Workforce Trends
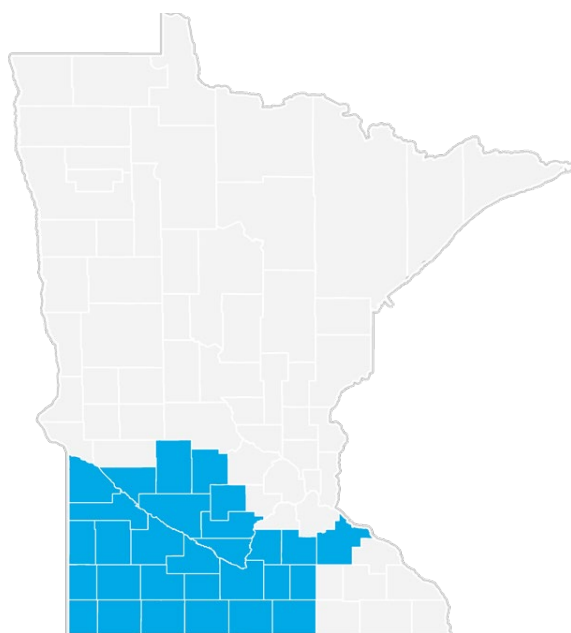
CAREER & TECHNICAL EDUCATION

RealTime Talent

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RealTime Talent

Using data to build the world's best workforce

MINNESOTA STATE

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 still experiencing 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 entry points 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 Director of Strategic Research at RealTime Talent, Erin Olson at erin@realtimetalentmn.org.

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

Table of Contents

Southwest Minnesota

Introduction

This report highlights the current and future talent needs in the nineteen counties of Southwest 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 Southwest 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, and illustrates promising likely and aligned pathways into each career field. This model supports students looking for entry points from an initial occupation of interest into other aligned careers, considering automation, remote work, and the changing work environment. The model 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)

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[2] Blue Earth, Brown, Chippewa, Cottonwood, Faribault, Freeborn, Goodhue, Jackson, Kandiyohi, Lac Qui Parle, Le Sueur, Lincoln, Lyon, McLeod, Martin, Meeker, Murray, Nicollet, Nobles, Pipestone, Redwood, Renville, Rice, Rock, Sibley, Steele, Waseca, Watonwan, and Yellow Medicine 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 ($56,500 in the Southwest). 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 ($56,500 in the Southwest). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as "OG" and "AG" respectively.

Community Profile
Demographics

The Southwest is home to about 12% of Minnesota's total population. In all, about 683,702 people live in Southwest Minnesota, according to 2017-2021 American Community Survey Estimates—an increase of nearly 10,000 (9,848) people from the prior year's estimates. Just over 23% of Southwest Minnesota's population are minors under 18 years of age. Overall, the region's median age is 1.4 years older (39.6 years) than the statewide median (38.2 years), mostly attributable to a larger share of adults over 55 years of age in the region. The cities of Mankato, Faribault, and Owatonna are home to the largest local concentrations of population and are economic hubs for the region. Blue Earth County is home to 10% of the region's population.

Resident Population of Southwest Minnesota

Source: JobsEQ® , Powered by ESRI.
American Community Survey 2017-2021
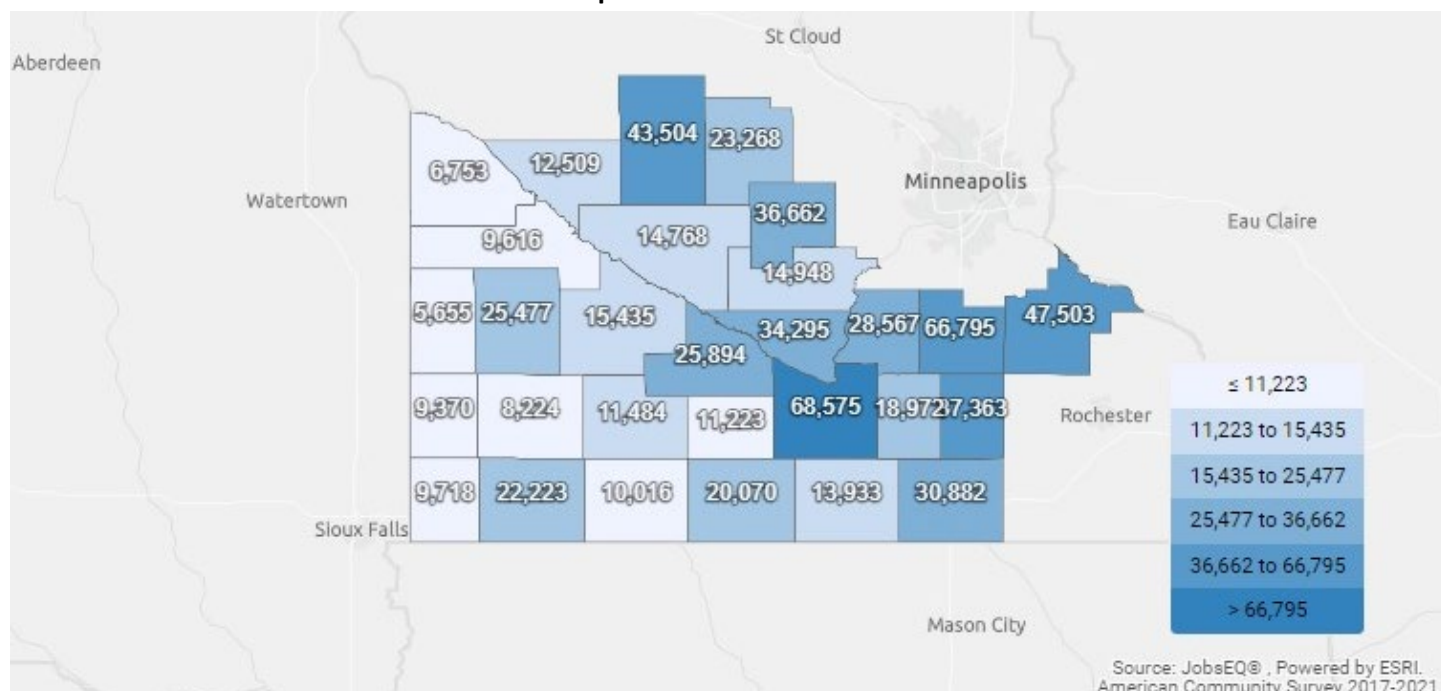
Population diversity increased between the two most recent population estimates statewide by 1.2 percentage points from 2019 to 2020 estimates, and by another 0.9 percentage points between 2020 and 2021 estimates. In the Southwest, the share of the population that is Black, Asian, American Indian, Native Hawaiian, or some other race (BIPOC) increased by 1.1 percentage points (following an increase of one percentage point in the prior year's estimates). Across the region overall, 10.9% of the population identify as BIPOC. The demographic makeup of communities across the Southwest look quite different from one another; Faribault-Northfield remains the most diverse of the region's economic hub, with 16% of the population identifying as BIPOC compared to 10% in Owatonna and 11% in Mankato. Owatonna and Faribault-Northfield also have a larger share of residents who are Hispanic or Latinx (8.1% and 8.5%, respectively) compared to 5.6% statewide and 7.7% for the Southwest region.

Population Race, All Ages

Owatonna	90.0%	3.3% / 3.9%
Faribault-Northfield	84.0%	6.2% / 3.8%
Mankato	89.0%	3.9% / 4.0%
Southwest	89.1%	2.5% / 3.5%
Minnesota	80.7%	6.6% / 4.6%

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Other Pacific Islander
- Some Other Race
- Two or More Races
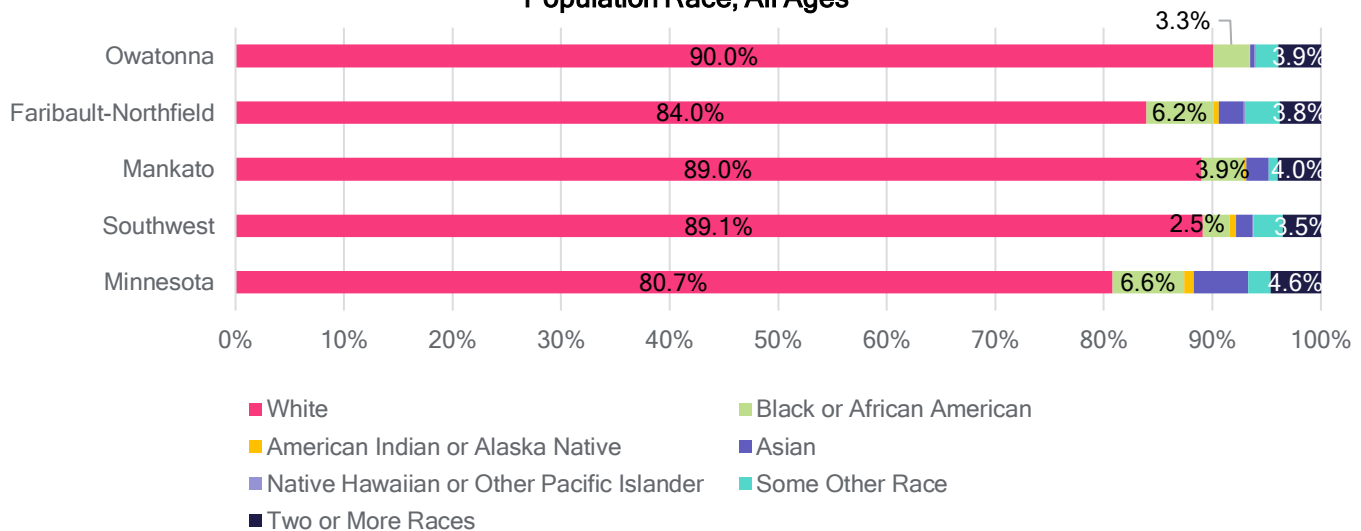
American Community Survey 2017-2021.

Population Ethnicity, All Ages

Owatonna	91.9%	8.1%
Faribault-Northfield	91.5%	8.5%
Mankato	95.7%	4.3%
Southwest	92.3%	7.7%
Minnesota	94.5%	5.6%

- Non-Hispanic White
- Hispanic/Latinx, Any Race
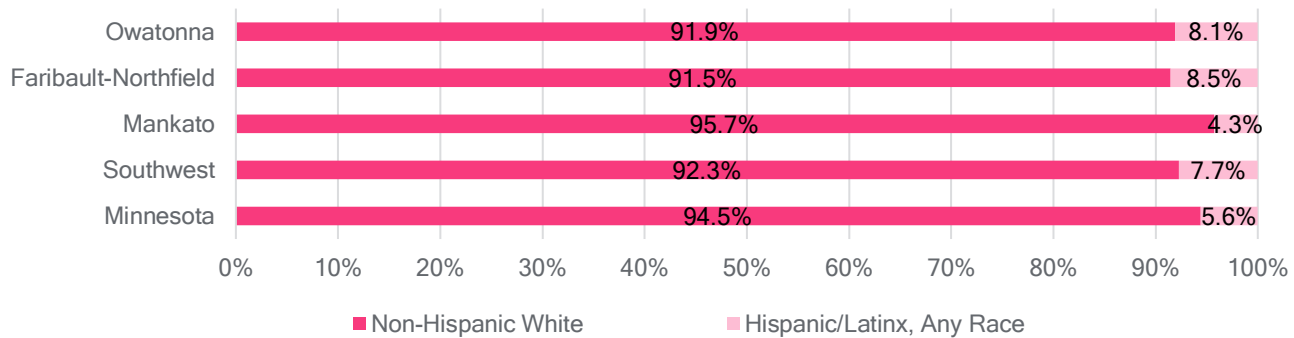
American Community Survey 2017-2021.

Community Demographics

Demographics	Percent						Value		
	Mankato, Minnesota MSA	Faribault-Northfield, Minnesota MSA	Owatonna, Minnesota MSA	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
Population (ACS)	—	—	—	—	—	—	683,702	5,670,472	329,725,481
Male	50.3%	51.3%	50.4%	50.4%	50.1%	49.5%	344,312	2,839,135	163,206,615
Female	49.7%	48.7%	49.6%	49.6%	49.9%	50.5%	339,390	2,831,337	166,518,866
Median Age2	—	—	—	—	—	—	39.6	38.2	38.4
Under 18 Years	20.8%	21.8%	25.0%	23.2%	23.3%	22.5%	158,408	1,323,569	74,234,075
18 to 24 Years	18.4%	14.5%	7.6%	9.9%	8.8%	9.2%	67,939	499,402	30,339,089
25 to 34 Years	13.0%	11.5%	11.3%	11.4%	13.3%	13.8%	77,998	756,215	45,360,942
35 to 44 Years	12.0%	12.1%	12.3%	11.7%	13.0%	12.9%	80,273	738,714	42,441,883
45 to 54 Years	10.1%	11.8%	12.6%	11.4%	12.1%	12.6%	77,856	688,596	41,631,458
55 to 64 Years	11.2%	12.6%	13.5%	13.8%	13.4%	13.0%	94,342	762,459	42,829,413
65 to 74 Years	8.5%	9.4%	9.9%	10.3%	9.4%	9.6%	70,530	535,592	31,590,619
75 Years and Over	6.1%	6.3%	7.8%	8.2%	6.5%	6.5%	56,356	365,925	21,298,002
Race: White	89.0%	84.0%	90.0%	89.1%	80.7%	68.2%	609,405	4,576,758	224,789,109
Race: Black or African American	3.9%	6.2%	3.3%	2.5%	6.6%	12.6%	16,927	376,406	41,393,012
Race: American Indian and Alaska Native	0.2%	0.5%	0.1%	0.6%	0.9%	0.8%	3,876	52,695	2,722,661
Race: Asian	2.1%	2.3%	0.4%	1.5%	5.0%	5.7%	10,585	283,382	18,782,924
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.1%	0.1%	0.1%	0.0%	0.2%	422	2,338	615,557
Race: Some Other Race	0.8%	3.2%	2.1%	2.7%	2.1%	5.6%	18,619	120,011	18,382,796
Race: Two or More Races	4.0%	3.8%	3.9%	3.5%	4.6%	7.0%	23,868	258,882	23,039,422
Hispanic or Latino (of any race)	4.3%	8.5%	8.1%	7.7%	5.6%	18.4%	52,706	319,828	60,806,969

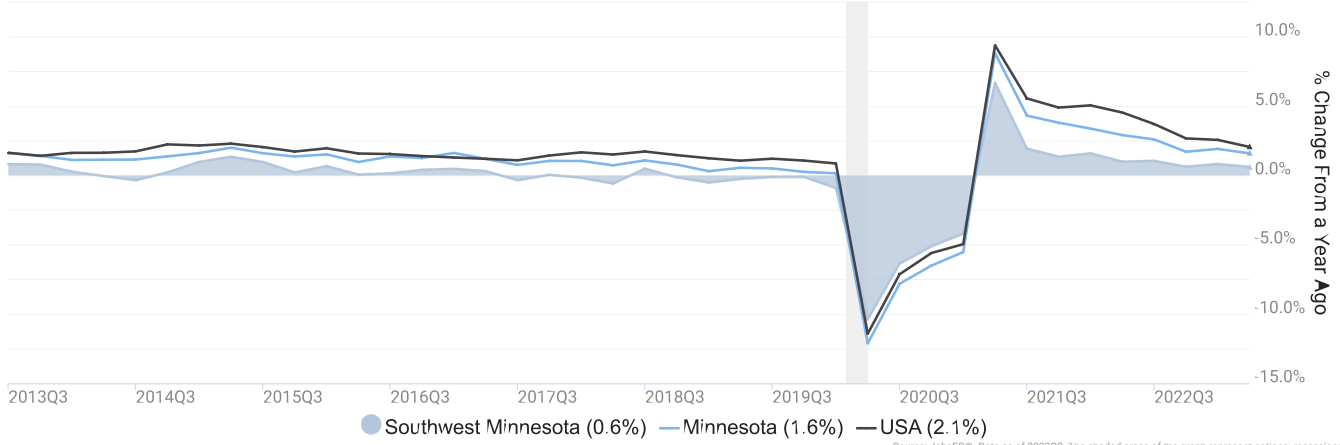American Community Survey 2017-2021 unless noted otherwise.

Employment

By 2021Q1, employment was impacted by the COVID-19 pandemic and dropped to 168,863 (based on a four-quarter moving average). Over the year ending 2022Q2, employment rose by 1.9% in the region to 322,488 employed across Southwest Minnesota. As of 2023Q2, total employment in Southwest Minnesota was 324,233, increasing by 0.6% from the prior year.

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Employment for Southwest Minnesota

Southwest Minnesota (0.6%) — Minnesota (1.6%) — USA (2.1%)

Source: JobsEQ®. Data as of 2023Q2. The shaded areas of the graph represent national recessions.

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 for Southwest Minnesota was 2.4% as of September 2023. The regional unemployment rate was lower than both the statewide rate (3.6%) and the national rate of 4%. One year earlier, in September 2022, the unemployment rate in Southwest Minnesota was 1.9%.

Unemployment for Southwest Minnesota

Southwest Minnesota (2.4%) — Minnesota (2.6%) — USA (3.6%)

Source: JobsEQ®. Data as of Sep 2023. The shaded areas of the graph represent national recessions.
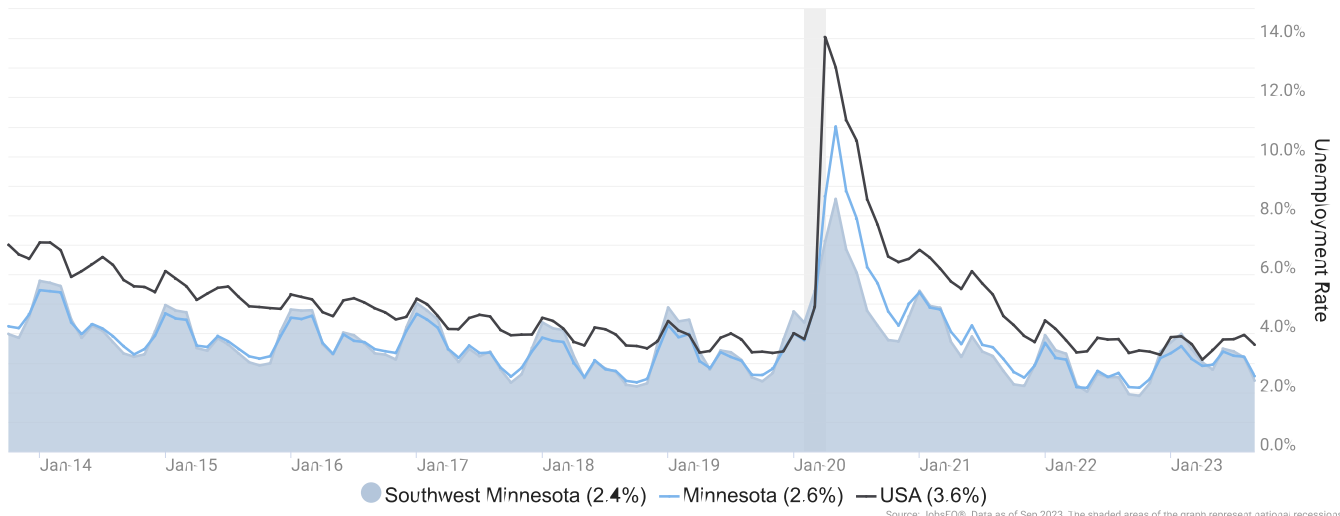
Unemployment rate data are from the Local Area Unemployment Statistics, provided by the Bureau of Labor Statistics and updated through September 2023.

The average worker in Southwest Minnesota earned annual wages of $53,919 as of 2023Q2, an increase of about $3,000 from 2022Q2 ($50,559). Average annual wages per worker increased 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).

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Average Annual Wages for Southwest Minnesota
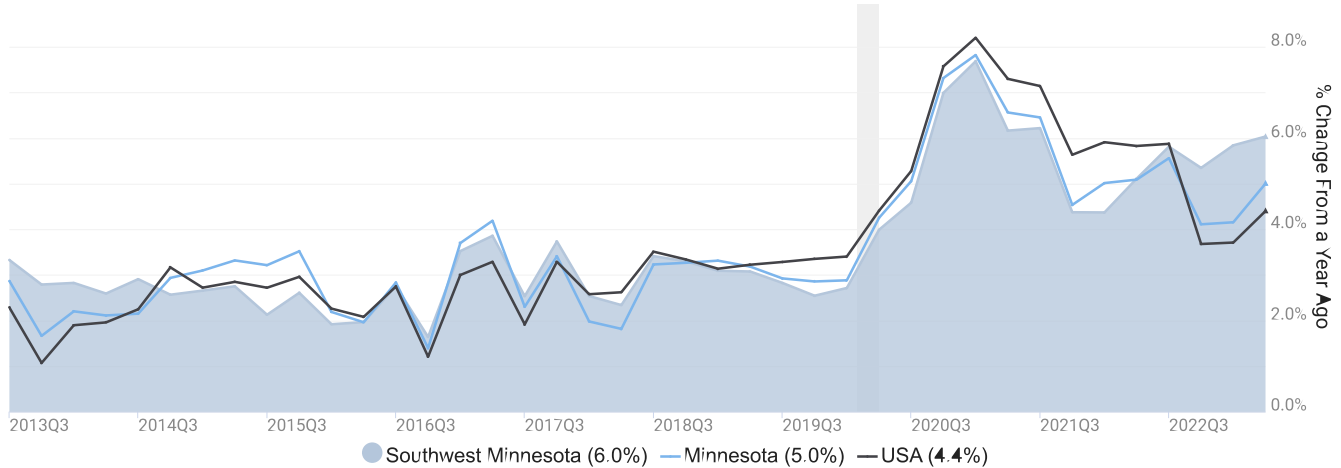
Southwest Minnesota (6.0%) — Minnesota (5.0%) — USA (4.4%)

Source: JobsEQ®. Data as of 2023Q2. The shaded areas of the graph represent national recessions.

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

Prime-Age (civilian population 25-54): 87.3% / 12.7%
16+ Population: 66.8% / 33.2%

■ In Labor Force   ■ Not in Labor Force

The region has a civilian labor force of 362,772 (an increase of about 2,500 workers from the prior year's estimates) with a participation rate of 66.8%, which lags Minnesota's labor force participation rate for the population over 16 by 2.3 percentage points. This is due primarily to the slightly older average age of residents in Southwest Minnesota. The participation rate of the prime working age population (between the ages of 25 and 64) also continues to lag behind the statewide rate—87.3% compared to the statewide 88.4%.

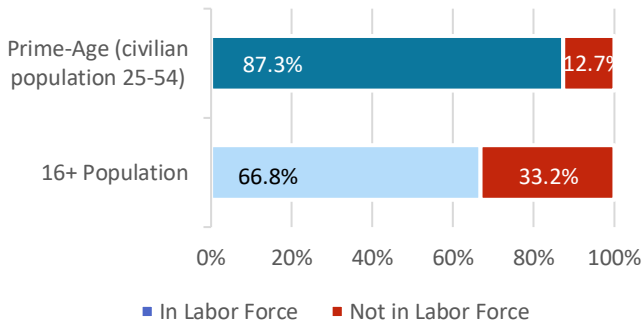American Community Survey 2017-2021 unless noted otherwise.

The Southwest region has a similar share of veterans than observed statewide, at 3.5% of the regional population compared to 3.6% broadly across the state. Veteran labor force participation is slightly higher in the region than observed statewide, 82.3% compared to Statewide veteran labor force participation at 80.6%. The Southwest has a similar share of people with disabilities, 9.1% compared to 9% statewide, and a lower labor force participation rate for the population with a disability, 52.7% compared to 53.5% statewide. The Southwest region has a similar share of disconnected youth (1.7% of youth) compared to statewide (1.8%) and below national rates (2.5%), with variation between communities. While just 0.1% of Faribault-Northfield youth are disconnected from school, training, or work, in Mankato about 1.2% are disconnected.

Economic and Social Characteristics of Southwest Minnesota

Economic and Social Characteristics	Percent						Values		
	Mankato, MN µSA	Faribault-Northfield, MN µSA	Owatonna, MN µSA	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	71.8%	64.7%	67.9%	66.8%	69.1%	63.4%	362,772	3,105,784	166,672,597
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	89.5%	82.1%	88.7%	87.3%	88.4%	82.5%	205,958	1,926,180	106,173,534
Armed Forces Labor Force	0.1%	0.1%	0.0%	0.0%	0.1%	0.5%	227	4,029	1,196,529
Veterans, Age 18-64	3.0%	3.7%	3.7%	3.5%	3.6%	4.4%	14,050	122,885	8,848,937
Veterans Labor Force Participation Rate and Size, Age 18-64	82.7%	90.6%	85.0%	82.3%	80.6%	77.0%	11,567	99,030	6,809,906
Median Household Income	—	—	—	—	—	—	$66,232	$77,706	$69,021
Per Capita Income	—	—	—	—	—	—	$33,709	$41,204	$37,638
Poverty Level (of all people)	14.1%	10.2%	8.6%	10.3%	9.2%	12.6%	67,915	512,312	40,661,636
Households Receiving Food Stamps/SNAP	7.2%	6.6%	6.4%	7.0%	7.5%	11.4%	18,863	167,348	14,105,231
Enrolled in Grade 12 (% of total population)	0.9%	1.4%	1.3%	1.4%	1.4%	1.3%	9,257	78,960	4,425,322
Disconnected Youth3	1.2%	0.1%	0.7%	1.7%	1.8%	2.5%	640	5,245	432,389
Children in Single Parent Families (% of all children)	30.7%	31.9%	22.6%	28.5%	28.4%	34.0%	43,236	361,209	23,909,672
Uninsured	3.6%	5.6%	3.8%	5.3%	4.6%	8.8%	35,480	258,292	28,489,142
With a Disability, Age 18-64	8.5%	6.9%	9.1%	9.1%	9.0%	10.3%	35,798	306,405	20,537,729
With a Disability, Age 18-64, Labor Force Participation Rate and Size	54.5%	45.7%	55.4%	52.7%	53.5%	44.2%	18,849	164,030	9,068,973
Foreign Born	5.3%	7.8%	4.5%	5.1%	8.5%	13.6%	34,918	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 Southwest Minnesota, 7.1% of adults between the ages of 25 and 64 do not have a high school diploma or equivalent, and about 28.3% have a high school diploma as their highest level of education (compared with 21.2% statewide). Nationwide, 10.3% 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 Faribault-Northfield has a larger share of residents with a high school diploma or less (7.6%), while Mankato has the smallest share of residents with lower educational attainment (4.5%).

Educational Characteristics of Southwest Minnesota

	Percent			Percent			Values		
Educational Characteristics	Mankato, MN MSA	Faribault-Northfield, MN μSA	Owatonna, MN μSA	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
No High School Diploma	4.5%	7.6%	7.5%	7.1%	6.0%	10.3%	23,455	176,696	17,756,046
High School Graduate	21.8%	31.7%	25.3%	28.3%	21.2%	25.3%	93,596	623,436	43,535,564
Some College, No Degree	20.5%	19.8%	22.7%	22.7%	20.2%	20.1%	75,046	593,618	34,637,141
Associate Degree	15.9%	13.2%	13.8%	15.8%	12.9%	9.3%	52,180	379,909	15,944,395
Bachelor's Degree	25.3%	17.8%	21.7%	18.4%	26.5%	22.0%	60,866	780,055	37,890,674
Postgraduate Degree	11.9%	9.8%	9.0%	7.7%	13.3%	13.1%	25,326	392,270	22,499,876

American Community Survey 2017-2021 unless noted otherwise.

Educational Attainment, Age 25-64
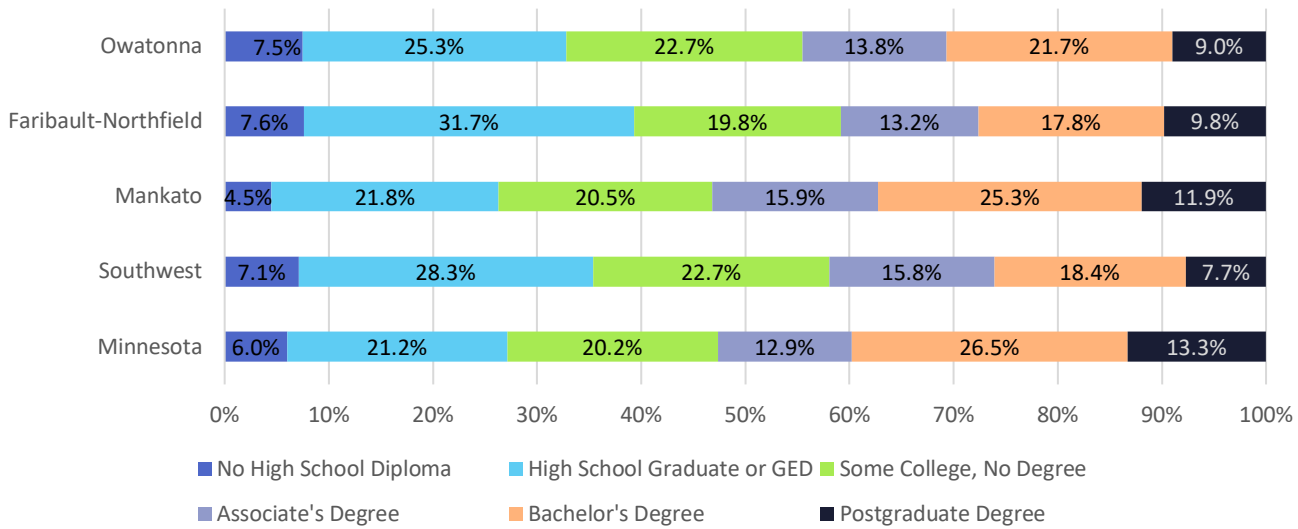
American Community Survey 2017-2021.

Regional Colleges and Universities

Southwest Minnesota has 11 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 during the 2021-22 school year. There was a total of 9,036 awards conferred in the region, an increase from the 2020-21 school year award count of 8,839.

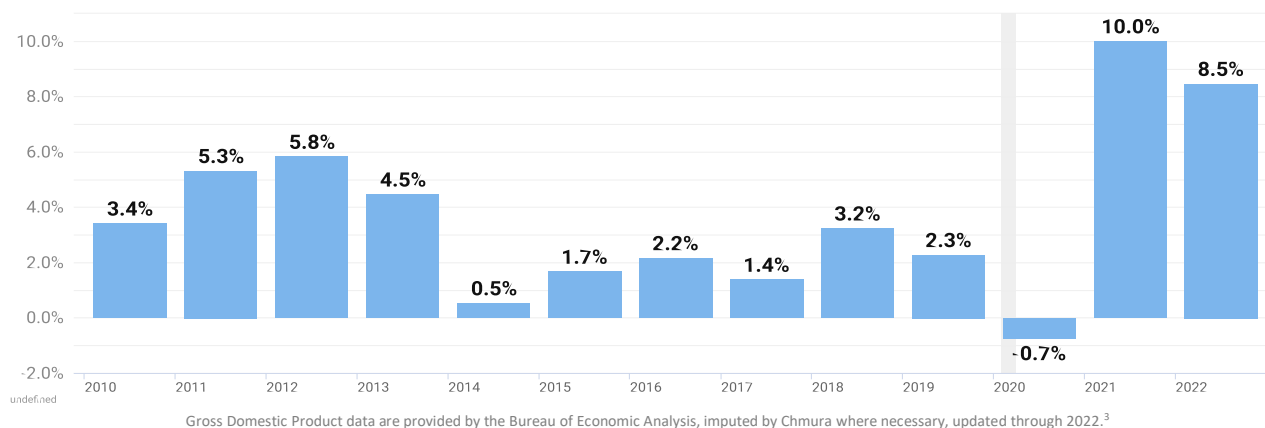| School	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Post-Bacc	Master's	Post-Master's/Doctorate	Total Awards	Total School Enrollment	Avg Net Price*
Minnesota State University-Mankato	131	0	53	0	2,628	210	603	103	3,728	14,576	$15,832
St Olaf College	0	0	0	0	969	0	0	0	969	2,988	$27,729
Ridgewater College	39	75	548	80	0	0	0	0	742	2,846	$11,014
Minnesota West Community and Technical College	277	161	239	13	0	0	0	0	690	3,347	$11,356
Gustavus Adolphus College	0	0	0	0	682	0	0	0	682	2,251	$27,657
Southwest Minnesota State University	5	0	10	0	457	21	139	10	642	6,986	$14,061
South Central College	107	82	375	27	0	0	0	0	591	2,511	$10,025
Carleton College	0	0	0	0	555	0	0	0	555	2,044	$31,718
Martin Luther College	55	1	0	1	173	0	26	0	256	920	$21,988
Bethany Lutheran College	0	14	0	0	150	0	0	0	164	798	$17,640
Avalon School of Cosmetology	6	7	0	4	0	0	0	0	17	18	$9,861
Total	**620**	**340**	**1,225**	**125**	**5,614**	**231**	**768**	**113**	**9,036**		

* 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 2020-2021 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 Southwest region expanded by 8.5%. This follows a growth of 10% in 2022. As of 2022, total GDP in the region was $36,930,347,000.

One-Year % Change in GDP, Southwest Minnesota

Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2022.[3]

[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.

As was the case in years prior, Manufacturing contributed the largest portion of GDP in 2022 for Southwest Minnesota $8,130,889,000. The next-largest contributions came from Agriculture, Forestry, Fishing and Hunting ($3,856,947,000); Health Care and Social Assistance ($3,618,328,000); and Retail Trade ($2,540,440,000). Overall, the industry mix contributing to regional GDP has not changed dramatically over the past three years.

GDP (in $ millions)
Southwest Minnesota, 2022

Industry	GDP
Manufacturing (31)	$8,131
Agriculture, Forestry, Fishing and Hunting (11)	$3,857
Health Care and Social Assistance (62)	$3,618
Retail Trade (44)	$2,540
Real Estate and Rental and Leasing (53)	$2,502
Wholesale Trade (42)	$2,367
Educational Services (61)	$2,194
Construction (23)	$1,704
Finance and Insurance (52)	$1,542
Public Administration (92)	$1,499

undefined

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

Labor Market
Workforce Forecast

Employment rose by 0.8% in the region between 2022Q2 and 2023Q2, lower than the previous estimates. An estimated 2.9% of the Southwest Minnesota workforce are unemployed by September 2023 (about 10,391 people). Employment in the region is forecast to decline by -0.6% on average annually through 2028 in a baseline scenario.

5-Year Forecast in Southwest Minnesota
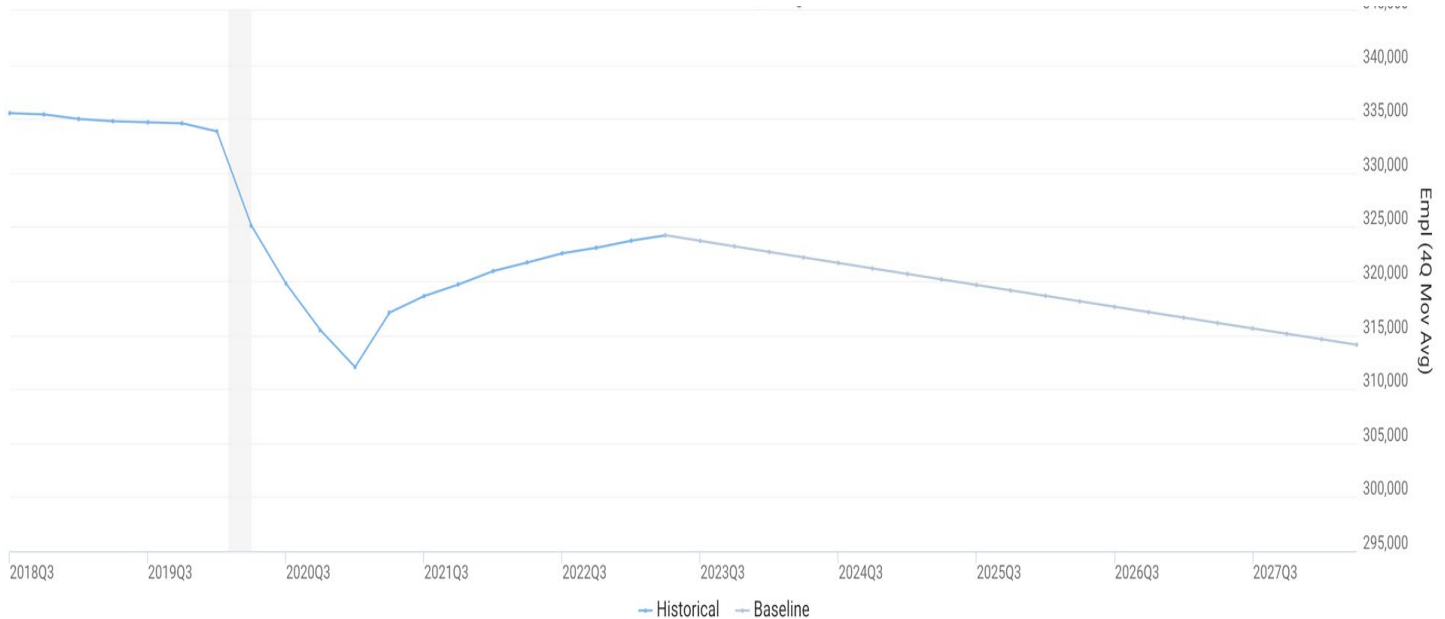
Employment forecasts vary considerably by industry. An industry cluster is a geographic concentration of interrelated industries or occupations. The industry cluster in the Southwest region with the highest relative concentration is Agricultural with a location quotient (LQ) of 4.90 (a slight increase in LQ from last year). This cluster employs 21,295 workers in the region (a decrease of about 648 workers from 2022) with an average wage of $82,300 – an increase of just over $9,000 in average sector wages from 2022 estimates. Employment in the Agricultural cluster is projected to contract in the region by about -1.2% on average annually over the next ten years. Between 2022Q2 and 2023Q2 estimates, many industries saw decline in forecasted employment change – notably, there is now only one industry with a positive value of average employment growth forecasted (there were five industries in 2022 estimates).

Industry Clusters for Southwest Minnesota as of 2023Q2

Source: JobsEQ®,Data as of 2023Q2
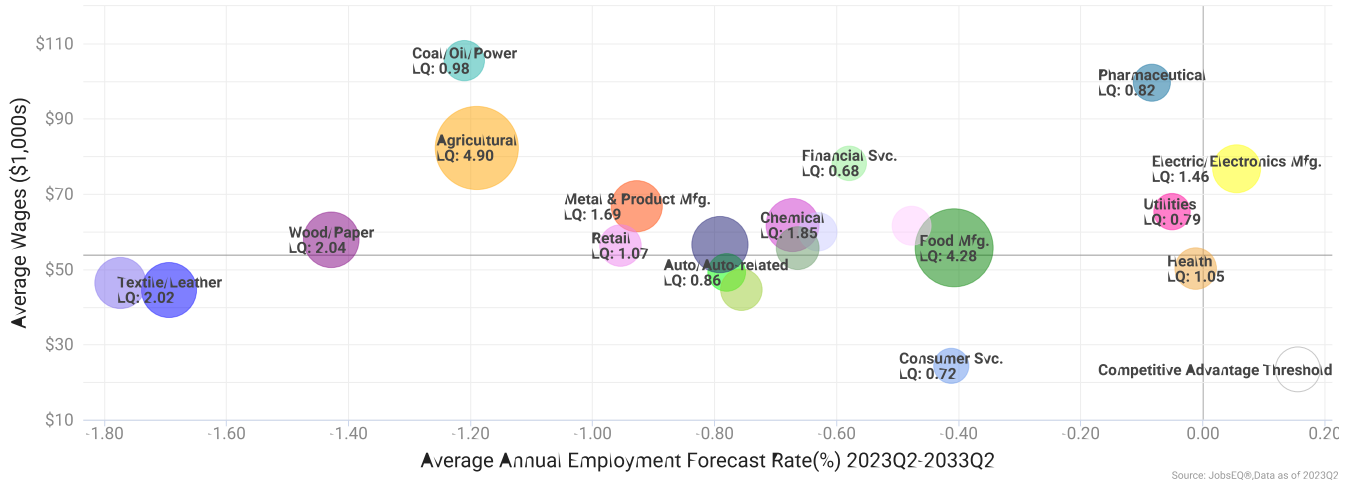
Quantifying Talent Shortages

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 available 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 is an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.

General and Operations Managers remains the occupation of greatest shortage in the region, followed by Heavy and Tractor-Trailor Truck Drivers. Registered Nurses. Restaurant Cooks fell from the second highest occupation shortage down to eighth. Seven out of the ten occupations forecasting shortages are target or gateway occupations, meaning that they pay at or above the wage of $56,500. The other occupations of highest forecasted shortage in the Southwest (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.

Several occupations forecasting 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.

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

Supply Deficit | Supply Surplus

Supply Deficit	Value	Supply Surplus	Value
General and Operations Managers ($92,900)	−27	Cashiers ($29,700)	116
Heavy and Tractor-Trailer Truck Drivers ($55,500)	−23	Fast Food and Counter Workers ($29,900)	70
Registered Nurses ($85,200)	−20	Waiters and Waitresses ($26,600)	44
Software Developers ($104,200)	−19	Retail Salespersons ($35,300)	36
Industrial Machinery Mechanics ($60,000)	−15	Customer Service Representatives ($43,900)	24
Industrial Engineers ($91,400)	−15	Office Clerks, General ($43,900)	19
Medical and Health Services Managers ($99,900)	−15	Food Preparation Workers ($32,800)	18
Cooks, Restaurant ($35,800)	−14	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($45,300)	16
Maintenance and Repair Workers, General ($50,200)	−12	Farmworkers, Farm, Ranch, and Aquacultural Animals ($37,200)	15
Financial Managers ($130,500)	−12	Bartenders ($28,000)	13

Award Gaps

Expected growth rates for occupations vary by the education and training required. The employment outlook declined for the Southwest region from 2022 estimates, contracting -0.6% over the next ten years. Occupations typically requiring a doctoral degree are now expected to grow 0.0%, whereas those requiring a master's degree are expected to grow by 0.2%. Those requiring either a bachelor's degree or a two-year degree or certificate are forecast to decline -0.3% per year. Estimated wages have increased across careers at each education level requirement.

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

Training Required	Growth
Doctoral or professional degree ($154,100)	0.0%
Master's degree ($87,100)	0.2%
Bachelor's degree ($84,200)	-0.3%
Associate's degree ($61,100)	-0.3%
Postsecondary non-degree award ($50,700)	-0.4%
High school diploma or equivalent ($50,800)	-0.8%
Some college, no degree ($43,200)	-1.2%
None ($36,600)	-0.8%
All Levels ($56,500)	-0.6%

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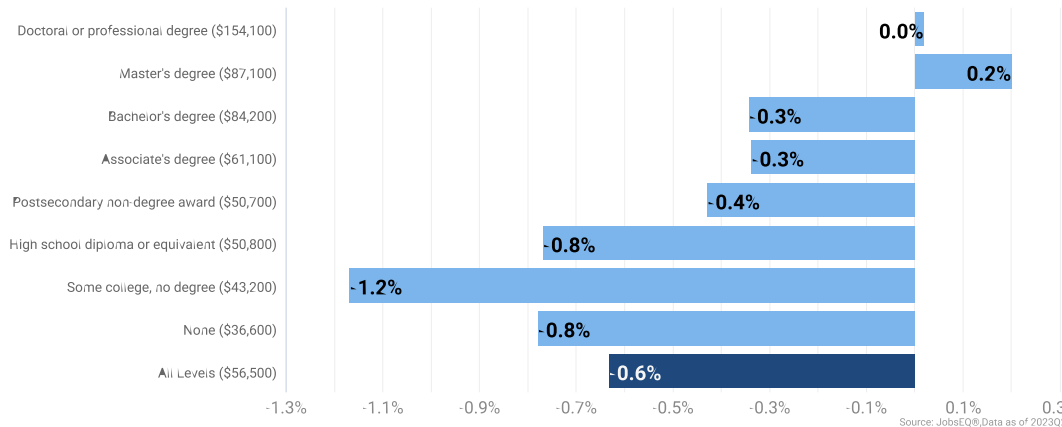
Employment by occupation data are estimates as of 2023Q2. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Award gaps quantify the total number of postsecondary award completions in a region tied to an occupation benchmarked against national rates. In the Southwest region, local postsecondary programs are likely underproducing Farmers, Ranchers, and other Agricultural Managers, General and Operations Managers, Licensed Practical and Vocational Nurses, and Welders completing local postsecondary programs compared to national volumes.

Award Gaps, All Occupations, Southwest Minnesota, 2023Q2

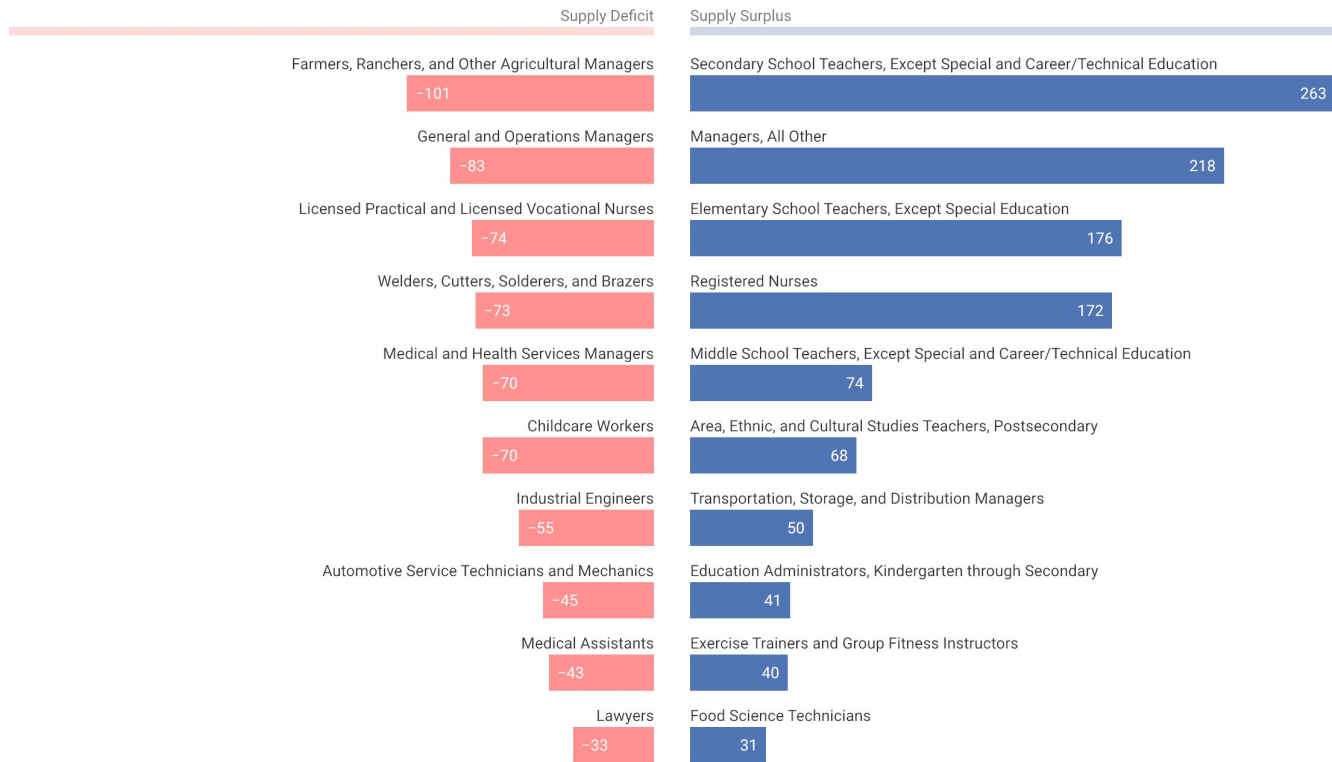| Supply Deficit		Supply Surplus	
Farmers, Ranchers, and Other Agricultural Managers	−101	Secondary School Teachers, Except Special and Career/Technical Education	263
General and Operations Managers	−83	Managers, All Other	218
Licensed Practical and Licensed Vocational Nurses	−74	Elementary School Teachers, Except Special Education	176
Welders, Cutters, Solderers, and Brazers	−73	Registered Nurses	172
Medical and Health Services Managers	−70	Middle School Teachers, Except Special and Career/Technical Education	74
Childcare Workers	−70	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	68
Industrial Engineers	−55	Transportation, Storage, and Distribution Managers	50
Automotive Service Technicians and Mechanics	−45	Education Administrators, Kindergarten through Secondary	41
Medical Assistants	−43	Exercise Trainers and Group Fitness Instructors	40
Lawyers	−33	Food Science Technicians	31

Several occupations have zero unemployed talent in the Southwest as of 2023Q2 estimates, resulting in an estimated unemployment rate of 0%. The occupations listed below have nonexistent unemployed talent at the regional level and 75 people or more working in these positions locally. Some of these roles have low volumes of online job postings due to unique methods of recruiting talent for specialty roles, while others show high posting volumes which indicates unmet demand and significant likely shortages. All but two of these roles pay well over the regional average of $56,500 annually.

Occupations with No Unemployed Workforce and Employing over 75 Workers, Southwest 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	505	$61,000	1.54	0	n/a	5	-31	-1.2%	242	103	154	-15	-0.6%
11-3012	Administrative Services Managers	451	$114,800	0.94	0	n/a	1	89	4.5%	175	73	110	-8	-0.4%
49-9043	Maintenance Workers, Machinery	253	$57,100	1.98	0	n/a	1	-1	0.0%	133	62	72	-1	-0.1%
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	244	$49,200	2.08	0	n/a	n/a	-53	-3.9%	110	40	80	-9	-0.8%
29-1131	Veterinarians	194	$140,300	1.09	0	n/a	24	-5	-0.5%	46	20	13	12	1.2%
29-1215	Family Medicine Physicians	178	$291,900	0.82	0	n/a	14	-66	-6.1%	21	17	8	-3	-0.4%
29-1216	General Internal Medicine Physicians	144	$306,700	0.96	0	n/a	8	-21	-2.7%	16	13	6	-4	-0.5%
19-3034	School Psychologists	129	$76,800	1.07	0	n/a	30	-24	-3.4%	41	13	33	-6	-0.9%
51-8013	Power Plant Operators	124	$97,600	1.90	0	n/a	1	57	13.1%	30	17	34	-21	-3.6%
29-1031	Dietitians and Nutritionists	117	$69,800	0.75	0	n/a	12	0	0.0%	36	20	18	-2	-0.4%
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	114	$65,900	1.58	0	n/a	1	-42	-6.0%	52	17	40	-4	-0.8%
19-2041	Environmental Scientists and Specialists, Including Health	112	$73,100	0.73	0	n/a	10	2	0.3%	48	12	38	-2	-0.3%
19-3033	Clinical and Counseling Psychologists	110	$94,500	0.78	0	n/a	10	-1	-0.1%	39	17	19	3	0.5%
11-1031	Legislators	104	$50,900	1.25	0	n/a	n/a	4	0.7%	38	16	24	-2	-0.5%
13-2081	Tax Examiners and Collectors, and Revenue Agents	100	$66,800	0.96	0	n/a	10	-4	-0.8%	41	20	23	-2	-0.5%
19-3051	Urban and Regional Planners	85	$79,600	1.01	0	n/a	3	5	1.1%	33	8	27	-2	-0.4%
53-4011	Locomotive Engineers	85	$72,700	1.23	0	n/a	n/a	-16	-3.4%	35	12	25	-3	-0.7%
31-2011	Occupational Therapy Assistants	84	$57,100	0.93	0	n/a	125	-4	-1.0%	68	23	43	2	0.6%
47-4021	Elevator and Escalator Installers and Repairers	82	$83,300	1.60	0	n/a	n/a	13	3.4%	32	11	24	-3	-0.7%
29-1041	Optometrists	79	$143,800	0.91	0	n/a	26	3	0.7%	12	8	4	1	0.2%
00-0000	**Total - All Occupations**	324,233	$56,500	1.00	10,391	2.9%	16,469	-9,913	-0.6%	173,975	77,850	106,307	-10,182	-0.6%

Job Posting Trends in Southwest 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 45,441 unique job postings advertised online in Southwest Minnesota on job boards, according to analysis using Gartner TalentNeuron Plan (compared to 512,054 postings statewide). This was 4% lower than the 12 months prior. About 2% of all positions advertised were explicitly listed as remote or telecommute roles—either permanently or temporarily—a decrease of one percentage point from the prior year. The share of remote work opportunities has decreased among all career fields except for Health Science Technology and Engineering, Manufacturing, and Technology.

Total Jobs Advertised Monthly in Southwest Minnesota, October 2022-2023
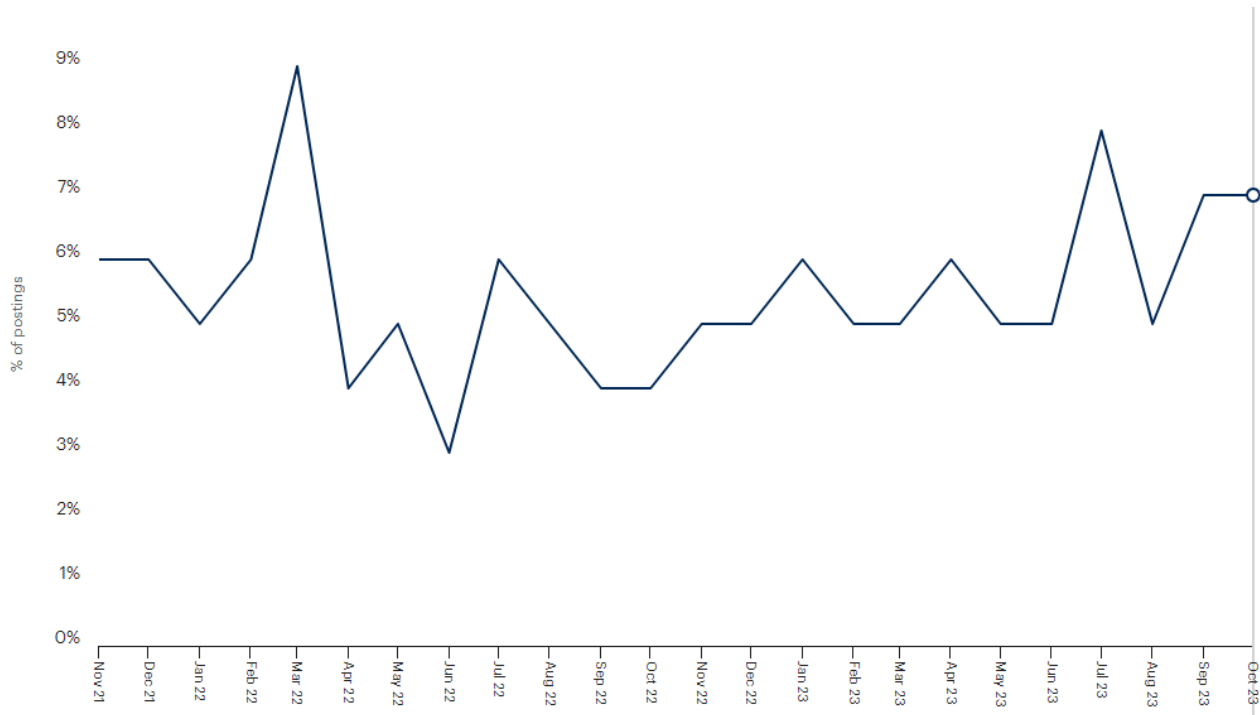
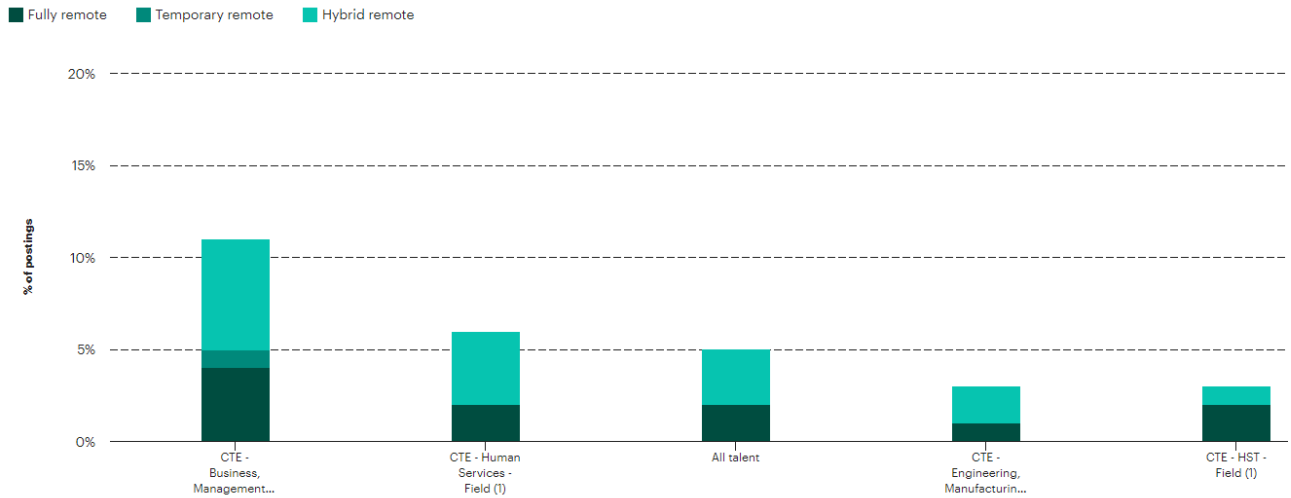SOURCE: Gartner TalentNeuron Plan accessed 11/20/2023

Total Remote Job Postings Advertised Monthly in Southwest Minnesota, October 2022-2023
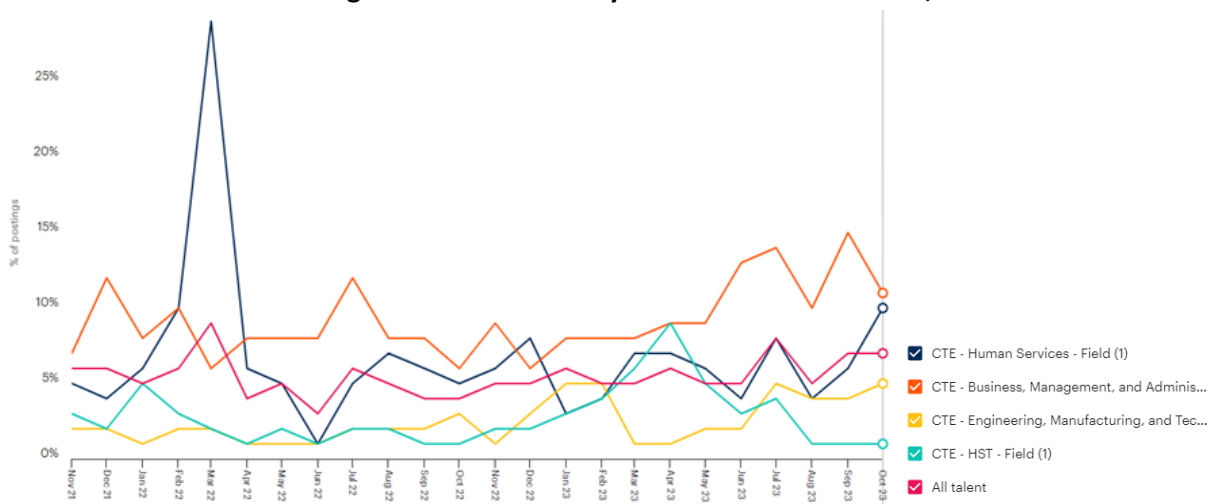
SOURCE: Gartner TalentNeuron Plan accessed 11/20/2023

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

Talent Profile	Unspecified /Onsite	Total remote	Fully remote	Temporary remote	Hybrid remote
		% of postings			
CTE - Business, Management, and Administration - Field	89% ▼ -3 pp	11% ▲ 3 pp	4% ▼ -1 pp	1% ▲ 1 pp	6% ▲ 3 pp
CTE - Human Services - Field (1)	94% ▲ 4 pp	6% ▼ -4 pp	2% ▼ -6 pp	0% ▲ 0 pp	4% ▲ 2 pp
All talent	95% ▲ 0 pp	5% ▲ 0 pp	2% ▼ -1 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
CTE - HST - Field (1)	97% ▼ -1 pp	3% ▲ 1 pp	2% ▲ 1 pp	0% ▲ 0 pp	1% ▲ 0 pp

SOURCE: Gartner TalentNeuron Plan accessed 11/20/2023

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 experiences, 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 Southwest Minnesota, October 2022-2023

New	Emerging	Growing	Core	Declining
There are no New skills in the market	There are no Emerging skills in the market	There are no Growing skills in the market	1. Operations 2. Leadership 3. Supervision	1. Dependability 2. Caregiving
New skills whose future is uncertain.	Relatively new skills that are becoming more prevalent.	Fast-growing skills that are becoming core skills.	Skills that have been present in a high percentage of job postings for some time.	Skills that used to be essential but are becoming obsolete.

Career Fields

Business, Management, and Administration accounts for the largest share of employment by career field in the Southwest region yet are no more concentrated locally than found nationally on average. Agriculture, Food, and Natural Resources and Engineering, Manufacturing, and Technology careers are more concentrated in the Southwest region than what is typically observed nationwide (LQ of 1.85 and 1.18 respectively), playing a more prominent role in the local workforce dynamics than for many other regions. 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 across all experience levels.

Unemployment is high in Engineering, Manufacturing, and Technology and Business, Management, and Administration careers overall as of 2023Q2, at 3.3% and 3.2% respectively. This is largely due to high unemployment in the Hospitality and Tourism cluster as well as the Architecture and Construction career cluster. The Southwest region can expect moderate talent shortages in all career fields except Health Science Technology.

CTE Field Employment and Wages in Southwest Minnesota, 2023Q2[1]

| CTE Field | Current 2023Q2 Estimates | | | | | | | 5-Year History | |
	2023Q2 Empl	2023 Avg Entry-Level Wages	2023 Avg Ann Wages	LQ	Unempl	Unempl Rate	Online Job Ads 10/20/2023-11/20/2023[3]	Empl Change	Ann %
Health Science Technology	27,226	$35,800	$78,200	0.92	549	1.8%	3,406	-2,366	-1.7%
Human Services	49,490	$40,600	$54,800	0.98	1,152	2.3%	2,001	-453	-0.2%
Arts, Communications, and Information Systems	9,552	$49,500	$73,000	0.64	227	2.4%	417	-969	-1.9%
Business, Management, and Administration	125,595	$36,500	$53,100	0.87	4,476	3.2%	6,292	-3,404	-0.5%
Engineering, Manufacturing, and Technology	94,145	$40,600	$53,800	1.18	3,549	3.3%	3,987	-2,102	-0.4%
Agriculture, Food, and Natural Resources*	31,325	$37,600	$54,900	1.85	845	2.6%	788	-932	-0.6%
Total - All Occupations	324,233	$31,100	$56,500	1.00	10,391	2.9%	16,469	-9,913	-0.6%

Data as of 2023Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

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.

CTE Field Baseline Employment Forecast for Southwest Minnesota, 2028Q2

| CTE Field (occupation overlap exists, will not sum) | Current 2023Q2 Empl (Place of Work) | 5-Year Growth 2028Q2 | | | | |
		Total Demand	Exits	Transfers	Empl Change	Ann % Change
Health Science Technology	27,226	11,940	5,482	6,467	-9	0.0%
Human Services	49,490	25,123	12,039	13,810	-727	-0.3%
Arts, Communications, and Information Systems	9,552	3,828	1,497	2,610	-279	-0.6%
Business, Management, and Administration	125,595	75,105	34,547	46,073	-5,515	-0.9%
Engineering, Manufacturing, and Technology	94,145	48,135	19,257	31,603	-2,725	-0.6%
Agriculture, Food, and Natural Resources*	31,325	17,125	7,842	10,640	-1,358	-0.9%
Total - All Occupations	324,233	173,975	77,850	106,307	-10,182	-0.6%

*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 the sixteen career clusters used by Career and Technical Education (CTE), twelve are forecast to decline in overall employment over the next ten years as of 2023Q2 estimates (last year's estimates showed eight facing forecasted growth). The four clusters forecasting growth are Human Services (2.6%), Science Technology, Engineering, and Mathematics (1.5%), Information Technology (0.7%), and Health Science (0.0%). All clusters saw fairly substantial declines in forecast employment outlook, with the exception of Transportation, Distribution, and Logistics which saw a slight improvement in outlook, and Agriculture, Food, and Natural Resources which held steady. Eleven of the sixteen career clusters have average wages above the average occupation wage in the region ($56,500 in 2023—an increase of $5,200 from 2022).[4]

Baseline 10-Year Forecasts by Career Cluster, Southwest Minnesota, 2023Q2
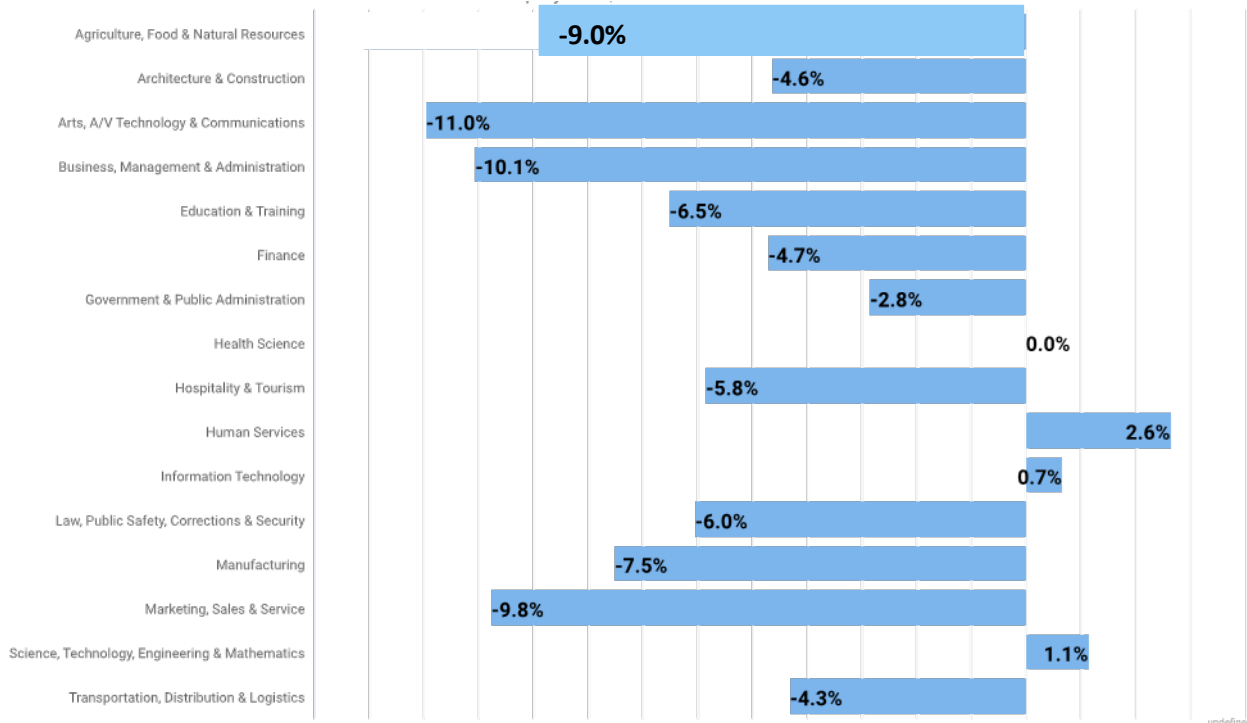
Cluster forecasts estimated using Chmura, JobsEQ, based on 2023Q2 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters.

An accurate assessment of future occupation demand requires that future growth, retirements, and other job exits be considered. In the Southwest, Hospitality and Tourism, Business, Management, and Administration, and Manufacturing 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 & Mathematics Information Technology, Finance, Health Science, Government & Public Administration, Business, Management & Administration, Law, Public Safety, Corrections & Security, Architecture & Construction, Education & Training, Arts, A/V Technology & Communications, Agriculture, Food & 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	4,163	$96,100	367	1.1%	4	282
Information Technology	4,557	$89,600	284	0.7%	3	324
Finance	8,892	$80,800	461	-4.7%	-44	709
Health Science	27,226	$78,200	3,406	0.0%	-3	2,388
Government & Public Administration	2,649	$64,800	137	-2.8%	-8	251
Business, Management & Administration	49,561	$64,100	2,036	-10.1%	-526	4,869
Law, Public Safety, Corrections & Security	7,127	$63,700	382	-6.0%	-45	627
Architecture & Construction	19,927	$61,100	529	-4.6%	-96	1,849
Education & Training	20,680	$59,600	536	-6.5%	-141	1,700
Arts, A/V Technology & Communications	4,995	$57,900	133	-11.0%	-58	448
Agriculture, Food & Natural Resources*	31,325	$54,900	739	-9.0%	-260	3,433
Marketing, Sales & Service	32,125	$49,900	1,389	-9.8%	-331	3,837
Manufacturing	42,445	$49,500	1,971	-7.5%	-333	4,321
Transportation, Distribution & Logistics	27,610	$48,900	1,119	-4.3% (+)	-124	3,232
Human Services	19,034	$44,800	946	2.6%	47	2,457
Hospitality & Tourism	35,017	$33,500	2,406	-5.8%	-213	5,741
Total - All Occupations	**324,233**	**$56,500**	**16,469**	**-6.0%**	**-2,074**	**35,010**

*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
- Award gaps in critical nursing and health management roles (shortage of at least 74 graduates to fill Licensed Practical Nurse roles and 70 graduates to fill Medical and Health Services Managers roles)
- Unique high local concentration of Licensed Practical Nurses (LQ 1.49)
- Employment forecast flat (0.0%) over the next five years (all other fields project declines)
- Lowest unemployment rate of career fields (1.8%)

Human Services

Critical Issues:

- High share of workforce over-credentialed for the roles they currently hold
- High replacement needs
- All top ten occupations are highly concentrated locally (LQ over 1.0)
- Critical occupations of shortage such as Mental Health Counselors
- Shortage of at least 70 postsecondary certificate completions needed to fill Childcare Worker roles regionally

Arts, Communications, and Information Technology

Critical Issues:

- Increase in unemployment rate from previous year
- High demand for new professionals in this field over the next five years (need 3,828 new professionals in this field alone)
- Continued shortage of software developers expected (at least 19 annually) – demand outpaces local supply
- An award gap of at least 23 graduates needed to fill Computer User Support Specialist roles

Business, Management, and Administration

Critical Issues:

- Largest share of employment by career field
- High unemployment (3.2%, increased by 0.8 percentage points from prior year)
- All of the ten top occupations by employment volume have forecasted declines over the next ten years
- Shortage of at least 83 graduates needed to fill General and Operations Managers positions

Engineering, Manufacturing, and Technology

Critical Issues:

- High unemployment (3.3%)
- Exacerbation of talent shortage due to upcoming retirements with 48.2% of workers in this field 45 years or older
- Some substantial award gaps, a dramatic increase in the forecasted gap for Auto Mechanics
- Extremely high local concentration of Slaughterers and Meat Packers (LQ12.69)

Agriculture, Food, and Natural Resources

Critical Issues:

- Greatest forecast decline (-0.9%), tied with Business, Management, and Administration
- This field has the highest local concentration (LQ 1.85)
- All of the top ten occupations forecast decline over the next ten years
- Dramatic award gap for Farmers, Ranchers, and Other Agricultural Managers (shortage of 101 graduates)

Health Science Technology

Over the next three years, Health Science Technology employment is forecast to remain flat (0.0%), a drop from last year's projected 0.4% growth reflected in the trend observed regionally over the past twelve months.

Baseline 3-Year Forecast for Health Science Technology Careers, Southwest Minnesota, 2023Q2
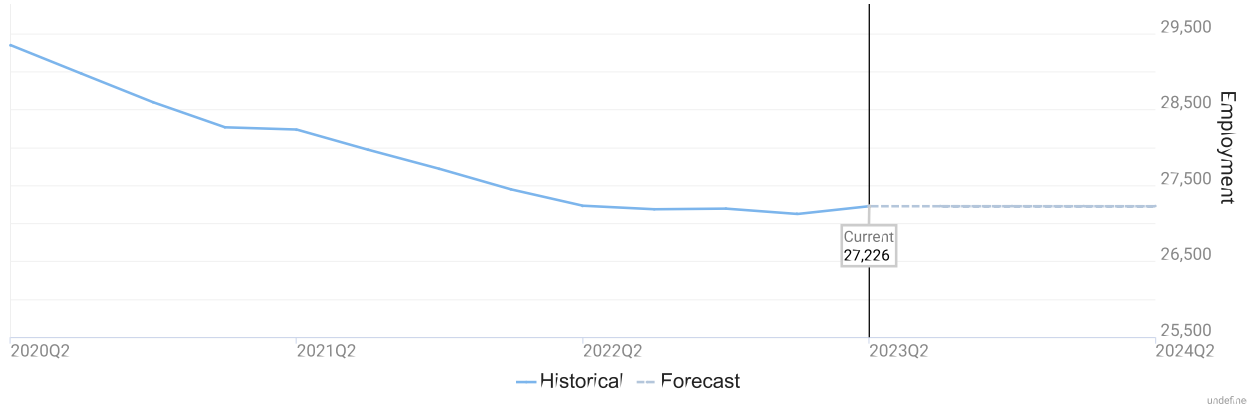
Top Ten Health Science Technology Occupations by Employment Volume in Southwest Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Registered Nurses	5,599	$85,200	0.88	-147	294	-0.4%
Nursing Assistants	3,852	$38,700	1.42	-514	538	-0.6%
Home Health Aides	2,204	$33,000	1.13	-566	272	0.9%
Licensed Practical and Licensed Vocational Nurses	1,942	$54,900	1.49	-388	142	-0.6%
Medical Secretaries and Administrative Assistants	1,135	$45,800	0.82	-63	127	-0.2%
Medical Assistants	916	$44,600	0.59	-97	132	0.5%
Medical and Health Services Managers	869	$99,900	0.86	-4	85	1.6%
Pharmacy Technicians	666	$42,200	0.74	-17	57	-0.3%
Dental Assistants	623	$56,700	0.84	52	89	0.0%
Pharmacists	517	$143,000	0.78	-17	17	-0.6%
Remaining Component Occupations	8,897	$112,900	0.84	-365	628	0.2%
Health Science (CTE Field)	**27,226**	**$78,200**	**0.92**	**-2,123**	**2,388**	**0.0%**

"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 individuals in Southwest Minnesota that are working in Health Science Technology roles are employed by General Medical and Surgical Hospitals (27.4%, an increase of 0.4 percentage points from last year) or Nursing Care Facilities (Skilled Nursing Facilities) 18.7%.

Health Science Technology Field Employment by Industry, Southwest 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	27.4%	7,464	5,369	-151	5,218
Nursing Care Facilities (Skilled Nursing Facilities)	18.7%	5,092	5,376	-470	4,906
Offices of Physicians	12.3%	3,352	2,544	77	2,621
Offices of Dentists	5.3%	1,432	1,391	0	1,391
Individual and Family Services	3.8%	1,029	1,212	227	1,439
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	3.7%	1,011	1,202	84	1,286
Home Health Care Services	3.7%	1,005	972	122	1,094
Offices of Other Health Practitioners	3.7%	994	787	79	866
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.2%	874	874	-18	856
Other Professional, Scientific, and Technical Services	2.5%	683	730	96	826
Psychiatric and Substance Abuse Hospitals	2.2%	607	538	-13	526
Health and Personal Care Retailers	2.2%	594	440	-41	399
Elementary and Secondary Schools	1.7%	469	324	-28	296
Outpatient Care Centers	1.4%	374	311	64	375
Colleges, Universities, and Professional Schools	1.0%	284	199	11	210
Executive, Legislative, and Other General Government Support	1.0%	269	221	-6	215
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	0.6%	170	128	-16	112
Other Residential Care Facilities	0.6%	161	162	-7	155
Grocery and Convenience Retailers	0.5%	148	110	-10	100

Career Field Demographics

The Health Science Technology field is predominantly female (82.6%) and white (90.8%), but racial diversity grew by 1.3 percentage points from the prior years' estimates. The age distribution of talent in Health Science Technology is relatively even from age 25 through 64, but with the largest proportion of talent between the ages of 25 and 34 years (21.8% of talent). The share of talent 65 or older increased by 0.1 percentage points from the prior years' estimates.

Age

Southwest Minnesota

10.2%	21.8%	21.7%	19.5%	18.9%	6.3%

Minnesota

8.0%	24.2%	23.6%	20.1%	17.6%	5.4%

- 16 to 19 years (1.5%)
- 20 to 24 years (10.2%)
- 25 to 34 years (21.8%)
- 35 to 44 years (21.7%)
- 45 to 54 years (19.5%)
- 55 to 64 years (18.9%)
- 65 years and over (6.3%)

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

Race

Southwest Minnesota

| 90.8% |

Minnesota

| 80.8% | 8.1% | 7.2% |
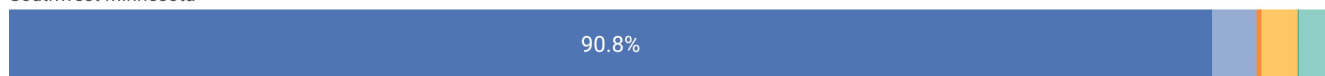
- White (90.8%)
- American Indian (0.4%)
- Pacific Islander (0.1%)
- Black (3.4%)
- Asian (2.7%)
- Two or More Races (2.7%)

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

Ethnicity

Southwest Minnesota

| 95.9% |

Minnesota

| 96.5% |
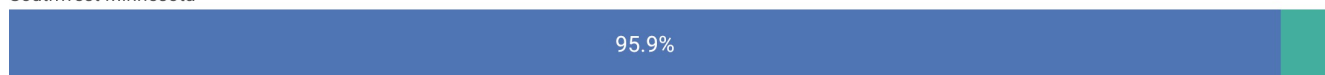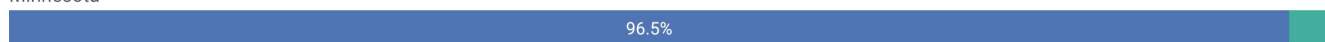
- Non-Hispanic/Latino (95.9%)
- Hispanic or Latino (of any race) (4.1%)

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

Gender

Southwest Minnesota

| 17.4% | 82.6% |

Minnesota

| 21.0% | 79.0% |

- Male (17.4%)
- Female (82.6%)

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 Southwest Minnesota Health Science Technology workforce has a close match to the education and training required for existing roles. For example, 18.4% of Health Science Technology positions require no educational award (down 0.1 percentage points from the prior years' estimates), and about 16.4% 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 16.2% completed some college (such as a certificate), or 44.1% in all, compared to about 38.2% of local jobs in Health Science Technology that typically require a certificate two-year degree.

Educational Attainment

Southwest Minnesota

| | 14.6% | 16.2% | 27.9% | 22.8% | 7.2% | 9.6% |

Minnesota

| | 10.7% | 13.0% | 21.7% | 28.6% | 10.6% | 13.8% |

- < High School (1.8%)
- Some College (16.2%)
- Four-Year (22.8%)
- High School (14.6%)
- Two-Year (27.9%)
- Master's (7.2%)
- PhD (9.6%)

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

Education and Training Requirements

Southwest Minnesota

| 10.7% | 7.1% | 38.2% | 26.4% | 17.0% |

Minnesota

| 10.6% | 8.2% | 32.5% | 28.3% | 19.8% |

- ■ Short-term OJT, no exp, no award (10.7%)
- ■ Moderate-term OJT, no exp, no award (7.1%)
- ■ Long-term training, no exp, no award (0.6%)
- ■ Previous work experience, no award (0.0%)
- ■ 2-year degree or certificate (38.2%)
- ■ Bachelor's degree (26.4%)
- ■ Postgraduate degree (17.0%)

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

Occupation Gaps

In Health Science Technology, Registered Nurses and Medical and Health Service Managers are the two occupations with the greatest annual shortages in the Southwest. Other occupations of high shortage have mostly remained consistent with prior estimates.

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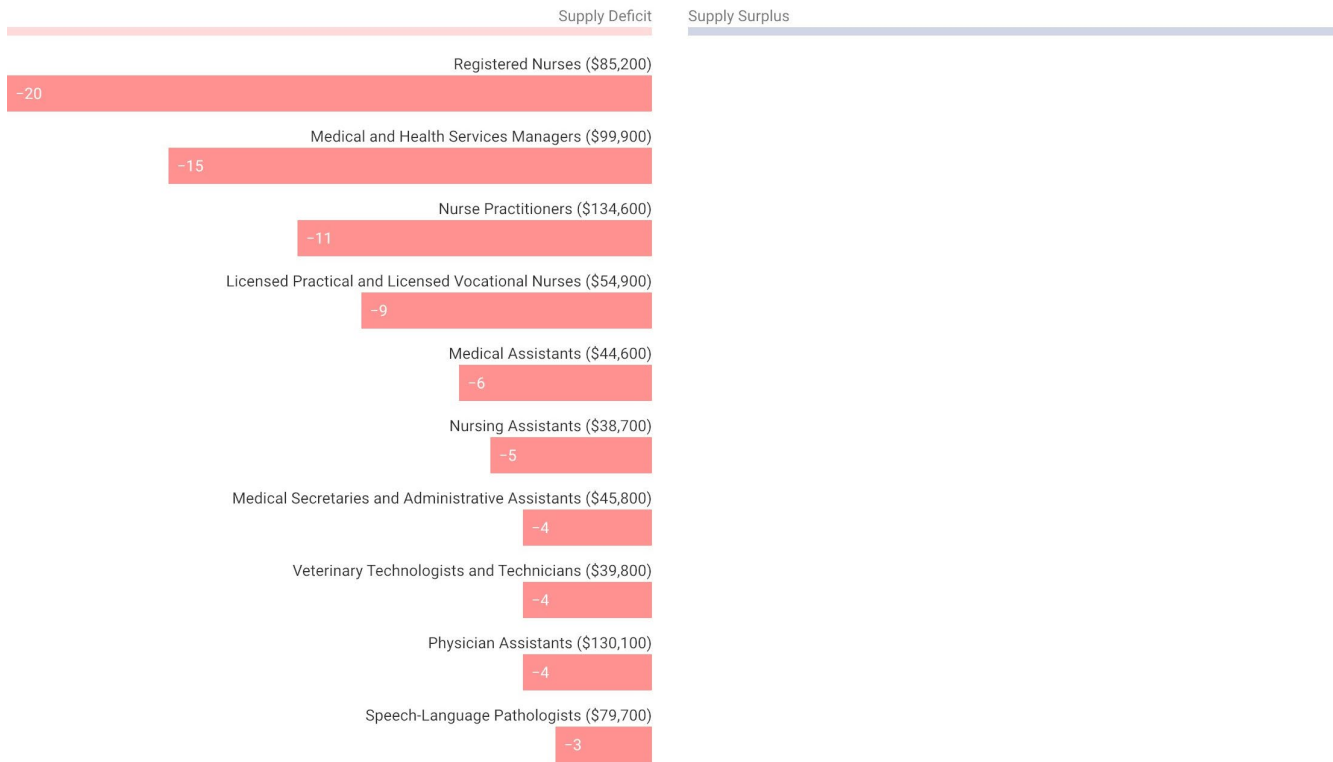
Supply Deficit   Supply Surplus

Registered Nurses ($85,200)
−20

Medical and Health Services Managers ($99,900)
−15

Nurse Practitioners ($134,600)
−11

Licensed Practical and Licensed Vocational Nurses ($54,900)
−9

Medical Assistants ($44,600)
−6

Nursing Assistants ($38,700)
−5

Medical Secretaries and Administrative Assistants ($45,800)
−4

Veterinary Technologists and Technicians ($39,800)
−4

Physician Assistants ($130,100)
−4

Speech-Language Pathologists ($79,700)
−3

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. The Southwest has several Health Science Technology award gaps, meaning that the region is underproducing local talent in relation to employer demand. Southwest colleges and universities are underproducing about 74 Licensed Practical and Licensed Vocational Nurse and 70 Medical and Health Services Manager graduates annually that are needed to fill positions open with employers in the region. 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. The oversupply of graduates in the Southwest is likely helping to meet award gaps found in the 7-county MSP Metro and elsewhere.

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

Occupation	Value
Licensed Practical and Licensed Vocational Nurses	−74
Registered Nurses	172
Medical and Health Services Managers	−70
Dental Hygienists	20
Medical Assistants	−43
Phlebotomists	9
Healthcare Support Workers, All Other	−20
Speech-Language Pathologists	5
Medical Secretaries and Administrative Assistants	−18
Recreational Therapists	5
Pharmacists	−17
Athletic Trainers	2
Physician Assistants	−17
Medical and Clinical Laboratory Technicians	1
Physical Therapists	−17
Exercise Physiologists	1
Occupational Therapists	−15
Veterinarians	−9

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, Southwest Minnesota, 2023Q2

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

Gateway Occupations (all OG)
Licensed Practical Nurses (HS, AG)
Medical Secretaries & Administrative Assistants (HD, AG)
Medical Records Specialists (HS, HD, AG)
Health Technologists & Technicians (HS, HD, AG)
Ophthalmic Medical Technicians (HS, HD)

Origin Occupations (all OG)
Nursing Assistants (HS, OG)
Home Health Aides (HD)
Medical Assistants (HS, HD, OG, AG)
Pharmacy Technicians (HD, OG, AG)
Veterinary Technologists & Technicians (HS, HD, 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 Southwest region is the pathway to become a Licensed Practical Nurse. The Gateway occupation of Licensed Practical Nurse is highly concentrated in the Southwest region with a location quotient of 1.49. This role is experiencing both an occupation and award gap. Southwest colleges and universities are underproducing at least 74 graduates annually to fill this role. A potential next step occupation is the target occupation of Registered Nurse, which is relatively concentrated in the region (LQ 0.88) and in high demand and faces an occupation gap as well. The Origin occupation of Nursing Assistants are also highly locally concentrated in the Southwest region (LQ 1.42) and are also experiencing an occupation gap. This is an example of a potential feeder occupation into these roles, given overlapping foundational skillsets and training required. Stackability of credentials is vital to building viable career pathways up to Registered Nursing positions at the AS, BSN, or MSN levels.

Origin	Gateway	Target
Nursing Assistants (HS, OG)	Licensed Practical and Licensed Vocational Nurses (HS, OG, AG)	Registered Nurses (HW, HS, HD, OG)
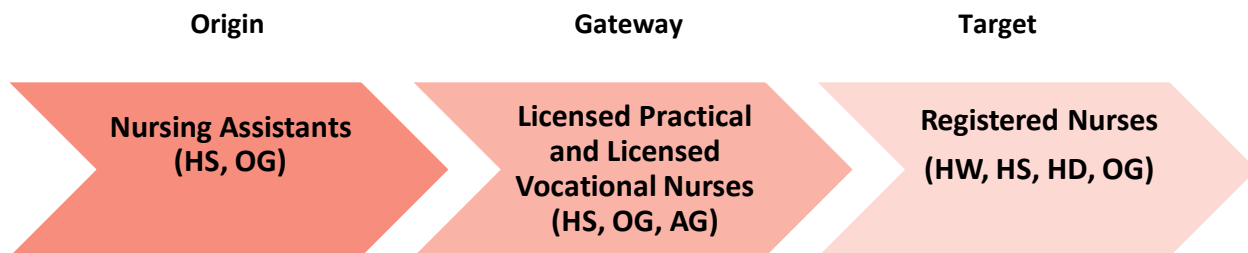
OGT Wages and Experience Level Requirements, Health Science Technology, Southwest Minnesota, 2023Q2

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	5,599	$85,200	$68,500	$93,500	$66,100	$73,800	$82,800	$95,900	$106,400	BA	None	None
11-9111	Medical and Health Services Managers	869	$99,900	$70,200	$114,800	$65,800	$79,800	$96,400	$112,000	$135,500	BA	Less than 5 years	None
31-9091	Dental Assistants	623	$56,700	$50,100	$60,000	$49,800	$51,500	$56,200	$61,800	$66,400	Certificate	None	None
29-1051	Pharmacists	517	$143,000	$123,100	$152,900	$115,900	$134,800	$140,600	$162,300	$168,600	PhD	None	None
29-1292	Dental Hygienists	442	$86,300	$81,300	$88,700	$80,700	$82,500	$83,700	$92,700	$99,600	AS	None	None
29-2061	Licensed Practical and Licensed Vocational Nurses	1,942	$54,900	$49,200	$57,800	$48,600	$50,600	$52,800	$60,500	$64,300	Certificate	None	None
43-6013	Medical Secretaries and Administrative Assistants	1,135	$45,800	$39,400	$49,000	$39,300	$40,300	$44,300	$49,700	$54,000	HS/GED	None	Mod-term OJT
29-2072	Medical Records Specialists	266	$54,200	$42,200	$60,100	$40,900	$45,300	$51,400	$57,800	$70,000	Certificate	None	None
29-2099	Health Technologists and Technicians, All Other	143	$52,200	$41,500	$57,500	$40,700	$43,800	$49,000	$55,800	$76,000	Certificate	None	None
29-2057	Ophthalmic Medical Technicians	96	$54,800	$39,600	$62,300	$38,400	$43,400	$54,500	$64,900	$71,900	Certificate	None	None
31-1131	Nursing Assistants	3,852	$38,700	$33,900	$41,100	$32,600	$36,000	$38,000	$40,100	$45,700	Certificate	None	None
31-1121	Home Health Aides	2,204	$33,000	$28,800	$35,200	$28,400	$29,800	$32,400	$36,300	$38,400	HS/GED	None	Short-term OJT
31-9092	Medical Assistants	916	$44,600	$37,700	$48,000	$37,300	$39,300	$44,400	$48,400	$54,200	Certificate	None	None
29-2052	Pharmacy Technicians	666	$42,200	$35,400	$45,600	$33,600	$38,500	$40,600	$46,700	$50,800	HS/GED	None	Mod-term OJT
29-2056	Veterinary Technologists and Technicians	361	$39,800	$33,000	$43,200	$31,500	$35,900	$39,100	$42,300	$46,900	AS	None	None

Human Services

A total of 49,490 people are employed in Human Services roles regionally, accounting for 15.3% of all regional employment. Over the next three years, Human Services employment is forecast to decline by -0.3% annually. The field's average wage is $54,800 somewhat below the regional average across all occupations ($56,500).

Baseline 3-Year Forecast for Human Services Careers, Southwest Minnesota, 2023Q2
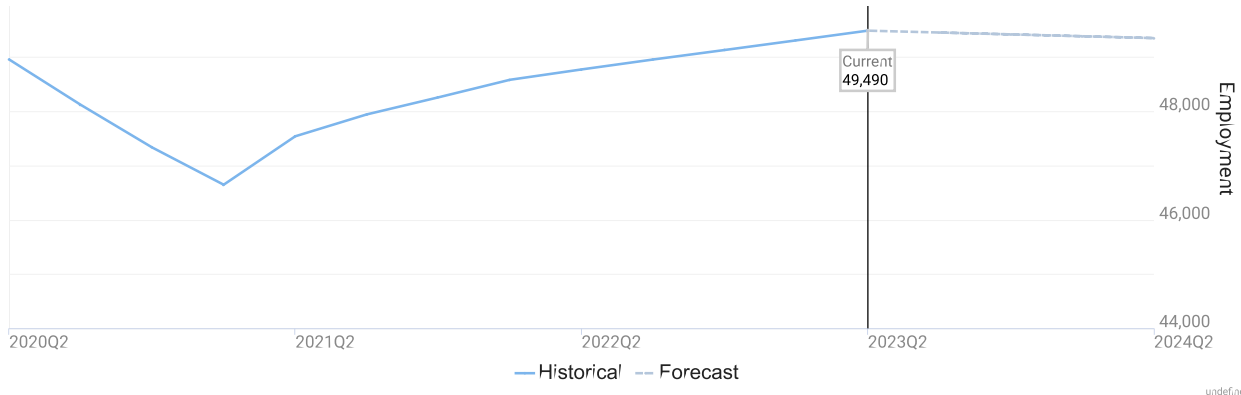
Top Ten Human Services Occupations by Employment Volume in Southwest Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Personal Care Aides	6,243	$33,000	1.13	376	943	0.9%
Teaching Assistants, Except Postsecondary	3,980	$36,100	1.59	30	413	-0.9%
Elementary School Teachers, Except Special Education	3,089	$62,400	1.13	40	189	-0.9%
Secondary School Teachers, Except Special and Career/Technical Education	2,320	$63,900	1.12	29	131	-0.9%
Childcare Workers	1,916	$29,400	1.18	-107	294	-0.8%
Police and Sheriff's Patrol Officers	1,374	$68,300	1.06	57	103	-0.5%
Middle School Teachers, Except Special and Career/Technical Education	1,301	$67,500	1.09	18	80	-0.9%
Preschool Teachers, Except Special Education	1,279	$38,100	1.29	23	129	-0.4%
Social and Human Service Assistants	1,105	$46,100	1.33	-24	130	0.3%
Court, Municipal, and License Clerks	832	$52,600	2.60	24	89	-0.5%
Remaining Component Occupations	26,052	$62,900	0.92	68	2,528	-0.3%
Human Services (CTE Field)	**49,490**	**$54,800**	**0.98**	**530**	**5,028**	**-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 regional Human Services talent in the Southwest is employed by Elementary and Secondary Schools (30.5%, a slight increase from last year's 28.4%) or Executive, Legislative, and Other General Government Support (11.2%). Individual and Family Services continues to have high forecasted growth and replacement demand needs.

Human Services Field Employment by Industry, Southwest 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	30.5%	15,089	12,992	-1,342	11,649
Executive, Legislative, and Other General Government Support	11.2%	5,545	5,062	-285	4,777
Individual and Family Services	7.7%	3,814	5,185	807	5,992
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	4.8%	2,358	2,958	-66	2,892
Colleges, Universities, and Professional Schools	4.8%	2,354	2,101	59	2,160
Religious Organizations	4.2%	2,100	2,189	-121	2,068
Child Care Services	4.2%	2,062	2,703	-175	2,528
Personal Care Services	2.5%	1,258	1,706	36	1,743
Justice, Public Order, and Safety Activities	2.4%	1,164	1,036	-81	954
Home Health Care Services	2.2%	1,065	1,508	119	1,627
Administration of Human Resource Programs	1.6%	797	723	-42	681
Other Residential Care Facilities	1.6%	774	947	-43	904
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.5%	764	1,109	114	1,223
Vocational Rehabilitation Services	1.5%	744	755	-118	637
Other Schools and Instruction	1.4%	679	825	-14	811
Legal Services	1.3%	662	492	-33	459
Civic and Social Organizations	1.2%	597	897	-23	875
Junior Colleges	1.2%	575	497	-23	474
Nursing Care Facilities (Skilled Nursing Facilities)	1.2%	573	691	-59	632
General Medical and Surgical Hospitals	1.0%	501	482	-22	460
All Others	12.2%	6,014	6,817	-40	6,777

Career Field Demographics

The Human Services field is predominantly female (67.5%) and white (92.0%). The share of BIPOC Human Services workforce increased by 0.8 percentage points from the 2022Q2 estimates. The age of the workforce is evenly distributed between 25 and 64 years of age.

Age

Southwest Minnesota

| | 9.3% | 19.2% | 21.3% | 21.2% | 19.1% | 7.2% |

Minnesota

| | 8.0% | 21.4% | 22.5% | 21.5% | 18.0% | 6.4% |

- 16 to 19 years (2.6%)
- 20 to 24 years (9.3%)
- 25 to 34 years (19.2%)
- 35 to 44 years (21.3%)
- 45 to 54 years (21.2%)
- 55 to 64 years (19.1%)
- 65 years and over (7.2%)

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

Race

Southwest Minnesota

92.0%

Minnesota

83.3%	7.1%	5.0%

- White (92.0%)
- American Indian (0.5%)
- Pacific Islander (0.0%)
- Black (2.8%)
- Asian (1.9%)
- Two or More Races (2.8%)

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

Ethnicity

Southwest Minnesota

95.4%

Minnesota

96.0%
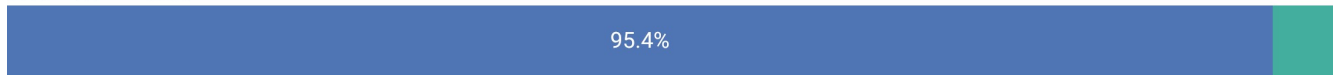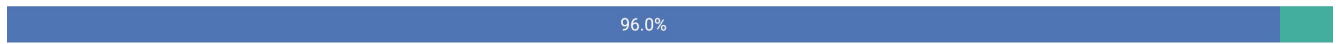
- Non-Hispanic/Latino (95.4%)
- Hispanic or Latino (of any race) (4.6%)

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

Gender

Southwest Minnesota

32.5%	67.5%

Minnesota

34.9%	65.1%

- Male (32.5%)
- Female (67.5%)

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. In general, the Southwest Human Services workforce is over skilled for the typical credentials of entry-level positions. For example, 2.3% of the Human Services workforce have no diploma at all, and 15.3% hold a high school diploma as their highest credential. In contrast, about 44.2% of positions in this field do not require any kind of postsecondary award or credential.

Educational Attainment

Southwest Minnesota

15.3%	14.1%	15.5%	30.0%	17.4%	5.4%

Minnesota

12.0%	11.6%	11.8%	33.2%	20.9%	8.2%

- < High School (2.3%)
- Some College (14.1%)
- Four-Year (30.0%)
- High School (15.3%)
- Two-Year (15.5%)
- Master's (17.4%)
- PhD (5.4%)

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

Education and Training Requirements

Southwest Minnesota

| 32.6% | 6.0% | | | 9.5% | 33.6% | 12.6% |

Minnesota

| 34.5% | 5.0% | | 4.3% | 10.2% | 30.8% | 13.9% |
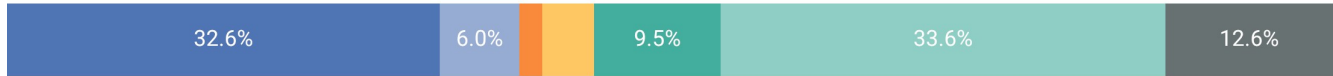
- Short-term OJT, no exp, no award (32.6%)
- Moderate-term OJT, no exp, no award (6.0%)
- Long-term training, no exp, no award (1.7%)
- Previous work experience, no award (3.9%)
- 2-year degree or certificate (9.5%)
- Bachelor's degree (33.6%)
- Postgraduate degree (12.6%)

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

Occupation Gaps

The chart below shows the potential average annual gaps over ten years. In Human Services, Substance Abuse, Behavioral Disorder, and Mental Health Counselors, Social and Community Services Managers, and Police and Sheriff's Patrol Officers are the top three occupations of shortage in the region. 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 insufficient talent coming through both secondary education and mental health counseling programs.

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

Supply Deficit		Supply Surplus	
Substance Abuse, Behavioral Disorder, and Mental Health Counselors ($52,400)	−8	Childcare Workers ($29,400)	8
Social and Community Service Managers ($74,900)	−5	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers ($26,700)	5
Police and Sheriff's Patrol Officers ($68,300)	−5	Residential Advisors ($44,000)	3
Secondary School Teachers, Except Special and Career/Technical Education ($63,900)	−4	School Bus Monitors ($32,700)	3
Child, Family, and School Social Workers ($61,100)	−4	Legal Secretaries and Administrative Assistants ($54,500)	2
Health Specialties Teachers, Postsecondary ($96,900)	−4	Protective Service Workers, All Other ($40,600)	2
Elementary School Teachers, Except Special Education ($62,400)	−4	Teaching Assistants, Except Postsecondary ($36,100)	2
Lawyers ($117,900)	−4	Exercise Trainers and Group Fitness Instructors ($43,700)	2
Firefighters ($42,100)	−3	Security Guards ($38,600)	2
Court, Municipal, and License Clerks ($52,600)	−3	Correctional Officers and Jailers ($54,900)	1

Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation reveal a number of shortages. Southwest Minnesota faces several notable Human Services award gaps, meaning that the region is underproducing local talent in relation to employer demand. Southwest colleges and universities are underproducing about 70 graduates annually that are needed to fill Childcare Worker positions open with employers based in the region. They are also underproducing at least 33 graduates to fill Lawyer roles, and at least 22 Social and Human Service Assistants graduates. 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, Southwest Minnesota, 2023Q2

Supply Deficit		Supply Surplus	
Childcare Workers	−70	Secondary School Teachers, Except Special and Career/Technical Education	263
Lawyers	−33	Elementary School Teachers, Except Special Education	176
Hairdressers, Hairstylists, and Cosmetologists	−33	Middle School Teachers, Except Special and Career/Technical Education	74
Social and Human Service Assistants	−22	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	68
Firefighters	−22	Education Administrators, Kindergarten through Secondary	41
Community and Social Service Specialists, All Other	−12	Exercise Trainers and Group Fitness Instructors	40
Barbers	−10	Coaches and Scouts	25
Instructional Coordinators	−9	Art, Drama, and Music Teachers, Postsecondary	23
Correctional Officers and Jailers	−7	Education Administrators, Postsecondary	23
Manicurists and Pedicurists	−7	Interpreters and Translators	20

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 Human Services, Southwest Minnesota, 2023Q2

Target Occupations (all HW, HS, HD, OG)
Child, Family, & School Social Workers
Lawyers (AG)
Social & Community Service Managers
Guidance & Career Counselors
Compliance Officers

Gateway Occupations
Social & Human Service Assistants (HD, AG)
License Clerks (HD, OG)
Substance Abuse, Behavioral Disorder, & Mental Health Counselors
(HS, HD, OG)
Correctional Officers (AG)
Substitute Teachers (HS, HD)

Origin Occupations
Personal Care Aides (HD, AG)
Teaching Assistants (HS)
Childcare Workers (AG)
Preschool Teachers (HS, HD, OG)
Cosmetologists (HS, HD, OG, AG)

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

Featured Pathway

A potential pathway to explore in the Southwest region is Social and Community Service Managers. The Target occupation is highly concentrated in the Southwest region with a location quotient of 1.59. This role is in high demand and currently experiencing an occupation gap. Social and Human Service Assistants (also highly concentrated locally, (LQ1.33) is a potential Gateway occupation that could feed into this role. It is also in high demand and faces an award gap as well. Childcare Workers also face award gaps and are also highly concentrated locally in the region (LQ 1.18). Forecast employment growth coupled with replacement demand due to retirement and insufficient graduate supply make this an important pathway to explore.

Origin	Gateway	Target
Childcare Workers (AG)	Social and Human Service Assistants (HD, AG)	Social and Community Service Managers (HW, HS, HD, OG)
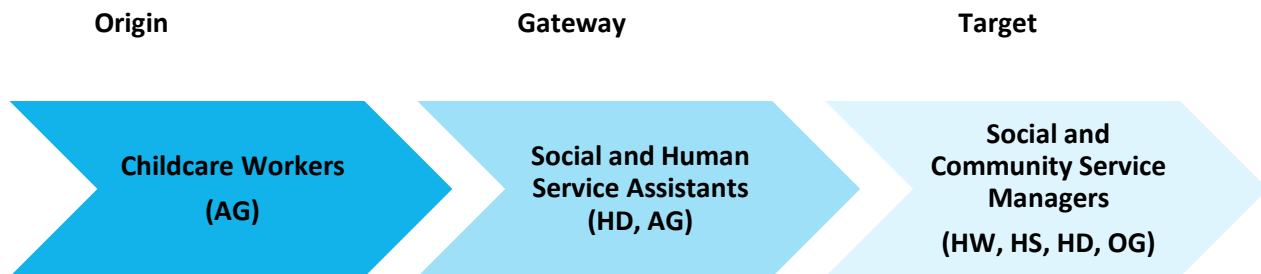
OGT Wages and Experience Level Requirements, Human Services, Southwest Minnesota, 2023Q2

| 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	779	$61,100	$ 43,400	$ 70,000	$ 41,400	$ 48,300	$ 58,500	$ 73,900	$ 84,800	BA	None	None
23-1011	Lawyers	732	$117,900	$ 73,400	$ 140,100	$ 67,500	$ 86,300	$ 108,900	$ 138,600	$ 185,300	JD	None	None
11-9151	Social and Community Service Managers	563	$74,900	$ 49,500	$ 87,600	$ 46,200	$ 56,700	$ 69,900	$ 89,600	$ 108,100	BA	Less than 5 years	None
21-1012	Educational, Guidance, and Career Counselors and Advisors	460	$62,500	$ 48,500	$ 69,500	$ 47,300	$ 51,900	$ 60,600	$ 72,200	$ 81,200	MA	None	None
13-1041	Compliance Officers	459	$71,300	$ 49,700	$ 82,100	$ 46,800	$ 56,300	$ 68,900	$ 81,100	$ 103,200	BA	None	Mod-term OJT
21-1093	Social and Human Service Assistants	1,105	$46,100	$ 35,700	$ 51,300	$ 33,400	$ 39,700	$ 43,800	$ 53,600	$ 60,300	HS/GED	None	Short-term OJT
43-4031	Court, Municipal, and License Clerks	832	$52,600	$ 41,000	$ 58,400	$ 39,100	$ 44,900	$ 51,000	$ 59,500	$ 64,200	HS/GED	None	Long-term OJT
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	794	$52,400	$ 43,600	$ 56,800	$ 41,200	$ 47,500	$ 50,100	$ 60,600	$ 63,700	BA	None	None
33-3012	Correctional Officers and Jailers	787	$54,900	$ 45,600	$ 59,600	$ 45,100	$ 47,600	$ 53,200	$ 61,900	$ 66,700	HS/GED	None	Mod-term OJT
25-3031	Substitute Teachers, Short-Term	757	$51,100	$ 34,300	$ 59,500	$ 31,300	$ 39,200	$ 43,900	$ 50,600	$ 56,000	BA	None	None
31-1122	Personal Care Aides	6,243	$33,000	$ 28,800	$ 35,200	$ 28,400	$ 29,800	$ 32,400	$ 36,300	$ 38,400	HS/GED	HS/GED	Short-term OJT
25-9045	Teaching Assistants, Except Postsecondary	3,980	$36,100	$ 30,000	$ 39,200	$ 29,700	$ 31,500	$ 36,600	$ 38,700	$ 43,200	Certificate	None	None
39-9011	Childcare Workers	1,916	$29,400	$ 24,700	$ 31,800	$ 24,200	$ 25,600	$ 28,100	$ 30,700	$ 37,100	HS/GED	None	Short-term OJT
25-2011	Preschool Teachers, Except Special Education	1,279	$38,100	$ 29,000	$ 42,600	$ 27,200	$ 31,900	$ 35,800	$ 41,000	$ 52,900	AS	None	None
39-5012	Hairdressers, Hairstylists, and Cosmetologists	728	$40,500	$ 27,300	$ 47,100	$ 26,100	$ 29,500	$ 36,800	$ 50,900	$ 62,500	Certificate	None	None

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. Current employment sits at 9,552 for talent in this field, with about 227 unemployed, trained professionals in the region (2.4% unemployment rate, an increase of 0.3 percentage points from last year). Over the next three years, Arts, Communications, and Information Systems Field employment is forecast to decline by -0.6% annually, a further drop from last year's projection of -0.3% decline. A total of 3,828 new professionals in this field will be needed over the next five years to meet growth, replacement, and turnover demand. Wage gains were significant in this field, jumping from $66,700 on average in 2022Q2 to $73,000 in 2023Q2.

Baseline 3-Year Forecast for Arts, Communications, and Information Systems Careers, Southwest Minnesota, 2023Q2
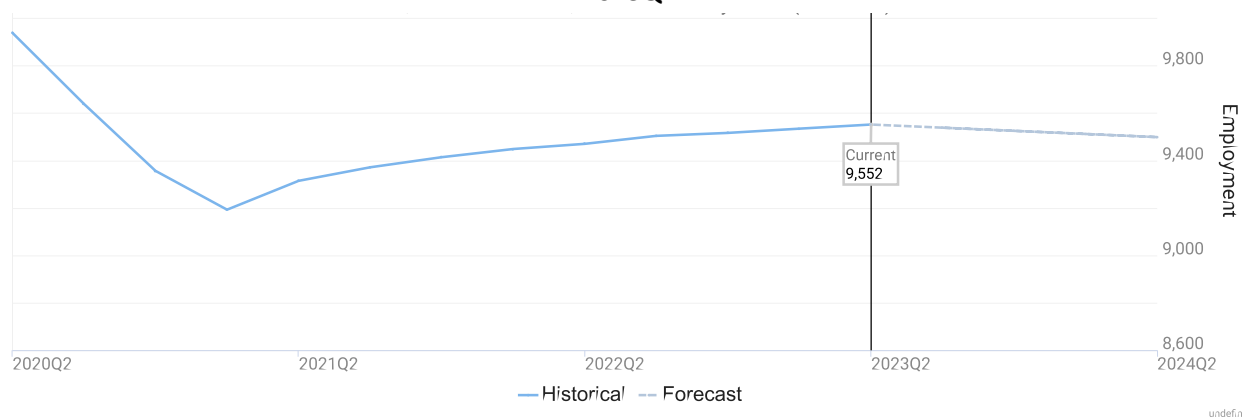
Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume in Southwest Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Software Developers	1,330	$104,200	0.41	-20	106	1.2%
Printing Press Operators	988	$49,600	3.21	-80	86	-1.7%
Computer User Support Specialists	778	$62,500	0.54	-1	52	-0.8%
Computer Systems Analysts	621	$100,200	0.60	-29	41	-0.2%
Graphic Designers	583	$56,000	1.08	17	45	-0.9%
Computer Network Support Specialists	410	$74,400	1.18	-8	29	-0.5%
Network and Computer Systems Administrators	326	$89,100	0.49	-16	18	-0.9%
Prepress Technicians and Workers	299	$43,400	5.84	-58	27	-3.0%
Print Binding and Finishing Workers	297	$44,400	3.64	-31	21	-2.4%
Musicians and Singers	293	$112,900	0.85	-15	36	-0.6%
Remaining Component Occupations	3,627	$68,200	0.62	-149	309	-0.6%
Arts, Communications, & Information Systems (CTE Field)	**9,552**	**$73,000**	**0.64**	**-387**	**768**	**-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).

The largest share of talent in the Southwest that is working in Arts, Communications, and Information Systems roles are employed by the Printing Industry (16.5%) and Telecommunications Carriers (4.6%). Overall, employment is relatively spread out across many different industries.

Arts, Communications, and Information Systems Field Employment by Industry, Southwest 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	16.5%	1,577	1,550	-303	1,247
Wired and Wireless Telecommunications (except Satellite)	4.6%	442	404	-25	379
Management of Companies and Enterprises	4.4%	425	316	24	340
Religious Organizations	4.2%	406	430	-25	405
Newspaper, Periodical, Book, and Directory Publishers	4.0%	385	356	-53	302
Depository Credit Intermediation	3.8%	361	253	10	263
Independent Artists, Writers, and Performers	3.6%	347	356	-5	351
Computer Systems Design and Related Services	3.3%	320	234	31	265
Colleges, Universities, and Professional Schools	2.5%	235	186	-1	185
Radio and Television Broadcasting Stations	2.4%	226	194	-55	140
Executive, Legislative, and Other General Government Support	2.3%	222	162	-10	153
Elementary and Secondary Schools	2.0%	196	142	-21	121
Other Professional, Scientific, and Technical Services	2.0%	195	169	-2	167
Other Miscellaneous Manufacturing	1.9%	182	159	-8	150
General Medical and Surgical Hospitals	1.4%	137	97	-5	92
Converted Paper Product Manufacturing	1.3%	129	128	-19	108
Employment Services	1.2%	116	88	-2	86
Web Search Portals, Libraries, Archives, and Other Information Services	1.2%	111	84	23	107
Advertising, Public Relations, and Related Services	1.1%	104	101	3	104
Architectural, Engineering, and Related Services	1.0%	100	73	4	77
All Others	34.9%	3,337	2,724	-78	2,646

Career Field Demographics

The Arts, Communications, and Information Systems field is predominantly male (68.3%, decreasing by 2.7 percentage points from the prior year) and white (90.9%), although diversity increased with now 9.1% of talent in the field BIPOC by race compared to 8.5% in the year prior. Over half of the Arts, Communications, and Information Systems workforce in the region is under 45 years of age (57%) and averaging younger each year.

Age

Southwest Minnesota

8.5%	23.6%	23.2%	19.5%	17.9%	5.7%

Minnesota

6.3%	28.2%	25.0%	19.2%	15.8%	4.6%

- 16 to 19 years (1.7%)
- 20 to 24 years (8.5%)
- 25 to 34 years (23.6%)
- 35 to 44 years (23.2%)
- 45 to 54 years (19.5%)
- 55 to 64 years (17.9%)
- 65 years and over (5.7%)

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

Race

Southwest Minnesota

| 90.9% |

Minnesota

| 77.9% | 4.2% | 13.1% | 4.5% |

- White (90.9%)
- Black (1.5%)
- American Indian (0.3%)
- Asian (4.0%)
- Pacific Islander (0.0%)
- Two or More Races (3.2%)

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

Ethnicity

Southwest Minnesota

| 96.5% |

Minnesota

| 97.1% |
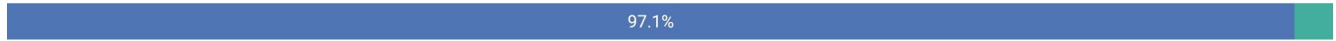
- Non-Hispanic/Latino (96.5%)
- Hispanic or Latino (of any race) (3.5%)

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

Gender

Southwest Minnesota

| 68.3% | 31.7% |

Minnesota

| 71.3% | 28.7% |

- Male (68.3%)
- Female (31.7%)

Data for Arts, Communications, & Information Systems (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. Just over half (55.7%, down 2 percentage points from the prior years' estimates) of all occupations in this field require a Bachelor's degree, while 40.8% of the workforce hold a four-year degree as their highest credential. Another 13.0% hold a Master's or PhD.

Educational Attainment

Southwest Minnesota

| 13.8% | 14.2% | 16.6% | 40.8% | 11.4% | |

Minnesota

| 6.1% | 8.6% | 10.1% | 51.8% | 19.5% | |

- < High School (1.5%)
- High School (13.8%)
- Some College (14.2%)
- Two-Year (16.6%)
- Four-Year (40.8%)
- Master's (11.4%)
- PhD (1.6%)

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

Education and Training Requirements

Southwest Minnesota

25.4%	6.0%	11.7%	55.7%

Minnesota

16.9%	4.4%	8.6%	69.1%

- ■ Short-term OJT, no exp, no award (1.0%)
- ■ Moderate-term OJT, no exp, no award (25.4%)
- ■ Long-term training, no exp, no award (6.0%)
- ■ Previous work experience, no award (0.1%)
- ■ 2-year degree or certificate (11.7%)
- ■ Bachelor's degree (55.7%)
- ■ 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 19 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 anticipated shortage.

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

Supply Deficit   Supply Surplus

Supply Deficit		Supply Surplus	
Software Developers ($104,200)	−19	Printing Press Operators ($49,600)	4
Computer Systems Analysts ($100,200)	−3	Print Binding and Finishing Workers ($44,400)	3
Information Security Analysts ($101,100)	−2	Prepress Technicians and Workers ($43,400)	3
Software Quality Assurance Analysts and Testers ($91,900)	−1	Editors ($58,700)	1
Musicians and Singers ($112,900)	−1	Computer Programmers ($94,600)	1
Photographers ($56,700)	−1	Floral Designers ($32,500)	1
Telecommunications Equipment Installers and Repairers, Except Line Installers ($57,500)	−1	Broadcast Announcers and Radio Disc Jockeys ($38,400)	1
Computer User Support Specialists ($62,500)	−1		
Computer Network Support Specialists ($74,400)	−1		
Computer Occupations, All Other ($81,300)	−1		

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Award Gaps

A comparison of the graduate talent pipeline obtaining a certificate or postsecondary degree to the current estimated openings by occupation show a number of regional shortages. The Southwest is underproducing graduates in several Arts, Communications a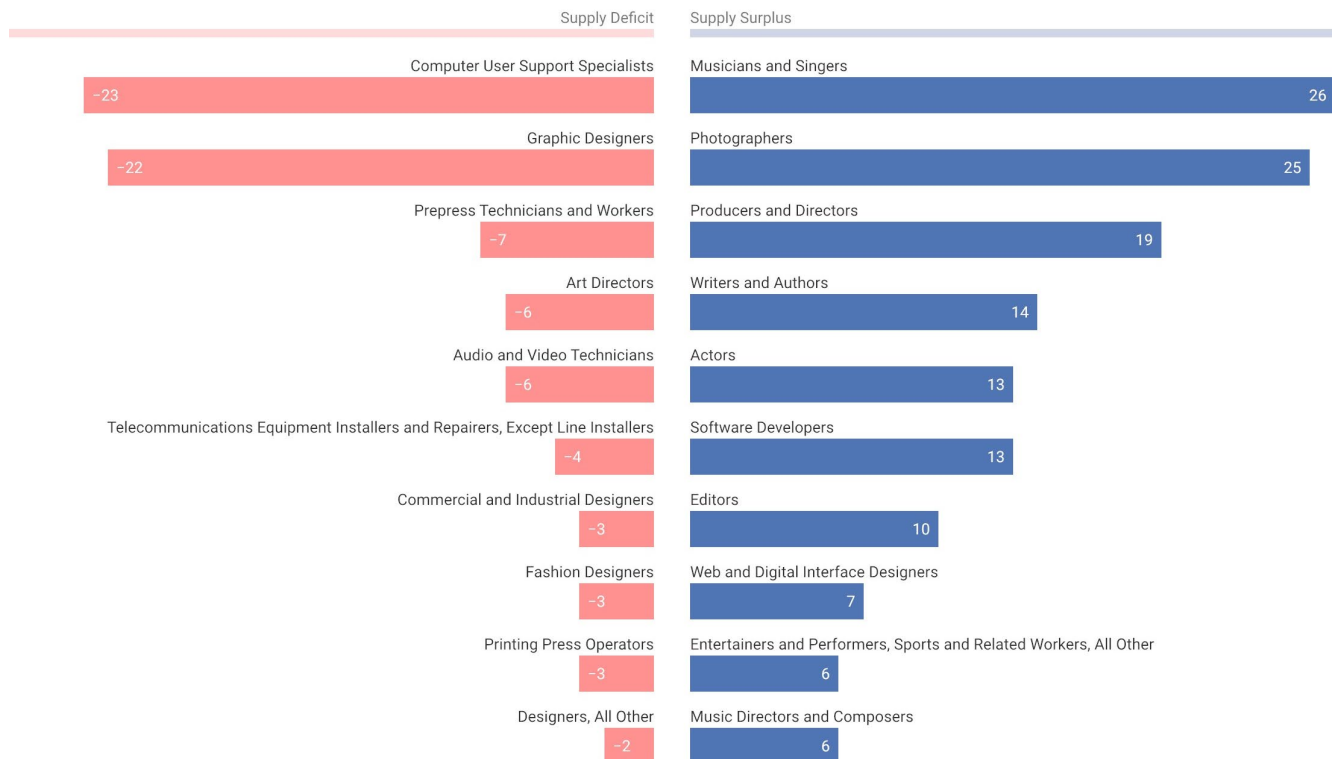nd Information Systems programs in comparison to national benchmarks, meaning that the region is underproducing local talent in relation to what a typical community with a similar local mix of job opportunities would have. Southwest Minnesota colleges and universities are underproducing trained Computer User Support Specialists and Musicians and Graphic Designers measured against 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, Southwest Minnesota, 2023Q2

Supply Deficit		Supply Surplus	
Computer User Support Specialists	−23	Musicians and Singers	26
Graphic Designers	−22	Photographers	25
Prepress Technicians and Workers	−7	Producers and Directors	19
Art Directors	−6	Writers and Authors	14
Audio and Video Technicians	−6	Actors	13
Telecommunications Equipment Installers and Repairers, Except Line Installers	−4	Software Developers	13
Commercial and Industrial Designers	−3	Editors	10
Fashion Designers	−3	Web and Digital Interface Designers	7
Printing Press Operators	−3	Entertainers and Performers, Sports and Related Workers, All Other	6
Designers, All Other	−2	Music Directors and Composers	6

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, Southwest Minnesota, 2023Q2

Target Occupations (all HW, HD, HS, OG)
Software Developers
Computer Systems Analysts
Computer Network Support Specialists
Computer Occupations, All Other
Telecommunications Equipment Installers (AG)

Gateway Occupations
Printing Press Operators (AG)
Graphic Designers (HS, AG)
Telecommunications Line Installers & Repairers (HD, OG)
Entertainers & Performers, Sports (HD)
Camera Operators, Television, Video, & Film (HS)

Origin Occupations
Prepress Technicians & Workers (HS, AG)
Print Binding & Finishing Workers
Broadcast Announcers & Radio Disc Jockeys (HS)
Floral Designers
News Analysts, Reporters, & Journalists (HS)

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 Computer Network Support Specialists is a promising pathway to explore in the Southwest region. This occupation is highly concentrated in the region with a location quotient of 1.18. A Gateway occupation with related skillsets is Telecommunications Line Installers and Repairers. This occupation is relatively concentrated locally and there is high demand and an occupation gap for this role. The Origin occupation of Prepress Technicians and Workers is a potential feeder occupation into both Gateway roles and is extremely concentrated locally (LQ 5.84). There is also a projected shortage of graduates to fill these high-skill roles. There are not clearly-aligned Target occupations in the region that connect directly to the Telecommunications Line Installer occupation, but the high talent shortage for the high-wage, high-demand Computer Network Support Specialists occupation must be featured in this region; upskilling workforce strategies to draw more talent into Computer Network Support roles may be supported by employer demand.

Origin	Gateway	Target
Prepress Technicians and Workers (HS, AG)	Telecommunications Line Installers and Repairers (HD, OG)	Computer Network Support Specialists (HW, HS, HD, OG)

OGT Wages and Experience Level Requirements, Arts, Communications, and Information Systems, Southwest 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	1,330	$104,200	$71,900	$120,300	$67,600	$82,300	$103,100	$125,700	$137,300	BA	None	None
15-1211	Computer Systems Analysts	621	$100,200	$70,200	$115,100	$65,500	$80,000	$95,700	$118,600	$138,900	BA	None	None
15-1231	Computer Network Support Specialists	410	$74,400	$53,100	$85,100	$49,100	$61,200	$73,200	$82,700	$101,800	AS	None	Mod-term OJT
15-1299	Computer Occupations, All Other	277	$81,300	$41,900	$101,000	$34,300	$51,600	$76,400	$101,300	$131,400	BA	None	None
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	223	$57,500	$41,900	$65,300	$38,600	$48,100	$58,200	$67,900	$74,500	Certificate	None	Mod-term OJT
51-5112	Printing Press Operators	988	$49,600	$37,200	$55,700	$35,000	$41,900	$49,900	$56,700	$66,000	HS/GED	None	Mod-term OJT
27-1024	Graphic Designers	583	$56,000	$38,600	$64,700	$35,800	$44,000	$53,100	$65,500	$77,800	BA	None	None
49-9052	Telecommunications Line Installers and Repairers	173	$56,500	$41,800	$63,800	$39,600	$46,500	$53,700	$67,400	$75,400	HS/GED	None	Long-term OJT
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	32	$52,900	$43,000	$57,800	$37,900	$50,500	$51,200	$51,500	$68,100	None	None	Short-term OJT
27-4031	Camera Operators, Television, Video, and Film	31	$53,800	$32,100	$64,700	$31,600	$34,900	$53,000	$65,600	$86,600	BA	None	None
51-5111	Prepress Technicians and Workers	299	$43,400	$32,500	$48,900	$31,300	$35,500	$42,900	$49,000	$55,800	Certificate	None	None
51-5113	Print Binding and Finishing Workers	297	$44,400	$33,700	$49,700	$31,500	$37,800	$44,000	$52,400	$55,600	HS/GED	None	Mod-term OJT
27-3011	Broadcast Announcers and Radio Disc Jockeys	134	$38,400	$25,100	$45,000	$24,100	$26,600	$34,900	$40,400	$52,700	BA	None	None
27-1023	Floral Designers	120	$32,500	$26,300	$35,500	$25,700	$27,700	$30,800	$37,200	$40,000	HS/GED	None	Mod-term OJT
27-3023	News Analysts, Reporters, and Journalists	79	$43,300	$30,900	$49,500	$30,400	$32,300	$36,400	$45,300	$57,200	BA	None	None

Business, Management, and Administration

Business, Management, and Administration is a broad career field with Hospitality and Tourism, Finance, Administration, Human Resources, and Marketing careers, which all experienced diverging impacts early in the pandemic and have seen different timing of recovery. As of 2023Q2, employment in occupations aligned to this career field sits at about 125,595 (an increase from last year's 123,762 workers) workers in the Southwest, with an estimated unemployment rate of 2.9% (an increase of 0.8 percentage points). Over the next three years, Business, Management, and Administration Field employment is forecast to decline by -0.9% on average annually, a further dip from last year's forecasted decline of -0.6%. Most of the growth is attributable to the Hospitality and Tourism Cluster careers in this field. Wages average $53,100 annually, compared to $56,500 across all career fields.

Baseline 3-Year Forecast for Business, Management, and Administration Careers, Southwest Minnesota, 2023Q2
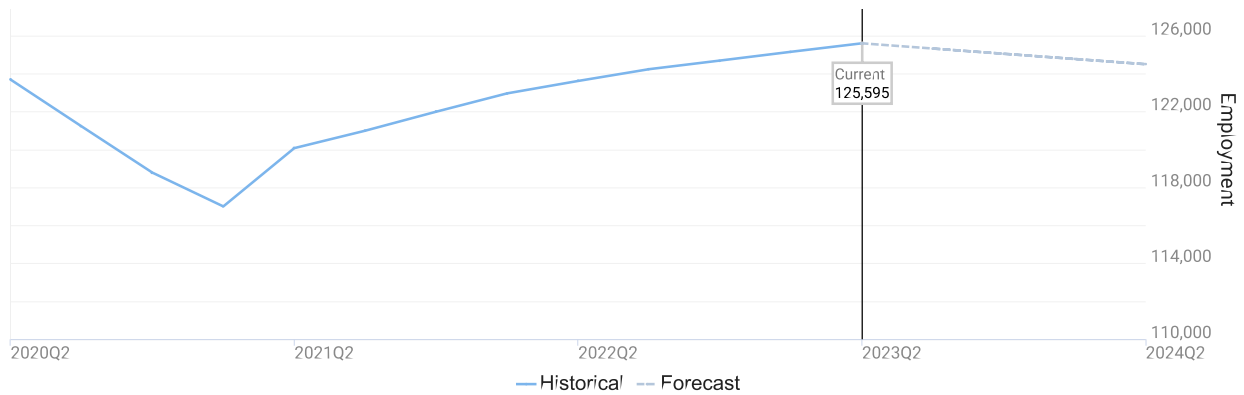
Top Ten Business, Management, and Administration Systems Occupations by Employment Volume in Southwest Minnesota, 2023Q2

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Change
Cashiers	8,353	$29,700	1.25	181	1,346	-1.7%
Retail Salespersons	7,377	$35,300	0.99	97	963	-0.9%
General and Operations Managers	6,864	$92,900	0.98	664	547	-0.5%
Fast Food and Counter Workers	6,351	$29,900	0.93	29	1,294	-0.7%
Office Clerks, General	5,345	$43,900	1.02	-214	556	-1.5%
Stockers and Order Fillers	4,845	$36,500	0.85	329	811	-0.1%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	4,697	$37,400	0.99	80	602	-0.7%
Customer Service Representatives	4,503	$43,900	0.77	75	522	-1.6%
Waiters and Waitresses	3,448	$26,600	0.78	136	639	-1.0%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3,426	$45,300	0.86	-90	306	-2.0%
Remaining Component Occupations	70,382	$61,100	0.95	621	7,543	-0.8%
Business, Management, & Administration (CTE Field)	**125,595**	**$53,100**	**0.87**	**1,907**	**15,130**	**-0.9%**

"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).

Employment in Business, Management, and Administration careers is spread across several different industries. In the Southwest, the industries with the greatest share of Business, Management, and Administration talent are Restaurants (13.2%) and Warehouse Clubs (4.2%). 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, Southwest 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	13.2%	16,564	29,404	-861	28,543
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	4.2%	5,238	7,675	-568	7,106
Gasoline Stations	4.1%	5,186	8,305	-702	7,604
Grocery and Convenience Retailers	4.0%	5,076	7,926	-477	7,449
Depository Credit Intermediation	3.3%	4,134	3,791	-418	3,373
Elementary and Secondary Schools	2.3%	2,940	3,681	-429	3,252
Executive, Legislative, and Other General Government Support	2.3%	2,839	3,323	-297	3,026
Building Material and Supplies Dealers	2.0%	2,567	3,542	-160	3,382
Nursing Care Facilities (Skilled Nursing Facilities)	1.9%	2,327	3,166	-311	2,855
Traveler Accommodation	1.8%	2,281	3,388	-139	3,249
Services to Buildings and Dwellings	1.7%	2,102	2,690	-126	2,563
Management of Companies and Enterprises	1.7%	2,086	2,053	-11	2,043
General Medical and Surgical Hospitals	1.4%	1,756	2,107	-164	1,943
Religious Organizations	1.3%	1,659	1,820	-186	1,634
Machinery, Equipment, and Supplies Merchant Wholesalers	1.3%	1,612	1,650	-246	1,405
Agencies, Brokerages, and Other Insurance Related Activities	1.3%	1,596	1,543	-48	1,496
Automobile Dealers	1.3%	1,593	1,907	-131	1,776
Other Amusement and Recreation Industries	1.2%	1,476	2,621	7	2,628
Drinking Places (Alcoholic Beverages)	1.1%	1,378	2,252	-84	2,168
Colleges, Universities, and Professional Schools	1.1%	1,334	1,460	-91	1,369
All Others	47.7%	59,850	66,728	-5,143	61,584

Career Field Demographics

The Business, Management, and Administration field is about 92.5% white, seeing racial diversity increase by 1.3 percentage points from the prior year's estimates. By gender, the field flipped from being majority male in 2021 to being 63.2% females employed in 2022, and now 61.5% of the field's talent are females as of 2023Q2. Age is evenly distributed, with the largest share 45-54 years old (21.2%).

Age

Southwest Minnesota

9.5%	18.5%	20.1%	20.2%	21.2%	6.7%

Minnesota

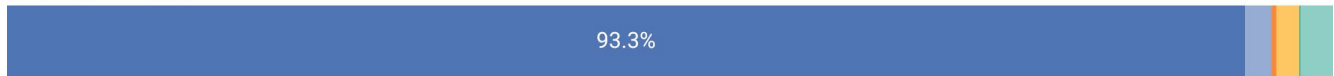| 7.9%	21.1%	21.8%	21.0%	19.7%	5.6%

- 16 to 19 years (3.7%)
- 20 to 24 years (9.5%)
- 25 to 34 years (18.5%)
- 35 to 44 years (20.1%)
- 45 to 54 years (20.2%)
- 55 to 64 years (21.2%)
- 65 years and over (6.7%)

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

RealTime Talent
Using data to build the
world's best workforce

Race

Southwest Minnesota

93.3%

Minnesota

85.1% | 5.9% | 5.0%

- White (93.3%)
- American Indian (0.4%)
- Pacific Islander (0.1%)
- Black (2.0%)
- Asian (1.7%)
- Two or More Races (2.5%)

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

Ethnicity

Southwest Minnesota

95.1% | 4.9%

Minnesota

95.8% | 4.2%

- Non-Hispanic/Latino (95.1%)
- Hispanic or Latino (of any race) (4.9%)

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

Gender

Southwest Minnesota

38.5% | 61.5%

Minnesota

41.1% | 58.9%

- Male (38.5%)
- Female (61.5%)

Data for Business, Management & Administration (CTE Cluster)
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. In general, consistent with data from 2022Q2, the Southwest Minnesota Business, Management, and Administration workforce is more likely to have a two-year degree than what is in demand. While 19.0% of the workforce holds a two-year degree, just 0.6% of the occupations in this field require a two-year degree. Nearly half of all positions in this field (48.8%) require no degree, no experience, and only short-term on-the-job training. Another 14.1% require experience or some on-the-job training, but still no degree. In contrast, only 1.9% of the workforce in this field has no degree at all, and 21.7% hold a high school diploma as their highest credential.

Educational Attainment

Southwest Minnesota

21.7% | 20.4% | 19.0% | 28.8% | 7.1%

Minnesota

15.7% | 16.5% | 14.4% | 38.0% | 11.6%

- < High School (1.9%)
- Some College (20.4%)
- Four-Year (28.8%)
- High School (21.7%)
- Two-Year (19.0%)
- Master's (7.1%)
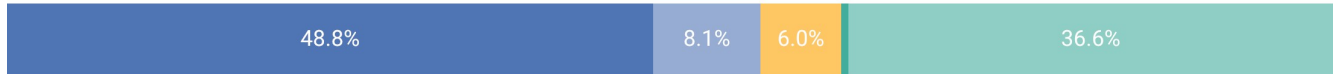- PhD (1.1%)

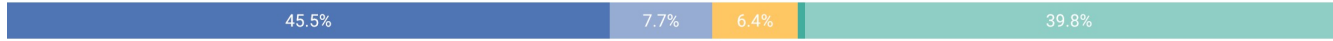Data for Business, Management & Administration (CTE Cluster)
Source: JobsEQ®. Data as of 2023Q2.

Education and Training Requirements

Southwest Minnesota

48.8%	8.1%	6.0%	36.6%

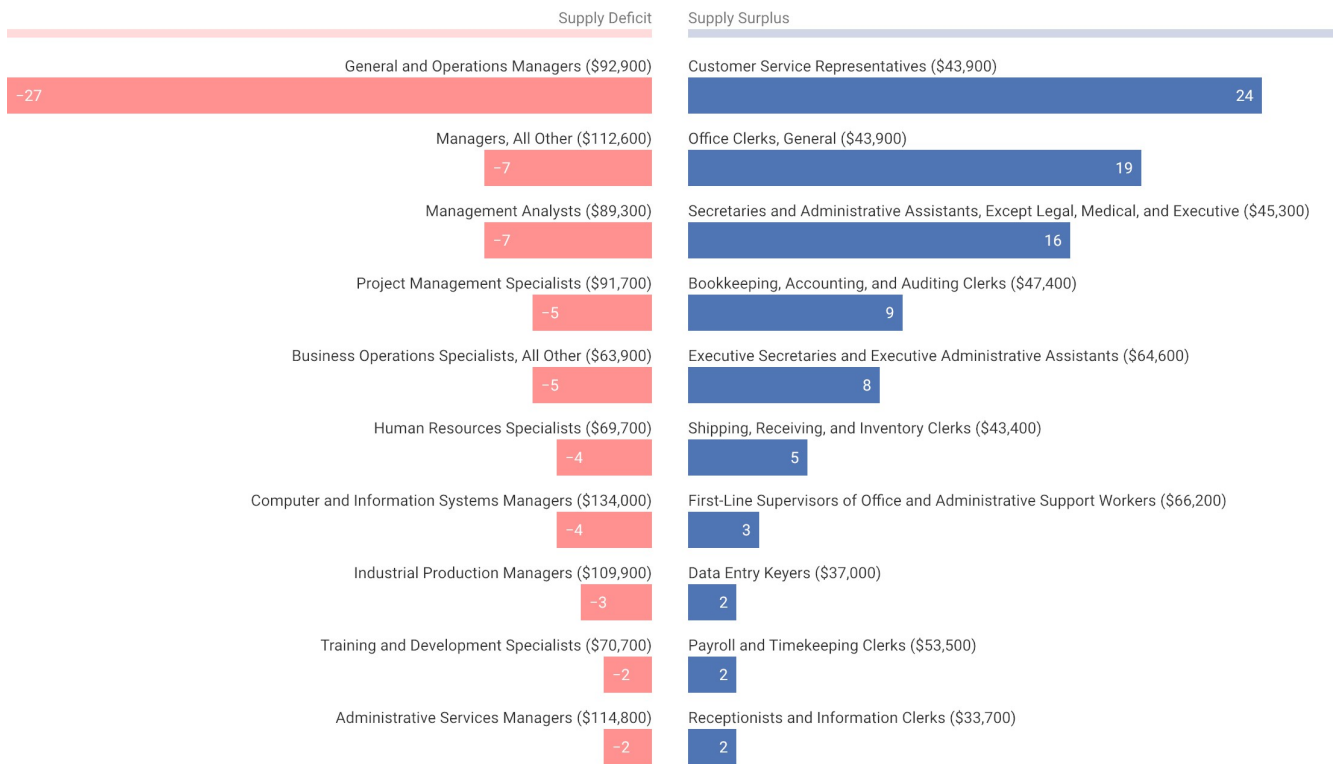Minnesota

45.5%	7.7%	6.4%	39.8%

- Short-term OJT, no exp, no award (48.8%)
- Moderate-term OJT, no exp, no award (8.1%)
- Long-term training, no exp, no award (0.0%)
- Previous work experience, no award (6.0%)
- 2-year degree or certificate (0.6%)
- Bachelor's degree (36.6%)
- Postgraduate degree (0.0%)

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

Occupation Gaps

The chart below shows the potential average annual talent shortages over ten years. Several management roles indicate significant shortages in the years ahead, with the General and Operations Manager talent pool likely falling short at least 27 skilled workers needed annually (averaged over the next ten years) to meet employer demand—a decrease of seven short estimated the year prior. These shortages vary by region due to retirements, projected growth, and turnover rates.

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

Supply Deficit

Occupation	Gap
General and Operations Managers ($92,900)	−27
Managers, All Other ($112,600)	−7
Management Analysts ($89,300)	−7
Project Management Specialists ($91,700)	−5
Business Operations Specialists, All Other ($63,900)	−5
Human Resources Specialists ($69,700)	−4
Computer and Information Systems Managers ($134,000)	−4
Industrial Production Managers ($109,900)	−3
Training and Development Specialists ($70,700)	−2
Administrative Services Managers ($114,800)	−2

Supply Surplus

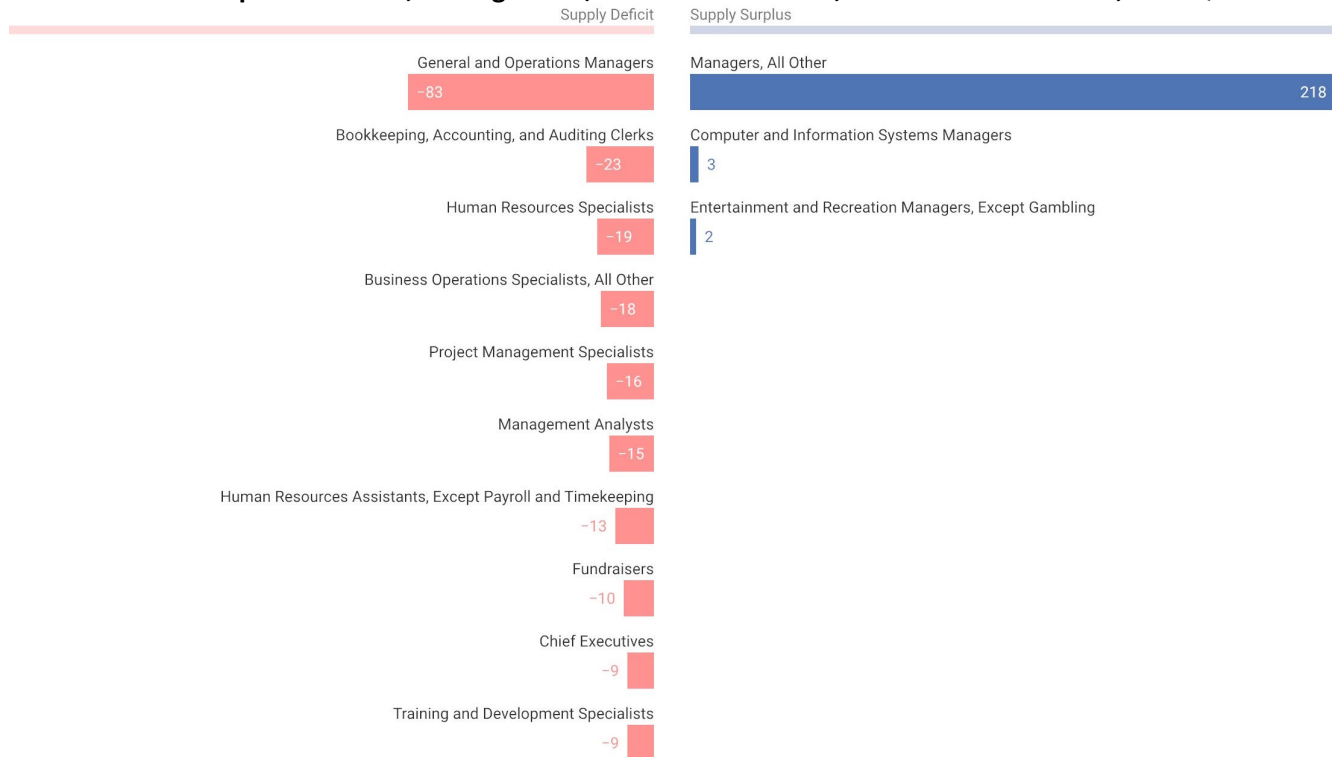| Occupation	Surplus
Customer Service Representatives ($43,900)	24
Office Clerks, General ($43,900)	19
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive ($45,300)	16
Bookkeeping, Accounting, and Auditing Clerks ($47,400)	9
Executive Secretaries and Executive Administrative Assistants ($64,600)	8
Shipping, Receiving, and Inventory Clerks ($43,400)	5
First-Line Supervisors of Office and Administrative Support Workers ($66,200)	3
Data Entry Keyers ($37,000)	2
Payroll and Timekeeping Clerks ($53,500)	2
Receptionists and Information Clerks ($33,700)	2

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 Southwest currently under-train talent in Business, Management, and Administration when compared to national benchmarks. Specifically, regional colleges and universities are underproducing around 83 graduates annually that are needed to fill General and Operations Manages positions open with employers based in the Southwest alone. Regional colleges and universities are also underproducing approximately 23 Bookkeeping, Accounting, and Auditing Clerks graduates annually.

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

Supply Deficit		Supply Surplus	
General and Operations Managers	−83	Managers, All Other	218
Bookkeeping, Accounting, and Auditing Clerks	−23	Computer and Information Systems Managers	3
Human Resources Specialists	−19	Entertainment and Recreation Managers, Except Gambling	2
Business Operations Specialists, All Other	−18		
Project Management Specialists	−16		
Management Analysts	−15		
Human Resources Assistants, Except Payroll and Timekeeping	−13		
Fundraisers	−10		
Chief Executives	−9		
Training and Development Specialists	−9		

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, Southwest Minnesota, 2023Q2

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

Gateway Occupations (all AG)
Secretaries and Administrative Assistants
Supervisors of Retail Workers
Bookkeeping, Accounting, & Auditing Clerks (HS)
Real Estate Sales Agents (HD, OG)
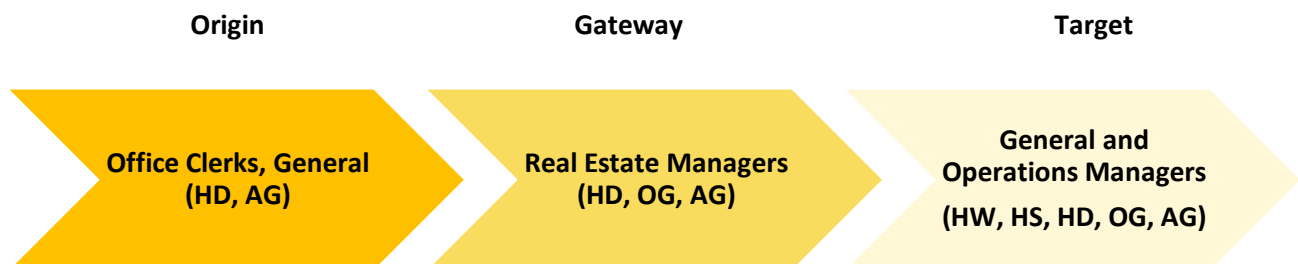Real Estate, & Community Association Managers (HD, OG)

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

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

Featured Pathway

With a projected occupation gap, award gap, and high demand, the Target occupation of General and Operations Managers is a promising pathway to explore in the Southwest region. This occupation is relatively concentrated in the region with a location quotient of 0.98. The Gateway occupation of Real Estate Managers is also in high demand, and facing both projected award and occupation gap. The Origin occupation that feeds into that gateway occupation is highly concentrated locally (LQ of 1.02) and also both in high demand and facing an award gap. These Origin and Gateway occupations have related skillsets appreciated in the Target occupation of General and 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.

Origin	Gateway	Target
Office Clerks, General (HD, AG)	**Real Estate Managers (HD, OG, AG)**	**General and Operations Managers (HW, HS, HD, OG, AG)**

OGT Wages and Experience Level Requirements, Business, Management, and Administration, Southwest 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	6,864	$92,900	$44,900	$116,900	$40,400	$54,100	$80,500	$116,000	$164,200	BA	>5 years	None
13-2011	Accountants and Auditors	2,382	$76,700	$50,000	$90,000	$47,800	$55,700	$69,000	$86,200	$112,500	BA	None	None
11-9199	Managers, All Other	1,604	$112,600	$70,000	$134,000	$63,900	$83,100	$106,700	$129,800	$170,000	BA	<5 years	None
13-1161	Market Research Analysts and Marketing Specialists	1,411	$70,700	$43,000	$84,500	$40,200	$49,500	$64,100	$86,200	$114,000	BA	None	None
13-1199	Business Operations Specialists, All Other	1,327	$63,900	$41,500	$75,100	$37,400	$49,100	$61,200	$75,400	$93,500	BA	None	None
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3,426	$45,300	$35,200	$50,300	$33,400	$39,000	$45,200	$50,800	$57,700	HS/GED	None	Short-term OJT
41-1011	First-Line Supervisors of Retail Sales Workers	3,169	$46,900	$34,900	$52,900	$32,900	$38,700	$42,900	$51,800	$63,400	HS/GED	<5 years	None
43-3031	Bookkeeping, Accounting, and Auditing Clerks	3,011	$47,400	$35,300	$53,500	$33,600	$39,100	$47,000	$52,600	$63,000	Certificate	None	Mod-term OJT
41-9022	Real Estate Sales Agents	639	$55,000	$33,600	$65,700	$32,400	$36,100	$39,700	$53,400	$133,000	HS/GED	None	Mod-term OJT
11-9141	Property, Real Estate, and Community Association Managers	558	$56,500	$38,700	$65,400	$36,200	$43,900	$53,100	$61,500	$74,600	HS/GED	<5 years	Short-term OJT
41-2011	Cashiers	8,353	$29,700	$25,500	$31,800	$24,600	$27,000	$29,300	$31,400	$35,300	None	None	Short-term OJT
41-2031	Retail Salespersons	7,377	$35,300	$26,200	$39,800	$24,800	$28,300	$31,600	$37,300	$48,600	None	None	Short-term OJT
35-3023	Fast Food and Counter Workers	6,351	$29,900	$25,800	$31,900	$24,200	$28,000	$29,400	$30,900	$36,800	None	None	Short-term OJT
43-9061	Office Clerks, General	5,345	$43,900	$31,200	$50,300	$29,300	$34,800	$41,700	$50,400	$62,000	HS/GED	None	Short-term OJT
53-7065	Stockers and Order Fillers	4,845	$36,500	$28,700	$40,300	$27,900	$30,600	$33,900	$41,600	$48,000	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. In 2022Q2, employment sat at 93,376 in this field, which has rebounded to 94,145 as of 2023Q2 in the Southwest. Over the next three years, this career field's employment is forecast to decline moderately (-0.6% annually), a drop from the -0.3% forecast estimated in 2022Q2. All occupations, with the exception of Light Truck Drivers, have forecasted declines over the next three years.

3-Year Forecast for Engineering, Manufacturing, and Technology Careers, Southwest Minnesota, 2023Q2
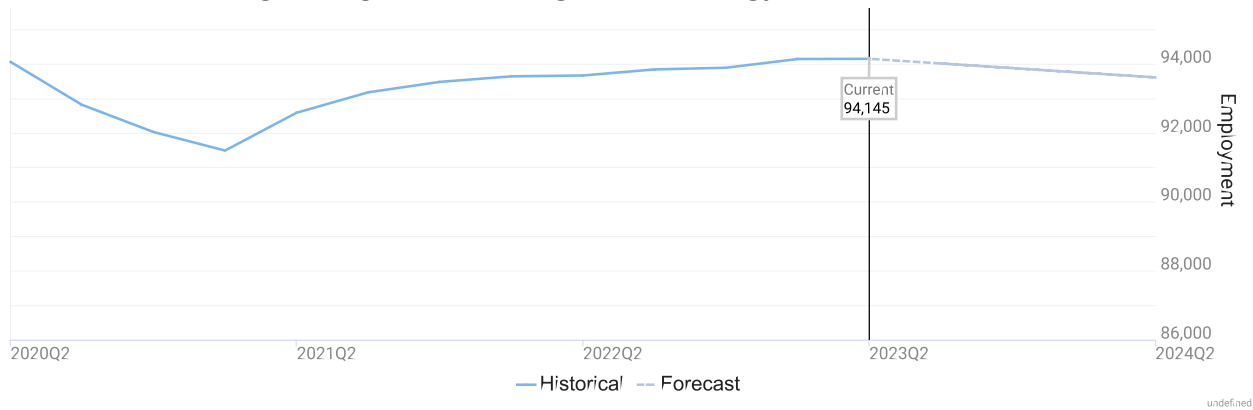
Top Ten Engineering, Manufacturing, and Technology Occupations by Employment Volume in the Southwest, 2023Q2

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	6,308	$55,500	1.44	-179	687	-0.6%
Laborers and Freight, Stock, and Material Movers, Hand	5,897	$41,400	1.00	43	784	-0.5%
Team Assemblers	3,494	$41,000	1.41	226	331	-1.6%
Maintenance and Repair Workers, General	3,467	$50,200	1.08	2	310	-0.5%
Construction Laborers	3,128	$50,200	1.09	33	291	-0.3%
First-Line Supervisors of Production and Operating Workers	2,349	$72,000	1.72	64	219	-0.7%
Landscaping and Groundskeeping Workers	2,157	$39,400	0.92	14	269	-0.4%
Packaging and Filling Machine Operators and Tenders	2,106	$42,200	2.82	8	226	-0.4%
Light Truck Drivers	2,040	$46,200	0.90	-12	239	0.0%
Slaughterers and Meat Packers	2,016	$41,000	12.69	-67	227	-0.9%
Remaining Component Occupations	61,177	$56,900	1.16	-41	6,085	-0.6%
Engineering, Manufacturing, & Technology (CTE Field)	**94,145**	**$53,800**	**1.18**	**87**	**9,672**	**-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).

Many different industries employ Engineering, Manufacturing, and Technology talent in the Northwest. Locally, the industries with the greatest share of this field's talent are Animal Slaughtering and Processing (8.8%), Building Equipment Contractors, and General Freight Trucking (both 3.5%). Most industries employing

talent in this field only touch less than 2% 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, Southwest Minnesota, 2023Q2

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Animal Slaughtering and Processing	8.8%	8,292	10,150	-404	9,746
Building Equipment Contractors	3.5%	3,274	3,181	-108	3,073
General Freight Trucking	3.5%	3,268	3,706	-170	3,536
Agriculture, Construction, and Mining Machinery Manufacturing	2.5%	2,391	2,363	-175	2,188
Executive, Legislative, and Other General Government Support	2.5%	2,327	2,388	-96	2,292
Automotive Repair and Maintenance	2.1%	1,979	2,024	-112	1,913
Other Specialty Trade Contractors	2.1%	1,978	1,930	-102	1,828
Grain and Oilseed Milling	1.9%	1,829	2,023	-130	1,893
Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.9%	1,794	2,144	-137	2,007
School and Employee Bus Transportation	1.8%	1,719	2,454	-61	2,393
Dairy Product Manufacturing	1.8%	1,672	1,993	-57	1,936
Residential Building Construction	1.7%	1,605	1,434	-74	1,360
Highway, Street, and Bridge Construction	1.7%	1,590	1,525	-85	1,440
Plastics Product Manufacturing	1.6%	1,542	1,646	-73	1,573
Building Finishing Contractors	1.6%	1,524	1,334	-88	1,246
Foundation, Structure, and Building Exterior Contractors	1.6%	1,491	1,383	-82	1,301
Services to Buildings and Dwellings	1.4%	1,357	1,629	-65	1,564
Glass and Glass Product Manufacturing	1.4%	1,314	1,394	-106	1,288
Converted Paper Product Manufacturing	1.4%	1,299	1,411	-205	1,206
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1.4%	1,288	1,351	-51	1,300
All Others	53.8%	50,610	54,159	-2,875	51,284

Career Field Demographics

The Engineering, Manufacturing, and Technology field is heavily male (79.3% male; female representation increased by 1.2 percentage points) and white (93.1%), with a slight increase this year in the share of talent that is BIPOC by race (0.9 percentage points) from the prior years' estimates. Just under half of workers (48.2%) in this field are 45 years or older, signaling potential exacerbation of the talent shortage due to impending retirements.

Age

Southwest Minnesota

	9.5%	18.9%	20.0%	20.4%	21.8%	6.0%

Minnesota

	8.5%	21.3%	21.6%	20.9%	19.8%	5.1%

- 16 to 19 years (3.3%)
- 20 to 24 years (9.5%)
- 25 to 34 years (18.9%)
- 35 to 44 years (20.0%)
- 45 to 54 years (20.4%)
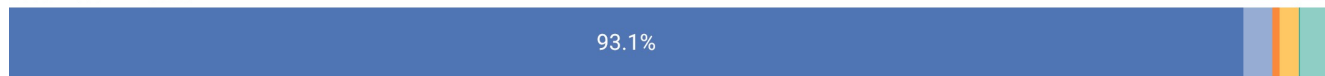- 55 to 64 years (21.8%)
- 65 years and over (6.0%)

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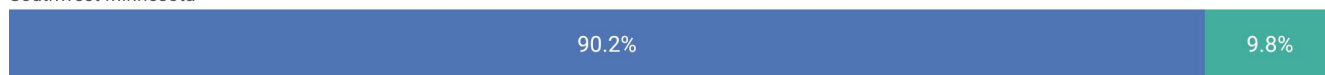Source: JobsEQ®. Data as of 2023Q2.

Race

Southwest Minnesota

93.1%

Minnesota

85.3%   6.3%   4.2%

- White (93.1%)
- American Indian (0.6%)
- Pacific Islander (0.1%)
- Black (2.2%)
- Asian (1.4%)
- Two or More Races (2.7%)

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

Ethnicity

Southwest Minnesota

90.2%   9.8%

Minnesota

92.4%   7.6%

- Non-Hispanic/Latino (90.2%)
- Hispanic or Latino (of any race) (9.8%)

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

Gender

Southwest Minnesota

79.3%   20.7%

Minnesota

81.4%   18.6%

- Male (79.3%)
- Female (20.7%)

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

Educational Attainment and Requirements

In general, the Southwest Minnesota Engineering, Manufacturing, and Technology workforce is well-aligned for the typical credentials of entry-level positions. About 1 in 4 of all positions in this field (28.4%) require no degree, no experience, and only short-term on-the-job training. About 52.3% 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 (9.3%), and almost two in five (41.0%) hold a high school diploma as their highest credential. In all, 68.6% of the Engineering, Manufacturing, and Technology workforce have not completed a postsecondary credential.

Educational Attainment

Southwest Minnesota

9.3%   41.0%   18.8%   16.3%   11.9%

Minnesota

9.0%   34.5%   17.8%   14.7%   18.5%   4.2%

- < High School (9.3%)
- Some College (18.8%)
- Four-Year (11.9%)
- High School (41.0%)
- Two-Year (16.3%)
- Master's (2.2%)
- PhD (0.5%)

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

Education and Training Requirements

Southwest Minnesota

28.4%	33.1%	11.7%	7.5%	11.8%	7.3%

Minnesota

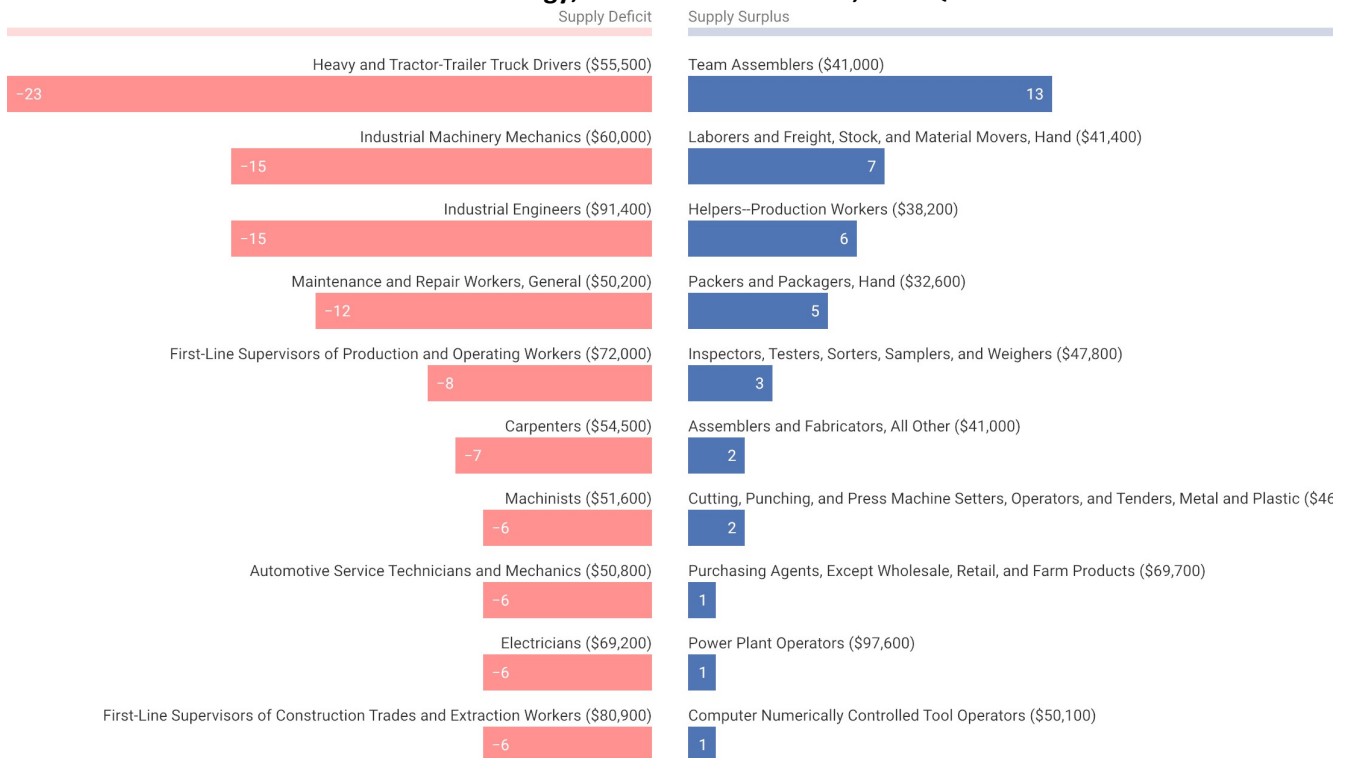| 27.4%	30.0%	12.4%	7.8%	11.5%	10.6%	

- Short-term OJT, no exp, no award (28.4%)
- Moderate-term OJT, no exp, no award (33.1%)
- Long-term training, no exp, no award (11.7%)
- Previous work experience, no award (7.5%)
- 2-year degree or certificate (11.8%)
- 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 gaps over ten years. Several maintenance, construction, and other trades roles indicate shortages in the years ahead, with the Heavy and Tractor-Trailer Truck Drivers occupation forecast falling short at least 23 skilled workers needed annually (averaged over the next ten years) and Industrial Machinery Mechanic talent pools likely falling short at least 15 skilled workers needed annually to meet demand. These talent shortages are primarily due to growth in demand and retirements which far outpace the local talent pipeline. All forecasted shortages and talent surpluses are similar to what was observed in 2022Q2.

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

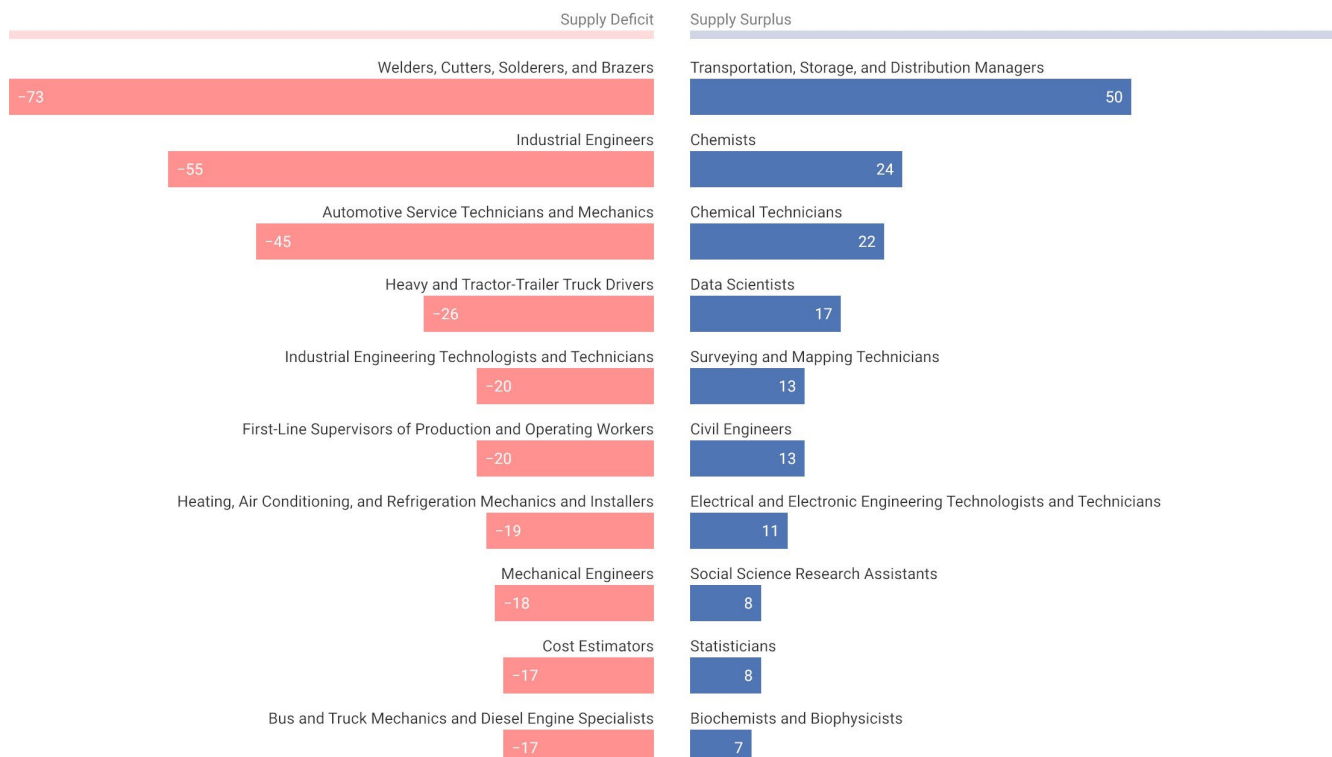| Supply Deficit		Supply Surplus	
Heavy and Tractor-Trailer Truck Drivers ($55,500)	−23	Team Assemblers ($41,000)	13
Industrial Machinery Mechanics ($60,000)	−15	Laborers and Freight, Stock, and Material Movers, Hand ($41,400)	7
Industrial Engineers ($91,400)	−15	Helpers--Production Workers ($38,200)	6
Maintenance and Repair Workers, General ($50,200)	−12	Packers and Packagers, Hand ($32,600)	5
First-Line Supervisors of Production and Operating Workers ($72,000)	−8	Inspectors, Testers, Sorters, Samplers, and Weighers ($47,800)	3
Carpenters ($54,500)	−7	Assemblers and Fabricators, All Other ($41,000)	2
Machinists ($51,600)	−6	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic ($46...)	2
Automotive Service Technicians and Mechanics ($50,800)	−6	Purchasing Agents, Except Wholesale, Retail, and Farm Products ($69,700)	1
Electricians ($69,200)	−6	Power Plant Operators ($97,600)	1
First-Line Supervisors of Construction Trades and Extraction Workers ($80,900)	−6	Computer Numerically Controlled Tool Operators ($50,100)	1

Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation demonstrate a number of important shortages. The Southwest currently under-trains some talent in Engineering, Manufacturing, and Technology when compared to national benchmarks. Southwest Minnesota colleges and universities are underproducing around 73 graduates annually that are needed to fill Welding and Soldering positions open with employers based in this region alone (the same number as projected in 2022Q2). Second, there are at least 55 fewer Industrial Engineering graduates and 45 fewer Automotive Service Technicians and Mechanics (a jump from last year's projected shortage of 24) graduating locally annually than what employers currently need to support demand.

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

Supply Deficit		Supply Surplus	
Welders, Cutters, Solderers, and Brazers	−73	Transportation, Storage, and Distribution Managers	50
Industrial Engineers	−55	Chemists	24
Automotive Service Technicians and Mechanics	−45	Chemical Technicians	22
Heavy and Tractor-Trailer Truck Drivers	−26	Data Scientists	17
Industrial Engineering Technologists and Technicians	−20	Surveying and Mapping Technicians	13
First-Line Supervisors of Production and Operating Workers	−20	Civil Engineers	13
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	−19	Electrical and Electronic Engineering Technologists and Technicians	11
Mechanical Engineers	−18	Social Science Research Assistants	8
Cost Estimators	−17	Statisticians	8
Bus and Truck Mechanics and Diesel Engine Specialists	−17	Biochemists and Biophysicists	7

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, Southwest Minnesota, 2023Q2

Target Occupations (all HW, HD, HS, OG)
Industrial Engineers (AG)
Construction Managers
Mechanical Engineers (AG)
Heating, Air Conditioning, & Refrigeration Mechanics (AG)
Electrical Engineers

Gateway Occupations
Heavy & Tractor Trailer Drivers (HS, HD, OG, AG)
Maintenance & Repair Workers, General (HD, OG, AG)
Construction Laborers
Light Truck Drivers (HD, AG)
Carpenters (OG)

Origin Occupations
Laborers & Freight, Stock Movers (HD)
Team Assemblers
Packaging & Filling Machine Operators & Tenders (HD, OG)
Slaughterers & Meat Packers
Meat, Poultry, & Fish Cutters & Trimmers (HD)

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

Featured Pathway

With a projected occupation gap and award gap, the occupation of Supervisors of Production and Operating Workers should be considered in the Southwest region. This occupation is highly concentrated in the region with a location quotient of 1.72. The Origin occupation of Slaughterers and Meat Packers is exceptionally locally concentrated in this region with a location quotient of 12.69. Another related Origin occupation, Packaging and Filling Machine Operators and Tenders is in high demand and faces an occupation gap. This occupation is also highly concentrated locally (LQ 2.82). Both of these origin occupations have related skillsets in-demand for Production Supervisors in the meat packaging and processing industries, which are critical industries in the Southwest.

Origin		Aligned Occupation
Packaging and FIlling Machine Operators and Tenders (HD, OG)	**Slaughterers and Meat Packers**	**Supervisors of Production and Operating Workers (HW, OG, AG)**

OGT Wages and Experience Level Requirements, Engineering, Manufacturing, and Technology, Southwest 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
17-2112	Industrial Engineers	1,592	$91,400	$65,700	$104,200	$61,700	$73,900	$85,400	$105,900	$131,700	BA	None	None
11-9021	Construction Managers	869	$103,000	$69,600	$119,700	$65,300	$78,100	$89,800	$106,200	$130,800	BA	None	Mod-term OJT
17-2141	Mechanical Engineers	635	$90,400	$64,900	$103,200	$62,000	$71,200	$82,300	$96,100	$116,000	BA	None	None
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	610	$63,700	$41,700	$74,700	$37,000	$49,800	$63,500	$78,100	$89,700	Certificate	None	Long-term OJT
17-2071	Electrical Engineers	371	$102,700	$72,700	$117,700	$68,300	$82,700	$101,400	$125,800	$136,400	BA	None	None
53-3032	Heavy and Tractor-Trailer Truck Drivers	6,308	$55,500	$41,800	$62,300	$39,800	$46,100	$52,700	$61,600	$77,700	Certificate	None	Short-term OJT
49-9071	Maintenance and Repair Workers, General	3,467	$50,200	$35,300	$57,700	$32,700	$40,400	$49,900	$59,100	$65,500	HS/GED	None	Mod-term OJT
47-2061	Construction Laborers	3,128	$50,200	$37,500	$56,600	$36,700	$40,200	$48,300	$56,900	$69,100	None	None	Short-term OJT
53-3033	Light Truck Drivers	2,040	$46,200	$30,100	$54,200	$27,000	$34,500	$43,100	$51,400	$76,200	HS/GED	None	Short-term OJT
47-2031	Carpenters	1,918	$54,500	$40,400	$61,600	$39,200	$43,800	$52,200	$63,300	$76,800	HS/GED	None	Apprenticeship
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	5,897	$41,400	$33,000	$45,700	$31,400	$36,000	$40,400	$45,700	$52,000	None	None	Short-term OJT
51-2092	Team Assemblers	3,494	$41,000	$33,000	$45,100	$30,900	$36,600	$39,900	$46,300	$51,200	HS/GED	None	Mod-term OJT
37-3011	Landscaping and Groundskeeping Workers	2,157	$39,400	$28,700	$44,700	$27,900	$30,900	$38,100	$44,900	$55,100	None	None	Short-term OJT
51-9111	Packaging and Filling Machine Operators and Tenders	2,106	$42,200	$37,300	$44,700	$36,700	$38,500	$39,900	$46,300	$52,000	HS/GED	None	Mod-term OJT
51-3023	Slaughterers and Meat Packers	2,016	$41,000	$37,400	$42,700	$36,700	$38,500	$38,900	$46,000	$49,200	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). About 31,325 people are employed in Agriculture, Food, and Natural Resources roles in the region as of 2023Q2. Over the next three years, this career field's employment is forecast to decline by about -0.9% in the Northwest, a drop from last year's forecast of -0.5%.

3-Year Forecast for Agriculture, Food, and Natural Resources Careers, Southwest Minnesota, 2023Q2
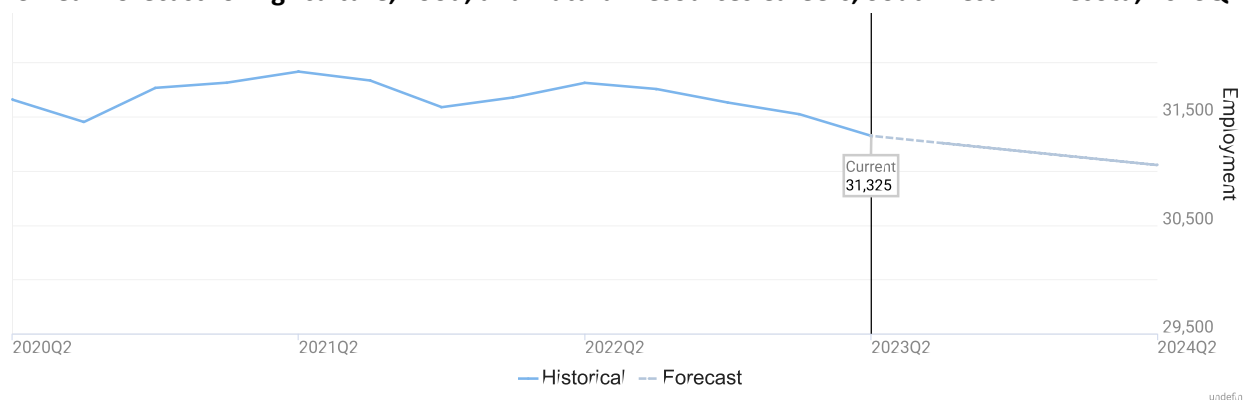
Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume in Southwest Minnesota, 2023Q2

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	9,334	$68,900	6.03	-510	766	-1.7%
Farmworkers, Farm, Ranch, and Aquacultural Animals	2,706	$37,200	9.13	-235	373	-1.4%
Landscaping and Groundskeeping Workers	2,157	$39,400	0.92	14	269	-0.4%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,928	$37,700	1.68	229	274	-1.1%
Meat, Poultry, and Fish Cutters and Trimmers	1,921	$38,700	6.90	-41	229	-0.4%
Food Batchmakers	1,864	$37,500	5.43	91	249	-0.3%
Plumbers, Pipefitters, and Steamfitters	909	$70,500	0.94	-14	86	-0.5%
Farm Equipment Mechanics and Service Technicians	707	$53,600	7.75	16	64	-0.3%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	610	$63,700	0.74	28	56	-0.2%
Animal Caretakers	535	$33,600	0.79	63	102	0.5%
Remaining Component Occupations	8,654	$59,500	1.32	27	979	-0.5%
Agriculture, Food, and Natural Resources (CTE Field)	**31,325**	**$54,900**	**1.85**	**-334**	**3,446**	**-0.9%**

"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 the Southwest. Locally, the industries with the greatest share of this field's talent are Animal Production (20.0%) and Animal Slaughtering and Processing (8.1%). Most industries employing talent in this field only touch less than 2% of total talent skilled in this field and span from grocery to ranching to electric power generation.

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

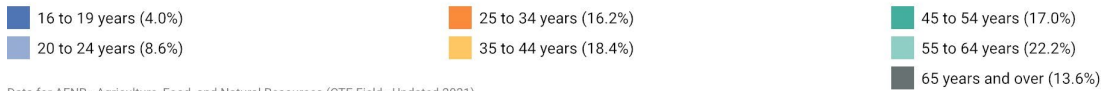| Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Animal Production (Proprietors)	20.0%	6,261	6,038	-1,096	4,942
Animal Slaughtering and Processing	8.1%	2,543	3,229	-97	3,132
Hog and Pig Farming	6.9%	2,160	2,840	-264	2,576
Poultry and Egg Production	4.6%	1,427	1,894	-150	1,744
Crop Production (Proprietors)	4.1%	1,284	1,271	-228	1,043
Services to Buildings and Dwellings	4.1%	1,272	1,561	-61	1,500
Building Equipment Contractors	3.9%	1,235	1,207	-35	1,171
Cattle Ranching and Farming	3.9%	1,218	1,619	-125	1,494
Support Activities for Crop Production	3.1%	975	1,431	-88	1,342
Oilseed and Grain Farming	2.7%	858	1,188	-52	1,136
Executive, Legislative, and Other General Government Support	2.6%	809	862	-43	819
Other Professional, Scientific, and Technical Services	2.4%	743	852	103	954
Electric Power Generation, Transmission and Distribution	2.0%	612	532	-63	469
Machinery, Equipment, and Supplies Merchant Wholesalers	2.0%	611	578	-15	563
Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.9%	610	842	-40	801
Dairy Product Manufacturing	1.8%	568	764	-22	742
Grain and Oilseed Milling	1.3%	416	541	-27	514
Grocery and Convenience Retailers	1.3%	412	513	-38	475
Support Activities for Animal Production	1.2%	391	572	-8	564
Farm Product Raw Material Merchant Wholesalers	1.2%	373	520	-50	471
All Others	20.9%	6,547	8,073	-196	7,878

Career Field Demographics

The Agriculture, Food, and Natural Resources field remains predominantly male (72.0%, a slight decrease from last year's 72.4%) and White (95.7%, decreasing by 1.2 percentage points), but with variation by career pathway. The largest share of talent employed in this field are between the ages of 55 to 64 (22.2%), and another 13.6% are 65 years or older—signaling the challenge of impending retirements and a limited talent pool entering this field regionally. Southwest Minnesota has one of the largest shares of regional talent who identify as Hispanic or Latinx (10.4%).
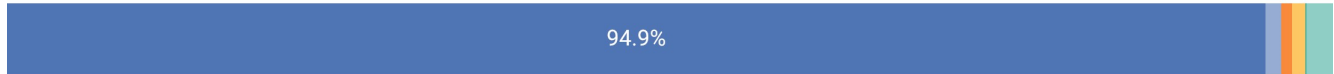
Age

Southwest Minnesota

| 8.6% | 16.2% | 18.4% | 17.0% | 22.2% | 13.6% |

Minnesota

| 9.0% | 20.0% | 20.8% | 18.3% | 19.2% | 9.3% |

- 16 to 19 years (4.0%)
- 20 to 24 years (8.6%)
- 25 to 34 years (16.2%)
- 35 to 44 years (18.4%)
- 45 to 54 years (17.0%)
- 55 to 64 years (22.2%)
- 65 years and over (13.6%)

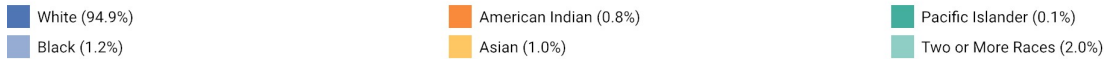Data for AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)
Source: JobsEQ®. Data as of 2023Q2.

Race

Southwest Minnesota

| 94.9% |

Minnesota

| 89.0% |

- White (94.9%)
- Black (1.2%)
- American Indian (0.8%)
- Asian (1.0%)
- Pacific Islander (0.1%)
- Two or More Races (2.0%)

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

Ethnicity

Southwest Minnesota

| 89.6% | 10.4% |

Minnesota

| 92.1% | 7.9% |

- Non-Hispanic/Latino (89.6%)
- Hispanic or Latino (of any race) (10.4%)

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

Gender

Southwest Minnesota

| 72.0% | 28.0% |

Minnesota

| 73.2% | 26.8% |

- Male (72.0%)
- Female (28.0%)

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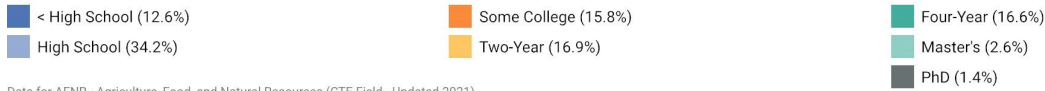
Educational Attainment and Requirements

The stacked bar charts here illustrate the estimated mix of educational attainment of workers in the career field in aggregate, and the typically required education of positions in the field. Over one-third of all positions in this field regionally (32.6%) require no degree, no experience, and only short-term on-the-job training. Over half (56.5%) require experience or some on-the-job training, but still no degree; in all, 89.1% of positions in this field require no formal education. About 12.6% of the workforce in this field has no degree at all, and about one in three (34.2%) hold a high school diploma as their highest credential. In all, 62.6% of the Agriculture, Food, and Natural Resources workforce have not completed a postsecondary credential.
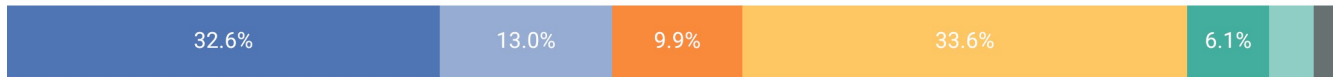
Educational Attainment

Southwest Minnesota

12.6%	34.2%	15.8%	16.9%	16.6%		

Minnesota

10.6%	28.9%	15.4%	15.5%	21.5%	4.9%	

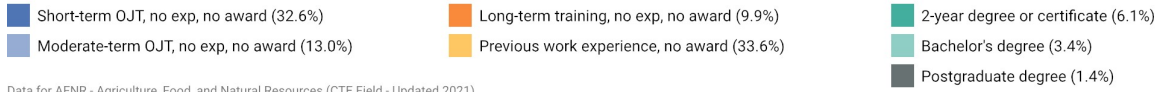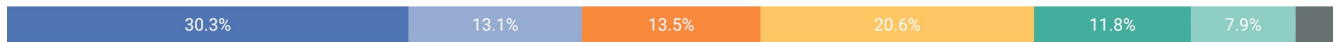| ■ < High School (12.6%)	■ Some College (15.8%)	■ Four-Year (16.6%)
■ High School (34.2%)	■ Two-Year (16.9%)	■ Master's (2.6%)
		■ PhD (1.4%)

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

Education and Training Requirements

Southwest Minnesota

32.6%	13.0%	9.9%	33.6%	6.1%	

Minnesota

30.3%	13.1%	13.5%	20.6%	11.8%	7.9%	

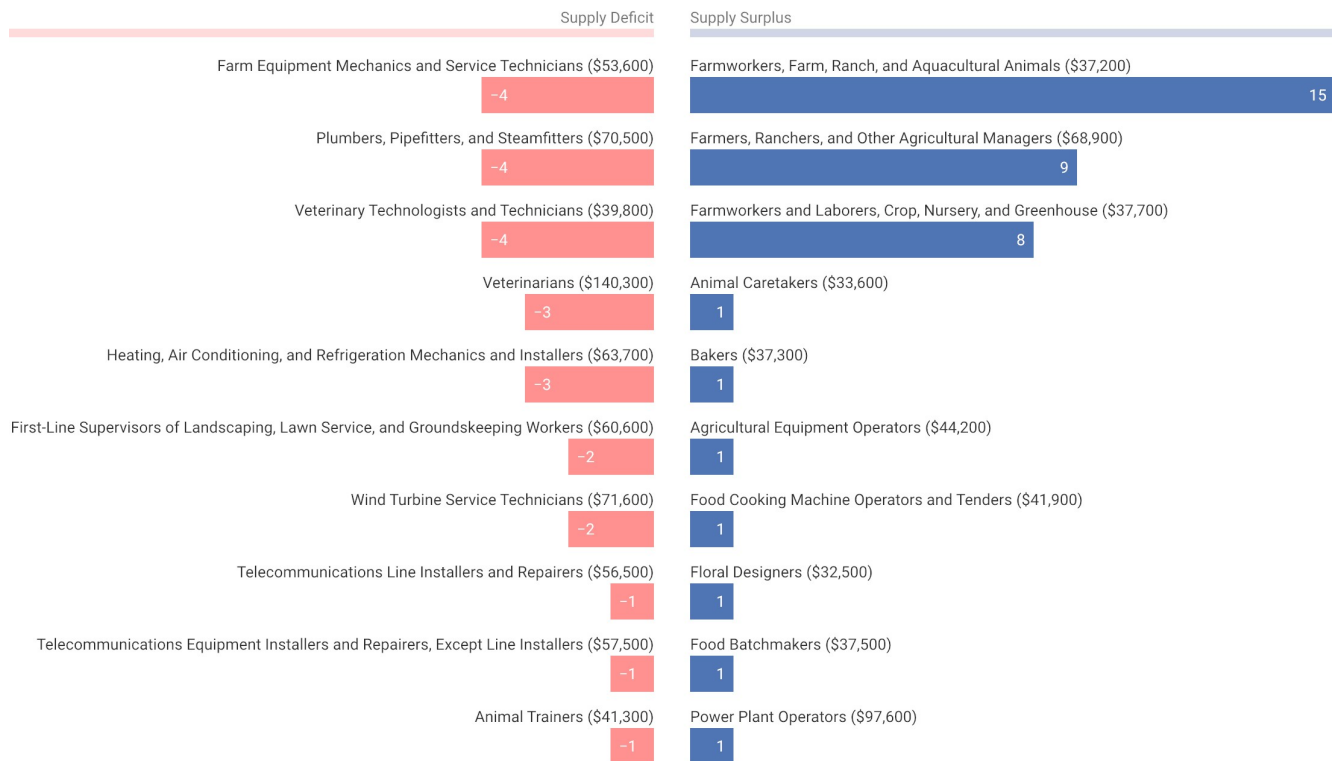| ■ Short-term OJT, no exp, no award (32.6%)	■ Long-term training, no exp, no award (9.9%)	■ 2-year degree or certificate (6.1%)
■ Moderate-term OJT, no exp, no award (13.0%)	■ Previous work experience, no award (33.6%)	■ Bachelor's degree (3.4%)
		■ Postgraduate degree (1.4%)

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. Several crucial trades, animal science, environmental services, and natural science roles indicate shortages in the years ahead, with talent pools of Farm Equipment Mechanics and Service Technicians, Plumbers, and Veterinary Technologists and Technicians likely falling behind the most. Retirements and growing demand unmet by the local talent supply chain are both contributing factors.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Southwest Minnesota, 2023Q2
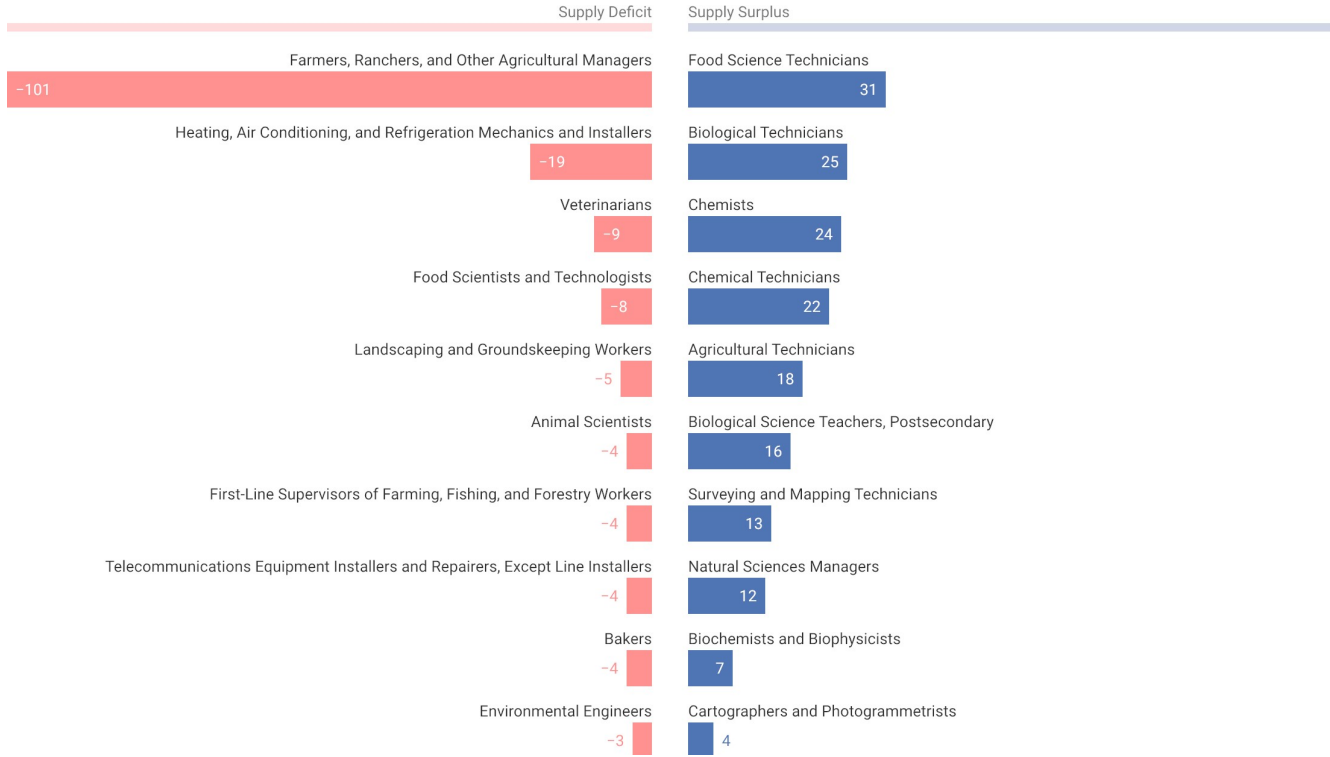
Supply Deficit		Supply Surplus	
Farm Equipment Mechanics and Service Technicians ($53,600)	−4	Farmworkers, Farm, Ranch, and Aquacultural Animals ($37,200)	15
Plumbers, Pipefitters, and Steamfitters ($70,500)	−4	Farmers, Ranchers, and Other Agricultural Managers ($68,900)	9
Veterinary Technologists and Technicians ($39,800)	−4	Farmworkers and Laborers, Crop, Nursery, and Greenhouse ($37,700)	8
Veterinarians ($140,300)	−3	Animal Caretakers ($33,600)	1
Heating, Air Conditioning, and Refrigeration Mechanics and Installers ($63,700)	−3	Bakers ($37,300)	1
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers ($60,600)	−2	Agricultural Equipment Operators ($44,200)	1
Wind Turbine Service Technicians ($71,600)	−2	Food Cooking Machine Operators and Tenders ($41,900)	1
Telecommunications Line Installers and Repairers ($56,500)	−1	Floral Designers ($32,500)	1
Telecommunications Equipment Installers and Repairers, Except Line Installers ($57,500)	−1	Food Batchmakers ($37,500)	1
Animal Trainers ($41,300)	−1	Power Plant Operators ($97,600)	1

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 Southwest currently prepare a smaller volume of talent in Agriculture, Food, and Natural Resources when compared to national benchmarks. Southwest Minnesota colleges and universities are underproducing at least 101 graduates annually needed to fill Farmers, Ranchers, and other Agricultural Manager roles, 19 graduates annually needed to fill HVAC roles, and nine graduates annually needed to fill Veterinarian roles. The majority of Animal Systems completions are made in the MSP Metro.

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

Supply Deficit		Supply Surplus	
Farmers, Ranchers, and Other Agricultural Managers	−101	Food Science Technicians	31
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	−19	Biological Technicians	25
Veterinarians	−9	Chemists	24
Food Scientists and Technologists	−8	Chemical Technicians	22
Landscaping and Groundskeeping Workers	−5	Agricultural Technicians	18
Animal Scientists	−4	Biological Science Teachers, Postsecondary	16
First-Line Supervisors of Farming, Fishing, and Forestry Workers	−4	Surveying and Mapping Technicians	13
Telecommunications Equipment Installers and Repairers, Except Line Installers	−4	Natural Sciences Managers	12
Bakers	−4	Biochemists and Biophysicists	7
Environmental Engineers	−3	Cartographers and Photogrammetrists	4

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, Southwest Minnesota, 2023Q2

Target Occupations (all HW, HD, HS)
Heating, Air Conditioning, & Refrigeration Mechanics (OG, AG)
Telecommunications Equipment Installers & Repairers (OG, AG)
Chemists (OG)
Biological Science Teachers, Postsecondary (OG)
Life, Physical, & Social Science Technicians, All Other

Gateway Occupations (all HD)
Farm Equipment Mechanics (OG, AG)
Refuse & Recyclable Material Collectors
Supervisors of Farming, Fishing, & Forestry Workers (AG)
Chefs & Head Cooks (HD, OG, AG)
Food & Tobacco Machine Operators

Origin Occupations

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

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

Featured Pathway

The Gateway occupation of Farm Equipment Mechanics and Service Technicians is a potential pathway to explore. This occupation is extremely locally concentrated with a location quotient of 7.75, is in high demand, and faces both an occupation and award gap. A potential next step occupation could be Farmers, Ranchers, and other Agricultural Managers. This occupation is heavily concentrated locally with a location quotient of 6.03 and is both facing an award gap and considered high wage, paying well above the regional average ($68,900). A potential feeder occupation into these roles is Farmworkers, Farm, Ranch, and Aquacultural Animals which is very locally concentrated (LQ 9.13).

Origin	Gateway	Other Aligned Occupation
Farmerworkers, Farm, Ranch, and Aquacultural Animals	Farm Equipment Mechanics and Service Technicians (HD, OG, AG)	Farmers, Ranchers, and Other Agricultural Managers (HW, AG)

OGT Wages and Experience Level Requirements, Agriculture, Food, and Natural Resources, Southwest 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
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	610	$63,700	$41,700	$74,700	$37,000	$49,800	$63,500	$78,100	$89,700	Certificate	None	Long-term OJT
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	223	$57,500	$41,900	$65,300	$38,600	$48,100	$58,200	$67,900	$74,500	Certificate	None	Mod-term OJT
19-2031	Chemists	133	$88,000	$53,000	$105,600	$50,100	$60,400	$82,300	$115,300	$125,000	BA	None	None
25-1042	Biological Science Teachers, Postsecondary	79	$100,400	$61,300	$119,900	$59,000	$69,300	$95,800	$125,500	$153,100	PhD	None	None
19-4099	Life, Physical, and Social Science Technicians, All Other	76	$82,500	$40,100	$103,600	$39,700	$44,000	$61,600	$94,400	$119,400	AS	None	None
49-3041	Farm Equipment Mechanics and Service Technicians	707	$53,600	$42,000	$59,500	$37,500	$48,900	$51,800	$62,400	$65,100	HS/GED	None	Long-term OJT
53-7081	Refuse and Recyclable Material Collectors	356	$47,400	$36,200	$53,000	$34,500	$39,800	$45,800	$55,900	$62,500	None	None	Short-term OJT
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	351	$56,500	$41,100	$64,200	$40,400	$43,100	$51,400	$66,700	$83,800	HS/GED	Less than 5 years	None
35-1011	Chefs and Head Cooks	266	$50,100	$35,700	$57,300	$34,800	$38,400	$46,300	$56,900	$73,700	HS/GED	5 years or more	None
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	243	$52,100	$44,100	$56,100	$42,800	$47,100	$52,900	$57,300	$60,700	None	None	Mod-term OJT
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	2,706	$37,200	$29,300	$41,200	$29,300	$30,400	$36,800	$41,100	$46,800	None	None	Short-term OJT
37-3011	Landscaping and Groundskeeping Workers	2,157	$39,400	$28,700	$44,700	$27,900	$30,900	$38,100	$44,900	$55,100	None	None	Short-term OJT
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,928	$37,700	$29,800	$41,600	$29,500	$31,100	$36,000	$43,900	$47,000	None	None	Short-term OJT
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1,921	$38,700	$30,500	$42,800	$30,300	$32,000	$38,200	$44,500	$48,600	None	None	Short-term OJT
51-3092	Food Batchmakers	1,864	$37,500	$32,600	$39,900	$32,600	$32,900	$34,000	$43,200	$48,300	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 reflects the tight labor market across all industry sectors. 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 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 a recession as interest rates continue to rise. Shortages of Licensed Practical Nurses and critical talent needs in meat packaging and processing as well as animal systems and production management are some of the top considerations for postsecondary and workforce development planning for the Southwest region. There is urgency to address these talent shortages now to avoid significant impacts to the region and state's economy.

Data Notes

- This 2023 publication was compiled by Julia Diaz, Research Analyst for RealTime Talent in November 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 dyanamics, 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 tendancies, 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 ($56,500 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 August 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.