

2024 Regional Career Trends

For Career and Technical Education

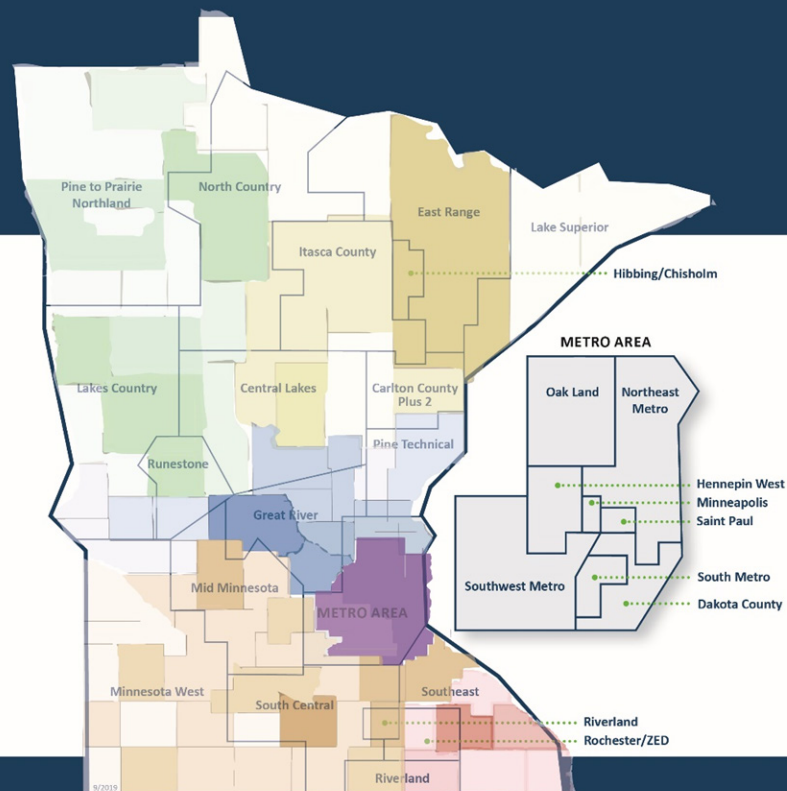


Central

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Overview

Minnesota's workforce landscape is undergoing a dramatic transformation, shaped by a confluence of demographic shifts, technological advancements, and evolving economic needs. As Baby Boomers retire and younger generations enter the labor market, employers are facing an urgent demand for skilled workers across industries ranging from healthcare and manufacturing to tech and green energy. At the same time, the rise of automation and remote work is redefining traditional job roles, prompting businesses to rethink recruitment strategies and workforce development. In this dynamic environment, Minnesota must navigate the challenges of upskilling its existing workforce, ensuring young people have access to well-paying local careers, and attracting new talent to ensure long-term economic growth and resilience.

The local job market remains strong in Minnesota, with a variety of high-quality career opportunities available in every career field. As of October 2024, Minnesota's unemployment rate remained at 3.4% for the fourth consecutive month, with labor force participation also holding steady at 67.7%. The state continues to have more available jobs than jobseekers—about 75 jobseekers for every 100 jobs. Although the job market has changed dramatically since 2018 or 2020, Minnesota is still experiencing significant talent shortages plaguing every industry and career cluster.

This report details the current workforce landscape of Minnesota and the regional nuances of talent demand by career field. The content is intended to support Minnesota Perkins Consortia in navigating changes in their local labor market and guide their understanding of how these changes may impact enrollment, industry, career advancement, and the needed programs of study by region.¹ Each report includes:

- Regional economic and demographic overview
- Career field analysis including regional importance of each sector, key labor market statistics, and forecasting for future demand and talent shortages in the six career fields:
 - Health Science Technology
 - Human Services
 - Arts, Communications, and Information Systems
 - Business, Management, and Administration
 - Engineering, Manufacturing, and Technology
 - Agriculture, Food, and Natural Resources
- An Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into other aligned careers

About This Report

This report was developed by RealTime Talent for the Career and Technical Education Consortia of Minnesota with funding provided by Minnesota State. The contents of this publication were made possible through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) Federal grant from the United States Department of Education administered through Minnesota State Colleges and Universities.

¹ All labor market data in this report comes from Chmura Economics JobsEQ Dataset 2024Q1 unless otherwise noted. www.jobseq.com

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Central Minnesota

Introduction

This report examines the current and future talent needs across the fifteen counties of Central Minnesota.² Beginning with an analysis of local demographics, unique opportunities, and the key industries driving the regional economy, this macroeconomic overview is designed to help educators and administrators align educational programs with the evolving needs of local businesses. By grouping regional careers by wage, skill requirements, and demand, the report aims to guide the education community in anticipating future workforce demands and ensuring that curricula are tailored to prepare students for relevant career opportunities in the region.

This series has been developed in partnership with Minnesota State through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) annually since 2020. The 2024 iteration of this report has shifted from a definition of “high-wage” aligned to average (mean) wages to one which more closely aligns to Minnesota’s official definition, “occupations that have an annual median salary higher than the area’s composite median salary of all occupations.” For more information on this and other Career and Technical Education (CTE) definitions, please refer to Minnesota’s Perkins Glossary.³

This report uses an Origin-to-Gateway-to-Target Occupation model, used by the Rework America Alliance and modified in this report by RealTime Talent, and illustrates promising likely and aligned pathways into each career field. This model supports students looking for entry points from an initial occupation of interest into other aligned careers, considering automation, remote work, and the changing work environment. The model is shown below, along with the definitions of each grouping of occupations.

Origin-to-Gateway-to-Target (OGT) Model

Target Occupations

High wage (above regional median)

High skill (require some credential)

High demand (2/4 indicators: under 3% unempl, higher than average 5-year growth, total 5-year demand >50% of current empl, high job posting volume)

*often also high occupation gap and award gap

Gateway Occupations

Mid wage (\$45,000 – regional median)

Low-middle skills (HS diploma, some OJT)

Sufficient demand (3-5% unemployment and/or high volumes of current opportunities)

Origin Occupations

Low wage (<\$45,000/year)

Low skill (no credential)

Varied demand (may have over 5% unemployment, low growth, low replacement demand, and/or low job postings)

² Benton, Big Stone, Chisago, Isanti, Kanabec, Mille Lacs, Morrison, Pine, Pope, Sherburne, Stearns, Stevens, Swift, Traverse, and Wright Counties.

³ Perkins Glossary. Section 14. Accessed November 30, 2024 at <https://www.minnstate.edu/system/cte/operational-guide/section-14-glossary.html>

Origin Occupations are roles that are low-wage (<\$45,000 median annual wages), typically do not require a postsecondary credential, and may or may not be in high demand.

Gateway Occupations are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$45,000 up to the regional median wage (\$48,600 in the Central Minnesota Region). Gateway occupations offer a wage uplift to those previously employed in Origin Occupations and offer longer-term economic mobility and career advancement opportunities. These are most often best suited for adult workforce programming and first postsecondary experiences.

Target Occupations refer to high-wage occupations that pay at or above the region's median wage (\$48,600 in the Central Minnesota Region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively.

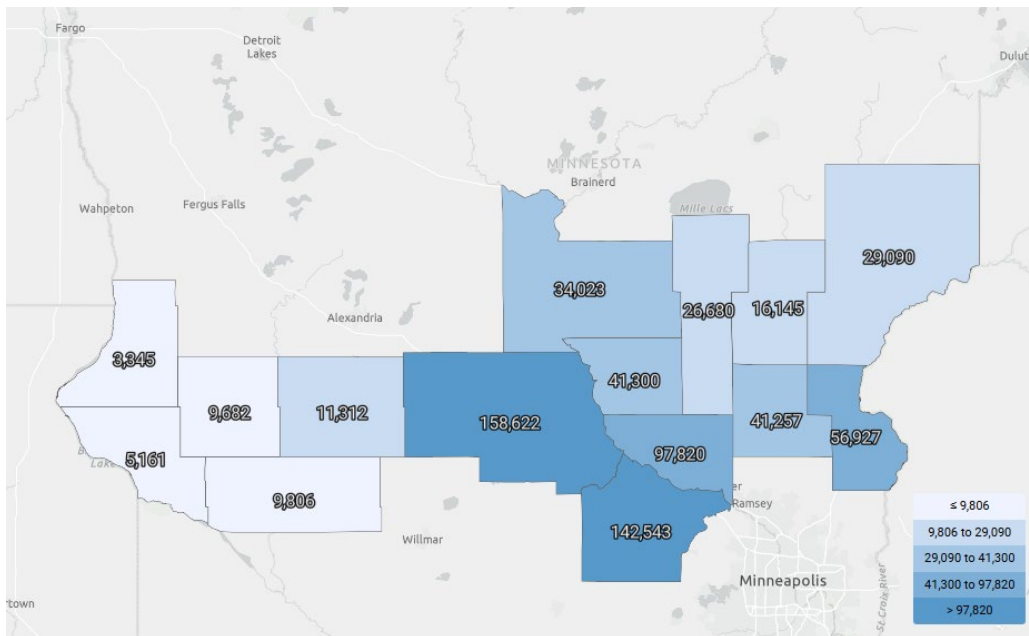
Community Profile

Demographics

POPULATION

- Total population in Central Minnesota: 683,713
 - Change from prior year: +7,385 people
 - Share of Minnesota's total population who live in Central Minnesota: 12.0%
- Largest local concentrations of population: cities of St. Cloud, Buffalo, Elk River, Sauk Rapids, and Monticello
- Three neighboring counties: Stearns, Wright, and Sherburne, make up over half of the region's population (58.4%, 398,985).
- Median age: 38.3 years
 - Comparison to statewide median (38.5 years): 0.2 years younger.
 - Minors under 18 years of age are 24.3% of Central Minnesota's population

Resident Population of Central Minnesota



American Community Survey 2018-2022.

RACE AND ETHNICITY

Central Minnesota is home to residents of many racial and ethnic backgrounds, though 89.6% of residents are white.

- 10.4% of residents are Black, Asian, American Indian, Native Hawaiian, two or more race(s), or some other race other than white (BIPOC), while 3.2% are of Hispanic/Latine ethnicity
- The Central region has a 10 percentage point higher share of white residents than the state as a whole
- The three largest local population concentration cities vary greatly in their diversity
 - St. Cloud has 7.6% of their population who identify as Black or African American as compared to Buffalo's 0.2%

- Elk River has the largest concentration of people who identify as Two or More Races, at 5.9%
- Both statistics are higher than for the state as a whole

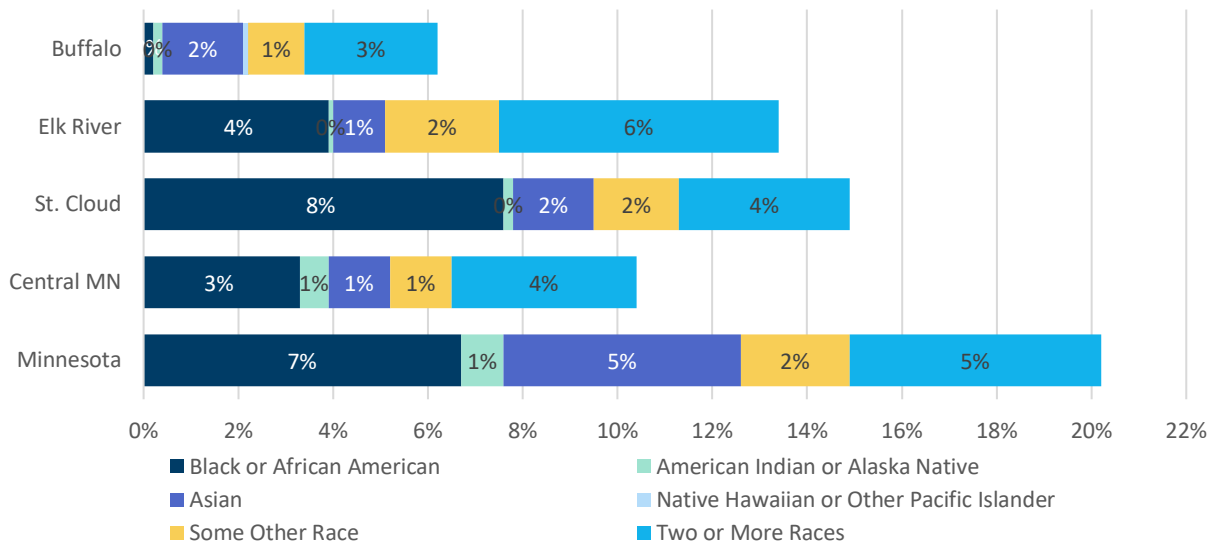
Race and Ethnicity Summary Info

Geography	% BIPOC by Race	% white by Race	% Hispanic/Latine Ethnicity
St. Cloud	14.9%	85.1%	3.6%
Elk River	13.4%	86.6%	3.7%
Buffalo	6.1%	93.9%	1.7%
Central	10.4%	89.6%	3.2%
Minnesota	20.3%	79.7%	5.7%

American Community Survey 2018-2022

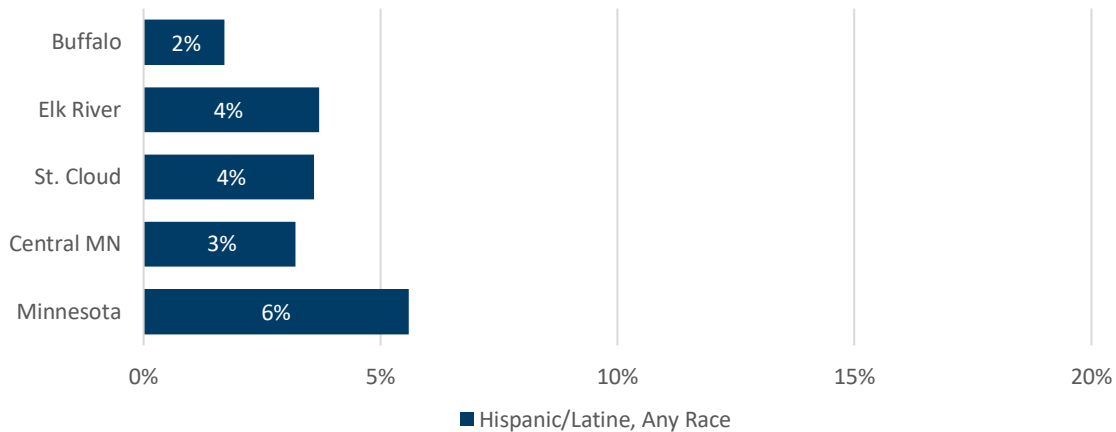
BIPOC residents are those who identify as Black, Asian, American Indian, Native Hawaiian, two or more races, or some other race other than white
Hispanic/Latine ethnicity is reported separately from race in the American Community Survey

Population Race of BIPOC Residents, All Ages



American Community Survey 2018-2022.

Population Hispanic/Latine Ethnicity, All Ages



American Community Survey 2018-2022.

Detailed Community Demographics

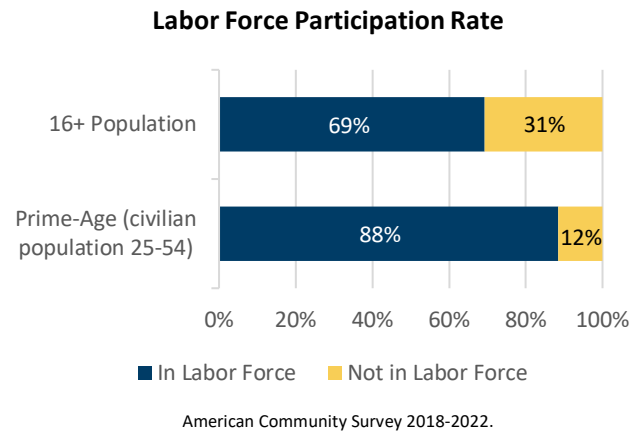
Demographics	City			Region			Region (Value)		
	Buffalo	Elk River	St. Cloud MSA	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
Population (ACS)	—	—	—	—	—	—	683,713	5,695,292	331,097,593
Male	49.0%	51.0%	50.7%	51.1%	50.2%	49.6%	349,686	2,857,964	164,200,298
Female	51.0%	49.0%	49.3%	48.9%	49.8%	50.4%	334,027	2,837,328	166,897,295
Median Age ²	—	—	—	—	—	—	38.3	38.5	38.5
Under 18 Years	24.6%	23.8%	23.7%	24.3%	23.0%	22.1%	166,085	1,307,084	73,213,705
18 to 24 Years	8.3%	7.2%	13.7%	9.5%	9.0%	9.4%	64,909	513,816	31,282,896
25 to 34 Years	10.8%	17.6%	12.4%	12.0%	13.2%	13.7%	81,885	751,997	45,388,153
35 to 44 Years	14.6%	14.9%	12.2%	13.1%	13.2%	12.9%	89,303	751,128	42,810,359
45 to 54 Years	13.3%	11.5%	10.7%	12.3%	11.9%	12.4%	83,924	675,835	41,087,357
55 to 64 Years	11.9%	11.6%	12.2%	13.3%	13.3%	12.9%	91,209	756,036	42,577,475
65 to 74 Years	8.9%	7.7%	8.6%	9.2%	9.7%	9.7%	62,589	550,838	32,260,679
75 Years, and Over	7.6%	5.6%	6.5%	6.4%	6.8%	6.8%	43,809	388,558	22,476,969
Race: White	93.9%	86.6%	85.1%	89.6%	79.7%	65.9%	612,301	4,537,219	218,123,424
Race: Black or African American	0.2%	3.9%	7.6%	3.3%	6.7%	12.5%	22,548	382,082	41,288,572
Race: American Indian and Alaska Native	0.2%	0.1%	0.2%	0.6%	0.9%	0.8%	3,889	51,434	2,786,431
Race: Asian	1.7%	1.1%	1.7%	1.3%	5.0%	5.8%	8,987	286,146	19,112,979
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	224	2,324	624,863
Race: Some Other Race	1.2%	2.4%	1.8%	1.3%	2.3%	6.0%	9,012	133,098	20,018,544
Race: Two or More Races	2.8%	5.9%	3.6%	3.9%	5.3%	8.8%	26,752	302,989	29,142,780
Hispanic or Latino (of any race)	1.7%	3.7%	3.6%	3.2%	5.7%	18.7%	21,683	327,049	61,755,866

American Community Survey 2018-2022.

Economic and Social Characteristics

LABOR FORCE PARTICIPATION

- Civilian labor force: 371,619 workers (an increase of over 4,000 from the prior year)
- Labor force participation rate: 69.2%
 - This is slightly higher than Minnesota's statewide rate of 68.7%
- Participation rate for the prime working-age population (ages 25 to 54): 88.4%, which is the same rate as the state



SOCIAL CHARACTERISTICS

- The Central region has a lower percentage of people at or below the poverty level and children living in single parent families than the statewide average:
 - Central MN poverty level rate is 8.6% versus 9.3% statewide
 - Children living in single parent families is 26.4% in Central MN vs. 28.3% statewide
- Central MN has a slightly higher percentage of labor force participation for people with a disability (55%) versus the state (54.4%) even though the overall population of those with a disability in Central MN is slightly higher (9.4% and 9.2% respectively)
 - The percent of people with a disability participating in the labor force varies across communities: Buffalo (53.4%), Elk River (64.8%), and St. Cloud (58.2%)
- The Central region's share of disconnected youth is the same as the statewide average (1.7%) and similarly, disconnected youth rates vary between communities:
 - Buffalo: 2.2% of youth are disconnected
 - Elk River: 0.0% of youth are disconnected
 - St. Cloud: 1.6% of youth are disconnected

Detailed Economic and Social Characteristics

Characteristic	City			Region			Region (Value)		
	Buffalo	Elk River	St. Cloud MSA	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	68.5%	72.1%	70.9%	69.2%	68.7%	63.3%	371,619	3,112,649	167,857,207
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	87.0%	86.4%	89.9%	88.4%	88.4%	82.8%	224,812	1,924,211	106,380,520
Armed Forces Labor Force	0.0%	0.0%	0.2%	0.1%	0.1%	0.5%	767	4,104	1,236,378
Veterans, Age 18-64	4.1%	3.4%	4.2%	4.3%	3.5%	4.3%	17,596	119,296	8,636,019
Veterans Labor Force Participation Rate and Size, Age 18-64	78.3%	89.1%	73.7%	77.8%	81.1%	77.1%	13,695	96,710	6,656,238
Median Household Income ²	—	—	—	—	—	—	\$83,552	\$84,313	\$75,149
Per Capita Income	—	—	—	—	—	—	\$38,603	\$44,947	\$41,261
Poverty Level (of all people)	6.6%	4.8%	12.0%	8.6%	9.3%	12.5%	57,276	516,284	40,521,584
Households Receiving Food Stamps/SNAP	4.5%	3.5%	9.4%	7.2%	7.4%	11.5%	18,449	167,713	14,486,880
Enrolled in Grade 12 (% of total population)	0.8%	1.3%	1.4%	1.3%	1.4%	1.4%	9,170	80,290	4,476,703
Disconnected Youth ³	2.2%	0.0%	1.6%	1.7%	1.7%	2.5%	674	5,089	430,795
Children in Single Parent Families (% of all children)	26.7%	31.4%	29.0%	26.4%	28.3%	34.0%	42,221	355,832	23,568,955
Uninsured	6.3%	2.1%	4.1%	4.3%	4.6%	8.7%	28,983	260,483	28,315,092
With a Disability, Age 18-64	10.1%	6.6%	9.8%	9.4%	9.2%	10.5%	38,318	313,760	20,879,820
With a Disability, Age 18-64, Labor Force Participation Rate and Size	53.4%	64.8%	58.2%	55.0%	54.4%	45.5%	21,087	170,629	9,492,098
Foreign Born	4.6%	4.9%	6.4%	3.7%	8.5%	13.7%	25,343	481,922	45,281,071

American Community Survey 2018-2022.

*Median values for certain aggregate regions (such as MSAs) may be estimated as the weighted averages of the median values from the composing counties. **Disconnected Youth are 16-19 year olds who are (1) not in school, (2) not high school graduates, and (3) either unemployed or not in the labor force.

Education

EDUCATIONAL ATTAINMENT

- Overall, residents of Central Minnesota have a slightly different mix of educational attainment than residents of Minnesota as a whole
 - While statewide, 41% of residents have a bachelor's degree or higher, among Central Minnesota residents, 27% do
 - About 28% of adults aged 25-64 in the region have a high school diploma as their highest level of education (compared to about 21% statewide)
- Educational attainment varies among metropolitan areas:
 - Buffalo, Elk River, and St. Cloud are all quite similar in terms of the percentage of the population with an associate degree or higher (45.9%, 46.2%, and 45.8% respectively)

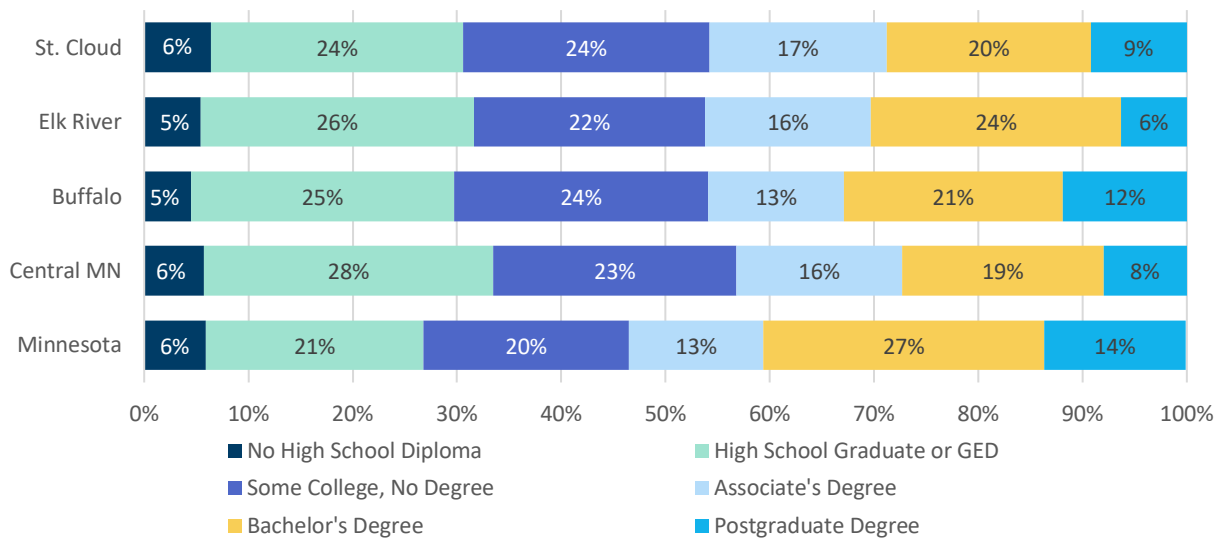
- Buffalo has the highest percentage of population with a bachelor’s degree or higher at 32.9%
- Elk River has the highest percentage of population with a bachelor’s degree at 24.0%
- St. Cloud has the highest percentage of population with an associate degree at 17.0%

Educational Attainment of Central Minnesota Residents, Age 25-64

Educational Attainment	City			Region			Region (Value)		
	Buffalo	Elk River	St. Cloud	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
No High School Diploma	4.5%	5.4%	6.4%	5.7%	5.9%	10.1%	19,837	173,843	17,373,867
High School Graduate	25.2%	26.2%	24.2%	27.8%	20.9%	25.1%	96,203	614,415	43,176,248
Some College, No Degree	24.4%	22.2%	23.6%	23.3%	19.7%	19.7%	80,704	578,062	33,916,989
Associate degree	13.0%	15.9%	17.0%	15.9%	12.9%	9.2%	54,961	377,910	15,886,884
Bachelor’s Degree	21.0%	24.0%	19.6%	19.3%	26.9%	22.4%	66,805	790,857	38,451,123
Postgraduate Degree	11.9%	6.3%	9.2%	8.0%	13.6%	13.4%	27,811	399,909	23,058,233

American Community Survey 2018-2022.

Educational Attainment, Age 25-64



American Community Survey 2018-2022.

REGIONAL COLLEGES AND UNIVERSITIES

Central Minnesota has nine institutions of higher education that offer both degree and non-degree awards, two-year degrees, four-year degrees, and graduate degrees.⁴ The table below shows these postsecondary institutions sorted by total awards conferred from all programs during SY2022-23. There were a total of 6,662 awards conferred in the region in SY2022-23, a decrease from the 7,107 awards conferred in the region in SY2021-22.

⁴ This was the second year where five campuses in the Minnesota State system were reported together as Minnesota North College, dropping the total number of schools down by four. There still remain multiple campuses for Minnesota North College.

Postsecondary Awards by Institution, School Year 2022-23

School	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate	Certificate 2+ but < 4 Yr	Bachelor's	Post- Bacc	Master's	Post Master's/ Doctorate	Total Awards	Total School Enroll- ment	Avg Net Price*
Saint Cloud State University	41	0	111	0	1,372	124	505	19	2,172	10,420	\$13,615
Rasmussen University-Minnesota	323	170	1,087	0	141	0	252	12	1,985	3,058	\$18,239
St Cloud Technical and Community College	24	161	628	61	0	0	0	0	874	3,466	\$8,404
College of Saint Benedict	0	0	0	0	429	0	0	0	429	1,470	\$28,269
Pine Technical & Community College	201	89	129	0	0	0	0	0	419	1,873	\$10,971
Saint Johns University	0	0	0	0	351	0	26	0	377	1,645	\$27,750
University of Minnesota-Morris	0	0	0	0	263	0	0	0	263	1,068	\$11,652
Model College of Hair Design	49	44	0	0	0	0	0	0	93	115	\$12,185
Hazelden Betty Ford Graduate School	0	0	0	0	0	0	50	0	50	147	
Total	638	464	1,955	61	2,556	124	833	31	6,662		

* Average net price represents full-time beginning undergraduate students who paid the in-state or in-district tuition rate and were awarded grant or scholarship aid from federal, state or local governments, or the institution. Data as of the 2022-2023 academic year.

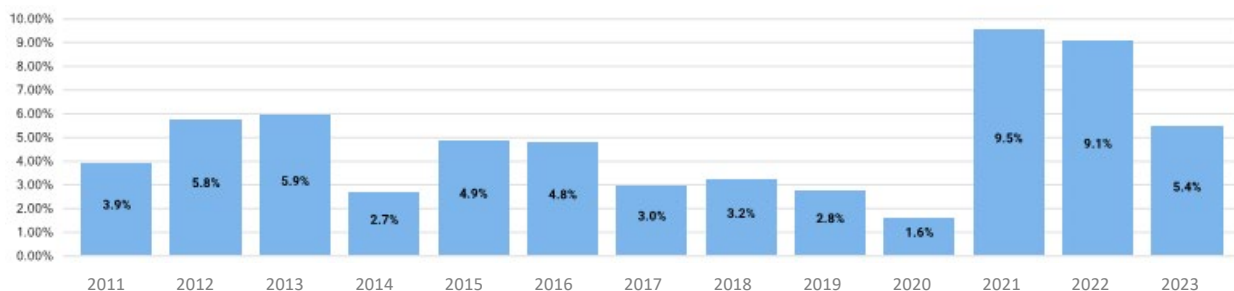
Economy

Economic Indicators

GROSS DOMESTIC PRODUCT

Gross Domestic Product (GDP) is the total value of goods and services produced by a region. In 2023, nominal GDP in the Central region grew by 5.4%. This follows an expansion of 9.1% in 2022. As of 2023, total GDP in the region was \$32,923,025,000—of which \$13,654,325,000 is attributed to the St. Cloud MSA.

One-Year % Change in GDP, Central Minnesota



Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2023

INDUSTRY CONTRIBUTIONS TO GDP

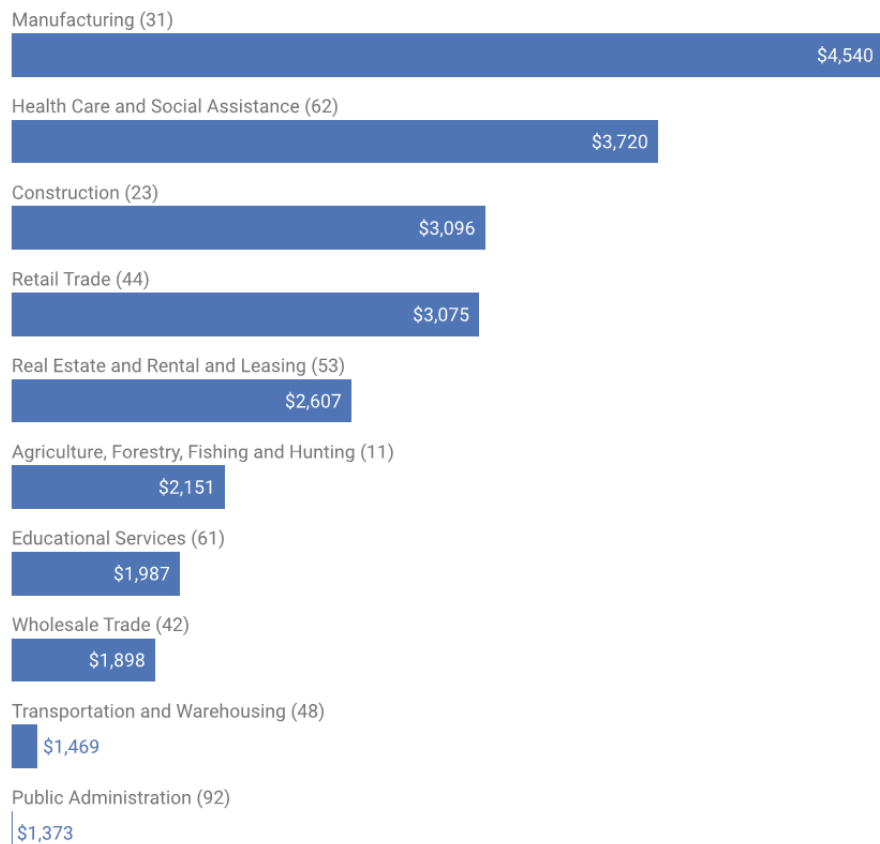
Top Industry Contributions to GDP (2023):

1. Manufacturing: \$4.54 billion
2. Health Care and Social Assistance: \$3.72 billion
3. Construction: \$3.10 billion
4. Retail Trade: \$3.08 billion
5. Real Estate and Rental and Leasing: \$2.61 billion

Key Changes:

- Most industries in the region saw increased output. Manufacturing, Construction, and Wholesale Trade decreased slightly
- The top five industries from 2022 remained the top five in 2023
- Agriculture, Forestry, Fishing, and Hunting moved into 6th place (from 8th) with an increase of 708 million
- Finance and Insurance dropped out of the top ten, while Transportation and Warehousing moving into the top ten, landing at number nine with \$1.47 billion

Industry Contributions to GDP in Central Minnesota (in \$ Millions), 2023



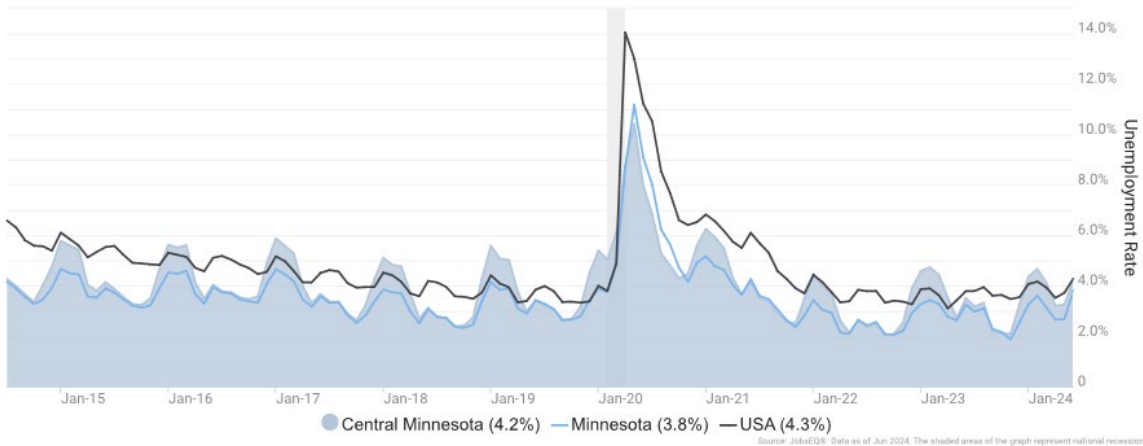
Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2023.

Labor Market

UNEMPLOYMENT TRENDS

- The unemployment rate in Central Minnesota was 4.2% as of June 2024
 - The regional unemployment rate was higher than the statewide rate (3.8%), but slightly lower than the national rate (4.3%)
 - One year earlier, in June 2023, the unemployment rate in Central Minnesota was 3.5%.

Unemployment for Central Minnesota

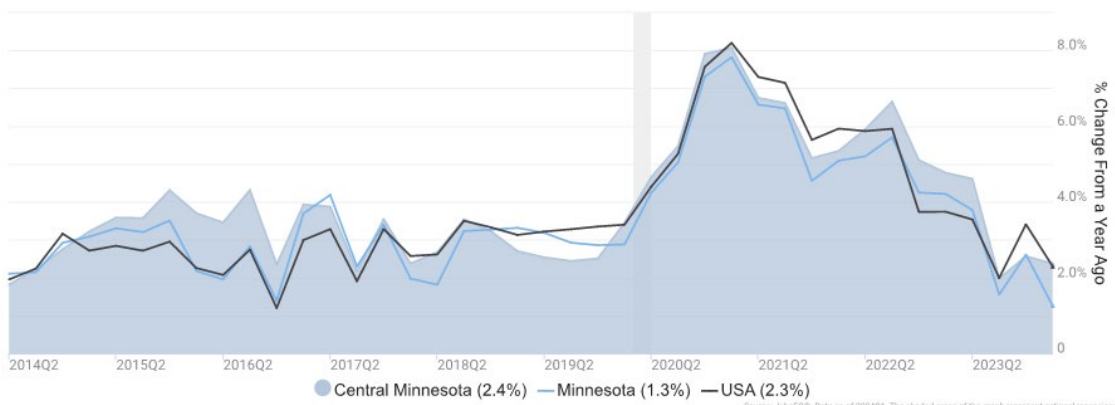


Unemployment rate data are from the Local Area Unemployment Statistics, provided by the Bureau of Labor Statistics and updated through June 2024.

WAGE TRENDS

- In Central Minnesota, average annual wages were \$54,575 as of 2024Q1
 - Up \$826.00 from the 2023Q2 average of \$53,749
 - This is an increase of 2.4% over the past four quarters, as compared to a 4.7% increase the previous year
- Nationwide, average annual wages were \$70,857 as of 2024Q1
 - This represents an increase from \$70,318 as of 2023Q2 and \$67,777 in 2022Q2

Change in Average Annual Wages for Central Minnesota



Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2023Q4 with preliminary estimates updated to 2024Q1.

EMPLOYMENT TRENDS AND FORECAST

Employment rose by 1.3% in Central Minnesota between 2023Q1 and 2024Q1, growing slightly more slowly than the prior 12 months. Employment in the region is forecast to increase by 0.3% on average annually through 2029Q1 in a baseline scenario.

5-Year Employment Forecast in Central Minnesota



INDUSTRY CLUSTER FORECASTS

Employment forecasts vary considerably by industry. An industry cluster is a geographic concentration of interrelated industries or occupations. The chart below shows industry clusters employing talent in Central Minnesota. The larger the circle, the more concentrated the industry is in the region (compared to the national average); this is called a Location Quotient (LQ). Clusters are positioned on the chart based on their wages and forecast employment. Clusters higher up on the Y-axis of the chart have higher average wages, and clusters located further to the right on the X-axis of the chart have higher forecasted employment growth. In summary, large circles in the top-right corner of the chart would be considered high-wage, high-growth, uniquely important clusters for the region's economy. Smaller circles further to the bottom-left corner of the chart would be lower-wage, declining, underrepresented clusters.

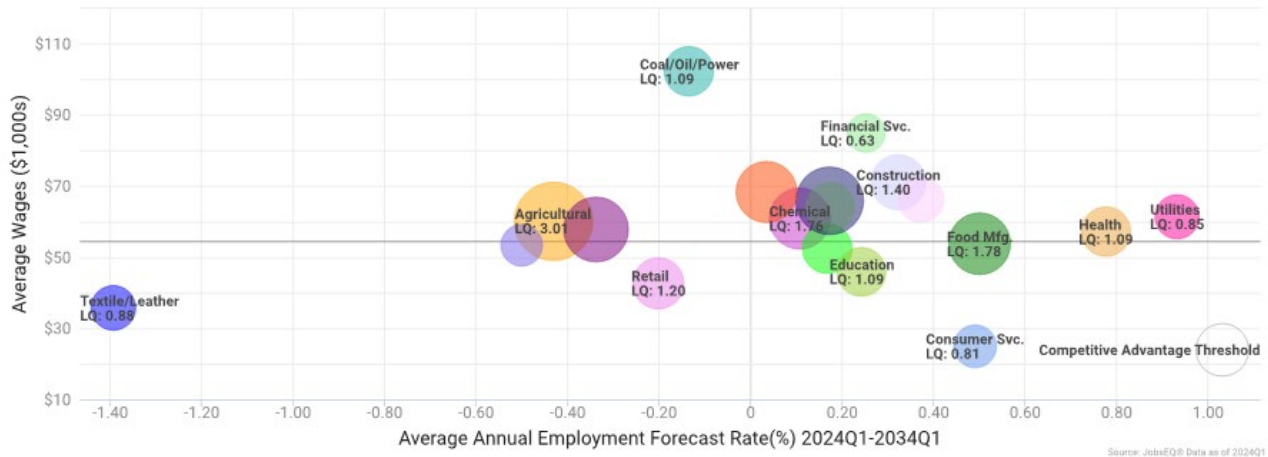
The most highly concentrated cluster in the Central region is Agricultural:

- Location Quotient: 3.01 (up from 2.81 in 2023)
- Employment: 10,204 workers (down ~200 from 2023)
- Average Wage: \$60,221 (up by nearly \$4,600 from 2023)
- Employment Forecast: Projected to decrease by 0.4% annually over the next 5 years

Industry Cluster Employment Forecast Trends:

- Most industries saw improvement in forecasted employment from 2023Q2 to 2024Q1
- While the location quotient and wages for most industries stayed very similar to 2023, the forecasted employment rate increased significantly for several industries including Education and Chemical

Industry Clusters for Central Minnesota as of 2024Q1



Quantifying Talent Shortages

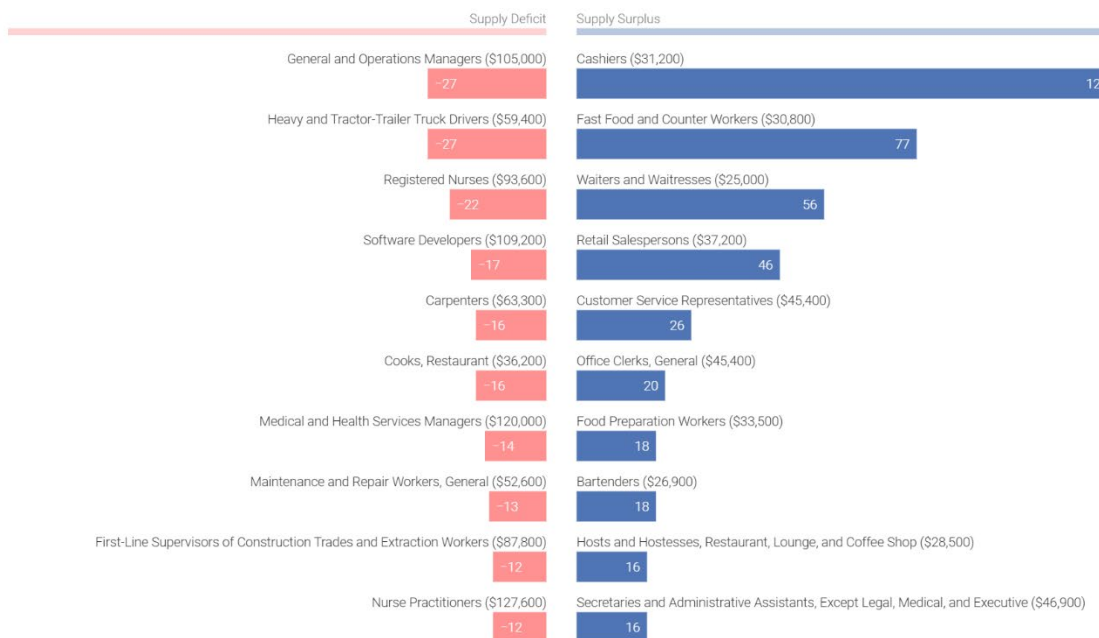
Occupation Gaps

The chart below shows the potential average annual talent gaps by occupation in the Central region over the next ten years. This summary estimate is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents, matched to specific related programs offered locally. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses. While this an important high-level analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, award and skill gap analyses, as well as local employer insights.

Key Insights:

- General and Operations Managers and Heavy and Tractor-Trailer Truck Drivers are the top occupations in talent shortage
- Growing talent shortage of Carpenters
- Talent surpluses remained almost the same from 2023 with Cashiers, Fast Food and Counter Workers, Waiters and Waitresses, and Retail Workers showing the highest numbers.
- Maintenance and Repair Workers is newly on the list of top occupation shortages
- Slight improvement in the shortage of Registered Nurses over 2023

Average Annual Occupation Gaps (i.e. Talent Shortage), 2024Q1 through 2034Q1



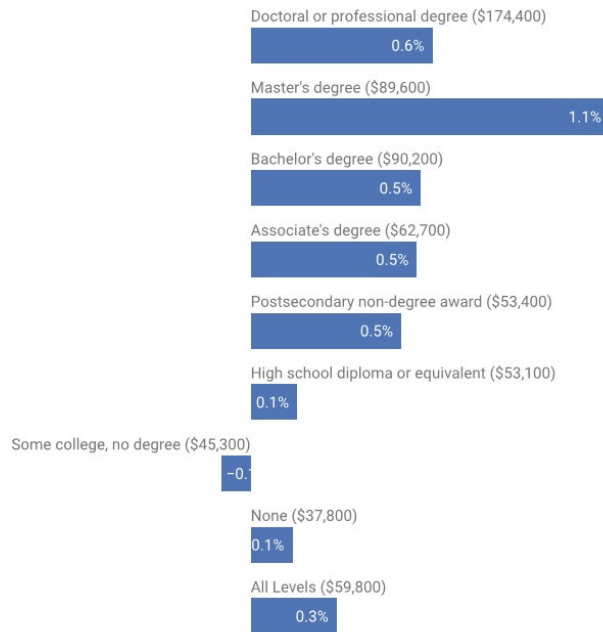
The Role of Education

EMPLOYMENT FORECAST BY EDUCATION

While Overall employment in Central Minnesota is forecast to increase by 0.3% annually on average, occupations requiring a postsecondary award or degree in the region is projected to increase by a minimum of 0.5%. Expected forecasts for occupations vary by the education required:

- With the exception of “some college, no degree,” all other education levels required by occupations, including no education, are projected to grow
- Roles typically requiring a master’s degree are expected to grow the most (+1.1%)
- Occupations requiring any other postsecondary credential are forecast to grow by approximately 0.5% across the board
- Some college, no degree is the only area expected to contract, and very slightly at that

Annual Average Projected Job Growth by Education Required for Central Minnesota, 2024Q1



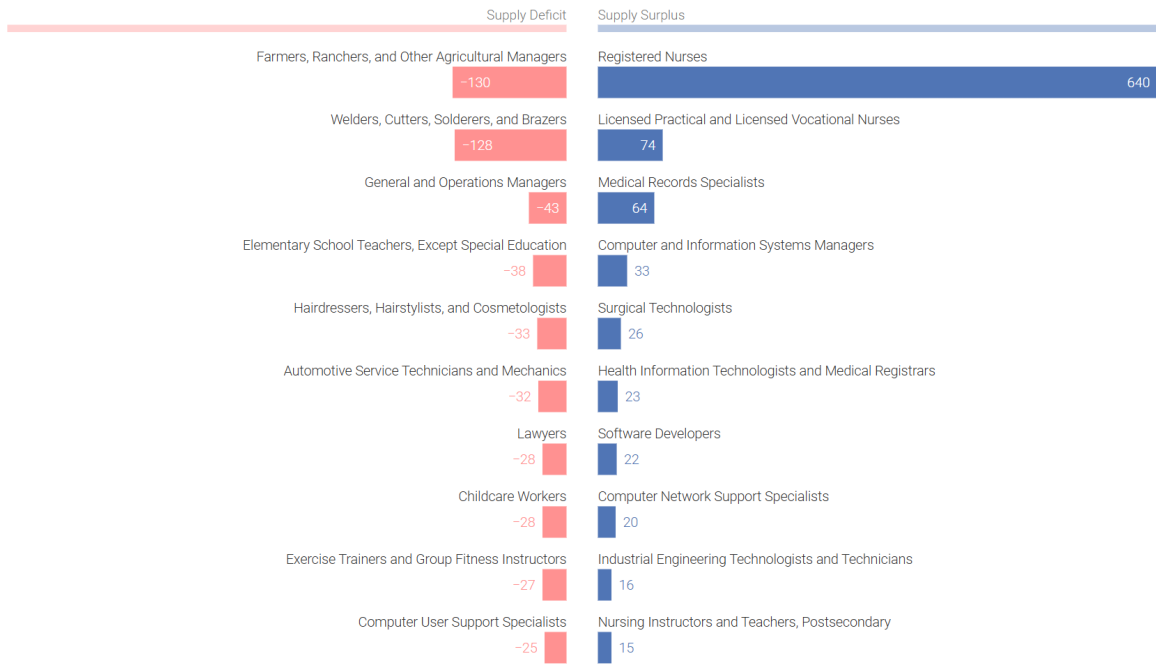
Employment by occupation data are estimates as of 2024Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

AWARD GAPS

Award gaps quantify the total number of postsecondary award completions in a region tied to an occupation benchmarked against national rates. In the Central region, local postsecondary programs produced a smaller number of graduates from programs aligned to the following occupations in the 2022-23 school year than the average community nationally: Farmers, Ranchers, and Other Agricultural Managers, Welders, Cutters, Solderers, and Brazers, General and Operations Managers, and Elementary School Teachers.

While the chart below indicates there is an oversupply of Registered Nurses and Licensed Practical and Licensed Vocational Nurses completing local postsecondary programs, this is misleading. Rasmussen University produced 894 Registered Nurse graduates across its six campuses statewide, which were all reported as completions based out of its Saint Cloud location. As many large institutions do, Rasmussen University reports all awards to the NCES IPEDS from a single location. In this case, all of Rasmussen University's 1,985 postsecondary awards conferred statewide during the 2022-23 school year, including from campuses in the MSP Metro Area, Northwest Minnesota (Moorhead), and Southwest Minnesota (Mankato), are attributed to Central Minnesota. Statewide, while there is an award gap for Licensed Practical and Licensed Vocational Nurses, there is not an award gap for Registered Nurses.

Award Gaps, All Occupations, Central Minnesota, 2024Q1



Occupations in Current Shortage

Several occupations have zero unemployed talent in Central Minnesota as of 2024Q1 estimates, resulting in an estimated unemployment rate of 0%. The occupations listed below have nonexistent unemployed talent at the regional level and 75 people or more working in these positions locally. Some of these roles have low volumes of online job postings due to unique methods of recruiting talent for specialty roles, while others show high posting volumes which indicates unmet demand and significant likely shortages. All of these roles pay over the regional median of \$48,600 annually, with many significantly higher.

Occupations with No Unemployed Workforce and Employing over 75 Workers, Central Minnesota 2024Q1

SOC	Occupation	Current						5-Year History		5-Year Forecast				
		Empl	Median Ann Wages ²	LQ	Unempl	Unempl Rate	30-Day Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Change	Ann % Change
11-9041	Architectural and Engineering Managers	246	\$150,000	0.70	0	n/a	82	4	0.3%	85	25	54	5	0.4%
19-5011	Occupational Health and Safety Specialists	167	\$83,600	0.86	0	n/a	24	36	4.9%	104	25	68	11	1.3%
19-3034	School Psychologists	133	\$78,900	1.25	0	n/a	57	-16	-2.3%	45	11	31	2	0.3%
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	120	\$68,200	1.89	0	n/a	n/a	-51	-6.9%	60	28	32	0	0.0%
51-8013	Power Plant Operators	115	\$100,100	2.01	0	n/a	1	16	3.1%	33	15	28	-10	-1.9%
51-8011	Nuclear Power Reactor Operators	111	\$130,100	10.38	0	n/a	1	22	4.6%	50	17	30	3	0.6%
15-1212	Information Security Analysts	109	\$103,600	0.38	0	n/a	92	9	1.8%	48	13	22	13	2.2%
29-1031	Dietitians and Nutritionists	107	\$69,300	0.78	0	n/a	20	3	0.6%	37	20	15	2	0.4%
33-1011	First-Line Supervisors of Correctional Officers	98	\$87,400	1.02	0	n/a	n/a	-3	-0.6%	39	16	23	0	0.0%
29-1041	Optometrists	94	\$131,000	1.24	0	n/a	57	6	1.3%	19	12	3	4	0.9%
19-3039	Psychologists, All Other	91	\$74,100	0.95	0	n/a	5	7	1.6%	33	14	15	3	0.7%
15-2031	Operations Research Analysts	85	\$89,000	0.47	0	n/a	19	7	1.7%	36	13	14	8	1.9%
13-2081	Tax Examiners and Collectors, and Revenue Agents	81	\$63,800	0.88	0	n/a	119	0	0.1%	31	15	15	1	0.2%
53-4031	Railroad Conductors and Yardmasters	81	\$72,800	1.16	0	n/a	1	-10	-2.2%	34	10	23	1	0.3%
11-1031	Legislators	79	\$68,600	1.10	0	n/a	n/a	3	0.7%	31	13	17	2	0.4%
15-1242	Database Administrators	76	\$88,800	0.53	0	n/a	4	-3	-0.8%	24	10	12	2	0.4%
Total - All Occupations		279,594	\$48,600	1.00	12,321	3.3%	20,628	4,028	0.3%	160,550	69,819	86,976	3,755	0.3%

Job Posting Trends in Central Minnesota

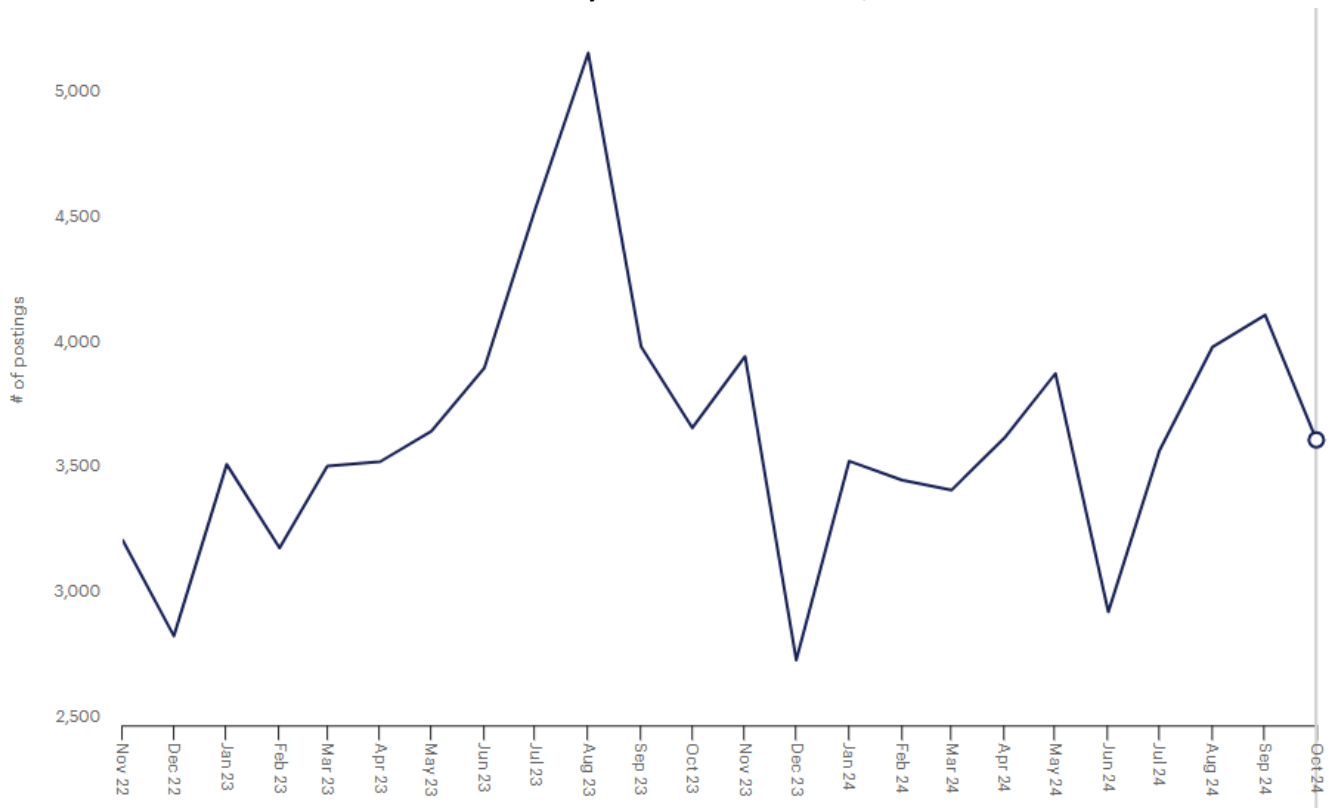
Online job posting data reveals much about employer demand for certain skills, certifications, qualifications, and occupational competencies.

TOTAL JOBS

Total job postings in the past 12 months (11/1/23 – 10/31/24):

- 43,098 unique job postings advertised online in Central Minnesota
 - -4% compared to the 12 months prior
- 594,113 unique postings statewide
 - -10% compared to the 12 months prior

Total Jobs Advertised Monthly in Central Minnesota, October 2023-2024



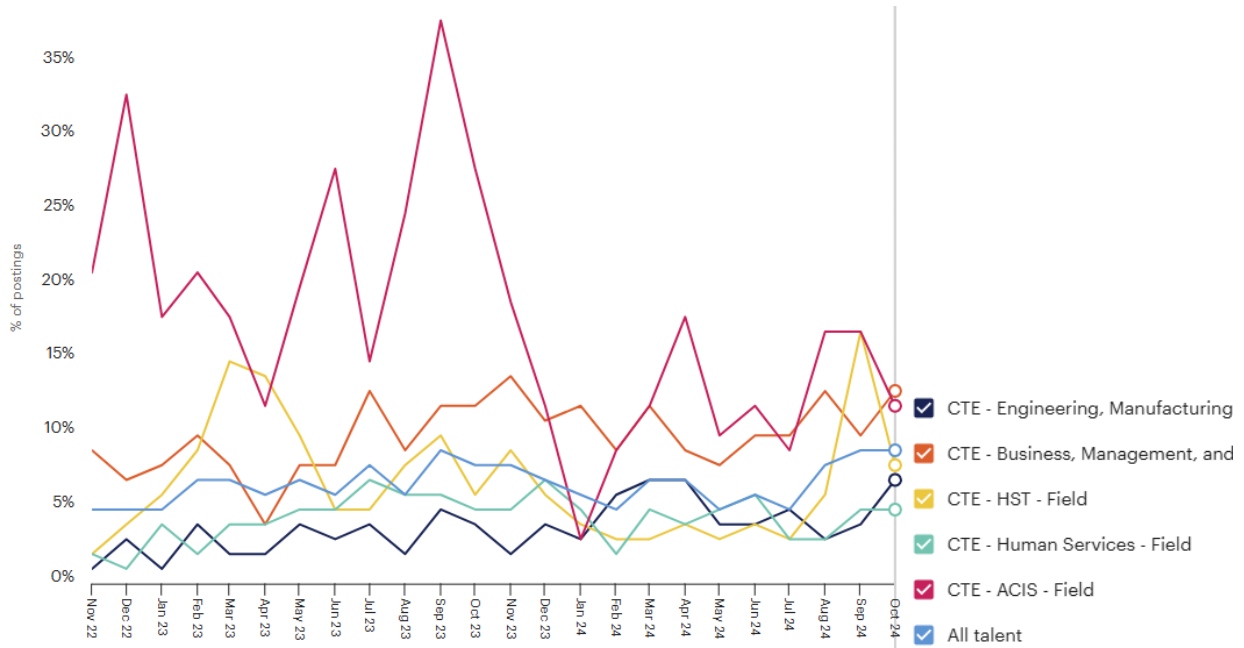
SOURCE: TalentNeuron accessed 11/1/2024

REMOTE AND HYBRID POSITIONS

- Remote and hybrid positions have been shifting greatly in the past five years, and this trend plays out differently across Career and Technical Education (CTE) fields:
- 7% of all positions advertised in the past 12 months were explicitly listed as remote, hybrid, or telecommute roles—either permanently or temporarily
- Remote work is increasing year over year
 - Among all positions, the share of positions that are remote and hybrid remote increased by one percentage points from the prior year
 - Hybrid remote roles grew the most, representing 5% of all postings

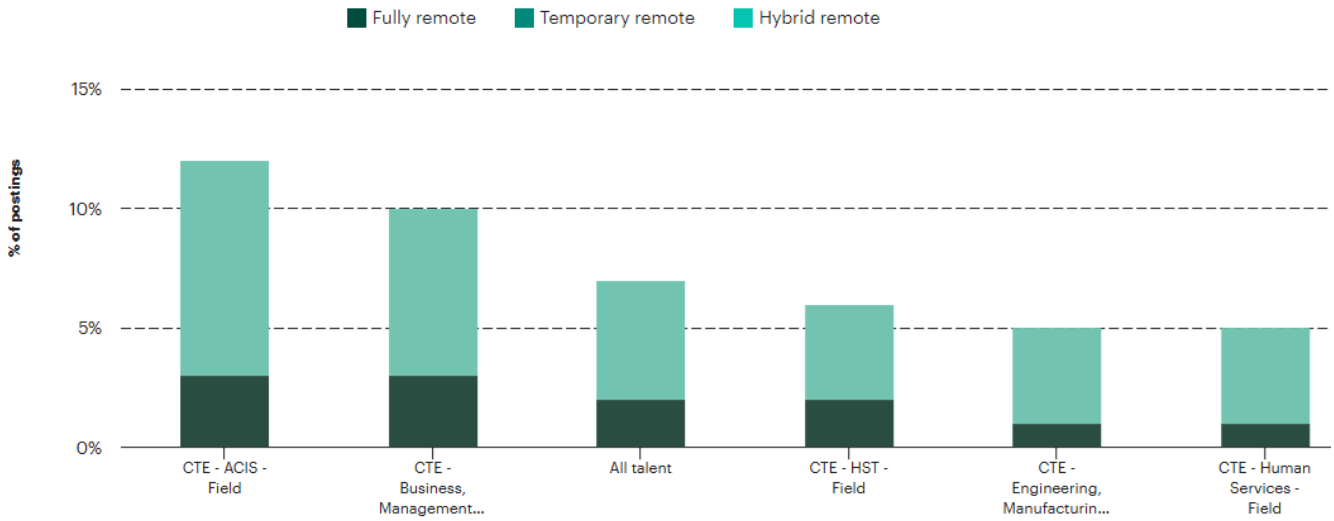
- Arts, Communications and Information Systems has the highest volume of remote positions, at 12% of jobs advertised, but having dropped in half from the prior 12-month period

Total Remote Job Postings Advertised Monthly in Central Minnesota, October 2023-2024



SOURCE: TalentNeuron accessed 11/1/2024

Remote Job Postings by Career Field Advertised in Central Minnesota, October 2023-2024



Talent Profile ▾	Unspecified /Onsite ▾	Total remote ▾	% of postings		
			Fully remote ▾	Temporary remote ▾	Hybrid remote ▾
CTE - ACIS - Field	88% ▲ 12 pp	12% ▼ -12 pp	3% ▼ -4 pp	0% ▼ -3 pp	9% ▼ -5 pp
CTE - Business, Management, and Administration - Field	90% ▼ -1 pp	10% ▲ 1 pp	3% ▲ 0 pp	0% ▼ -1 pp	7% ▲ 2 pp
All talent	93% ▼ -1 pp	7% ▲ 1 pp	2% ▲ 0 pp	0% ▲ 0 pp	5% ▲ 1 pp
CTE - HST - Field	94% ▲ 1 pp	6% ▼ -1 pp	2% ▼ -2 pp	0% ▲ 0 pp	4% ▲ 1 pp
CTE - Engineering, Manufacturing, and Technology - Field	95% ▼ -2 pp	5% ▲ 2 pp	1% ▲ 0 pp	0% ▲ 0 pp	4% ▲ 2 pp
CTE - Human Services - Field	95% ▼ -1 pp	5% ▲ 1 pp	1% ▲ 0 pp	0% ▲ 0 pp	4% ▲ 1 pp

SOURCE: TalentNeuron accessed 11/1/2024

EVOLVING SKILLS

Talent accumulates valuable skills in many different ways beyond just work and education. Everything from self-study to apprenticeships/internships, as well as workforce training programs and general life experience all develop relevant skills. Assessing experience in terms of skills unearths a person’s qualifications and more clearly identifies training needs for career growth. For example, servers trying to move beyond a likely transition (bartending, retail sales, and other hospitality jobs) to an aligned transition like public relations specialist, skills tell us where their current qualifications align and where there are gaps. This kind of gap analysis is possible at the occupation level and supports postsecondary planning, workforce development, and employer talent strategy.

Evolving skills key trends:

- Most of the **newest** skills on the rise in regional job postings include specialized technical and hard skills related to the Engineering, Manufacturing, and Technology field and religious vocations
- **Core** skills have shifted in the region over the past year, with operations and supervisory skills becoming more prominent across all occupation types

Top Evolving Skills in Central Minnesota, October 2023-2024

New

1. Electronics repair
2. Sonar
3. Pastoral Care

New skills whose future is uncertain.

Emerging

There are no Emerging skills in the market

Relatively new skills that are becoming more prevalent.

Growing

1. Collaboration

Fast-growing skills that are becoming core skills.

Core

1. Operations
2. Relationships
3. Supervision

Skills that have been present in a high percentage of job postings for some time.

Declining

1. Hardware
2. Guest service exper...
3. Nursing

Skills that used to be essential but are becoming obsolete.

Career Fields

Each of the six Career and Technical Education (CTE) career fields has unique talent demand and employment forecasts, based on its mix of occupations and industry needs.

Health Science Technology

- Highest forecast growth among career fields (+0.8%)
- Lowest unemployment rate in the region (1.8%)

Human Services

- 2nd Highest forecast growth among career fields (+0.6%)
- Third largest employment in the region among career fields

Arts, Communications, and Information Systems

- Smallest local employment volume
- Low concentration in the region (LQ 0.59)
- Highest median and average entry-level wages of all career clusters

Business, Management, and Administration

- Largest employment volume in the Central region
- Concentration comparable to the national average (LQ 0.91)
- 2nd highest unemployment, at 3.6 %, but also the highest job posting volume

Engineering, Manufacturing, and Technology

- Second highest employment volume in the region
- Highest unemployment rate (3.7%), largely due to high unemployment in the Architecture and Construction cluster (5.0% unemployment)

Agriculture, Food, and Natural Resources

- The second smallest share of regional employment
- Highest local concentration in the region (LQ 1.41)

CTE Field Employment and Wages in Central Minnesota, 2024Q1

CTE Field (occupation overlap exists, will not sum)	Current 2024Q1 Estimates							5-Year History	
	Empl	Avg Entry-Level Wages	Median Wages	LQ	Unempl	Unempl Rate	Online Job Ads ³	Empl Change	Ann %
Health Science Technology	25,752	\$38,700	\$68,300	0.99	603	1.8%	5,009	-486	-0.4%
Human Services	44,768	\$41,800	\$53,700	1.02	1,308	2.5%	3,187	1,487	0.7%
Arts, Communications, and Information Systems	7,503	\$52,500	\$72,800	0.59	263	2.4%	451	-480	-1.2%
Business, Management, and Administration	112,917	\$38,300	\$51,100	0.91	5,607	3.6%	7,323	1,207	0.2%
Engineering, Manufacturing, and Technology	78,448	\$44,000	\$57,400	1.15	4,259	3.7%	4,463	2,360	0.6%
Agriculture, Food, and Natural Resources*	20,514	\$40,300	\$58,700	1.41	742	3.0%	660	738	0.7%
Total - All Occupations	279,594			1.00	12,321	3.3%	20,628	4,028	0.3%

Data as of 2024Q1 unless noted otherwise

Note: Figures may not sum due to rounding and overlap in occupations between career fields. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. Employment by place of work.

1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

3. Data represent found online ads active 10/1/2024-11/1/2024 in the selected region. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list). Ad counts for ZCTA-based regions are estimates.

CTE Field Baseline Employment Forecast for Central Minnesota, 2029Q1

CTE Field (occupation overlap exists, will not sum)	Current	5-Year Growth 2029Q1				
	Empl	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Health Science Technology	25,752	11,575	5,215	5,362	997	0.8%
Human Services	44,768	24,962	11,196	12,324	1,442	0.6%
Arts, Communications, and Information Systems	7,503	3,113	1,189	1,746	178	0.5%
Business, Management, and Administration	112,917	74,544	33,011	41,502	32	0.0%
Engineering, Manufacturing, and Technology	78,448	40,402	16,214	23,049	1,139	0.3%
Agriculture, Food, and Natural Resources*	20,514	11,777	5,210	6,472	95	0.1%
Total - All Occupations	279,594	160,550	69,819	86,976	3,755	0.3%

Data as of 2024Q1 unless noted otherwise

Note: Figures may not sum due to rounding and overlap in occupations between career fields. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. Employment by place of work.

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Career Cluster Detail

Of the sixteen career clusters used by Career and Technical Education (CTE), thirteen are forecast to increase in overall employment over the next ten years as of 2024Q1 estimates. The only three clusters forecasting declines are Arts, A/V Technology and Communication, Business, Management, and Administration, and Marketing, Sales, and Service. All clusters saw improvements in employment outlook from the prior year's forecast.

Baseline 10-Year Forecasts by Career Cluster, Central Minnesota, 2024Q1



Cluster forecasts estimated using Chmura, JobsEQ, based on 2024Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters.

An accurate assessment of future occupation demand requires that future growth, retirements, and other job exits be considered. In Central Minnesota, Hospitality and Tourism, Business, Management, and Administration, and Marketing, Sales, and Service clusters are expected to have the highest annual job demand by volume of opportunities—due to retirements and job changes.

Nine of the sixteen career clusters have average wages above the average occupation wage in the region. The Science, Technology, Engineering and Mathematics cluster has the highest wages of the Career Clusters followed by the Information Technology and Finance clusters.

Employment, Wages, and Forecast by Career Cluster, 2024Q1

Career Cluster	Employment	Avg Ann Wages	Job Ads	Ann Empl Change	Ann Total Demand
Science, Technology, Engineering & Mathematics	3,077	\$100,100	344	27	215
Information Technology	3,921	\$92,100	326	37	276
Finance	7,256	\$88,700	682	24	584
Health Science	25,752	\$86,700	4,961	195	2,294
Business, Management & Administration	43,219	\$68,500	2,157	-85	4,474
Law, Public Safety, Corrections & Security	6,086	\$68,300	487	15	592
Government & Public Administration	2,118	\$67,600	225	11	204
Architecture & Construction	23,839	\$66,600	821	106	2,223
Education & Training	19,664	\$60,100	929	75	1,835
Arts, A/V Technology & Communications	3,581	\$59,400	124	-2	345
Agriculture, Food & Natural Resources*	20,514	\$58,400	743	15	2,348
Manufacturing	28,834	\$52,800	1,674	5	2,971
Transportation, Distribution & Logistics	22,699	\$51,600	1,594	88	2,648
Marketing, Sales & Service	29,669	\$51,400	2,431	-40	3,843
Human Services	16,900	\$45,100	1,515	183	2,324
Hospitality & Tourism	32,773	\$33,900	2,002	112	6,010
Total - All Occupations	279,594	\$59,800	20,468	730	32,019

*Cluster forecasts estimated using Chmura, JobsEQ, based on 2024Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters.

CAREER CLUSTER FORECASTS

Just as with industry clusters, it is possible to chart Career and Technical Education career clusters by wage, forecast, and local concentration. The chart below shows career clusters of employment in Central Minnesota. The larger the circle, the more concentrated the career cluster is in the region (compared to the national average); this is called a Location Quotient (LQ). Clusters are positioned on the chart based on their wages and forecast employment. Clusters higher up on the Y-axis of the chart have higher average wages, and clusters located further to the right on the X-axis of the chart have higher forecasted employment growth. In summary, large circles in the top-right corner of the chart would be considered high-wage, high-growth, uniquely important clusters for the region's economy. Smaller circles further to the bottom-left corner of the chart would be lower-wage, declining, underrepresented clusters.

The career cluster with highest positive growth in the Central region is Human Services:

- Location Quotient: 1.11
- Employment: 16,900 workers
- Average Wage: \$45,100
- Employment Forecast: Projected to grow by 1.1% annually over the next 10 years

Career Clusters for Central Minnesota as of 2024Q1



Source: InhoFA® Data as of 2024Q1

Key Takeaways by Career Field

Health Science Technology	Human Services	Arts, Communications, and Information Technology
<ul style="list-style-type: none"> Continued shortage of nurses (projected annual talent shortage of at least 22 Registered Nurses in most favorable scenario) Unique high local concentration Highest projected growth in the region (+0.8%) Over 40% of the employees in this career field are age 45 or older 	<ul style="list-style-type: none"> Second highest projected growth for the region (+0.6%) Critical occupations of shortage such as Elementary and Secondary School Teachers and Mental Health Counselors Surplus of Childcare workers 	<ul style="list-style-type: none"> Occupations in this field offer the highest average entry-level wages Increased growth forecast (+0.5) after several years of decline. Seven out of every ten positions require a bachelor's degree (69%) Continued demand for software developers with a 2.1% annual change forecasted and a continued shortage of supply (-17)
Business, Management, and Administration	Engineering, Manufacturing, and Technology	Agriculture, Food, and Natural Resources
<ul style="list-style-type: none"> Largest volume of employment by career field High unemployment (3.6%) Flat growth in this career field in the Central region Continued Shortages in management roles – there is a need for a pathway, also highly concentrated locally (LQ 1.01) Underproducing at least 235 graduates annually needed to fill open General and Operations Managers in the region 	<ul style="list-style-type: none"> All but one of the ten top occupations by employment volume have forecasted growth over the next three years Highest unemployment in the Central region (3.7%) Aging talent signaling exacerbation of talent shortage due to upcoming retirements with 42% of workers in this field 45 years or older Continued forecasted shortages of Heavy and Tractor-Trailer Truck Drivers 	<ul style="list-style-type: none"> Uniquely highly concentrated in the Central region (LQ 1.41) Regional colleges and universities are underproducing at 125 graduates annually that are needed to fill Farmers, Ranchers, and Other Agricultural Manager positions Predominantly male workforce (73.6%) for this career field

Health Science Technology

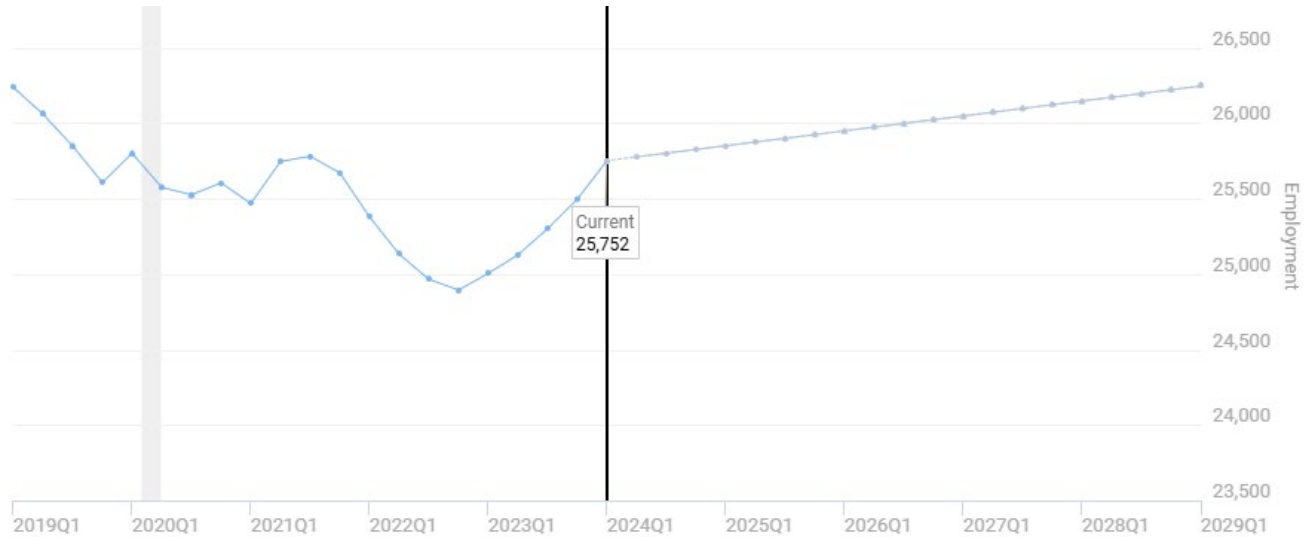
The Health Science Technology field includes an array of careers in the health sciences, including the following career pathways:

- Therapeutic Services
- Diagnostic Services
- Support Services
- Health Informatics
- Biotechnology Research and Development

EMPLOYMENT FORECAST

Over the next five years, Health Science Technology field employment is forecast to increase by 0.8% on average annually, continuing an upward trend for the field which started in 2022.

Baseline 5-Year Forecast for Health Science Technology Careers, Central Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 25,752 people are employed in Health Science Technology roles regionally, accounting for about 9% of all regional employment. The field's median wage is \$68,300, well above the regional median across all occupations (\$48,600). Home Health Aides and Medical and Health Services Managers are the top occupations with the highest forecast growth, at 1.8% and 2.3% per year, respectively.

Top Ten Health Science Technology Occupations by Employment Volume, Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Registered Nurses	6,029	\$96,400	1.09	181	1,746	0.3%
Nursing Assistants	2,733	\$39,500	1.14	-225	1,994	0.3%
Home Health Aides	1,811	\$33,100	1.04	-339	1,261	1.8%
Licensed Practical and Licensed Vocational Nurses	1,340	\$54,500	1.17	-227	543	0.4%
Medical Secretaries and Administrative Assistants	1,185	\$44,100	0.98	52	654	0.4%
Medical Assistants	963	\$46,100	0.71	90	698	1.1%
Medical and Health Services Managers	822	\$113,500	0.92	64	415	2.3%
Pharmacy Technicians	691	\$45,600	0.90	29	331	0.5%
Dental Assistants	561	\$58,100	0.88	29	418	0.7%
Pharmacists	557	\$143,300	0.98	8	114	0.3%
Health Science (CTE Field)	25,752	\$68,300	0.99	-486	11,575	0.8%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Annual Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

About one in three Health Science Technology workers in Central Minnesota are employed by General Medical and Surgical Hospitals (38.5%). The next most common industries are Offices of Physicians (13.2%) and Nursing Care Facilities (10.3%).

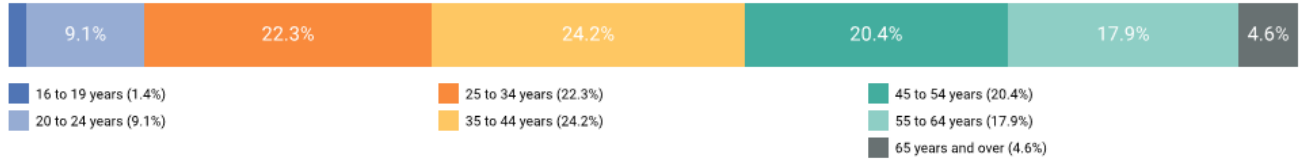
Health Science Technology Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
General Medical and Surgical Hospitals	38.5%	9,912	6,851	402	7,253
Offices of Physicians	13.2%	3,393	2,447	301	2,748
Nursing Care Facilities (Skilled Nursing Facilities)	10.3%	2,646	2,745	-6	2,740
Offices of Dentists	5.0%	1,291	1,249	102	1,352
Offices of Other Health Practitioners	4.3%	1,119	879	186	1,065
Individual and Family Services	3.5%	905	1,092	274	1,366
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.4%	885	880	76	956
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	3.1%	797	942	144	1,086
Home Health Care Services	2.7%	697	686	177	862
Other Professional, Scientific, and Technical Services	2.7%	685	736	159	895
Health and Personal Care Retailers	2.3%	591	447	7	453
Elementary and Secondary Schools	1.9%	481	325	34	359
Outpatient Care Centers	1.1%	294	232	69	301
Other Residential Care Facilities	0.8%	194	196	7	203
Executive, Legislative, and Other General Government Support	0.8%	193	154	12	167
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	0.7%	171	132	2	135
Colleges, Universities, and Professional Schools	0.6%	163	106	8	114
Other Ambulatory Health Care Services	0.6%	154	140	25	164
Grocery and Convenience Retailers	0.5%	130	100	3	104
All Others	4.1%	1,050	833	76	909

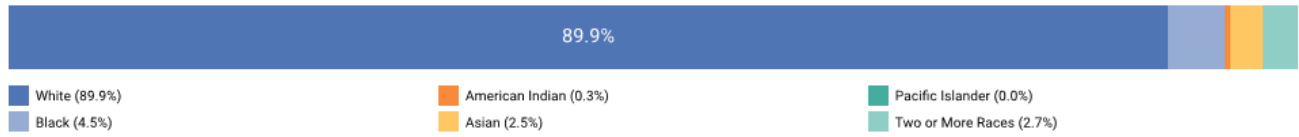
CAREER FIELD DEMOGRAPHICS

- The Health Science Technology field is predominantly white (89.9%) by race and non-Hispanic/Latinx by ethnicity (98.2%)
- Four out of every five people employed in the field are female (81.0%)

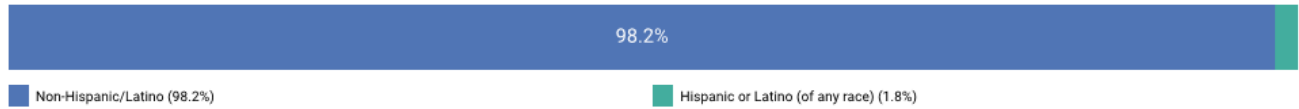
Age



Race



Ethnicity



Gender

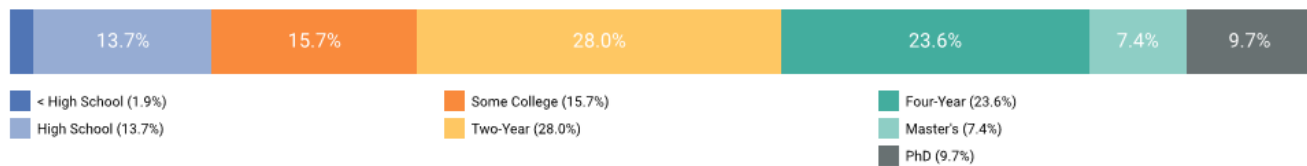


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

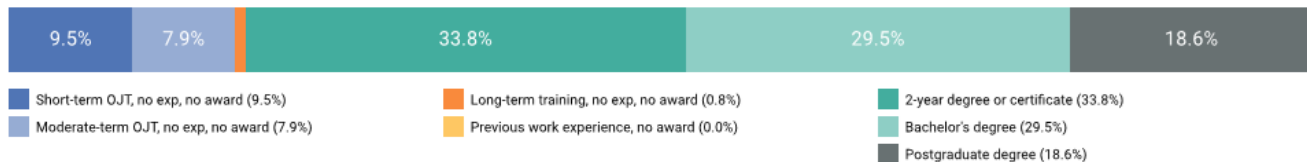
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- Overall, local Health Science Technology roles have higher education and training requirements than what is held by the local workforce, although the share of talent holding a certificate or two-year degree is well-matched to local opportunities
 - Over one in four (28%) professionals working in Health Science Technology roles in the region hold a two-year degree as their highest credential, and another 15.7% hold a certificate or have less than two years of college education (a total of 43.7%); In contrast, about 33.8% of Health Science Technology positions in the region typically require a two-year degree or certificate
 - Although 29.5% of local Health Science Technology roles typically require a bachelor's degree and 18.6% require a postgraduate degree, only 23.6% of local Health Science Technology talent hold a bachelor's degree and 17.1% hold a postgraduate degree; This implies that for some roles, such as nursing, where a two-year or a four-year degree may be relevant, the Central region may have a higher share of two-year talent than most communities

Educational Attainment



Education and Training Requirements

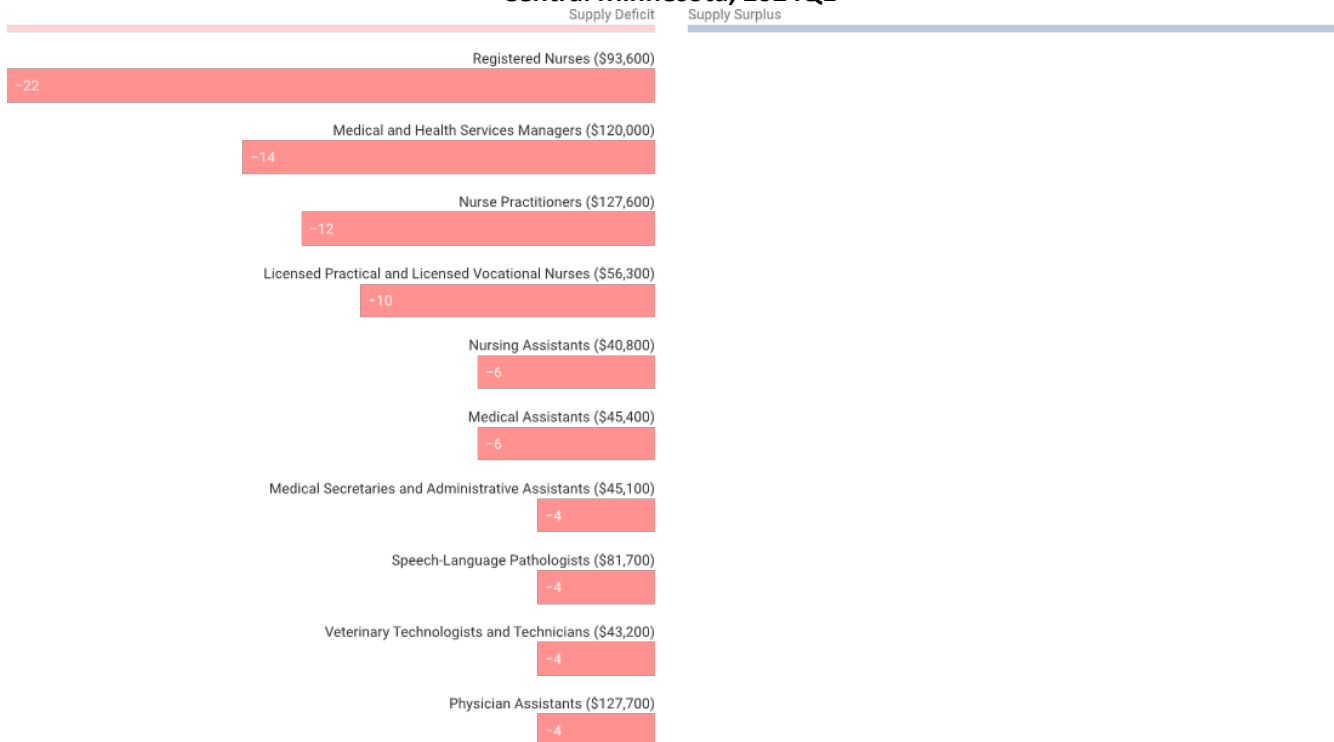


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

All occupations in the Health Science Technology field forecast talent shortages in the Central region. Registered Nurses and Medical and Health Service Managers are the two occupations with the greatest annual shortages in the region. All career pathways in nursing may require a new influx of talent to the region to meet with forecast local demand.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, Central Minnesota, 2024Q1



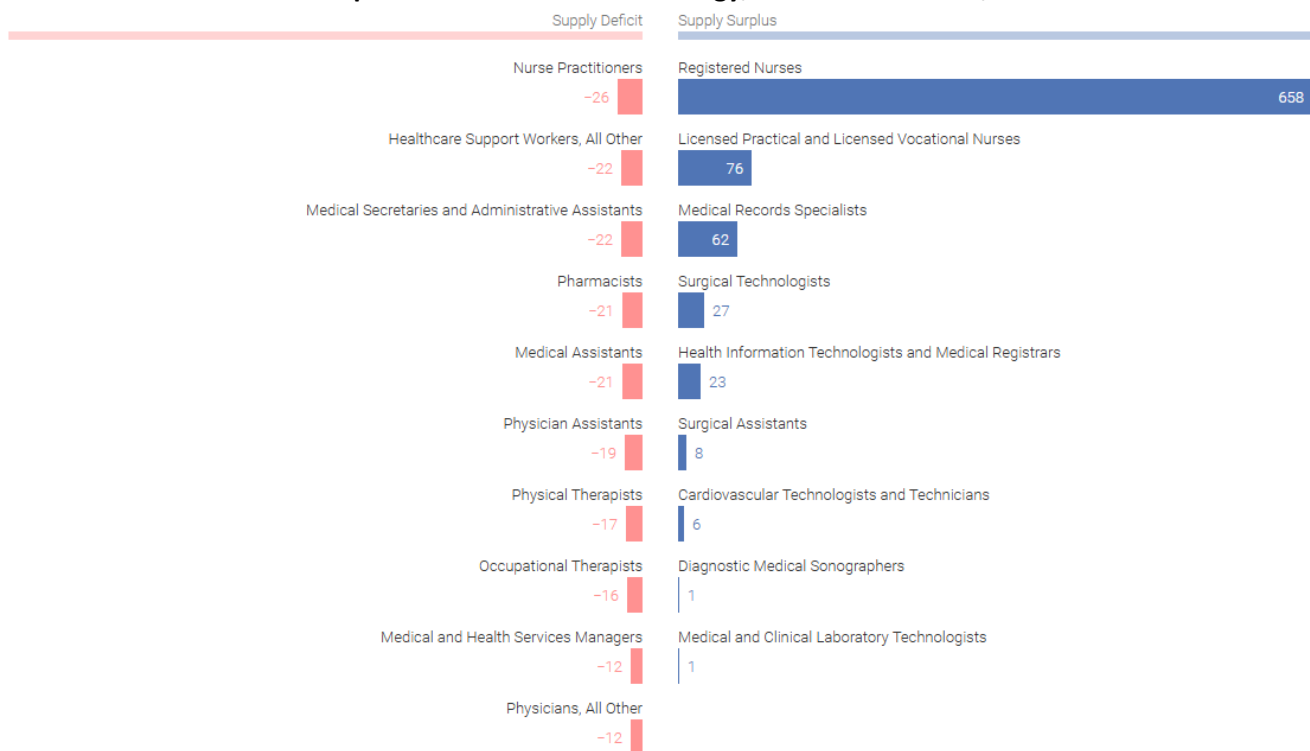
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The Central region has several Health Science Technology award shortages and some general misalignments:

- A majority of Health Science Technology occupations have small to moderate local shortage of new graduates from local postsecondary institutions, with local employers likely filling local job openings with talent trained outside of the region. The top occupations in shortage are Nurse Practitioners and Healthcare Support Workers.
- While the chart below indicates there is an oversupply of Registered Nurses and Licensed Practical and Licensed Vocational Nurses completing local postsecondary programs, this is misleading. Rasmussen University produced 894 Registered Nurse graduates across its six campuses statewide, which were all reported as completions based out of its Saint Cloud location. As many large institutions do, Rasmussen University reports all awards to the NCES IPEDS from a single location. Statewide, while there is an award gap for Licensed Practical and Licensed Vocational Nurses, there is not an award gap for Registered Nurses.

Award Gaps in Health Science Technology, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Health Science Technology, Central Minnesota, 2024Q1

Target Occupations (All HW, HD, HS, OG)

Registered Nurses
 Licensed Practical & Licensed Vocational Nurses
 Medical & Health Services Managers (AG)
 Dental Assistants (AG)
 Pharmacists (AG)

Gateway Occupations

Medical Assistants (HS, HD, OG, AG)
 Pharmacy Technicians (OG)

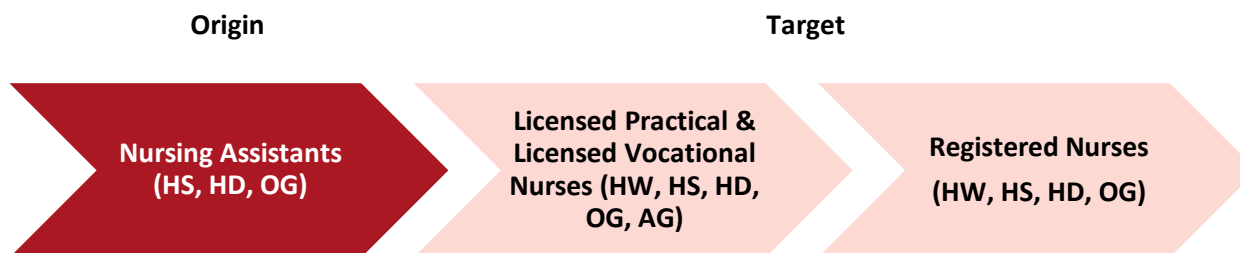
Origin Occupations

Nursing Assistants (HS, HD, OG)
 Home Health Aides (HD)
 Medical Secretaries & Administrative Assistants (HD, OG, AG)
 Veterinary Technologists & Technicians (HS, HD, OG, AG)
 Healthcare Support Workers (HD, AG)

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

Featured Pathway

Consistent with observations in 2023, the Central region's nursing pathway requires further expansion and stabilization to respond to rising demand. The Target occupation of Registered Nurse remains fairly concentrated in the Central region with a location quotient of 1.09. This role is in high demand and currently experiencing an occupation gap. Licensed Practical and Licensed Vocational Nurse (LPN) median wages are now above the region's overall median wage, making it a Target occupation in the field. LPNs are also more highly concentrated in the Central region than a typical community nationwide (LQ 1.17) and are experiencing an occupation gap and award gap. The Origin occupation of Nursing Assistant is an example of a potential feeder occupation into these roles, given overlapping foundational skillsets and training required. Stackability of credentials is vital to building viable career pathways up to Registered Nursing positions at the AS, BSN, or MSN levels.



OGT Wages and Experience Level Requirements, Health Science Technology, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	29-1141	Registered Nurses	6,029	\$93,600	\$74,700	\$103,000	\$72,300	\$81,100	\$96,400	\$103,700	\$110,100	BA	None	None
	29-2061	Licensed Practical and Licensed Vocational Nurses	1,340	\$56,300	\$47,700	\$60,600	\$46,300	\$50,500	\$54,500	\$59,300	\$70,500	Certificate	None	None
	11-9111	Medical and Health Services Managers	822	\$120,000	\$80,500	\$139,800	\$76,000	\$91,300	\$113,500	\$131,300	\$172,400	BA	< 5 years	None
	31-9091	Dental Assistants	561	\$58,600	\$50,800	\$62,500	\$49,100	\$54,000	\$58,100	\$63,000	\$66,100	Certificate	None	None
	29-1051	Pharmacists	557	\$140,300	\$117,900	\$151,500	\$111,000	\$130,500	\$143,300	\$161,100	\$166,900	PhD	None	None
Gate	31-9092	Medical Assistants	963	\$45,400	\$36,800	\$49,700	\$35,500	\$40,000	\$46,100	\$49,700	\$53,500	Certificate	None	None
	29-2052	Pharmacy Technicians	691	\$44,700	\$36,400	\$48,900	\$36,700	\$37,600	\$45,600	\$48,100	\$54,800	HS/GED	None	Mod-term OJT
Origin	31-1131	Nursing Assistants	2,733	\$40,800	\$36,100	\$43,200	\$35,800	\$37,100	\$39,500	\$43,700	\$49,400	Certificate	None	None
	31-1121	Home Health Aides	1,811	\$33,200	\$28,800	\$35,300	\$28,700	\$29,800	\$33,100	\$35,100	\$38,400	HS/GED	None	Short-term OJT
	43-6013	Medical Secretaries and Administrative Assistants	1,185	\$45,100	\$38,500	\$48,400	\$37,800	\$40,300	\$44,100	\$49,800	\$54,000	HS/GED	None	Mod-term OJT
	29-2056	Veterinary Technologists and Technicians	358	\$43,200	\$36,900	\$46,400	\$35,500	\$39,600	\$42,900	\$45,800	\$50,600	AS	None	None
	31-9099	Healthcare Support Workers, All Other	328	\$41,700	\$33,900	\$45,700	\$32,500	\$36,500	\$40,100	\$47,600	\$53,800	HS/GED	None	None

Human Services

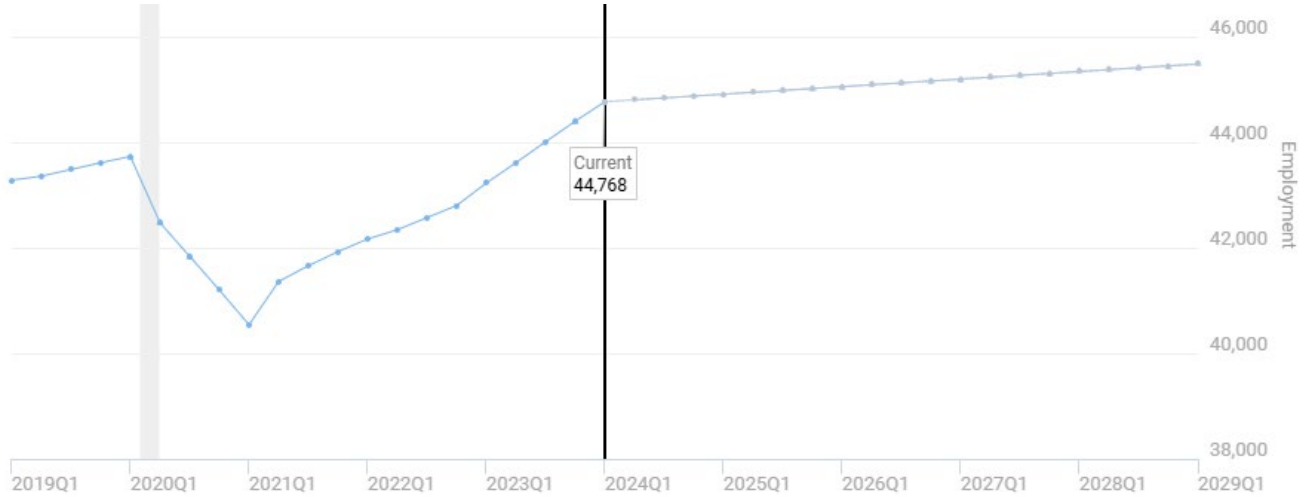
The Human Services field includes a wide range of career pathways sorted into the following career clusters:

- Education and Training
- Law, Public Safety, Corrections, and Security
- Government and Public Administration
- Human Services

EMPLOYMENT FORECAST

Over the next five years, Human Services employment is forecast to grow by 0.6% annually, continuing an upward trend in employment for the field since 2021.

Baseline 5-Year Forecast for Human Services Careers, Central Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 44,768 people are employed in Human Services roles regionally, accounting for about 16% of all regional employment. The field's median wage is \$53,700. Personal Care Aides and Mental Health Counselors show the highest forecast growth, at 1.8% annually for each.

Top Ten Human Services Occupations by Employment Volume, Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Personal Care Aides	5,134	\$33,100	1.04	1,363	4,318	1.8%
Teaching Assistants, Except Postsecondary	4,062	\$38,000	1.86	59	2,452	0.3%
Elementary School Teachers, Except Special Education	3,152	\$61,900	1.32	62	1,130	0.4%
Secondary School Teachers, Except Special and Career/Technical Education	2,334	\$64,900	1.30	52	767	0.4%
Childcare Workers	2,148	\$31,200	1.52	-238	1,793	0.1%
Middle School Teachers, Except Special and Career/Technical Education	1,328	\$62,100	1.28	27	477	0.4%
Preschool Teachers, Except Special Education	1,296	\$36,600	1.48	63	735	0.6%
Police and Sheriffs Patrol Officers	1,052	\$78,900	0.93	35	430	0.4%
Social and Human Service Assistants	954	\$43,400	1.30	14	558	1.1%
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	795	\$49,100	1.11	136	425	1.8%
Human Services (CTE Field)	44,768	\$53,700	1.02	1,487	24,962	0.6%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Annual Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

One in three regional Human Services talent in Central Minnesota is employed by Elementary and Secondary Schools (34.3%). The next most common industry is Executive, Legislative, and Other General Government Support (8.9%). Individual and Family Services continues to have high forecasted growth and replacement demand needs.

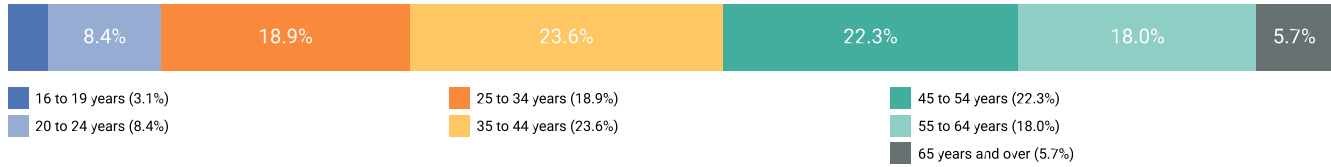
Human Services Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Elementary and Secondary Schools	34.3%	15,371	13,444	561	14,005
Executive, Legislative, and Other General Government Support	8.9%	3,981	3,524	128	3,651
Individual and Family Services	7.3%	3,281	4,486	954	5,440
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	5.4%	2,412	2,984	184	3,168
Child Care Services	5.2%	2,339	3,122	10	3,132
Religious Organizations	3.6%	1,623	1,666	47	1,714
Personal Care Services	3.0%	1,331	1,810	158	1,968
Justice, Public Order, and Safety Activities	2.8%	1,268	1,093	34	1,127
Colleges, Universities, and Professional Schools	2.8%	1,261	1,069	45	1,114
Other Residential Care Facilities	2.1%	934	1,133	20	1,153
Home Health Care Services	1.7%	741	1,101	181	1,282
General Medical and Surgical Hospitals	1.5%	672	613	12	625
Other Schools and Instruction	1.5%	653	865	43	908
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.3%	604	907	152	1,059
Legal Services	1.3%	579	396	14	411
Other Amusement and Recreation Industries	1.1%	509	889	77	966
Civic and Social Organizations	1.1%	504	801	24	825
Administration of Human Resource Programs	1.0%	469	413	22	435
Offices of Other Health Practitioners	1.0%	457	432	102	534
Vocational Rehabilitation Services	0.8%	345	341	-26	315
All Others	12.1%	5,435	5,991	268	6,259

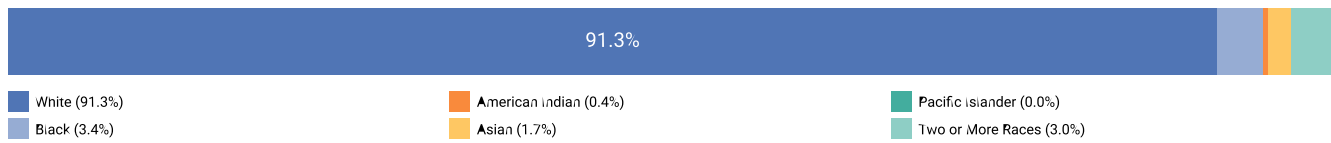
CAREER FIELD DEMOGRAPHICS

- The Human Services field is predominantly female (67.3%) and white (91.3%)
- Compared to the Human Services workforce statewide, Central Minnesota has a slightly larger share of younger workers in the 16 to 25 year age range (by 0.8 percentage points) and a smaller share that are 65 years or older (by 1.2 percentage points)

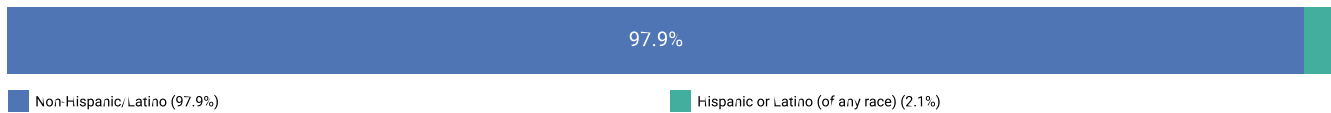
Age



Race



Ethnicity



Gender

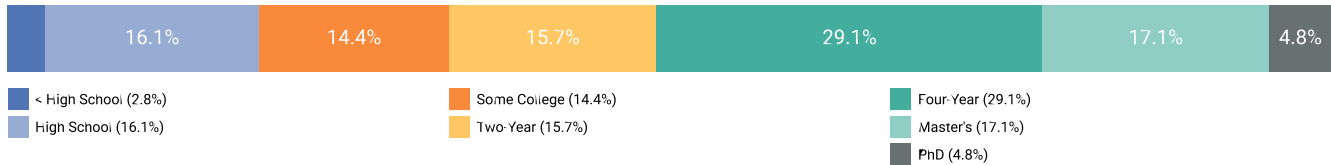


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

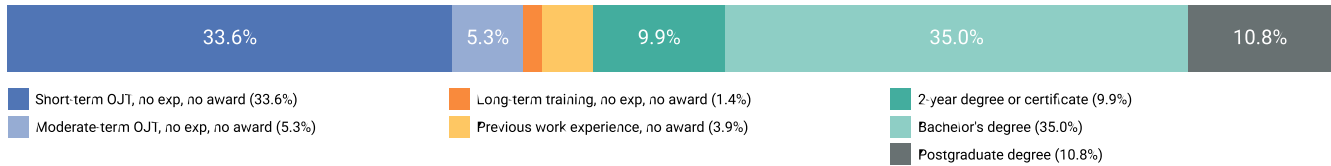
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- A greater share of the Central Minnesota Human Services workforce holds a two-year degree (15.7%) or certificate (14.4%) as their highest level of education than is required for local positions (9.9%), while fewer hold a bachelor’s degree (29.1%) than the share of local roles that typically require a bachelor’s degree (35.0%)
- About 21.9% of the Human Services workforce hold a master’s or PhD, whole only 10.8% of positions typically require this advanced level of education

Educational Attainment



Education and Training Requirements

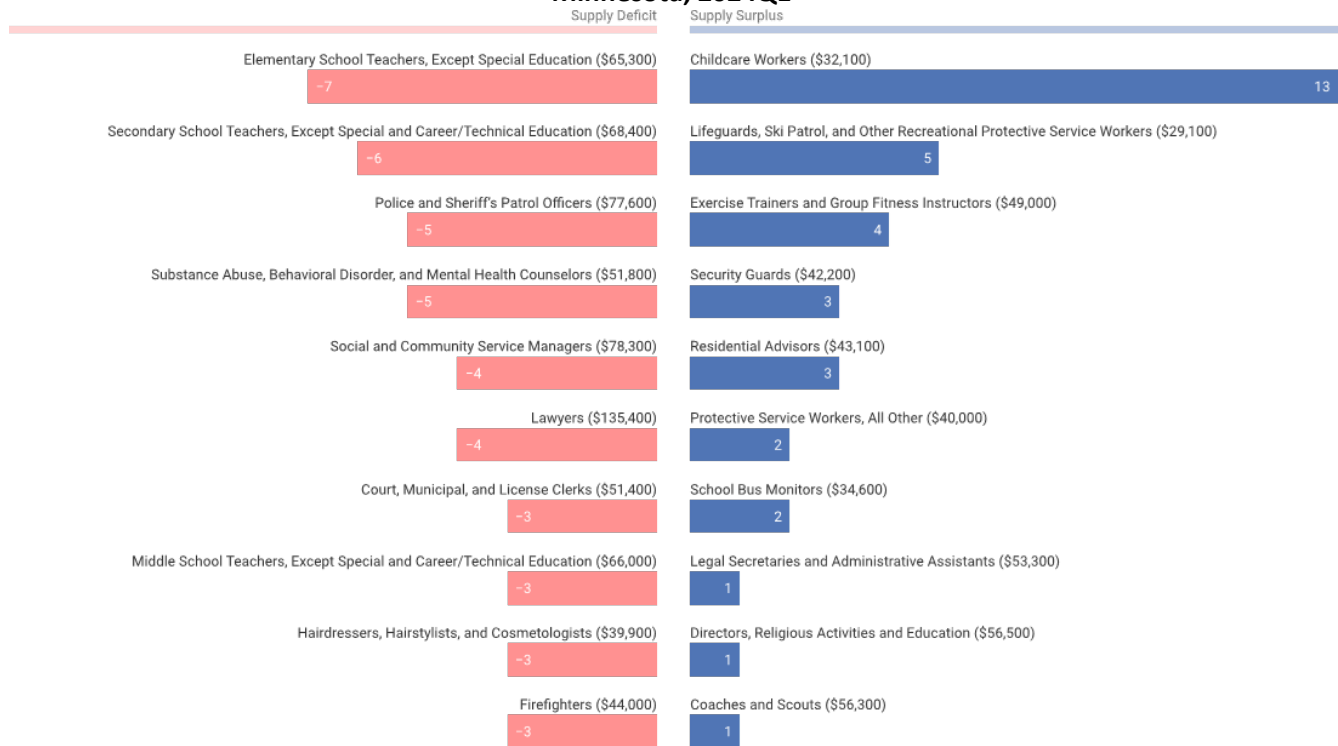


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

In the Human Services field, all careers in education rank in the top ten occupations of shortage in the region. Ten occupations continue to forecast slight talent surpluses in the region in relation to demand, specifically in public safety and community education roles.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, Central Minnesota, 2024Q1



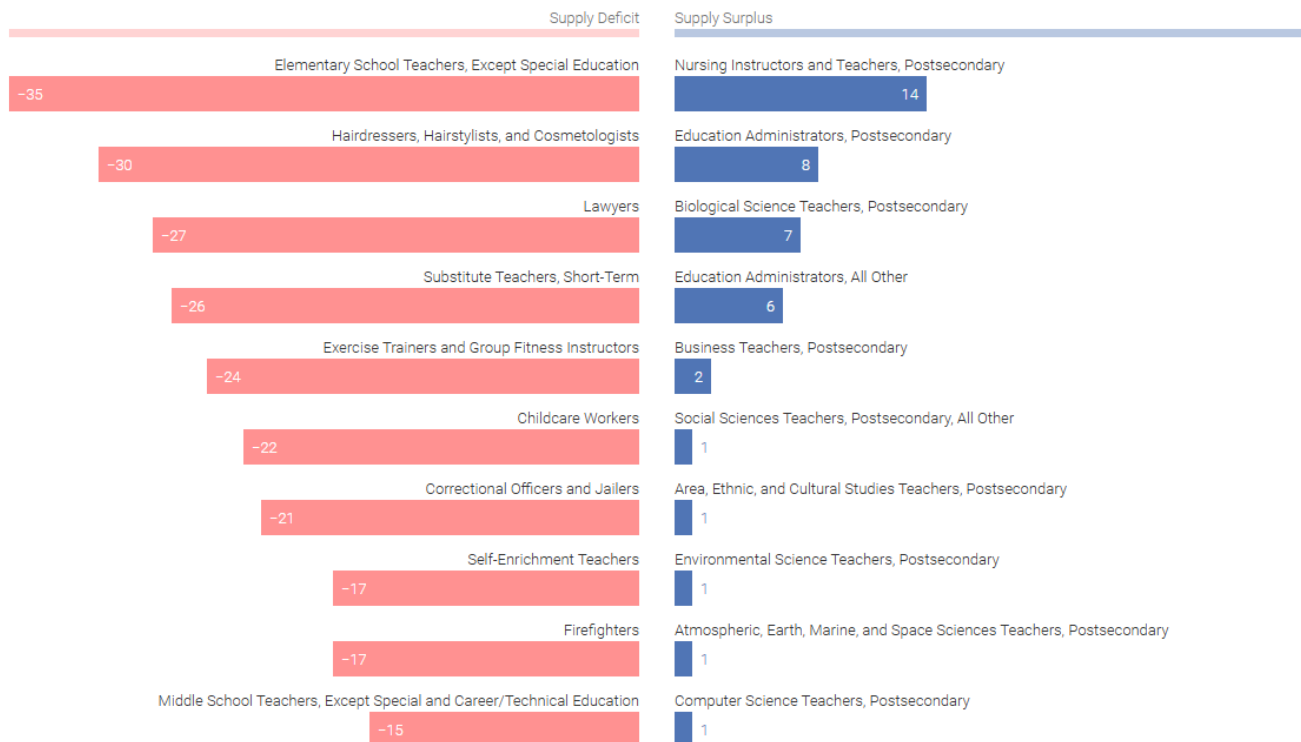
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

Central Minnesota faces several notable Human Services award shortages and some general misalignments:

- Many Human Services occupations have a local shortage of new graduates from local postsecondary programs, with Elementary School Teachers (Except Special Education), Hairdressers, Hairstylists, and Cosmetologists, Lawyers, and Substitute Teachers being the occupations with greatest shortage
- A few occupations have small surpluses of awards regionally. Postsecondary Nursing Instructors are the top surplus, at 14 annually

Award Gaps in Human Services, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Human Services, Central Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, OG)

Elementary School Teachers (AG)
 Secondary School Teachers, Except Special & CTE
 Middle School Teachers, Except Special & CTE (AG)
 Substance Abuse, Behavioral Disorder, & Mental Health Counselors (AG)
 Child, Family, & School Social Workers (AG)

Gateway Occupations (All HD)

Exercise Trainers & Groups Fitness Instructors (AG)
 Coaches & Scouts (HS, AG)
 Community & Social Service Specialists (HS, AG)
 Rehabilitation Counselors (HS, AG)
 First-Line Supervisors of Entertainment & Recreation Workers, Except Gambling Services (OG)

Origin Occupations (All HD)

Personal Care Aides (AG)
 Teaching Assistants, Except Postsecondary (HS)
 Childcare Workers (AG)
 Preschool Teachers, Except Special Education (HS)
 Social & Human Service Assistants

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

Other Promising Occupations

A number of other Human Services occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without typically requiring a postsecondary credential (although some may require other forms of licensure). These occupations to consider include:

- Police Officers (OG, AG)
- Court Municipal, & License Clerks (OG)
- First-Line Supervisors of Personal Service Workers (OG, AG)
- Eligibility Interviewers, Government Programs
- First-Line Supervisors of Police and Detectives (OG, AG)

Featured Pathway

While the Teaching Pathway remains a strong pathway in the Central region, another potential pathway to explore is the Social Services Pathway. Social services occupations have local concentrations across the region above 1.0 from assistants to social workers, with shortages observed across the entire pathway. Child, Family, and School Social Workers as well as Substance Abuse, Behavioral Disorder, and Mental Health Counselors are Target occupations in the region, meaning that median wages for these roles exceed the overall median wage in the Central region. In addition, there are multiple possible origin and gateway occupations that lead to the

target occupations of Social Worker and Counselor. Each of these roles are experiencing high demand and low local volumes of new graduates entering the field compared to national rates.

Origin**Target**

OGT Wages and Experience Level Requirements, Human Services, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	25-2021	Elementary School Teachers, Except Special Education	3,152	\$65,300	\$47,600	\$74,200	\$47,700	\$49,700	\$61,900	\$78,700	\$86,900	BA	None	None
	25-2031	Secondary School Teachers, Except Special and Career/Technical Education	2,334	\$68,400	\$51,300	\$76,900	\$48,100	\$57,500	\$64,900	\$79,300	\$89,900	BA	None	None
	25-2022	Middle School Teachers, Except Special and Career/Technical Education	1,328	\$66,000	\$46,900	\$75,600	\$46,200	\$50,100	\$62,100	\$78,600	\$92,700	BA	None	None
	21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	795	\$51,800	\$43,500	\$55,900	\$42,100	\$46,000	\$49,100	\$57,500	\$64,700	BA	None	None
	21-1021	Child, Family, and School Social Workers	678	\$65,300	\$45,800	\$75,100	\$44,900	\$49,800	\$63,500	\$78,500	\$91,300	BA	None	None
Gateway	39-9031	Exercise Trainers and Group Fitness Instructors	490	\$49,000	\$34,800	\$56,000	\$34,300	\$37,100	\$45,200	\$56,200	\$71,000	HS/GED	None	Short-term OJT
	27-2022	Coaches and Scouts	409	\$56,300	\$29,000	\$70,000	\$28,300	\$31,200	\$46,100	\$61,900	\$94,000	BA	None	None
	21-1099	Community and Social Service Specialists, All Other	268	\$48,800	\$34,000	\$56,200	\$31,400	\$38,600	\$48,500	\$56,300	\$66,800	BA	None	None
	21-1015	Rehabilitation Counselors	229	\$47,500	\$36,100	\$53,300	\$35,700	\$38,100	\$46,100	\$51,000	\$68,500	MA	None	None
	39-1014	First-Line Supervisors of Entertainment and Recreation Workers, Except Gambling Services	201	\$49,900	\$32,300	\$58,700	\$28,600	\$36,800	\$46,200	\$58,900	\$79,500	HS/GED	< 5 years	None
Origin	31-1122	Personal Care Aides	5,134	\$33,200	\$28,900	\$35,300	\$28,700	\$29,800	\$33,100	\$35,100	\$38,400	HS/GED	None	Short-term OJT
	25-9045	Teaching Assistants, Except Postsecondary	4,062	\$39,000	\$32,000	\$42,600	\$30,100	\$35,200	\$38,000	\$44,000	\$48,200	Some college	None	None
	39-9011	Childcare Workers	2,148	\$32,100	\$27,000	\$34,600	\$26,000	\$28,800	\$31,200	\$34,700	\$40,100	HS/GED	None	Short-term OJT
	25-2011	Preschool Teachers, Except Special Education	1,296	\$39,900	\$33,500	\$43,100	\$32,500	\$35,200	\$36,600	\$40,300	\$52,200	AS	None	None
	21-1093	Social and Human Service Assistants	954	\$44,500	\$35,900	\$48,800	\$35,500	\$37,700	\$43,400	\$48,800	\$57,000	HS/GED	None	Short-term OJT

Arts, Communications, and Information Systems

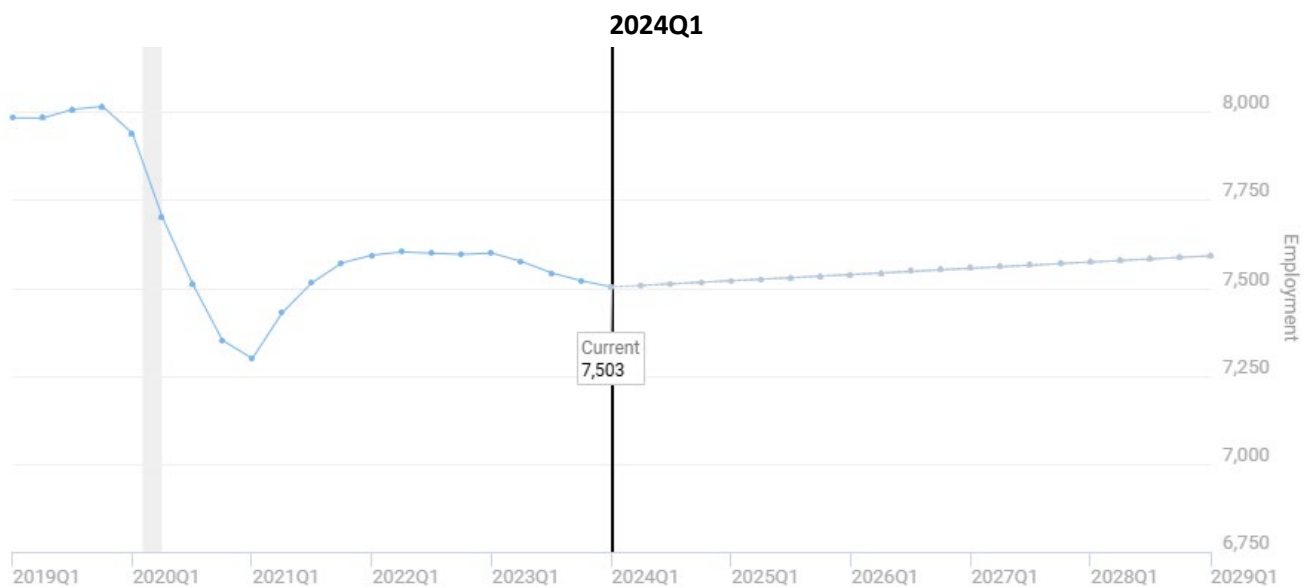
Arts, Communications, and Information Systems is a diverse career field with artistic careers as well as Information Technology career paths. The specific career clusters included in this field are:

- Arts, Audio/Video Technology, and Communications
- Information Technology

EMPLOYMENT FORECAST

Over the next five years, Arts, Communications, and Information Systems Field employment is forecast to grow by 0.5% on average annually, a marked improvement from the -1.2% average annual decline in employment observed over the past five years.

Baseline 5-Year Forecast for Arts, Communications, and Information Systems Careers, Central Minnesota,



TOP OCCUPATIONS

A total of 7,503 people are employed in Arts, Communications, and Information Systems roles regionally, accounting for about 3% of all regional employment. This is the smallest CTE career field in the Central region. While the field's median wage of \$72,800 is the highest among the six career fields, it has a low concentration in the region (LQ 0.59).

Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume, Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Software Developers	1,188	\$107,800	0.43	72	473	2.1%
Computer User Support Specialists	679	\$60,000	0.55	16	227	0.1%
Computer Systems Analysts	512	\$97,000	0.58	-40	167	0.6%
Graphic Designers	417	\$54,200	0.91	-30	172	0.2%
Printing Press Operators	380	\$46,700	1.48	-96	168	-1.2%
Computer Network Support Specialists	332	\$68,800	1.12	-4	118	0.4%
Photographers	273	\$43,700	1.09	11	133	0.7%
Musicians and Singers	261	\$72,400	0.89	-46	174	0.3%
Network and Computer Systems Administrators	258	\$85,800	0.45	-21	70	0.0%
Computer Occupations, All Other	253	\$88,600	0.34	0	88	0.6%
Arts, Communications, & Information Systems (CTE Field)	7,503	\$72,800	0.59	-480	3,113	0.5%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Annual Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

The largest share of talent in Central Minnesota working in Arts, Communications, and Information Systems roles are employed by Printing and Related Support Activities (7.5%). The next highest share of talent is working in Computer Systems Design and Related Services (5.3%) or as independent artists (5.2%). Overall, employment in this field is relatively spread out across a number of different industries.

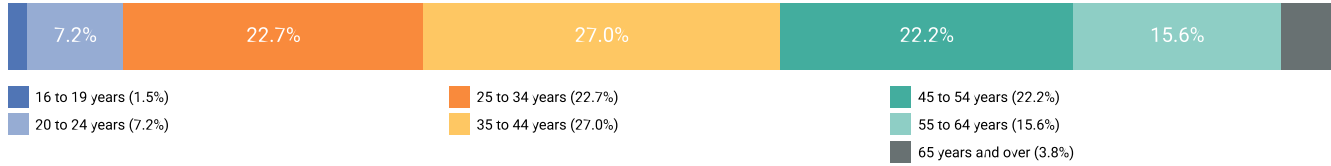
Arts, Communications, and Information Systems Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Printing and Related Support Activities	7.5%	564	519	-94	425
Computer Systems Design and Related Services	5.3%	401	256	79	334
Independent Artists, Writers, and Performers	5.2%	393	395	24	419
Religious Organizations	4.1%	311	331	7	338
Wired and Wireless Telecommunications (except Satellite)	3.7%	276	228	12	241
Software Publishers	3.4%	256	161	48	209
Other Professional, Scientific, and Technical Services	3.4%	255	221	21	242
Depository Credit Intermediation	3.3%	248	150	30	179
Management of Companies and Enterprises	3.2%	242	157	34	191
Newspaper, Periodical, Book, and Directory Publishers	2.7%	203	181	-32	149
Elementary and Secondary Schools	2.6%	198	131	3	134
General Medical and Surgical Hospitals	2.6%	195	119	4	123
Other Miscellaneous Manufacturing	2.1%	159	131	15	146
Executive, Legislative, and Other General Government Support	2.1%	159	103	6	110
Web Search Portals, Libraries, Archives, and Other Information Services	2.0%	151	97	39	136
Colleges, Universities, and Professional Schools	1.8%	133	91	1	92
Advertising, Public Relations, and Related Services	1.5%	112	104	11	115
Building Equipment Contractors	1.4%	106	92	-1	90
Utility System Construction	1.3%	101	92	15	108
Radio and Television Broadcasting Stations	1.3%	100	86	-19	67
All Others	39.2%	2,941	2,228	183	2,410

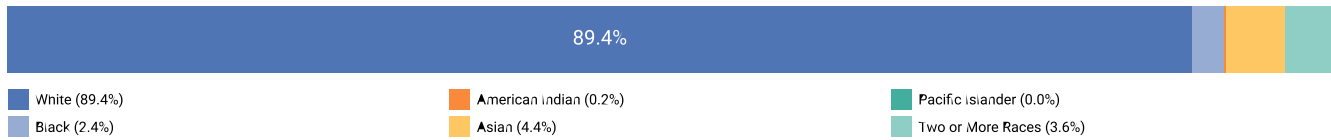
CAREER FIELD DEMOGRAPHICS

- The Arts, Communications, and Information Systems field is predominantly male (71.2%) and white (89.4%), as well as non-Hispanic/Latine (98.5%)
- Compared to the workforce statewide, Central Minnesota has a smaller share of black, indigenous, and people of color in Arts, Communications, and Information Systems roles, and a greater share of workers between the ages of 35 and 54 (by 3.2 percentage points) and the ages of 16 and 24 (by 1.2 percentage points)

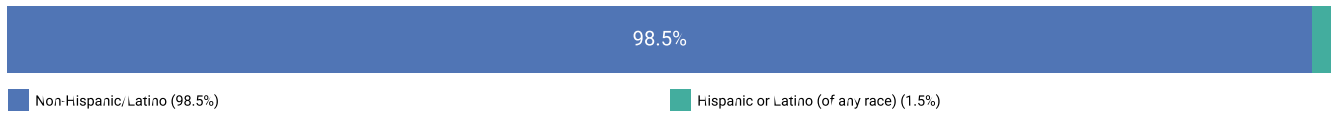
Age



Race



Ethnicity



Gender

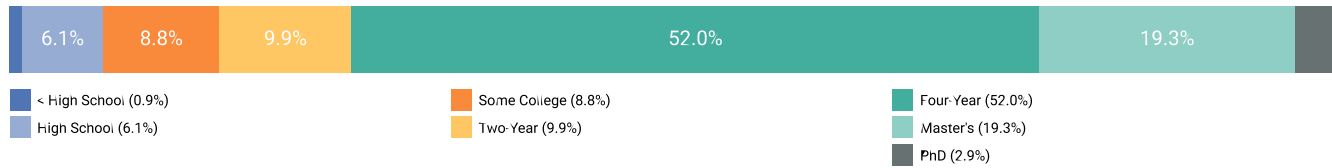


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

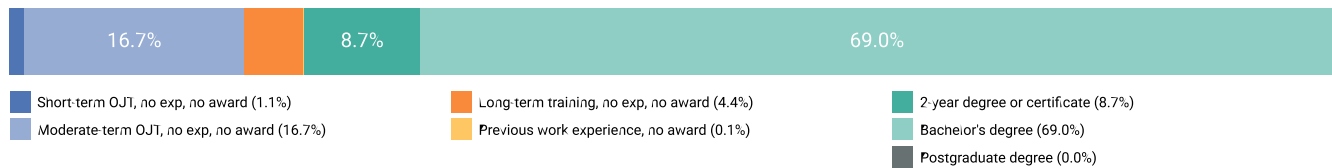
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The Central Minnesota Arts, Communications, and Information Systems workforce is fairly aligned in educational attainment to the requirements in the field, with high overall educational attainment requirements and attainment
 - Nearly seven in ten (69%) positions require a bachelor's degree, while an even greater share of the workforce (74.2%) holds a bachelor's degree or higher

Educational Attainment



Education and Training Requirements

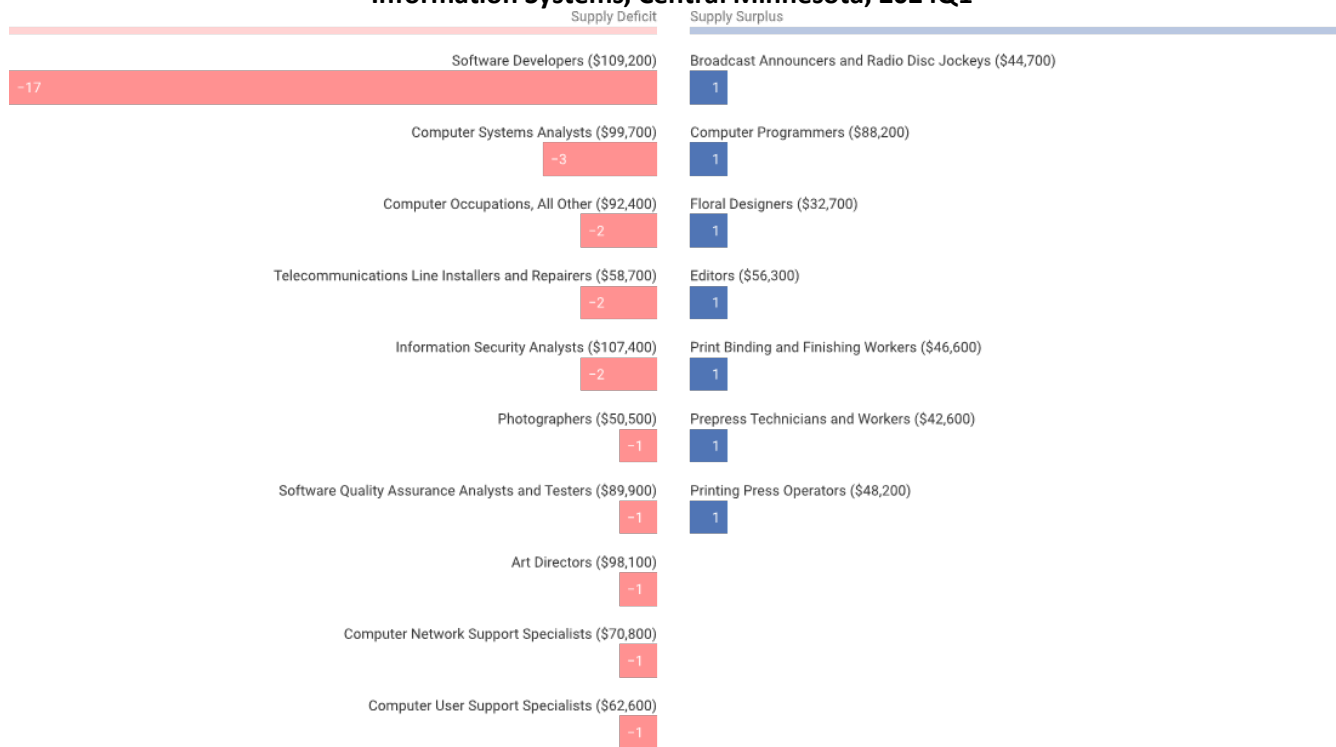


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Software Developers remains the top occupation of shortage in this field, falling short at least 17 skilled workers needed annually (averaged over the next ten years) to meet employer demand. This moderate talent shortage is primarily due to employment growth which is outpacing the growth in supply of trained software professionals in this region.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Arts, Communications, and Information Systems, Central Minnesota, 2024Q1



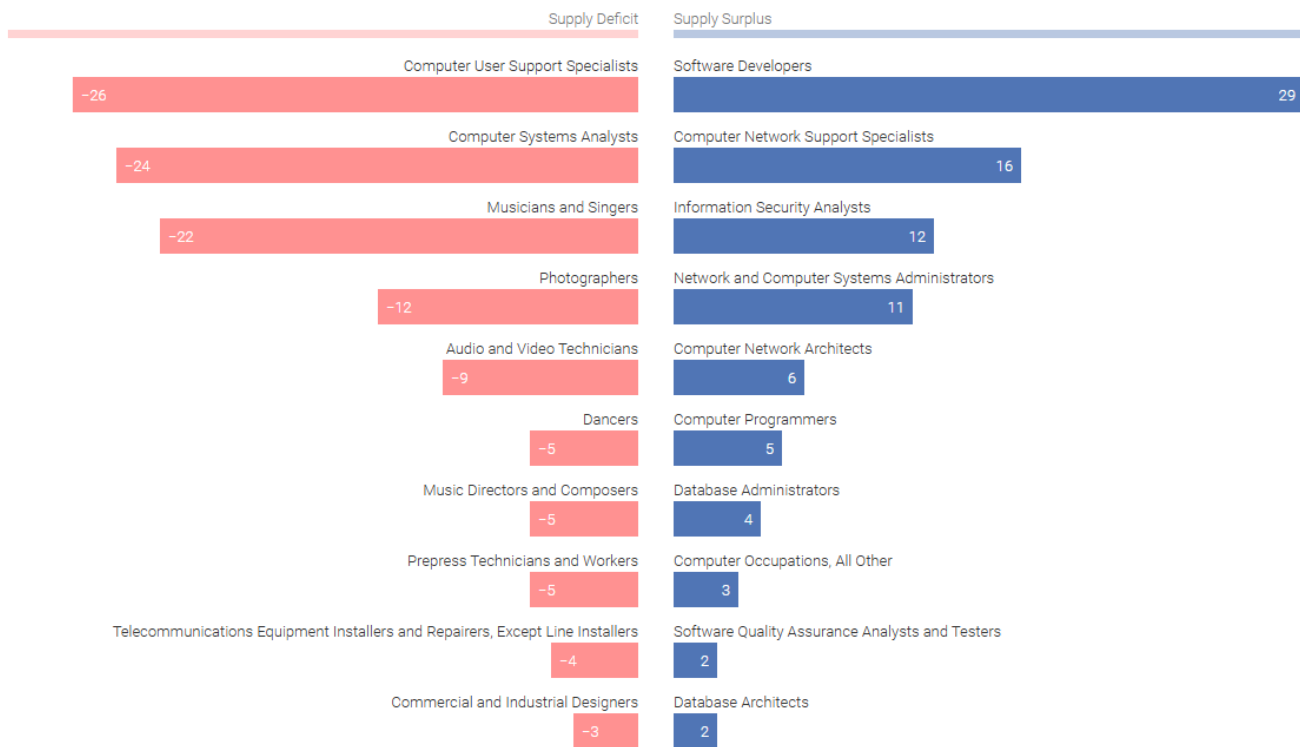
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The Central region is relatively well balanced, showing only small to moderate misalignments:

- The region's colleges and universities are underproducing trained Computer User Support Specialists, Computer Systems Analysts, and Musicians and Singers when compared to national trends
- Yet it is overproducing several other Information Technology occupations, including Software Developers, Computer Network Support Specialists, Information Security Analysts, and more

Award Gaps in Arts, Communications, and Information Systems, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Arts, Communications, and Information Systems, Central Minnesota, 2024Q1

Target Occupations (All HW, HS, HD)

Software Developers (OG)
 Computer User Support Specialists (OG, AG)
 Computer Systems Analysts (OG, AG)
 Graphic Designers (AG)
 Computer Network Support Specialists (OG)

Gateway Occupations

Printing Press Operators (AG)
 Print Binding & Finishing Workers
 Audio & Video Technicians (HS, AG)
 Broadcast Technicians (HS, AG)
 Proofreaders & Copy Markers (HS)

Origin Occupations

Photographers (HD, OG, AG)
 Prepress Technicians & Workers (HS, AG)
 Floral Designers
 Broadcast Announcers & Radio Disc Jockeys (HS)
 News Analysts, Reporters, & Journalists (HS)

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

Other Promising Occupations

A number of other Arts, Communications, and Information Systems occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential (although some may require other forms of licensure). These occupations to consider include:

- Musicians & Singers (OG, AG)
- Telecommunications Line Installers & Repairers (OG)

Featured Pathway

With a projected occupation gap, high wages, high demand, and high local concentration of opportunities, the occupations of Computer User Support Specialist, Computer Systems Analyst, and Computer Network Support Specialist remain promising as pathways to explore in the Central region. The Gateway occupation of Audio and Visual Technicians is a potential feeder occupation for these three target occupations, but this occupation has a shortfall of graduates in this region as compared to national graduate volumes. This may also be a strong feeder occupation for another promising occupation, Telecommunications Line Installers and Repairers, which is experiencing regional talent shortage.

Gateway

Target



OGT Wages and Experience Level Requirements, Arts, Communications, and Information Systems, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	15-1252	Software Developers	1,188	\$109,200	\$75,300	\$126,100	\$70,300	\$86,700	\$107,800	\$129,200	\$154,900	BA	None	None
	15-1232	Computer User Support Specialists	679	\$62,600	\$47,100	\$70,300	\$45,700	\$50,900	\$60,000	\$72,300	\$84,700	Some college	None	Mod-term OJT
	15-1211	Computer Systems Analysts	512	\$99,700	\$69,100	\$115,000	\$65,200	\$78,300	\$97,000	\$113,800	\$140,200	BA	None	None
	27-1024	Graphic Designers	417	\$57,600	\$39,900	\$66,400	\$38,700	\$43,700	\$54,200	\$67,600	\$82,600	BA	None	None
	15-1231	Computer Network Support Specialists	332	\$70,800	\$52,500	\$80,000	\$49,300	\$59,100	\$68,800	\$81,400	\$93,800	AS	None	Mod-term OJT
Gateway	51-5112	Printing Press Operators	380	\$48,200	\$35,300	\$54,700	\$34,800	\$37,700	\$46,700	\$59,200	\$65,900	HS/GED	None	Mod-term OJT
	51-5113	Print Binding and Finishing Workers	106	\$46,600	\$38,200	\$50,800	\$37,500	\$40,400	\$47,200	\$51,400	\$58,300	HS/GED	None	Mod-term OJT
	27-4011	Audio and Video Technicians	85	\$48,200	\$32,500	\$56,000	\$32,500	\$34,400	\$45,100	\$56,400	\$71,300	Certificate	None	Short-term OJT
	27-4012	Broadcast Technicians	31	\$49,400	\$30,700	\$58,800	\$27,000	\$35,200	\$47,900	\$57,400	\$87,200	AS	None	Short-term OJT
	43-9081	Proofreaders and Copy Markers	10	\$46,300	\$40,100	\$49,400	\$37,900	\$43,800	\$46,200	\$48,300	\$54,000	BA	None	None
Origin	27-4021	Photographers	273	\$50,500	\$30,500	\$60,600	\$29,900	\$32,700	\$43,700	\$63,800	\$84,700	HS/GED	None	Mod-term OJT
	51-5111	Prepress Technicians and Workers	111	\$42,600	\$33,100	\$47,400	\$32,000	\$35,400	\$39,600	\$49,000	\$57,700	Certificate	None	None
	27-1023	Floral Designers	95	\$32,700	\$26,600	\$35,700	\$24,800	\$28,900	\$32,300	\$33,700	\$40,700	HS/GED	None	Mod-term OJT
	27-3011	Broadcast Announcers and Radio Disc Jockeys	63	\$44,700	\$27,400	\$53,300	\$24,800	\$30,400	\$37,100	\$51,600	\$61,000	BA	None	None
	27-3023	News Analysts, Reporters, and Journalists	63	\$46,300	\$31,600	\$53,600	\$31,200	\$32,700	\$34,700	\$52,700	\$68,800	BA	None	None

Business, Management, and Administration

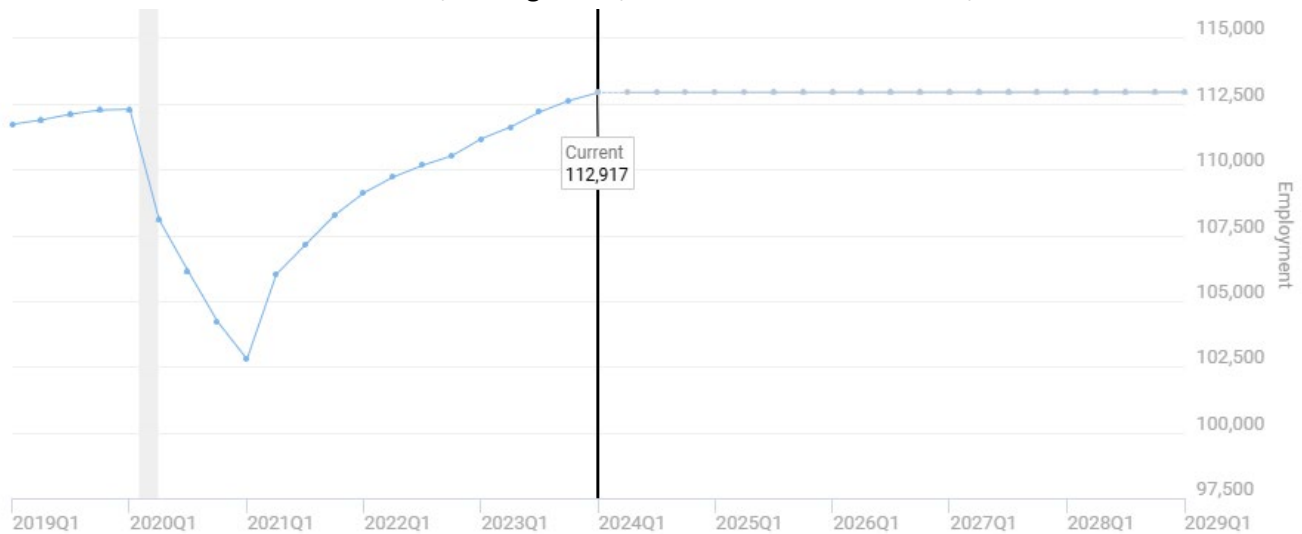
Business, Management, and Administration is a diverse career field with the following career clusters:

- Hospitality and Tourism
- Finance
- Marketing
- Business, Management, and Administration

EMPLOYMENT FORECAST

Business, Management, and Administration employment has recovered significantly since the pandemic, with total employment about 1% higher in the first quarter of 2024 compared to the first quarter of 2019. Over the next five years, Business, Management, and Administration Field employment is forecast to remain flat over the next five years.

Baseline 5-Year Forecast for Business, Management, and Administration Careers, Central Minnesota 2024Q1



TOP OCCUPATIONS

A total of 112,917 people are employed in Business, Management and Administration Systems roles regionally, accounting for about 40% of all regional employment. While employment in the career field overall is forecast to remain flat, Stockers and Order Fillers is the occupation with highest projected growth among the top ten, at 0.8% annually.

Top Ten Business, Management, and Administration Systems Occupations by Employment Volume in Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Cashiers	7,682	\$31,000	1.33	-81	6,901	-0.8%
Retail Salespersons	7,148	\$33,900	1.13	-707	5,169	0.0%
General and Operations Managers	6,056	\$88,600	1.01	1,050	2,537	0.4%
Fast Food and Counter Workers	5,883	\$29,500	1.00	9	6,862	0.3%
Office Clerks, General	4,767	\$43,900	1.05	-105	2,599	-0.7%
Stocker and Order Fillers	4,510	\$36,900	0.92	486	3,920	0.8%
Customer Service Representatives	4,075	\$43,900	0.82	193	2,496	-0.7%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	4,011	\$36,200	0.98	-21	2,876	0.2%
Waiters and Waitresses	3,694	\$23,300	0.96	-127	3,792	-0.1%
First-Line Supervisors of Retail Sales Workers	3,034	\$45,700	1.29	-107	1,367	-0.6%
Business, Management, & Administration (CTE Field)	112,917	\$51,100	0.91	1,207	74,544	0.0%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Annual Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

In Central Minnesota, the industry with the greatest share of Business, Management, and Administration talent and greatest forecast demand is Restaurants (15.0%). Restaurants are expected to need nearly twice as many new workers in the next ten years as they employ today. Beyond Restaurants, employment is relatively spread out across different industries, many of which also have demand over the next 10 years that exceeds the size of their current workforce.

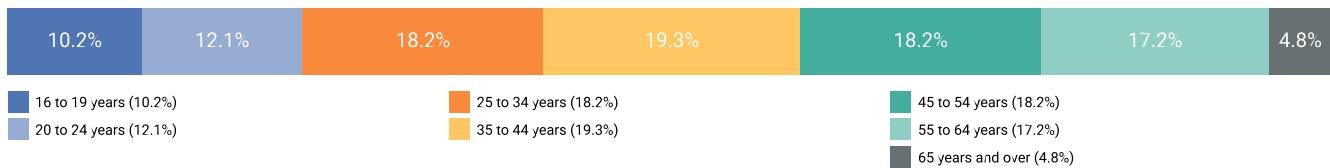
Business, Management, and Administration Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Restaurants and Other Eating Places	15.0%	16,987	32,022	645	32,666
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	4.6%	5,243	7,898	-22	7,876
Gasoline Stations	4.0%	4,484	7,601	-189	7,412
Grocery and Convenience Retailers	4.0%	4,472	7,205	-21	7,184
Elementary and Secondary Schools	2.7%	2,998	3,925	-85	3,840
Depository Credit Intermediation	2.5%	2,841	2,433	-62	2,372
General Medical and Surgical Hospitals	2.0%	2,312	2,723	-88	2,635
Building Material and Supplies Dealers	2.0%	2,263	3,194	65	3,259
Traveler Accommodation	2.0%	2,230	3,415	73	3,487
Services to Buildings and Dwellings	1.8%	2,066	2,729	49	2,778
Executive, Legislative, and Other General Government Support	1.8%	2,039	2,379	-53	2,326
Other Amusement and Recreation Industries	1.6%	1,775	3,337	175	3,512
Agencies, Brokerages, and Other Insurance Related Activities	1.5%	1,644	1,484	86	1,570
Automobile Dealers	1.4%	1,629	1,941	-8	1,933
Drinking Places (Alcoholic Beverages)	1.4%	1,551	2,635	30	2,665
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1.2%	1,305	1,171	-3	1,168
Grocery and Related Product Merchant Wholesalers	1.2%	1,302	1,418	24	1,441
Religious Organizations	1.1%	1,284	1,391	-39	1,352
Department Stores	1.1%	1,238	1,849	-35	1,814
Nursing Care Facilities (Skilled Nursing Facilities)	1.1%	1,209	1,713	-58	1,656
All Others	46.1%	52,046	56,568	-187	56,381

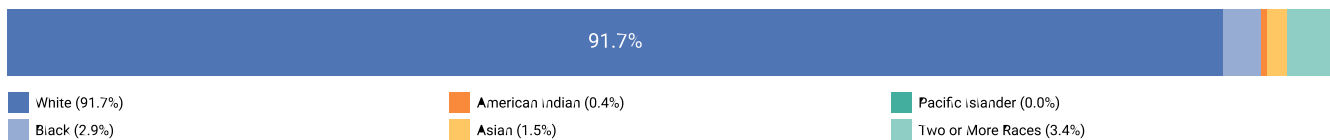
CAREER FIELD DEMOGRAPHICS

- The Business, Management, and Administration field is evenly balanced by gender overall, with slightly more female workers in the field (56.2%) than employed across all occupations broadly (46.9%)
- Compared to the workforce across all career fields, Central Minnesota's Business, Management, and Administration workforce has a similar range of diversity by race and ethnicity with a slight overrepresentation of talent identifying with two or more races
- By age, the Business, Management, and Administration workforce in the region is younger on average than the workforce as a whole, with 10.2% of Business, Management, and Administration talent being between 16 and 19 years of age (compared to 5.9% across all occupations held in the region)

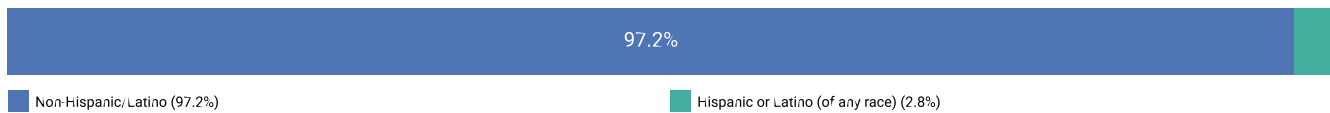
Age



Race



Ethnicity



Gender

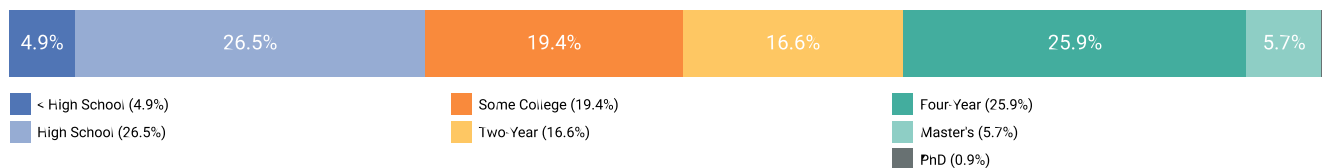


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

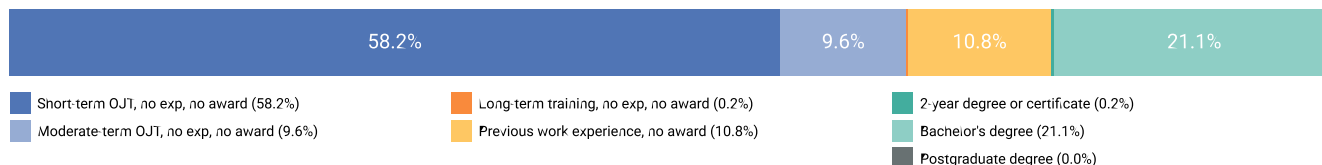
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The Central Minnesota Business, Management, and Administration workforce is fairly aligned in educational attainment to the requirements in the field, with a mix of opportunities at the entry, mid-level, and experienced levels; there is evidence that there may be a significant number of underemployed workers in this field regionally
 - About half (50.8%) of Business, Management, and Administration talent working in the region do not hold a postsecondary credential beyond a certificate, while 78.8% of positions in this field typically do not require a postsecondary credential

Educational Attainment



Education and Training Requirements

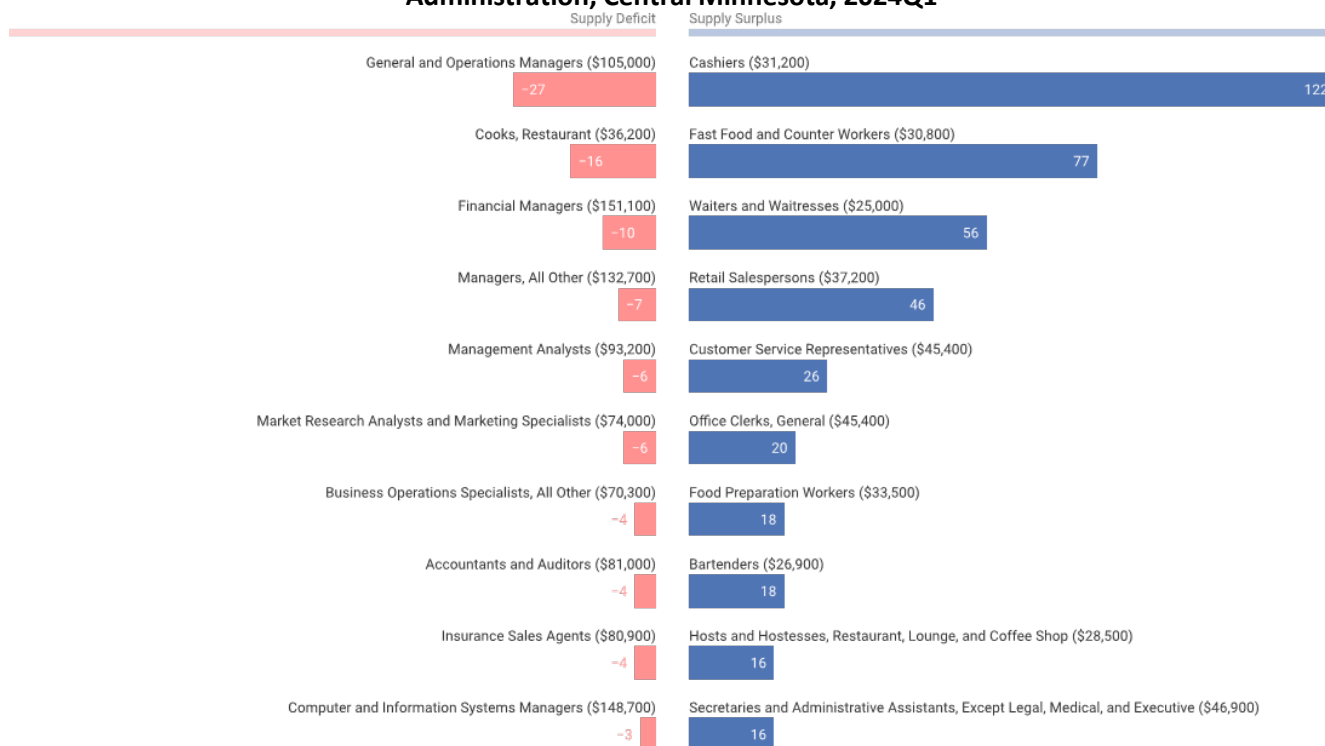


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Several management roles indicate moderate regional shortages in the years ahead. For example, the General and Operations Manager talent pool in this region will likely fall short at least 27 skilled workers needed annually to meet employer demand. In contrast, the Central region is likely to see talent surplus in a variety of Hospitality and Tourism cluster positions, as well as administrative support roles based on existing talent pipelines and forecast employer demand.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, Central Minnesota, 2024Q1



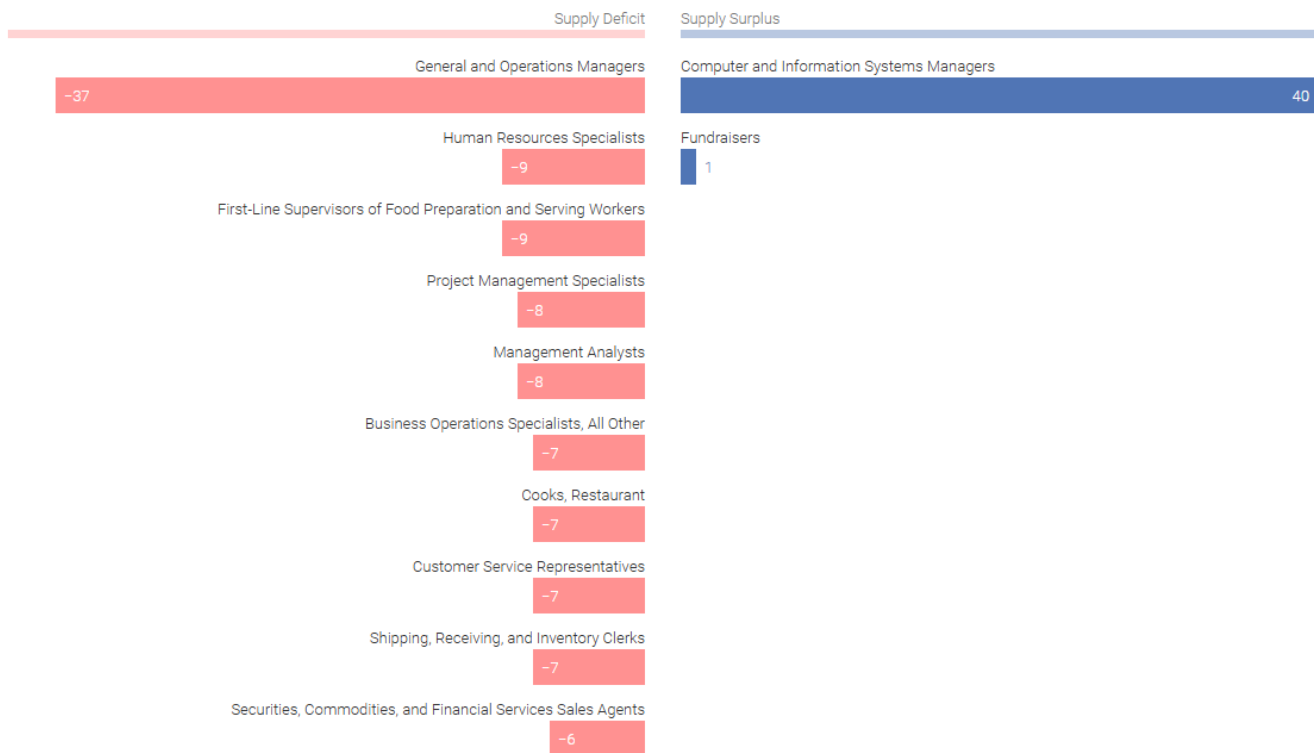
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The Central region faces several shortages in Business, Management and Administration awards, although these are modest in size:

- A large majority of occupations in the field forecast undersupply of postsecondary graduates
- Most notably, regional colleges and universities are underproducing around 37 graduates annually that are needed to fill General and Operations Manager positions
- The region has just two graduate surpluses, the largest of which is Computer and Information Systems Managers

Award Gaps in Business, Management, and Administration, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Business, Management, and Administration, Central Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, OG)

General & Operations Managers (AG)
 Accountants & Auditors
 Managers, All Other
 Market Research Analysts & Marketing Specialists
 Business Operations Specialists, All Other (AG)

Gateway Occupations

First-Line Supervisors of Retail Sales Workers (HD, AG)
 Secretaries & Administrative Assistants (HD)
 Bookkeeping, Accounting, & Auditing Clerks (HS, HD)
 Billing & Posting Clerks (HD)
 Loan Interviewers & Clerks

Origin Occupations

Cashiers
 Retail Salespersons (HD)
 Fast Food & Counter Workers (HD)
 Office Clerks, General (HD, AG)
 Stockers & Order Fillers (HD)

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

Other Promising Occupations

A number of other Business, Management, and Administration occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Sales Representatives, Wholesale & Manufacturing, Except Technical & Scientific Products (OG, AG)
- Sales Representative of Services, Except Advertising, Insurance, Financial Services, & Travel (AG)
- Insurance Sales Agents (OG, AG)
- Property, Real Estate, & Community Association Managers (OG, AG)
- First-Line Supervisors of Housekeeping & Janitorial Workers (OG)

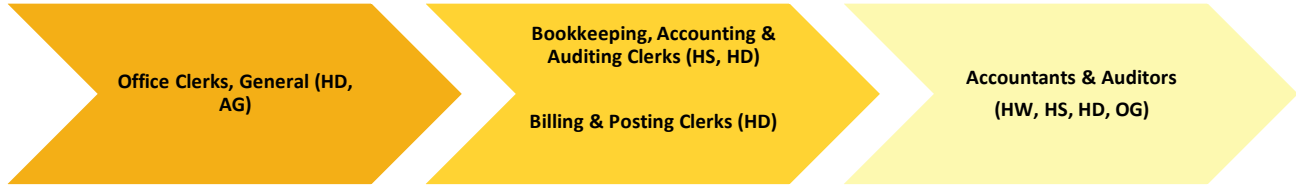
Featured Pathway

In addition to the continued need and high demand for hospitality careers; a projected occupation gap and high demand the Target occupation of Accountants & Auditors make that occupation a promising pathway to explore in the Central region recognizing that the minimum qualification for that role is a bachelor's degree. This occupation is relatively concentrated in the region with a location quotient of 0.76. The Gateway occupations of Bookkeeping, Accounting and Auditing Clerks (LQ, 0.88) and Billing & Posting Clerks (LQ, 0.62) are also in high demand. The Origin occupation with a related skillset in the region is also in high demand—Office Clerks, General (LQ 1.05).

Origin

Gateway

Target



OGT Wages and Experience Level Requirements, Business, Management, and Administration, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	11-1021	General and Operations Managers	6,056	\$105,000	\$50,200	\$132,400	\$44,800	\$61,100	\$88,600	\$132,800	\$184,300	BA	> 5 years	None
	13-2011	Accountants and Auditors	2,014	\$81,000	\$53,100	\$95,000	\$50,400	\$59,600	\$72,900	\$92,400	\$120,900	BA	None	None
	11-9199	Managers, All Other	1,458	\$132,700	\$85,100	\$156,400	\$76,200	\$103,300	\$132,700	\$156,200	\$190,400	BA	< 5 years	None
	13-1161	Market Research Analysts and Marketing Specialists	1,196	\$74,000	\$46,400	\$87,800	\$43,500	\$53,300	\$68,100	\$89,900	\$111,900	BA	None	None
	13-1199	Business Operations Specialists, All Other	1,148	\$70,300	\$47,800	\$81,500	\$46,000	\$52,900	\$65,600	\$84,800	\$106,700	BA	None	None
Gateway	41-1011	First-Line Supervisors of Retail Sales Workers	3,034	\$49,800	\$36,800	\$56,400	\$35,800	\$39,500	\$45,700	\$56,700	\$70,200	HS/GED	< 5 years	None
	43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3,032	\$46,900	\$37,100	\$51,900	\$35,400	\$40,800	\$46,900	\$52,900	\$59,900	HS/GED	None	Short-term OJT
	43-3031	Bookkeeping, Accounting, and Auditing Clerks	2,622	\$49,800	\$37,700	\$55,800	\$35,900	\$41,700	\$48,200	\$56,400	\$65,700	Some college	None	Mod-term OJT
	43-3021	Billing and Posting Clerks	494	\$49,600	\$40,700	\$54,000	\$39,400	\$43,400	\$47,500	\$55,500	\$63,600	HS/GED	None	Mod-term OJT
	43-4131	Loan Interviewers and Clerks	283	\$49,400	\$41,300	\$53,400	\$39,300	\$44,800	\$47,700	\$54,700	\$61,700	HS/GED	None	Short-term OJT
Origin	41-2011	Cashiers	7,682	\$31,200	\$27,100	\$33,200	\$26,400	\$28,500	\$31,000	\$33,900	\$36,100	None	None	Short-term OJT
	41-2031	Retail Salespersons	7,148	\$37,200	\$27,900	\$41,800	\$27,300	\$29,600	\$33,900	\$37,300	\$48,200	None	None	Short-term OJT
	35-3023	Fast Food and Counter Workers	5,883	\$30,800	\$26,400	\$32,900	\$25,300	\$28,000	\$29,500	\$34,200	\$35,800	None	None	Short-term OJT
	43-9061	Office Clerks, General	4,767	\$45,400	\$33,800	\$51,300	\$32,300	\$37,200	\$43,900	\$51,900	\$60,800	HS/GED	None	Short-term OJT
	53-7065	Stockers and Order Fillers	4,510	\$38,300	\$31,000	\$41,900	\$29,600	\$33,700	\$36,900	\$41,200	\$49,600	HS/GED	None	Short-term OJT

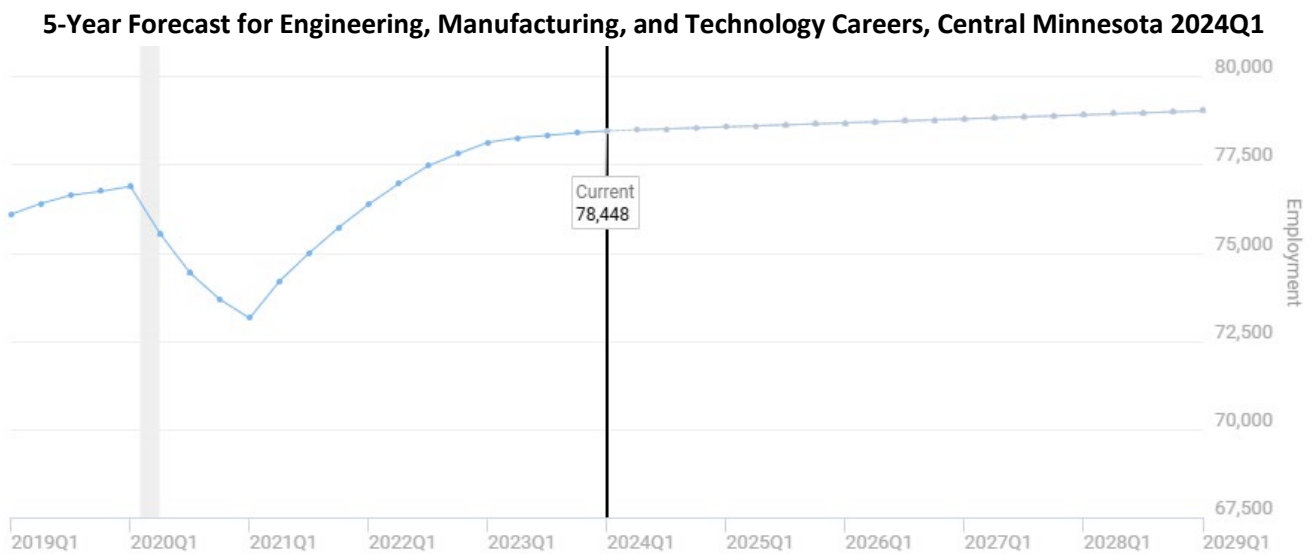
Engineering, Manufacturing, and Technology

Engineering, Manufacturing, and Technology is a wide career field with the following career clusters:

- Transportation, Distribution, and Logistics
- Architecture and Construction
- Manufacturing
- Science, Technology, Engineering, and Mathematics

EMPLOYMENT FORECAST

Over the next five years, this career field's employment is forecast to grow by about 0.3% on average annually, compared to 0.6% growth experienced over the past five years.



TOP OCCUPATIONS

A total of 78,448 people are employed in Engineering, Manufacturing, and Technology roles regionally, accounting for about 28% of all regional employment. All of the top ten occupations are expected to grow, with the exception of Team Assemblers, which is forecast to shrink by 0.6% annually.

Top Ten Engineering, Manufacturing, and Technology Occupations by Employment Volume, Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Heavy and Tractor-Trailer Truck Drivers	5,112	\$59,100	1.37	356	2,783	0.3%
Laborers and Freight, Stock, and Material Movers, Hand	4,114	\$41,500	0.83	121	2,761	0.3%
Construction Laborers	4,081	\$54,100	1.65	524	1,912	0.6%
Team Assemblers	3,282	\$43,200	1.56	148	1,771	-0.6%
Maintenance and Repair Workers, General	2,562	\$51,900	0.93	8	1,211	0.3%
Carpenters	2,460	\$62,900	1.52	-44	1,065	0.3%
Landscaping and Groundskeeping Workers	2,198	\$41,300	1.09	238	1,520	0.6%
Light Truck Drivers	1,917	\$45,300	0.99	138	1,104	0.8%
Automotive Service Technicians and Mechanics	1,676	\$50,900	1.24	40	739	0.3%
First-Line Supervisors of Construction Trades and Extraction Workers	1,675	\$90,100	1.18	220	704	0.4%
Engineering, Manufacturing, & Technology (CTE Field)	78,448	\$57,400	1.15	2,360	40,402	0.3%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Ann Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

Many different industries employ Engineering, Manufacturing, and Technology talent in the Central region. Locally, the industry with the greatest share of this field's talent is Building Equipment Contractors (5.3%). Most industries employing talent in this field touch less than 3% of total talent skilled in this field, suggesting that education and training programs will need to build broad strategies that cross each of these sectors.

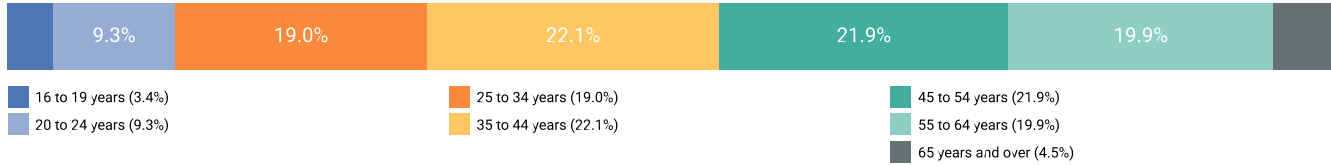
Engineering, Manufacturing, and Technology Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Building Equipment Contractors	5.3%	4,187	3,705	215	3,920
General Freight Trucking	3.5%	2,730	2,884	95	2,979
Other Specialty Trade Contractors	3.4%	2,677	2,377	125	2,502
Building Finishing Contractors	3.2%	2,478	2,042	122	2,164
Foundation, Structure, and Building Exterior Contractors	3.2%	2,473	2,086	97	2,183
Highway, Street, and Bridge Construction	3.1%	2,437	2,095	71	2,166
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	2.8%	2,168	2,175	141	2,316
Animal Slaughtering and Processing	2.6%	2,032	2,374	-5	2,368
Plastics Product Manufacturing	2.5%	1,962	2,014	73	2,087
Residential Building Construction	2.4%	1,868	1,548	99	1,647
Automotive Repair and Maintenance	2.3%	1,766	1,707	67	1,774
Household and Institutional Furniture and Kitchen Cabinet Manufacturing	2.2%	1,714	1,692	-52	1,640
Executive, Legislative, and Other General Government Support	2.1%	1,671	1,610	72	1,682
Services to Buildings and Dwellings	2.1%	1,615	1,993	94	2,087
Electric Power Generation, Transmission and Distribution	1.8%	1,399	1,113	-2	1,110
Utility System Construction	1.7%	1,344	1,161	68	1,229
Architectural and Structural Metals Manufacturing	1.6%	1,249	1,258	52	1,311
Other General Purpose Machinery Manufacturing	1.6%	1,236	1,185	24	1,208
School and Employee Bus Transportation	1.5%	1,205	1,757	70	1,826
Automobile Dealers	1.5%	1,179	1,193	59	1,252
All Others	49.8%	39,058	40,580	923	41,504

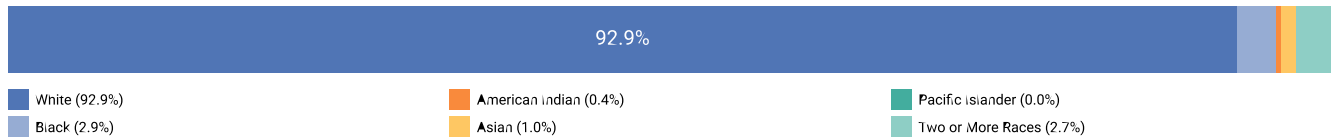
CAREER FIELD DEMOGRAPHICS

- The Engineering, Manufacturing, and Technology field is heavily male (82.2%) and white (92.9%), but the field also has an overrepresentation of Hispanic/Latine talent (4.1%) compared to the average workforce composition in Central Minnesota (3.0%)
- A notably higher share of workers in this field fall between the ages of 45 and 64 than observed across the workforce as a whole in the region, higher by 3.3 percentage points, signaling potential for higher workforce exits on the horizon due to retirements

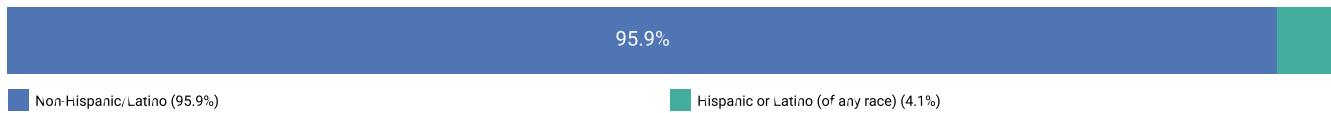
Age



Race



Ethnicity



Gender

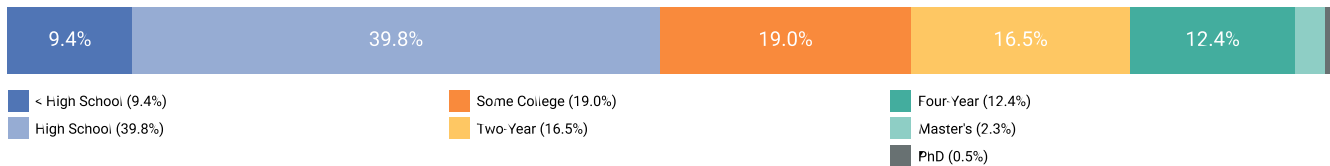


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

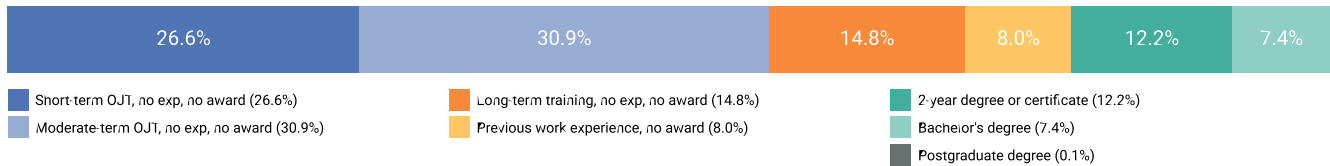
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The Central Minnesota Engineering, Manufacturing, and Technology workforce is fairly aligned in educational attainment to the requirements in the field, with a large share of roles requiring no more than a high school diploma and some relevant work experience
 - Over two thirds (68.2%) of Engineering, Manufacturing, and Technology talent working in the region do not hold a postsecondary credential beyond a certificate, while 80.3% of positions in this field require no postsecondary credential

Educational Attainment



Education and Training Requirements

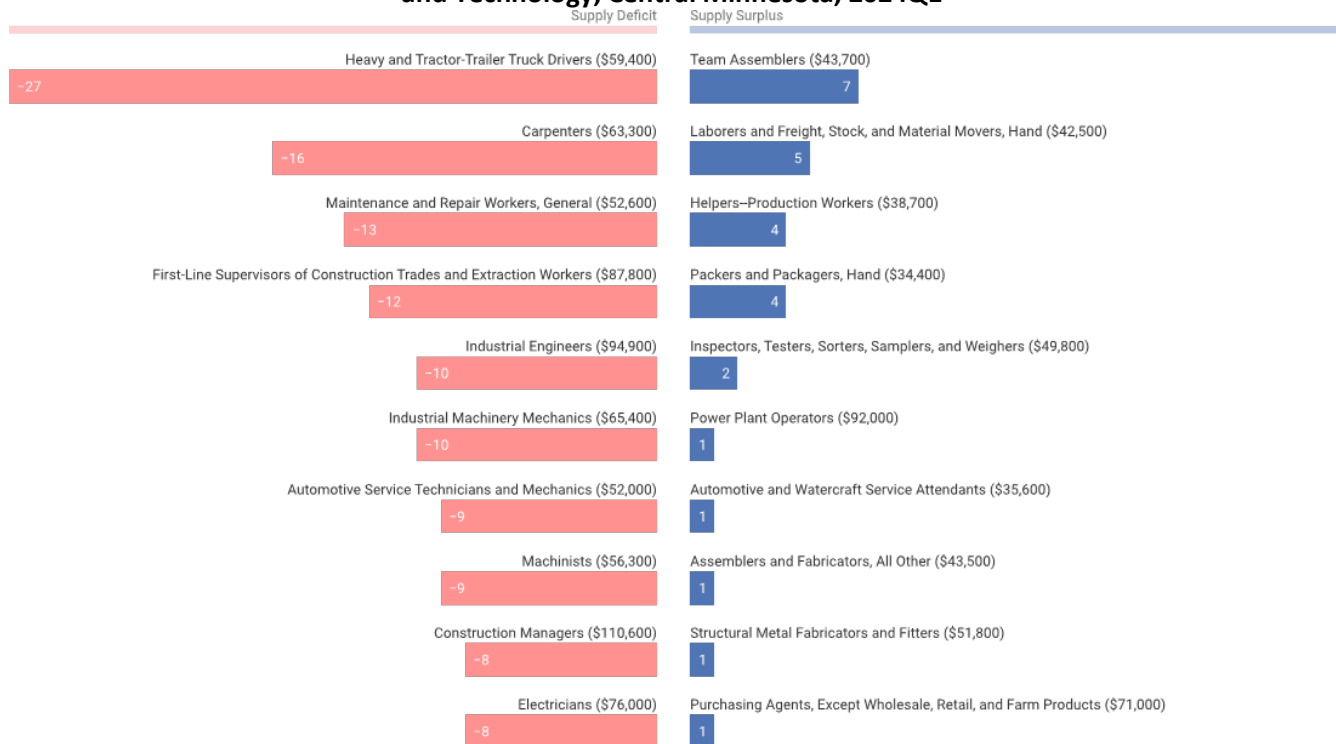


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Several transportation, trades, maintenance, and manufacturing roles continue to signal shortages in the years ahead, with the talent supply of Heavy Truck Drivers likely falling short at least 27 skilled workers needed annually to meet employer demand. This talent shortage is primarily due to growth in demand and retirements which outpace the existing talent pipeline. Entry-level production roles in warehouse and manufacturing settings may experience small talent surpluses in the next ten years.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, Central Minnesota, 2024Q1



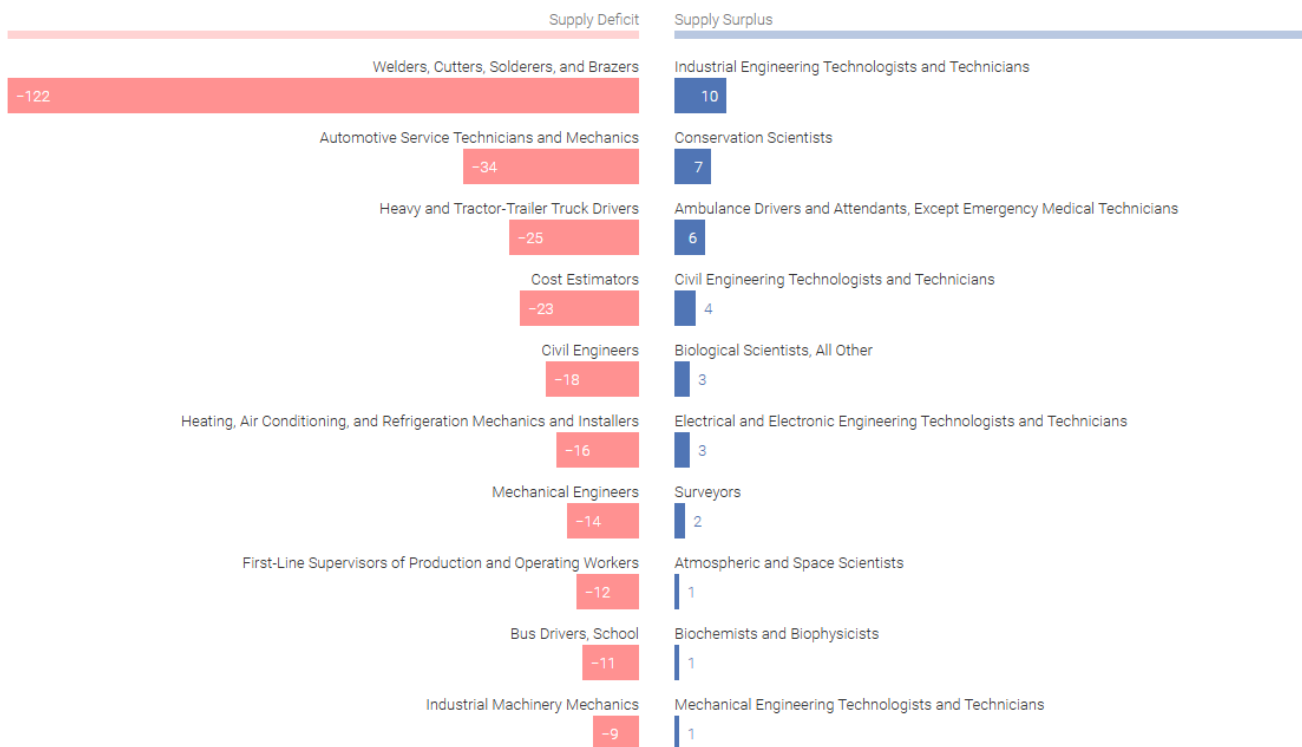
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

Central Minnesota faces some Engineering, Manufacturing and Technology award shortages and generates a surplus of graduates in a handful of other specialized occupations:

- Postsecondary institutions based in the region produce an undersupply of Welders, Cutters, Solderers and Brazers most significantly, with a shortage of 122 awards annually
- Awards for trained Automotive Service Technicians, Heavy and Tractor-Trailer Truck Drivers, and Cost Estimators are also in shortage compared to an average region of equivalent size and industry mix

Award Gaps in Engineering, Manufacturing, and Technology, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Engineering, Manufacturing, and Technology, Central Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, OG, AG)

Heavy & Tractor-Trailer Truck Drivers
Automotive Service Technicians & Mechanics
Industrial Engineers
Construction Managers
HVAC Mechanics

Gateway Occupations

Light Truck Drivers (HD, AG)
School Bus Drivers (HD, AG)
Inspectors, Testers, Sorters, Samplers, & Weighers (HD, AG)
Cabinetmakers & Bench Carpenters (OG, AG)
Industrial Truck & Tractor Operators (HD)

Origin Occupations

Laborers & Freight, Stock, & Material Movers (HD)
Team Assemblers
Landscaping & Groundskeeping Workers (HD, AG)
Packers & Packagers, Hand
Packaging & Filling Machine Operators & Tenders (HD, OG)

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

Other Promising Occupations

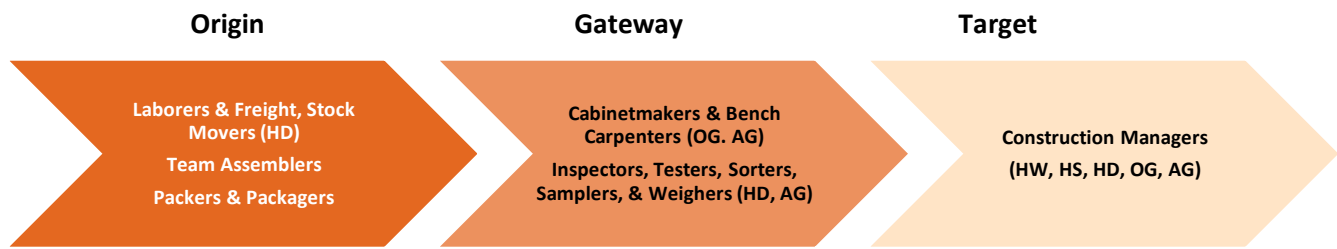
A number of other Engineering, Manufacturing, and Technology occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Maintenance & Repair Workers, General (OG, AG)
- First-Line Supervisors of Construction Trades, & Extraction Workers (OG)
- Welders, Cutters, Solderers, & Brazers (OG, AG)
- First-Line Supervisors of Production & Operating Workers (OG, AG)
- Machinists (OG, AG)

Featured Pathway

Careers in the Construction cluster are highly concentrated in the Central region and in high demand. With a projected occupation gap, a projected award gap, and high demand, expanding opportunities for talent to enter Construction Manager careers should be considered in the Central region. This Target occupation is highly concentrated in the region with a location quotient of 1.17. The related Gateway occupations of Cabinetmaker and Bench Carpenter (LQ 4.12) and Inspectors, Testers, Sorters, Samplers, and Weighers (0.83) also concentrated in the region. Several Origin occupations in the construction trades may serve as strong entry points into this pathway given the overlap in skillsets. Team Assemblers, Laborers, and Packers are all

Origin occupations in high number in the region that could be a source for talent to grow in this pathway with additional education and training.



OGT Wages and Experience Level Requirements, Engineering, Manufacturing, and Technology, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	53-3032	Heavy and Tractor-Trailer Truck Drivers	5,112	\$59,400	\$45,700	\$66,200	\$44,600	\$49,100	\$59,100	\$66,800	\$78,400	Certificate	None	Short-term OJT
	49-3023	Automotive Service Technicians and Mechanics	1,676	\$52,000	\$36,700	\$59,700	\$35,700	\$40,100	\$50,900	\$60,400	\$74,000	Certificate	None	Short-term OJT
	17-2112	Industrial Engineers	1,101	\$94,900	\$71,100	\$106,800	\$68,800	\$77,100	\$89,800	\$110,400	\$129,100	BA	None	None
	11-9021	Construction Managers	1,022	\$110,600	\$77,500	\$127,200	\$74,900	\$84,500	\$101,200	\$127,300	\$158,800	BA	None	Mod-term OJT
	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	777	\$66,200	\$48,900	\$74,800	\$47,700	\$53,400	\$68,100	\$78,700	\$85,000	Certificate	None	Long-term OJT
Gateway	53-3033	Light Truck Drivers	1,917	\$46,500	\$33,700	\$53,000	\$30,600	\$38,700	\$45,300	\$51,700	\$68,000	HS/GED	None	Short-term OJT
	53-3051	Bus Drivers, School	1,244	\$48,000	\$39,200	\$52,300	\$35,700	\$44,800	\$48,000	\$51,900	\$58,700	HS/GED	None	Short-term OJT
	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	991	\$49,800	\$38,700	\$55,400	\$36,400	\$42,900	\$48,200	\$57,200	\$64,800	HS/GED	None	Mod-term OJT
	51-7011	Cabinetmakers and Bench Carpenters	686	\$46,000	\$36,300	\$50,900	\$35,800	\$38,600	\$46,600	\$52,500	\$58,000	HS/GED	None	Mod-term OJT
	53-7051	Industrial Truck and Tractor Operators	596	\$49,500	\$39,600	\$54,400	\$38,400	\$42,200	\$46,900	\$55,900	\$63,100	None	None	Short-term OJT
Origin	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	4,114	\$42,500	\$34,300	\$46,600	\$33,200	\$36,700	\$41,500	\$46,700	\$54,700	None	None	Short-term OJT
	51-2092	Team Assemblers	3,282	\$43,700	\$35,000	\$48,000	\$34,300	\$37,200	\$43,200	\$47,700	\$56,000	HS/GED	None	Mod-term OJT
	37-3011	Landscaping and Groundskeeping Workers	2,198	\$41,400	\$30,500	\$46,800	\$28,200	\$34,300	\$41,300	\$46,400	\$55,600	None	None	Short-term OJT
	53-7064	Packers and Packers, Hand	966	\$34,400	\$26,100	\$38,500	\$25,100	\$27,800	\$34,000	\$39,300	\$42,100	None	None	Short-term OJT
	51-9111	Packaging and Filling Machine Operators and Tenders	827	\$40,300	\$34,000	\$43,500	\$33,700	\$35,300	\$38,800	\$44,000	\$51,300	HS/GED	None	Mod-term OJT

Agriculture, Food, and Natural Resources

Agriculture, Food, and Natural Resources is a wide career field that includes eight career pathways:

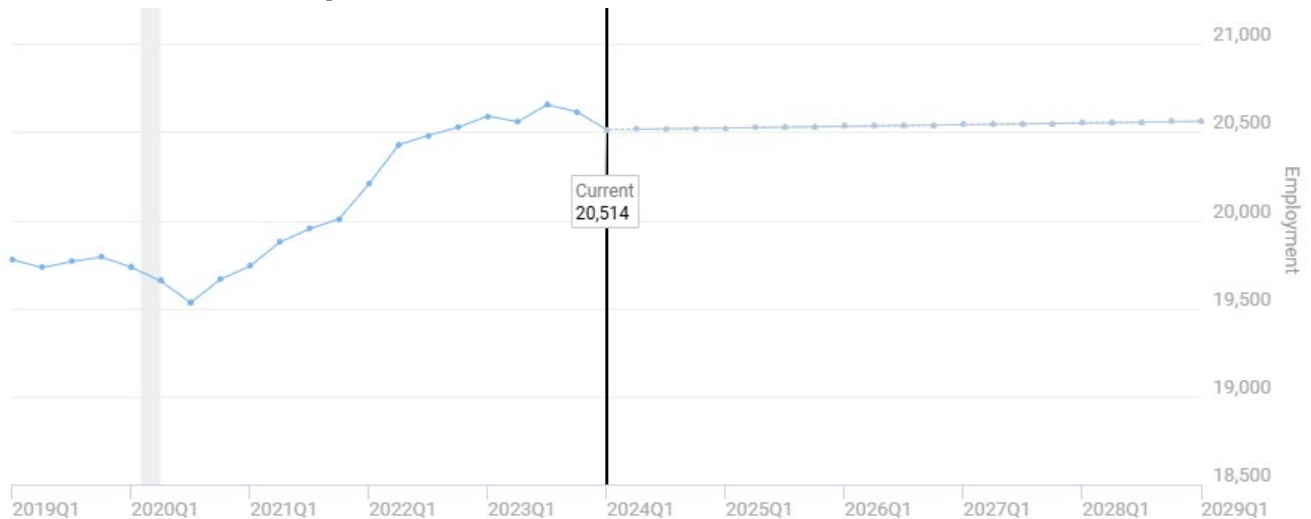
- Food Products and Processing Systems
- Plant Systems
- Animal Systems
- Natural Resources Systems
- Agribusiness Systems
- Environmental Services Systems
- Power, Structural and Technical Systems
- Biotechnology Systems

These roles represent positions that are at least 50% or more concentrated in Agriculture, Food, and Natural Resources industries, and as such exclude some occupations that are critical to the industry but may have smaller in-industry employment numbers (such as Ag Loan Officers, Ag Financing, or some trades). This career field is the only one of the six Career and Technical Education career fields that has overlapping occupations with other fields.

EMPLOYMENT FORECAST

Over the next five years, this career field's employment is forecast to grow very minimally (0.1% on average annually) in the Central region, breaking trend from significant growth in this field since 2020.

5-Year Forecast for Agriculture, Food, and Natural Resources Careers, Central Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 20,514 people are employed in Agriculture, Food, and Natural Resources roles regionally, accounting for about 7% of all regional employment. Animal Caretakers are projected to grow the most of all top ten occupations, by 1.5% annually over the next five years.

Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume, Central Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Farmers, Ranchers, and Other Agricultural Managers	5,099	\$72,500	3.96	-606	2,327	-0.8%
Landscaping and Groundskeeping Workers	2,198	\$41,300	1.09	238	1,520	0.6%
Farmworkers, Farm, Ranch, and Aquacultural Animals	1,404	\$36,200	5.53	139	954	-0.7%
Plumbers, Pipefitters, and Steamfitters	1,230	\$81,600	1.46	85	562	0.4%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	922	\$34,500	0.95	118	660	-0.2%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	777	\$68,100	1.08	141	359	0.7%
Meat, Poultry, and Fish Cutters and Trimmers	635	\$37,900	2.65	-15	364	-0.1%
Food Batchmakers	594	\$37,700	2.02	90	491	1.0%
Animal Caretakers	489	\$32,000	0.84	77	507	1.5%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	404	\$61,900	1.02	51	222	0.5%
Agriculture, Food, and Natural Resources (CTE Field)	20,514	\$58,700	1.41	738	11,777	0.1%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

"Forecast Annual Change" is the expected baseline (most pessimistic) yearly change in employment due to national, long-term trend projections (per the BLS) as well as local factors such as industry mix, labor force participation rates, and population growth (as computed and modeled by RealTime Talent in JobsEQ).

TOP INDUSTRIES

Locally, the industry with the greatest share of Agriculture, Food and Natural Resources talent is Animal Production (16.2%). The next largest industries by employment are Building Equipment Contractors (8.6%), Cattle Ranching (8.2%), and Services to Buildings and Dwellings (7.6%). Other industries each account for less than 5% of total employment in this field.

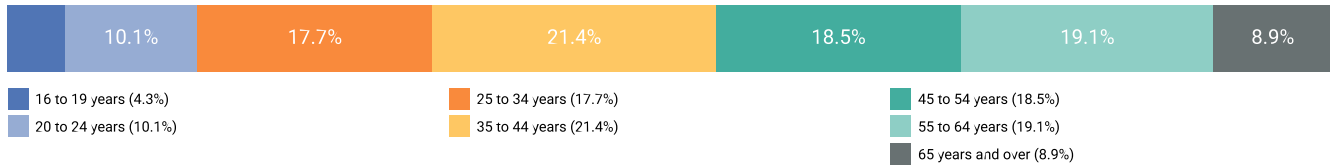
Agriculture, Food, and Natural Resources Field Employment by Industry, Central Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Animal Production (Proprietors)	16.2%	3,315	3,269	-327	2,942
Building Equipment Contractors	8.6%	1,774	1,559	103	1,662
Cattle Ranching and Farming	8.2%	1,675	2,132	-97	2,035
Services to Buildings and Dwellings	7.6%	1,550	1,964	92	2,056
Crop Production (Proprietors)	4.0%	815	822	-83	739
Other Professional, Scientific, and Technical Services	3.7%	750	867	172	1,039
Electric Power Generation, Transmission and Distribution	3.4%	697	559	-4	555
Animal Slaughtering and Processing	3.0%	623	758	5	763
Executive, Legislative, and Other General Government Support	2.8%	581	605	18	623
Poultry and Egg Production	2.7%	545	717	4	722
Other Amusement and Recreation Industries	1.9%	384	502	43	545
Grocery and Convenience Retailers	1.8%	363	457	-1	456
Hog and Pig Farming	1.7%	359	456	-23	433
Other Personal Services	1.6%	325	587	66	653
Utility System Construction	1.4%	290	254	28	282
Greenhouse, Nursery, and Floriculture Production	1.4%	284	394	24	418
Bakeries and Tortilla Manufacturing	1.3%	258	387	20	408
Machinery, Equipment, and Supplies Merchant Wholesalers	1.2%	252	213	6	218
Support Activities for Crop Production	1.2%	249	346	-10	336
Restaurants and Other Eating Places	1.2%	237	320	18	338
All Others	25.3%	5,189	6,202	190	6,392

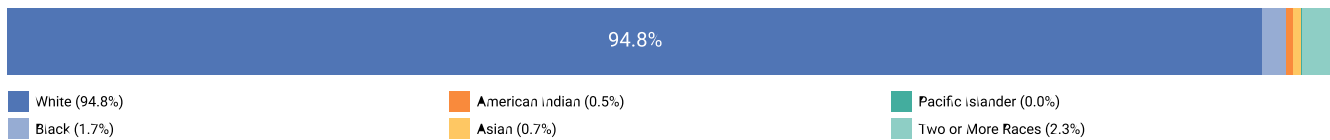
CAREER FIELD DEMOGRAPHICS

- About three in four people working in the Agriculture, Food, and Natural Resources field are male (73.6%) and almost 95% are white, a much higher representation of both groups compared to the workforce as a whole in the region
- Nearly three in ten (28.0%) workers in Agriculture, Food, and Natural Resources careers are 55 or older (exceeding the overall workforce rate by 4.6 percentage points), with almost double the share of workers 65 and older

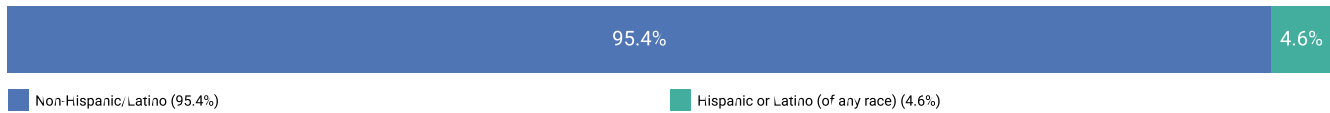
Age



Race



Ethnicity



Gender

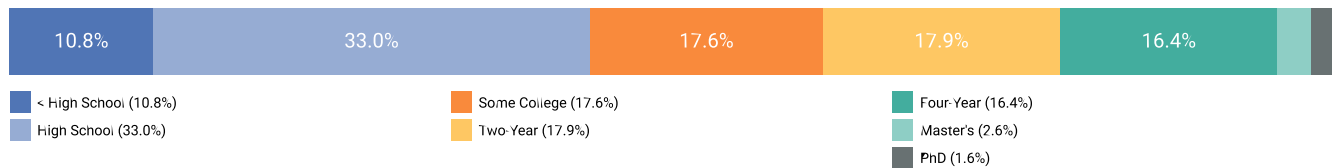


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

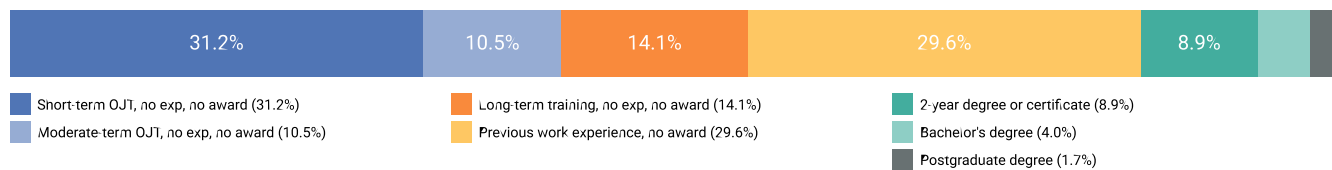
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The Central Minnesota Agriculture, Food, and Natural Resources workforce is fairly aligned in educational attainment to the requirements in the field, with a large share of roles requiring no more than a high school diploma and some relevant work experience
 - More than three in five (61.4%) Agriculture, Food, and Natural Resources professionals working in the region do not hold a postsecondary credential beyond a certificate, while 85.4% of positions in this field require no postsecondary credential; this suggests that about one in four (approximately 24%) of the region's talent in this field may be overqualified (underemployed) for their current role

Educational Attainment



Education and Training Requirements

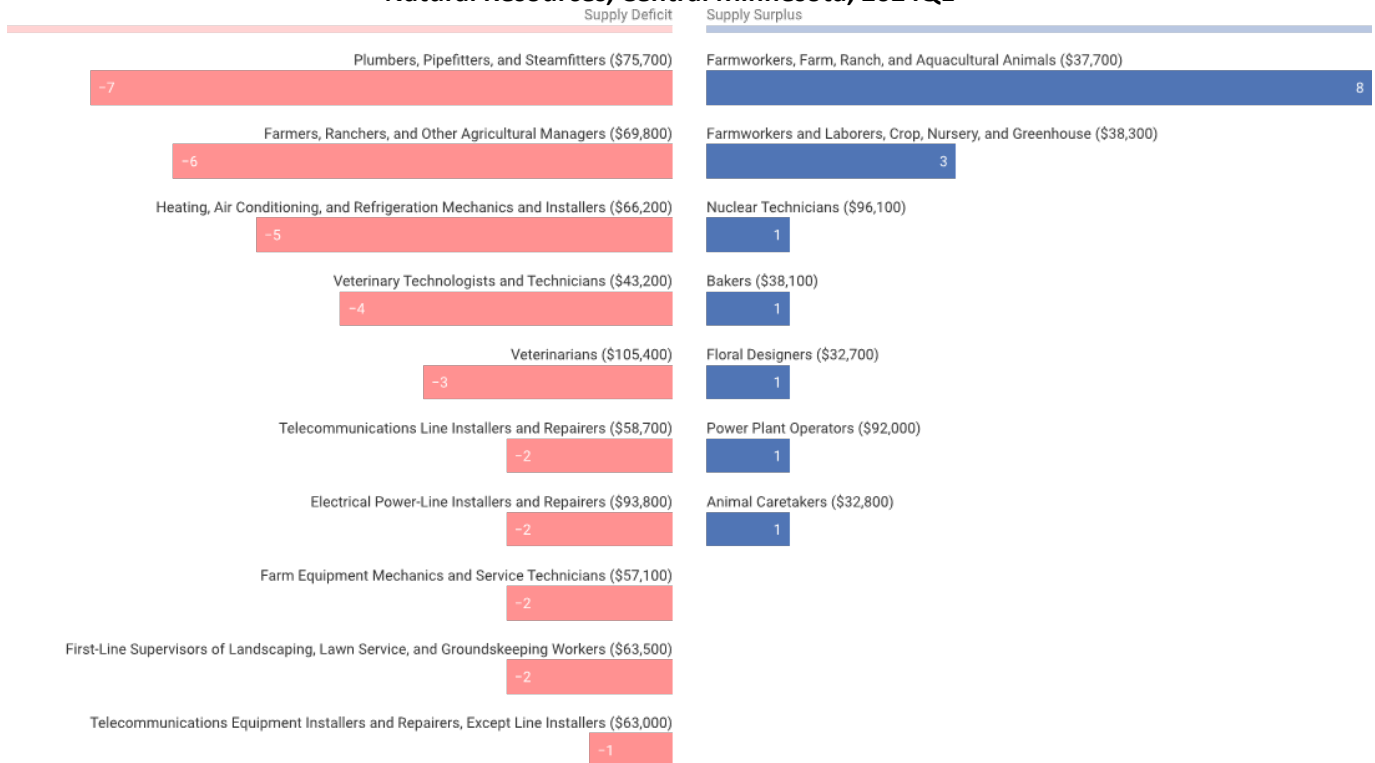


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Occupation shortage forecasts have persisted since 2022. Only seven occupations in the field forecast small or moderate talent surpluses. Retirements and growing demand unmet by the local talent supply chain are both contributing factors to shortages of talent forecast for Plumbers, Farmers and Agricultural Managers, and more.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Central Minnesota, 2024Q1



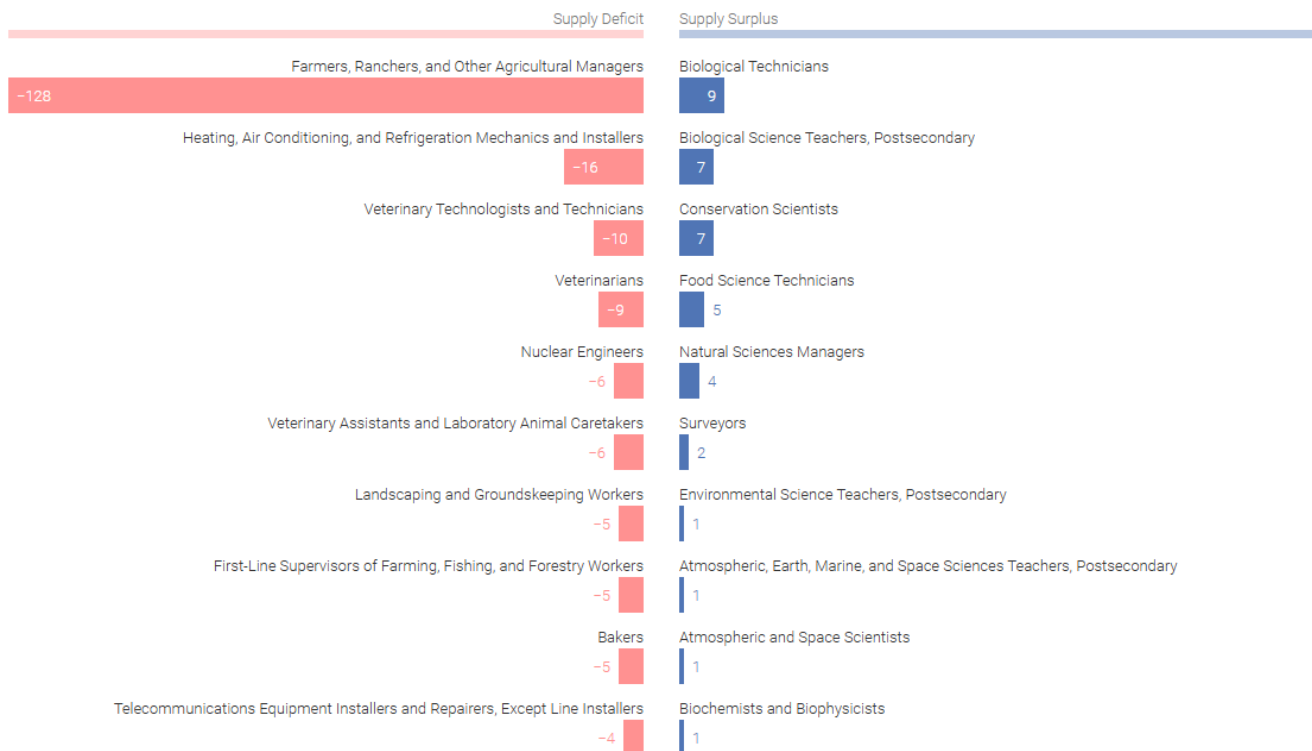
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

Central Minnesota faces some moderate Agriculture, Food, and Natural Resources postsecondary award shortages and generates a surplus of graduates in other areas:

- Central Minnesota colleges and universities are underproducing at least 128 graduates annually that are needed to fill Farmers, Ranchers, and Agricultural Managers positions open with employers based in the region
- HVAC Mechanic, Veterinary Technician, and Veterinarian postsecondary awards also lag national volumes moderately in the region and contribute to regional talent shortages
- A smaller number of Agriculture, Food, and Natural Resources field occupations have a surplus of postsecondary awards in the Central region

Award Gaps in Agriculture, Food, and Natural Resources, Central Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Agriculture, Food, and Natural Resources, Central Minnesota, 2024Q1

Target Occupations (All HW, HS, HD)

HVAC Mechanics (OG, AG)
 Veterinarians (OG, AG)
 Telecommunications Equipment Installers & Repairers (OG, AG)
 Nuclear Engineers (AG)
 Environmental Scientists & Specialists

Gateway Occupations

Food Cooking Machine Operators & Tenders (HD)
 Outdoor Power Equipment & Other Small Engine Mechanics (HD, AG)
 Food & Tobacco Roasting, Baking, & Drying Machine Operators & Tenders (HD)
 Logging Equipment Operators
 Animal Breeders (HD, AG)

Origin Occupations

Landscaping & Groundskeeping Workers (HD, AG)
 Farm Workers, Farm, Ranch, & Aquacultural Animals
 Farmworkers & Laborers, Crop, Nursery, & Greenhouse
 Meat, Poultry, & Fish Cutters & Trimmers
 Food Batchmakers (HD, AG)

HW = High-Wage; HS=High-Skill; HD=High-Demand; OG=Occupation Gaps; AG=Award Gaps

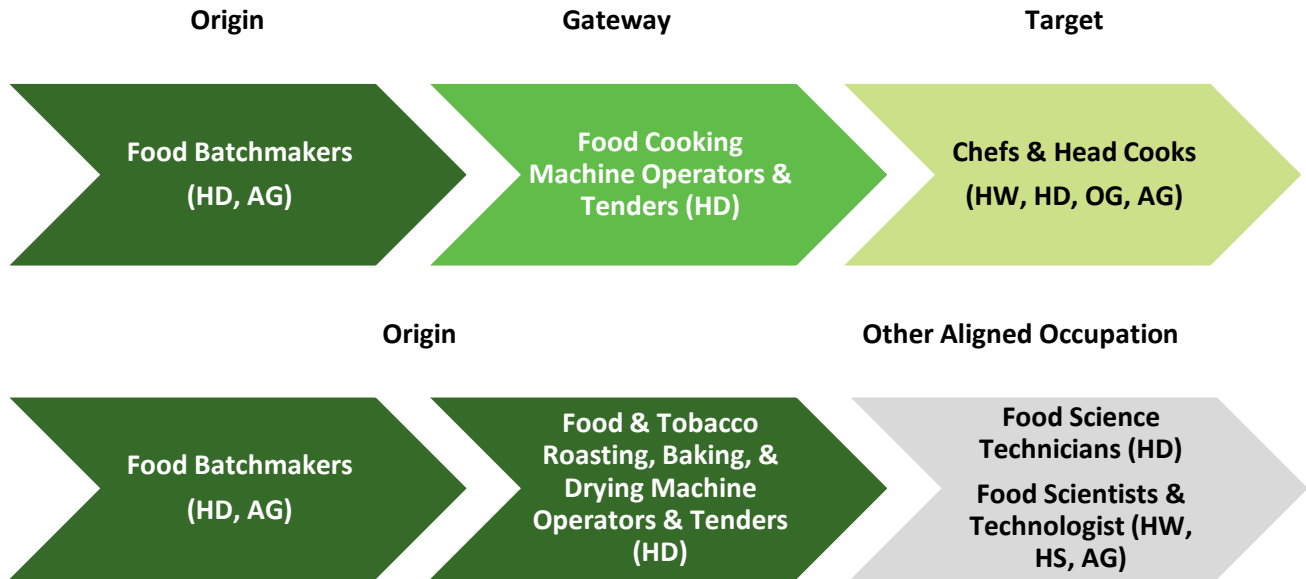
Other Promising Occupations

A number of other Agriculture, Food, and Natural Resources occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Plumbers, Pipefitters, & Steamfitters (OG)
- First-Line Supervisors of Landscaping, Lawn Service, & Groundskeeping Workers (OG, AG)
- Farm Equipment Mechanics & Service Technicians (OG, AG)
- Refuse & Recyclable Material Collectors
- Chefs & Head Cooks (OG AG)

Featured Pathway

The Central region has several Agriculture, Food, and Natural Resources career pathways that could be featured for greater development, include Animal Systems (veterinary and farm work pathways) Food systems, and Environmental Services Systems. The Food Services pathway featured below is important and in high demand in the region. The origin and Gateway occupations are all in high demand and high local concentration. Food Batchmakers have an LQ of 2.02 and Food Cooking Machine Operators and Tenders have an LQ of 2.57. In addition, the other aligned occupations indicated below have LQs above 1.0 as well.



OGT Wages and Experience Level Requirements, Agriculture, Food, and Natural Resources, Central Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	777	\$66,200	\$48,900	\$74,800	\$47,700	\$53,400	\$68,100	\$78,700	\$85,000	Certificate	None	Long-term OJT
	29-1131	Veterinarians	190	\$105,400	\$80,900	\$117,600	\$76,300	\$89,600	\$100,500	\$118,900	\$142,800	PhD	None	None
	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	169	\$63,000	\$46,700	\$71,100	\$45,600	\$50,500	\$62,600	\$75,900	\$77,000	Certificate	None	Mod-term OJT
	17-2161	Nuclear Engineers	110	\$124,100	\$87,700	\$142,300	\$82,400	\$99,700	\$122,900	\$139,200	\$168,800	BA	None	None
	19-2041	Environmental Scientists and Specialists, Including Health	93	\$77,100	\$55,800	\$87,800	\$53,000	\$62,500	\$76,400	\$94,300	\$100,100	BA	None	None
Gateway	51-3093	Food Cooking Machine Operators and Tenders	120	\$46,400	\$38,600	\$50,300	\$35,400	\$43,900	\$47,100	\$52,100	\$52,100	HS/GED	None	Mod-term OJT
	49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	103	\$46,400	\$38,800	\$50,200	\$37,600	\$41,700	\$46,800	\$49,900	\$56,000	HS/GED	None	Mod-term OJT
	51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	85	\$49,200	\$40,800	\$53,400	\$39,800	\$43,200	\$48,300	\$54,800	\$60,000	None	None	Mod-term OJT
	45-4022	Logging Equipment Operators	69	\$47,400	\$42,300	\$49,900	\$40,100	\$45,500	\$46,400	\$49,200	\$53,700	HS/GED	None	Mod-term OJT
	45-2021	Animal Breeders	51	\$48,200	\$39,300	\$52,600	\$38,900	\$40,900	\$45,500	\$52,000	\$63,500	HS/GED	None	Short-term OJT
Origin	37-3011	Landscaping and Groundskeeping Workers	2,198	\$41,400	\$30,500	\$46,800	\$28,200	\$34,300	\$41,300	\$46,400	\$55,600	None	None	Short-term OJT
	45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1,404	\$37,700	\$31,000	\$41,100	\$30,500	\$32,400	\$36,200	\$42,000	\$50,500	None	None	Short-term OJT
	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	922	\$38,300	\$29,500	\$42,700	\$28,700	\$31,200	\$34,500	\$46,700	\$56,300	None	None	Short-term OJT
	51-3022	Meat, Poultry, and Fish Cutters and Trimmers	635	\$37,700	\$30,400	\$41,300	\$30,400	\$31,700	\$37,900	\$42,100	\$46,600	None	None	Short-term OJT
	51-3092	Food Batchmakers	594	\$40,100	\$33,900	\$43,100	\$34,100	\$34,300	\$37,700	\$44,500	\$53,700	HS/GED	None	Mod-term OJT

Conclusion

Minnesota continues to experience a persistent labor shortage in critical career fields and has seen slower workforce growth in the past two years compared to other states due to retirement-related departures. Demand for talent in Architecture, Engineering, Health Science, and other Life Sciences continues to grow significantly, with the diversity of Minnesota's industries remaining one of its greatest economic strengths. Minnesota's highly educated workforce is a critical asset for addressing future talent gaps, as many occupations forecasting shortages typically require an associate or bachelor's degree, although interest in skills-based hiring and developments in Learning and Employment Records (LERs) may shift the landscape of career opportunities rapidly for individuals with related experience and skillsets.

Central Minnesota recovered from the drop in employment driven by the pandemic and exceeded forecasted employment outlooks estimated in 2018 and 2019. Central Minnesota is likely to experience overall employment growth of 0.3% on average annually over the next five years, a more favorable forecast than that for the state overall. In addition, employment forecasts for all six career fields improved compared to last year's estimates, including two career fields that were previously projecting declines now forecasting growth.

Several industries, including Chemical (LQ 1.76), Construction (LQ 1.78), Education (LQ 1.09), Health (LQ 1.09), and Food Manufacturing (1.78) are all uniquely concentrated in Central Minnesota. Business, Management, and Administration and Engineering, Manufacturing, and Technology remain the career fields with the highest volume of employment in the region. Total demand in the next five years is highest for Business, Management, and Administration, with two thirds of the current workforce changing occupations or leaving the labor force—despite flat projected growth during the same time period. Health Science Technology is expected to see the highest growth of all career fields in the next five years. Continued employment and economic growth depend upon aligning program offerings to meet the local demand and estimated undersupply of local postsecondary graduates.

FAQ

What is a location quotient?

A location quotient (LQ) is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is a cluster?

A cluster is a geographic concentration of interrelated industries or occupations. If a regional cluster has a location quotient of 1.25 or greater, the region is considered to possess a competitive advantage in that cluster.

What is the CTE Career Field, Cluster, and Pathway taxonomy used in this report?

Career clusters and pathways have been identified for this report by the Source: National Career Clusters® Framework external site implemented by Department of Defense ASVAB Career Exploration Program, Advance CTE and viewable on ONET <https://www.onetonline.org/find/career?c=8>, updated to the 2020 SOC classification system. A summary of these six career fields and associated clusters and pathways can be found at https://www.minnstate.edu/system/cte/consortium_resources/documents/pos-career-wheel-8x11-2016.pdf. This report uses the prior Framework currently in use nationally, *not* the Modern Framework, which was released in October 2024.

What is separation demand?

Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. The total projected demand for an occupation is the sum of the separation demand and the growth demand (which is the increase or decrease of jobs in an occupation expected due to expansion or contraction of the overall number of jobs in that occupation).

What is the difference between industry wages and occupation wages?

Industry wages and occupation wages are estimated via separate data sets, often the time periods being reported do not align, and wages are defined slightly differently in the two systems (for example, certain bonuses are included in the industry wages but not the occupation wages). It is therefore common that estimates of the average industry wages and average occupation wages in a region do not match exactly.

What is NAICS?

The North American Industry Classification System (NAICS) is used to classify business establishments according to the type of economic activity. The NAICS Code comprises six levels, from the “all industry” level to the 6-digit level. The first two digits define the top level category, known as the “sector,” which is the level examined in this report.

What is SOC?

The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories. All workers are classified into one of over 804 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 22 major groups, 95 minor groups, and 452 occupation groups. Each occupation group includes detailed occupations requiring similar job duties, skills, education, or experience.

What is CIP?

The Classification of Instructional Programs (CIP) is a taxonomy of academic programs developed by the US Department of Education. Colleges and universities across the country assign CIP codes to their academic programs. CIP codes are also often assigned to courses, certificates, and degrees.

Where can I learn more about the sources that were used in this report?

Lightcast offers a suite of labor market data analysis tools that are used to analyze candidate profiles and educational data from NCES IPEDS to track program graduate data and estimate talent pool availability. These tools scrape millions of candidate profiles and model skills, credentials, and employment experience to link where talent is located to where talent is in demand.

Chmura JobsEQ is a labor market data analysis tool that provides employment, unemployment, and education data from sources like the Bureau of Labor Statistics, Census Bureau, and NCES IPEDS and models this data at detailed geographic levels. This tool is utilized by RealTime Talent to model alternate forecasts impacted by COVID-19 to show possible future-state talent gaps, award gaps, and optimistic employment growth.

Who created this report?

This report was developed by RealTime Talent for Minnesota State in November 2024. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org

Data Notes

Chmura JobsEQ Source Details

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2024Q1 and based on industry employment and local staffing patterns calculated by JobsEQ and utilizing BLS OES data. Employment forecasts are by RealTime Talent using models provided by JobsEQ and are consistent with BLS national-level 10-year forecasts. Occupation wages (mean, median, and percentiles) are derived from BLS OES data as of 2023 and represent the average for all Covered Employment. Entry-level and experienced wages are derived from these source data, computed by JobsEQ.
- Industry employment is as of 2024Q1 and based upon BLS QCEW data that are imputed by JobsEQ where necessary and supplemented by additional sources including Census ZBP data.
- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by JobsEQ for 2024Q1 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.
- Postsecondary awards are per the NCES and for the 2022-2023 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.
- The sections on Employer Demand include Job ads data from TalentNeuron, which allows for greater specificity on education, experience level, and employer names. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
- Occupation gaps are modeled by JobsEQ, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dynamics, including educational attainment and projected growth.
- Occupation employment by place of residence is as of 2024Q1 and modeled by JobsEQ based upon occupation employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendencies, and updated to reflect more recent population and employment estimates.
- Annual demand is the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.
- Figures may not sum due to rounding.

Job Posting Source Details

- **Chmura JobsEQ:** General job ads data from the Regional Overview section of the report are based on online job posts from the Real-Time Intelligence (RTI) data set, produced by JobsEQ and gleaned from over 45,000 websites. Data reflect ads active during October 2024 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed.
- **TalentNeuron:** Detailed job posting data insights provided in the Job Postings section of the report are aggregated using TalentNeuron (<https://www.talentneuron.com/>), a job posting aggregation tool which allows for greater specificity on education, experience level, and employer names. This report summarizes information from postings newly advertised between November 1, 2023, and October 31, 2024. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
 - Demand: TalentNeuron scrapes approximately 1.3 million job postings daily, which are cleaned, deduplicated, and aggregated on the platform daily.
 - Skills: TalentNeuron categorizes and tags skill and experience data from individual job postings for analysis at the aggregate level. The platform recognizes over 30,000 unique individual skills.
 - Salary: TalentNeuron AI algorithms scrape job postings for salaries which are added to a historical database. As not all job postings include salaries, statistical analysis is used to predict or model the likely salary offer, which is vetted against U.S. Bureau of Labor Statistics employment wage data.

Definitions and Methodology

<p>High-Wage</p> <p>High-Wage occupations are defined as occupations that have average annual wages greater than the overall regional median wage (\$48,600 in the region as of 2024Q1).</p>
<p>High-Skill</p> <p>High-Skill occupations are those that typically require a certificate or other formal credential for employment. Occupation by educational attainment are regional data modeled by JobsEQ using U.S. Census Bureau Educational Attainment data projected to 2024Q1 along with source data from the BLS.</p>
<p>High-Demand</p> <p>High-Demand occupations are defined as occupations that fulfill two or more of the following demand criteria: 1) high growth, 2) high total demand, 3) low unemployment, 4) high unemployment-to-posting ratio, and/or 5) high posting volume.</p>
<p>D1: 5-Yr Growth</p> <p>An occupation is considered to have high growth in that occupation has forecasted 5-year growth that is greater than the overall regional forecasted 5-year pessimistic growth model.</p>
<p>D2: Total Demand</p> <p>An occupation is considered to have high total demand if the total 5-year forecast employment growth, transfers, and exits combined is greater than 50% of total employment in that occupation as of 2024Q1 (i.e. high long-term demand)</p>
<p>D3: Unempl <3%</p> <p>An occupation is considered to have low unemployment if the estimated unemployment rate for the occupation is below 3% in the region as of 2024Q1 (i.e. high employer retention demand)</p>
<p>D4: Posting Ratio</p> <p>An occupation is considered to have a strained unemployment-to-posting ratio if the estimated volume of unemployed individuals regionally exceeds the number of online job postings advertised in the month of October 2024 (i.e. ratio of unemployed-to-posts is greater than 1; low talent supply)</p>
<p>D5: Posting Volume</p> <p>An occupation is considered to have high posting volumes if the volume of online job postings in August 2024 was greater than 200 in the region, the occupation is considered to have high job posting volumes (i.e. high immediate employer demand).</p>
<p>Occupation Gaps</p> <p>Occupation gaps are developed by JobsEQ and use a multitude of data sources. Employment supply and demand projections are based on a starting date of 2024Q1 using baseline low-growth forecasts modeled from the Bureau of Labor Statistics (more pessimistic forecast outlook than utilized in D1 and D2). The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this is an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.</p>

Award Gaps

This metric illustrates the difference between the number of awards conferred (which are post-secondary certificates or degrees) and the occupation demand in your region. Negative values represent the gap, or shortage, of degrees being awarded in the region to meet the demand for the occupations selected. The positive values represent the surplus of awards meaning that the number of awards awarded are greater than the target range of demand for the region. Awards data are based upon degrees conferred for the academic year 2022-2023 and are provided by the National Center for Education Statistics (NCES). Occupation employment data are derived from the most recent four quarters of industry employment (from the Bureau of Labor Statistics, updated quarterly) and the industry/occupation matrix available for the region. Occupation training concentrations and shortfalls are calculated by JobsEQ. The percent college educated are provided by the BLS per the Employment Projections Program.

Location Quotient

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation. [Click here to see the formula for LQ.](#) Occupations with a LQ greater than or equal to 1.2 have been flagged in this analysis of having a unique specialization in the region.