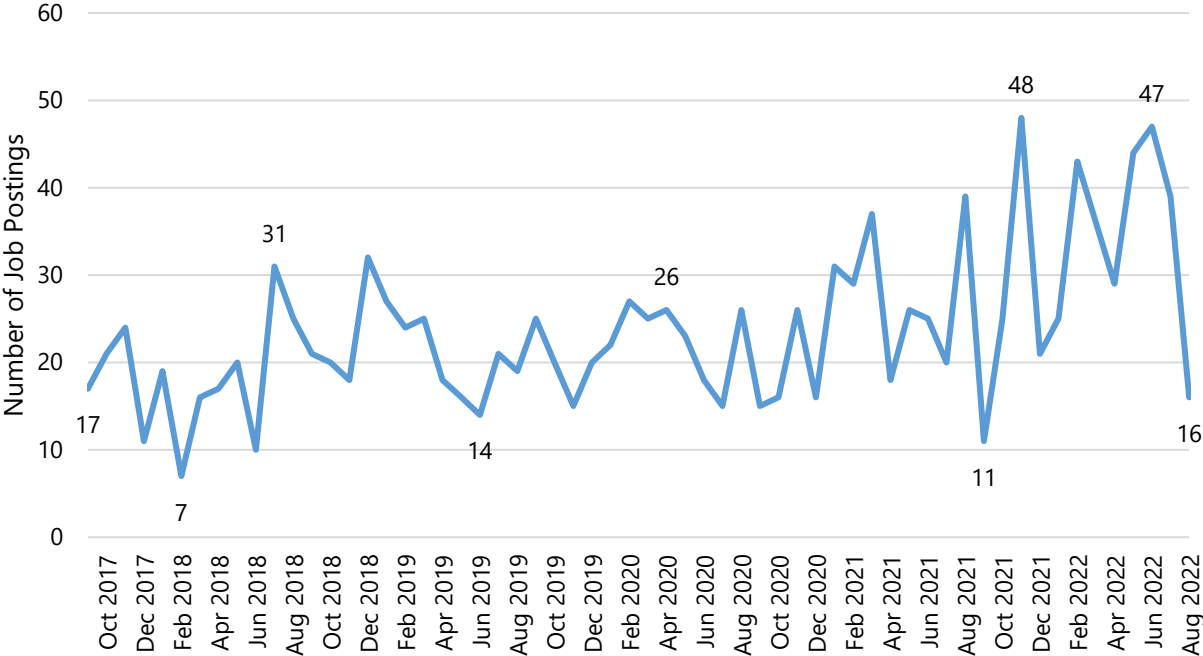
# SKILL ANALYSIS

A search of online job postings revealed increasing demand for project management skills. Between September 1, 2021, to August 31, 2022, 384 online job postings included "project management" as a skill in the 15-county Far North subregion.

## Skill Posting Trends

An analysis of five years of online job postings shows an increase in employers searching for workers with project management skills (Exhibit 11). Job postings with "project management" as a specialized skill nearly tripled between September 2017 and June 2022, and 16 job postings included "project management" as a specialized skill in August 2022.

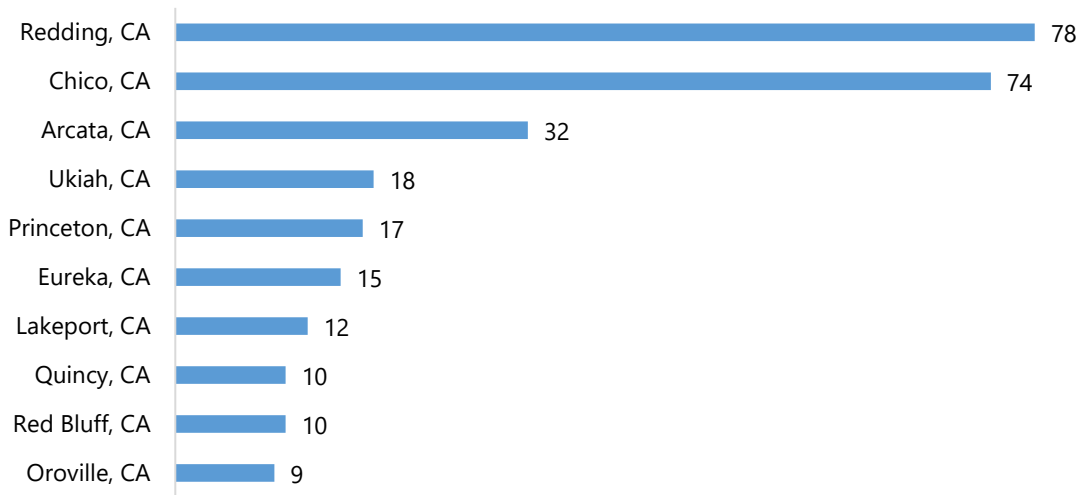
**Exhibit 11. Job posting with project management trends, Sept 2017 - August 2022**



## Top Cities for Skill

Exhibit 12 shows the top 10 cities for employers requesting "project management" as a specialized skill. Redding, CA had the most job postings requesting project management (n = 78), closely followed by Chico, CA (n = 74), and then Arcata, CA (n = 32).

### Exhibit 12. Top cities for project management skill



## Top Employers for Skill

Exhibit 13 shows the top 10 employers requesting "project management" as a specialized skill, and PG&E had the most job postings requiring project management skills.

### Exhibit 13. Top employers for project management skill

Employers for Project Management	Job Postings	Share of Job Postings
PG&E	60	16%
California State University	17	4%
Trimble	12	3%
Bristol-Myers Squibb	11	3%
County of Lake	7	2%
Psomas & Associates	6	2%
Spectrum	6	2%

Employers for Project Management	Job Postings	Share of Job Postings
Enloe Medical Center	5	1%
Shasta County Health & Human Services Agency	5	1%
Hitachi Solutions	4	1%

### Top Occupations for Skill

Exhibit 14 shows the top 10 occupations with job postings that included "project management" as a specialized skill. All but two occupations - CNC tool operators and general and operations managers - are considered high-skill occupations, which typically require a bachelor's degree for entry-level jobs. For a complete list of occupations, please contact the Far North COE.

#### Exhibit 14. Top occupations for project management skill

Occupation with Skill	Job Postings	Share of Job Postings
Civil Engineers	57	15%
Project Management Specialists	27	7%
Managers, All Other	24	6%
Computer Systems Analysts	17	4%
Computer Occupations, All Other	16	4%
Construction Managers	13	3%
Computer Numerically Controlled Tool Operators*	10	3%
General and Operations Managers*	9	2%
Medical and Health Services Managers	9	2%
Electrical Engineers	9	2%

An asterisk (\*) denotes a middle-skill occupation, which typically requires more education and training than a high school diploma but less than a four-year degree.

### Top Co-Occurring Skills

Exhibit 15 shows the most common specialized, baseline, and software/technology skills associated with project management. Specialized skills are specific to the occupation and

represent job-specific competencies. Baseline skills are foundational skills that cross occupations and industries, and many baseline skills are also considered soft skills. Technical skills refer to the specific software and technologies regularly encountered on the job.

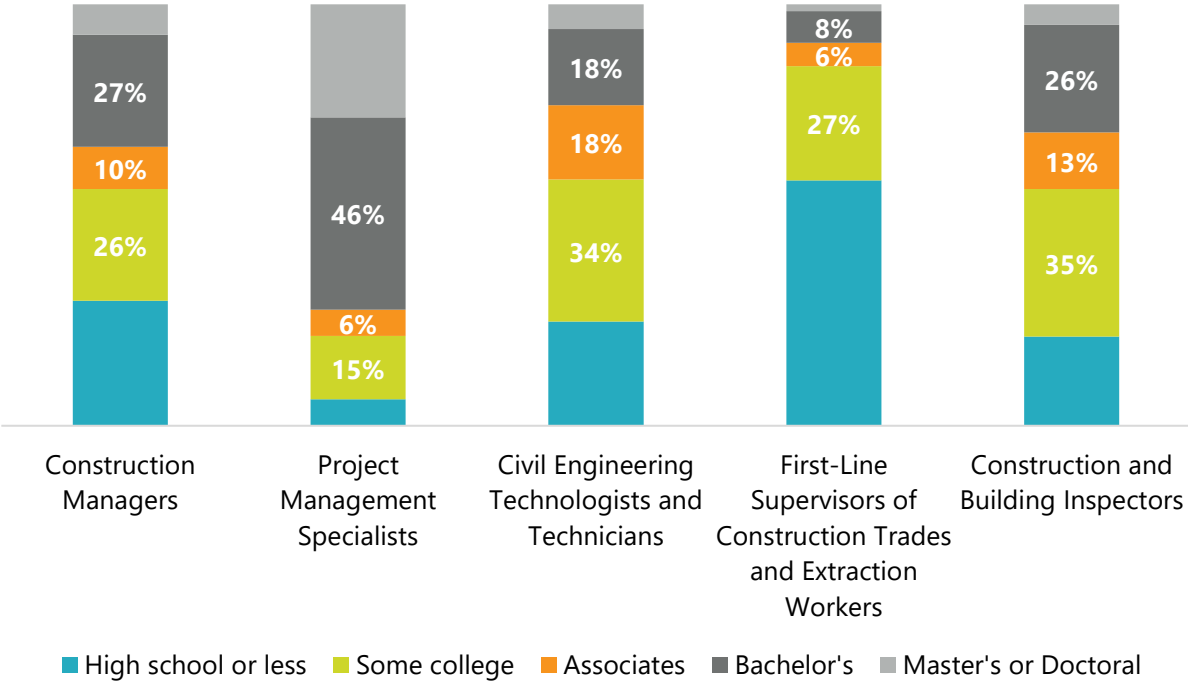
**Exhibit 15. Top co-occurring skills with project management**

Top Co-occurring Specialized Skills	Top Co-occurring Baseline Skills	Top Co-occurring Technical Skills
Project Management	Communications	Microsoft Office
Construction	Management	Microsoft Excel
Contract Management	Leadership	Microsoft PowerPoint
Civil Engineering	Planning	Microsoft Word
Procurement	Operations	Geographic Information Systems
Process Improvement	Coordinating	Microsoft Outlook
Project Implementation	Research	Microsoft Project
Accounting	Valid Driver's License	Operating Systems
Corrective And Preventive Action (CAPA)	Microsoft Office	SAP Applications
Project Engineering	Innovation	SQL (Programming Language)

# EDUCATION AND TRAINING

The U.S. Census Bureau collects education data from workers employed in occupations. Exhibit 16 shows the state-level educational attainment of the current workforce in the selected occupations.

**Exhibit 16. California worker educational attainment for selected occupations, 2019**



The Bureau of Labor Statistics (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 the BLS publishes projections data. Exhibit 17 shows the selected occupations' entry-level job requirements.

**Exhibit 17. Typical education, work experience, and on-the-job training requirements**

Occupation	Typical Entry-level Education	Work Experience Required	On-the-job Training Required
Construction Managers	Bachelor's degree	None	Moderate-term on-the-job training
Project Management Specialists	Bachelor's degree	None	None
Civil Engineering Technologists and	Associate's degree	None	None



Occupation	Typical Entry-level Education	Work Experience Required	On-the-job Training Required
Technicians			
First-Line Supervisors of Construction Trades and Extraction Workers	High school diploma or equivalent	Five years or more	None
Construction and Building Inspectors	High school diploma or equivalent	Five years or more	Moderate-term on-the-job training

## EDUCATIONAL SUPPLY

Educational supply for an occupation can be estimated by analyzing the number of awards issued in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes. Exhibit 18 shows the TOP and CIP codes for educational programs related to the selected occupations.

### Exhibit 18. TOP and CIP codes for training programs related to the selected occupations

TOP Programs and Codes	Aligned CIP Programs and Codes
Civil and Construction Management (0957.00)	Building/Construction Site Management/Manager (46.0412) Construction Management, General (52.2001) Construction Project Management (52.2002)
Construction Inspection (0957.20)	Building/Home/Construction Inspection/Inspector (46.0403)

## Community College Supply

Exhibit 19 compares the average number of certificates and degrees from selected Far North community college programs over the last three academic years.

### Exhibit 19. Annual average community college awards by program, 2018-19 through 2020-21

Program - TOP Code	College	Annual Awards 2018-19	Annual Awards 2019-20	Annual Awards 2020-21	3-Yr Annual Awards Average
Construction Inspection (0957.20)	Butte	0	0	1	0.3
	<b>Grand Total</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0.3</b>

## Other Postsecondary Supply

The Far North COE identified one related bachelor's degree program in the Far North. California State University, Chico, or Chico State, offers a bachelor's degree program in Construction Management; however, completion data for this program is unavailable.

Detailed information about Chico State's construction management program can be found online [here](#).

## FINDINGS

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- This report focuses on five occupations in the construction project management pathway: civil engineering technologists and technicians, construction and building inspectors, construction managers, first-line supervisors of construction trades and extraction workers, and project management specialists.
  - Civil engineering technologists and technicians, construction and building inspectors, and first-line supervisors of construction trades and extraction workers are considered "middle skill" occupations. Jobs in middle-skill occupations typically require more education and training than a high school diploma but less than a four-year degree.
  - Construction managers and project management specialists are high-skill occupations that usually require a four-year bachelor's degree for entry-level jobs.
- The Far North subregion held more than 4,000 construction project management jobs in 2021. These jobs are projected to increase by 7% over the next five years, adding nearly 300 new jobs to the subregion by 2026.
  - Jobs for high-skill occupations - construction managers and project management specialists - are projected to grow at faster rates of 8% and 10% over the next five years.
  - Middle-skill construction project management jobs - civil engineering technologists and technicians, construction and building inspectors, and first-line supervisors of construction trades and extraction workers - are projected to remain either stable or have slightly lower than average job growth over the next five years.
- Jobs in the construction project management group are projected to grow faster in the Far North subregion than in California between 2021 and 2026.
- Over the next five years, construction project management jobs will have 439 annual openings across the Far North.
  - Almost half of the annual job openings (n = 214) will be in occupations that require a four-year degree.
- Wage data shows that construction project management occupations earn \$5 to \$15 above the single adult living wage of \$12.74 per hour. Almost all occupations, except construction managers, pay entry-level wages close to or above the living wage to sustain a small family.
- According to real-time labor market information, there were about 318 online job postings for construction project management occupations between September 1, 2021, and August 31, 2022. More than two-thirds of the job postings were concentrated

among the high-skill occupations - construction managers and project management specialists.

- Additional analysis of online job postings reveals an increasing demand for project management skills in the Far North. The number of job postings with "project management" as a specialized skill nearly tripled between September 2017 and June 2022. And in the last 12 months, 384 job postings in the Far North mentioned "project management" as a skill or duty in the job description.
  - Forty percent of employers searching for workers with project management skills were located in Redding, CA, and Chico, CA.
  - Construction managers and project management specialists were among the top 10 occupations with the most job postings requiring project management skills.
  - And, 8 out of 10 top occupations requiring project management skills typically require a four-year degree for entry-level work.
- Between 21% and 52% of incumbent workers in the studied occupations have educational attainment levels consistent with community college offerings (some college or associate degrees). Another 8% to 46% of workers in these occupations hold a bachelor's degree.
  - Project management specialists had the highest level of educational attainment. As of 2019, 21% of workers in the occupation had either attended some college or held an associate's degree, while another 46% held a bachelor's degree.
  - Workers in the other four occupations - construction managers, civil engineering technologists and technicians, construction and building inspectors, and first-line supervisors of construction trades and extraction workers - tended to have an educational background aligned with community college offerings. On average, about 42% of these workers either attended some college or held an associate's degree.
- There are seemingly very few community college programs focused on project management or construction project management in the Far North. Butte College, located in Butte County, offers a certificate and degree in Construction Management.<sup>2</sup> Butte also offers a certificate and degree in Building Inspection Technology.
- California State University, Chico, or Chico State, offers a bachelor's degree program in Construction Management. Completion data for this program is not available.

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<sup>2</sup> Source: COCI 2.0

## RECOMMENDATIONS

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- Based on a three-year average of annual awards in the Far North, construction project management programs and projected yearly openings, the supply gap analysis shows that the region seems to have room for additional training.
  - Community colleges and other postsecondary training providers issued an average of less than one award over the last three years.
  - There are 439 projected annual openings for construction project management jobs. Almost half of these annual openings (n = 214) will be in occupations that require a four-year degree.
- However, a certificate or degree program in construction project management alone is likely insufficient to prepare students for entry-level jobs in several of these occupations. Students interested in careers in civil engineering, construction, and building inspectors will likely need to complete additional training that aligns with those careers.
- As a result, a construction project management program should be considered complementary to the primary training that civil engineering technologists and technicians, first-line supervisors of construction trades workers, and construction and building inspectors would receive.
- Furthermore, the project management skills analysis suggests that the skill is most in-demand among occupations that require a four-year degree. Far North community colleges proposing new project management or construction project management programs should ensure there are dedicated transfer pathways to a nearby four-year degree program.

## APPENDIX A. METHODOLOGY AND SOURCES

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This report identified Occupations using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and O\*Net OnLine. This report's findings 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.

Lightcast (Formerly EMSI/Burning Glass) 2022.3; QCEW Employees, Non-QCEW Employees, and Self-Employed. <https://www.economicmodeling.com/>. *Note: 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).*

Integrated Postsecondary Education Data System (IPEDS). National Center for Education Statistics. U.S. Department of Education. <https://nces.ed.gov/ipeds/>.

Labor Market Information Division. California Employment Development Department. <https://labormarketinfo.edd.ca.gov/>.

Management Information Systems (MIS) Data Mart. California Community Colleges Chancellor's Office. <https://datamart.cccco.edu/>.

O\*NET OnLine. U.S. Department of Labor/Employment and Training Administration (DOL ETA). <https://www.onetonline.org/>.

Public Use Microdata Sample (PUMS). U.S. Census Bureau American Community Survey (ACS). <https://www.census.gov/programs-surveys/acs/microdata.html>

Self-Sufficiency Standard Tool for California. The University of Washington. <http://www.selfsufficiencystandard.org/>

"Taxonomy of Programs." California Community Colleges Chancellor's Office. June 2012, 6<sup>th</sup> Edition. <https://www.cccco.edu/-/media/CCCCO-Website/About-Us/Divisions/Educational-Services-and-Support/Academic-Affairs/What-we-do/Curriculum-and-Instruction-Unit/Files/TOPmanual6200909corrected12513pdf.ashx>

"TOP-CIP-SOC Crosswalk." Centers of Excellence for Labor Market Research. June 2021 Edition. <http://coecc.net/>

## APPENDIX B. GLOSSARY OF KEY TERMS

Key Terms	Definition
<b>Occupation</b>	Occupation refers to professions, or careers, in the workforce. Occupations differ from jobs in that jobs show the number of positions held in a given occupation.
<b>Jobs</b>	<p>A job is any position where a worker provides labor for monetary compensation.</p> <p>Job numbers include employees (those who work for businesses) and proprietors (those who work for themselves). Full- and part-time jobs are included and counted equally (i.e., not adjusted to full-time equivalents). Data for jobs, or employment, are annual averages.</p>
<b>Job Change</b>	Job change is the net increase or decrease of jobs over a given timeframe.
<b>Job Openings</b>	<p>Job openings are the projected number of positions available for workers entering an occupation.</p> <p>Openings include growth and replacement jobs. Growth jobs are the positive change in the total number of workers employed. Replacement jobs are the estimates of new workers needed to replace workers permanently leaving the occupation.</p>
<b>Wages</b>	Wages, or compensation, show workers' percentile and average earnings in a given occupation. The 25th-percentile and 75th-percentile hourly wages are used as a proxy for entry-level and experienced-level wages.
<b>Living Wage</b>	The living wage is the level of income a single adult with no children must earn to meet basic needs. The living wage is calculated using basic levels of allowances for food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs.
<b>Educational Attainment</b>	Educational attainment is the level of education achieved by workers in a given occupation. The data includes workers aged 25 years and older.
<b>Typical Entry-level Education</b>	The education level generally required for employment in an occupation. It may differ from the actual educational levels attained by workers in any given occupation.
<b>Work Experience Required</b>	The level of prior experience a worker needs to enter a job in a given occupation.
<b>On-the-job Training Required</b>	The level of on-the-job training a worker needs to obtain competency in a given occupation.
<b>Awards</b>	Awards are the number of certificates and degrees conferred for a specific course of study in a given year. Awards counts "papers" and, as a result, may be greater than the actual number of students who complete a program.

**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.

**Important Disclaimer:** All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. Efforts have been made to qualify and validate the accuracy of the data and the reported findings; however, neither the Centers of Excellence, COE host District, nor California Community Colleges Chancellor's Office are responsible for applications or decisions made by recipient community colleges or their representatives based upon components or recommendations contained in this study.

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