LABOR MARKET ANALYSIS

FOR PROGRAM RECOMMENDATION

FOR LABOR MARKET RESEARCH

NORTH FAR NORTH

COMPUTER NUMERICAL CONTROL (CNC) OCCUPATIONS

IN THE GREATER SACRAMENTO SUBREGION

MARCH 2025

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SUMMARY

The North Far North Center of Excellence for Labor Market Research (NFN COE) prepared this report to provide an analysis of occupational demand and educational supply for occupations employed across the 22-county North Far North region.

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, with a primary focus on training that leads to living wage jobs in middle-skilled occupations. Pursuant to California Education Code §78015, labor market information (LMI) is required for all new career education certificate and degree program proposals, and the North Far North Regional Consortium (NFNRC) requires LMI to come from the NFN COE. This report should serve to satisfy those requirements.

Key findings include:

- **Strong Local Demand and Growth for CNC Occupations:** CNC jobs in Greater Sacramento are projected to grow by 7% through 2028—outpacing statewide growth—and are expected to generate nearly 200 annual job openings, suggesting robust and expanding demand in the subregion.
- **Wages Improve with Experience, Often Exceeding the Living Wage:** While entry-level wages for many CNC roles fall slightly below the local living wage, median wages and advertised salaries typically exceed it. The median advertised wage for CNC positions is $29.91 per hour, nearly $6 above Sierra's living wage benchmark of $23.92 per hour.
- **Limited Postsecondary Training Supply Presents Workforce Gap:** Despite the alignment between CNC education requirements and community college offerings, training supply remains limited. Sierra College is the sole subregional provider, averaging only five CNC-related awards per year, which falls short of the demand for nearly 200 annual openings and highlights a critical gap in the workforce pipeline.

Recommendations include:

- The **North Far North Center of Excellence recommends developing new programs and updating existing ones** to better align with the workforce needs of the subregion.

INTRODUCTION

The North Far North Center of Excellence (COE) was asked to provide labor market information for a newly proposed career education 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 usually less than a four-year degree:

- Computer Numerically Controlled Tool Operators (51-9161)
- Computer Numerically Controlled Tool Programmers (51-9162)
- Machinists (51-4041)
- Tool and Die Makers (51-4111)

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

- Machining and Machine Tools (0956.30)

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

- Machine Tool Technology/Machinist (48.0501)

OCCUPATIONAL DEMAND

Exhibit 1 summarizes the five-year projected job growth for the studied occupations in the selected subregion and across the 22-county North Far North region and California.[1]

Exhibit 1. Employment and projected demand, 2023-2028

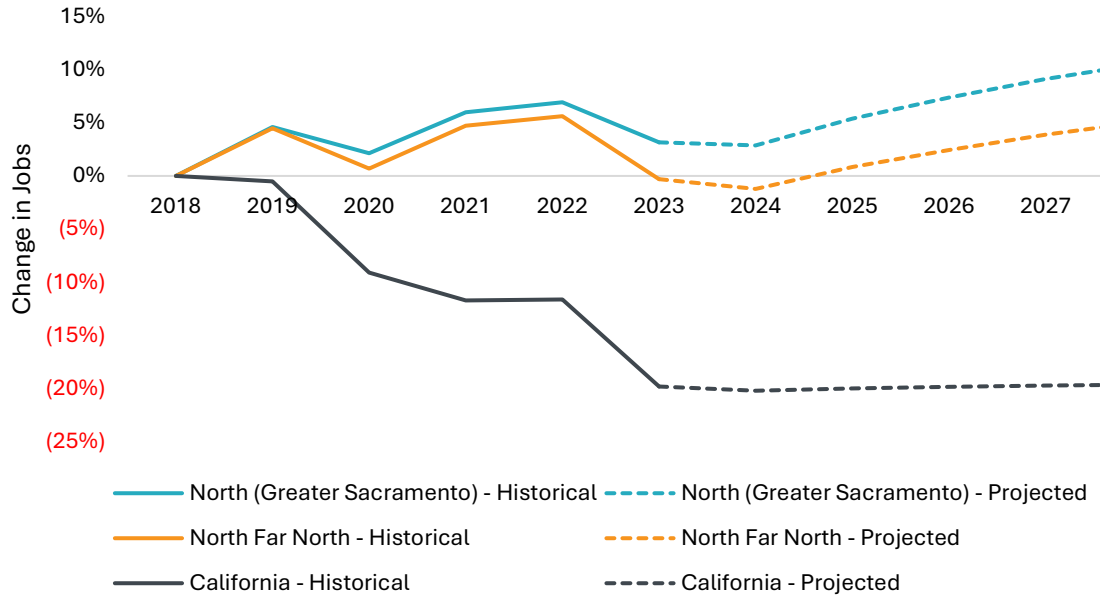
Occupation	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	2023-2028 Annual Openings
Computer Numerically Controlled Tool Operators	504	520	16	3%	51
Computer Numerically Controlled Tool Programmers	80	94	14	18%	11
Machinists	1,035	1,124	89	9%	125
Tool and Die Makers	110	114	4	4%	13
Greater Sacramento	**1,728**	**1,852**	**124**	**7%**	**199**
Computer Numerically Controlled Tool Operators	663	672	8	1%	67
Computer Numerically Controlled Tool Programmers	85	100	14	17%	11
Machinists	1,249	1,336	87	7%	148
Tool and Die Makers	129	135	6	4%	15
North Far North	**2,127**	**2,242**	**115**	**5%**	**241**
Computer Numerically Controlled Tool Operators	17,659	17,082	(577)	(3%)	1,600
Computer Numerically Controlled Tool Programmers	2,922	3,101	179	6%	310
Machinists	22,004	22,439	435	2%	2,299

[1] The 22-county North Far North is a dual region. It is represented by the North (Greater Sacramento) subregion that covers seven counties, including El Dorada, Nevada, Placer, Sacramento, Sutter, Yolo, and Yuba, and the 15-county Far North subregion which includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity.

Occupation	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	2023-2028 Annual Openings
Tool and Die Makers	2,152	2,214	62	3%	245
California	**44,736**	**44,834**	**98**	**0%**	**4,452**

Exhibit 2 compares ten years' worth of historical and projected annual changes in employment to the base number of jobs in 2018 for the selected subregion and across the 22-county North Far North region and California.

Exhibit 2. Changes in employment, 2018-2028



OCCUPATIONAL EARNINGS

Exhibits 3 and 4 compare the percentile hourly earnings for the selected occupations to the living wage for a single working adult and a working family residing in the county of the community college district that requested this report.[2,3] For additional information about changes to NFN COE's living wage comparisons, see Appendix B.

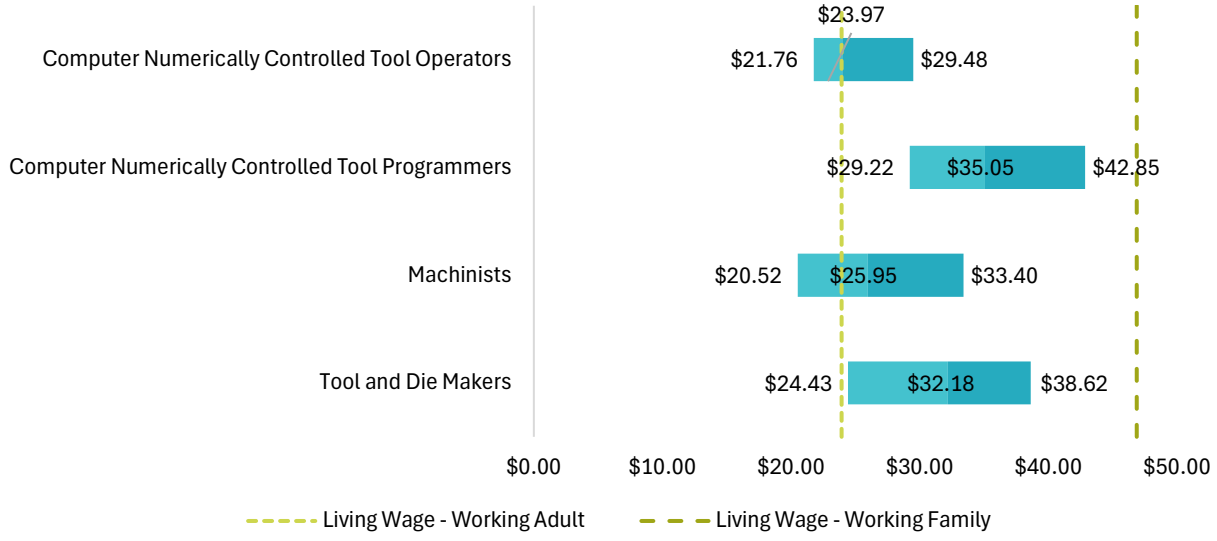
[2] Living wage is defined as the level of income one working adult with no children must earn to meet basic needs, including food, housing, transportation, healthcare, taxes, and other miscellaneous basic needs. Please note that the 25th-percentile and 75th-percentile hourly wages are used as proxy for entry-level and experienced-level wages.
[3] A working family is defined as one working adult and one infant (between the ages of 0 and 2 years).

Requesting College	Living Wage – Working Adult	Living Wage – Working Family
Sierra College	$23.92	$46.86

Exhibit 3. Hourly earnings by occupation, 2023[4]

Occupation	25th Percentile Hourly Earnings	Median Hourly Earnings	75th Percentile Hourly Earnings
Computer Numerically Controlled Tool Operators	$21.76	$23.97	$29.48
Computer Numerically Controlled Tool Programmers	$29.22	$35.05	$42.85
Machinists	$20.52	$25.95	$33.40
Tool and Die Makers	$24.43	$32.18	$38.62

Exhibit 4. Occupational hourly earnings vs. community college district's living wage



[4] Please note that the 25th and 75th percentile hourly earnings are used to estimate entry-level and experienced worker wages.

JOB POSTINGS

About Job Postings Analysis

This section of the report analyzes recent data from online job postings. Online job postings may provide additional insight into recent changes in the labor market that are not captured by historical trends. However, job postings are not the same as labor market demand; demand is based on projected annual openings.

There are several limitations to analyzing and interpreting online job postings. Employers may post a position multiple times to increase the number of job applicants. Job postings may remain online after a business chooses not to fill a position. Employers may advertise one post to fill multiple vacancies. And not all jobs are posted online.

Job posting analyses should be used to inform community college curriculum development and to identify potential employers for targeted experiential learning opportunities.

The North Far North COE identified 265 online job postings for the selected occupations across the Greater Sacramento subregion. Job posting data comes from and represents unique advertisements newly posted online during the last 12 months, from March 2024 through February 2025.

Top Employers and Job Titles

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

Exhibit 4. Job postings by occupation

Occupation	Unique Job Postings	Share of Job Postings
Machinists	132	50%
Computer Numerically Controlled Tool Operators	82	31%
Computer Numerically Controlled Tool Programmers	28	11%
Tool and Die Makers	23	9%
Total Job Postings	**256**	**100%**

Exhibit 5 shows the job titles with the most job postings for the selected occupations across the studied subregion.

Exhibit 5. Jobs titles with the most job postings

Job Title	Number of Job Postings
CNC Machinists	53
CNC Operators	19
Machinists	19
CNC Programmers	12
CNC Set Up Operators	11
CNC Mill Machinists	10
CNC Machine Operators	9
Lead CNC Machinists	7
CNC Machinists and Programmers	6
CNC Operators/Machinists	6

Exhibit 6 shows the employers with the most job postings for the selected occupations across the studied subregion.

Exhibit 6. Employers with the most job postings

Employer	Number of Job Postings
Crane	12
Interstate Advanced Materials	9
Harris & Bruno International	8
Siemens	8
Kratos Defense & Security Solutions	7
Snowline Engineering	7

Employer	Number of Job Postings
Emerson Electric	5
Petersen Precision Engineering	5
Insight Manufacturing Services	5
Balanced Body	5

Most Requested Qualifications and Skills

Exhibit 7 shows the certifications most requested by employers for the selected occupations across the studied subregion.

Exhibit 7. Most in-demand certifications

Certification	Job Postings
N/A	--

Exhibit 8 shows the most requested specialized, common, and software skills for the selected occupations across the studied subregion.[5]

Exhibit 8. Most in-demand skills

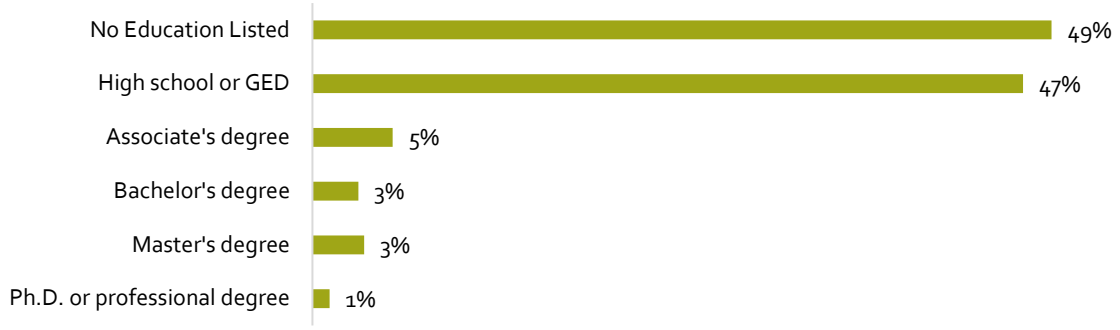
Specialized Skills	Common Skills	Software Skills
Machining	Mathematics	G-Codes
Computer Numerical Control (CNC)	Operations	Mastercam (CAD/CAM Software)
Lathes	Detail Oriented	SolidWorks (CAD)
Mills	Communication	--
Tooling	Troubleshooting (Problem-Solving)	--
CNC Machining	Lifting Ability	--

[5] Specialized skills are those primarily required to perform specific tasks in an occupation. Common skills are typically related to employability; these are skills that are prevalent across many occupations and usually include a mix of interpersonal attributes and soft skills. Software skills are specific to any software tool or programming component used to accomplish tasks in a job.

Specialized Skills	Common Skills	Software Skills
Micrometer	Arithmetic	--
G-Codes	Management	--
Machinery	Writing	--
Calipers	Teamwork	--

Exhibit 9 shows the employer-preferred minimum level of education for job postings related to the selected occupations across the subregion.

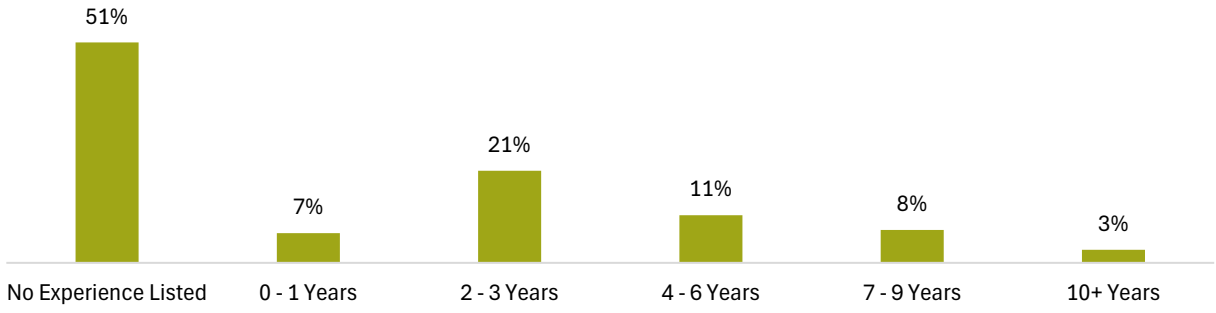
Exhibit 9. Employer-preferred education levels for the studied occupations



Note: Employers may include more than one level of education as a hiring requirement in a job posting. As a result, the values in the chart may sum to greater than 100%.

Exhibit 10 shows the employer-preferred minimum level of experience for job postings related to the studied occupations across the subregion.

Exhibit 10. Employer-preferred job experience for the studied occupations

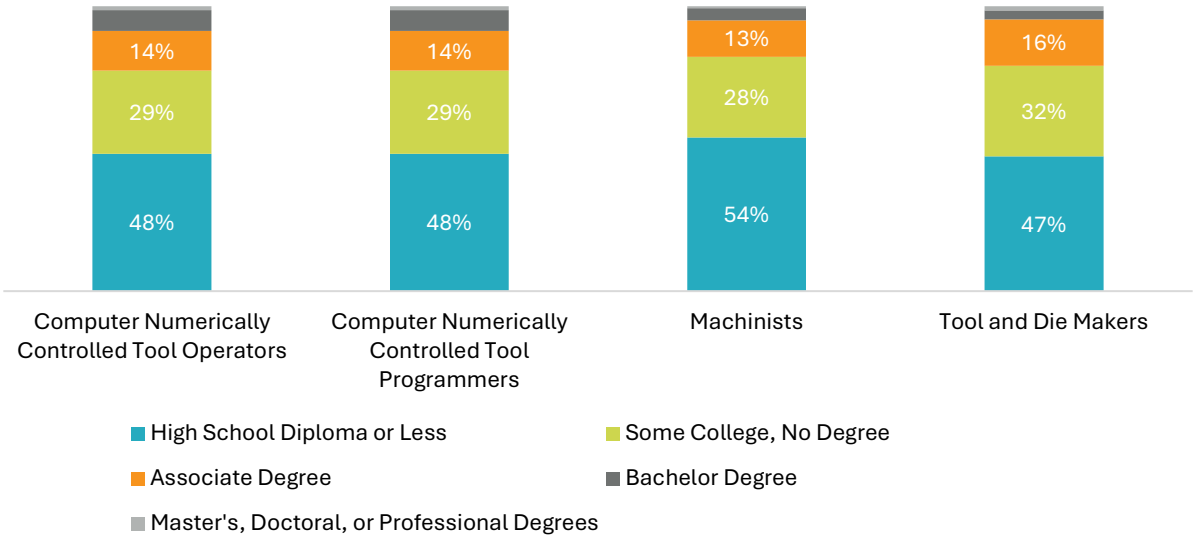


Note: Employers may include more than one level of education as a hiring requirement in a job posting. As a result, the values in the chart may sum to greater than 100%.

EDUCATION AND TRAINING REQUIREMENTS

The U.S. Census Bureau collects data on the highest education level achieved by workers across all occupations. Exhibit 11 shows the educational attainment of the current workforce employed in the studied occupations across the United States.

Exhibit 11. U.S. educational attainment for workers 25 years and older by occupation, 2019 and 2021



The U.S. Bureau of Labor Statistics (BLS) uses a categorical system to assign typical entry-level education and job requirements to each occupation for which the BLS publishes projection data. These categories include entry-level education, work experience in a related occupation, and on-the-job training. Exhibit 12 shows the typical entry-level job requirement by occupation.

Exhibit 12. Typical entry-level job requirements for the studied occupations

Occupation	Entry-level Education	Work Experience	On-The-Job Training
Computer Numerically Controlled Tool Operators	High school diploma or equivalent	None	Moderate-term on-the-job training
Computer Numerically Controlled Tool Programmers	Postsecondary nondegree award	None	Moderate-term on-the-job training
Machinists	High school diploma or equivalent	None	Long-term on-the-job training
Tool and Die Makers	Postsecondary nondegree award	None	Long-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 13 shows the TOP and CIP codes for educational programs related to the selected occupations.

Exhibit 13. TOP and CIP codes for training programs related to the selected occupations

TOP Programs and Codes	Aligned CIP Programs and Codes
• Machining and Machine Tools (0956.30)	• Machine Tool Technology/Machinist (48.0501)

Community College Supply

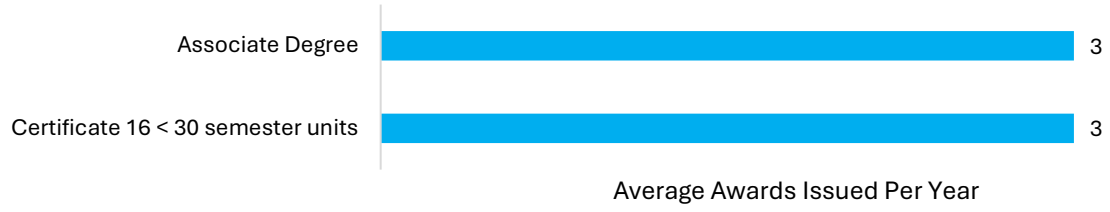
Exhibits 14 and 15 summarize the three-year average of certificates and degrees conferred by the selected subregion's community college programs relevant to the occupations studied.

Exhibit 14. Average annual community college awards by TOP program

TOP Program and Code	College	Annual Awards 2020-21	Annual Awards 2021-22	Annual Awards 2022-23	3-Yr Annual Awards Average
Machining and Machine Tools (0956.30)	Sierra	--	7	3	5
	Grand Total	**--**	**7**	**3**	**5**

Note: Values in the table are rounded to the nearest whole number; however, subtotals and totals are calculated using unrounded values.

Exhibit 15. Average annual community college awards by award type



Note: Values in the chart are rounded to the nearest whole number; however, subtotals and totals are calculated using unrounded values.

FINDINGS

This report focuses on four occupations in the Computer Numerical Control (CNC) career pathway: Computer Numerically Controlled Tool Operators (51-9161), Computer Numerically Controlled Tool Programmers (51-9162), Machinists (51-4041), and Tool and Die Makers (51-4111). These occupations will be collectively referred to as CNC occupations or jobs.

Occupational Demand

- Greater Sacramento contained more than 1,728 CNC jobs in 2023. These jobs are projected to increase by 7% over the next five years, adding 124 new jobs to the subregion by 2028.
- CNC jobs in Greater Sacramento are projected to grow by 7%, outpacing the state's projected growth rate of 0%.
- Over the next five years, CNC jobs in Greater Sacramento are expected to generate nearly 200 job openings annually.

Wages

- Wage data analysis shows that more than 80% of annual job openings are in occupations where entry-level hourly wages fall below the $23.92 living wage for a single working adult in Sierra's community college district. Specifically, entry-level wages for CNC tool operators and machinists are $2 to $3 below this threshold. However, median hourly wages for both occupations surpass the living wage benchmark.
- Furthermore, analysis of job posting data suggests that subregional salaries meet or exceed the living wage threshold. The median advertised wage for CNC positions was $29.91 per hour—nearly $6 above the Sierra's living wage. Additionally, about 71% of the job postings included salary information.

Job Postings

- In the last 12 months, there were 265 online job postings for CNC occupations.
- The most desired specialized skills included machining, computer numerical control (CNC), lathes, mills, and tooling.

Education and Training Requirements

- Between 33% and 48% of current CNC workers have education levels aligned with community college offerings, such as some college or an associate degree. Another 47% to 54% have a high school diploma or less. Typical entry-level requirements for these occupations include a high school diploma and a moderate- or long-term length of on-the-job training.

Postsecondary Supply

- Sierra College is the only community college in the Greater Sacramento region offering CNC-related programs. From 2021–22 to 2023–24, Sierra awarded an average of five certificates and associate degrees annually through its CNC programs. The Center of Excellence (COE) was unable to locate relevant training or supply data from other postsecondary education providers.

RECOMMENDATIONS

Supply Gap

- A comparison of occupational demand and educational supply indicates a shortage of skilled workers for CNC occupations in Greater Sacramento. While there are 199 projected annual job openings, community colleges in the region are awarding an average of only five relevant certificates and degrees each year.

Living Wage

- Despite the high concentration of job openings in occupations with entry-level wages below the living wage, job posting salary data suggests these positions often pay above that threshold. The median advertised wage for CNC roles was $29.91 per hour—nearly $6 higher than Sierra's living wage.

Education

- All four CNC occupations have education and training requirements that align with community college programs, with 33% to 48% of current CNC workers having completed some college or holding an associate degree as their highest level of education.

The North Far North COE recommends:

New Program Recommendation		
Move forward with the new program.	**Proceed with caution**	**A new program is not recommended.**
☒	☐	☐

Program Modification	
Move forward with program modifications.	**Program modifications are not recommended.**
☒	☐

APPENDIX A. METHODOLOGY AND SOURCES

This report includes occupations identified by using the Center of Excellence TOP-to-CIP-to-SOC crosswalk and the O*Net OnLine education crosswalk. This report's findings were primarily determined with labor market and educational supply data from the Bureau of Labor Statistics (BLS), Lightcast, and the California Community Colleges Chancellor's Office.

Data sources include:

"The Chancellor's Office Curriculum Inventory System (COCI)." California Community Colleges Curriculum Inventory (COCI). 2024. https://coci2.ccctechcenter.org/.

Glasmeier, Amy K. "Living Wage Calculator." Living Wage Calculator. 2024. https://livingwage.mit.edu/.

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/.

Lightcast 2025.1; QCEW Employees, Non-QCEW Employees, and Self-Employed. https://lightcast.io/. (*Notes: Occupational employment data are based on final Lightcast industry data and final Lightcast 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)).*

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/.

The Self-Sufficiency Standard for California. The Center for Women's Welfare at the University of Washington. 2024. http://www.selfsufficiencystandard.org/

"Taxonomy of Programs." California Community Colleges Chancellor's Office. May 2023, 7th Edition. https://www.cccco.edu/-/media/CCCCO-Website/docs/curriculum/final-top-code-manual-2023edit-4-a11y.pdf?la=en&hash=28074BFE9915B49A7688B8BDEF0DB7E55FEB3A2C

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

APPENDIX B. EARNINGS AND LIVING WAGE

Occupational Earnings

Occupational earnings data comes from the Bureau of Labor Statistics' Occupational Employment Statistics dataset. It is collected from the employer's perspective, meaning that earning data is pre-tax and based on the place of the employee's work (rather than where they live). Occupational earnings are reported based on hourly income and include base rate pay, commissions, cost of living allowances, guaranteed pay, hazard pay, incentive pay, longevity pay, production bonuses, and tips. Occupational earnings do not include bonuses, reimbursements, overtime pay, relocation allowances, severance pay, etc.

The NFN COE reports on occupational earnings using percentile earnings. Percentile earnings are typically broken into 10th, 25th, 50th (median), 75th, and 90th percentiles and are used to show the distribution of wages for workers employed within an occupation. For example, the 25th percentile hourly earnings for childcare workers employed across the North Far North (NFN) region is $15.50. This means that in 2023, 25% of the North Far North's childcare workers earned up to but no more than $15.50 per hour. Childcare workers in the North Far North have a 90th percentile wage of $23.72, meaning that 90% of childcare workers employed across the region earn up to $23.72 per hour. The Centers of Excellence use the 25th and 75th percentile hourly wages to estimate wages for entry-level and experienced workers.

Living Wage

A living wage is the level of income one adult working full-time must earn to meet their minimum basic needs where they live, all while being self-sufficient. The basic needs that factor into a living wage calculation include food, housing, childcare (for those with children), healthcare, transportation, broadband and mobile access, taxes, and other necessities (like clothing, personal care products, and household furnishings and supplies).

This report provides an estimate of the living wage for each community college district and uses the living wage for a single, working adult without dependents. A working adult is assumed to work 2,080 full-time hours, which is equivalent to 40 hours a week for 52 weeks per year.

In October 2024, the NFN COE switched from the MIT Living Wage Calculator (last updated February 2024) to University of Washington's Self-Sufficiency Standard (last updated March 2024; released September/October 2024). This change allows the COE to use living wage data that is aligned with the Chancellor's Office metrics. The NFN COE will revise this practice as needed to ensure continued alignment with the Chancellor's Office.[6]

Comparing earnings to the living wage

Prior to the 2024-25 fiscal year, the NFN COE compared the 25th percentile hourly earnings of an occupation employed in the subregion to a subregional average living wage for one single, working adult (no dependents) residing in a county located in the North or Far North subregions.

Beginning October 2024, the NFN COE will compare the 25th percentile hourly earnings of an occupation

[6] Last revised: 10/29/2024. Changed living wage source from MIT to U of W.

employed in the subregion to the living wage for one single, working adult (no dependents) residing in the same county as the community college district that initially requested this report. This change aligns with the definition used by the Chancellor's Office to determine the proportion of students who attained a living wage after exiting the California Community College system in the Student Success Metrics (SM 802Sx) and Community College Pipeline (CP 802). The NFN COE will revise this practice as needed to ensure continued alignment with the Chancellor's Office.[7]

Hourly Living Wage by Community College District Office County Location[8]

Region	Community College District	Location of District Office (County)	One Adult	One adult + One Infant
Far North	Butte-Glenn	Butte	$16.77	$34.02
	Feather River	Plumas	$15.11	$32.84
	Lassen	Lassen	$14.81	$31.51
	Mendocino-Lake	Mendocino	$17.06	$35.70
	Redwoods	Humboldt	$16.59	$34.44
	Shasta-Tehama-Trinity Joint	Shasta	$16.99	$35.35
	Siskiyou Joint	Siskiyou	$14.51	$30.71
North	Lake Tahoe	El Dorado	$22.11	$44.25
	Los Rios	Sacramento	$21.17	$41.91
	Sierra Joint	Placer	$23.92	$46.86
	Yuba	Sutter	$17.08	$34.41
California	Minimum wage -- All industries, except fast food and healthcare		$16.00	
	Minimum wage -- Fast food (effective April 1, 2024)		$20.00	
	Minimum wage -- Healthcare (effective October 16, 2024)		$18-23, depends on facility type	

[7] Last revised: 10/29/2024. Changed from "median hourly earnings" to "25th percentile hourly earnings."
[8] Sources include: 1) The Self-Sufficiency Standard for California, The Center for Women's Welfare at University of Washington, https://selfsufficiencystandard.org/California/ and 2) State of California Department of Industrial Relations, https://www.dir.ca.gov/dlse/minimum_wage.htm. Table was last revised: 10/29/2024. Updated source data from MIT to U of W.

Funding Acknowledgement: This report was made available through Strong Workforce Program funding from the North Far North Regional Consortium and the California Community Colleges Chancellor's Office Economic and Workforce Development Grant.

COVID-19 Statement: This report includes employment projection data produced by Lightcast (formerly EMSI). Employment projections are developed using models based on historical data, which in this set of projections covers the period through 2021. Most input data, therefore, precedes the pandemic. Employment projections are long-term projections intended to capture structural changes in the economy, not cyclical fluctuations. As such, projections data are not intended to capture the impacts of the recession that began in February 2020. Cyclical fluctuations, like recessions, impact projections when they become part of the historical data set.

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.

FOR LABOR MARKET RESEARCH
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