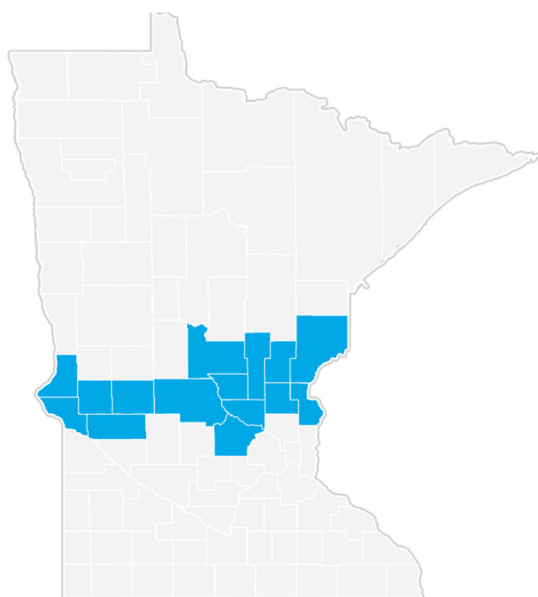


Workforce Trends

CAREER & TECHNICAL EDUCATION



Central Minnesota

RealTime Talent

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Overview

Recent years have brought seismic shifts in the world of work, driven forward by ongoing economic uncertainties, dramatic talent shortages, workforce misalignments, and rapidly evolving technology. These dynamics make forecasting future labor market needs and supply uniquely challenging. But despite the turbulence, several pivotal shifts have begun to materialize, illuminating the path ahead in inclusive workplaces, skills-based hiring, and the digital workplace. The continuing effects of the pandemic, domestic and international unrest, and shifting economic models have been felt in disparate ways across the nation. The job market is undoubtedly cooling but is far from free from significant talent shortages plaguing every industry and career cluster.

This report unpacks the current workforce landscape of Minnesota and the regional nuances of talent demand by career field. We aim 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 and cluster analysis including regional importance of each sector, key labor market statistics, and forecasting for future demand in the six career fields:
 - Health Science Technology
 - Engineering, Manufacturing, and Technology
 - Arts, Communications, and Information Systems
 - Agriculture, Food, and Natural Resources
 - Business, Management, and Administration
 - Human Services
- Gap analysis in each of the six career fields, including:
 - Occupation gaps (i.e. talent shortages)
 - Award gaps
- An origin-to-gateway-to-target model analysis for how to help move students from entrypoints into their field of interest into other aligned careers, taking into account automation, remote work, and the changing work environment
- A word on remote work and jobs of the future

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. If you have questions about the data found in this report, or are interested in learning more, please contact the Senior Director of Strategic Research Erin Olson at erin@realtimentalentmn.org.

¹ All labor market data in this report comes from Chmura Economics JobsEQ Dataset 2023Q2 unless otherwise noted. www.jobseq.com



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Central Minnesota

Introduction

This report highlights the current and future talent needs in the ten counties of Central Minnesota.² Starting from the community demographics, unique opportunities, and the critical occupations and industries underpinning the regional economy, this macroeconomic overview is intended to support educators and administrators who aim to increase alignment between educational programming and local businesses' most pressing needs. Identifying the skills, certifications, and qualifications for positions today will help the education community anticipate community needs and ensure that curriculum best prepares students for relevant job opportunities of the future here in Central Minnesota.

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, 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 itself 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 average)

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 average)

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)

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

² Aitkin, Carlton, Cass, Cook, Crow Wing, Itasca, Koochiching, Lake, Lake of the Woods, and St. Louis Counties.



Origin Occupations are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$45,000) that have high unemployment locally among workers without four-year degrees.

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 average wage (\$57,400 in the Central 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 average wage (\$57,400 in the Central 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 as “OG” and “AG” respectively.

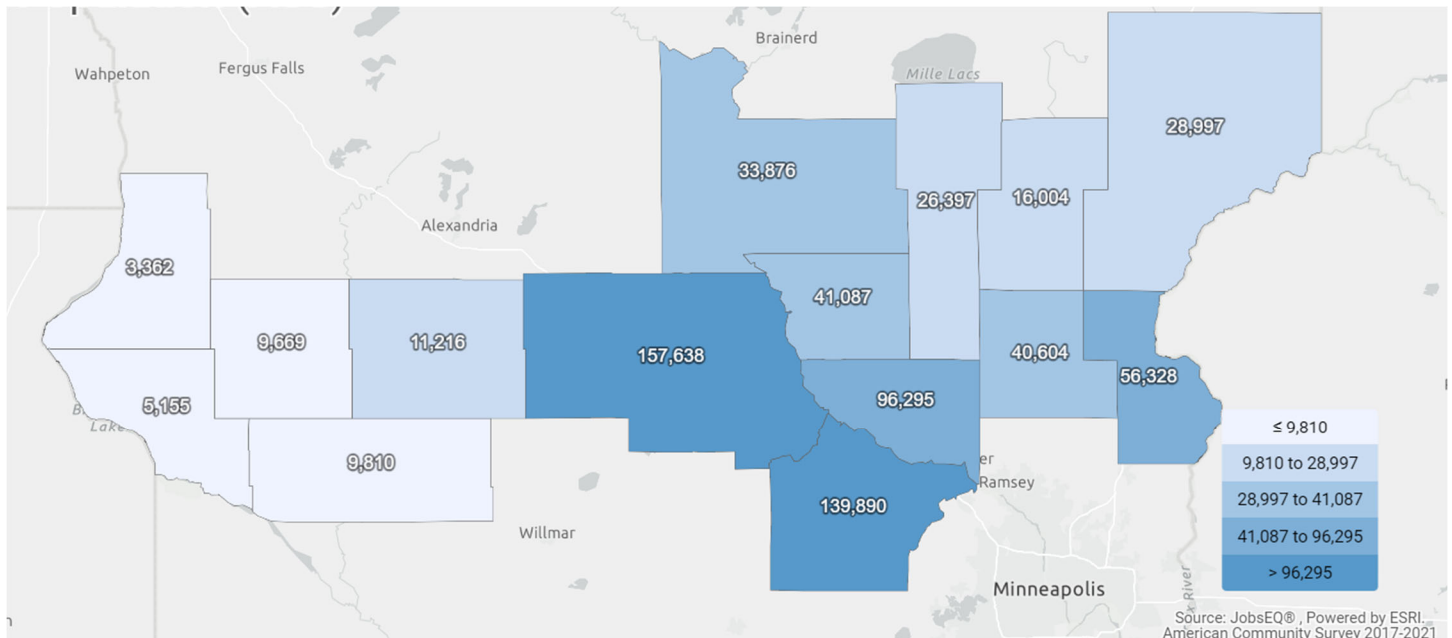


Community Profile

Demographics

The Central region is home to about 11.9% of Minnesota’s total population. In all, about 676,328 people live in Central Minnesota, according to 2017-2021 American Community Survey Estimates—an increase of nearly 5,000 people from the prior year’s estimates. Based on year-over-year population growth, about 698,087 people are estimated to live in the region as of 2022. Approximately 24.6% of Central Minnesota’s population are minors under 18 years of age. Overall, the region’s median age is 38.2 years (the same as the statewide median age). The cities of St. Cloud, Elk River, Buffalo, Sauk Rapids, and Monticello are home to the largest local concentrations of population, and are economic hubs for the region. Stearns County is home to 23.3% of the region’s population.

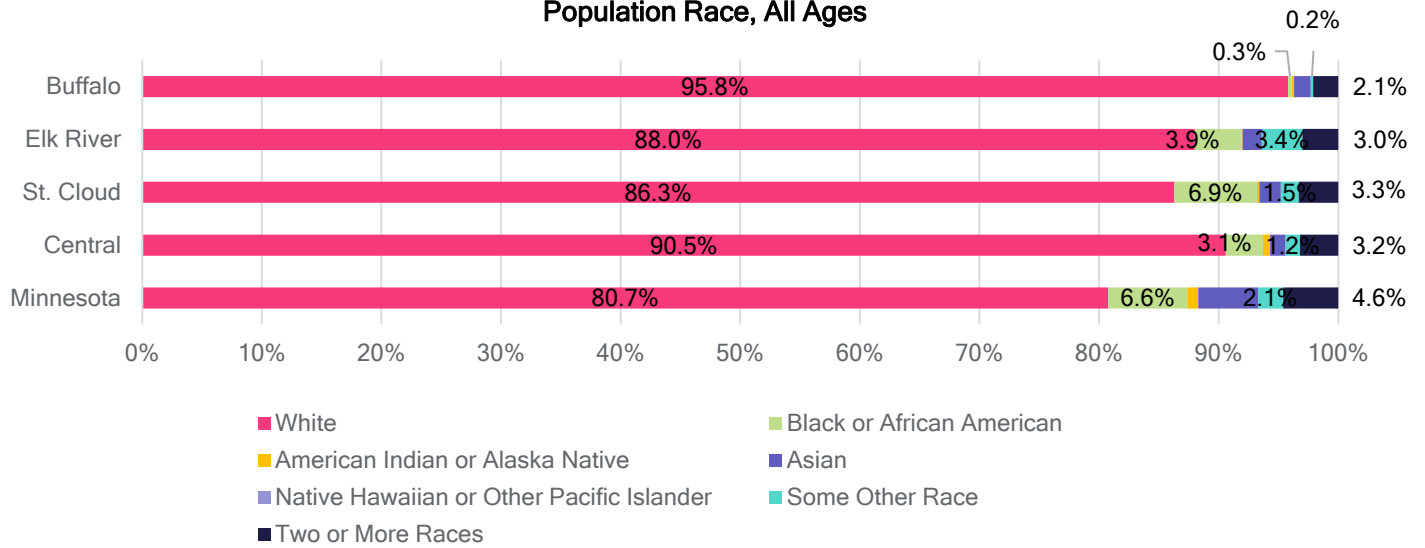
Resident Population of Central Minnesota



Population diversity increased between the two most recent population estimates in the Central region by 0.8 percentage points. Across the region overall, just 9.5% of the population identify as Black, Asian, American Indian, Native Hawaiian, or some other race. The demographic makeup of communities across the Central look quite different from one another. St. Cloud has a much larger share of people who identify as Black or African American, 6.9% (an increase of 0.5 percentage points from the prior year’s estimates), compared to just 0.3% of people who identify as Black or African American in Buffalo (a decrease of 0.4 percentage points). Approximately 3.0% of Central Minnesota’s residents are Hispanic or Latinx. This was an increase of 0.1 percentage point from last year’s estimates. St. Cloud has the largest share of the population that is Hispanic/Latinx in Central Minnesota (3.5%; previously, Elk River had the largest share), approximately 2.1 percentage points lower than the overall share of the Hispanic/Latinx population in the state of Minnesota (5.6%).

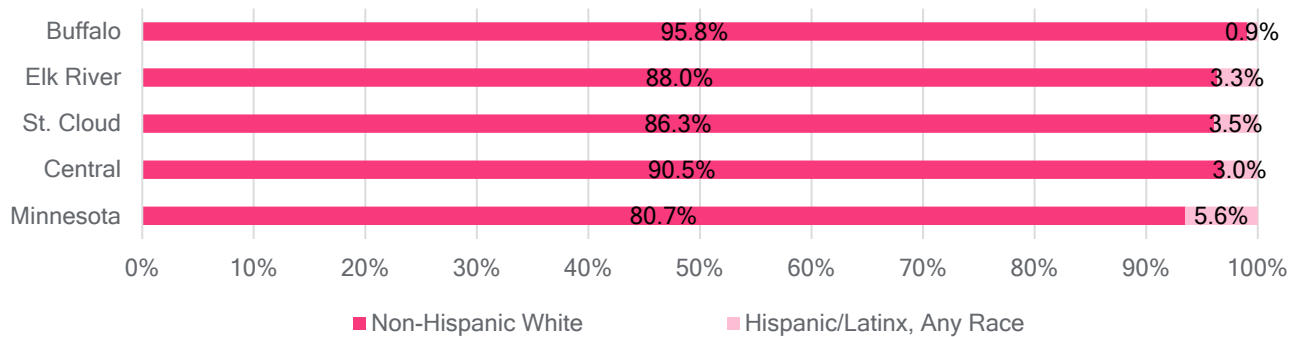


Population Race, All Ages



American Community Survey 2017-2021.

Population Ethnicity, All Ages



American Community Survey 2017-2021.

Community Demographics

Demographics	City of Buffalo, MN	Percent			Percent		Value		
		City of Elk River, MN	St. Cloud MSA, MN	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
Population (ACS)	49.2%	49.7%	50.5%	—	—	—	676,328	5,670,472	329,725,481
Male	50.8%	50.3%	49.5%	51.0%	50.1%	49.5%	345,039	2,839,135	163,206,615
Female	—	—	—	49.0%	49.9%	50.5%	331,289	2,831,337	166,518,866
Median Age ²	24.8%	25.6%	23.9%	—	—	—	38.2	38.2	38.4
Under 18 Years	6.8%	6.3%	13.3%	24.6%	23.3%	22.5%	166,565	1,323,569	74,234,075
18 to 24 Years	12.8%	16.4%	12.6%	9.2%	8.8%	9.2%	62,333	499,402	30,339,089
25 to 34 Years	13.1%	14.1%	12.1%	12.0%	13.3%	13.8%	81,435	756,215	45,360,942
35 to 44 Years	13.3%	11.3%	11.1%	13.0%	13.0%	12.9%	87,765	738,714	42,441,883
45 to 54 Years	12.6%	12.3%	12.3%	12.6%	12.1%	12.6%	85,311	688,596	41,631,458
55 to 64 Years	9.2%	8.4%	8.5%	13.4%	13.4%	13.0%	90,483	762,459	42,829,413
65 to 74 Years	7.4%	5.7%	6.2%	9.0%	9.4%	9.6%	60,662	535,592	31,590,619



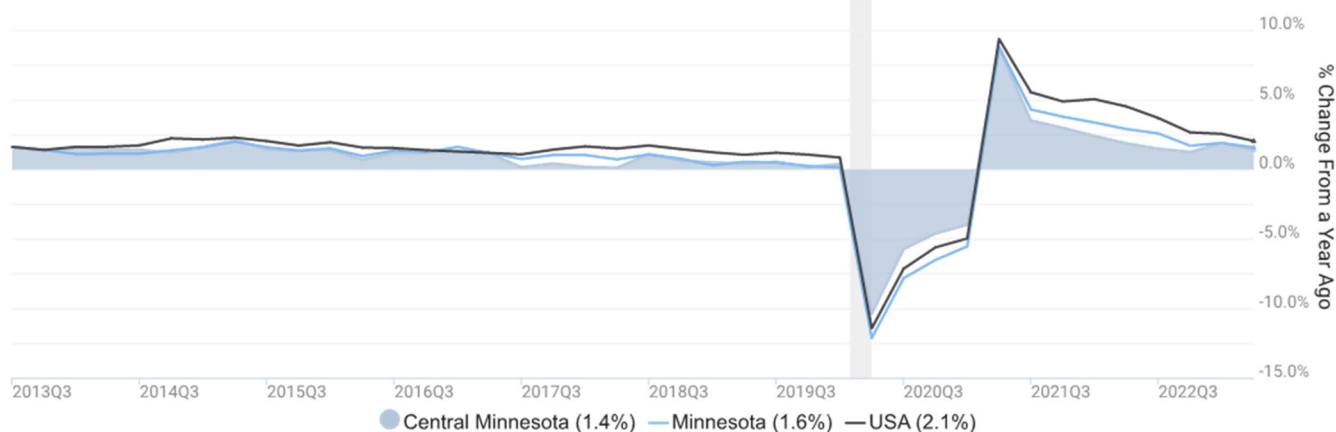
Demographics	City of Buffalo, MN	Percent			Percent			Value		
		City of Elk River, MN	St. Cloud MSA, MN	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA	
75 Years, and Over	95.8%	88.0%	86.3%	6.2%	6.5%	6.5%	41,774	365,925	21,298,002	
Race: White	0.3%	3.9%	6.9%	90.5%	80.7%	68.2%	612,280	4,576,758	224,789,109	
Race: Black or African American	0.2%	0.1%	0.2%	3.1%	6.6%	12.6%	21,100	376,406	41,393,012	
Race: American Indian and Alaska Native	1.4%	1.6%	1.8%	0.6%	0.9%	0.8%	3,980	52,695	2,722,661	
Race: Asian	0.0%	0.0%	0.0%	1.3%	5.0%	5.7%	9,106	283,382	18,782,924	
Race: Native Hawaiian and Other Pacific Islander	0.2%	3.4%	1.5%	0.0%	0.0%	0.2%	262	2,338	615,557	
Race: Some Other Race	2.1%	3.0%	3.3%	1.2%	2.1%	5.6%	8,048	120,011	18,382,796	
Race: Two or More Races	0.9%	3.3%	3.5%	3.2%	4.6%	7.0%	21,552	258,882	23,039,422	
Hispanic or Latino (of any race)	49.2%	49.7%	50.5%	3.0%	5.6%	18.4%	20,577	319,828	60,806,969	

American Community Survey 2017-2021 unless noted otherwise.

Employment

Over the year ending 2022Q2, employment increased by 2.3% in the region. As of 2023Q2, total employment in Central Minnesota was 276,338, increasing by 1.4% from the prior year.

Employment for Central Minnesota

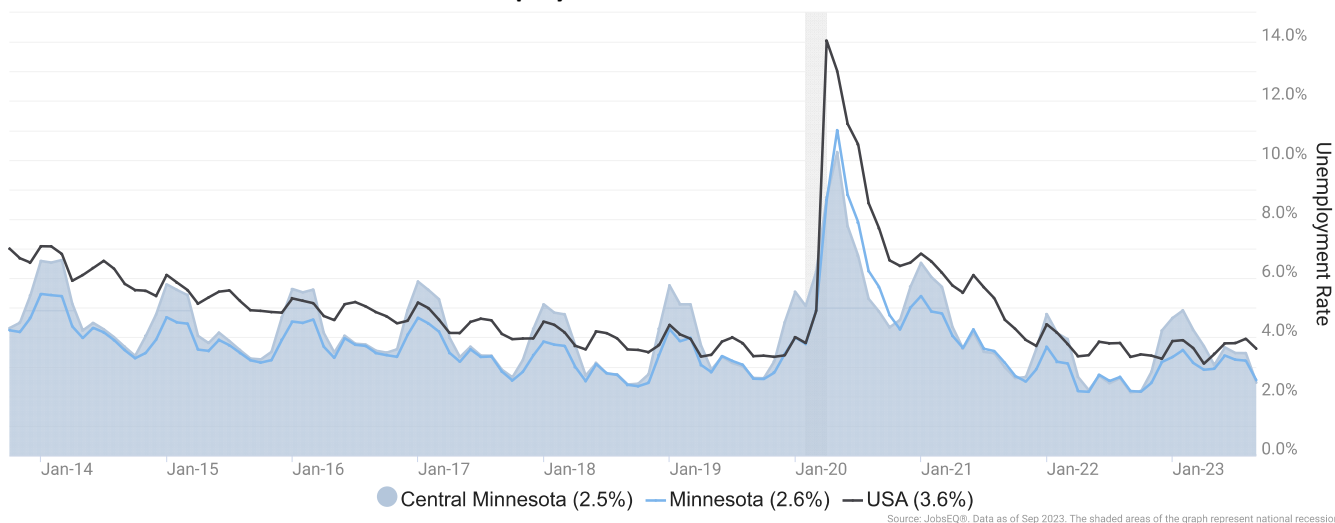


Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2023Q1 with preliminary estimates updated to 2023Q2.

The unemployment rate in Central Minnesota was 2.5% as of September 2023. The regional unemployment rate was lower than the statewide rate (2.6%), and lower than the national rate of 3.6%. One year earlier, in September 2022, the unemployment rate in Central Minnesota 2.1%.



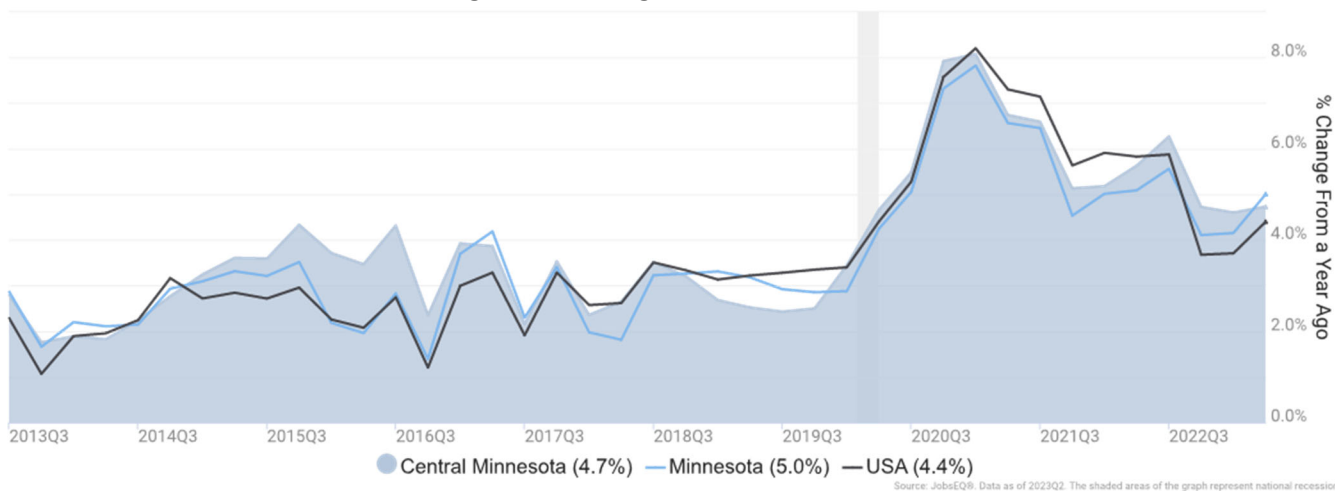
Unemployment for Central Minnesota



Unemployment rate data are from the Local Area Unemployment Statistics, provided by the Bureau of Labor Statistics and updated through September 2023.

The average worker in Central Minnesota earned annual wages of \$53,749 as of 2023Q2, an increase of \$2,403 from 2022Q2 (\$51,346), which follows an increase of \$9,000 from 2021Q2 (\$42,346). Average annual wages per worker increased 4.7% (compared to last year’s increase of 6.0%) in the region over the preceding four quarters. Wages rose similarly nationwide, where annual average wages were \$70,318 as of 2023Q2 (compared to \$67,777 as of 2022Q2 and \$63,393 as of 2021Q1).

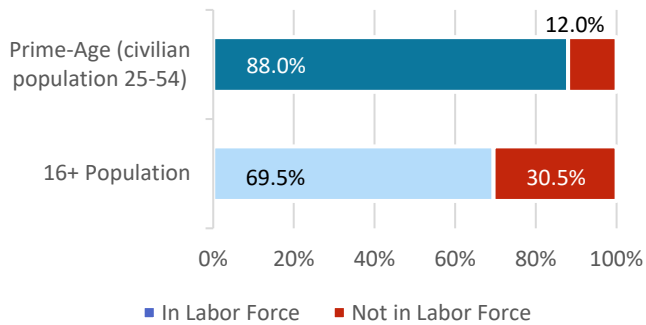
Average Annual Wages for Central Minnesota



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 2023Q1 with preliminary estimates updated to 2023Q2.



Labor Force Participation Rate



The region has a civilian labor force of 367,385 (an increase of about 1,500 workers from the prior year's estimates) with a participation rate of 69.5%, which is just above Minnesota's labor force participation rate for the population over 16 by nearly 0.4 percentage points. Age plays a key role in this difference, with the Central region home to a population that is younger than what is found in the Northwest and Northeast. However, the participation rate of the prime working age population (between the ages of 25 and 64) lags behind the statewide rate—88.0% compared to the statewide 88.4%.

American Community Survey 2017-2021 unless noted otherwise.

The Central area has a higher share of veterans in the region, at 4.5% of the regional population compared to 3.6% broadly across the state. Veteran labor force participation is slightly lower in the region than the statewide average, 77.8% compared to 80.6% statewide. Similarly, the Central region has a higher share of persons with a disability, 9.3% compared to 9.0% statewide, but equal labor force participation rate for the population with a disability compared to statewide, 53.5%, an increase from the prior year's estimates (53.3%). The Central region overall has a similar share of disconnected youth (1.8% of youth) compared to statewide (1.8%) but below national rates (2.5%), with variation between communities. Specifically, Buffalo has an estimated 52 (5.8% disconnected youth rate) disconnected youth who are disconnected from school, training, or work as of American Community Survey 2017-2021 estimates, an increase from the previous year's estimates (39 and 3.9%).

Economic and Social Characteristics of Central Minnesota

Economic and Social Characteristics	Percent			Percent			Values		
	City of Buffalo, MN	City of Elk River, MN	St. Cloud MSA, MN	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	67.5%	70.7%	71.5%	69.5%	69.1%	63.4%	367,385	3,105,784	166,672,597
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	86.1%	84.1%	90.1%	88.0%	88.4%	82.5%	223,470	1,926,180	106,173,534
Armed Forces Labor Force	0.0%	0.0%	0.2%	0.1%	0.1%	0.5%	732	4,029	1,196,529
Veterans, Age 18-64	4.2%	3.0%	4.3%	4.5%	3.6%	4.4%	18,327	122,885	8,848,937
Veterans Labor Force Participation Rate and Size, Age 18-64	78.4%	87.4%	74.3%	77.8%	80.6%	77.0%	14,261	99,030	6,809,906
Median Household Income ²	—	—	—	—	—	—	\$77,280	\$77,706	\$69,021
Per Capita Income	—	—	—	—	—	—	\$35,570	\$41,204	\$37,638
Poverty Level (of all people)	6.7%	3.9%	12.1%	8.6%	9.2%	12.6%	56,642	512,312	40,661,636
Households Receiving Food Stamps/SNAP	5.1%	2.2%	8.8%	6.8%	7.5%	11.4%	17,246	167,348	14,105,231



Enrolled in Grade 12 (% of total population)	1.0%	1.1%	1.2%	1.3%	1.4%	1.3%	8,534	78,960	4,425,322
Disconnected Youth ³	5.8%	1.2%	0.9%	1.8%	1.8%	2.5%	674	5,245	432,389
Children in Single Parent Families (% of all children)	27.6%	29.6%	26.7%	25.7%	28.4%	34.0%	41,058	361,209	23,909,672
Uninsured	4.7%	2.5%	3.8%	4.2%	4.6%	8.8%	28,121	258,292	28,489,142
With a Disability, Age 18-64	10.6%	7.9%	9.5%	9.3%	9.0%	10.3%	37,408	306,405	20,537,729
With a Disability, Age 18-64, Labor Force Participation Rate and Size	47.2%	61.9%	56.3%	53.5%	53.5%	44.2%	19,999	164,030	9,068,973
Foreign Born	2.9%	5.6%	6.2%	3.6%	8.5%	13.6%	24,195	479,231	44,844,808

American Community Survey 2017-2021 unless noted otherwise.

*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

In Central Minnesota, 6.0% (an increase from the previous year's 5.9%) of adults between the ages of 25 and 64 do not have a high school diploma or equivalent, and 27.7% (a decrease from the previous year's 28.2%) have a high school diploma as their highest level of education (compared with 21.2% statewide). Nationwide, 10.3% (a slight decrease from the previous year's 10.5%) of U.S. residents between the ages of 25 and 64 never completed high school or obtained an equivalent credential. The prime working age population of St. Cloud MSA and Elk River have a larger share of residents with a high school diploma or less; Buffalo has the smallest share of residents with no high school diploma, but the largest share with a high school diploma as their highest level of educational attainment (29.9%, an increase from the previous year's 25.6%).

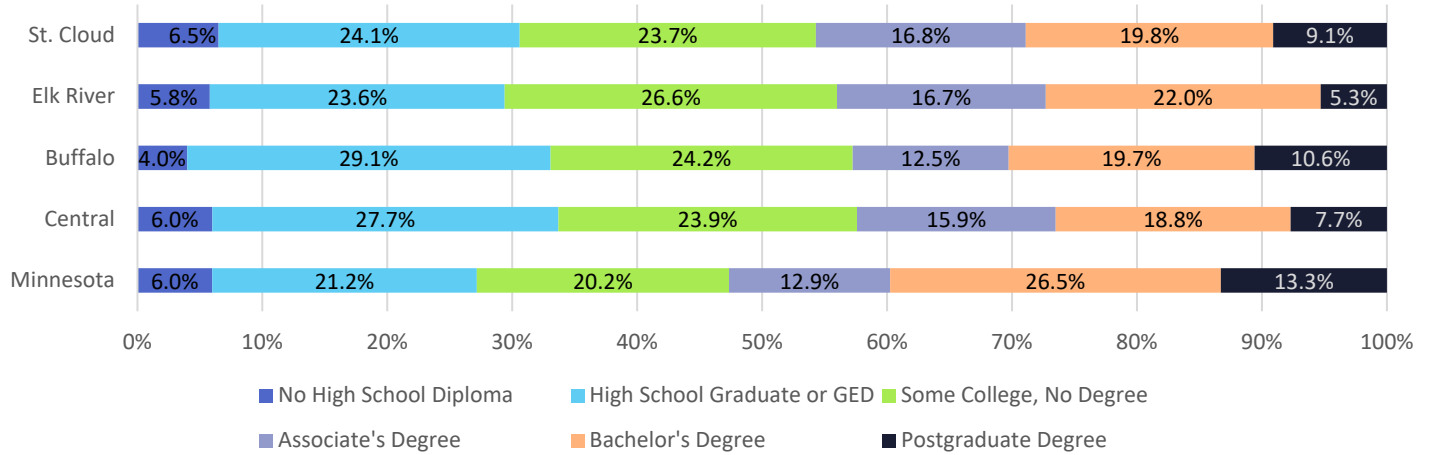
Educational Characteristics of Central Minnesota

Educational Characteristics	Percent				Percent		Values		
	City of Buffalo, MN	City of Elk River, MN	St. Cloud MSA, MN	Central Minnesota	Minnesota	USA	Central Minnesota	Minnesota	USA
No High School Diploma	4.0%	5.8%	6.5%	6.0%	6.0%	10.3%	20,622	176,696	17,756,046
High School Graduate	29.1%	23.6%	24.1%	27.7%	21.2%	25.3%	95,612	623,436	43,535,564
Some College, No Degree	24.2%	26.6%	23.7%	23.9%	20.2%	20.1%	82,612	593,618	34,637,141
Associate's Degree	12.5%	16.7%	16.8%	15.9%	12.9%	9.3%	54,752	379,909	15,944,395
Bachelor's Degree	19.7%	22.0%	19.8%	18.8%	26.5%	22.0%	64,946	780,055	37,890,674
Postgraduate Degree	10.6%	5.3%	9.1%	7.7%	13.3%	13.1%	26,450	392,270	22,499,876

American Community Survey 2017-2021 unless noted otherwise.



Educational Attainment, Age 25-64



American Community Survey 2017-2021.

Regional Colleges and Universities

Central Minnesota has nine institutions of higher education that offer non-degree awards, two-year degrees, and four-year degrees. The table below shows these postsecondary institutions sorted by total awards conferred during SY2021-22. There were a total of 7,107 awards conferred in the region in SY2021-22, compared to 7,316 awards conferred in the region in SY2020-21.

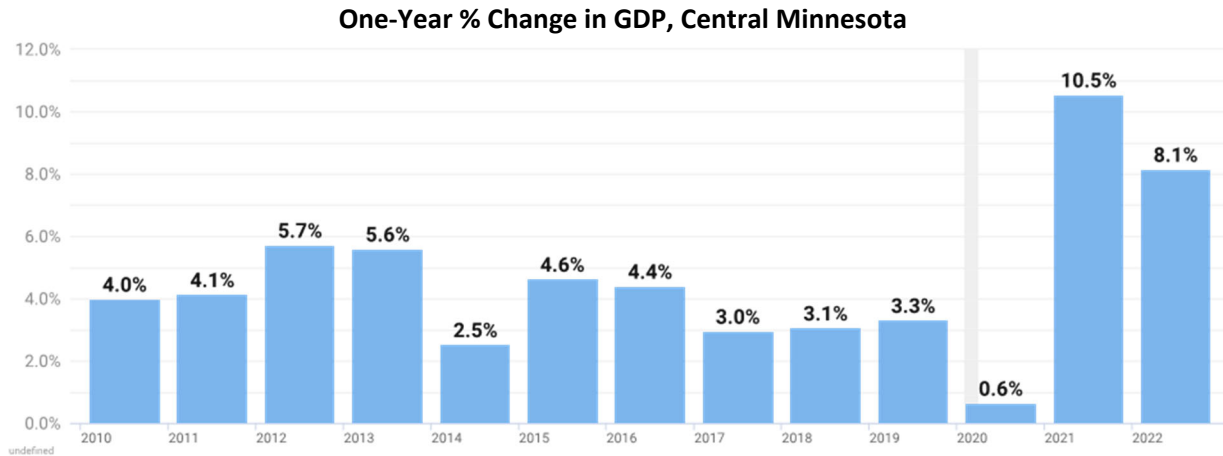
School	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Post-Bacc	Master's	Post Master's/ Doctorate	Total Awards	Total School Enrollment	Avg Net Price ¹
Saint Cloud State University	63	1	111	0	1,614	113	490	14	2,406	10,774	\$13,615
Rasmussen University-Minnesota	355	200	1,328	0	136	0	49	0	2,068	3,914	\$18,239
St Cloud Technical and Community College	25	175	735	74	0	0	0	0	1,009	3,638	\$8,404
College of Saint Benedict	0	0	0	0	407	0	0	0	407	1,557	\$28,269
Saint Johns University	0	0	0	0	370	0	24	0	394	1,643	\$27,750
University of Minnesota-Morris	0	0	0	0	349	0	0	0	349	1,286	\$11,652
Pine Technical & Community College	98	101	134	0	0	0	0	0	333	1,766	\$10,971
Hazelden Betty Ford Graduate School of Addiction Studies	0	0	0	0	0	0	73	0	73	172	N/A
Model College of Hair Design	32	36	0	0	0	0	0	0	68	128	\$12,185
Total	573	513	2,308	74	2,876	113	636	14	7,107	10,774	\$13,615

* 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 2021-2022 academic year.



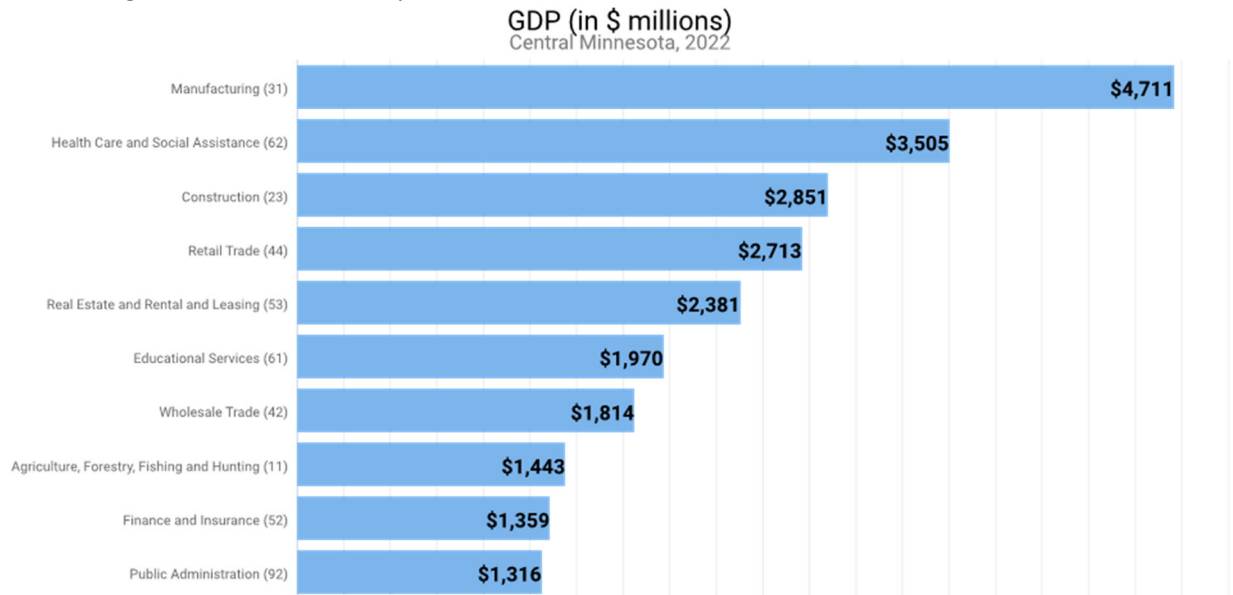
Economic Indicators

Gross Domestic Product (GDP) is the total value of goods and services produced by a region. In 2022, nominal GDP in the Central region grew by 8.1%. This follows an expansion of 10.5% in 2021, and a growth of 0.6% in 2020. As of 2022, total GDP in the region was \$30,670,128,000—of which \$12,947,193,000 is attributed to the St. Cloud MSA.



Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2022.³

Of the industries represented in the Central region, Manufacturing continued to contribute the largest portion of GDP in 2022, \$4,710,859,000. The next-largest contributions came from Health Care and Social Assistance (\$3,504,645,000 – an increase from last year’s \$3,275,372,000); Construction (\$2,851,322,000); and Retail Trade (\$2,712,508,000). All industries in the region saw increased output.



Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2022.

³ GDP estimates by Chmura Economics. GDP data is revised every year, and there are typically small changes over time, with more recent years being more likely to be revised. Additionally, Chmura’s detailed GDP estimates are modeled from industry employment and wage data, which is also subject to revision with each update. In general, with the exception of the most recent 2 or 3 years, historical revisions should be relatively small, only fractions of a percentage point.

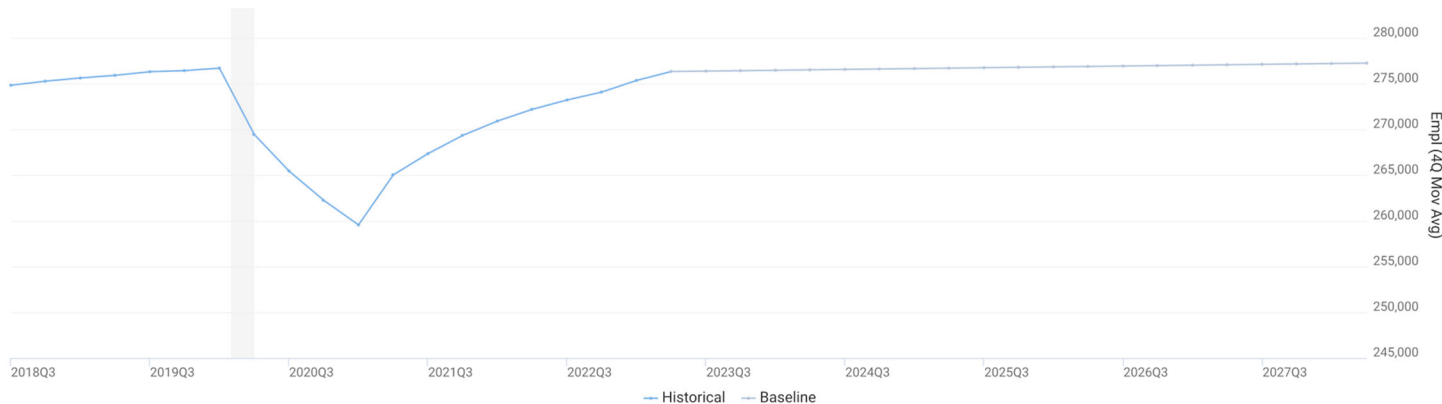


Labor Market

Workforce Forecast

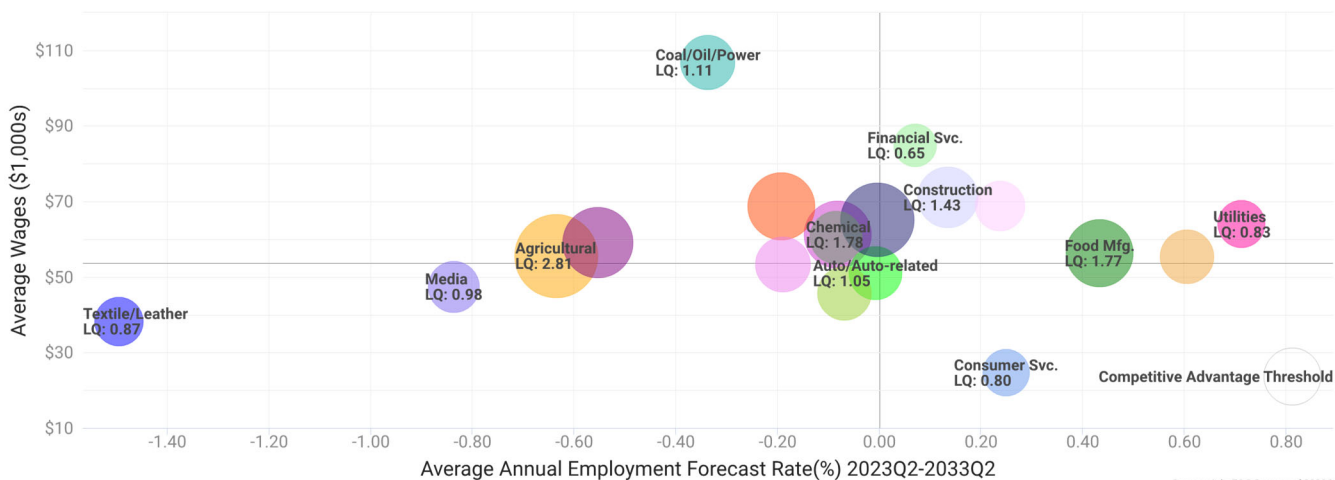
Employment rose by 1.6% in the region between 2022Q2 and 2023Q2, lower than the previous estimates from one year prior of 2.3%. An estimated 3.4% of the Central Minnesota workforce is unemployed as of September 2023 (about 12,231 people). Employment in the region is forecast to grow by 0.1% on average annually through 2028 in a baseline scenario.

5-Year Forecast in Central Minnesota



Employment forecasts vary considerably by industry. An industry cluster is a geographic concentration of interrelated industries or occupations. The industry cluster in the Central region with the highest relative concentration remains Agriculture with a location quotient of 2.81 a slight increase in local concentration from estimates in 2022. This cluster employs 10,421 workers in the region (a decrease of about 37 workers from 2022) with an average wage of \$55,644—an increase of \$6,543 in average sector wages from 2022 estimates. Employment in the Agriculture cluster is now projected to contract in the region by about -0.6% on average annually over the next ten years. Between 2022Q2 and 2023Q2 estimates, most industries saw decline in forecasted employment change.

Industry Clusters for Central Minnesota as of 2023Q2



Source: JobsEQ® Data as of 2023Q2

Quantifying Talent Shortages

Occupation Gaps

The pandemic's acceleration of critical talent shortages through shifts in demand, supply chains, and resource availability resulted in dramatic upticks in demand for very specifically trained talent with some college, an industry credential, a two year degree, or a bachelor's degree amidst a severe constriction of talent availability for these same middle-skill, middle-wage roles. This section highlights the most critical talent shortages now apparent statewide, the industries that define each region of Minnesota, and the top Gateway Occupations that are in high demand and low talent supply regionally.

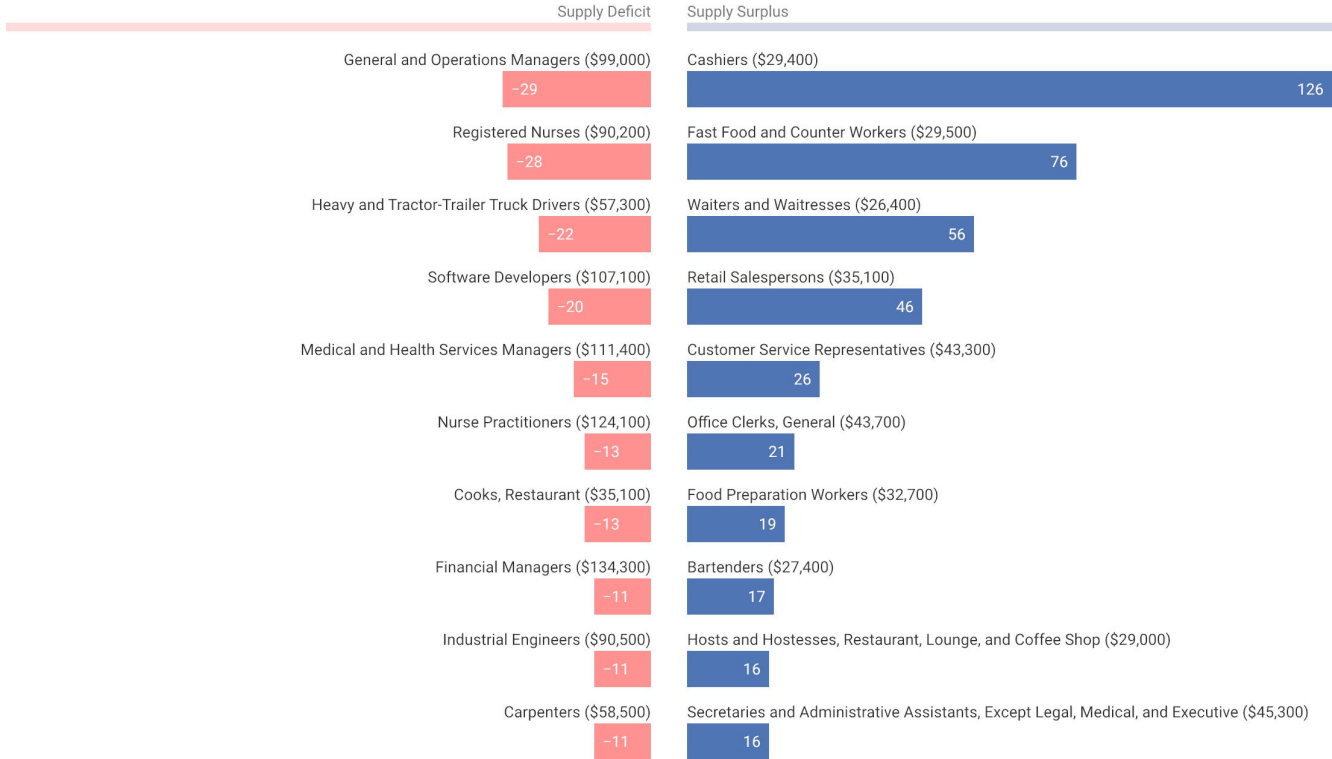
The chart below shows the potential average annual talent gaps over ten years. Many variables go into this analysis, but at its core it is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents, then matched to 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 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.

Several occupations that forecast high talent surpluses in 2022 have continued to grow in the estimated size of talent surplus in 2023 (shown in blue below), including Cashiers, Waiters and Waitresses, Fast Food and Counter Workers, Retail Workers, and Customer Service Representatives.

Following a break in trend with 2020 and 2021 where Restaurant Cooks jumped up from a low forecasted shortage into the third highest occupation of shortage by volume in the Central region in 2022, it is now the seventh occupation of greatest forecasted shortage. General and Operations Managers jumped up to the occupation of greatest forecasted shortage, followed by Registered Nurses. The other occupations of highest forecasted shortage in the Central region (and statewide) have remained relatively consistent since the last analysis in October 2022, still showing that there is a shortage of local Nurses and Maintenance Workers, among other critical healthcare, information technology, and management occupations. Among high contact-intensity roles in shortage, Registered Nurses and Nurse Practitioners still make the top ten list of occupations in highest shortage, while Hospitality and Tourism roles are largely forecast to have a surplus of talent except for Restaurant Cooks and General Managers from Hospitality Services.



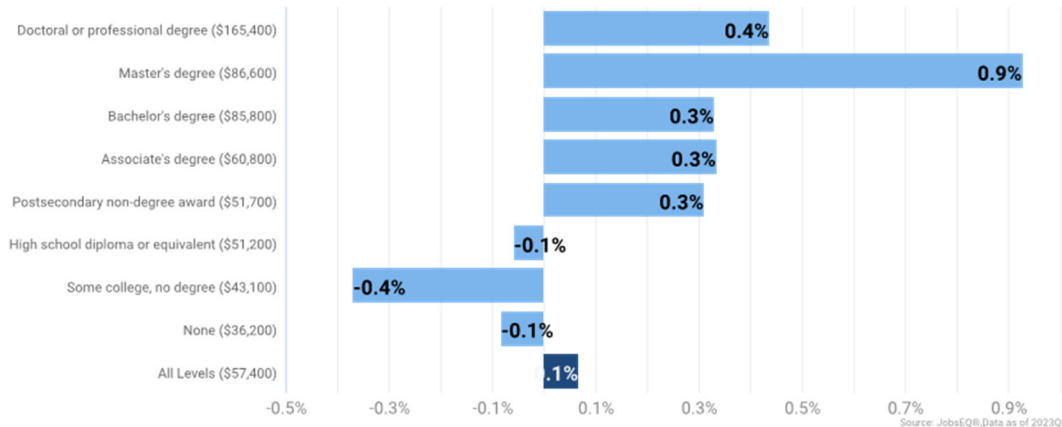
Average Annual Occupation Gaps (i.e. Talent Shortage), 2023Q2 through 2033Q2



Award Gaps

Expected growth rates for occupations vary by the education and training required. The employment outlook declined for the Central region from 2022 estimates, forecast to expand by about 1.0% gradually over the next ten years. Occupations typically requiring a doctoral degree are now expected to grow by 0.4% per year, whereas those requiring a master’s degree are expected to grow by 0.9% annually. Those requiring either a bachelor’s degree or a two-year degree or certificate are forecast to grow by 0.3% per year. Estimated wages have increased across careers at each education level requirement.

Annual Average Projected Job Growth by Training Required for Central Minnesota, 2023Q2

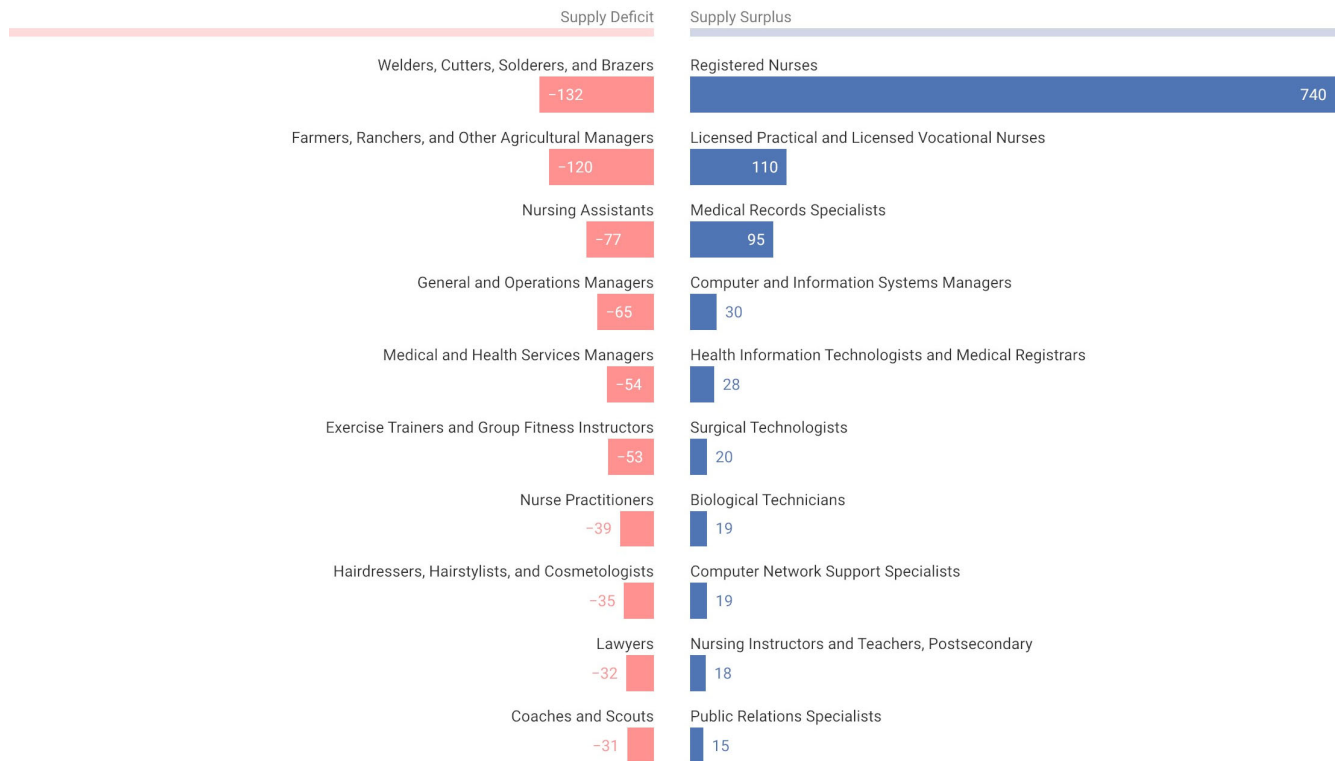


Employment by occupation data are estimates as of 2023Q2. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.



Award gaps 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 are likely underproducing Welders, Agricultural Managers, and Nursing Assistants. There is a substantial oversupply of Registered Nurses completing local postsecondary programs compared to national volumes, suggesting that regional programs likely provide skilled graduates to fill nursing shortages throughout the state. With the region facing a shortage of Registered Nurses while at the same producing a larger-than-typical pool of local Registered Nursing graduates, strategies to retain this strong pool of locally-trained talent may prove beneficial for employers in the region.

Award Gaps, All Occupations, Central Minnesota, 2023Q2



Several occupations have zero unemployed talent in the Central region as of 2023Q2 estimates (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 but one of these roles pay over the regional average of \$57,400 annually.

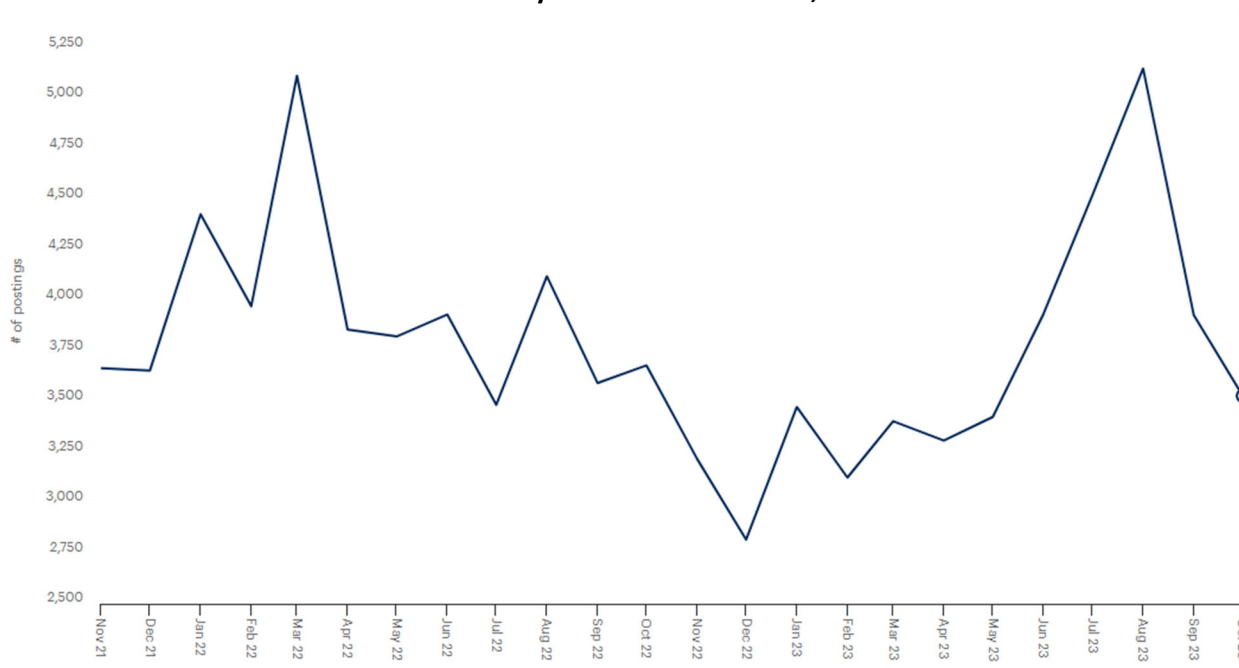
Occupations with No Unemployed Workforce and Employing over 75 Workers, Central Minnesota, 2023Q2

SOC	Occupation	Current						5-Year History		5-Year Forecast				
		Empl	Mean Ann Wages ²	LQ	Unempl	Unempl Rate	30-Day Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Change	Ann % Change
21-2021	Directors, Religious Activities and Education	397	\$59,800	1.42	0	n/a	2	12	0.6%	210	83	125	1	0.1%
11-3012	Administrative Services Managers	371	\$116,200	0.90	0	n/a	1	84	5.3%	160	62	94	5	0.3%
29-1131	Veterinarians	185	\$106,800	1.22	0	n/a	16	30	3.6%	50	20	13	17	1.7%
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	158	\$43,800	1.58	0	n/a	n/a	-10	-1.2%	80	27	54	-1	-0.1%
29-1216	General Internal Medicine Physicians	147	\$329,700	1.15	0	n/a	12	7	1.0%	21	14	7	0	0.0%
49-9043	Maintenance Workers, Machinery	140	\$57,900	1.28	0	n/a	1	2	0.4%	80	35	41	4	0.6%
51-8013	Power Plant Operators	133	\$92,700	2.39	0	n/a	n/a	27	4.6%	48	20	39	-11	-1.7%
19-3034	School Psychologists	129	\$79,200	1.25	0	n/a	28	-18	-2.6%	48	14	35	0	0.0%
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	115	\$71,300	1.88	0	n/a	2	-50	-6.9%	58	18	41	-1	-0.2%
29-1031	Dietitians and Nutritionists	105	\$68,600	0.79	0	n/a	9	0	0.1%	36	18	17	1	0.3%
19-3033	Clinical and Counseling Psychologists	95	\$100,400	0.79	0	n/a	22	18	4.3%	37	15	17	5	1.1%
29-1041	Optometrists	94	\$138,500	1.27	0	n/a	14	10	2.3%	18	10	4	4	0.7%
19-2041	Environmental Scientists and Specialists, Including Health	92	\$80,300	0.71	0	n/a	2	1	0.1%	43	10	32	1	0.3%
51-8011	Nuclear Power Reactor Operators	90	\$127,600	8.67	0	n/a	1	6	1.3%	46	15	30	1	0.3%
13-2081	Tax Examiners and Collectors, and Revenue Agents	80	\$65,600	0.91	0	n/a	18	2	0.5%	35	17	19	0	0.0%
53-4031	Railroad Conductors and Yardmasters	80	\$70,000	1.16	0	n/a	2	-9	-2.1%	35	9	25	0	0.0%
11-1031	Legislators	78	\$61,600	1.11	0	n/a	n/a	4	0.9%	32	12	19	1	0.2%
00-0000	Total - All Occupations	276,338	\$57,400	1.00	12,231	3.4%	13,625	3,296	0.2%	162,336	68,189	93,298	849	0.1%

Job Posting Trends in Central Minnesota

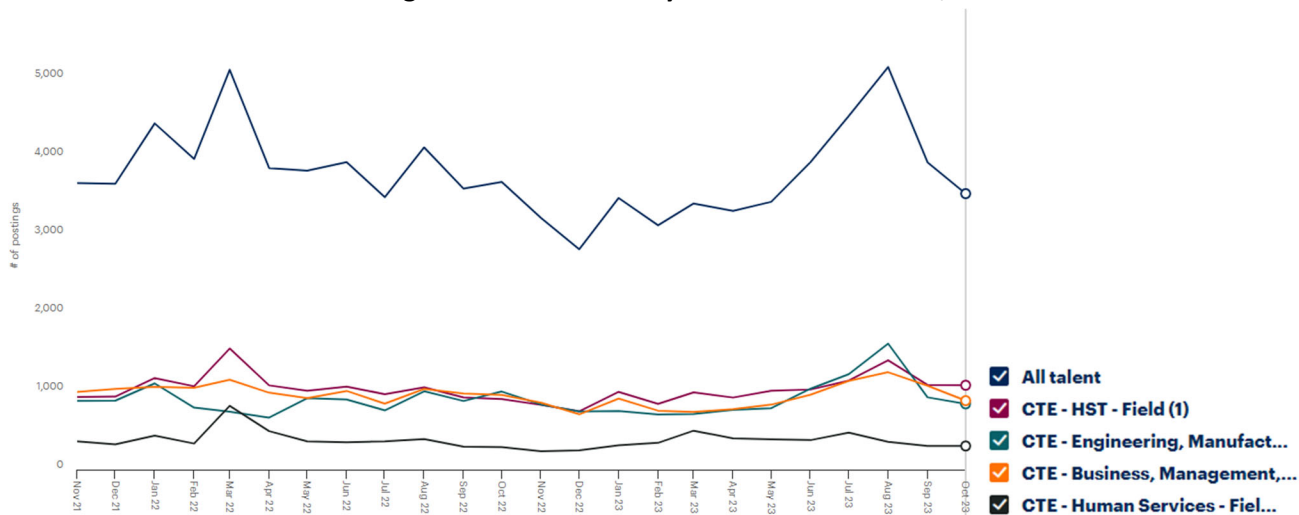
Online job posting data reveals much about employer demand for certain skills, certifications, qualifications, and occupational competencies. From November 1, 2022, through October 31, 2023, there were 43,837 unique job postings advertised online in Central Minnesota on job boards, according to analysis using Gartner TalentNeuron Plan (compared to 512,054 postings statewide). This was -7% lower than the 12 months prior. About 7% of all positions advertised were explicitly listed as remote or telecommute roles—either permanently or temporarily—an increase of two percentage points from the prior year. The share of positions that are remote work opportunities has increased significantly among Information Technology careers in the last year (by nine and five percentage points respectively).

Total Jobs Advertised Monthly in Central Minnesota, October 2022-2023



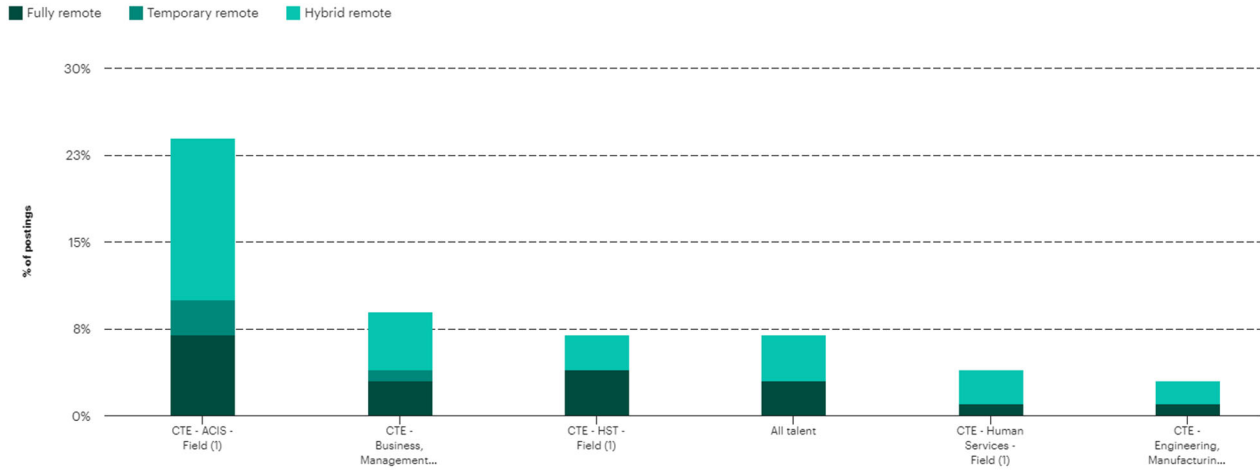
SOURCE: Gartner TalentNeuron Plan accessed 11/14/2023

Total Remote Job Postings Advertised Monthly in Central Minnesota, October 2022-2023



SOURCE: Gartner TalentNeuron Plan accessed 11/14/2023

Remote Job Postings by Career Field Advertised in Central Minnesota, October 2022-2023



Talent Profile	% of postings				
	Unspecified /Onsite	Total remote	Fully remote	Temporary remote	Hybrid remote
CTE - ACIS - Field (1)	76% ▼ -9 pp	24% ▲ 9 pp	7% ▼ -1 pp	3% ▲ 3 pp	14% ▲ 7 pp
CTE - Business, Management, and Administration - Field	91% ▼ -4 pp	9% ▲ 4 pp	3% ▲ 0 pp	1% ▲ 1 pp	5% ▲ 3 pp
CTE - HST - Field (1)	93% ▼ -3 pp	7% ▲ 3 pp	4% ▲ 2 pp	0% ▲ 0 pp	3% ▲ 1 pp
All talent	93% ▼ -2 pp	7% ▲ 2 pp	3% ▲ 0 pp	0% ▲ 0 pp	4% ▲ 2 pp
CTE - Human Services - Field (1)	96% ▲ 3 pp	4% ▼ -3 pp	1% ▼ -4 pp	0% ▲ 0 pp	3% ▲ 1 pp
CTE - Engineering, Manufacturing, and Technology - Field (1)	97% ▼ -1 pp	3% ▲ 1 pp	1% ▲ 0 pp	0% ▲ 0 pp	2% ▲ 1 pp

SOURCE: Gartner TalentNeuron Plan accessed 11/14/2023

Talent accumulates valuable skills in many different ways beyond just work and education, from self-study to apprenticeships and internships, workforce training programs, as well as general life experience, which all develop relevant skills. Assessing experience in terms of skills unearths a person’s qualifications and more clearly identifies training needs. It also helps people recognize the abilities and knowledge they may not know they have. This kind of gap analysis is possible at the occupation level and supports postsecondary planning, workforce development, and employer talent strategy. Most of the newest skills on the rise in regional job postings include specialized technical skills. Core skills have remained consistent with human skills such as communication and relationship management ranking in high importance.

Top Evolving Skills in Central Minnesota, October 2022-2023

<p>New</p> <ol style="list-style-type: none"> 1. Federal tax 2. Clean energy 3. Forgiving <p>New skills whose future is uncertain.</p>	<p>Emerging</p> <ol style="list-style-type: none"> 1. Public sector 2. Curiosity 3. System design <p>Relatively new skills that are becoming more prevalent.</p>	<p>Growing</p> <ol style="list-style-type: none"> 1. Automation <p>Fast-growing skills that are becoming core skills.</p>	<p>Core</p> <ol style="list-style-type: none"> 1. Communication 2. Analysis 3. Leadership <p>Skills that have been present in a high percentage of job postings for some time.</p>	<p>Declining</p> <ol style="list-style-type: none"> 1. Microsoft Word 2. Presentation skills 3. Decision making <p>Skills that used to be essential but are becoming obsolete.</p>
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Career Fields

Business, Management, and Administration accounts for the largest share of employment by career field in the Central region yet are no more concentrated locally than found nationally on average. Agriculture, Food, and Natural Resources, Engineering, Manufacturing, and Technology, and Human Services careers are slightly more concentrated in the Central region than what is typically observed nationwide (LQ of 1.43, 1.15, and 1.02 respectively). Arts, Communications, and Information Systems careers are smallest in local employment volume, but offer the highest average entry-level wages. Health Science Technology careers offer the highest average annual wages at all experience levels.

Unemployment is high in Business, Management, and Administration careers and Engineering, Manufacturing, and Technology careers overall as of 2023Q2, at 3.8% and 3.7% respectively. This is largely due to high unemployment in the Hospitality and Tourism as well as the Architecture and Construction career pathways.

CTE Field Employment and Wages in Central Minnesota, 2023Q2¹

CTE Field (occupation overlap exists, will not sum)	Current 2023Q2 Estimates							5-Year History	
	2023Q2 Empl	2023 Avg Entry-Level Wages	2023 Avg Ann Wages	LQ	Unempl	Unempl Rate	Online Job Ads	Empl Change	Ann %
							9/25/2023- 10/25/2023 ³		
Health Science Technology	25,133	\$37,000	\$83,100	1.00	667	2.0%	2,623	-1,061	-0.8%
Human Services	43,691	\$39,600	\$53,400	1.02	1,386	2.7%	1,894	739	0.3%
Arts, Communications, and Information Systems	7,565	\$51,100	\$75,400	0.59	243	2.4%	406	-335	-0.9%
Business, Management, and Administration	111,725	\$36,600	\$52,900	0.91	5,535	3.8%	5,370	825	0.1%
Engineering, Manufacturing, and Technology	77,929	\$41,600	\$56,000	1.15	4,095	3.7%	3,204	3,170	0.8%
Agriculture, Food, and Natural Resources*	20,586	\$39,700	\$57,300	1.43	749	3.0%	448	881	0.9%
Total - All Occupations	276,338	\$30,700	\$57,400	1.00	12,231	3.4%	13,625	3,296	0.2%

Data as of 2023Q2 unless noted otherwise

Note: Figures may not sum due to rounding. 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 within the last thirty days 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.

Pessimistic Baseline Employment Forecast for Central Minnesota, 2028Q2

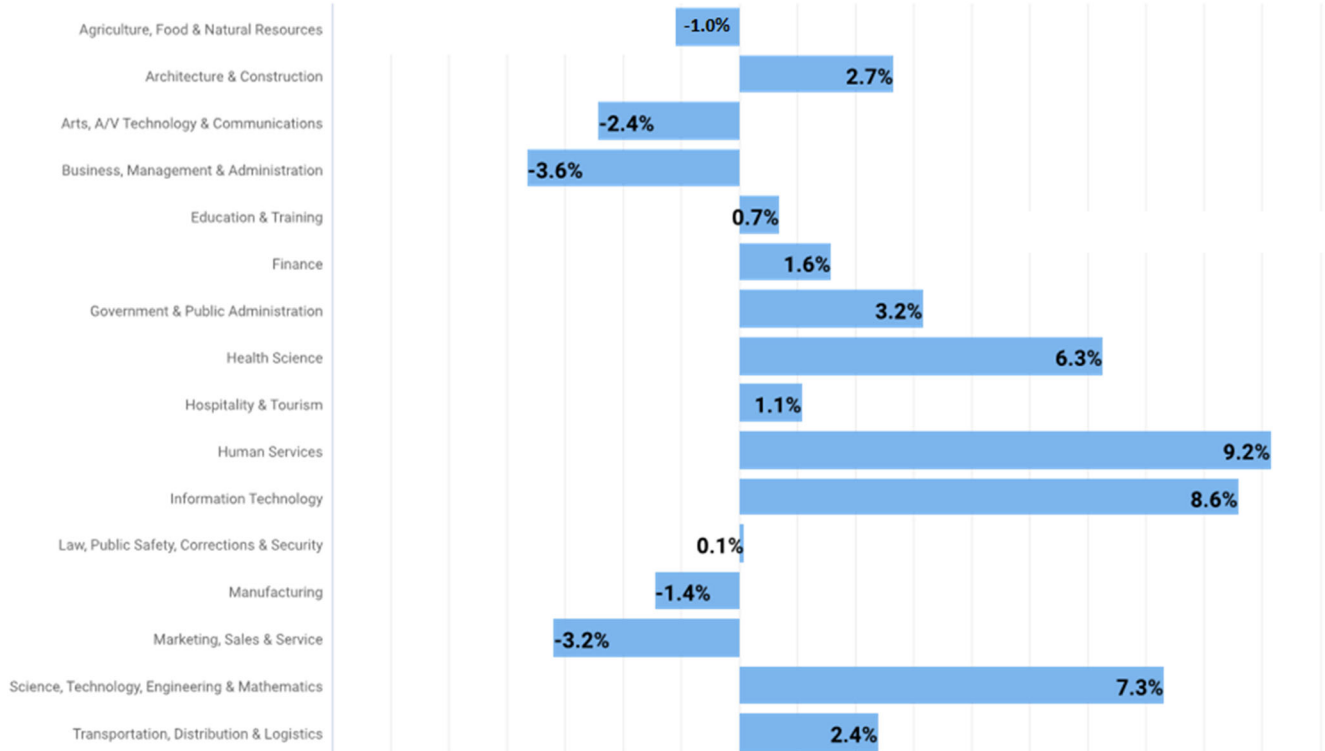
CTE Field (occupation overlap exists, will not sum)	Current 2023Q2 Empl	Total Demand	5-Year Growth 2028Q2			
			Exits	Transfers	Empl Change	Ann % Change
Health Science Technology	25,133	11,602	5,002	5,832	768	0.6%
Human Services	43,691	24,444	10,986	12,649	809	0.4%
Arts, Communications, and Information Systems	7,565	3,417	1,192	2,112	113	0.3%
Business, Management, and Administration	111,725	73,841	32,203	42,766	-1,128	-0.2%
Engineering, Manufacturing, and Technology	77,929	42,889	15,873	26,577	439	0.1%
Agriculture, Food, and Natural Resources*	20,586	12,154	5,047	7,229	-121	-0.1%
Total - All Occupations	276,338	162,336	68,189	93,298	849	0.1%

*Supply gaps in parentheses indicate the number of trained workers we expect to fall short of the baseline talent needed to see the employment growth officially forecasted by the Bureau of Labor Statistics (BLS) and MN DEED. Represents skill mismatch in the region. Positive number indicates likely unemployment due to talent surplus. ** This focused, or narrow definition of Agriculture, Food, and Natural Resources (AFNR) aligns with classic definitions of the sector by MN DEED and BLS Agriculture, Fishing, and Forestry specific roles. The sector analysis found further in this report highlights a broader, more inclusive definition of AFNR, which is reflected in the sub-industry definition of AFNR included here.

Career Cluster Detail

Of sixteen career clusters used by Career and Technical Education (CTE), six are forecast to decline in overall employment over the next ten years as of 2023Q2 estimates. Human Services, Information Technology, and Science, Technology, Engineering and Mathematics clusters are forecasting the highest growth over the next ten years (9.2%, 8.6%, and 7.3% respectively). All clusters except saw fairly substantial declines in forecast employment outlook, except for STEM, Information Technology, and Transportation, Distribution, and Logistics. Ten of the sixteen career clusters have average wages above the average occupation wage in the region (\$57,400 in 2023—an increase of \$5,200 from 2022).⁴

Baseline 10-Year Forecasts by Career Cluster, Central Minnesota, 2023Q2



Cluster forecasts estimated using Chmura, JobsEQ, based on 2023Q2 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 taken into account. In the Central region, 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.

The Science, Technology, Engineering and Mathematics cluster has the highest wages of the Career Clusters followed by the Information Technology and Finance clusters.

⁴ Clusters paying an average salary higher than the regional average occupation wage include Science, Technology, Engineering, and Mathematics, Information Technology, Finance, Health Science, Government and Public Administration, Law, Public Safety, Corrections, and Security, Business, Management, and Administration, Architecture and Construction, Arts, A/V Technology and Communications, and Agriculture, Food, and Natural Resources.



Employment, Wages, and Forecast by Career Cluster, 2023Q2

Career Cluster	Employment	Avg Ann Wages	Job Ads	Baseline 10-Year Forecasted Empl Change	Ann Empl Change	Ann Total Demand
Science, Technology, Engineering & Mathematics	3,011	\$95,700	260	7.3% (+)	21	228
Information Technology	3,976	\$89,600	288	8.6% (+)	33	321
Finance	7,333	\$83,500	357	1.6%	11	649
Health Science	25,133	\$83,100	2,562	6.3%	151	2,304
Law, Public Safety, Corrections & Security	6,037	\$65,500	300	0.1%	0	594
Government & Public Administration	2,107	\$65,200	90	3.2%	6	215
Business, Management & Administration	42,900	\$64,800	1,603	-3.6%	-163	4,666
Architecture & Construction	23,872	\$63,900	449	2.7%	60	2,436
Arts, A/V Technology & Communications	3,589	\$59,700	106	-2.4%	-10	362
Agriculture, Food & Natural Resources*	20,586	\$57,300	429	-1.0%	-12	1,215
Education & Training	19,166	\$56,700	536	0.7%	12	1,770
Manufacturing	28,703	\$50,600	1,393	-1.4%	-44	3,103
Marketing, Sales & Service	29,436	\$49,400	1,380	-3.2%	-98	3,839
Transportation, Distribution & Logistics	22,343	\$49,100	996	2.4% (+)	51	2,803
Human Services	16,380	\$43,500	949	8.6%	142	2,289
Hospitality & Tourism	32,056	\$33,000	1,863	1.1%	31	5,651
Total - All Occupations	276,338	\$57,400	13,254	1.0%	158	32,450

*Cluster forecasts estimated using Chmura, JobsEQ, based on 2023Q2 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. (+) indicates an improved forecast from 2022Q2 estimates.

Priorities by Career Field

Health Science Technology

Critical Issues:

- Continued shortage of nurses (projected annual talent shortage of at least 28 Registered Nurses in most favorable scenario)
- Unique high local concentration
- Continued shortage of graduates needed to fill Nursing Assistant roles (shortage of at least 77 graduates)

Human Services

Critical Issues:

- High share of workforce over-credentialed for the roles they currently hold
- Critical occupations of shortage such as Elementary and Secondary School Teachers and Mental Health Counselors
- Aging workforce and increasing retirement rates, exodus of educators due to challenges brought on by the pandemic

Arts, Communications, and Information Technology

Critical Issues:

- Occupations in this field offer the highest average entry-level wages
- Increasing unemployment (up 0.3 percentage points from the previous year)
- Continued award gaps, emphasizing the importance of addressing these shortages in graduate talent pipelines
- Continued shortage of software developers expected, an additional 110 are forecast to be added over the next three years

Business, Management, and Administration

Critical Issues:

- Largest volume of employment by career field
- Highest unemployment in the Central region (3.8%)
- Shortages in management roles – there is a need for a pathway, also highly concentrated locally
- Underproducing at least 65 graduates annually needed to fill open General and Operations Managers in the region

Engineering, Manufacturing, and Technology

Critical Issues:

- All but one of the ten top occupations by employment volume have forecasted growth over the next three years
- High unemployment (3.7%)
- Aging talent signaling exacerbation of talent shortage due to upcoming retirements with 47% of workers in this field 45 years or older
- Continued forecasted shortages of Heavy and Tractor-Trailer Truck Drivers

Agriculture, Food, and Natural Resources

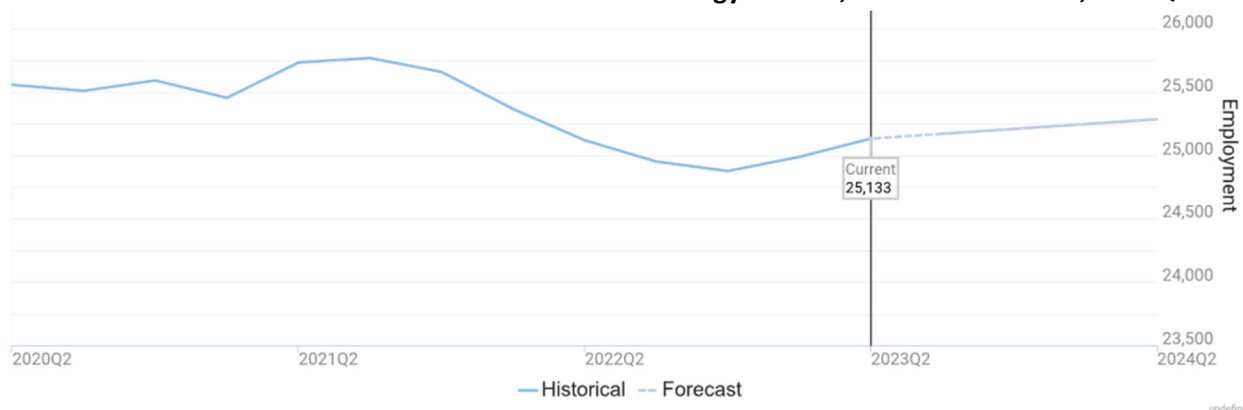
Critical Issues:

- Uniquely highly concentrated in the Central region (LQ 1.43)
- No available Veterinarian workforce (0% unemployed), also facing award gaps
- Regional colleges and universities are underproducing at 120 graduates annually that are needed to fill Farmers, Ranchers, and Other Agricultural Manager positions

Health Science Technology

Over the next three years, Health Science Technology employment is forecast to grow by 0.6% on average annually, a drop from last year's projected 1.0% growth.

Baseline 3-Year Forecast for Health Science Technology Careers, Central Minnesota, 2023Q2



Top Ten Health Science Technology Occupations by Employment Volume in Central Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Registered Nurses	5,882	\$90,200	1.09	-11	347	0.2%
Nursing Assistants	2,662	\$40,100	1.15	-290	403	0.1%
Home Health Aides	1,723	\$31,000	1.03	-274	230	1.6%
Licensed Practical and Licensed Vocational Nurses	1,311	\$53,200	1.18	-196	109	0.2%
Medical Secretaries and Administrative Assistants	1,162	\$44,300	0.98	41	139	0.3%
Medical Assistants	951	\$43,700	0.72	50	145	1.0%
Medical and Health Services Managers	798	\$111,400	0.92	29	84	2.2%
Pharmacy Technicians	684	\$42,600	0.90	-6	65	0.3%
Pharmacists	550	\$137,500	0.98	-10	23	0.2%
Dental Assistants	546	\$56,400	0.87	45	83	0.6%
Remaining Component Occupations	8,858	\$114,000	0.99	202	670	0.7%
Health Science (CTE Field)	25,133	\$83,100	1.00	-424	2,304	0.6%

"Annual Demand" is the projected need for new entrants into an occupation. 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 Growth" 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).

Most talent in Central Minnesota working in Health Science Technology roles are employed by General Medical and Surgical Hospitals (38.4%, increased slightly from last year's 37.8%), Office of Physicians (13.4%), and Nursing Care Facilities (10.5%).



Health Science Technology Field Employment by Industry, Central Minnesota, 2023Q2

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	38.4%	9,641	7,083	258	7,341
Offices of Physicians	13.4%	3,361	2,622	269	2,890
Nursing Care Facilities (Skilled Nursing Facilities)	10.5%	2,628	2,880	-53	2,827
Offices of Dentists	5.0%	1,257	1,256	80	1,335
Offices of Other Health Practitioners	4.4%	1,111	908	165	1,073
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.4%	863	873	49	922
Individual and Family Services	3.4%	846	1,022	239	1,261
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	2.8%	715	877	108	985
Home Health Care Services	2.8%	701	710	161	872
Other Professional, Scientific, and Technical Services	2.6%	665	730	134	864
Health and Personal Care Retailers	2.4%	592	452	-2	450
Elementary and Secondary Schools	1.9%	468	337	14	351
Outpatient Care Centers	1.2%	296	251	65	315
Executive, Legislative, and Other General Government Support	0.8%	193	163	7	170
Other Residential Care Facilities	0.7%	174	180	3	184
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	0.7%	169	132	-2	129
Colleges, Universities, and Professional Schools	0.7%	167	118	7	125
Employment Services	0.6%	141	124	5	130
Grocery and Convenience Retailers	0.5%	129	99	1	100

Career Field Demographics

The Health Science Technology field is predominantly female (81.8%) and white (90.6%), but racial diversity grew by another 1.3 percentage points from the prior years' estimates due to growth in the field's workforce identifying with two or more races or as Black. The age distribution of talent in Health Science Technology is comparable to prior estimates, with some ageing and an additional 0.3 percentage points of the population 55 or older compared to the prior years' estimates.

Age

Central Minnesota



Minnesota



16 to 19 years (1.5%)
20 to 24 years (9.3%)

25 to 34 years (22.3%)
35 to 44 years (23.4%)

45 to 54 years (21.2%)
55 to 64 years (17.7%)
65 years and over (4.6%)

Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.



Race

Central Minnesota



Minnesota



- White (90.6%)
- Black (4.3%)
- American Indian (0.3%)
- Asian (2.4%)
- Pacific Islander (0.1%)
- Two or More Races (2.3%)

Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



- Non-Hispanic/Latino (98.3%)
- Hispanic or Latino (of any race) (1.7%)

Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



- Male (18.2%)
- Female (81.8%)

Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Educational Attainment and Requirements

The stacked bar charts here illustrate the estimated mix of educational attainment of the workers in this career field in aggregate, followed by the typical education and training requirements in the field. Generally, the Central Minnesota Health Science Technology workforce has a fairly close match to the education and training required for existing roles. For example, 18.0% of Health Science Technology positions require no educational award (up 0.3 percentage points from the prior years’ estimates), and about 15.3% of the workforce holds only a high school diploma or less. About 27.9% of the Health Science Technology workforce hold a two-year degree and 15.7% completed some college (such as a certificate), or 43.6% in all, compared to about 33.8% of local jobs in Health Science Technology that typically require a certificate two-year degree. Health Science Technology positions in Central Minnesota education requirements have shifted slightly from previous year’s estimates, showing an increase in the number of positions requiring a Postgraduate degree (18.7%, up from last year’s 17.3%).



Educational Attainment

Central Minnesota



Minnesota



- < High School (1.6%)
- Some College (15.7%)
- Four-Year (24.0%)
- High School (13.7%)
- Two-Year (27.9%)
- Master's (7.4%)
- PhD (9.8%)

Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Education and Training Requirements

Central Minnesota



Minnesota



- Short-term OJT, no exp, no award (9.3%)
- Long-term training, no exp, no award (0.8%)
- 2-year degree or certificate (33.8%)
- Moderate-term OJT, no exp, no award (7.9%)
- Previous work experience, no award (0.0%)
- Bachelor's degree (29.5%)
- Postgraduate degree (18.7%)

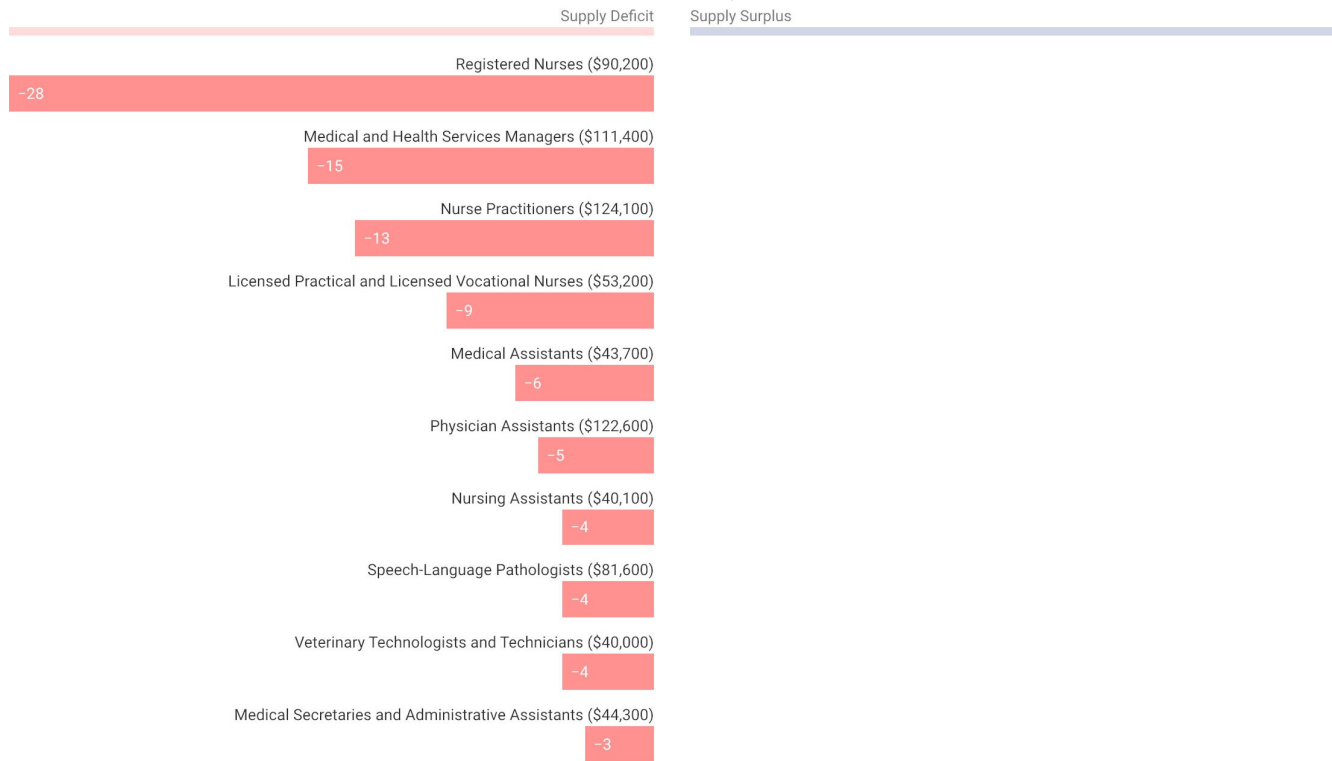
Data for Health Science (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Occupation Gaps

In Health Science Technology, Registered Nurses and Medical and Health Services Managers are the two occupations with the greatest annual shortages in the Central region. There are three new occupations of shortage in the Central region including Nursing Assistants, Veterinary Technologists and Technicians, and Medical Secretaries and Administrative Assistants. There is no longer a slight surplus of Medical Transcriptionists or Veterinary Assistants and Laboratory Animal Caretakers.



Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, Central Minnesota, 2023Q2

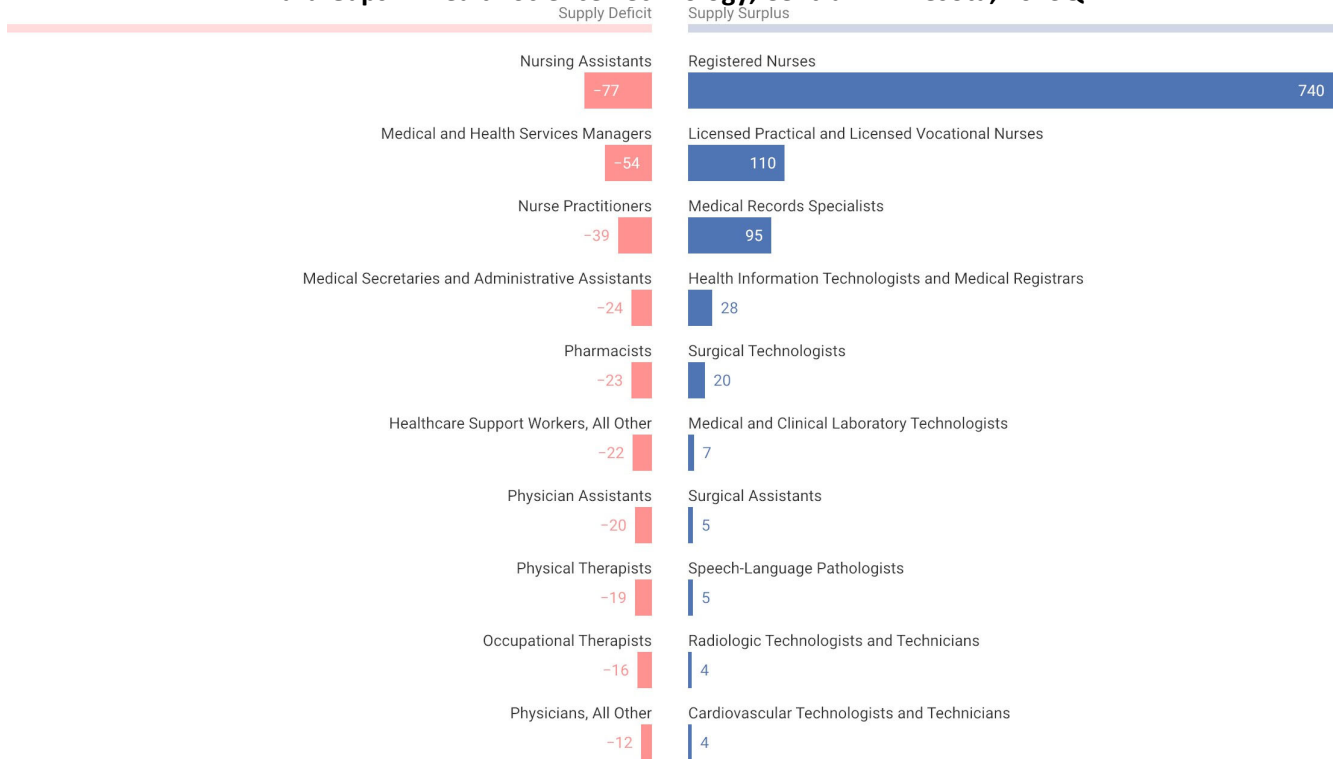


Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a few moderate shortages and some general misalignments. Central Minnesota has several Health Science Technology award gaps, meaning that the region is underproducing local talent in relation to employer demand. Central colleges and universities are underproducing about 77 Nursing Assistant graduates and 54 Medical and Health Services Manager graduates annually that are needed to fill positions open with employers in the region. A broad number of other roles that typically require a two-year professional degree are forecasting local shortages. Occupations that show higher awards given than what is currently needed in the local talent market are examples of programs that serve other parts of the state where talent demand is high but relevant programs may not exist, such as Registered Nurses and Licensed Practical and Licensed Vocational Nurses. The oversupply of graduates in the Central region is likely helping to meet award gaps found in the 7-county MSP Metro and elsewhere.



Award Gaps in Health Science Technology, Central Minnesota, 2023Q2



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, 2023Q2

Target Occupations (all HW, HD, HS)
 Registered Nurses (OG)
 Medical & Health Services Managers (OG, AG)
 Pharmacists (OG, AG)
 Nurse Practitioners (OG, AG)
 Dental Hygienists (OG, AG)

Gateway Occupations

Licensed Practical Nurses (HS, HD, OG)
 Dental Assistants (HS, HD, OG, AG)
 Athletic Trainers (HS, HD, OG)
 Therapists, All Other (HS, OG, AG)
 Occupational Therapy Assistant (HS, HD, AG)

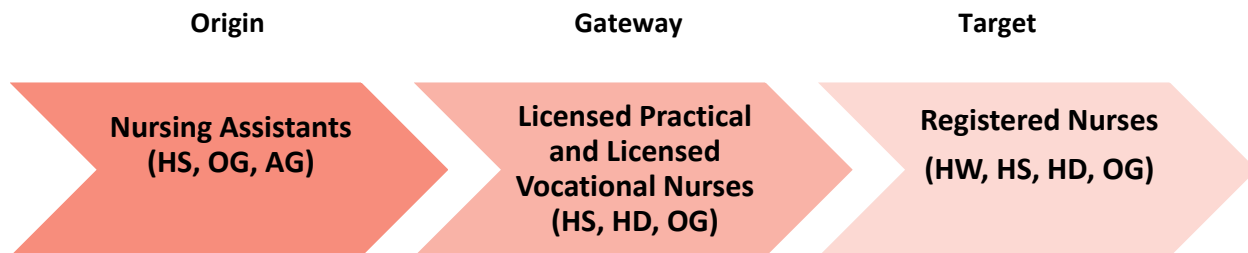
Origin Occupations

Nursing Assistants (HS, OG, AG)
 Home Health Aides (HD)
 Medical Secretaries & Administrative Assistants (HD, OG, AG)
 Medical Assistants (HS, HD, OG, AG)
 Pharmacy Technicians (OG)

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

Featured Pathway

A promising Health Science Technology pathway in the Central region is the pathway to become a Registered Nurse. The Target occupation of Registered Nurse is highly 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 Nurses are also locally concentrated in the Central region (LQ 1.18) and are also experiencing an occupation gap and are in high demand. The Origin occupation of Nursing Assistant is an example of a potential feeder occupation into these roles, given overlapping foundational skillsets and training required. This role is also facing an award and occupation gap. Stackability of credentials is vital to building viable career pathways up to Registered Nursing positions at the AS, BSN, or MSN levels.

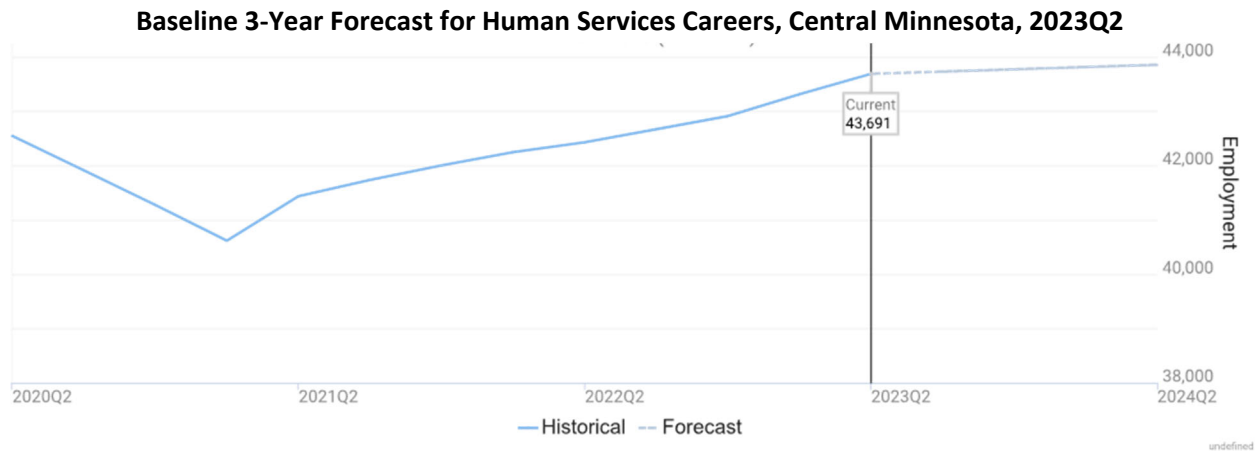


OGT Wages and Experience Level Requirements, Health Science Technology, Central Minnesota, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
29-1141	Registered Nurses	5,882	\$90,200	\$72,600	\$99,000	\$67,700	\$80,700	\$85,800	\$104,200	\$106,500	BA	None	None
11-9111	Medical and Health Services Managers	798	\$111,400	\$74,900	\$129,700	\$71,800	\$83,200	\$102,200	\$126,300	\$154,700	BA	<5 years	None
29-1051	Pharmacists	550	\$137,500	\$116,100	\$148,200	\$108,800	\$128,300	\$136,300	\$158,400	\$169,100	PhD	None	None
29-1171	Nurse Practitioners	408	\$124,100	\$102,500	\$134,900	\$102,100	\$106,900	\$126,200	\$134,900	\$143,200	MA	None	None
29-1292	Dental Hygienists	387	\$82,400	\$79,000	\$84,200	\$78,800	\$79,600	\$81,100	\$84,700	\$92,100	AS	None	None
29-2061	Licensed Practical and Licensed Vocational Nurses	1,311	\$53,200	\$45,500	\$57,000	\$43,900	\$48,600	\$52,300	\$57,600	\$62,600	Certificate	None	None
31-9091	Dental Assistants	546	\$56,400	\$48,500	\$60,400	\$46,400	\$52,300	\$56,600	\$59,900	\$69,000	Certificate	None	None
29-9091	Athletic Trainers	65	\$56,500	\$46,900	\$61,300	\$46,200	\$49,400	\$57,200	\$59,100	\$64,200	MA	None	None
29-1129	Therapists, All Other	63	\$51,000	\$37,400	\$57,800	\$37,300	\$39,200	\$48,300	\$50,300	\$76,300	BA	None	None
31-2011	Occupational Therapy Assistants	62	\$54,200	\$47,200	\$57,700	\$45,500	\$50,300	\$53,800	\$57,500	\$64,000	AS	None	None
31-1131	Nursing Assistants	2,662	\$40,100	\$33,700	\$43,200	\$33,300	\$35,000	\$38,200	\$42,400	\$46,300	Certificate	None	None
31-1121	Home Health Aides	1,723	\$31,000	\$27,500	\$32,800	\$27,200	\$28,200	\$30,200	\$34,000	\$36,400	HS/GED	None	Short-term OJT
43-6013	Medical Secretaries and Administrative Assistants	1,162	\$44,300	\$37,800	\$47,600	\$37,300	\$39,200	\$43,000	\$47,800	\$52,300	HS/GED	None	Moderate-term OJT
31-9092	Medical Assistants	951	\$43,700	\$36,000	\$47,600	\$34,400	\$39,200	\$43,900	\$47,500	\$51,000	Certificate	None	None
29-2052	Pharmacy Technicians	684	\$42,600	\$35,700	\$46,000	\$35,000	\$37,500	\$41,400	\$47,100	\$53,000	HS/GED	None	Moderate-term OJT

Human Services

Over the next three years, Human Services employment is forecast to grow by 0.4% annually – a dip from last year’s 2022Q2 estimated 1.2% growth. A total of 43,691 people are employed in Human Services roles regionally, accounting for 16.3% of all regional employment. The field’s average wage is \$53,400—lagging the regional average across all occupations (\$57,400).



Top Ten Human Services Occupations by Employment Volume in Central Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Personal Care Aides	4,886	\$31,000	1.03	661	789	1.6%
Teaching Assistants, Except Postsecondary	3,941	\$36,400	1.85	84	457	-0.1%
Elementary School Teachers, Except Special Education	3,071	\$63,200	1.31	73	223	0.0%
Secondary School Teachers, Except Special and Career/Technical Education	2,274	\$64,000	1.29	57	154	0.0%
Childcare Workers	2,066	\$29,600	1.49	-69	340	-0.1%
Middle School Teachers, Except Special and Career/Technical Education	1,294	\$63,700	1.27	31	94	0.0%
Preschool Teachers, Except Special Education	1,222	\$37,200	1.45	64	136	0.3%
Police and Sheriff’s Patrol Officers	1,038	\$72,900	0.94	19	86	0.2%
Social and Human Service Assistants	918	\$41,700	1.30	-7	116	0.9%
Hairdressers, Hairstylists, and Cosmetologists	771	\$39,900	0.81	-13	115	0.7%
Remaining Component Occupations	22,214	\$61,400	0.85	248	2,348	0.3%
Human Services (CTE Field)	43,691	\$53,400	1.02	1,142	4,862	0.4%

“Annual Demand” is the projected need for new entrants into an occupation. 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 Growth” 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).



The largest share of regional Human Services talent in the Central region is employed by Elementary and Secondary Schools (34.3%, an increase from last year's 32.7%) or Executive, Legislative, and Other General Government Support (9.1%). The Individual and Family Services industry continues to have high forecasted growth and replacement demand needs.

Human Services Field Employment by Industry, Central Minnesota, 2023Q2

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%	14,971	13,472	-32	13,441
Executive, Legislative, and Other General Government Support	9.1%	3,961	3,722	28	3,750
Individual and Family Services	7.1%	3,116	4,345	839	5,184
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	5.4%	2,352	2,988	110	3,098
Child Care Services	5.0%	2,169	2,925	-35	2,890
Religious Organizations	3.8%	1,654	1,782	14	1,795
Personal Care Services	3.1%	1,356	1,899	134	2,034
Colleges, Universities, and Professional Schools	3.0%	1,292	1,155	37	1,193
Justice, Public Order, and Safety Activities	2.9%	1,266	1,167	-6	1,160
Other Residential Care Facilities	1.9%	838	1,057	6	1,062
Home Health Care Services	1.7%	745	1,103	164	1,268
Other Schools and Instruction	1.5%	672	843	32	875
General Medical and Surgical Hospitals	1.5%	653	639	3	642
Legal Services	1.3%	580	440	6	446
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.2%	541	810	119	929
Civic and Social Organizations	1.1%	485	751	13	764
Other Amusement and Recreation Industries	1.1%	472	805	59	865
Administration of Human Resource Programs	1.0%	434	408	7	414
Offices of Other Health Practitioners	1.0%	430	451	88	539
Vocational Rehabilitation Services	0.7%	324	339	-33	306
All Others	12.3%	5,382	6,189	148	6,337

Career Field Demographics

The Human Services field is predominantly female (67.7%) and white (92.3%). The share of the Human Services workforce that is female declined by 1.4 percentage points from the 2022Q2 estimates. About 46.2% of the Human Services workforce in the region is between the ages of 35 and 54, an increase of 1.2 percentage points.

Age

Central Minnesota



Minnesota



16 to 19 years (2.8%)

25 to 34 years (19.5%)

45 to 54 years (23.1%)

20 to 24 years (8.3%)

35 to 44 years (23.1%)

55 to 64 years (17.9%)

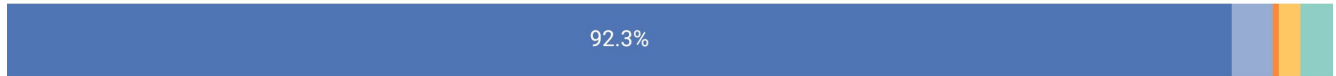
65 years and over (5.2%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Race

Central Minnesota



Minnesota



- White (92.3%)
- Black (3.1%)
- American Indian (0.4%)
- Asian (1.7%)
- Pacific Islander (0.0%)
- Two or More Races (2.4%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



- Non-Hispanic/Latino (98.1%)
- Hispanic or Latino (of any race) (1.9%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



- Male (32.3%)
- Female (67.7%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Educational Attainment and Requirements

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate, followed by a chart illustrating the typical education requirements of positions. In general, the Central region Human Services workforce is over skilled for the typical credentials of entry-level positions. For example, 2.4% of the Human Services workforce have no diploma at all, and 16.3% hold a high school diploma as their highest credential. In contrast, about 44.1% of positions in this field do not require any kind of postsecondary award or credential – down 0.1 percentage point from the prior year estimates.

Educational Attainment

Central Minnesota



Minnesota



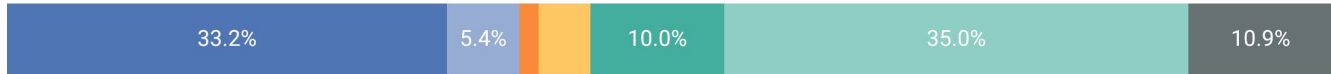
- < High School (2.4%)
- High School (16.3%)
- Some College (14.6%)
- Two-Year (15.5%)
- Four-Year (29.4%)
- Master's (17.0%)
- PhD (4.8%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Education and Training Requirements

Central Minnesota



Minnesota



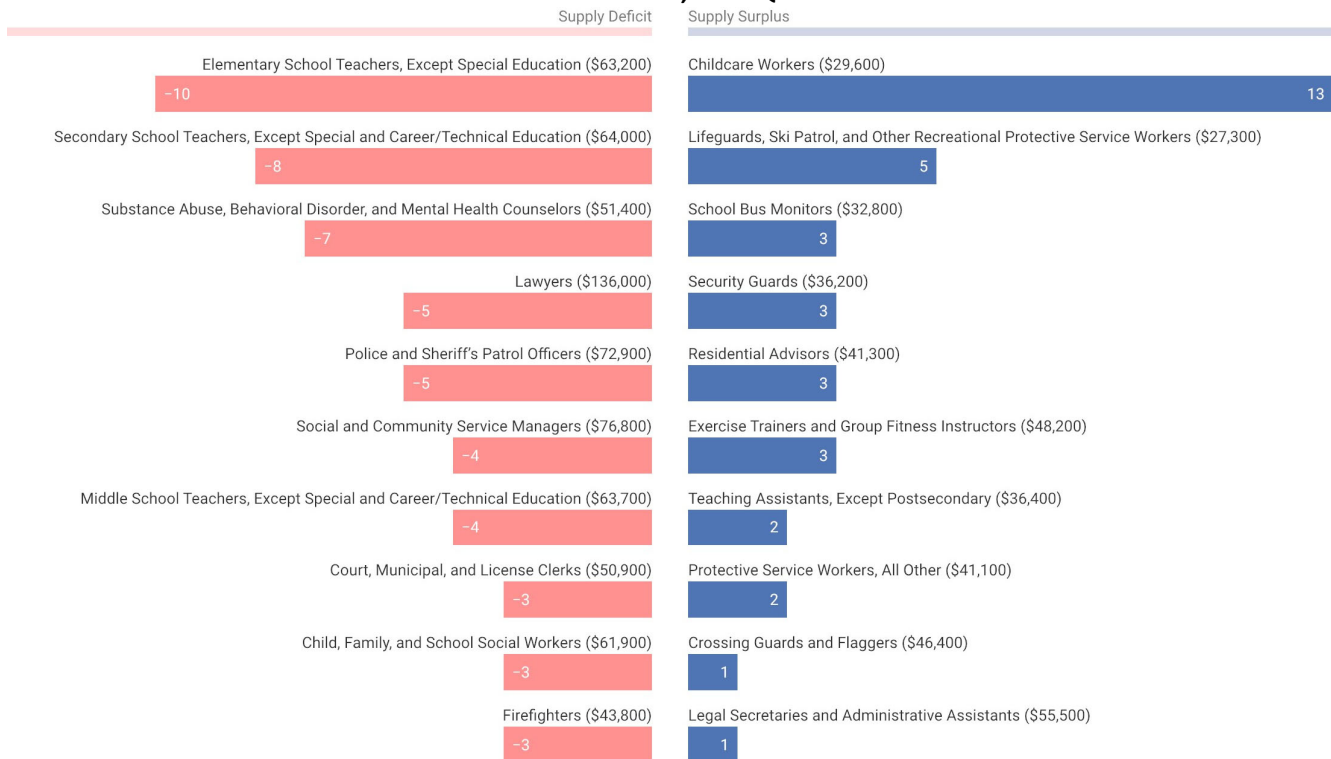
- Short-term OJT, no exp, no award (33.2%)
- Moderate-term OJT, no exp, no award (5.4%)
- Long-term training, no exp, no award (1.5%)
- Previous work experience, no award (4.0%)
- 2-year degree or certificate (10.0%)
- Bachelor's degree (35.0%)
- Postgraduate degree (10.9%)

Data for Human Services (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Occupation Gaps

The chart below shows the potential average annual talent shortages over ten years. In Human Services, Elementary School Teachers, Secondary School Teachers, and Mental Health Counselors are the top occupations of shortage in the region (the same as the previous year). These critical talent shortages in education and mental health counseling have shifted due in large part to forecasted employment growth and replacement demand needs due to retirements combined with a general exodus of talent from these occupations due to the challenges brought on by the pandemic. Talent surplus indicated in blue columns to the right should be considered with caution, as several surplus scenarios are indications of broken systems (i.e. Childcare Workers) rather than true labor surplus.

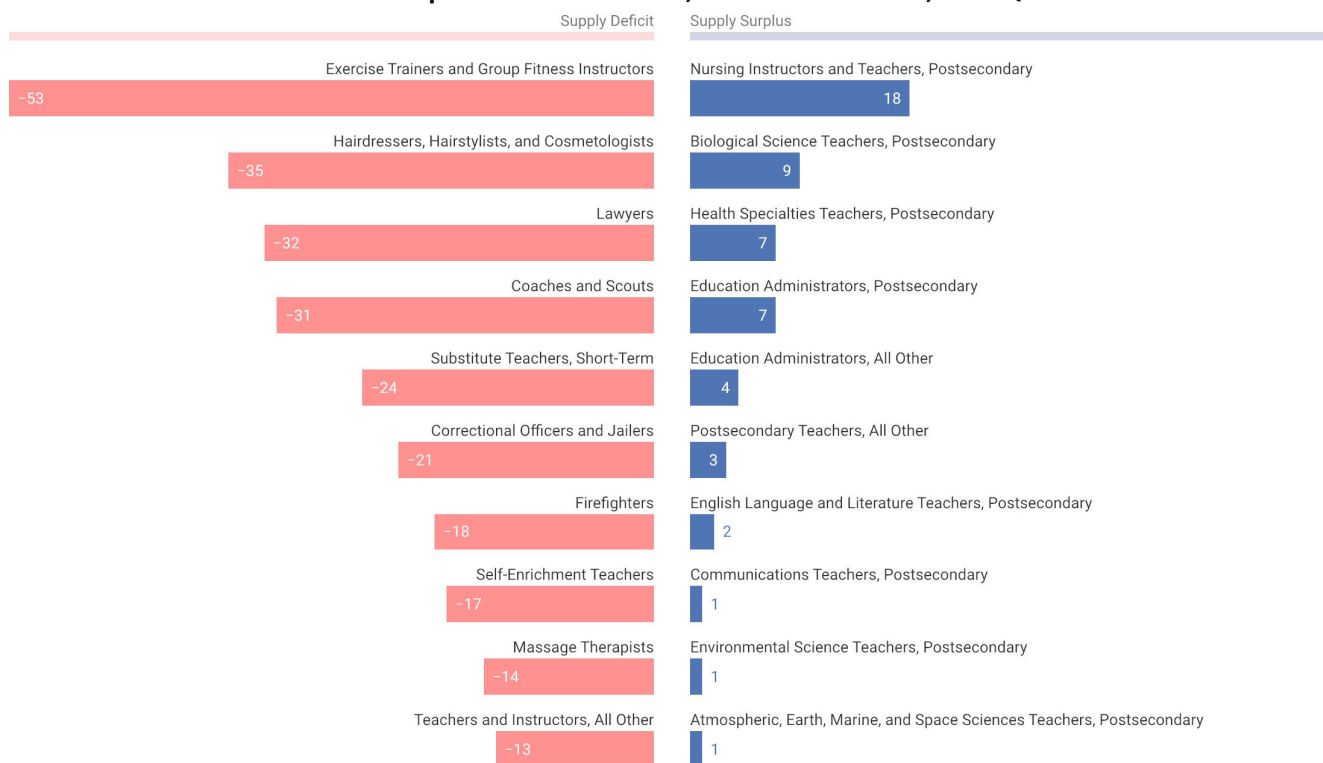
Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, Central Minnesota, 2023Q2



Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a number of shortages. Central Minnesota faces several notable Human Services award gaps, meaning that the region is underproducing local talent in relation to employer demand. Central colleges and universities are underproducing about 53 graduates annually that are needed to fill Exercise Trainers and Group Fitness Instructor positions open with employers based in the region, a decrease of 11 graduates from last year's estimates. Childcare Workers previously saw the greatest shortage of graduates in the region but is no longer in the top ten this year. They are also underproducing at least 35 Cosmetologist roles, and at least 32 Lawyers. Occupations that show higher awards given than what is currently needed in the local talent market are examples of programs that serve other parts of the state where talent demand is high but relevant programs may not exist.

Award Gaps in Human Services, Central Minnesota, 2023Q2



Origin-Gateway-Target

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



Origin-to-Gateway-to-Target Occupations for Human Services, Central Minnesota, 2023Q2

Target Occupations (all HW, HS, HD)

Child, Family, & School Social Workers (OG)
 Lawyers (OG, AG)
 Social & Community Service Managers (OG)
 Compliance Officers (OG)
 Guidance & Career Counselors (OG)

Gateway Occupations

Substance Abuse, Behavioral Disorder, & Mental Health Counselors (HS, HD, OG)
 Substitute Teachers (HS, HD, AG)
 Correctional Officers (AG)
 License Clerks (HD, OG)
 Clergy (HS, OG, AG)

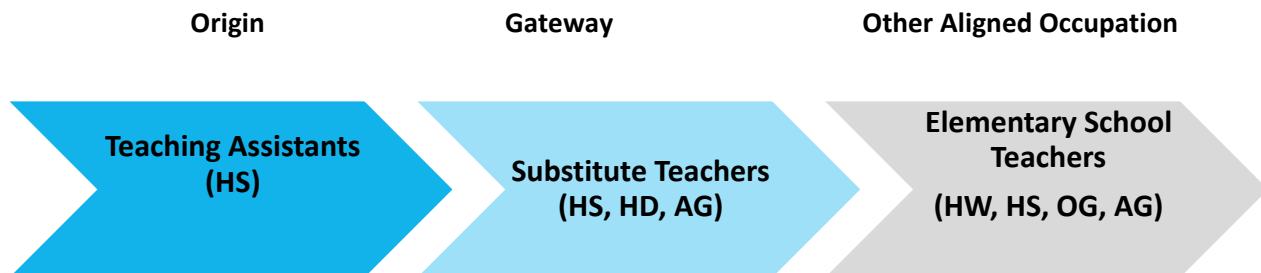
Origin Occupations

Personal Care Aides (HD, AG)
 Teaching Assistants (HS)
 Childcare Workers (AG)
 Preschool Teachers (HS, HD, OG)
 Social & Human Service Assistants (HD)

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

Featured Pathway

A potential pathway to explore in the Central region is Elementary School Teachers. This occupation is high wage and faces both an occupation and award gap. It is also highly concentrated locally in Central Minnesota with a location quotient of 1.31. The Gateway occupation of Substitute Teachers is also concentrated locally (LQ 1.10) and is in high demand and facing an award gap. A potential feeder Origin occupation for both of these roles is Teaching Assistants and is highly concentrated locally with LQ of 1.85.



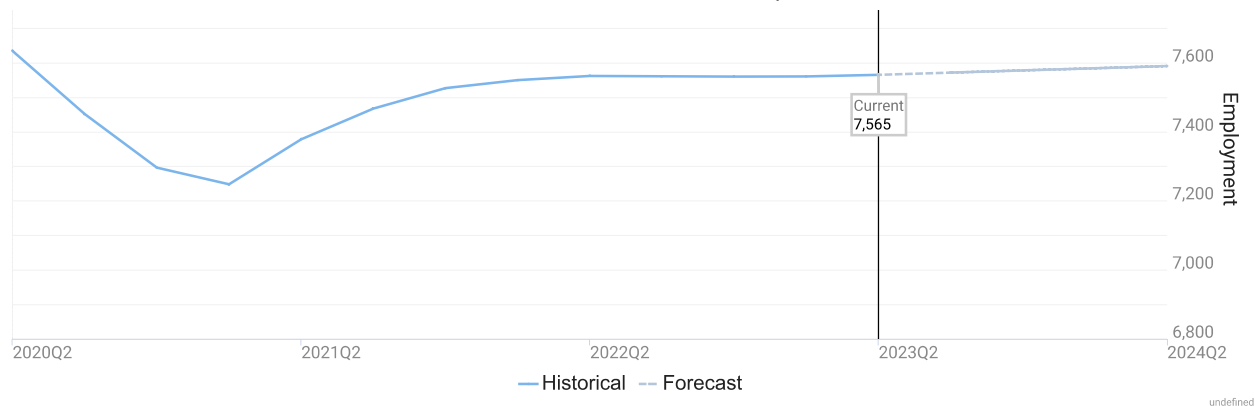
OGT Wages and Experience Level Requirements, Human Services, Central Minnesota, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
21-1021	Child, Family, and School Social Workers	658	\$61,900	\$43,300	\$71,200	\$41,300	\$48,400	\$59,900	\$74,600	\$87,500	BA	None	None
23-1011	Lawyers	613	\$136,000	\$76,100	\$165,900	\$70,200	\$90,200	\$118,900	\$168,900	\$232,000	JD	None	None
11-9151	Social and Community Service Managers	448	\$76,800	\$52,000	\$89,200	\$49,700	\$58,300	\$73,100	\$92,700	\$110,100	BA	<5 years	None
13-1041	Compliance Officers	387	\$73,100	\$49,600	\$84,800	\$47,100	\$56,000	\$70,300	\$86,500	\$105,600	BA	None	Mod-term OJT
21-1012	Educational, Guidance, and Career Counselors and Advisors	379	\$60,400	\$46,200	\$67,600	\$46,200	\$48,300	\$59,400	\$69,600	\$83,300	MA	None	None
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	758	\$51,400	\$41,900	\$56,100	\$39,800	\$45,400	\$47,700	\$57,400	\$66,700	BA	None	None
25-3031	Substitute Teachers, Short-Term	752	\$46,200	\$31,500	\$53,600	\$27,700	\$36,000	\$39,200	\$45,500	\$61,300	BA	None	None
33-3012	Correctional Officers and Jailers	661	\$55,200	\$46,000	\$59,700	\$45,200	\$48,300	\$53,400	\$62,100	\$70,100	HS/GED	None	Mod-term OJT
43-4031	Court, Municipal, and License Clerks	640	\$50,900	\$40,700	\$56,000	\$39,300	\$43,600	\$48,700	\$57,900	\$62,200	HS/GED	None	Long-term OJT
21-2011	Clergy	562	\$57,100	\$41,500	\$64,900	\$39,800	\$45,600	\$56,100	\$63,400	\$78,200	BA	None	Mod-term OJT
31-1122	Personal Care Aides	4,886	\$31,000	\$27,500	\$32,800	\$27,200	\$28,200	\$30,200	\$34,000	\$36,400	HS/GED	None	Short-term OJT
25-9045	Teaching Assistants, Except Postsecondary	3,941	\$36,400	\$29,600	\$39,800	\$28,300	\$32,100	\$36,300	\$40,700	\$44,700	Certificate	None	None
39-9011	Childcare Workers	2,066	\$29,600	\$24,800	\$32,000	\$23,800	\$26,300	\$28,700	\$32,000	\$36,200	HS/GED	None	Short-term OJT
25-2011	Preschool Teachers, Except Special Education	1,222	\$37,200	\$29,700	\$41,000	\$28,800	\$31,700	\$35,000	\$38,500	\$49,200	AS	None	None
21-1093	Social and Human Service Assistants	918	\$41,700	\$33,300	\$45,900	\$32,400	\$35,400	\$39,000	\$47,000	\$56,300	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. Over the next three years, Arts, Communications, and Information Systems Field employment is forecast to grow by 0.3% annually, a decline from last year’s projection of 0.6%. Current employment sits at 7,565 for talent in this field, with about 243 unemployed, trained professionals in the region (2.4% unemployment rate, an increase of 0.3 percentage points from last year). Among careers in Information Technology, growth is forecast to continue to be high. Software Developers continues to be the occupation of largest employment in the region for this field; in 2022Q2 employment of Software Developers was 1,703 workers, dropping to 1,221 as of 2023Q2. An additional 110 Software Developers are forecast to be added to local businesses annually over the next three years.

Baseline Worst-Case Scenario 3-Year Forecast for Arts, Communications, and Information Systems Careers, Central Minnesota 2023Q2



Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume in Central, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Software Developers	1,221	\$107,100	0.44	58	110	2.0%
Computer User Support Specialists	683	\$60,900	0.55	21	52	-0.1%
Computer Systems Analysts	520	\$97,400	0.59	-25	39	0.4%
Graphic Designers	414	\$59,700	0.90	-11	37	0.0%
Printing Press Operators	400	\$49,300	1.52	-31	37	-1.3%
Computer Network Support Specialists	332	\$73,200	1.12	3	26	0.2%
Photographers	270	\$54,300	1.07	22	26	0.6%
Musicians and Singers	262	\$89,000	0.89	-12	34	0.1%
Network and Computer Systems Administrators	258	\$84,300	0.45	-11	17	-0.2%
Computer Occupations, All Other	253	\$86,100	0.34	0	20	0.4%
Remaining Component Occupations	2,953	\$66,800	0.71	-85	283	-0.1%
Arts, Communications, & Information Systems (CTE Field)	7,565	\$75,400	0.59	-69	680	0.3%

“Annual Demand” is the projected need for new entrants into an occupation. 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 Growth” 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).



The largest share of talent in the Central that is working in Arts, Communications, and Information Systems roles are employed by Printing and Related Support Activities (7.9%) or Computer Systems Design and Related Services (5.9%). Overall, employment is relatively spread out across many different industries.

Arts, Communications, and Information Systems Field Employment by Industry, Central Minnesota, 2023Q2

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	7.9%	599	591	-107	484
Computer Systems Design and Related Services	5.9%	449	341	82	424
Independent Artists, Writers, and Performers	4.9%	373	392	14	407
Religious Organizations	4.2%	318	347	1	348
Depository Credit Intermediation	3.8%	288	208	29	237
Wired and Wireless Telecommunications (except Satellite)	3.6%	273	259	5	265
Software Publishers	3.6%	269	204	51	256
Other Professional, Scientific, and Technical Services	3.3%	249	222	17	239
Management of Companies and Enterprises	3.2%	241	185	31	217
Newspaper, Periodical, Book, and Directory Publishers	2.7%	207	193	-38	154
Elementary and Secondary Schools	2.5%	192	146	-4	141
General Medical and Surgical Hospitals	2.5%	189	136	1	138
Web Search Portals, Libraries, Archives, and Other Information Services	2.1%	159	123	41	164
Executive, Legislative, and Other General Government Support	2.1%	159	119	2	122
Other Miscellaneous Manufacturing	2.0%	149	137	10	147
Colleges, Universities, and Professional Schools	1.8%	136	107	0	106
Employment Services	1.5%	114	88	5	93
Advertising, Public Relations, and Related Services	1.5%	111	114	9	123
Radio and Television Broadcasting Stations	1.5%	111	98	-23	75
Building Equipment Contractors	1.5%	110	109	-3	106
All Others	38.0%	2,872	2,489	129	2,618

Career Field Demographics

The Arts, Communications, and Information Systems field is predominantly male (69.4%, decreasing by 2.0 percentage points from the prior year) and white (91.0%), diversity decreased by 0.5 percentage points from the prior year. The age of the workforce in this field skews young, about half of the Arts, Communications, and Information Systems workforce in the region is between the ages of 25 and 44 (49.8%).

Age

Central Minnesota



Minnesota



16 to 19 years (1.7%)

25 to 34 years (23.9%)

45 to 54 years (21.4%)

20 to 24 years (7.0%)

35 to 44 years (25.9%)

55 to 64 years (16.2%)

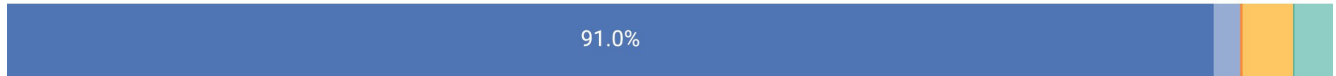
65 years and over (4.0%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Race

Central Minnesota



Minnesota



- White (91.0%)
- Black (2.1%)
- American Indian (0.2%)
- Asian (3.8%)
- Pacific Islander (0.0%)
- Two or More Races (2.9%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



- Non-Hispanic/Latino (98.4%)
- Hispanic or Latino (of any race) (1.6%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



- Male (69.4%)
- Female (30.6%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Educational Attainment and Requirements

The stacked bar charts here illustrate the estimated mix of educational attainment of the workers in this career field in aggregate, followed by the typical education and training requirements in the field. Over half 60.2% (down from last year’s 62.4%) of all occupations in this field require a Bachelor’s degree, while 42.9% of the workforce hold a four-year degree as their highest credential. Another 14.9% hold a Master’s or PhD.

Educational Attainment

Central Minnesota



Minnesota



- < High School (1.2%)
- High School (12.0%)
- Some College (13.2%)
- Two-Year (15.8%)
- Four-Year (42.9%)
- Master's (13.1%)
- PhD (1.8%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Education and Training Requirements

Central Minnesota



Minnesota



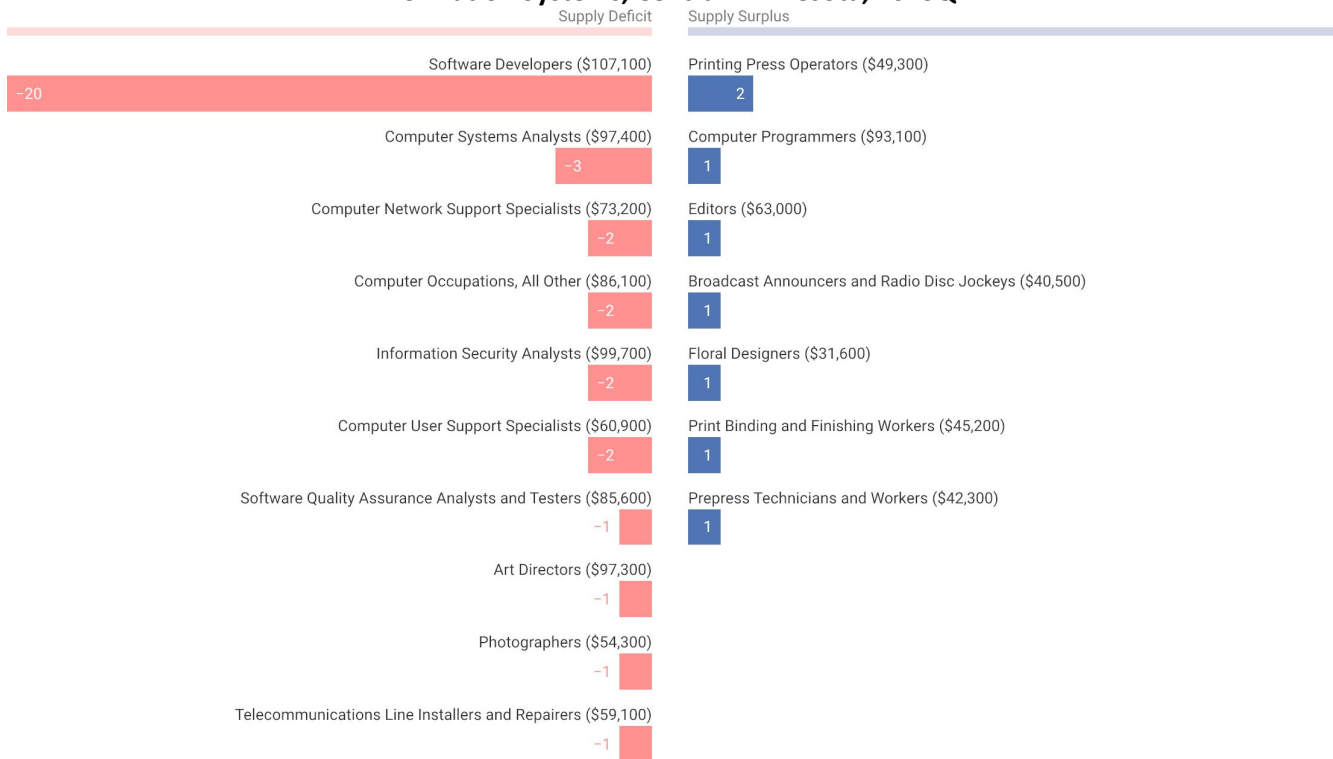
- Short-term OJT, no exp, no award (1.3%)
- Long-term training, no exp, no award (7.5%)
- 2-year degree or certificate (10.2%)
- Moderate-term OJT, no exp, no award (20.7%)
- Previous work experience, no award (0.1%)
- Bachelor's degree (60.2%)
- Postgraduate degree (0.0%)

Data for Arts, Communications, & Information Systems (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Occupation Gaps

The chart below shows the potential average annual talent shortages over ten years. Software Developers are the top occupation of shortage in this field, falling short at least 20 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. Computer Systems Analysts has the second greatest forecasted shortage.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Arts, Communications. And Information Systems, Central Minnesota, 2023Q2

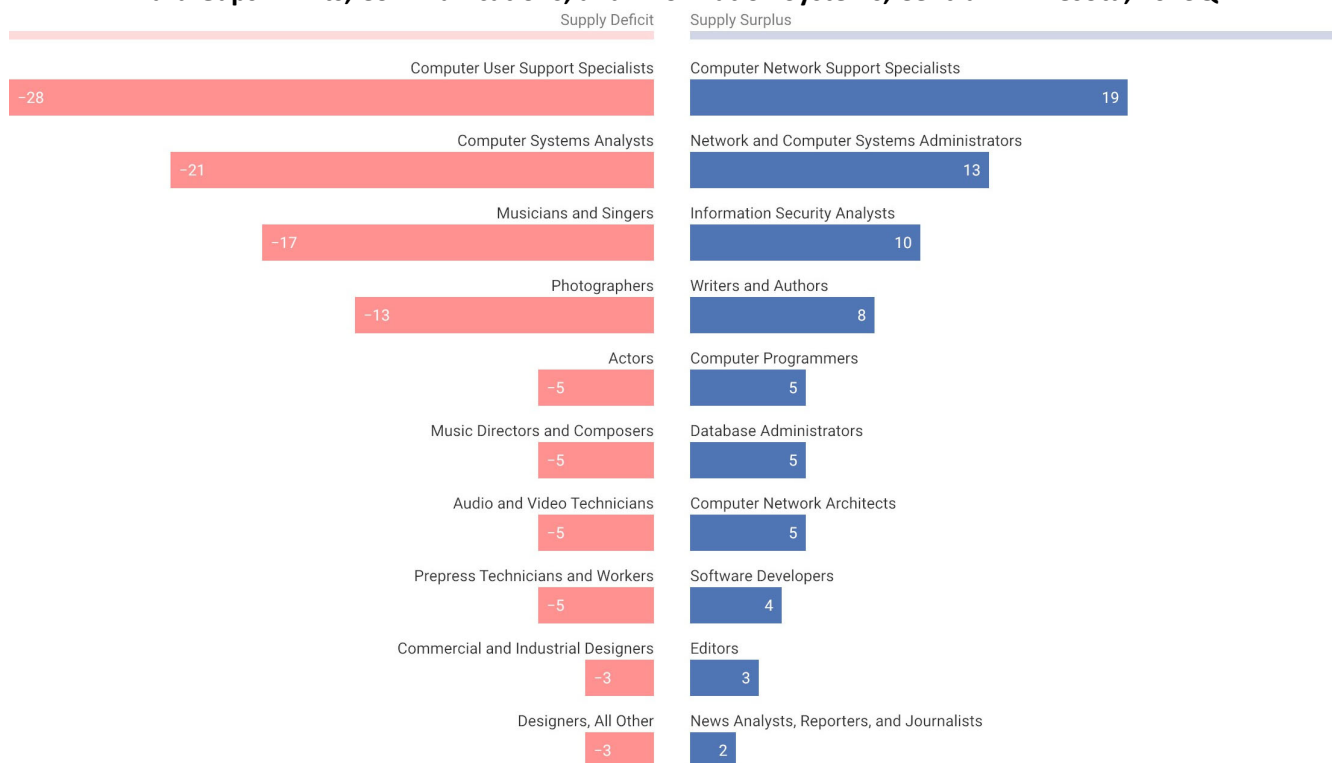




Award Gaps

A comparison of the graduate talent pipeline obtaining a certificate or postsecondary degree to the current estimated openings by occupation illuminate several regional shortages. The Central region is underproducing graduates in several Arts, Communications, and Information Systems programs in comparison to national benchmarks, meaning that the region is underproducing local talent in relation to what a typical community with a similar local mix of job opportunities would have. Central Minnesota colleges and universities are underproducing trained Computer User Support Specialists, Computer Systems Analysts, and Musicians and Singers measured against national benchmarks. The award gaps identified as of 2023Q2 are consistent with what was observed in prior years, further emphasizing the importance of addressing these longstanding shortages in graduate talent pipelines. Information Technology is the career cluster with the largest number and volumes of postsecondary award gaps in comparison to national benchmarks. Occupations that show higher awards given than what is currently needed in the local talent market are examples of programs that serve other parts of the state where talent demand is high but relevant programs may not exist.

Award Gaps in Arts, Communications, and Information Systems, Central Minnesota, 2023Q2



Origin-Gateway-Target

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, 2023Q2

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

Software Developers
 Computer Systems Analysts (AG)
 Computer Network Support Specialists
 Computer Occupations, All Other (OG)
 Telecommunications Equipment Installers (OG, AG)

Gateway Occupations

Printing Press Operators (AG)
 Photographers (OG, AG)
 Print Binding & Finishing Workers
 Reporters & Journalists (HS)
 Designers, All Other (HS, HD, AG)

Origin Occupations

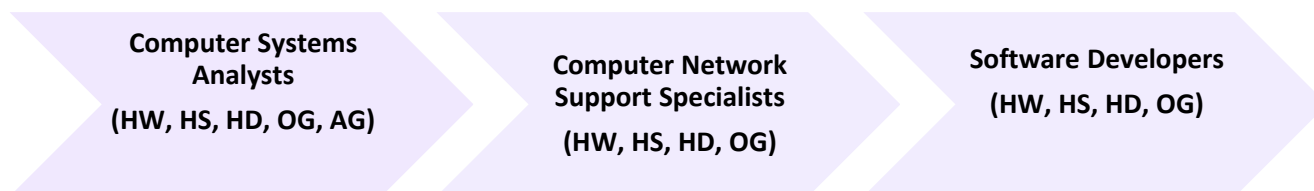
Prepress Technicians & Workers (HS, AG)
 Floral Designers
 Broadcast Announcers & Radio Disc Jockeys (HS)
 Disc Jockeys, Except Radio (HD, AG)
 Dancers (HD, AG)

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

Featured Pathway

With a projected occupation gap, high wages, and high demand, the occupation of Software Developers is a promising pathway to explore in the Central region. Another Target occupation with related skillsets is Computer Network Support Specialists and this occupation is highly concentrated in the Central region with a location quotient of 1.12. The Target occupation of Computer Systems Analyst is also in high demand and facing both an occupation and award gap in the Central region. Each of these occupations feed into one another. There are not in-field Origin or Gateway occupations, but entry-level customer services and office support roles may have transferrable skills.

Target



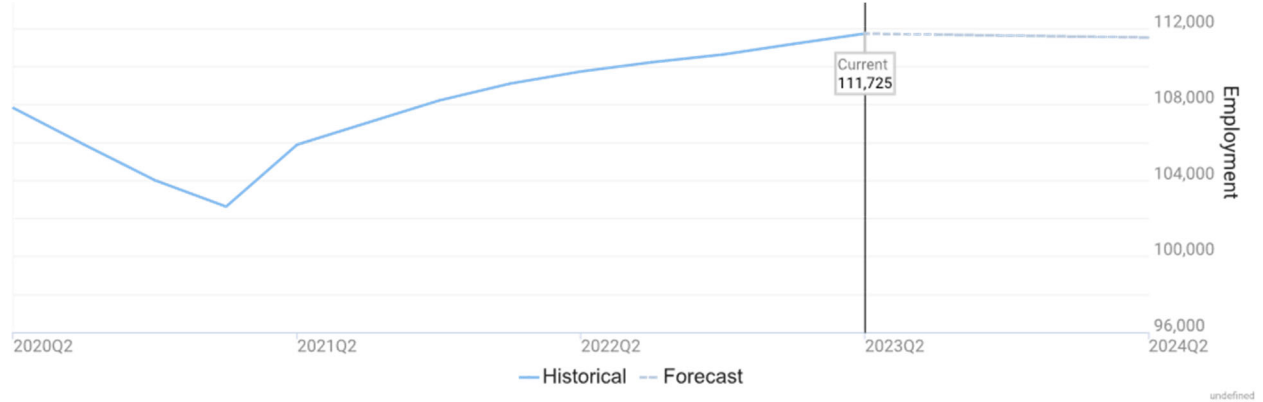
OGT Wages and Experience Level Requirements, Arts, Communications, and Information Systems, Central Minnesota, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
15-1252	Software Developers	1,221	\$107,100	\$75,600	\$122,900	\$70,900	\$86,000	\$104,100	\$127,800	\$149,900	BA	None	None
15-1211	Computer Systems Analysts	520	\$97,400	\$68,800	\$111,800	\$64,800	\$78,000	\$95,700	\$113,800	\$132,100	BA	None	None
15-1231	Computer Network Support Specialists	332	\$73,200	\$53,300	\$83,100	\$49,300	\$60,900	\$69,900	\$82,100	\$99,800	AS	None	Mod-term OJT
15-1299	Computer Occupations, All Other	253	\$86,100	\$45,700	\$106,400	\$36,900	\$57,900	\$85,300	\$110,100	\$134,700	BA	None	None
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	170	\$59,200	\$41,500	\$68,100	\$38,700	\$47,600	\$60,500	\$72,700	\$75,600	Certificate	None	Mod-term OJT
51-5112	Printing Press Operators	400	\$49,300	\$35,700	\$56,100	\$34,000	\$39,500	\$47,200	\$58,500	\$67,500	HS/GED	None	Mod-term OJT
27-4021	Photographers	270	\$54,300	\$33,800	\$64,600	\$34,100	\$35,400	\$46,000	\$63,300	\$87,600	HS/GED	None	Mod-term OJT
51-5113	Print Binding and Finishing Workers	113	\$45,200	\$37,400	\$49,100	\$37,100	\$39,300	\$47,100	\$50,300	\$56,800	HS/GED	None	Mod-term OJT
27-3023	News Analysts, Reporters, and Journalists	62	\$48,000	\$31,000	\$56,500	\$30,600	\$32,500	\$37,800	\$50,700	\$70,900	BA	None	None
27-1029	Designers, All Other	55	\$45,300	\$28,000	\$53,900	\$27,800	\$29,000	\$32,800	\$60,800	\$84,000	BA	None	None
51-5111	Prepress Technicians and Workers	117	\$42,300	\$32,300	\$47,200	\$30,800	\$35,300	\$39,800	\$48,500	\$58,400	Certificate	None	None
27-1023	Floral Designers	97	\$31,600	\$25,800	\$34,600	\$25,100	\$27,100	\$30,500	\$34,100	\$39,700	HS/GED	None	Mod-term OJT
27-3011	Broadcast Announcers and Radio Disc Jockeys	69	\$40,500	\$24,400	\$48,600	\$23,900	\$25,000	\$37,500	\$47,000	\$54,500	BA	None	None
27-2091	Disc Jockeys, Except Radio	34	\$42,000	\$25,100	\$50,500	\$22,800	\$27,100	\$36,500	\$50,100	\$78,300	HS/GED	None	Short-term OJT
27-2031	Dancers	20	\$38,200	\$24,400	\$45,100	\$22,800	\$25,900	\$34,400	\$46,000	\$61,100	None	None	Long-term OJT

Business, Management, and Administration

Business, Management, and Administration is a diverse career field with Hospitality and Tourism, Finance, Administration, Human Resources, and Marketing careers. Compared to the forecast provided in 2021Q1, the recovery of this field’s careers is impressive; 109,789 were employed in the field in 2022Q2, rising to 111,725 in 2023Q2. Over the next three years, Business, Management, and Administration Field employment is forecast to decline by -0.2%.

Baseline Worst-Case Scenario 3-Year Forecast for Business, Management, and Administration Careers, Central Minnesota, 2023Q2



Top Ten Business, Management, and Administration Systems Occupations by Employment Volume in Central Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Cashiers	7,582	\$29,400	1.33	44	1,311	-1.0%
Retail Salespersons	7,122	\$35,100	1.12	-32	1,007	-0.2%
General and Operations Managers	5,979	\$99,000	1.01	685	532	0.2%
Fast Food and Counter Workers	5,683	\$29,500	0.98	150	1,227	0.0%
Office Clerks, General	4,721	\$43,700	1.05	-13	537	-0.9%
Stockers and Order Fillers	4,469	\$35,500	0.92	405	801	0.6%
Customer Service Representatives	4,053	\$43,300	0.81	193	513	-0.9%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	4,029	\$36,000	1.00	150	557	0.0%
Waiters and Waitresses	3,629	\$26,400	0.96	354	711	-0.4%
First-Line Supervisors of Retail Sales Workers	3,053	\$48,300	1.28	249	299	-0.8%
Remaining Component Occupations	61,401	\$61,000	0.88	1,724	7,295	-0.1%
Business, Management, & Administration (CTE Field)	111,725	\$52,900	0.91	3,911	14,782	-0.2%

“Annual Demand” is the projected need for new entrants into an occupation. 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 Growth” 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).

Many different industries rely on Business, Management, and Administration talent. In the Central region, the industries with the greatest share of Business, Management, and Administration talent are Restaurants (14.8%, 0.3 percentage points more than the prior year), Warehouse Clubs, Supercenters, and Other General Merchandise Retailers (4.6%, down 0.1 percentage points from the prior year). These two industries account for a substantial amount of talent demand over the next ten years (restaurants alone accounts for well over



half of future positions needing to be filled in this field), but overall both current employment and future growth are relatively spread out over many different industries.

Business, Management, and Administration Field Employment by Industry, Central Minnesota, 2023Q2

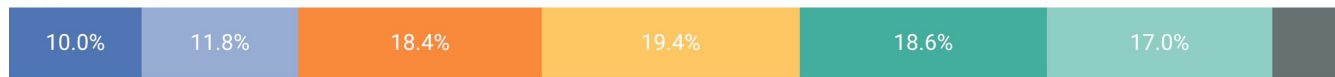
Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Restaurants and Other Eating Places	14.8%	16,573	30,353	246	30,598
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	4.6%	5,191	7,912	-164	7,748
Grocery and Convenience Retailers	4.0%	4,429	7,162	-111	7,051
Gasoline Stations	4.0%	4,421	7,337	-303	7,035
Depository Credit Intermediation	2.9%	3,295	3,121	-127	2,994
Elementary and Secondary Schools	2.6%	2,919	3,830	-189	3,641
Building Material and Supplies Dealers	2.1%	2,354	3,367	24	3,390
General Medical and Surgical Hospitals	2.0%	2,248	2,744	-113	2,631
Traveler Accommodation	2.0%	2,179	3,344	-47	3,298
Services to Buildings and Dwellings	1.9%	2,146	2,820	9	2,829
Executive, Legislative, and Other General Government Support	1.8%	2,029	2,443	-100	2,342
Automobile Dealers	1.4%	1,604	1,981	-33	1,948
Other Amusement and Recreation Industries	1.4%	1,571	2,882	116	2,998
Drinking Places (Alcoholic Beverages)	1.4%	1,546	2,599	-9	2,590
Agencies, Brokerages, and Other Insurance Related Activities	1.3%	1,413	1,412	50	1,462
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1.2%	1,328	1,293	-27	1,266
Religious Organizations	1.2%	1,308	1,481	-65	1,416
Grocery and Related Product Merchant Wholesalers	1.1%	1,271	1,491	7	1,498
Department Stores	1.1%	1,234	1,878	-50	1,828
Nursing Care Facilities (Skilled Nursing Facilities)	1.1%	1,200	1,694	-78	1,616
All Others	46.1%	51,466	58,748	-1,076	57,672

Career Field Demographics

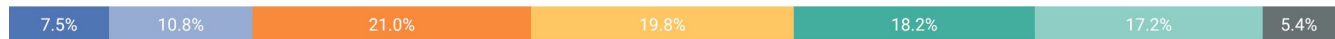
The Business, Management, and Administration field has a slightly higher concentration of female workers at 56.7% of the workforce (58.5% last year) and is 92.8% White (down from 93.2% in 2022Q2). About 2.7% of the workforce is Hispanic or Latinx. The age of the workforce is evenly dispersed, with about 21.8% of the field's workforce 24 years old or younger, and 21.8% 55 or older.

Age

Central Minnesota



Minnesota



16 to 19 years (10.0%)

25 to 34 years (18.4%)

45 to 54 years (18.6%)

20 to 24 years (11.8%)

35 to 44 years (19.4%)

55 to 64 years (17.0%)

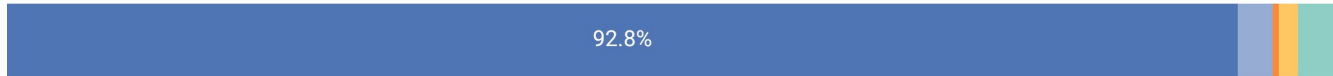
65 years and over (4.8%)

Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

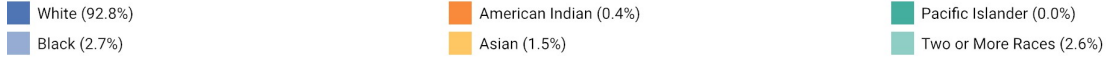


Race

Central Minnesota



Minnesota



Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Educational Attainment and Requirements

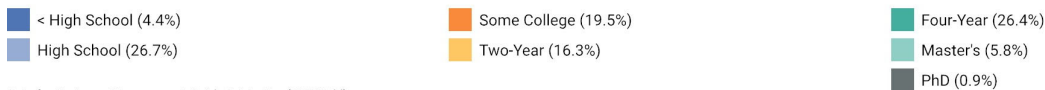
The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate, followed by a chart illustrating the typical education requirements of positions. In general, consistent with data from 2022Q2, the Central Minnesota Business, Management, and Administration workforce is more likely to have a two-year degree than what is in demand. While 16.3% of the workforce holds a two-year degree, just 0.2% of the occupations in this field require a two-year degree. Nearly two-thirds of all positions in this field (58.0%) require no degree, no experience, and only short-term on-the-job training. Another 20.4% require experience or some on-the-job training, but still no degree. In contrast, only 4.4% of the workforce in this field has no degree at all, and 26.7% hold a high school diploma as their highest credential.

Educational Attainment

Central Minnesota



Minnesota



Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Education and Training Requirements

Central Minnesota



Minnesota



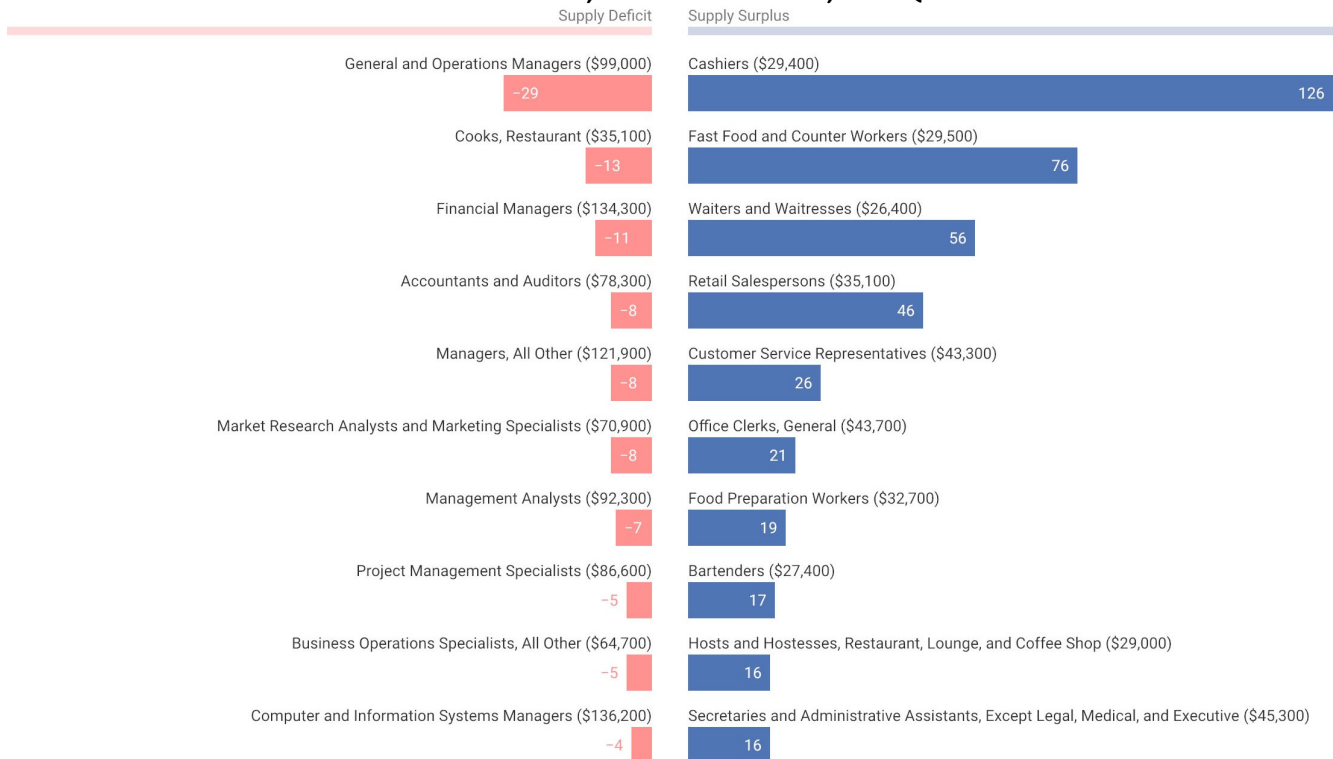
- Short-term OJT, no exp, no award (58.0%)
- Moderate-term OJT, no exp, no award (9.5%)
- Long-term training, no exp, no award (0.1%)
- Previous work experience, no award (10.8%)
- 2-year degree or certificate (0.2%)
- Bachelor's degree (21.3%)
- Postgraduate degree (0.0%)

Data for Business, Management, & Administration (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Occupation Gaps

The chart below shows the potential average annual talent shortages over ten years. A number of management roles indicate significant shortages in the years ahead, with the General and Operations Manager talent pool likely falling short at least 29 skilled workers needed annually (averaged over the next ten years) to meet employer demand—a decrease of six short estimated the year prior. Hospitality and Tourism cluster careers have rebounded from the pandemic and several are now forecasting talent shortages, with Cooks jumping into second place as of 2022Q2 and 2023Q2. This critical talent shortage is primarily due to moderate growth and retirements which far outpace demand.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, Central Minnesota, 2023Q2

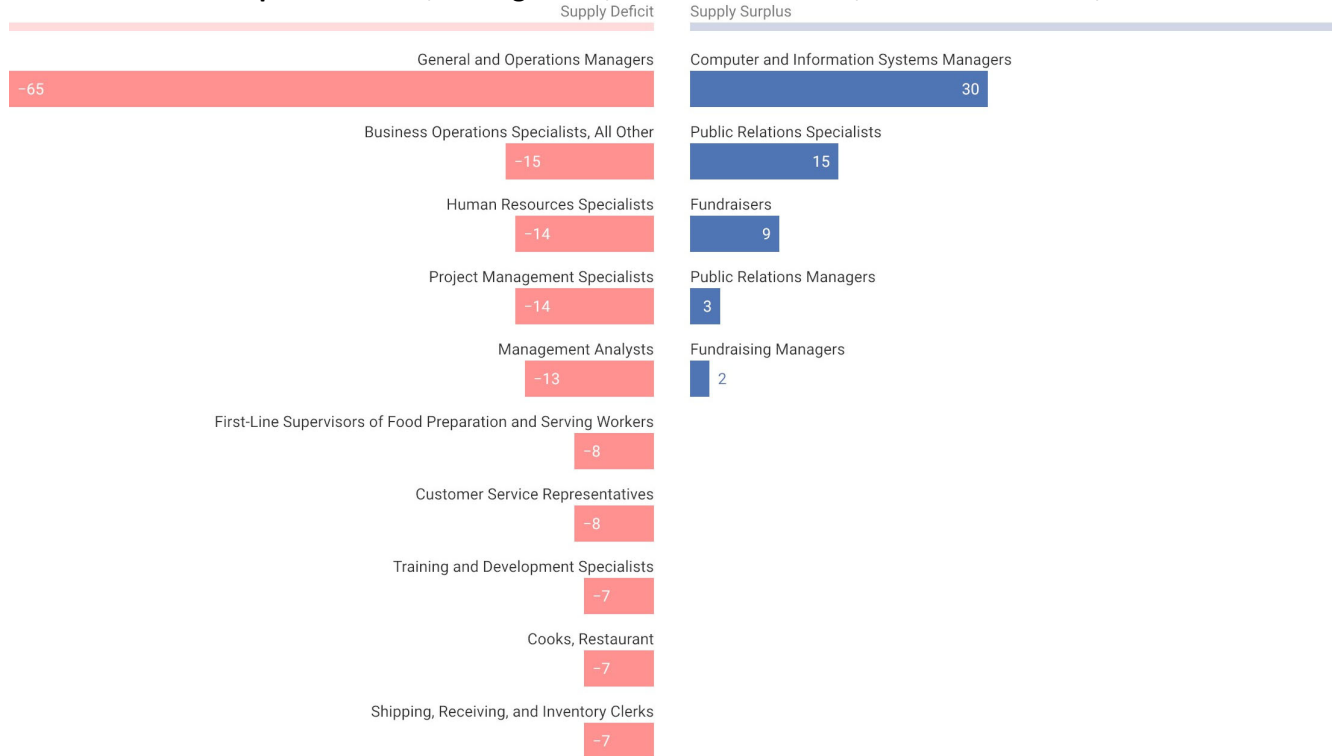




Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a few shortfalls in graduate awards needed to meet local demand for credentialed talent. Colleges and universities in the Central region currently under-train talent in Business, Management, and Administration when compared to national benchmarks. Specifically, regional colleges and universities are underproducing around 65 graduates annually that are needed to fill General and Operations Manager positions open with employers based in Central Minnesota alone.

Award Gaps in Business, Management, and Administration, Central Minnesota, 2023Q2



Promising Pathways

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, 2023Q2

Target Occupations (all HW, HD, HS, OG)
 General & Operations Managers (AG)
 Accountants & Auditors
 Market Research Analysts & Marketing Specialists
 Business Operations Specialists (AG)
 Project Management Specialists (AG)

Gateway Occupations

Supervisors of Retail Workers (AG)
 Secretaries and Administrative Assistants
 Bookkeeping, Accounting, & Auditing Clerks (HS, HD)
 Billing & Posting Clerks (HD)
 Supervisors of Housekeeping and Janitorial Workers (HD, OG)

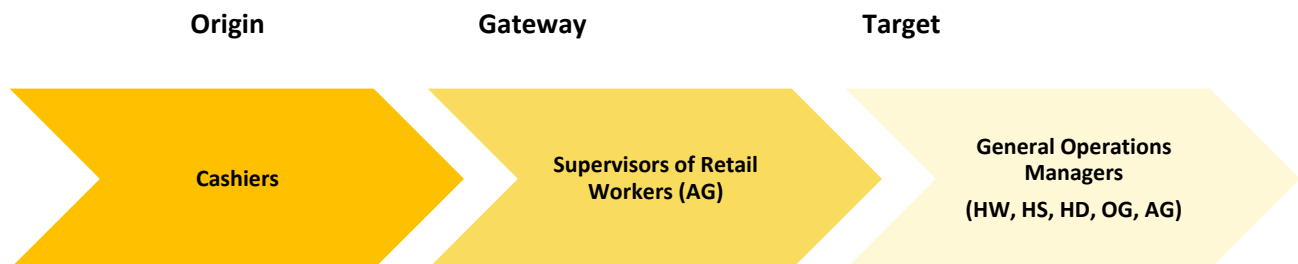
Origin Occupations

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

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

Featured Pathway

With a projected occupation gap, a projected award gap, and high demand the occupation of General and Operations Managers is a promising pathway to explore in the Central region. This occupation is relatively concentrated in the region with a location quotient of 1.01. The Gateway occupation of First-Line Supervisors of Retail Sales Workers is highly concentrated locally (LQ 1.28) and is also in high demand. The Origin occupation that feeds into that gateway occupation is also high concentrated locally (LQ of 1.33), although is not in particularly high demand. These retail Origin and Gateway occupations are a potential entry point for the Target occupation of General Operations Managers, recognizing that this role typically has an education requirement of a Bachelor's degree, but that there is a shift towards skill-based hiring across the state.



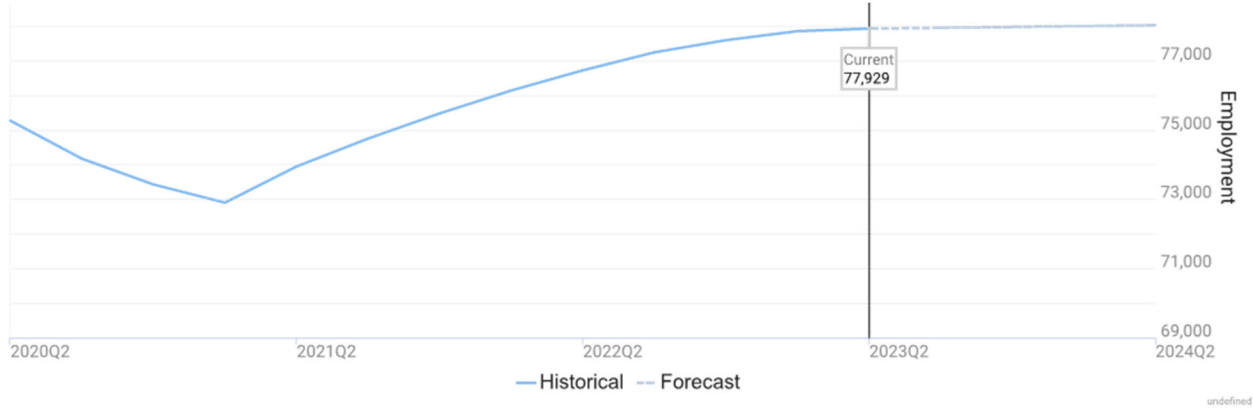
OGT Wages and Experience Level Requirements, Business, Management, and Administration, Central Minnesota, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
11-1021	General and Operations Managers	5,979	\$99,000	\$47,700	\$124,600	\$42,700	\$57,800	\$84,600	\$125,300	\$176,200	BA	>5 years	None
13-2011	Accountants and Auditors	2,012	\$78,300	\$51,900	\$91,500	\$48,700	\$58,800	\$71,000	\$87,500	\$119,600	BA	None	None
13-1161	Market Research Analysts and Marketing Specialists	1,181	\$70,900	\$45,100	\$83,800	\$42,000	\$51,900	\$66,000	\$85,400	\$108,500	BA	None	None
13-1199	Business Operations Specialists, All Other	1,133	\$64,700	\$43,100	\$75,600	\$40,600	\$48,800	\$59,900	\$75,800	\$95,800	BA	None	None
13-1082	Project Management Specialists	1,115	\$86,600	\$60,700	\$99,500	\$57,600	\$67,600	\$80,400	\$101,600	\$118,900	BA	None	None
41-1011	First-Line Supervisors of Retail Sales Workers	3,053	\$48,300	\$35,600	\$54,600	\$34,200	\$38,800	\$45,000	\$54,200	\$66,500	HS/GED	< 5 years	None
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2,996	\$45,300	\$36,400	\$49,800	\$35,000	\$39,400	\$45,200	\$50,800	\$56,800	HS/GED	None	Short-term OJT
43-3031	Bookkeeping, Accounting, and Auditing Clerks	2,607	\$48,200	\$36,600	\$54,000	\$34,900	\$40,400	\$47,400	\$53,900	\$62,000	Certificate	None	Mod-term OJT
43-3021	Billing and Posting Clerks	488	\$45,700	\$38,100	\$49,600	\$36,900	\$40,500	\$43,900	\$50,200	\$57,600	HS/GED	None	Mod-term OJT
43-5052	Postal Service Mail Carriers	487	\$56,800	\$41,100	\$64,600	\$40,100	\$44,700	\$56,000	\$70,000	\$71,600	None	None	Short-term OJT
41-2011	Cashiers	7,582	\$29,400	\$25,500	\$31,400	\$24,800	\$26,600	\$28,400	\$31,700	\$35,100	None	None	Short-term OJT
41-2031	Retail Salespersons	7,122	\$35,100	\$26,200	\$39,500	\$24,900	\$28,100	\$31,100	\$36,100	\$47,800	None	None	Short-term OJT
35-3023	Fast Food and Counter Workers	5,683	\$29,500	\$25,500	\$31,500	\$23,900	\$27,700	\$28,900	\$31,300	\$34,700	None	None	Short-term OJT
43-9061	Office Clerks, General	4,721	\$43,700	\$32,000	\$49,500	\$30,100	\$35,700	\$42,000	\$49,800	\$60,200	HS/GED	None	Short-term OJT
53-7065	Stockers and Order Fillers	4,469	\$35,500	\$28,500	\$38,900	\$28,000	\$30,000	\$34,100	\$38,900	\$45,900	HS/GED	None	Short-term OJT

Engineering, Manufacturing, and Technology

Engineering, Manufacturing, and Technology is a wide career field with transportation, logistics, STEM, architecture, construction, manufacturing, and machining careers, which all experienced somewhat diverging trends in the early months of the COVID-19 pandemic. Over the next three years, this career field’s employment is forecast to modestly grow 0.1% annually, a drop from the -0.5% forecast estimated in 2022Q2. Previously, employment sat at 76,228 in this field, which has rebounded further to 77,929 as of 2023Q2 in the Central region. All of the top ten occupations by total employment volume, with the exception of Team Assemblers, have forecasted growth over the next three years.

3-Year Forecast for Engineering, Manufacturing, and Technology Careers, Central Minnesota, 2023Q2



Top Ten Engineering, Manufacturing, and Technology Occupations by Employment Volume in the Central Region, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Heavy and Tractor-Trailer Truck Drivers	5,028	\$57,300	1.35	235	601	0.2%
Laborers and Freight, Stock, and Material Movers, Hand	4,103	\$39,900	0.82	204	585	0.2%
Construction Laborers	4,046	\$53,600	1.65	324	419	0.4%
Team Assemblers	3,199	\$42,000	1.51	108	340	-0.8%
Maintenance and Repair Workers, General	2,527	\$50,100	0.93	31	249	0.1%
Carpenters	2,466	\$58,500	1.54	-27	233	0.1%
Landscaping and Groundskeeping Workers	2,207	\$39,500	1.11	208	300	0.4%
Light Truck Drivers	1,880	\$45,100	0.97	105	236	0.6%
First-Line Supervisors of Construction Trades and Extraction Workers	1,665	\$84,000	1.20	134	160	0.3%
Automotive Service Technicians and Mechanics	1,643	\$51,300	1.23	38	163	0.1%
Remaining Component Occupations	49,159	\$58,900	1.08	1,286	5,277	0.1%
Engineering, Manufacturing, & Technology (CTE Field)	77,929	\$56,000	1.15	2,657	8,561	0.1%

“Annual Demand” is the projected need for new entrants into an occupation. 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 Growth” 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).

Many different industries employ Engineering, Manufacturing, and Technology talent in the Central region. Locally, the industries with the greatest share of this field’s talent are Building Equipment Contractors (5.6%).



Most industries employing talent in this field only touch less than 1% 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, 2023Q2

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Building Equipment Contractors	5.6%	4,400	4,439	171	4,610
General Freight Trucking	3.5%	2,689	3,165	62	3,227
Other Specialty Trade Contractors	3.3%	2,550	2,581	61	2,642
Highway, Street, and Bridge Construction	3.3%	2,533	2,509	32	2,541
Building Finishing Contractors	3.2%	2,482	2,279	55	2,334
Foundation, Structure, and Building Exterior Contractors	3.1%	2,420	2,340	45	2,385
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	2.9%	2,234	2,436	87	2,524
Plastics Product Manufacturing	2.6%	2,034	2,237	26	2,263
Animal Slaughtering and Processing	2.5%	1,973	2,471	-8	2,463
Residential Building Construction	2.5%	1,916	1,777	57	1,834
Household and Institutional Furniture and Kitchen Cabinet Manufacturing	2.2%	1,750	1,877	-81	1,796
Automotive Repair and Maintenance	2.2%	1,689	1,811	25	1,836
Executive, Legislative, and Other General Government Support	2.1%	1,662	1,756	30	1,786
Services to Buildings and Dwellings	2.1%	1,655	2,076	60	2,135
Electric Power Generation, Transmission and Distribution	1.8%	1,366	1,211	-30	1,181
Utility System Construction	1.7%	1,298	1,278	41	1,319
Other General Purpose Machinery Manufacturing	1.6%	1,274	1,311	11	1,322
Architectural and Structural Metals Manufacturing	1.6%	1,245	1,343	26	1,369
School and Employee Bus Transportation	1.6%	1,235	1,824	42	1,865
Automobile Dealers	1.5%	1,166	1,311	39	1,350
All Others	49.2%	38,359	42,872	223	43,095

Career Field Demographics

The Engineering, Manufacturing, and Technology field is heavily male (82.2% male; but with female representation increasing by 0.7 percentage points as of 2023Q2) and White (93.8%), with BIPOC talent increasing by 2.6% from prior year estimates. Just under 50% of workers in this field are 45 years or older (47%, an increase from the prior year's 46.6%), signaling potential exacerbation of the talent shortage due to impending retirements.

Age

Central Minnesota



Minnesota



16 to 19 years (3.3%)
20 to 24 years (9.0%)

25 to 34 years (19.0%)
35 to 44 years (21.7%)

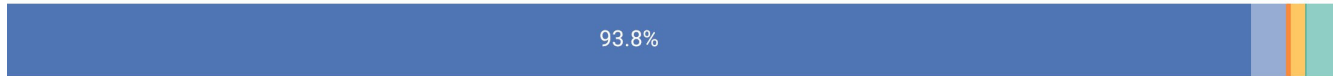
45 to 54 years (22.2%)
55 to 64 years (20.2%)
65 years and over (4.6%)

Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

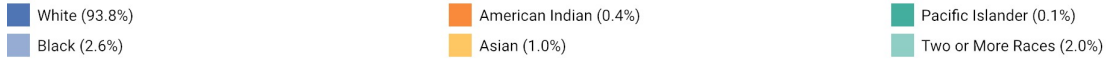


Race

Central Minnesota



Minnesota



Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Educational Attainment and Requirements

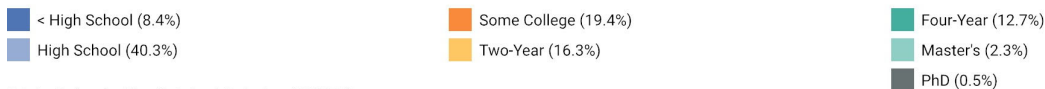
The stacked bar charts here illustrate the estimated mix of educational attainment of the workers in this career field in aggregate, followed by the typical education and training requirements in the field. In general, the Central Minnesota Engineering, Manufacturing, and Technology workforce is well-aligned for the typical credentials of entry-level positions. Just over one in four of all positions in this field (26.6%) require no degree, no experience, and only short-term on-the-job training. About 53.8% require experience or some on-the-job training, but still no degree. Almost one in ten of the workforce in this field has no degree at all (8.4%), and 40.3% hold a high school diploma as their highest credential. In all, 68.1% of the Engineering, Manufacturing, and Technology workforce have not completed a postsecondary credential.

Educational Attainment

Central Minnesota



Minnesota



Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.



Education and Training Requirements

Central Minnesota



Minnesota



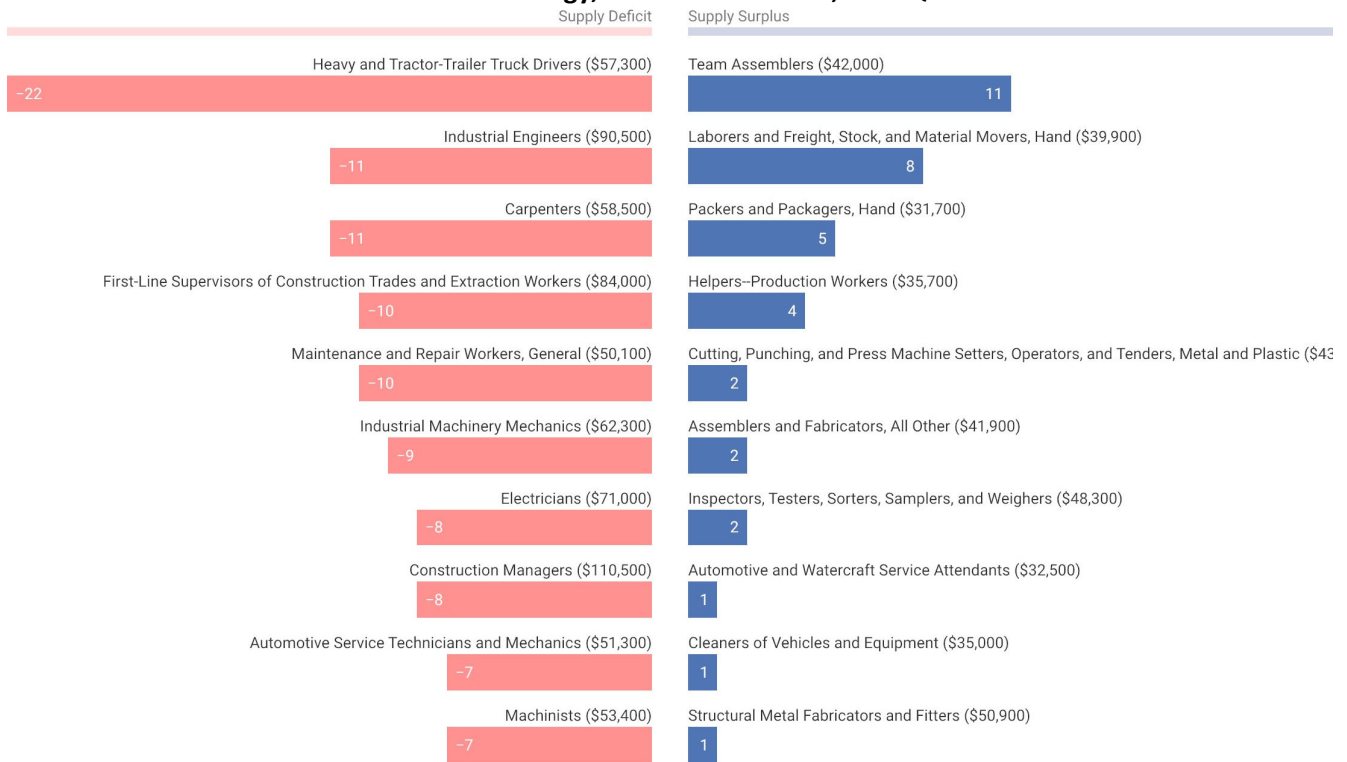
- Short-term OJT, no exp, no award (26.6%)
- Moderate-term OJT, no exp, no award (30.9%)
- Long-term training, no exp, no award (15.0%)
- Previous work experience, no award (7.9%)
- 2-year degree or certificate (12.1%)
- Bachelor's degree (7.3%)
- Postgraduate degree (0.1%)

Data for Engineering, Manufacturing, & Technology (CTE Field)
Source: JobsEQ®. Data as of 2023Q2.

Occupation Gaps

The chart below shows the potential average annual talent shortages over the next ten years. A number of management, maintenance, construction, and automotive roles indicate shortages in the years ahead, with the Heavy and Tractor-Trailer Truck Driver talent pools likely falling short at least 22 (up from last year's estimated 16) skilled workers each needed annually (averaged over the next ten years) to meet employer demand. These talent shortages are primarily due to growth in demand and retirements which far outpace the local talent pipeline.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, Central Minnesota, 2023Q2



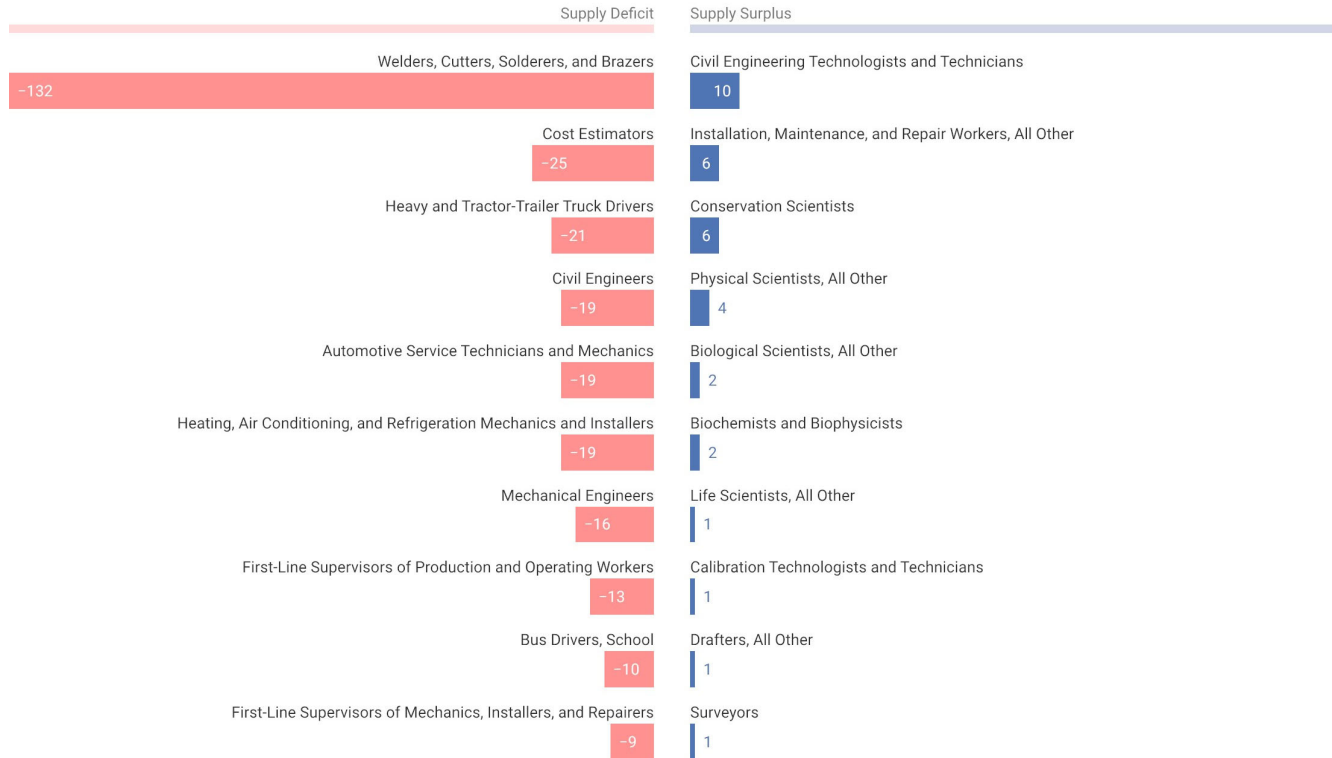
Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation reveal several important shortages. The Central region currently under-trains some talent in Engineering, Manufacturing, and Technology when compared to national



benchmarks. Central Minnesota colleges and universities are underproducing around 132 (up from 112 projected last year) graduates annually that are needed to fill Welding and Soldering positions open with employers based in this region alone. They are also underproducing around 25 Cost Estimators and 21 Heavy and Tractor-Trailer Truck Drivers graduating locally annually than what employers currently need to support demand.

Award Gaps in Engineering, Manufacturing, and Technology, Central Minnesota, 2023Q2



Promising Pathways

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, 2023Q2

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

Industrial Engineers
 Construction Managers
 Heating, Air Conditioning, & Refrigeration Mechanics
 Mechanical Engineers
 Civil Engineers

Gateway Occupations

Heavy & Tractor Trailer Drivers (HS, HD, OG, AG)
 Construction Laborers (HD)
 Maintenance & Repair Workers, General (OG, AG)
 Light Truck Drivers (HD, AG)
 Auto Service Technicians & Mechanics (HS, OG, AG)

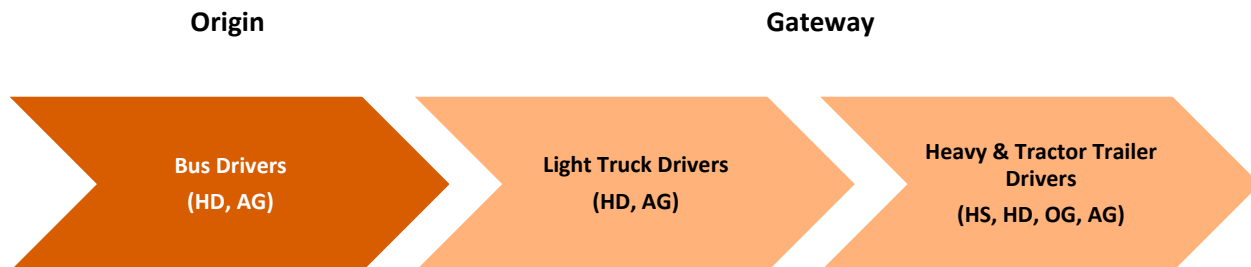
Origin Occupations

Laborers & Freight, Stock Movers (HD)
 Team Assemblers
 Landscaping & Groundskeeping Workers (HD, AG)
 Bus Drivers, School (HD, AG)
 Packers and Packagers, Hand

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

Featured Pathway

With a projected occupation gap, a projected award gap, and high demand the pathway to the occupation of Heavy and Tractor Trailer Drivers should be considered in the Central region. This occupation is highly concentrated in the region with a location quotient of 1.35. The Gateway occupation of Light Truck Drivers is also in high demand and facing an award gap. The Origin occupation of Bus Drivers would fit this pathway as well and is highly concentrated locally in the Central region with a location quotient of 2.03.



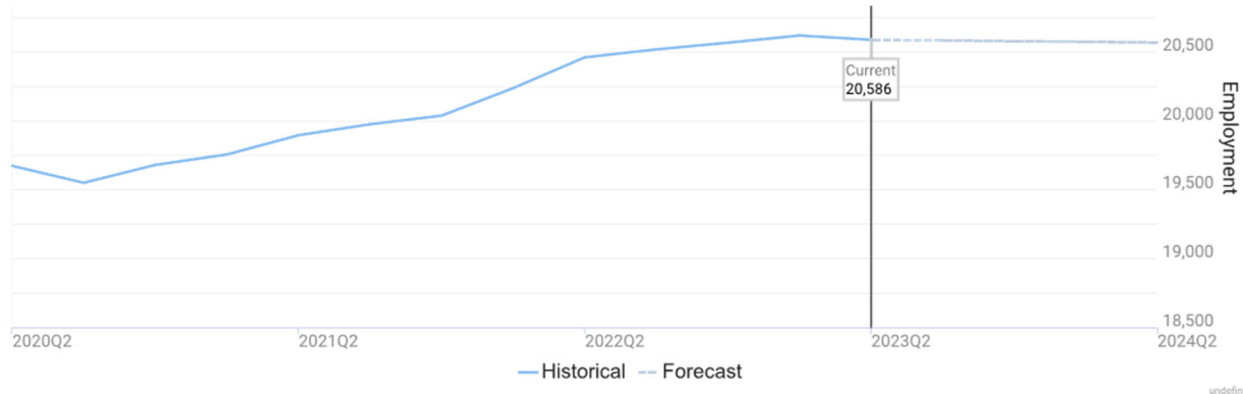
OGT Wages and Experience Level Requirements, Engineering, Manufacturing, and Technology, Central Region, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
17-2112	Industrial Engineers	1,085	\$90,500	\$63,700	\$103,900	\$60,500	\$71,400	\$87,100	\$107,600	\$124,500	BA	None	None
11-9021	Construction Managers	1,017	\$110,500	\$71,300	\$130,100	\$67,200	\$80,300	\$95,900	\$119,500	\$146,100	BA	None	Mod-term OJT
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	812	\$65,800	\$47,900	\$74,800	\$46,800	\$52,100	\$66,900	\$79,200	\$87,800	Certificate	None	Long-term OJT
17-2141	Mechanical Engineers	469	\$86,100	\$63,700	\$97,300	\$60,600	\$70,100	\$80,000	\$93,600	\$114,700	BA	None	None
17-2051	Civil Engineers	292	\$92,900	\$68,000	\$105,400	\$64,400	\$76,100	\$91,300	\$107,100	\$127,600	BA	None	None
53-3032	Heavy and Tractor-Trailer Truck Drivers	5,028	\$57,300	\$43,400	\$64,200	\$41,300	\$48,200	\$56,500	\$63,000	\$75,800	Certificate	None	Short-term OJT
47-2061	Construction Laborers	4,046	\$53,600	\$38,500	\$61,100	\$36,000	\$43,200	\$49,700	\$67,000	\$76,300	None	None	Short-term OJT
49-9071	Maintenance and Repair Workers, General	2,527	\$50,100	\$35,600	\$57,400	\$32,800	\$40,700	\$48,800	\$59,200	\$67,700	HS/GED	None	Mod-term OJT
53-3033	Light Truck Drivers	1,880	\$45,100	\$31,400	\$51,900	\$28,000	\$36,400	\$43,900	\$50,000	\$64,000	HS/GED	None	Short-term OJT
49-3023	Automotive Service Technicians and Mechanics	1,643	\$51,300	\$34,200	\$59,800	\$33,100	\$37,400	\$48,200	\$60,800	\$72,400	Certificate	None	Short-term OJT
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	4,103	\$39,900	\$31,300	\$44,300	\$30,100	\$33,900	\$38,900	\$44,300	\$52,000	None	None	Short-term OJT
51-2092	Team Assemblers	3,199	\$42,000	\$33,000	\$46,500	\$31,300	\$36,200	\$39,900	\$47,600	\$55,300	HS/GED	None	Mod-term OJT
37-3011	Landscaping and Groundskeeping Workers	2,207	\$39,500	\$30,100	\$44,200	\$28,600	\$33,000	\$37,600	\$44,800	\$55,000	None	None	Short-term OJT
53-3051	Bus Drivers, School	1,255	\$43,500	\$33,400	\$48,500	\$33,200	\$35,300	\$43,400	\$46,000	\$56,300	HS/GED	None	Short-term OJT
53-7064	Packers and Packagers, Hand	974	\$31,700	\$26,600	\$34,300	\$26,100	\$27,400	\$30,700	\$34,400	\$39,500	None	None	Short-term OJT

Agriculture, Food, and Natural Resources

There are eight career pathways within Agriculture, Food, and Natural Resources: 1) Food Products and Processing Systems, 2) Plant Systems, 3) Animal Systems, 4) Natural Resources Systems, 5) Agribusiness Systems, 6) Environmental Services Systems, 7) Power, Structural and Technical Systems, and 8) 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). Over the next three years, this career field’s employment is forecast to decline by about -0.1% in the Central region, a drop from last year’s forecast of 0.2%.

3-Year Forecast for Agriculture, Food, and Natural Resources Careers, Central Minnesota, 2023Q2



Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume in the Central Region, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Farmers, Ranchers, and Other Agricultural Managers	5,220	\$71,400	3.96	-153	472	-1.1%
Landscaping and Groundskeeping Workers	2,207	\$39,500	1.11	208	300	0.4%
Farmworkers, Farm, Ranch, and Aquacultural Animals	1,369	\$35,100	5.42	75	200	-0.9%
Plumbers, Pipefitters, and Steamfitters	1,289	\$72,400	1.56	108	134	0.2%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	948	\$37,000	0.97	60	145	-0.4%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	812	\$65,800	1.15	123	82	0.5%
Meat, Poultry, and Fish Cutters and Trimmers	615	\$36,800	2.59	-11	75	-0.2%
Food Batchmakers	587	\$37,100	2.01	57	89	0.9%
Animal Caretakers	473	\$32,200	0.82	71	97	1.3%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	405	\$60,700	1.03	45	44	0.3%
Remaining Component Occupations	6,661	\$61,000	1.18	331	797	0.2%
Agriculture, Food, and Natural Resources	20,586	\$57,300	1.43	914	2,429	-0.1%

“Annual Demand” is the projected need for new entrants into an occupation. 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 Growth” 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).

Many different industries employ Agriculture, Food, and Natural Resources talent in Central Minnesota. Locally, the industries with the greatest share of this field’s talent are Animal Production (Proprietors) (16.6%)



and Building Equipment Contractors (9.1%). Most industries employing talent in this field only touch less than 3% of total talent skilled in this field, and span from animal production companies to logging and electric power generation.

Agriculture, Food, and Natural Resources Field Employment by Industry, Central Minnesota, 2023Q2

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Animal Production (Proprietors)	16.6%	3,426	3,400	-423	2,976
Building Equipment Contractors	9.1%	1,877	1,898	84	1,982
Cattle Ranching and Farming	8.0%	1,647	2,216	-130	2,086
Services to Buildings and Dwellings	7.7%	1,586	2,035	59	2,094
Crop Production (Proprietors)	4.2%	855	876	-98	778
Other Professional, Scientific, and Technical Services	3.5%	728	858	145	1,003
Electric Power Generation, Transmission and Distribution	3.3%	681	607	-22	585
Animal Slaughtering and Processing	2.9%	605	785	4	789
Executive, Legislative, and Other General Government Support	2.8%	578	633	3	637
Poultry and Egg Production	2.5%	512	713	-6	706
Grocery and Convenience Retailers	1.7%	359	463	-8	455
Hog and Pig Farming	1.7%	343	460	-29	430
Other Amusement and Recreation Industries	1.6%	339	448	29	477
Other Personal Services	1.6%	321	587	58	645
Support Activities for Crop Production	1.4%	295	441	-16	425
Greenhouse, Nursery, and Floriculture Production	1.4%	283	416	17	433
Utility System Construction	1.3%	273	271	21	292
Bakeries and Tortilla Manufacturing	1.2%	252	370	20	391
Machinery, Equipment, and Supplies Merchant Wholesalers	1.2%	245	237	4	241
Vegetable and Melon Farming	1.1%	236	345	11	356
All Others	25.0%	5,144	6,490	87	6,576



Career Field Demographics

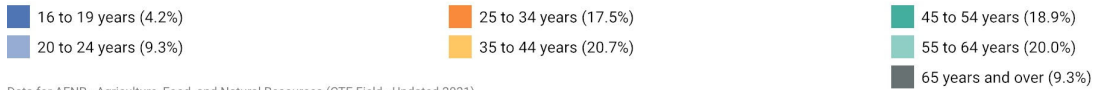
The Agriculture, Food, and Natural Resources field remains predominantly male (74.5%, an increase from last year's 73.9%) and White (95.2%, decreasing by 0.7 percentage points), but with variation by career pathway. Overall, the age of the workforce in this field is distributed evenly from 25 through 64 years, but key career pathways in Animal Systems and Food Products and Processing Systems in particular have a rapidly aging workforce with limited new talent entering.

Age

Central Minnesota



Minnesota



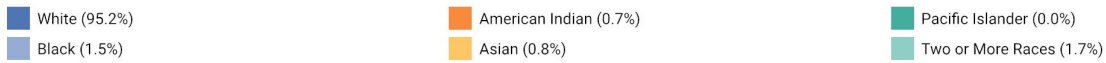
Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

Race

Central Minnesota



Minnesota



Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

Ethnicity

Central Minnesota



Minnesota



Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

Gender

Central Minnesota



Minnesota



Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

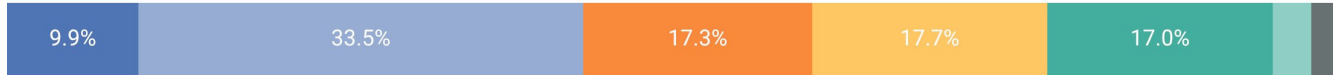


Educational Attainment and Requirements

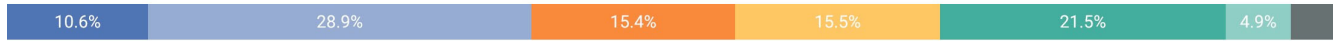
This stacked bar chart illustrates the estimated mix of educational attainment of the workers in the career field in aggregate, followed by a chart illustrating the typical education requirements of positions. In general, Central Minnesota’s Agriculture, Food, and Natural Resources workforce remains well-aligned for the typical credentials of entry-level positions. Nearly one-third of all positions in this field regionally (30.9%) require no degree, no experience, only short-term on-the-job training. Over half (54.8%) require experience or some on-the-job training, but still no degree; in all, 85.7% of positions in this field require no formal education. About 9.9% of the workforce in this field has no degree at all, and just over one in three (33.5%) hold a high school diploma as their highest credential. In all, 60.7% of the Agriculture, Food, and Natural Resources workforce have not completed a postsecondary credential.

Educational Attainment

Central Minnesota



Minnesota



- < High School (9.9%)
- High School (33.5%)
- Some College (17.3%)
- Two-Year (17.7%)
- Four-Year (17.0%)
- Master's (2.9%)
- PhD (1.7%)

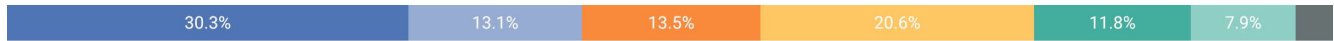
Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

Education and Training Requirements

Central Minnesota



Minnesota



- Short-term OJT, no exp, no award (30.9%)
- Moderate-term OJT, no exp, no award (10.4%)
- Long-term training, no exp, no award (14.3%)
- Previous work experience, no award (30.1%)
- 2-year degree or certificate (8.8%)
- Bachelor's degree (3.9%)
- Postgraduate degree (1.7%)

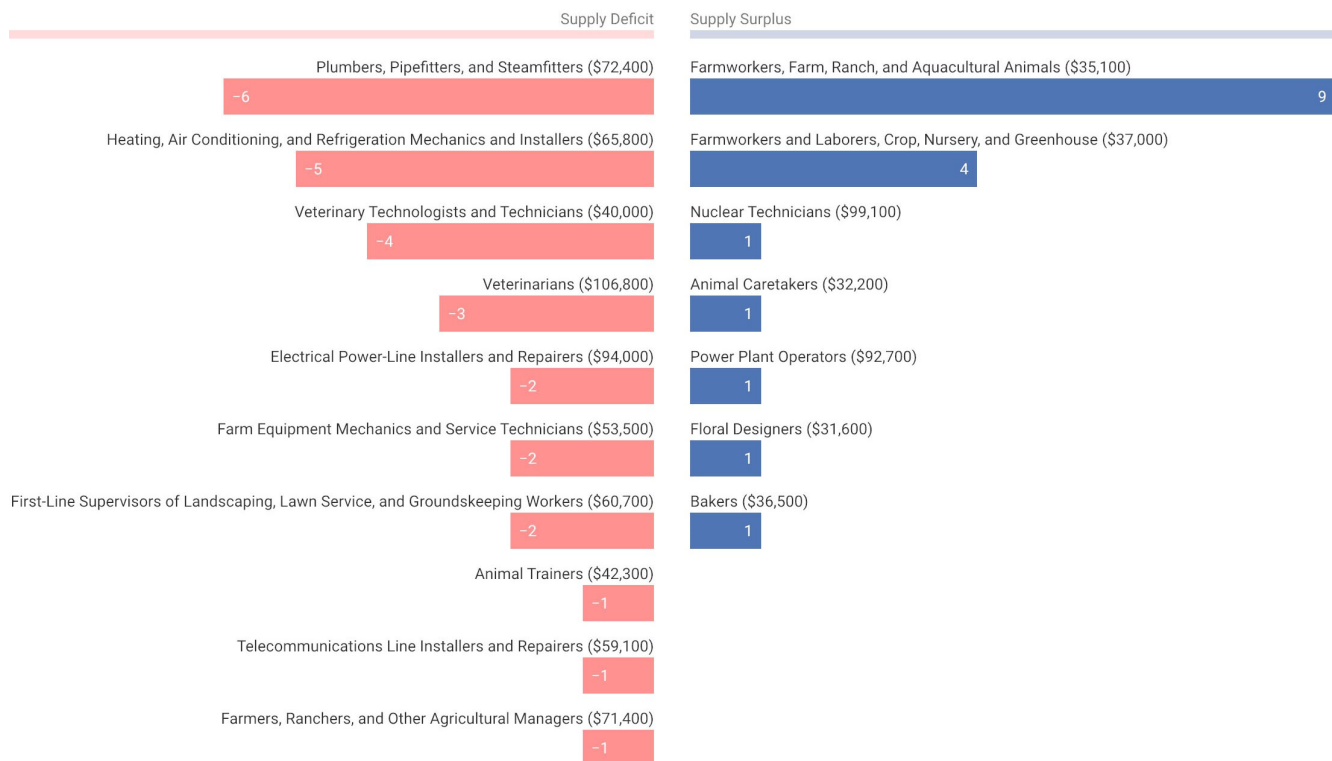
Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.



Occupation Gaps

The chart below shows the potential average annual talent shortages over ten years in a conservative estimate of talent shortfall. Several crucial trades, veterinary, environmental services, and natural sciences roles indicate shortages in the years ahead, matching with statewide shortages. While Farmers, Ranchers, and other Agricultural Managers was the top-ranked occupation gap for Central Minnesota in 2022Q2, it has dropped down to tenth ranked, with Plumbers rising again to the top occupation of shortage in the region. Retirements and growing demand unmet by the local talent supply chain are both contributing factors. While forecasted growth remains small, there is continued demand for replacement talent to fill job openings that will be challenging to meet with the supply of local talent currently available.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Central Minnesota, 2023Q2

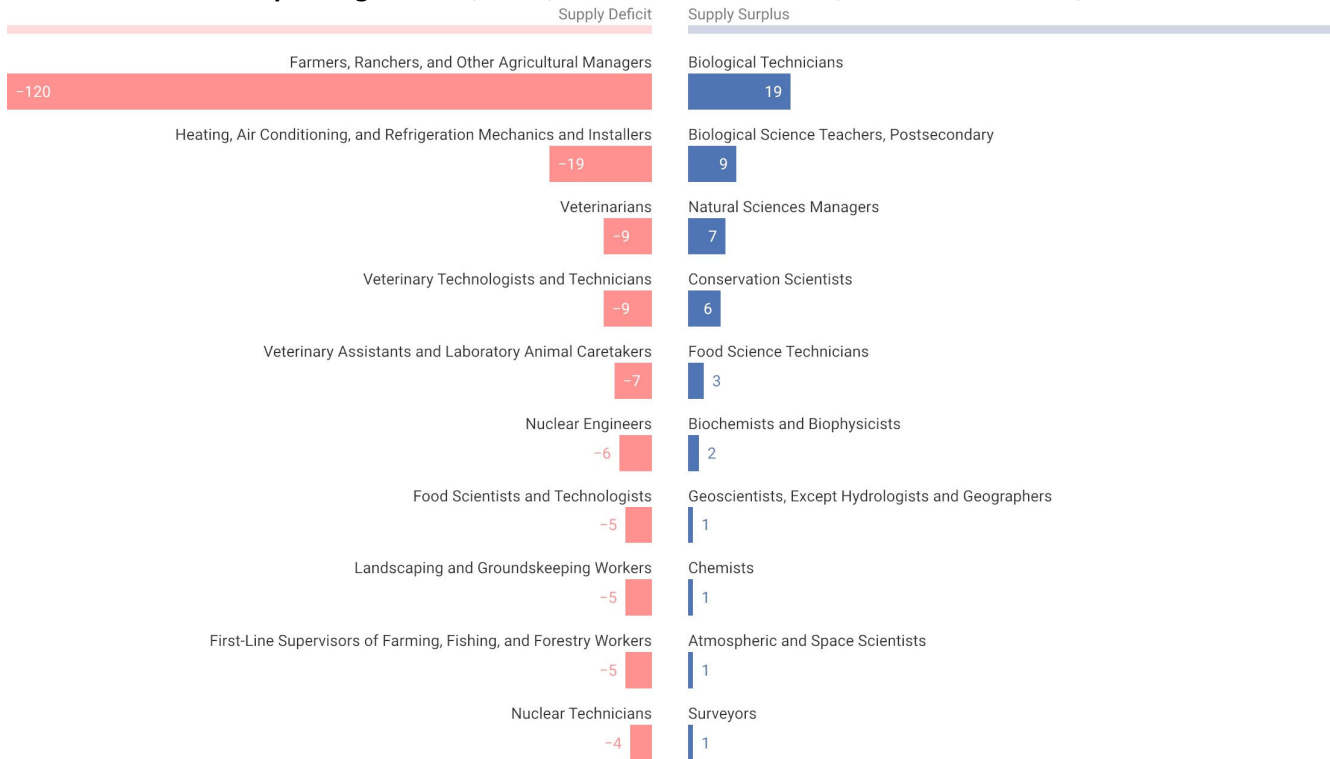


Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate several moderate shortages. Postsecondary institutions in the Central region currently prepare a smaller volume of talent in Agriculture, Food, and Natural Resources when compared to national benchmarks. Central Minnesota colleges and universities are underproducing at 120 graduates annually that are needed to fill Farmers, Ranchers, and Other Agricultural Manager positions open with employers based in the Central region. Graduates needed to fill HVAC roles with employers based in the Central region have increased, now short at least 19 graduates to fill those roles. Veterinarians are also lagging in local graduate awards, as the majority of Animal Systems completions are made in the MSP Metro.



Award Gaps in Agriculture, Food, and Natural Resources, Central Minnesota, 2023Q2



Promising Pathways

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, 2023Q2

Target Occupations (all HW, HD, HS)

Heating, Air Conditioning, & Refrigeration Mechanics (OG, AG)
 Telecommunications Equipment Installers & Repairers (OG, AG)
 Nuclear Engineers (AG)
 Chemists
 Nuclear Technicians (AG)

Gateway Occupations (all HD)

Farm Equipment Mechanics (OG, AG)
 Refuse & Recyclable Material Collectors
 Chefs & Head Cooks (AG)
 Tree Trimmers & Pruners
 Food Cooking Machine Operators

Origin Occupations

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

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

Featured Pathway

With a projected occupation gap, a substantial projected award gap, and high wages the pathway to the occupation of Farmers, Ranchers, and Other Agricultural Managers should be considered in the Central region. This occupation is also very highly locally concentrated with a location quotient of 3.96 and has a low unemployment rate of 0.6%. Two potential pathways to this role are the Origin occupations of Farmworkers, Farm, Ranch, and Aquacultural Animals (LQ 5.42), and Landscaping and Groundskeeping Workers (LQ 1.11).



OGT Wages and Experience Level Requirements, Agriculture, Food, and Natural Resources, Central Region, 2023Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	812	\$65,800	\$47,900	\$74,800	\$46,800	\$52,100	\$66,900	\$79,200	\$87,800	Certificate	None	Long-term OJT
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	170	\$59,200	\$41,500	\$68,100	\$38,700	\$47,600	\$60,500	\$72,700	\$75,600	Certificate	None	Mod-term OJT
17-2161	Nuclear Engineers	91	\$122,500	\$85,800	\$140,800	\$80,300	\$98,200	\$120,800	\$135,300	\$165,400	BA	None	None
19-2031	Chemists	82	\$86,200	\$55,600	\$101,600	\$50,200	\$66,200	\$82,700	\$104,900	\$122,200	BA	None	None
19-4051	Nuclear Technicians	74	\$99,100	\$70,100	\$113,500	\$65,800	\$80,600	\$102,000	\$108,800	\$126,800	AS	None	Mod-term OJT
49-3041	Farm Equipment Mechanics and Service Technicians	296	\$53,500	\$42,100	\$59,200	\$37,500	\$49,200	\$52,000	\$62,300	\$66,400	HS/GED	None	Long-term OJT
53-7081	Refuse and Recyclable Material Collectors	289	\$47,400	\$35,100	\$53,500	\$34,800	\$37,200	\$46,200	\$56,300	\$60,300	None	None	Short-term OJT
35-1011	Chefs and Head Cooks	246	\$51,800	\$36,100	\$59,700	\$34,700	\$39,700	\$48,900	\$61,700	\$72,600	HS/GED	<5 years	None
37-3013	Tree Trimmers and Pruners	125	\$50,100	\$37,900	\$56,200	\$35,700	\$42,600	\$51,100	\$59,900	\$60,200	HS/GED	None	Short-term OJT
51-3093	Food Cooking Machine Operators and Tenders	117	\$45,600	\$39,700	\$48,500	\$36,700	\$44,300	\$45,500	\$50,100	\$50,200	HS/GED	None	Mod-term OJT
37-3011	Landscaping and Groundskeeping Workers	2,207	\$39,500	\$30,100	\$44,200	\$28,600	\$33,000	\$37,600	\$44,800	\$55,000	None	None	Short-term OJT
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1,369	\$35,100	\$29,100	\$38,100	\$28,000	\$31,000	\$33,900	\$36,500	\$46,600	None	None	Short-term OJT
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	948	\$37,000	\$29,100	\$41,000	\$28,600	\$30,600	\$34,300	\$44,400	\$48,500	None	None	Short-term OJT
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	615	\$36,800	\$30,200	\$40,100	\$30,300	\$31,100	\$36,600	\$40,100	\$45,800	None	None	Short-term OJT
51-3092	Food Batchmakers	587	\$37,100	\$31,200	\$40,100	\$31,300	\$31,700	\$35,200	\$39,700	\$50,000	HS/GED	None	Mod-term OJT

Conclusion

A variety of new occupations of need have emerged, which signals some rebounding and recovery following the pandemic, and reflect the tight labor market across all levels of experience, education requirements, and each industry sector. What continues to be true is the most in-demand occupations of the future typically require a two-year degree or higher, offer higher average wages, and will likely experience talent shortages within the next three years and beyond due to a low qualified talent pool located within the region. An exciting new development likely to have impact across all industries is the Governor's decision to remove degree requirements for most Minnesota government jobs.

As the talent pool has tightened, Minnesota employers are struggling to find talent for Origin, Gateway, and Target roles across the spectrum, but with Gateway occupations posing the greatest opportunities for skills-based hiring innovations and workforce system strategies. Overall, digital skills, human skills, and business enablers will be the foundational skills of the future both in Minnesota and nationwide. Remote work opportunities are proving to be a more permanent change to the landscape of work in Minnesota.

The Central region continues to experience shortages of critical occupations such as Registered Nurses, Mental Health Counselors, Heavy and Tractor-Trailer Truck Drivers, and shortages in both management and teaching roles. Several career fields are also experiencing an aging workforce, with Engineering, Manufacturing, and Technology having almost 50% of their workforce above the age of 45 years old. The region is poised to see changes in demand for talent over the next five years and beyond as the region continues to wrestle with deepening talent shortages and face the possibility of recession as interest rates continue to rise.

Data Notes

- This 2023 publication was compiled by Julia Diaz, Research Analyst for RealTime Talent in October 2023. She can be reached at julia@realtimetalentmn.org
- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2023Q2 and based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS OES data. Employment forecasts are by RealTime Talent using models provided by Chmura and are consistent with BLS national-level 10-year forecasts. Occupation wages (mean, median, and percentiles) are derived from BLS OES data as of 2022 and represent the average for all Covered Employment. Entry-level and experienced wages are derived from these source data, computed by Chmura.
- Industry employment is as of 2023Q2 and based upon BLS QCEW data that are imputed by Chmura 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 Chmura for 2023Q2 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 2021-2022 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.
- General job ads data are online job posts from the Real-Time Intelligence (RTI) data set, produced by Chmura and gleaned from over 40,000 websites. Data reflect ads active during September 2023 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. The sections on Employer Demand include Job ads data from Gartner TalentNeuron Plan, 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 Chmura, 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 2023Q2 and modeled by Chmura 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.



- 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. <https://careertech.org/career-clusters> and viewable on ONET <https://www.onetonline.org/find/career?c=8>, but updated to the 2020 SOC classification system.
- Figures may not sum due to rounding.

Definitions and Methodology

High-Wage

High-Wage occupations are defined as occupations that have average annual wages greater than the overall regional average wage (\$57,400 in the region as of 2023Q2).

High-Skill

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 Chmura using U.S. Census Bureau Educational Attainment data projected to 2023Q2 along with source data from the BLS.

High-Demand

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.

D1: 5-Yr Growth

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.

D2: Total Demand

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 2023Q2 (i.e. high long-term demand)

D3: Unempl <3%

An occupation is considered to have low unemployment if the estimated unemployment rate for the occupation is below 3% in the region as of 2023Q2 (i.e. high employer retention demand)

D4: Unempl:Posting Ratio

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 2023 (i.e. ratio of unemployed-to-posts is greater than 1; low talent supply)

D5: Posting Volume

An occupation is considered to have high posting volumes if the volume of online job postings in October 2023 was greater than 200 in the region, the occupation is considered to have high job posting volumes (i.e. high immediate employer demand).

Occupation Gaps

Occupation gaps are developed by Chmura and use a multitude of data sources. Employment supply and demand projections are based on a starting date of 2023Q2 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 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.

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 2021-2022 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 Chmura. 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.