

Southwest  
Minnesota

# CAREER & TECHNICAL EDUCATION

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## Workforce Trends & Careers of Tomorrow

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**RealTime Talent**

Using data to build the  
world's best workforce

# Workforce Trends & Careers of Tomorrow

## Overview

A year and a half after COVID-19 first appeared, the impacts of shutdowns, business closures, and shifting workforce needs worldwide have been ongoing and cumulative. Approximately 1.5 million Minnesotans have made initial unemployment claims since the beginning of the COVID-19 pandemic—about 47% of the state’s employed workforce just before the pandemic hit.<sup>1</sup> Many of the economic impacts of the COVID-19 pandemic will be felt far into the future, and in ways that may still be yet unknown.

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. Each of the six regional reports—and statewide report—include:

- 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
  - Certification gaps
  - Skill gaps
- An origin-to-gateway-to-target model analysis for how to help move students from entrypoints into their field of interest into other aligned careers, taking into account automation, remote work, and the changing work environment
- A word on remote work and jobs of the future

## *About This Report*

This report was developed by RealTime Talent for the Career and Technical Education Consortia of Minnesota with funding provided by Minnesota State. The contents of this publication were made possible through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) Federal grant from the United States Department of Education administered through Minnesota State Colleges and Universities. If you have questions about the data found in this report, or are interested in learning more, please contact the Director of Strategic Research Erin Olson at [erin@realtimentalentmn.org](mailto:erin@realtimentalentmn.org)

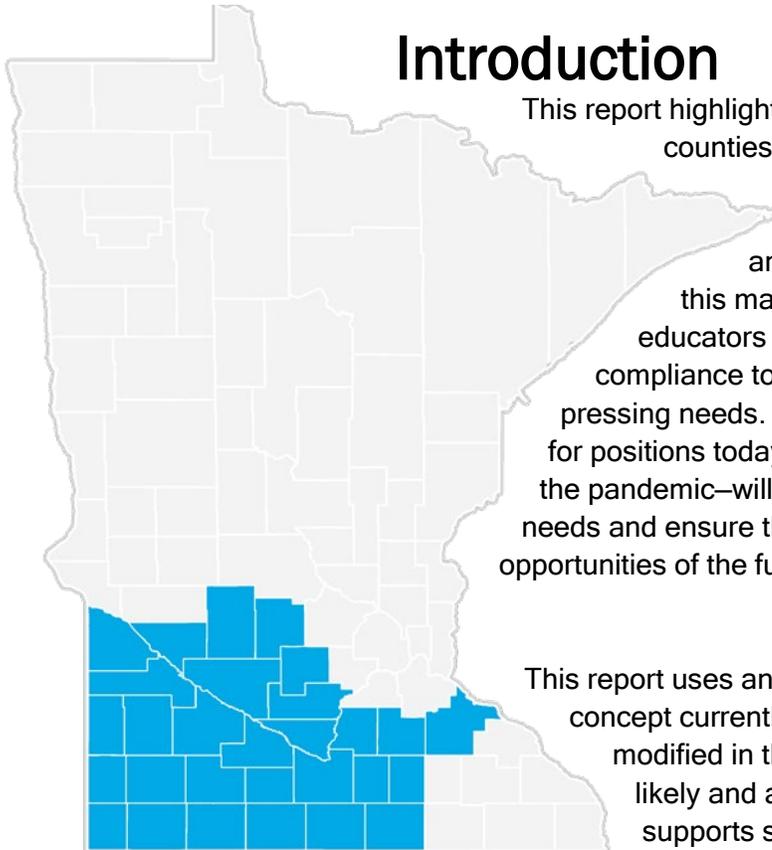
<sup>1</sup> Unemployment Statistics, MN Department of Employment and Economic Development. March 16, 2020 - August 27, 2020. Accessed 9/4/2020 at <https://mn.gov/deed/data/data-tools/unemployment-insurance-statistics/>

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# Southwest Minnesota

## Introduction



This report highlights the current and future talent needs in the 15 counties of Southwest Minnesota.<sup>2</sup> Starting from the community demographics, unique vulnerabilities and opportunities, and the critical occupations and industries underpinning the regional economy, this macroeconomic overview is intended to support educators and administrators who seek to go beyond compliance to impact both student lives and local businesses most pressing needs. Identifying the skills, certifications, and qualifications for positions today—and how they have been disparately impacted by the pandemic—will help the education community anticipate community needs and ensure that curriculum prepares students for relevant job opportunities of the future here in Southwest Minnesota.

This report uses an Origin-to-Gateway-to-Target Occupation model, a concept currently used by the Rework America Alliance and modified in this report by RealTime Talent, illustrates promising likely and aligned pathways into each career field. This model supports students looking for entrypoints from an initial occupation of interest into other aligned careers, taking into account 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* (\$42,000 – 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* (<\$42,000/year)  
*Low skill* (no credential)  
*Low demand* (over 5% unemployment, low growth, low replacement demand, and/or low job postings)

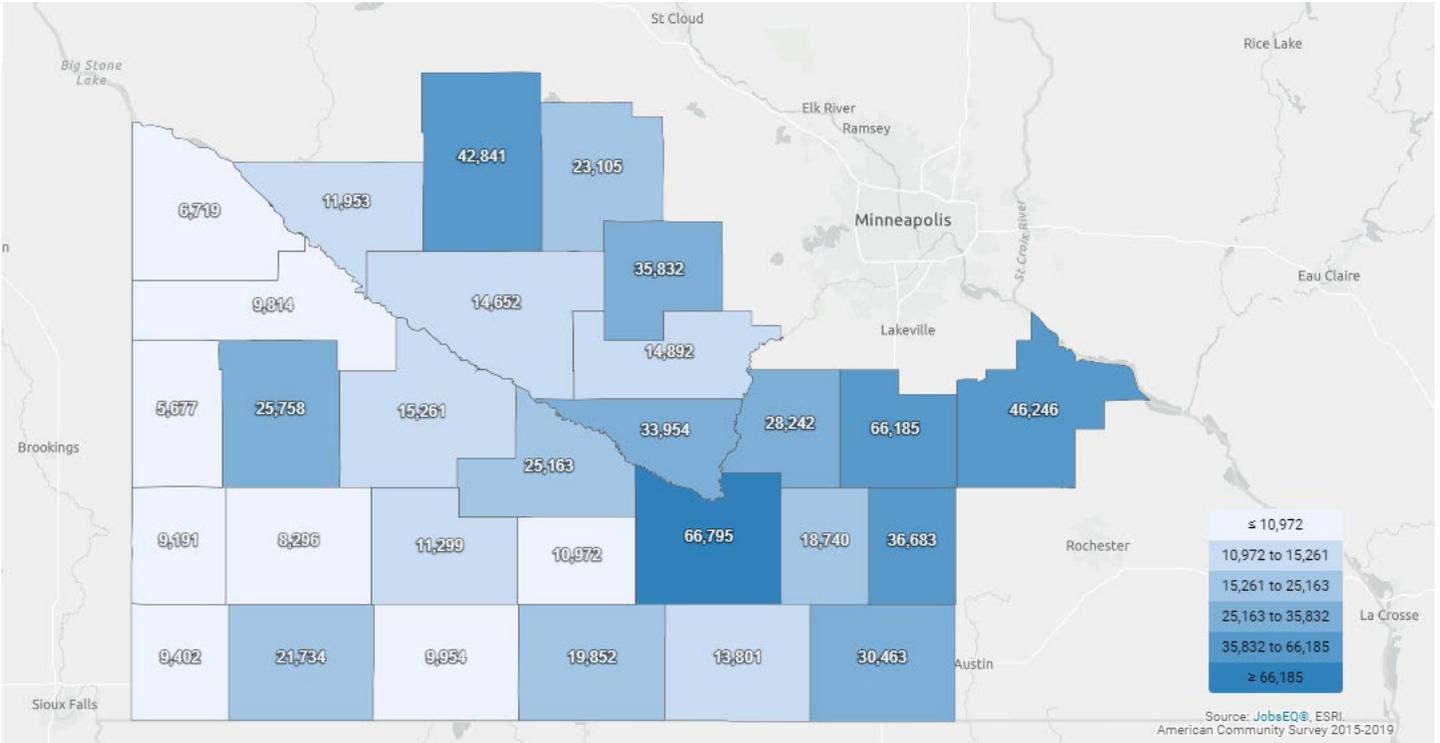
Southwest Minnesota is unique of the Minnesota regions in this series in that it is spotted with small communities and not dominated by one single MSA. The cities of Mankato, Owatonna, and Faribault are home to the largest local concentrations of population, closely followed by Northfield and Willmar. In all, 673,476 people live in Southwest Minnesota, according to 2015-2019 American Community Survey Estimates—an increase of about 400 people from the prior year's estimates (673,057

people). Based on year-over-year population change, about 673,168 people are estimated to live in the region

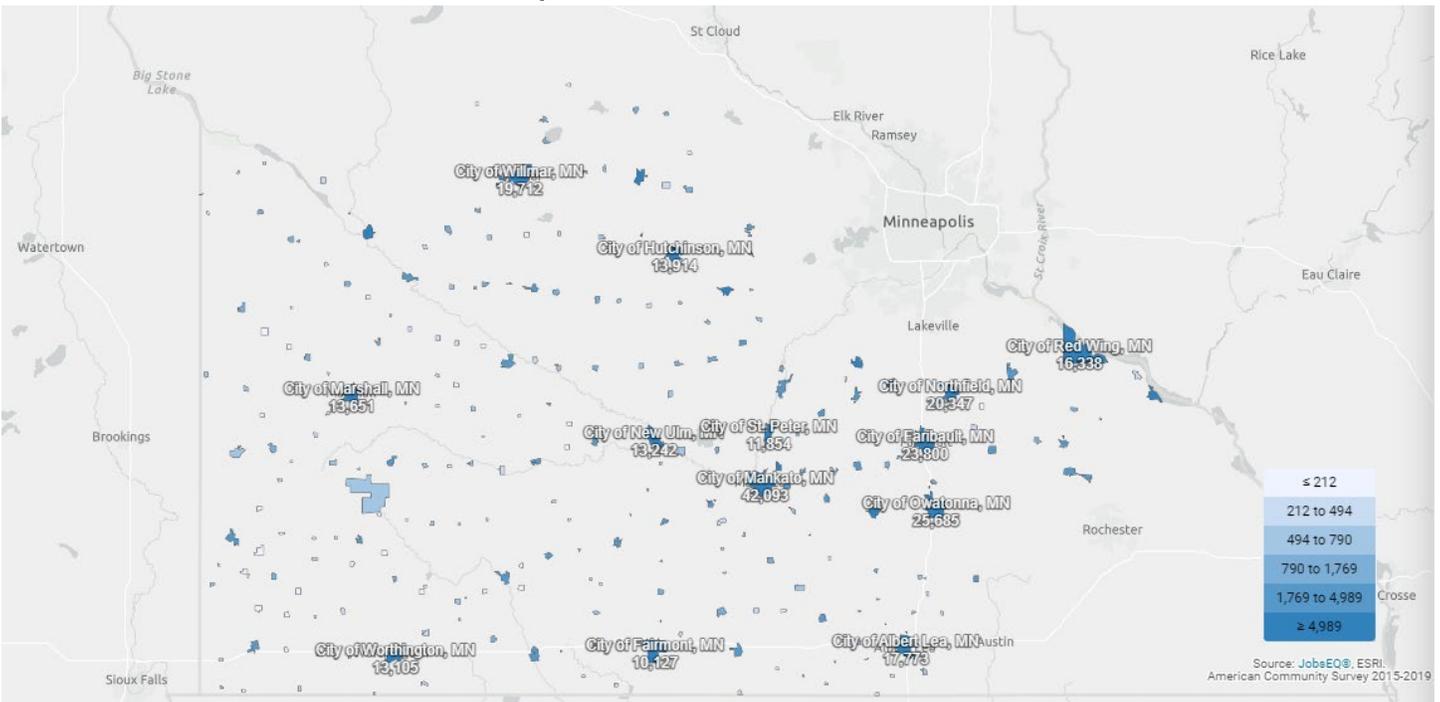
<sup>2</sup> Blue Earth, Brown, Chippewa, Cottonwood, Faribault, Freeborn, Goodhue, Jackson, Kandiyohi, Lac Qui Parle, Le Sueur, Lincoln, Lyon, McLeod, Martin, Meeker, Murray, Nicollet, Nobles, Pipestone, Redwood, Renville, Rice, Rock, Sibley, Steele, Waseca, Watonwan, and Yellow Medicine Counties.

as of 2021. About 23.0% of Southwest Minnesota’s population are minors under 18 years of age—a smaller share than in the Central and MSP Metro regions. The region’s median age of 39.7 years is slightly higher than the statewide median (38 years).

### Resident Population of Southwest Minnesota Counties



### Resident Population of Southwest Minnesota Places

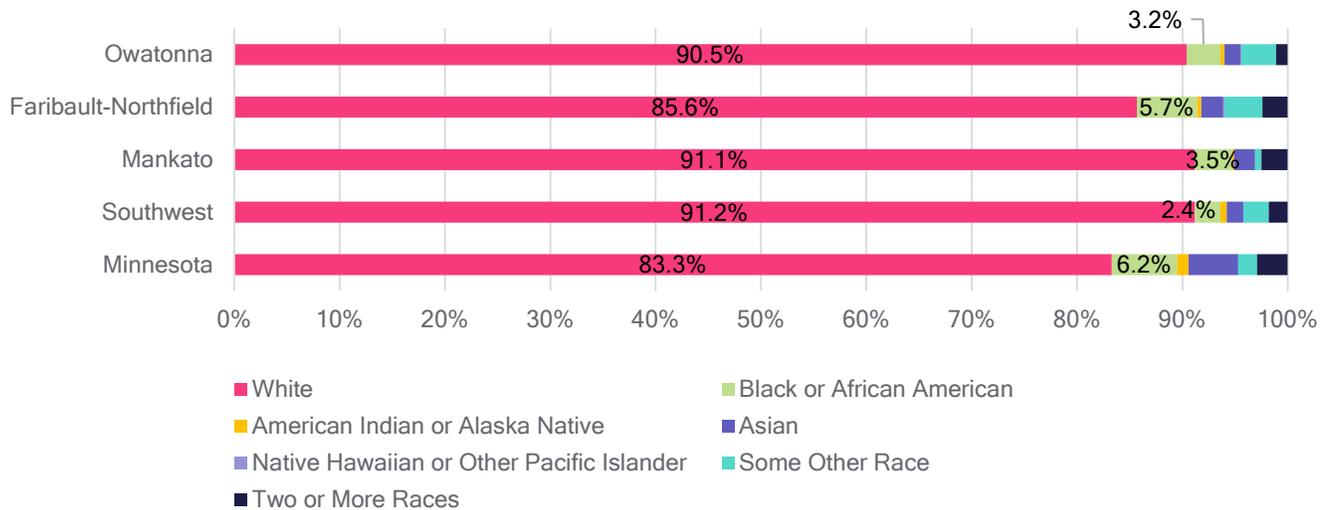


# Community Profile

## Demographics

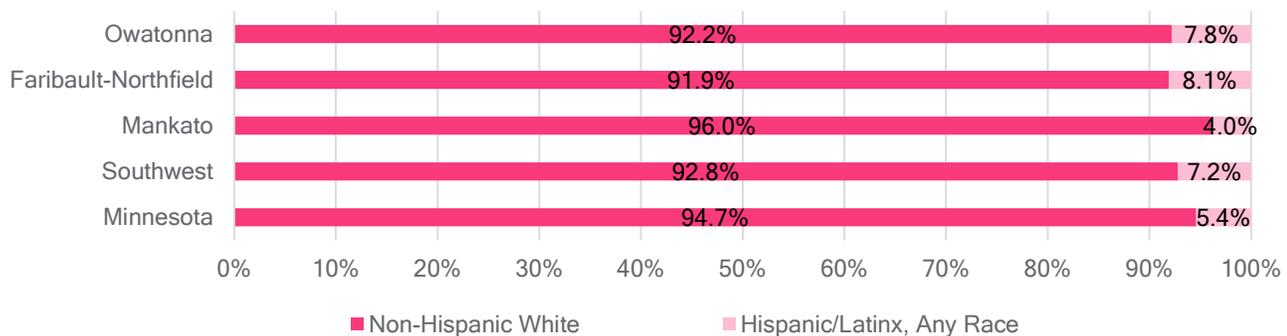
Population diversity increased between the two most recent population estimates statewide and in the Southwest by half of a percentage point. Across the region overall, just 8.8% of the population identify as Black, Asian, American Indian, Native Hawaiian, or some other race. The demographic makeup of communities across the Southwest look quite different from one another; 3.2% of people living in the Owatonna μSA identify as Black or African American, compared to just 5.7% in the Faribault-Northfield μSA. Approximately 7.8% of Southwest Minnesota's residents are Hispanic or Latinx, compared to 5.4% statewide. This was an increase of 0.9 percentage point from last year's estimates.

### Population Race, All Ages



American Community Survey 2015-2019.

### Population Ethnicity, All Ages



American Community Survey 2015-2019.

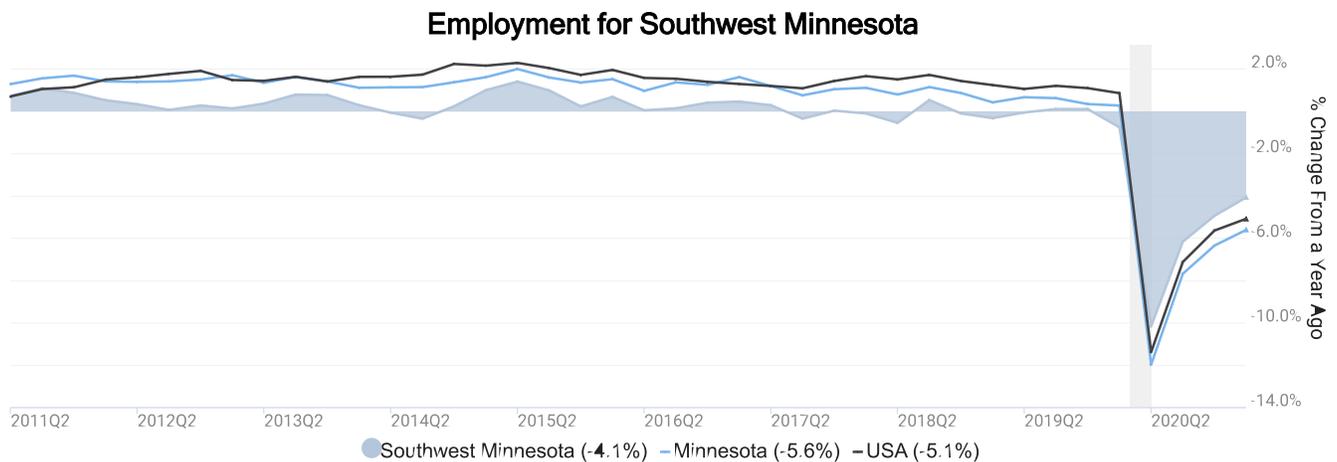
## Community Demographics

Demographics	Percent			Value		
	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
Population (ACS)	—	—	—	673,476	5,563,378	324,697,795
Male	50.2%	49.8%	49.2%	337,966	2,770,873	159,886,919
Female	49.8%	50.2%	50.8%	335,510	2,792,505	164,810,876
Median Age <sup>2</sup>	—	—	—	39.7	38.0	38.1
Under 18 Years	23.0%	23.3%	22.6%	154,658	1,295,848	73,429,392
18 to 24 Years	10.1%	9.0%	9.4%	67,718	500,630	30,646,327
25 to 34 Years	11.6%	13.6%	13.9%	78,236	756,337	45,030,415
35 to 44 Years	11.3%	12.5%	12.6%	75,906	697,077	40,978,831
45 to 54 Years	12.0%	12.7%	13.0%	80,549	708,668	42,072,620
55 to 64 Years	13.9%	13.4%	12.9%	93,669	746,120	41,756,414
65 to 74 Years	9.6%	8.8%	9.1%	64,859	490,739	29,542,266
75 Years, and Over	8.6%	6.6%	6.5%	57,881	367,959	21,241,530
Race: White	91.2%	82.8%	72.5%	614,331	4,609,049	235,377,662
Race: Black or African American	2.4%	6.4%	12.7%	15,871	356,515	41,234,642
Race: American Indian and Alaska Native	0.6%	1.0%	0.8%	3,734	58,011	2,750,143
Race: Asian	1.6%	4.8%	5.5%	10,931	268,181	17,924,209
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.2%	290	2,194	599,868
Race: Some Other Race	2.4%	1.9%	4.9%	16,406	104,032	16,047,369
Race: Two or More Races	1.8%	3.0%	3.3%	11,913	165,396	10,763,902
Hispanic or Latino (of any race)	7.2%	5.4%	18.0%	48,745	299,556	58,479,370

American Community Survey 2015-2019 unless noted otherwise.

## Employment

As of 2020Q1, total employment in Southwest Minnesota was 335,584 (based on a four-quarter moving average). By 2021Q1, employment in the region dropped to 313,622 (based on a four-quarter moving average). Over the year ending 2021Q1, employment declined an average of 4.1% in the region.

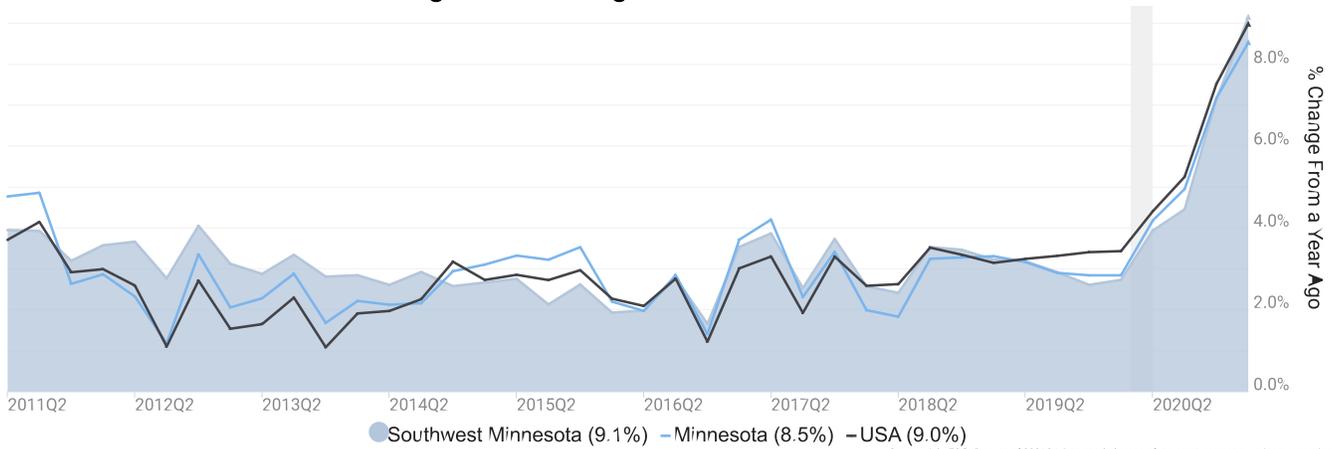


Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2020Q4 with preliminary estimates updated to 2021Q1.

The average worker in Southwest Minnesota earned annual wages of \$48,791 as of 2021Q1, an increase of about \$4,400 from one year prior, 2020Q1. Average annual wages per worker increased 9.1% in the region

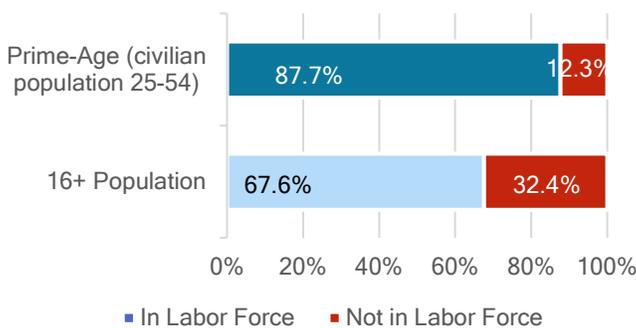
over the preceding four quarters. Wages rose similarly nationwide, where annual average wages were \$63,393 as of 2021Q1 compared to \$57,624 as of 2020Q1. This is due in large part to the loss of low-wage workers during the COVID-19 pandemic and the ongoing challenge of recruiting and hiring talent for entry-level, lower-wage jobs, particularly in sectors like hospitality, tourism, retail that were hit hardest by the pandemic.

### Average Annual Wages for Southwest Minnesota



Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2020Q4 with preliminary estimates updated to 2021Q1.

### Labor Force Participation Rate



The region has a civilian labor force of 362,330 with a participation rate of 67.6%, which lags the statewide participation rate for the population over 16. Age plays a key role in this difference, with the Southwest region home to a slightly older population than the Central and MSP Metro regions in particular. The participation rate of the prime working age population (between the ages of 25 and 64) is just behind the statewide rate—87.7% compared to the statewide 88.4%.

The Southwest area has a slightly higher share of veterans in the region, at 4.0% of the regional population compared

to

American Community Survey 2015-2019 unless noted otherwise.

3.8% broadly across the state. Veteran labor force participation is higher in the Southwest region than the statewide average, 82.5% compared to 80.4% statewide. In the Southwest as well as statewide, 8.7% of the adult population under 65 has a disability, and 53.7% of adults with a disability are in the labor force (53.0% statewide). The Southwest region has a similar share of disconnected youth (1.6% of youth) compared to the rate statewide (1.7%), both lower than what is observed nationally (2.5%). However, Owatonna has an estimated 55 disconnected youth as of American Community Survey 2014-2019 estimates—a 3.0% disconnected youth rate.

## Economic and Social Characteristics of Southwest Minnesota

Economic and Social Characteristics	Percent			Values		
	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	67.6%	69.6%	63.2%	362,330	3,069,730	163,555,585
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	87.7%	88.4%	82.1%	205,711	1,908,936	104,634,905
Armed Forces Labor Force	0.0%	0.1%	0.4%	209	2,514	1,073,907
Veterans, Age 18-64	4.0%	3.8%	4.6%	15,905	130,320	9,143,042
Veterans Labor Force Participation Rate and Size, Age 18-64	82.5%	80.4%	76.6%	13,124	104,731	7,003,778
Median Household Income <sup>2</sup>	–	–	–	\$60,715	\$71,306	\$62,843
Per Capita Income	–	–	–	\$31,145	\$37,625	\$34,103
Poverty Level (of all people)	10.6%	9.7%	13.4%	69,006	526,065	42,510,843
Households Receiving Food Stamps/SNAP	7.4%	7.9%	11.7%	19,914	172,477	14,171,567
Enrolled in Grade 12 (% of total population)	1.4%	1.4%	1.4%	9,160	80,319	4,422,344
Disconnected Youth <sup>3</sup>	1.6%	1.7%	2.5%	599	4,961	423,273
Children in Single Parent Families (% of all children)	28.9%	28.1%	34.1%	42,787	350,236	23,790,005
Uninsured	5.0%	4.5%	8.8%	33,037	246,184	28,248,613
With a Disability, Age 18-64	8.7%	8.7%	10.3%	33,962	293,656	20,187,604
With a Disability, Age 18-64, Labor Force Participation Rate and Size	53.7%	53.0%	42.2%	18,226	155,592	8,509,463

American Community Survey 2015-2019 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



**92.7%** of prime working age adult residents have at least a high school diploma or GED.

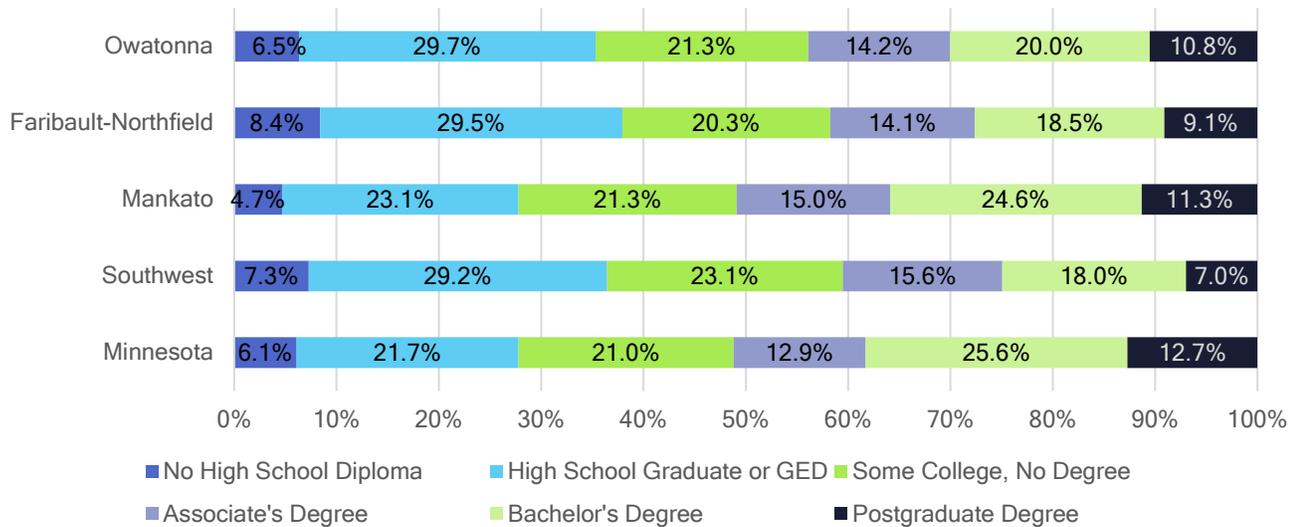
Overall, the Southwest has a lower average level of education than observed at the statewide level. In Southwest Minnesota, 7.3% of adults between the ages of 25 and 64 do not have a high school diploma or equivalent, and 29.2% have a high school diploma as their highest level of education (compared with 21.7% statewide). Nationwide, 10.9% 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 the Faribault-Northfield  $\mu$ SA has a larger share of residents with a high school diploma or less; Mankato has the smallest share of residents with no high school diploma, and also the largest share with a Bachelor's degree (24.6%) or a Postgraduate degree (11.3%) as their highest level of educational attainment.

### Educational Characteristics of Southwest Minnesota

Educational Characteristics	Percent			Values		
	Southwest Minnesota	Minnesota	USA	Southwest Minnesota	Minnesota	USA
No High School Diploma	7.3%	6.1%	10.9%	23,859	178,196	18,550,150
High School Graduate	29.2%	21.7%	25.7%	95,745	632,253	43,627,868
Some College, No Degree	23.1%	21.0%	20.7%	75,697	610,250	35,174,790
Associate's Degree	15.6%	12.9%	9.1%	51,277	374,770	15,526,064
Bachelor's Degree	18.0%	25.6%	21.2%	58,956	744,024	35,997,848
Postgraduate Degree	7.0%	12.7%	12.3%	22,826	368,709	20,961,560

American Community Survey 2015-2019 unless noted otherwise.

### Educational Attainment, Age 25-64



American Community Survey 2015-2019.

### Regional Colleges and Universities

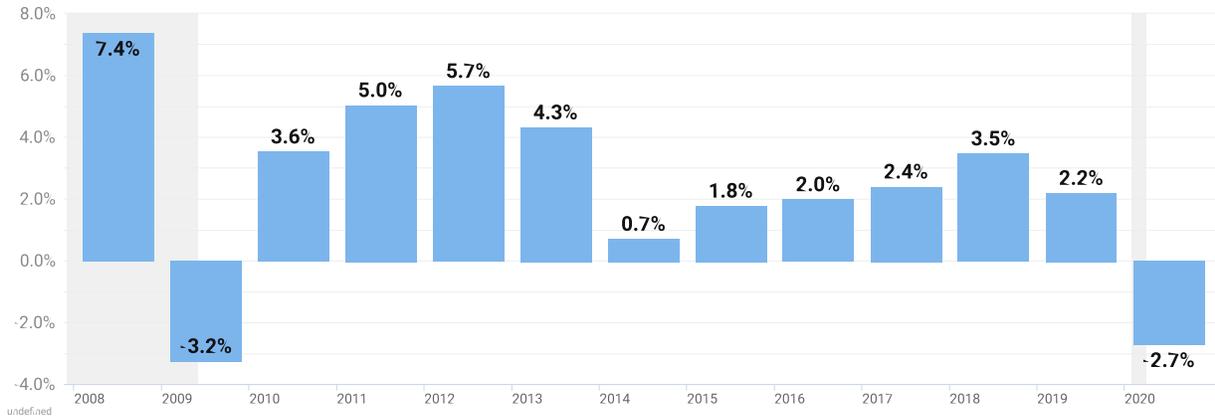
Southwest Minnesota has 11 institutions of higher education that offer non-degree awards, two-year degrees, and four-year degrees. The table below shows these postsecondary institutions sorted by enrollment size in during the 2017-18 school year.

School	Certificates and 2yr Awards	4yr Awards	Total School Enrollment	Avg Net Price
Minnesota State University-Mankato	169	2,616	14,374	\$14,519
Southwest Minnesota State University	13	488	7,167	\$14,604
Minnesota West Community and Technical College	987	0	3,362	\$10,068
Ridgewater College	839	0	3,298	\$11,782
St Olaf College	0	920	3,048	\$26,894
South Central College	643	0	2,746	\$9,753
Gustavus Adolphus College	0	621	2,241	\$23,906
Carleton College	0	512	2,097	\$32,336
Martin Luther College	45	190	972	\$19,244
Bethany Lutheran College	3	135	739	\$17,546
Avalon School of Cosmetology	11	0	25	\$5,445
<b>Total</b>	<b>2,710</b>	<b>5,482</b>	<b>40,069</b>	<b>n/a</b>

### Economic Indicators

Gross Domestic Product (GDP) is the total value of goods and services produced by a region. In 2020, nominal GDP in the Southwest region contracted -2.7%. This follows growth of 2.2% in 2019. As of 2020, total GDP in the region was \$30,507,768,000.

### 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 2020.

Of the industries represented in the Southwest, Manufacturing contributed the largest portion of GDP in 2020, \$6,948,689,000. The next-largest contributions came from Health Care and Social Assistance (\$3,093,524,000); Agriculture, Forestry, Fishing and Hunting (\$2,709,699,000); and Retail Trade (\$2,086,524,000).

### GDP (in \$ millions) Southwest Minnesota, 2020



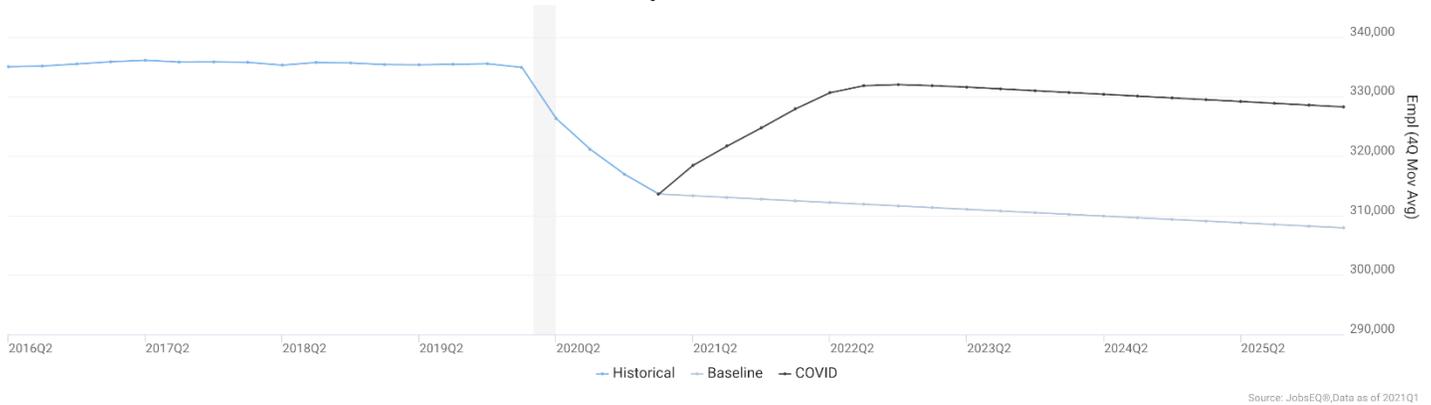
Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2020.

# The Workforce of Today and Tomorrow

## Workforce Forecast

The pandemic has been anything but “sharp and short.” Instead, many businesses have sustained ongoing impacts which have translated into business closures and reduction in workforce. Additionally, some individuals have chosen to exit the workforce entirely to care for family members or support children who are attending school remotely. Employment dropped by -6.4% between 2020Q1 and 2021Q1, with an estimated 5.3% of the Southwest region’s workforce being unemployed by 2021Q1. Future employment in the region is forecasted to grow by about 0.9% averaged annually through 2025 in the most optimistic scenario shown below in black, though lagging behind employment in prior years considerably. A pessimistic forecast based on baseline data from the Bureau of Labor Statistics and the MN Department of Employment and Economic Development, assuming the pandemic’s effects do not worsen nor get better, puts employment dropping by an annual average of -0.4%.

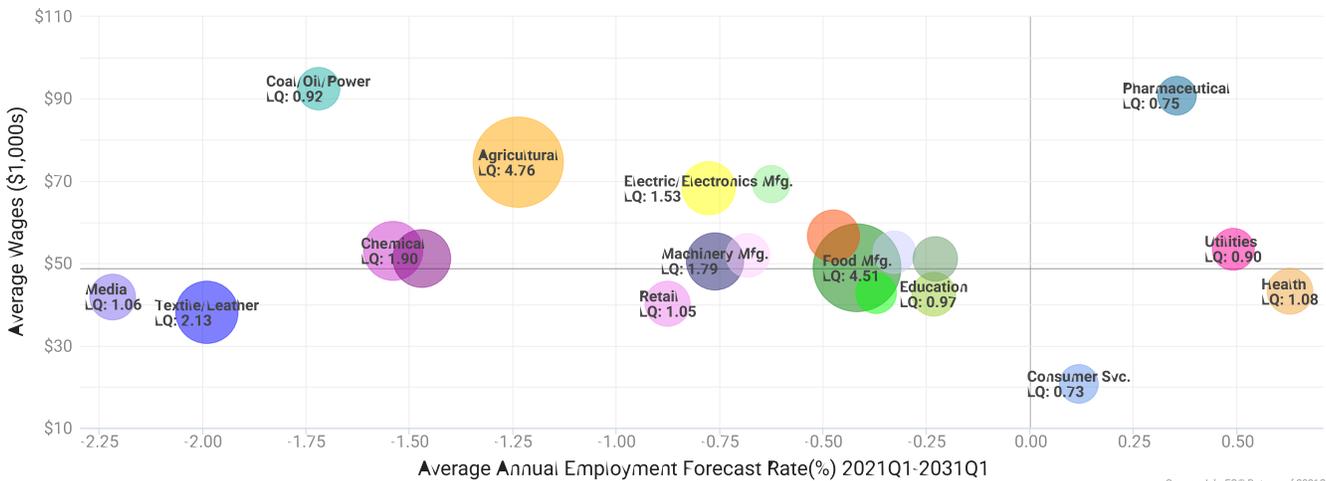
5-Year Forecast Comparison in Southwest Minnesota



Source: JobsEQ® Data as of 2021Q1

An industry cluster is a geographic concentration of interrelated industries or occupations. The industry cluster in the Southwest Minnesota region with the highest relative concentration is Agricultural with a location quotient of 4.76. This sector employs 22,248 workers in the region with an average wage of \$74,590. Employment in the Agricultural industry cluster is projected to contract in the region about 1.2% per year over the next ten years.

Industry Clusters for Southwest Minnesota as of 2021Q1



Source: JobsEQ® Data as of 2021Q1

## *Mid-Term Occupational Impacts*

### **HIGH CONTACT-INTENSITY OCCUPATIONS**

The pandemic has had some surprising impacts on talent demand due to changing healthcare, human services, supply chain, and customer service needs. For roles that require close contact with the public, high growth was forecast in the Southwest just prior to the pandemic, but quickly shifted as businesses temporarily or permanently closed their doors. One year ago, we had estimated that about 7,313 (-8.9%) of the workers employed locally in high contact-intensity roles during 2020Q1 would lose their employment by 2021Q1. This estimate was relatively close to the actual outcome; employment in these high contact-intensity roles dropped to 74,571 across the region, about 6,962 workers in losses (-8.5%). About 4,970 people are currently unemployed but skilled in these high contact-intensity positions locally, a combined unemployment rate across these positions of 6.2%.

Roles that saw some of the biggest losses in employment were Bartenders (-534 or -27.9%) and Waiters and Waitresses (-1,092 or -27.8%). These occupations also have the highest estimated unemployment rates. All high contact-intensity occupations saw declines in overall employment over the past year.

### Top 15 High Contact-Intensity Occupations by Total Employment with Optimistic COVID-19 Modeled Forecast, 2021Q1

		2021Q1						1-Year History		Optimistic 5-Year Forecast				
SOC	Occupation	Empl	Mean Ann Wages <sup>2</sup>	LQ	Unempl	Unempl Rate	Online Job Ads <sup>3</sup>	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
35-3023	Fast Food and Counter Workers	7,259	\$24,600	1.03	772	9.3%	667	-995	-12.1%	9,628	3,650	4,300	1,678	4.2%
53-3032	Heavy and Tractor-Trailer Truck Drivers	6,427	\$47,200	1.56	290	4.5%	583	-139	-2.1%	3,635	1,313	2,338	-15	0.0%
31-1122	Personal Care Aides	6,272	\$28,900	1.17	268	4.0%	357	-64	-1.0%	5,623	2,567	2,255	801	2.4%
29-1141	Registered Nurses	6,040	\$75,900	0.94	90	1.4%	671	-157	-2.5%	1,792	857	796	138	0.5%
31-1131	Nursing Assistants	4,662	\$32,900	1.59	175	3.6%	662	-243	-4.9%	2,965	1,306	1,402	257	1.1%
35-3031	Waiters and Waitresses	2,830	\$25,700	0.75	554	15.7%	54	-1,092	-27.8%	4,172	1,216	2,168	787	5.0%
25-2021	Elementary School Teachers, Except Special Education	2,752	\$55,400	1.02	85	3.2%	13	-313	-10.2%	1,167	441	612	114	0.8%
53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	2,219	\$37,400	1.46	416	15.3%	186	-316	-12.5%	2,206	963	688	555	4.6%
31-1121	Home Health Aides	2,197	\$28,900	1.17	89	3.6%	95	-296	-11.9%	1,642	656	705	281	2.4%
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	2,109	\$58,100	1.06	45	2.2%	21	-236	-10.1%	852	305	458	88	0.8%
29-2061	Licensed Practical and Licensed Vocational Nurses	2,068	\$47,500	1.45	47	2.2%	343	-158	-7.1%	930	365	451	114	1.1%
39-9011	Childcare Workers	2,047	\$26,800	1.16	220	9.3%	44	-172	-7.8%	2,057	862	873	321	3.0%
53-3033	Light Truck Drivers	1,834	\$38,200	0.83	91	4.3%	114	-49	-2.6%	1,142	388	690	64	0.7%
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	1,610	\$36,700	0.89	133	7.2%	672	-292	-15.4%	1,818	422	1,045	352	4.0%
<b>High Contact-Intensity Occupations</b>		<b>74,571</b>	<b>\$47,800</b>	<b>1.05</b>	<b>4,970</b>	<b>6.2%</b>	<b>6,166</b>	<b>-6,962</b>	<b>-8.5%</b>	<b>55,481</b>	<b>20,632</b>	<b>26,739</b>	<b>8,110</b>	<b>2.1%</b>
<b>Total - All Occupations</b>		<b>313,622</b>	<b>\$49,900</b>	<b>1.00</b>	<b>18,018</b>	<b>5.3%</b>	<b>17,715</b>	<b>-21,283</b>	<b>-6.4%</b>	<b>202,797</b>	<b>72,911</b>	<b>115,313</b>	<b>14,572</b>	<b>0.9%</b>

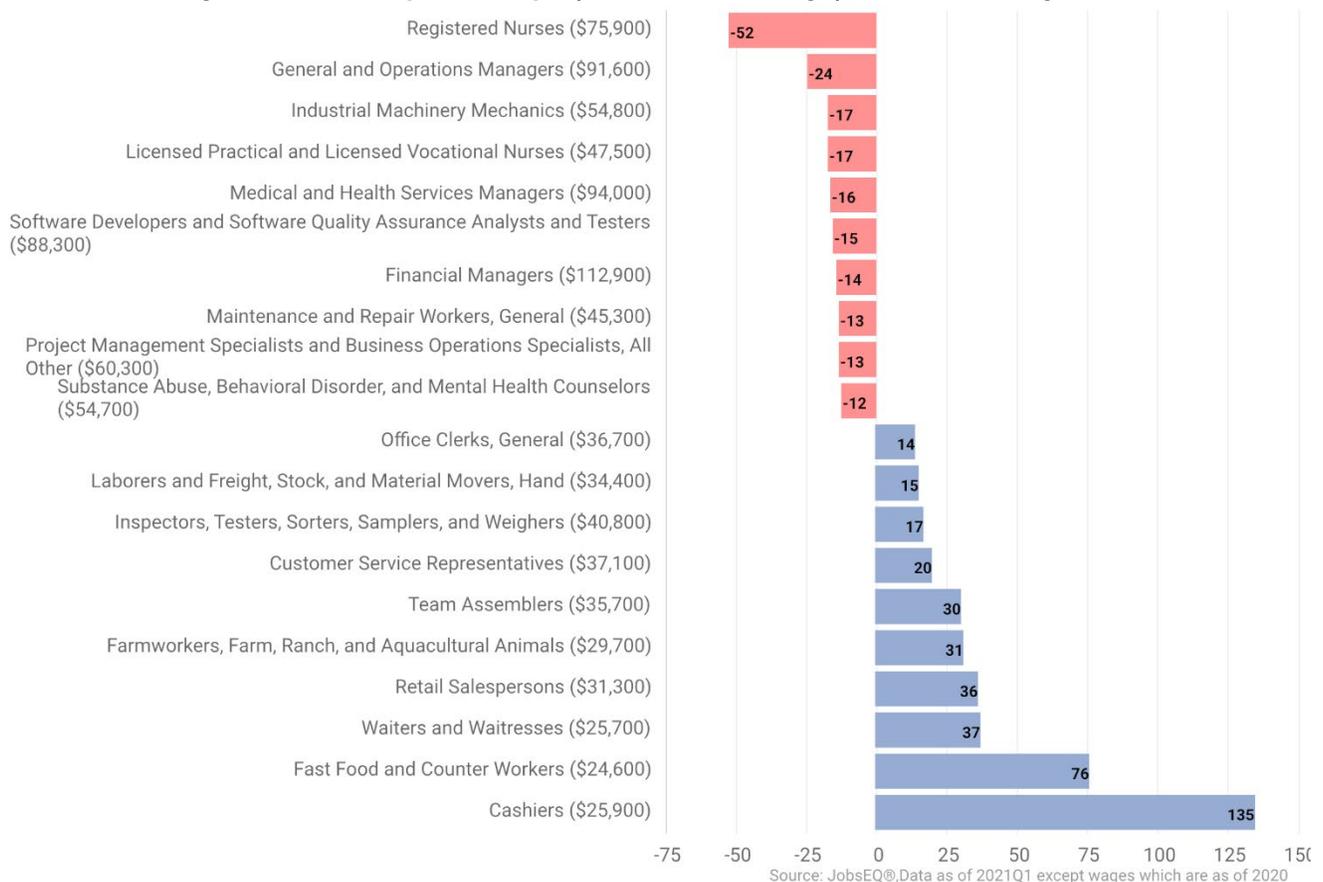
## SEVERE OCCUPATION GAPS

Estimation of mid-term and long-term recovery of critical local occupations is based on our most reasonable hypothesis given current conditions. In Southwest Minnesota, an analysis of local labor market occupational gaps as of the first quarter of 2020 showed that there was a shortage of Nurses, Farmers and Agricultural Managers, Operations Managers, Therapists, Counselors, and Physicians. Since then, shortages of Industrial Machinery Mechanics, Medical and Health Services Managers, and Financial Managers, among others, have increased. Registered Nurses remains the occupation with highest forecasted shortages, but Industrial Machinery Mechanics jumped up from a small occupation gaps to ranking third in the region for severity. Software Developer, maintenance and Repair Workers, Health Management, and Project Management positions also rose in anticipated shortage.

Based on forecasted growing demand for health, education, human services, and remote work-friendly management positions, these occupations of shortage are likely to rebound and grow in demand as the pandemic subsides, possibly beyond initial forecasts. All of the top ten positions of highest forecasted talent shortage pay wages over \$45,000 per year on average. Most occupations of shortage require an Associate's degree or higher; just two pay slightly under the area median wage of \$49,900 annually (Maintenance and Repair Workers and Licensed Practical Nurses).

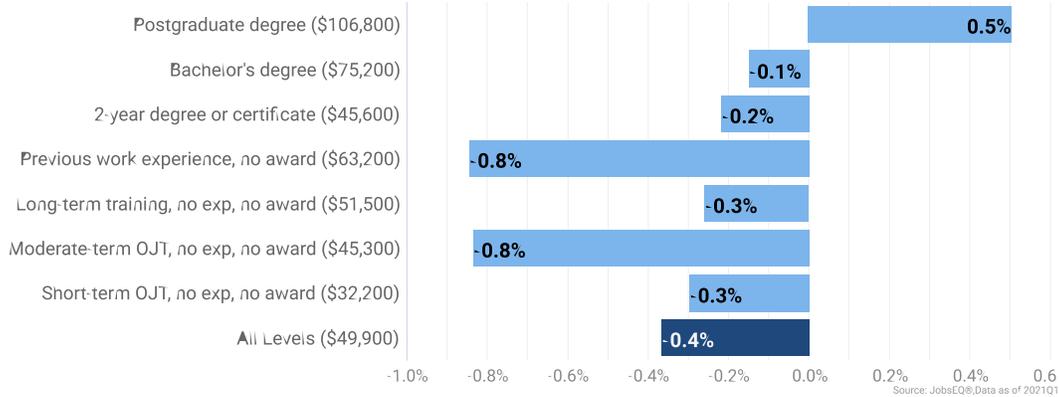
Conversely, none of the ten positions forecast to have the highest surplus of talent in the Southwest as of the first quarter of 2020 or 2021 typically require an advanced degree, and none of them pay over \$40,000 on average. Eight out of ten of these positions typically cannot be done remotely, and the four positions of greatest talent surplus are considered high contact-intensity. Given the impacts of the COVID-19 pandemic on local industry, these occupations of anticipated high talent excess will likely decline in overall local demand and shift dramatically in how work is done on a daily basis.

### Average Annual Occupation Gaps (i.e. Talent Shortage), 2021Q1 through 2031Q1



Expected growth rates for occupations vary by the education and training required. While all employment in Southwest Minnesota is projected to decline by about -0.4% annually over the next ten years under baseline estimates (the same forecast anticipated one year prior), occupations typically requiring a postgraduate degree are expected to grow 0.5% per year, while demand for all other education levels are forecast to decline. Estimated wages have increased across careers at each education level requirement.

### Annual Average Projected Job Growth by Training Required for Southwest Minnesota

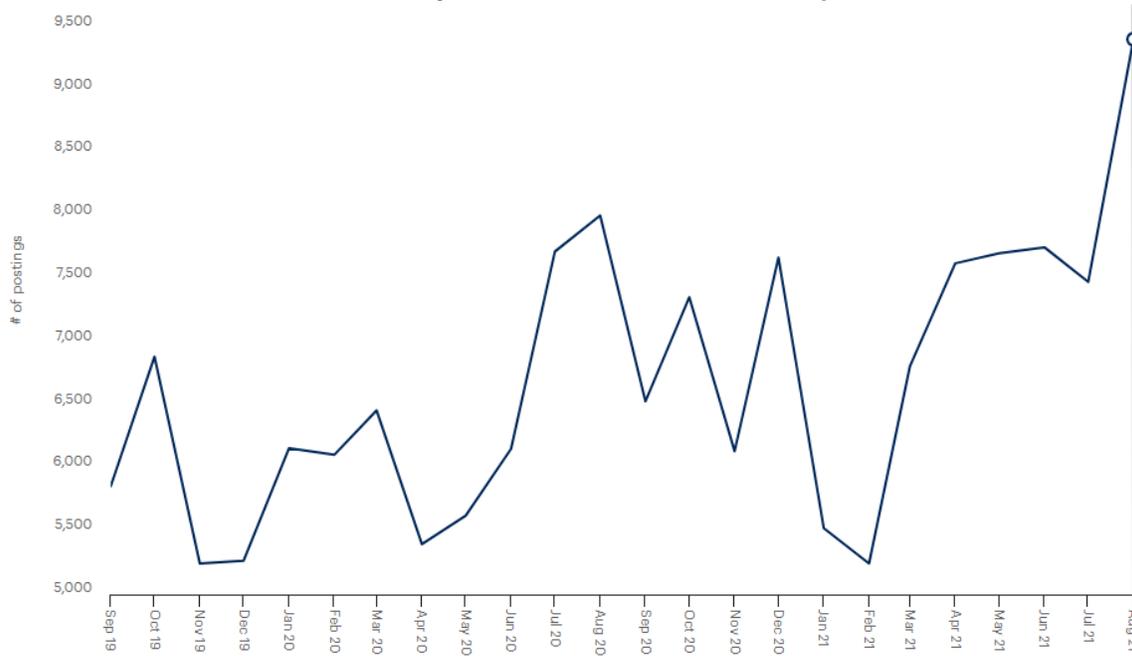


Employment by occupation data are estimates as of 2021Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

## EMERGING CAREER PATHS

Online job posting data can tell us a lot about employer demand for certain skills, certifications, qualifications, and occupational competencies. Too often jobseekers limit their search to careers matching prior job titles or formal education. However, taking a non-traditional education path doesn't mean a person doesn't have the skills necessary for in-demand jobs or career paths outside their formal education. And increasingly, employers are more focused on skills than degrees.

### Total Jobs Advertised Monthly in Southwest Minnesota, September 2019 - 2021



During the first six months of the COVID-19 pandemic,<sup>3</sup> there were 39,376 new jobs advertised in the region—an increase of 7% from the same six months in 2019. The top three positions advertised by volume were for Heavy Truck Drivers, Personal Care Aides, and Registered Nurses. The most significant increases in demand were among Personal Care Aides, Laborers and Material Movers, and Insurance Sales Agents. This reflects the sudden and growing local demand for goods distribution, insurance needs, and personal care services in response to the pandemic.

Over the past 12 months, several of these occupations have continued to see growth in postings, including Heavy Truck Drivers, Registered Nurses, and Laborers. Overall, healthcare, transportation, shipping/logistics, and service roles have spiked in volume considerably, showing much higher demand since March 2021 compared to early months of the pandemic. Supervisory roles across food service, hospitality, manufacturing, production, and healthcare have all been rising in demand.

**Top Emerging Occupations in Southwest Minnesota, March 1-August 31, 2021 compared to the same dates in 2020 (high-growth occupations by order of volume of postings)**

1. Light Truck or Delivery Services Drivers (+276%)
2. Supervisors of Retail Sales Workers (+51%)
3. Nursing Assistants (+64%)
4. Licensed Practical and Licensed Vocational Nurses (+158%)
5. Combined Food Preparation and Serving Workers (+65%)
6. Hairdressers, Hairstylists, and Cosmetologists (+78%)
7. Speech-Language Pathologists (+96%)
8. Food Preparation Workers (+60%)
9. Institution and Cafeteria Cooks (+104%)
10. Taxi Drivers and Chauffeurs (+1,367%)

**Top Sustaining Occupations in Southwest Minnesota September 2020 - 2021**

1. Heavy and Tractor-Trailer Truck Drivers (+46%)
2. Registered Nurses (+32%)
3. Stock Clerks and Order Fillers (+52%)
4. Laborers and Freight, Stock, and Material Movers (+113%)
5. Stock Clerks and Order Fillers (+84%)

Talent accumulates valuable skills in many different ways beyond just work and education, from self-study to apprenticeships/internships, as well as workforce training programs and general life experience all develop relevant skills. Assessing experience in terms of skills unearths a person's qualifications and more clearly identifies training needs. It also helps people recognize the abilities and knowledge they don't know they have.

For example, servers trying to move beyond a likely transition (bartending, retail sales, and other hospitality jobs) to an aligned transition like public relations specialist, skills tell us where their current qualifications align and where there are gaps. This kind of gap analysis is possible at the occupation

<sup>3</sup> March 15-June 15, 2020.

level and supports with postsecondary planning, workforce development, and employer talent strategy.

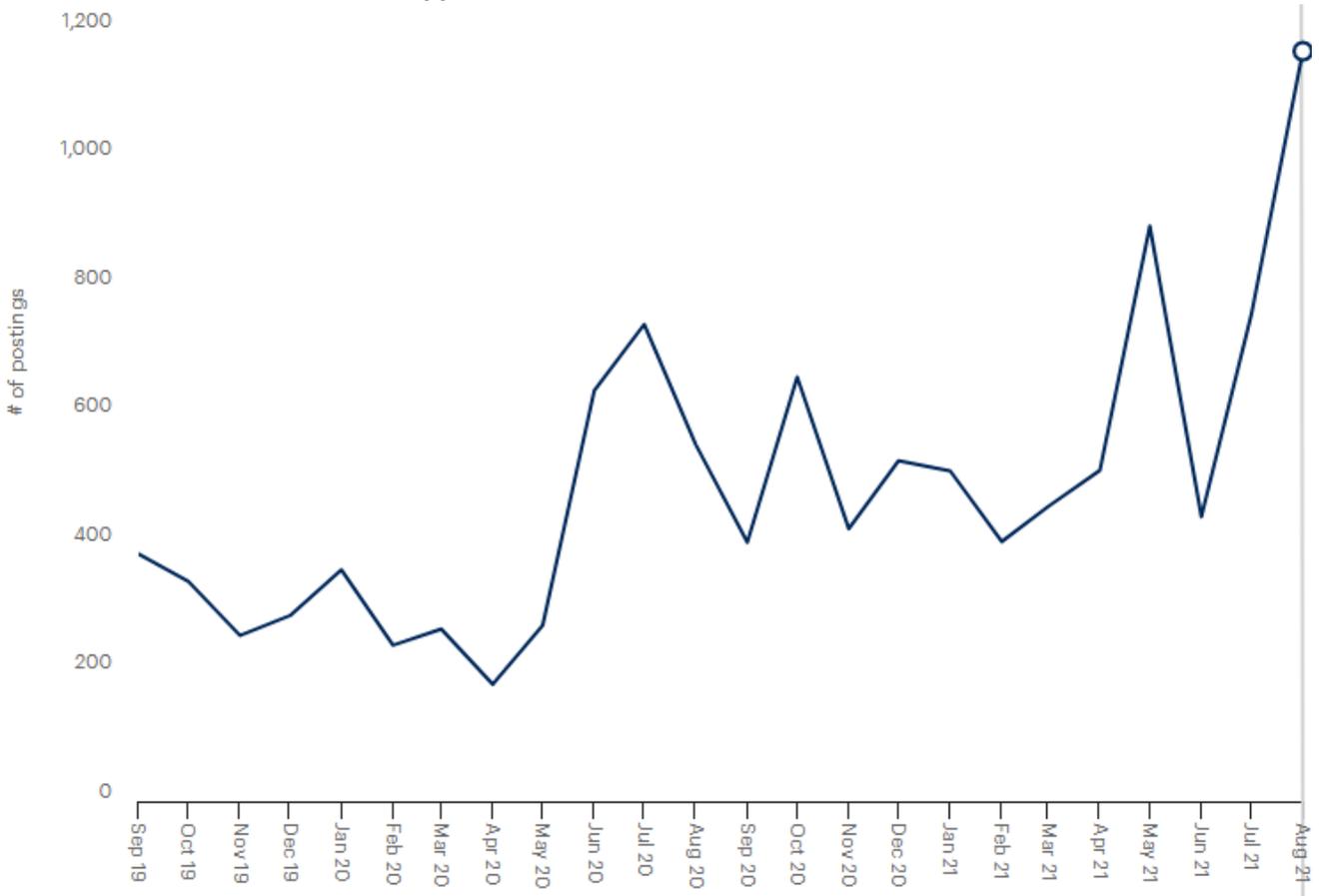
Human skills and other competencies like scheduling, managing a flexible work environment, and handling general healthcare needs were mentioned in job postings as required competencies for candidates in higher volumes from March through August in comparison to early 2020 or any point in 2019, but declined moderately from September 2020 through August 2021. The majority of rising skills are focused in Health Science, Logistics, or Business, Management, and Administration capacities.

### Top Emerging Skills in Southwest Minnesota in Order of Frequency, with percent change from prior year in Job Postings, September 2020 - 2021

1. Scheduling (+11%)
2. Leadership (+6%)
3. Nursing (+18%)
4. Lifting (+12%)
5. Organizational Skills (+24%)

Telecommuting and work-from-home continues to appear in job posting requirements locally, increasing 58% in the past 12 months (September 2020-2021) compared to the prior year (September 2019-2020).

**Trends in Remote Work Opportunities Advertised Online, Southwest Minnesota 2021Q1**



Remote work opportunities increased significantly among Business, Management, and Administration and Information Technology roles over the past 12 months compared to the 12 months prior. For example, the volume of remote job postings for Accountants and Auditors Secretaries in the Southwest increased by 193%.

**Change in Volume of Remote Work Opportunities by Occupation in Southwest Minnesota, September 2020-2021 Compared to 12 months prior**

1. Customer Service Representatives (+202%)
2. Insurance Sales Agents (+191%)
3. Registered Nurses (+218%)
4. Telemarketers (+4,225%)
5. Computer Occupations, All Other (+97%)

Currently, the occupations with highest estimated unemployment rates in Southwest Minnesota are Choreographers (31.2%), Dancers (31.1%), Actors (24.0%), and Demonstrator and Product Promoters (22.5%). Product Promoters in particular may have a moderately high level of alignment in skills and experience for several career pathways and high-skill, high-demand occupations in the region in Business, Management, and Administration or some Engineering, Manufacturing, and Technology roles.

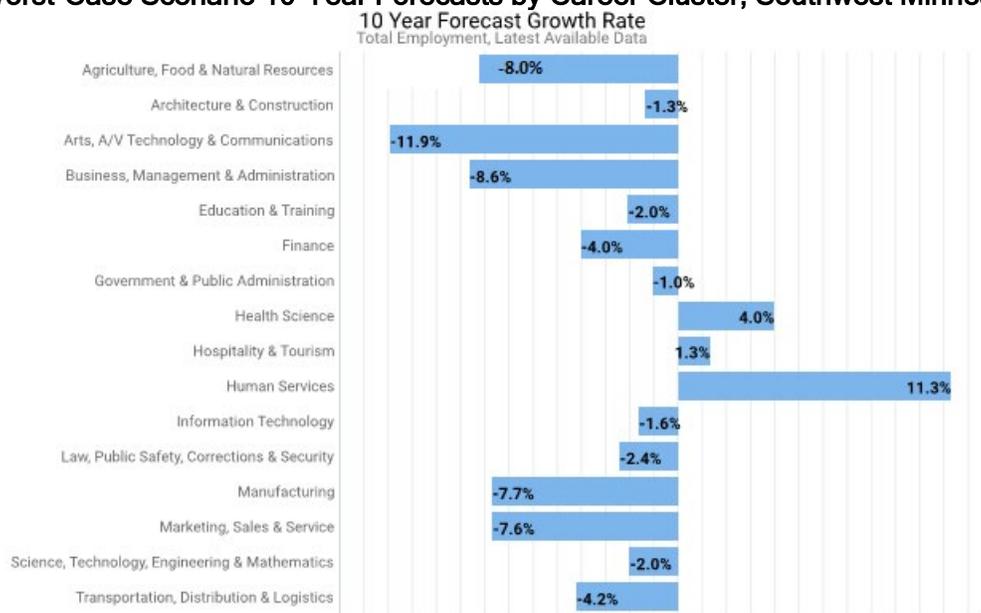
## Career Field Insights

Analysis of the sixteen CTE Clusters provides an entryway into career pathways, summarizing where opportunities are greatest among hundreds of occupations.

Of sixteen career clusters used by Career and Technical Education (CTE), three are forecast in a worst-case scenario model to grow in overall employment over the next ten years. The clusters forecasting growth are Human Services (11.3%), Health Science (4.0%), and Hospitality and Tourism (1.3%) in a worst-case scenario. Human Services and Hospitality and Tourism both have average annual wages that are well below the average occupation wage in the region (\$49,900 in 2020).<sup>4</sup>

Comparing current baseline forecasts to the same forecasts modeled one year ago, all but Architecture and Construction, Hospitality and Tourism, and Marketing, Sales, and Service clusters have improved employment forecasts over ten years than what was estimated last year.

### Baseline Worst-Case Scenario 10-Year Forecasts by Career Cluster, Southwest Minnesota 2021Q1



Cluster forecasts estimated using Chmura, JobsEQ, based on 2020Q1 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 both future growth and the number of people retiring be taken into account. In the Southwest, Hospitality & Tourism, Business, Management, and Administration, and Manufacturing clusters are expected to have the highest annual job demand by volume of opportunities—due to retirements and job changes.

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

<sup>4</sup> Clusters paying an average salary higher than the regional average occupation wage include Science, Technology, Engineering, and Mathematics, Information Technology, Finance, Health Science, Government and Public Administration, Law, Public Safety, Corrections, and Security, Business, Management, and Administration, and Architecture and Construction.

Career Cluster	Employment	Avg Ann Wages	Job Ads	Baseline 10-Year Forecasted Empl Change	Ann Empl Growth	Ann Total Demand
Science, Technology, Engineering & Mathematics	3,688	\$89,000	283	-2.0% (+)	-8	262
Information Technology	4,640	\$79,000	308	-1.6% (+)	-8	331
Finance	8,680	\$70,300	459	-4.0% (+)	-36	756
Health Science	28,616	\$67,400	3,151	4.0% (+)	109	2,393
Agriculture, Food & Natural Resources	19,886	\$61,100	362	-8.0% (+)	-255	2,060
Government & Public Administration	2,735	\$57,300	81	-1.0% (+)	-3	237
Law, Public Safety, Corrections & Security	7,267	\$54,500	261	-2.4% (+)	-18	645
Business, Management & Administration	44,546	\$54,200	1,910	-8.6% (+)	-404	4,286
Architecture & Construction	19,388	\$53,300	531	-1.3%	-27	2,045
Education & Training	18,857	\$53,300	412	-2.0% (+)	-42	1,642
Arts, A/V Technology & Communications	4,751	\$46,600	75	-11.9% (+)	-60	440
Marketing, Sales & Service	32,083	\$43,700	2,444	-7.6%	-257	4,045
Manufacturing	41,517	\$43,600	1,944	-7.7% (+)	-335	4,224
Transportation, Distribution & Logistics	27,252	\$42,000	1,375	-4.2% (+)	-119	3,071
Human Services	18,548	\$39,400	1,246	11.3% (+)	197	2,610
Hospitality & Tourism	31,169	\$28,900	2,769	1.3%	39	5,106
<b>Total - All Occupations</b>	<b>313,622</b>	<b>\$49,900</b>	<b>17,611</b>	<b>-4.0%</b>	<b>-1,172</b>	<b>34,211</b>

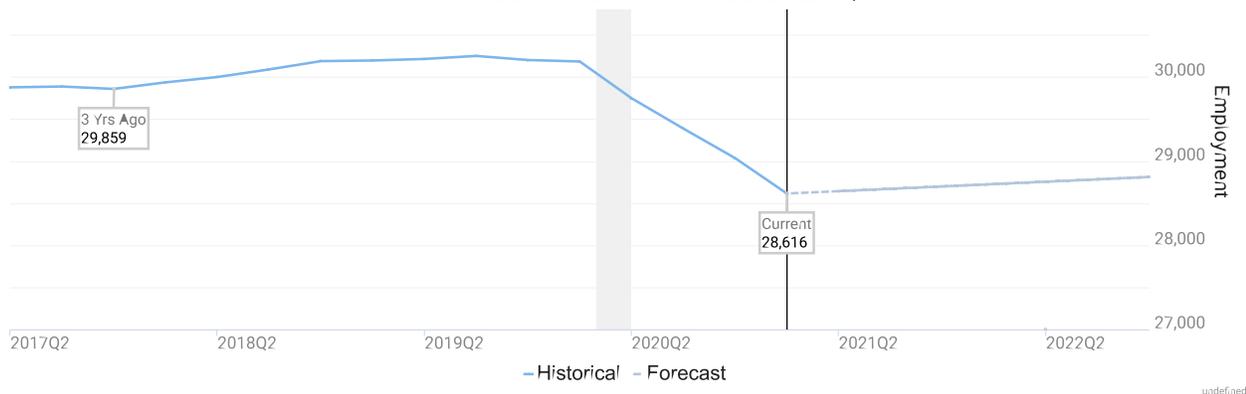
\*Cluster forecasts estimated using Chmura, JobsEQ, based on 2021Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. (+) indicates an improved forecast from 2020Q1 estimates.

## HEALTH SCIENCE TECHNOLOGY

Health Science Technology is a critical Career Field to secure the public health of the entire state. The COVID-19 pandemic has made this reality even more clear, and further strained the workforce challenges faced in this sector.

Over the next three years, under a pessimistic baseline forecast, Health Science Technology employment is forecast to grow by about 0.4% on average annually. In the most optimistic scenario feasible based on employer demand, and given the existing talent shortage and talent pipelines in place, employment growth of 1.1% annually in this field could be possible.

### Baseline Worst-Case Scenario 3-Year Forecast for Health Science Technology Careers, Southwest Minnesota 2021Q1



### Top Ten Health Science Technology Occupations by Employment Volume in Southwest Minnesota, 2021Q1

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Registered Nurses	6,040	\$75,900	0.94	176	321	0.0%
Nursing Assistants	4,662	\$32,900	1.59	-184	508	-0.2%
Home Health Aides	2,197	\$28,900	1.17	-622	309	2.1%
Licensed Practical and Licensed Vocational Nurses	2,068	\$47,500	1.45	-211	156	0.0%
Medical Secretaries and Administrative Assistants	1,094	\$40,200	0.85	-60	125	0.2%
Medical Assistants	1,058	\$39,700	0.69	-73	132	1.1%
Medical and Health Services Managers	768	\$94,000	0.87	11	82	2.1%
Pharmacy Technicians	689	\$36,800	0.78	-16	53	-0.2%
Physicians, All Other; and Ophthalmologists, Except Pediatric	680	\$252,900	0.80	-39	20	0.1%
Dental Assistants	576	\$48,400	0.83	-24	66	0.2%
Remaining Component Occupations	8,786	\$87,700	0.85	-280	606	0.4%
<b>Health Science (CTE Cluster)</b>	<b>28,616</b>	<b>\$67,400</b>	<b>0.98</b>	<b>-1,321</b>	<b>2,393</b>	<b>0.4%</b>

"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).

Just over one in four talent in Southwest Minnesota that is working in Health Science Technology roles are employed by General Medical and Surgical Hospitals (25.9%). The other industry employing large numbers of Health Science Technology talent is Nursing Care Facilities (20.9%).

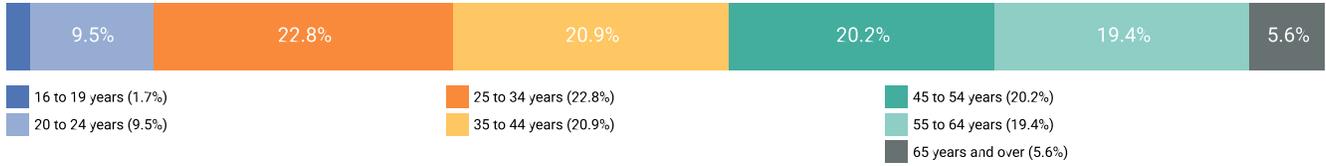
### Health Science Technology Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
General Medical and Surgical Hospitals	25.9%	7,405	4,860	-111	4,749
Nursing Care Facilities (Skilled Nursing Facilities)	20.9%	5,970	5,275	-376	4,899
Offices of Physicians	13.0%	3,712	2,691	324	3,015
Offices of Dentists	4.7%	1,334	1,135	18	1,153
Home Health Care Services	4.3%	1,232	1,160	279	1,438
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	3.9%	1,114	1,195	262	1,457
Offices of Other Health Practitioners	3.5%	1,006	743	124	867
Individual and Family Services	3.4%	973	1,185	383	1,568
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.3%	951	982	119	1,101
Other Professional, Scientific, and Technical Services	2.3%	655	607	75	682
Health and Personal Care Stores	2.1%	614	402	-73	329
Psychiatric and Substance Abuse Hospitals	1.7%	499	387	2	389
Outpatient Care Centers	1.4%	387	299	87	387
Elementary and Secondary Schools	1.3%	376	224	-7	217
Colleges, Universities, and Professional Schools	0.9%	253	184	13	197
Executive, Legislative, and Other General Government Support	0.9%	249	191	5	196
Medical and Diagnostic Laboratories	0.7%	190	146	20	166
Other Residential Care Facilities	0.6%	178	160	-9	151
Employment Services	0.6%	169	132	0	132
Grocery Stores	0.6%	164	114	1	115
All Others	4.1%	1,185	873	6	880

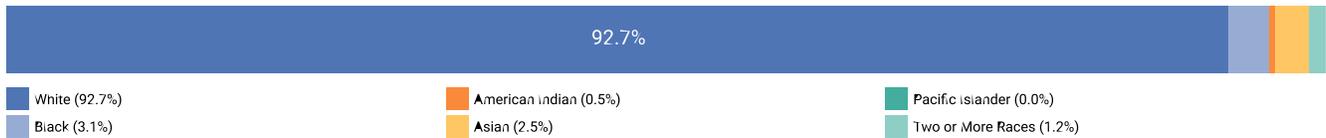
### Career Field Demographics

The Health Science Technology field is heavily female (81.7%) and white (92.7%). The age distribution of talent in Health Science Technology skews slightly young, with the largest proportion of talent between the ages of 25 and 34 years (22.8% of talent).

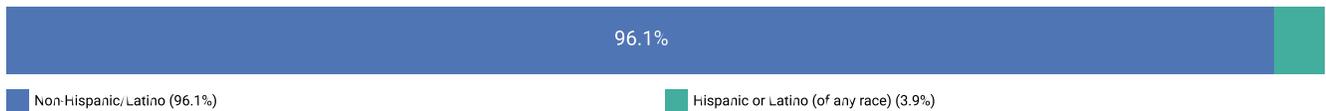
#### Age



#### Race



#### Ethnicity



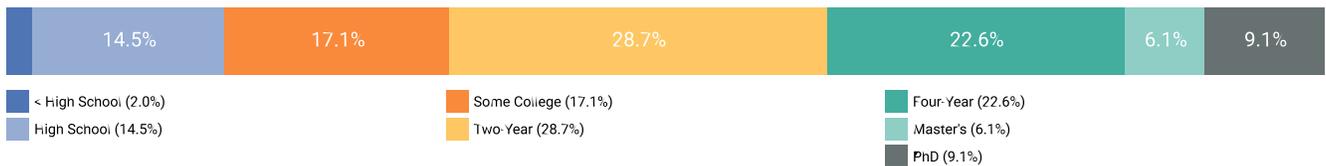
#### Gender



### 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, as well as the typical education and training requirements for positions in the field. In general, the Southwest Minnesota Health Science Technology workforce has a close match to the education and training required for existing roles. For example, just 16.8% of Health Science Technology positions require no educational award, and about 16.5% of the workforce holds only a high school diploma or less. About 28.7% of the Health Science Technology workforce hold a two-year degree and 17.1% completed some college (such as a certificate), or 45.8% in all, compared to about 40.4% of local jobs in Health Science Technology that typically require a certificate two-year degree. The table below indicates typical education and training requirements rather than the mix of attainment of workers in such positions.

#### Educational Attainment



#### Education and Training Requirements



## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Registered Nurses	Bachelor's degree	None	None
Nursing Assistants	Postsecondary non-degree award	None	None
Home Health Aides	High school diploma or equivalent	None	Short-term on-the-job training
Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	None	None
Medical Secretaries and Administrative Assistants	High school diploma or equivalent	None	Moderate-term on-the-job training
Medical Assistants	Postsecondary non-degree award	None	None
Medical and Health Services Managers	Bachelor's degree	Less than 5 years	None
Pharmacy Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training
Physicians, All Other; and Ophthalmologists, Except Pediatric	Doctoral or professional degree	None	Internship/residency
Dental Assistants	Postsecondary non-degree award	None	None

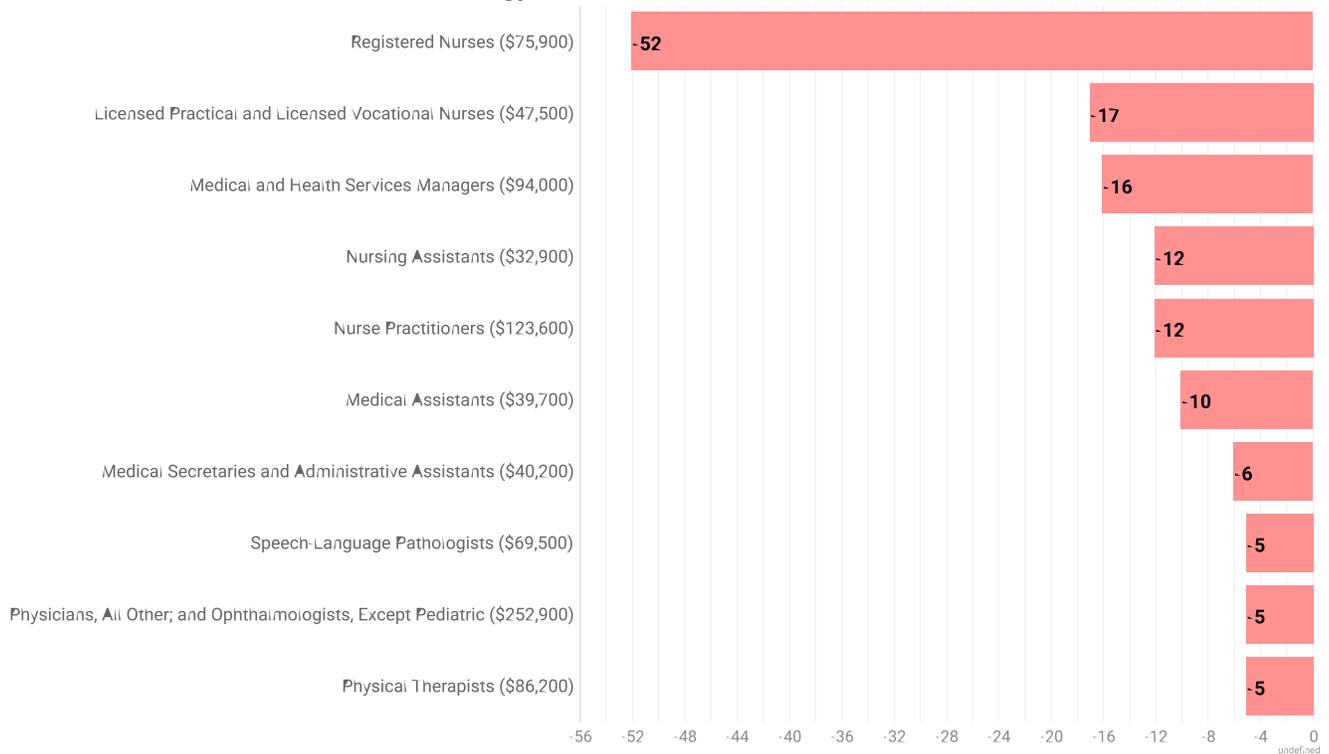
### Occupation Gaps

The chart below shows the potential average annual 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.

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.

In Health Science Technology, Registered Nurses are the occupation with the greatest annual shortages in the Southwest region and #1 statewide. This critical talent shortage is due in large part to forecasted employment growth and replacement demand needs due to retirements combined with insufficient talent coming through Registered Nursing programs at both the 2-year and 4-year levels.

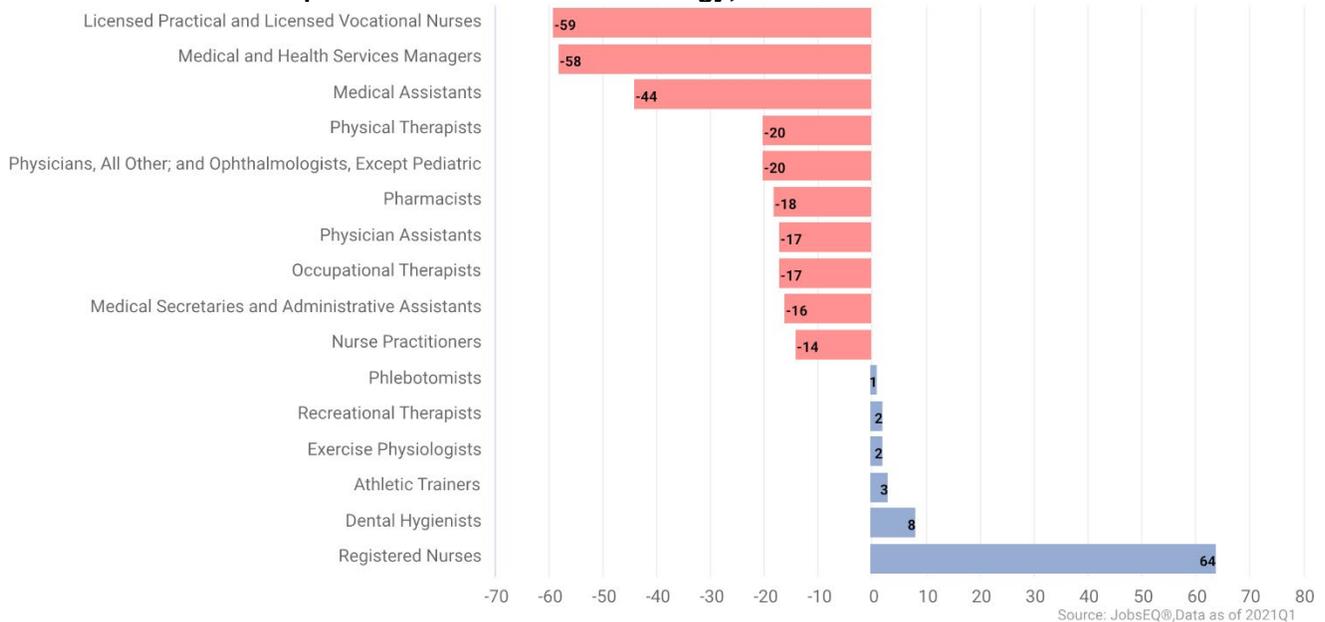
## Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, Southwest Minnesota 2021Q1



### 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 region has several Health Science Technology award gaps, meaning that the region is underproducing local talent in relation to employer demand. For instance, Southwest colleges and universities are underproducing about 59 graduates annually that are needed to fill LPN positions open with employers in the region. Several important occupations that require advanced education, including doctorates also have local award gaps, such as Medical Managers, Medical Assistants, Physical Therapists, and Physicians. 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 region is likely helping to meet award gaps found in the 7-county MSP Metro and elsewhere.

## Award Gaps in Health Science Technology, Southwest Minnesota 2021Q1



### Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities.

#### Top 10 Certification Gaps in the Southwest Region, September 2021

Name	Candidates	Openings	Gap
Medical Technologist (Medical Technologists)	4	13	-9
Medical Laboratory Technician (MLT)	5	13	-8
Patient Care Technician (PCT)	1	6	-5
Medication Aide Certification (MACE)	1	5	-4
Registered Dental Assistant (RDA)	5	9	-4
The American Registry of Radiologic Technologists (ARRT) Certification	10	14	-3
Medical Assistant Certification (MA)	52	56	-3
Nationally Certified Medical Assistant (NCMA)	0	3	-3
Registered Respiratory Therapist (RRT)	2	4	-3
Family Nurse Practitioner (FNP-BC)	2	5	-3

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high demand among Southwest region employers hiring Health Science Technology talent that potential candidates have not indicated in their professional networking platforms as a strength.

### Top 10 Skill Gaps in the Southwest Region, September 2021

Name	Candidates	Openings	Gap
Caregiving	29	54	-25
Medication Administration	119	144	-25
Unity	5	30	-25
Keyboarding/Typing	42	58	-16
Medical Terminology	90	105	-15
Patient Care	65	76	-11
Cash Registers	8	19	-10
Calculators	7	14	-7
Geriatric	20	27	-7
Local Area Network Software (LAN Software)	0	6	-6

### Promising Pathways

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

### Origin-to-Gateway-to-Target Occupations for Health Science Technology, Southwest Minnesota 2021Q1

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

Registered Nurses (OG)  
 Medical and Health Services Managers (OG, AG)  
 Nurse Practitioners (OG, AG)  
 Speech-Language Pathologists (OG)  
 Occupational Therapists (OG, AG)

#### Gateway Occupations

Licensed Practical Nurses (HS, HD, OG, AG)  
 Dental Assistants (HS, HD, OG, AG)  
 Medical Dosimetrists (HS, OG, AG)  
 Occupational Therapy Assistants (HS, HD, OG, AG)  
 Recreational Therapists (HS, HD, OG)

#### Origin Occupations

##### Likely

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

##### Aligned

Personal Care Aides  
 Childcare Workers  
 Secretaries  
 Customer Service Reps  
 Cooks

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

*Origin Occupations* are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Health Science Technology locally, or aligned opportunities that share a large number of skillsets in-demand in Health Science Technology.

Likely Origins	Aligned Origins
Nursing Assistants	Personal Care Aides
Home Health Aides	Childcare Workers
Medical Secretaries	Secretaries or Executive Assistants
Medical Assistants	Customer Service Representatives
Pharmacy Technicians	Cooks

*Gateway Occupations* are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in the Southwest region). Below are a few Gateway Occupations in Health Science Technology locally. 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.

Likely Gateways	Aligned Gateways
Licensed Practical and Licensed Vocational Nurses	Postsecondary Teachers
Dental Assistants	Social and Human Services Assistants
Medical Dosimetrists, Medical Records Specialists, and Health Technologists	Supervisors of Office and Administrative Support Workers
Ophthalmic Medical Technicians	Eligibility Interviewers
Recreational Therapists	Residential Advisors

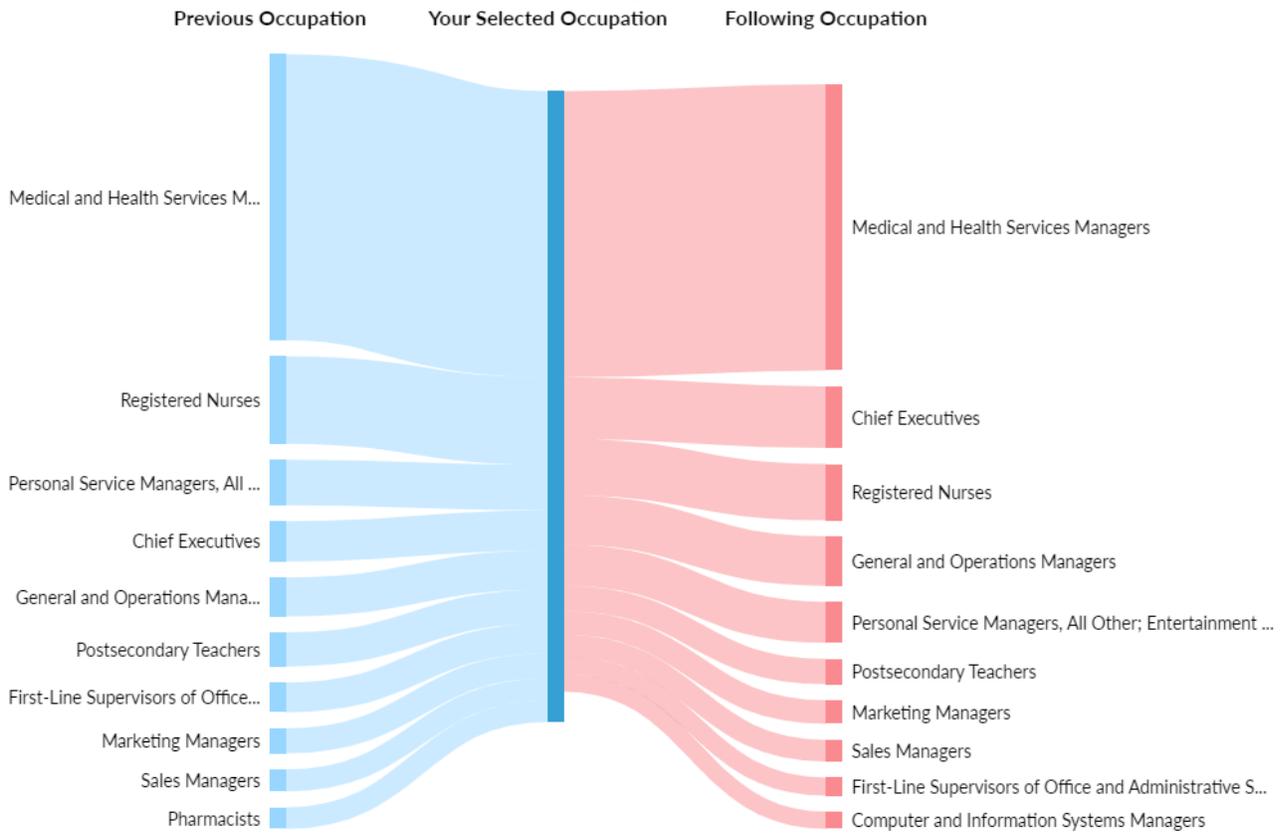
*Target Occupations* refer to high-wage occupations that pay at or above the region’s average wage (\$49,900 in the Southwest region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively. Only occupations that hit the designated high-wage, high-skill, and high-demand thresholds have been included in this chart, thus putting extra weight and emphasis on current demand rather than future shortage. Some critical occupations for the region that forecast high gaps, but perhaps not currently high-demand should also be included in Career and Technical Education programs of study.

#### Top Target Occupations in Health Science Technology, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
29-1141	Registered Nurses	6,040	\$75,900	HW	HS	HD	OG	
11-9111	Medical and Health Services Managers	768	\$94,000	HW	HS	HD	OG	AG
29-1171	Nurse Practitioners	348	\$123,600	HW	HS	HD	OG	AG
29-1127	Speech-Language Pathologists	296	\$69,500	HW	HS	HD	OG	
29-1122	Occupational Therapists	288	\$75,000	HW	HS	HD	OG	AG
29-1131	Veterinarians	269	\$104,200	HW	HS	HD	OG	AG
29-1071	Physician Assistants	206	\$125,200	HW	HS	HD	OG	AG
29-1126	Respiratory Therapists	202	\$68,000	HW	HS	HD	OG	AG
31-2021	Physical Therapist Assistants	172	\$54,600	HW	HS	HD	OG	AG
29-2032	Diagnostic Medical Sonographers	114	\$83,500	HW	HS	HD	OG	AG

The Medical and Health Services Managers occupation is analyzed below in more detail for better understanding of occupation “gain and drain.” The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from other occupations to Medical Management. The right column shows job transitions from Medical Managers to other occupations.

## Medical and Health Services Manager Talent Gain and Drain, 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

## Graduate Pipeline for Medical and Health Services Managers, Southwest Minnesota 2021

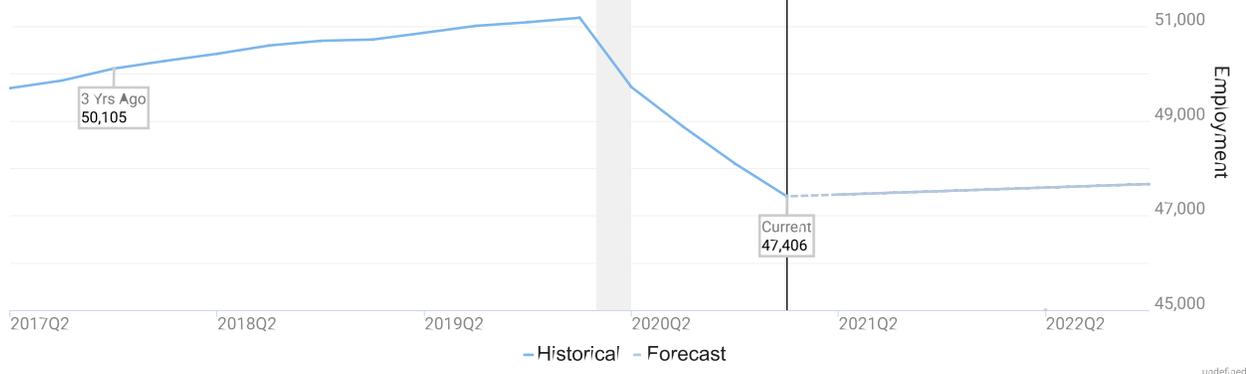


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## HUMAN SERVICES

Human Services is the career field forecast to grow the most over the next ten years. Over the next three years, under a pessimistic baseline forecast, Human Services employment is forecast to grow by 0.3% annually. In the most optimistic scenario feasible based on employer demand, and given the existing talent shortage and talent pipelines in place, employment growth of 1.5% annually in this field could be possible.

### Baseline Worst-Case Scenario 3-Year Forecast for Human Services Careers, Southwest Minnesota 2021Q1



### Top Ten Human Services Occupations by Employment Volume in Southwest Minnesota, 2021Q1

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Personal Care Aides	6,272	\$28,900	1.17	537	1,063	2.1%
Teaching Assistants, Except Postsecondary	3,645	\$30,700	1.42	-382	359	-0.4%
Elementary School Teachers, Except Special Education	2,752	\$55,400	1.02	-286	184	-0.6%
Secondary School Teachers, Except Special and Career/Technical Education	2,109	\$58,100	1.06	-211	133	-0.5%
Childcare Workers	2,047	\$26,800	1.16	-103	298	-0.2%
Police and Sheriff's Patrol Officers	1,337	\$61,700	1.01	-49	95	0.1%
Social and Human Service Assistants	1,168	\$40,200	1.36	-136	159	1.2%
Middle School Teachers, Except Special and Career/Technical Education	1,107	\$58,300	0.95	-116	74	-0.6%
Preschool Teachers, Except Special Education	967	\$39,000	1.09	-31	96	-0.1%
Court, Municipal, and License Clerks	923	\$46,700	2.84	-30	85	0.0%
Remaining Component Occupations	25,084	\$55,500	0.85	-2,054	2,577	0.1%
<b>Human Services (CTE Field)</b>	<b>47,406</b>	<b>\$48,300</b>	<b>0.95</b>	<b>-2,862</b>	<b>5,123</b>	<b>0.3%</b>

"Annual Demand" is the projected need for new entrants into an occupation. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

Most talent in the Southwest region that is working in Human Services roles are employed by Elementary and Secondary Schools (27.9%) or Executive, Legislative, and Other General Government Support (11.0%) However, Individual and Family Services is forecasted to grow at a higher rate and have more replacement demand needs.

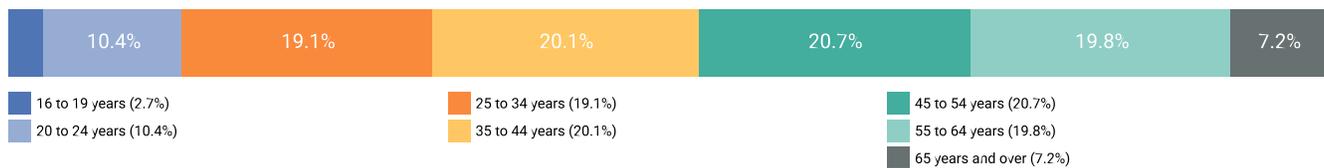
## Human Services Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Elementary and Secondary Schools	27.9%	13,228	11,386	-734	10,652
Executive, Legislative, and Other General Government Support	11.0%	5,219	4,537	6	4,544
Individual and Family Services	7.5%	3,535	5,206	1,359	6,565
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	5.1%	2,440	3,257	293	3,550
Colleges, Universities, and Professional Schools	4.9%	2,300	2,126	186	2,313
Religious Organizations	4.7%	2,242	2,563	26	2,590
Child Day Care Services	4.2%	2,006	2,529	-83	2,447
Justice, Public Order, and Safety Activities	2.8%	1,338	1,141	-64	1,077
Home Health Care Services	2.7%	1,258	1,898	317	2,214
Personal Care Services	2.3%	1,091	1,320	11	1,331
Other Residential Care Facilities	1.9%	891	1,057	-56	1,002
Junior Colleges	1.7%	822	758	71	829
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.6%	743	1,129	205	1,334
Nursing Care Facilities (Skilled Nursing Facilities)	1.5%	689	852	-17	835
Legal Services	1.4%	681	495	-34	461
Vocational Rehabilitation Services	1.4%	652	724	-56	667
Administration of Human Resource Programs	1.3%	619	537	-14	523
General Medical and Surgical Hospitals	1.1%	545	538	-16	522
Civic and Social Organizations	1.0%	468	689	-1	688
Other Schools and Instruction	0.9%	436	535	30	565
All Others	13.1%	6,205	6,939	79	7,018

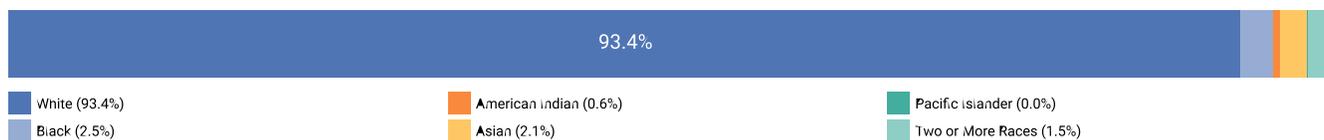
## Career Field Demographics

The Human Services field is predominantly female (68.6%) and white (93.4%). Over 40% of the workforce falls between the ages of 35 and 54 years of age.

### Age



### Race



### Ethnicity



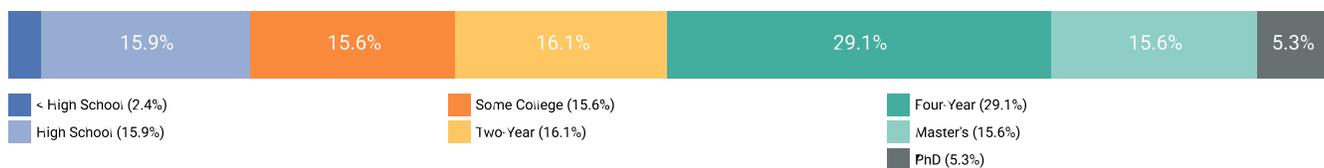
## Gender



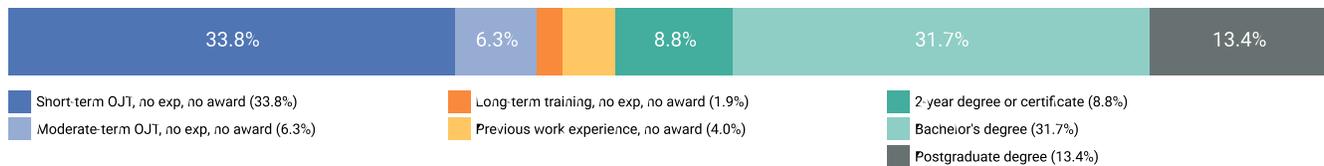
## Educational Attainment and Requirements

The stacked bar charts here illustrate the estimated mix of educational attainment of the workers in this career field in aggregate. In general, the Southwest region Human Services workforce is overskilled for the typical credentials of entry-level positions. For example, 2.4% of the Human Services workforce has no diploma at all, and 15.9% hold a high school diploma as their highest credential. In contrast, about 46% of positions in this field do not require any kind of postsecondary award. The table below indicates typical education and training requirements rather than the mix of attainment of workers in some key positions in this field.

## Educational Attainment



## Education and Training Requirements



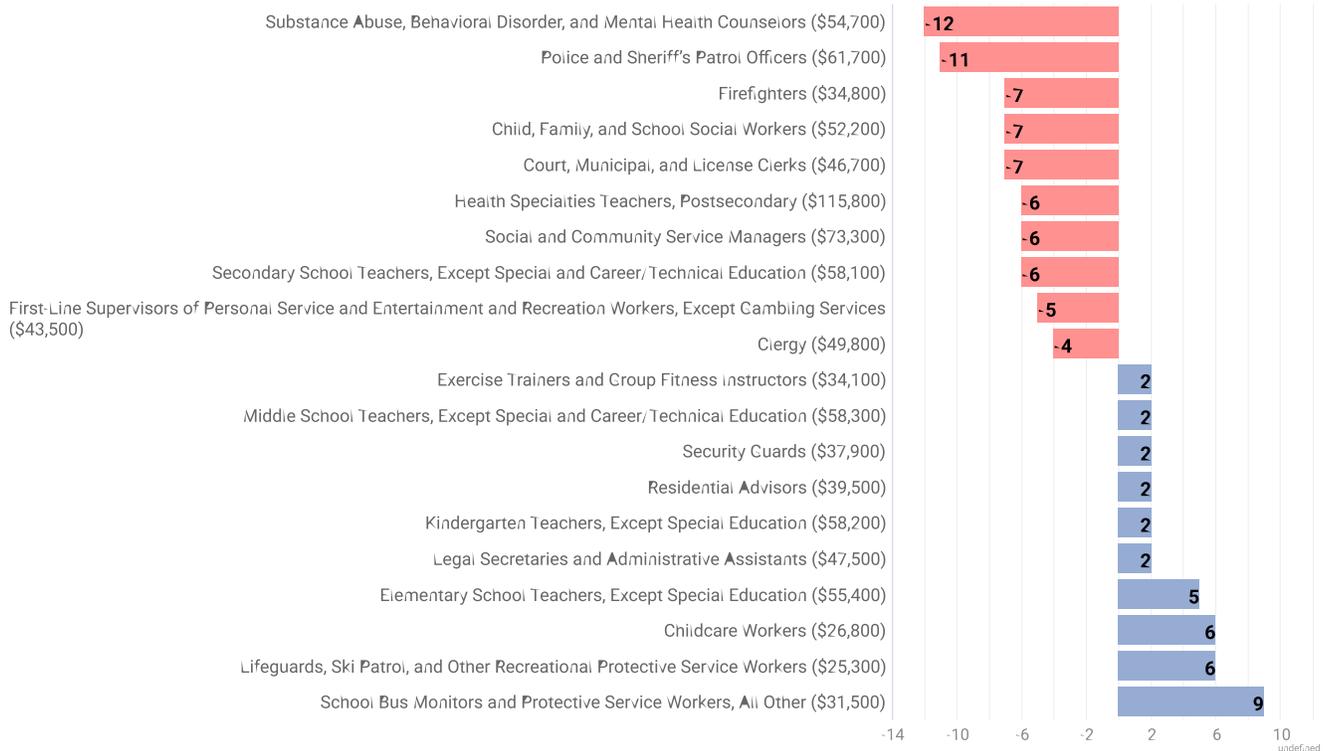
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Personal Care Aides	High school diploma or equivalent	None	Short-term on-the-job training
Teaching Assistants, Except Postsecondary	Some college, no degree	None	None
Elementary School Teachers, Except Special Education	Bachelor's degree	None	None
Secondary School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None
Childcare Workers	High school diploma or equivalent	None	Short-term on-the-job training
Police and Sheriff's Patrol Officers	High school diploma or equivalent	None	Moderate-term on-the-job training
Social and Human Service Assistants	High school diploma or equivalent	None	Short-term on-the-job training
Middle School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None
Preschool Teachers, Except Special Education	Associate's degree	None	None
Court, Municipal, and License Clerks	High school diploma or equivalent	None	Long-term on-the-job training

## Occupation Gaps

The chart below shows the potential average annual gaps over ten years. In Human Services, Mental Health Counselors and Police Officers are the top occupations of shortage in the region. These critical talent shortages are due in large part to forecasted employment growth and replacement demand needs due to retirements combined with insufficient talent coming into these careers.

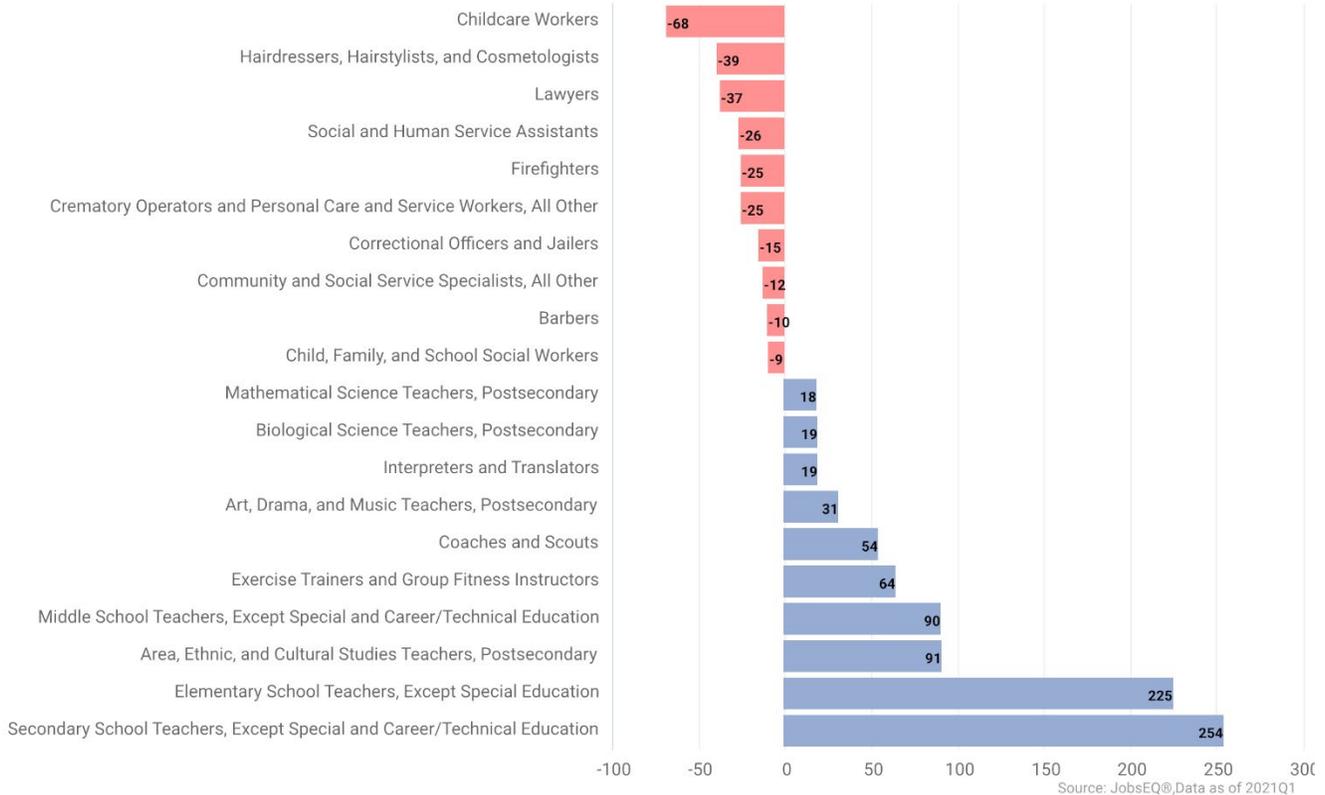
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, Southwest Minnesota 2021Q1



## Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a number of shortages. Southwest Minnesota faces several moderate Human Services award gaps, meaning that the region is underproducing local talent in relation to employer demand. Southwest Minnesota colleges and universities are underproducing about 68 graduates annually that are needed to fill Childcare Worker positions open with employers based in the region. Several occupations that typically require a certificate or industry credential also have local award gaps, including Hairdressers, Hairstylists, and Cosmetologists. 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 2021Q1



### Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities.

#### Top 10 Certification Gaps in the Southwest September 2021

Name	Candidates	Openings	Gap
Emergency Medical Technician (EMT)	20	30	-10
Child Development Associate (CDA)	12	20	-8
AFAA Personal Fitness Trainer	2	6	-5
Secret Clearance	4	8	-4
First Responder Certification	2	6	-4
Advanced Cardiac Life Support Certification (ACLS)	4	7	-4
ServSafe Food Protection Manager Certification	0	3	-3
Emergency Medical Technician - Paramedic (EMT-P)	2	5	-2
Certified Protection Professional (CPP)	0	2	-2
Neonatal Resuscitation Program (NRP)	1	3	-2

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high

demand among Southwest Minnesota employers hiring Human Services talent that potential candidates have not indicated in their professional networking platforms as a strength.

#### Top 10 Skill Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Medication Administration	203	499	-295
Caregiving	35	126	-91
Teaching/Training, School	844	903	-58
Keyboarding/Typing	66	88	-21
Bilingual	70	90	-20
Budgeting	13	32	-20
Calculators	11	27	-16
BlackBoard Learn	5	18	-12
Social Services	15	26	-10
Adobe Acrobat	5	15	-10

### Promising Pathways

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

#### Origin-to-Gateway-to-Target Occupations for Human Services, Southwest Minnesota 2021Q1

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

Substance Abuse, Behavioral Disorder, and Mental Health Officers  
 Child, Family, and School Social Workers  
 Educational, Guidance, & Career Counselors  
 Social & Community Service Managers  
 Healthcare Social Workers

##### Gateway Occupations

Court, Municipal, and License Clerks (OG)  
 Clergy (HS, HD, OG)  
 Supervisors of Personal Service and Recreation Workers (HD, OG)  
 Tutors and Teachers and Instructors (HS, HD)  
 Paralegals and Legal Assistants (HS)

##### Origin Occupations

##### *Likely*

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

##### *Aligned*

Home Health Aides  
 Medical Assistants  
 Waiters and Waitresses  
 Cashiers  
 Cooks

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

Origin Occupations are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Human Services locally, or aligned opportunities that share a large number of skillsets in-demand in Human Services.

Likely Origins	Aligned Origins
Personal Care Aides	Home Health Aides
Teaching Assistants	Medical Assistants
Childcare Workers	Waiters and Waitresses
Social and Human Service Assistants	Cashiers
Preschool Teachers	Cooks

Gateway Occupations are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in the Southwest region). Below are a few Gateway Occupations in Human Services locally. 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.

Likely Gateways	Aligned Gateways
Court, Municipal, and License Clerks	Licensed Practical Nurses
Clergy	Medical Secretaries
Supervisors of Personal Service and Entertainment and Recreation Workers	Human Resources Assistants
Tutors and Teachers and Instructors, All Other	Financial Advisors
Paralegals and Legal Assistants	
Community and Social Service Specialists	

Target Occupations refer to high-wage occupations that pay at or above the region’s average wage (\$49,900 in the Southwest region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively. The majority of target occupations in this career field are in the education career cluster. Only occupations that hit the designated high-wage, high-skill, and high-demand thresholds have been included in this chart, thus putting extra weight and emphasis on current demand rather than future shortage. Some critical occupations for the region that forecast high gaps, but perhaps not currently high-demand should also be included in Career and Technical Education programs of study.

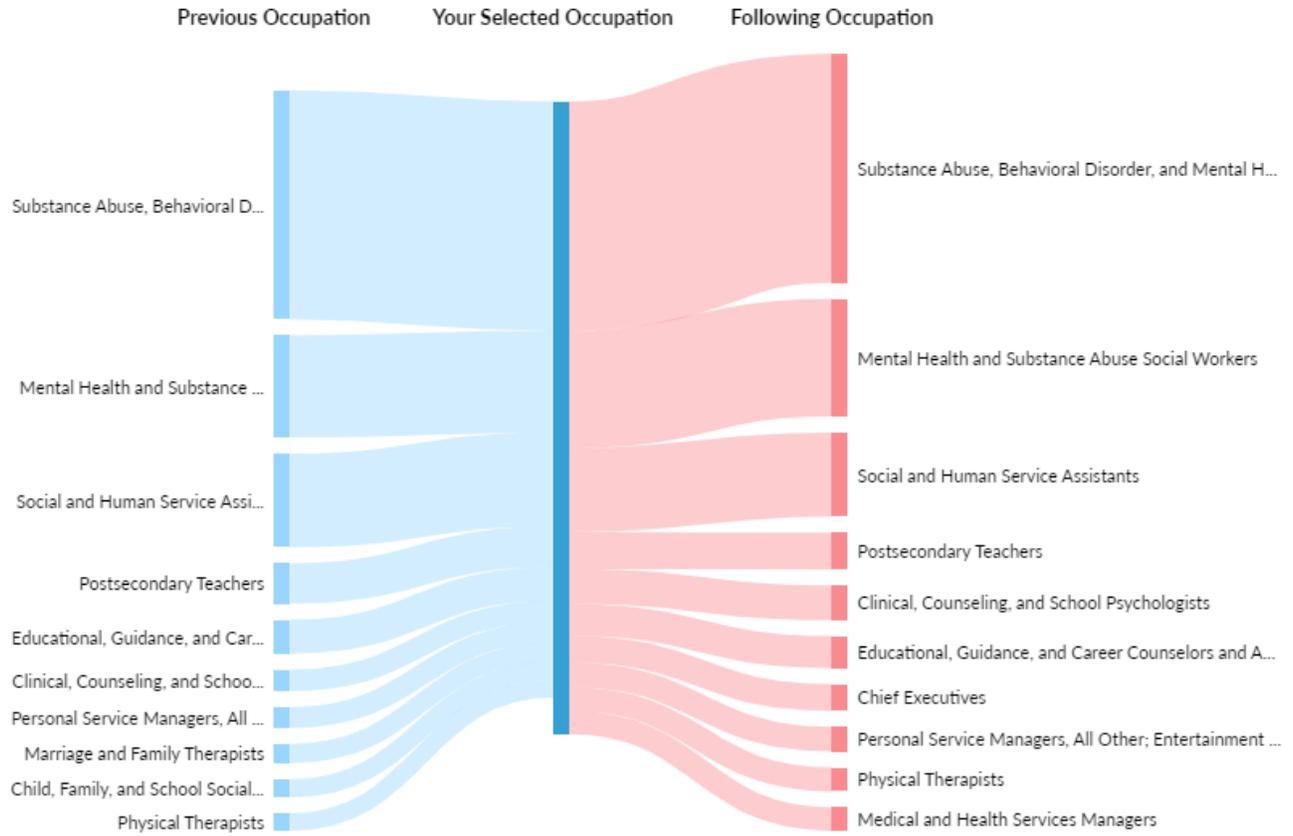
### Top Target Occupations in Human Services, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	834	\$54,700	HW	HS	HD	OG	AG
21-1021	Child, Family, and School Social Workers	728	\$52,200	HW	HS	HD	OG	AG
21-1012	Educational, Guidance, and Career Counselors and Advisors	514	\$55,200	HW	HS	HD	OG	AG
11-9151	Social and Community Service Managers	448	\$73,300	HW	HS	HD	OG	AG
21-1022	Healthcare Social Workers	402	\$58,300	HW	HS	HD	OG	AG
21-2021	Directors, Religious Activities and Education	359	\$56,500	HW	HS	HD	OG	
25-9031	Instructional Coordinators	345	\$74,300	HW	HS	HD	OG	AG
25-1071	Health Specialties Teachers, Postsecondary	308	\$115,800	HW	HS	HD	OG	
21-1023	Mental Health and Substance Abuse Social Workers	301	\$63,900	HW	HS	HD	OG	AG
19-3031	Clinical, Counseling, and School Psychologists	289	\$80,200	HW	HS	HD	OG	AG

Mental Health Counselor is a high-skill, high-demand, high-wage occupation forecasting shortages in the Southwest region. This role is analyzed below in more detail for better understanding of occupation “gain and drain.” The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions

from other occupations to Mental Health Counseling. The right column shows job transitions from this role to other occupations.

### Mental Health Counselor Talent Gain and Drain, 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

### Graduate Pipeline for Mental Health Counselors, Southwest Minnesota 2021

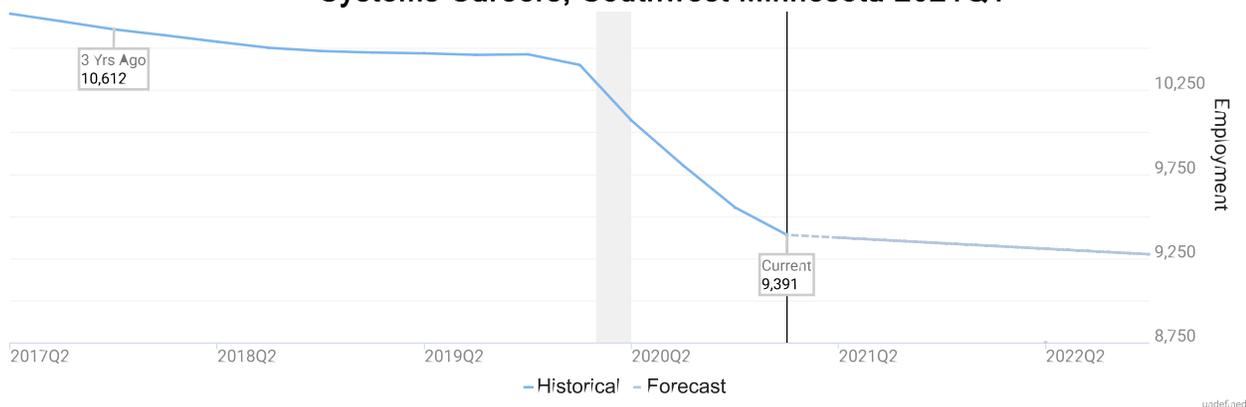


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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, which experienced somewhat diverging trends during over the course of the COVID-19 pandemic thus far. Over the next three years, under a pessimistic baseline forecast, Arts, Communications, and Information Systems Field employment is forecast to decline by -0.8% annually. In the most optimistic scenario feasible based on employer demand, potential for recovery, and given the existing talent shortage, employment growth of 1.3% annually in this field could be possible.

### Baseline Worst-Case Scenario 3-Year Forecast for Arts, Communications, and Information Systems Careers, Southwest Minnesota 2021Q1



### Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume in Southwest, 2021Q1

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Software Developers and Software Quality Assurance Analysts and Testers	1,291	\$88,300	0.40	-60	102	0.7%
Printing Press Operators	969	\$42,000	2.83	-279	79	-2.0%
Computer Systems Analysts	862	\$89,800	0.69	-45	56	-0.5%
Computer User Support Specialists	725	\$54,500	0.53	-41	55	-0.5%
Graphic Designers	572	\$40,700	1.05	-72	46	-1.4%
Network and Computer Systems Administrators	431	\$77,800	0.60	-42	26	-0.7%
Telecommunications Equipment Installers and Repairers, Except Line Installers	330	\$47,400	0.80	-18	32	-0.9%
Computer Network Support Specialists	297	\$61,200	0.76	-13	22	-0.5%
Print Binding and Finishing Workers	295	\$39,100	3.48	-107	33	-2.0%
Musicians and Singers	278	\$51,100	0.81	-22	33	-0.1%
Remaining Component Occupations	3,345	\$59,800	0.70	-490	284	-1.0%
<b>Arts, Communications, &amp; Information Systems (CTE Field)</b>	<b>9,391</b>	<b>\$62,600</b>	<b>0.65</b>	<b>-1,185</b>	<b>767</b>	<b>-0.8%</b>

"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 (15.0%) or Telecommunications Carriers (6.2%). Overall, employment is relatively spread out across many different industries.

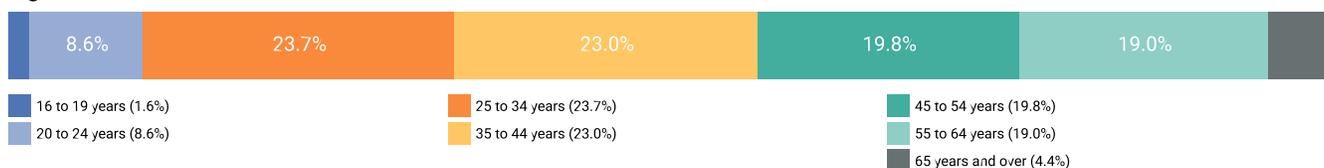
### Arts, Communications, and Information Systems Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Printing and Related Support Activities	15.0%	1,405	1,441	-282	1,159
Wired and Wireless Telecommunications Carriers	6.2%	585	525	-98	427
Management of Companies and Enterprises	4.4%	413	315	10	325
Religious Organizations	4.4%	409	457	4	460
Newspaper, Periodical, Book, and Directory Publishers	4.0%	371	312	-153	158
Depository Credit Intermediation	3.9%	367	266	-7	258
Computer Systems Design and Related Services	3.9%	365	287	52	339
Independent Artists, Writers, and Performers	3.7%	351	372	-14	358
Radio and Television Broadcasting	3.2%	297	310	-20	290
Colleges, Universities, and Professional Schools	2.4%	228	191	5	195
Executive, Legislative, and Other General Government Support	2.1%	200	155	-3	152
Elementary and Secondary Schools	1.8%	172	134	-14	120
Other Miscellaneous Manufacturing	1.7%	163	151	-11	140
Employment Services	1.6%	153	124	0	124
General Medical and Surgical Hospitals	1.6%	151	110	-9	101
Electronic Shopping and Mail-Order Houses	1.5%	137	121	33	154
Other Professional, Scientific, and Technical Services	1.5%	136	133	0	132
Computer and Peripheral Equipment Manufacturing	1.4%	129	93	2	96
Converted Paper Product Manufacturing	1.3%	123	123	-16	107
Building Equipment Contractors	1.2%	116	122	-1	121
All Others	33.2%	3,118	2,569	-119	2,450

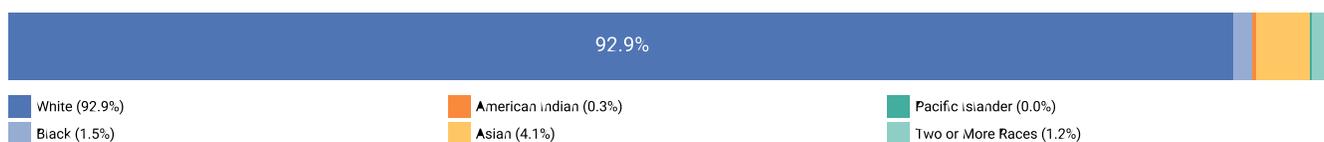
### Career Field Demographics

The Arts, Communications, and Information Systems field is predominantly male (70.0%) and white (92.9%). Nearly half of the Arts, Communications, and Information Systems workforce in the region is between the ages of 25 and 44 (46.7%).

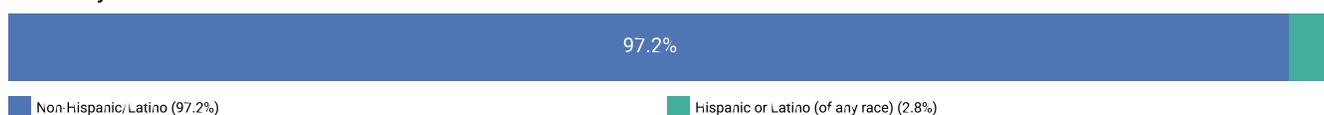
#### Age



#### Race



#### Ethnicity



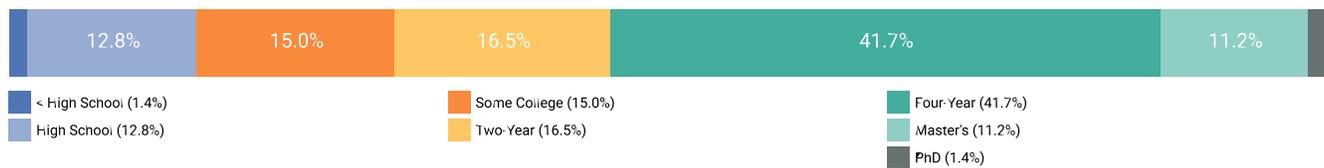
## Gender



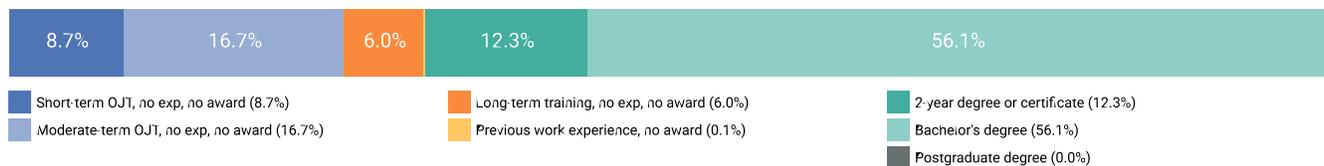
## Educational Attainment and Requirements

The stacked bar charts here illustrate the estimated mix of educational attainment of the workers in this career field in aggregate and the typical requirements for roles in this field. Over half (56.1%) of all occupations in this field require a Bachelor's degree, while 41.7% of the workforce hold a four-year degree as their highest credential. Another 12.6% hold a Master's or PhD.

### Educational Attainment



### Education and Training Requirements



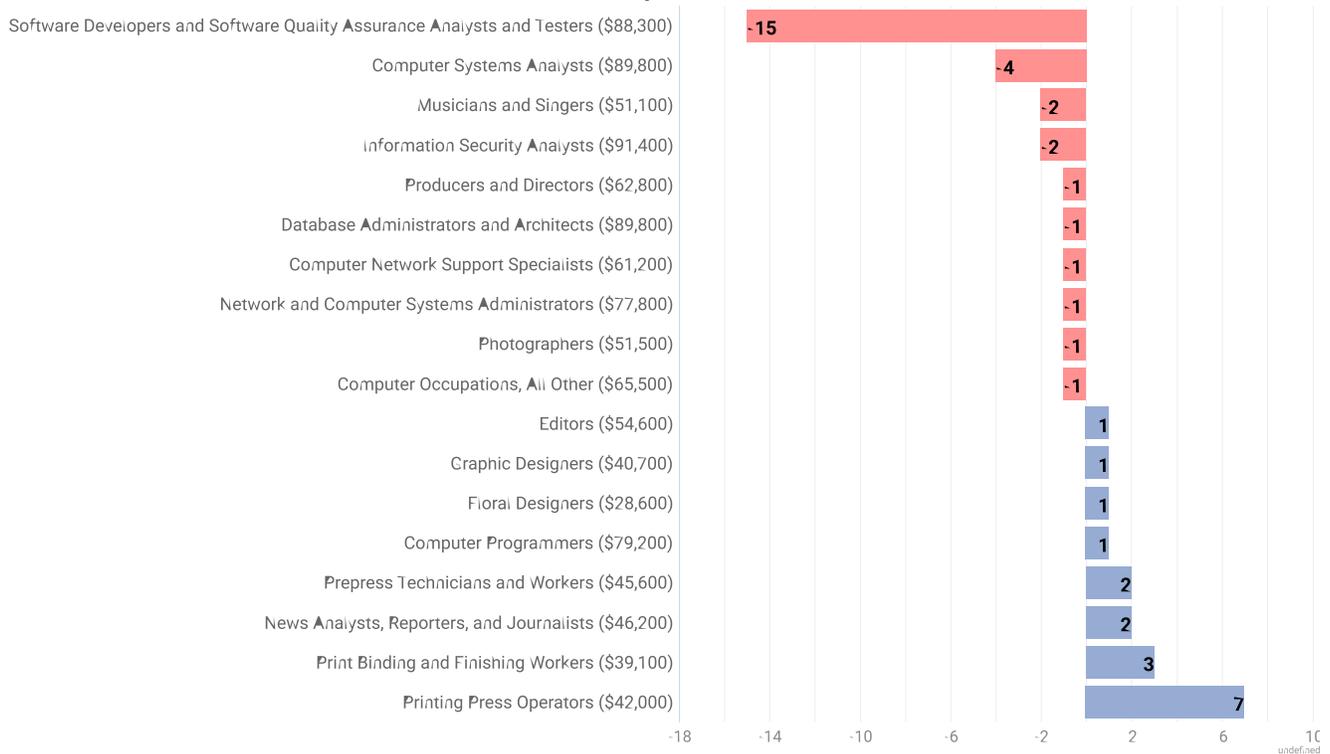
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Software Developers and Software Quality Assurance Analysts and Testers	Bachelor's degree	None	None
Printing Press Operators	High school diploma or equivalent	None	Moderate-term on-the-job training
Computer Systems Analysts	Bachelor's degree	None	None
Computer User Support Specialists	Some college, no degree	None	None
Graphic Designers	Bachelor's degree	None	None
Network and Computer Systems Administrators	Bachelor's degree	None	None
Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary non-degree award	None	Moderate-term on-the-job training
Computer Network Support Specialists	Associate's degree	None	None
Print Binding and Finishing Workers	High school diploma or equivalent	None	Moderate-term on-the-job training
Musicians and Singers	None	None	Long-term on-the-job training

## Occupation Gaps

The chart below shows the potential average annual gaps over ten years. Software Developers are the top occupation of shortage in this field, falling short at least 15 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, which is a trend affecting all regions of Minnesota.

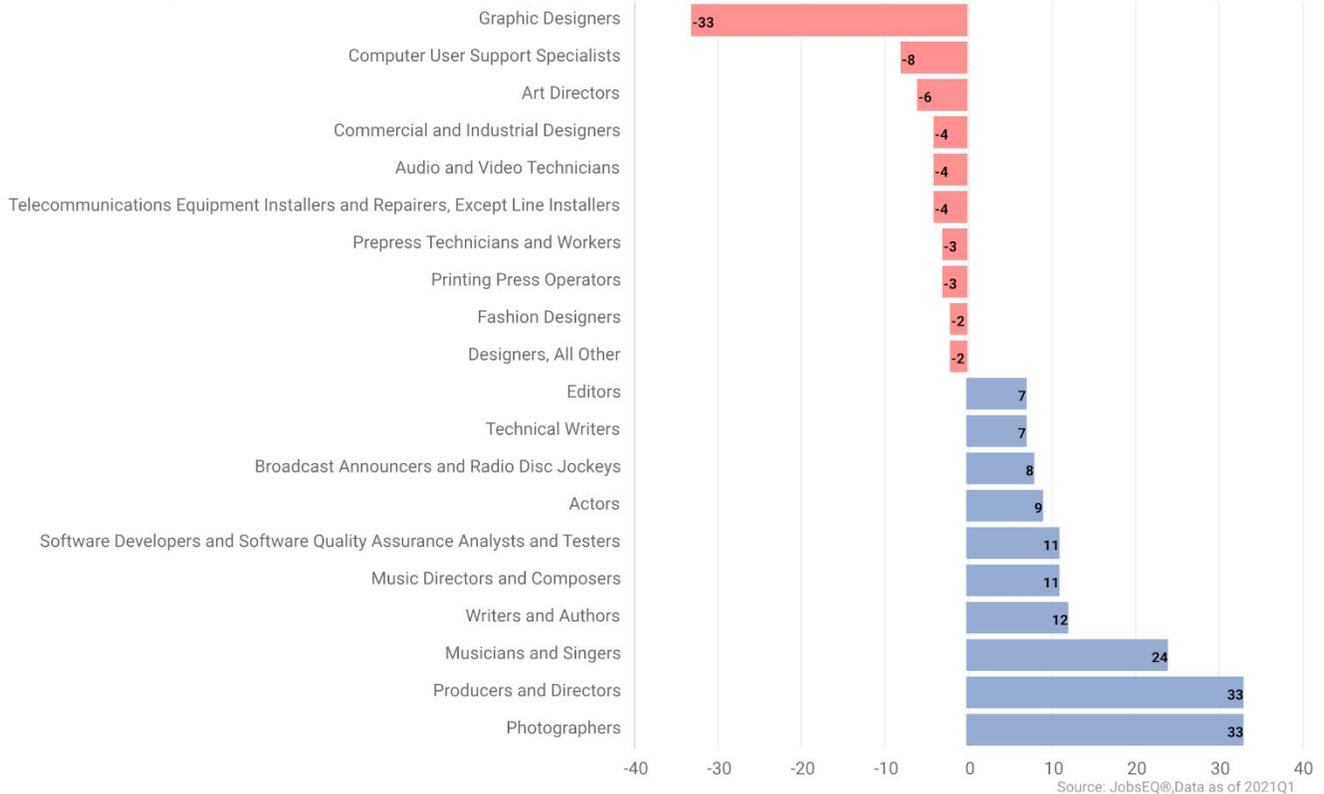
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Arts, Communications, And Information Systems, Southwest Minnesota 2021Q1



#### Award Gaps

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

## Award Gaps in Arts, Communications, and Information Systems, Southwest Minnesota 2021Q1



### Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities.

#### Top 10 Certification Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Microsoft Certified Solutions Expert (MCSE)	1	4	-3
Project Management Professional (PMP)	1	3	-1
Cisco Certified Internetwork Expert (CCIE)	1	2	-1
Certified Information Security Manager (CISM)	1	2	0
AWS Certified Solutions Architect	0	1	0
Certified Information Systems Auditor (CISA)	1	1	0
Vmware Certified Professional (VCP)	0	1	0
Microsoft Certified Solutions Associate (MCSA)	1	1	0
Cisco Certified Networking Technician (CCENT)	0	1	0
Certified Cloud Security Professional (CCSP)	1	1	0

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high demand among Southwest Minnesota employers hiring Arts, Communications, and Information

Systems talent that potential candidates have not indicated in their professional networking platforms as a strength.

#### Top 10 Skill Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Ruby	3	13	-10
JavaScript	33	42	-10
Microsoft Azure	24	33	-9
Agile	52	61	-9
Application Development	14	23	-9
Amazon Web Services (AWS)	17	26	-9
Microsoft Outlook	14	23	-9
Structured Query Language (SQL)	52	60	-8
Assembly	1	10	-8
Information Security	14	22	-8

### Promising Pathways

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

#### Origin-to-Gateway-to-Target Occupations for Arts, Communications, and Information Systems, Southwest Minnesota 2021Q1

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

Software Developers (OG)  
Writers & Authors  
Computer Network Architects  
Producers & Directors (OG)  
Information Security Analysts (OG)

##### Gateway Occupations

Telecommunications Equipment Installers & Repairers (HS, AG)  
Telecommunications Line Installers & Repairers (HD)  
Prepress Technicians & Workers (HS, AG)  
News Analysts, Reporters, & Journalists (HS)  
Audio & Video Technicians (HS, HD, OG, AG)

##### Origin Occupations

##### Likely

Graphic Designers (HS, AG)  
Print Binding & Finishing Workers (HS, HD)  
Broadcast Announcers & Radio Disc Jockeys (HS, HD)  
Floral Designers  
Music Directors & Composers (HS, HD, OG)

##### Aligned

Library Technicians  
Recreation Attendants  
Hosts and Hostesses  
Customer Service Reps  
Photo Process Machine Ops

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

Origin Occupations are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Arts, Communications, and Information Systems careers locally, or aligned opportunities that share a large number of skillsets in-demand in the field.

Likely Origins	Aligned Origins
Graphic Designers	Library Technicians
Print Binding and Finishing Workers	Amusement and Recreation Attendants
Broadcast Announcers and Radio Disc Jockeys	Hosts and Hostesses
Floral Designers	Customer Service Representatives
Music Directors and Composers	Photo Process Machine Operators

**Gateway Occupations** are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in the Southwest region). Below are a few Gateway Occupations in Arts, Communications, and Information Systems locally. 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.

Likely Gateways	Aligned Gateways
Telecommunications Equipment Installers and Repairers	Supervisors of Office and Administrative Support Workers
Telecommunications Line Installers and Repairers	Painting, Coating, and Decorating Workers
Prepress Technicians and Workers	Window Trimmers
News Analysts, Reporters, and Journalists	Forest and Conservation Technicians
Audio and Video Technicians	

**Target Occupations** refer to high-wage occupations that pay at or above the region's average wage (\$49,900 in the Southwest region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively. Only occupations that hit the designated high-wage, high-skill, and high-demand thresholds have been included in this chart, thus putting extra weight and emphasis on current demand rather than future shortage. Some critical occupations for the region that forecast high gaps, but perhaps not currently high-demand should also be included in Career and Technical Education programs of study.

It is important to recognize in this field that many important Information Technology careers may not hit the specified high-demand threshold in the Southwest region, but are likely to see higher demand in the years ahead. For example, there are about 862 Computer Systems Analysts employed in the Southwest region—a high-wage, high-skill occupation with occupation shortages likely.

Unemployment in this role is estimated at 1.6% in the region. However, since forecasted 5-year growth in an optimistic forecast lags the overall regional average, replacement demand is less than 50% of current employment, and volumes of online job postings are still below 500, Computer Systems Analyst did not fulfill two out of the four traits of high-demand for this report and does not appear on the table below. A full list of occupations in the career field is available upon request.

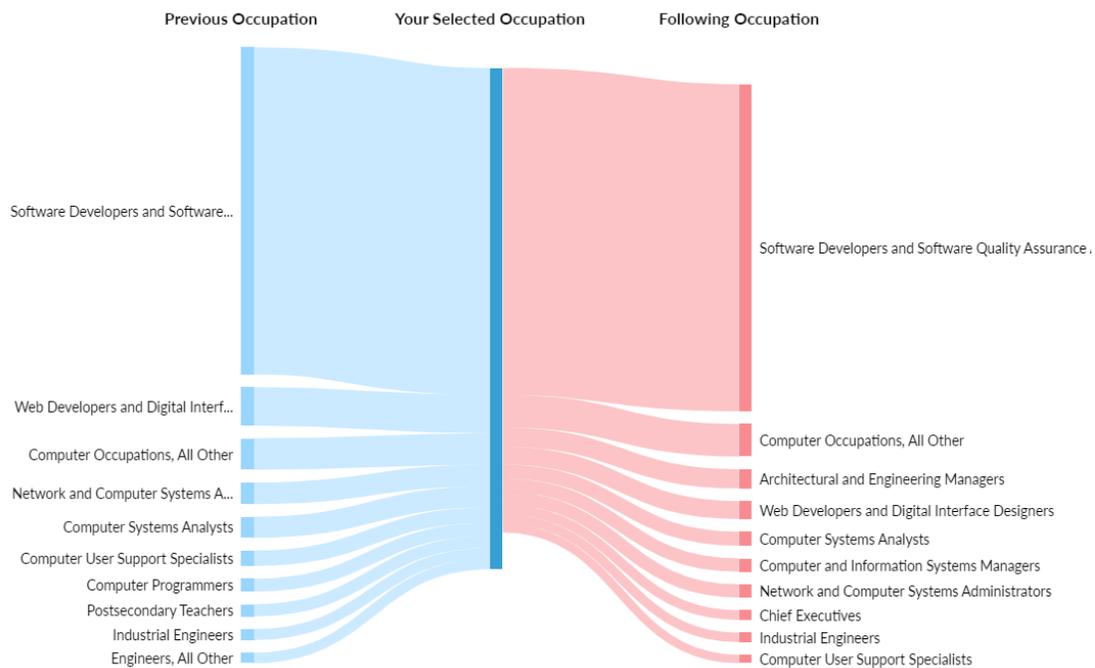
### Top Target Occupations in Arts, Communications, and Information Systems, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	1,291	\$88,300	HW	HS	HD	OG	
27-3043	Writers and Authors	156	\$55,500	HW	HS	HD		
15-1241	Computer Network Architects	146	\$111,000	HW	HS	HD		
27-2012	Producers and Directors	126	\$62,800	HW	HS	HD	OG	
15-1212	Information Security Analysts	123	\$91,400	HW	HS	HD	OG	
27-1011	Art Directors	102	\$95,900	HW	HS	HD		AG
27-1021	Commercial and Industrial Designers	86	\$69,200	HW	HS	HD		AG

Software Developers is both the number-one occupation of shortage in the career field and and the high-wage, high-skill, high-demand occupation in highest volume in the region. In Southwest Minnesota, the Software Developer occupation’s forecasted growth exceeds the average in the region, will require replacement of almost half of all positions currently employing talent within 5 years, and currently has a low unemployment rate of just 1.9% in this region.

Below, this occupation is analyzed in more detail for better understanding of occupation “gain and drain.” The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from other occupations to Software Developer. The right column shows job transitions from Software Developer to other occupations.

### Software Developer Talent Gain and Drain, 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

### Graduate Pipeline for Software Developers, Southwest Minnesota 2021

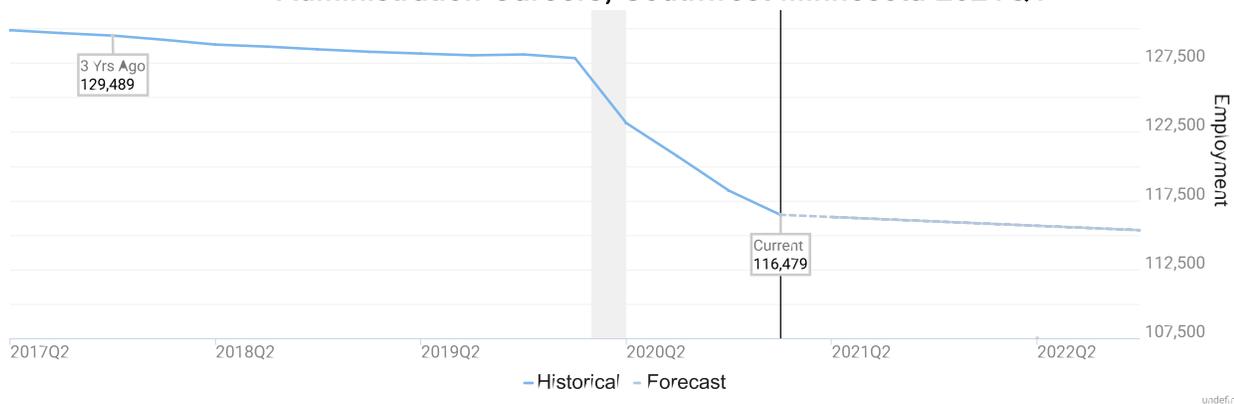


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## BUSINESS, MANAGEMENT, AND ADMINISTRATION

Business, Management, and Administration is a diverse career field with Hospitality and Tourism, Finance, Administration, Human Resources, and Marketing careers, which all experienced somewhat diverging trends during over the course of the COVID-19 pandemic thus far. Over the next three years, under a pessimistic baseline forecast, Business, Management, and Administration Field employment is forecast to decline by -0.6% on average annually. In the most optimistic scenario feasible over the next three years based on employer demand, and given the existing talent shortage and talent pipelines in place, employment growth of 2.5% annually in this field could be possible. Most of the growth is attributable to retail and food service occupations in this career field.

**Baseline Worst-Case Scenario 3-Year Forecast for Business, Management, and Administration Careers, Southwest Minnesota 2021Q1**



**Top Ten Business, Management, and Administration Systems Occupations by Employment Volume in Southwest Minnesota, 2021Q1**

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Cashiers	8,700	\$25,900	1.23	-759	1,458	-1.2%
Retail Salespersons	7,500	\$31,300	0.95	-1,352	1,026	-0.6%
Fast Food and Counter Workers	7,259	\$24,600	1.03	-851	1,375	0.5%
Office Clerks, General	5,139	\$36,700	0.86	-380	531	-1.2%
Stockers and Order Fillers	4,527	\$32,800	0.95	-151	570	-0.5%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	4,374	\$33,300	0.97	-354	568	-0.1%
Customer Service Representatives	4,259	\$37,100	0.71	-299	486	-1.3%
General and Operations Managers	3,975	\$91,600	0.80	-54	333	-0.2%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3,556	\$40,200	0.86	-282	316	-1.7%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	3,146	\$70,400	1.14	-182	294	-0.7%
Remaining Component Occupations	64,045	\$51,900	0.88	-8,040	7,218	-0.5%
<b>Business, Management, &amp; Administration (CTE Field)</b>	<b>116,479</b>	<b>\$45,800</b>	<b>0.86</b>	<b>-12,705</b>	<b>14,170</b>	<b>-0.6%</b>

"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 out across a number of different industries. In the Southwest region, the industries with the greatest share of Business, Management, and Administration talent are Restaurants (11.9%) and Grocery Stores (4.5%). These two industries account for a substantial amount of talent demand over the next ten years.

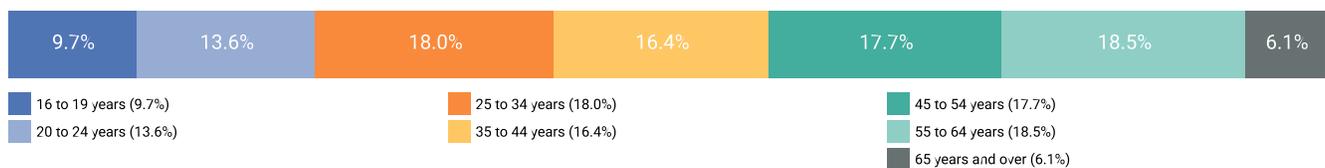
### Business, Management, and Administration Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Restaurants and Other Eating Places	11.9%	13,872	23,933	419	24,352
Grocery Stores	4.5%	5,273	7,883	-376	7,508
General Merchandise Stores, including Warehouse Clubs and Supercenters	4.2%	4,897	6,935	-450	6,486
Gasoline Stations	3.9%	4,572	7,553	-397	7,157
Depository Credit Intermediation	3.6%	4,248	4,148	-398	3,750
Elementary and Secondary Schools	2.4%	2,761	3,419	-307	3,112
Executive, Legislative, and Other General Government Support	2.2%	2,584	3,062	-132	2,930
Building Material and Supplies Dealers	2.2%	2,567	3,461	-165	3,297
Nursing Care Facilities (Skilled Nursing Facilities)	2.1%	2,391	3,226	-236	2,990
Traveler Accommodation	1.9%	2,215	3,314	-13	3,302
Management of Companies and Enterprises	1.7%	1,975	1,968	-12	1,956
Services to Buildings and Dwellings	1.6%	1,834	2,371	43	2,414
Agencies, Brokerages, and Other Insurance Related Activities	1.5%	1,782	1,776	-58	1,718
General Medical and Surgical Hospitals	1.5%	1,776	2,101	-129	1,971
Religious Organizations	1.5%	1,710	1,991	-87	1,904
Automobile Dealers	1.4%	1,584	1,954	-76	1,878
Machinery, Equipment, and Supplies Merchant Wholesalers	1.3%	1,490	1,548	-166	1,382
Miscellaneous Nondurable Goods Merchant Wholesalers	1.2%	1,444	1,488	-218	1,270
Postal Service	1.1%	1,329	954	-263	691
Colleges, Universities, and Professional Schools	1.1%	1,296	1,458	-19	1,439
All Others	47.1%	54,877	63,055	-3,190	59,865

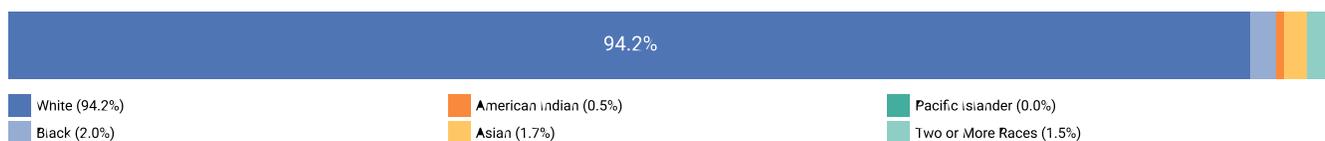
### Career Field Demographics

The Business, Management, and Administration field has a slightly higher concentration of female workers (58.0%) than male, and is 94.2% White. About 6.0% of the workforce is Hispanic or Latinx. The age of the workforce is fairly evenly dispersed, with about 23.3% of the field's workforce 24 years old or younger, and 24.6% 55 or older.

#### Age



#### Race



## Ethnicity



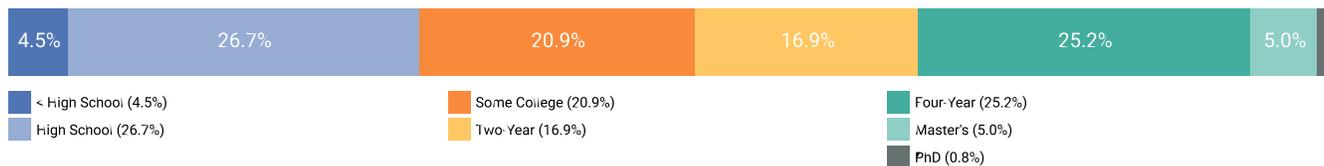
## Gender



## 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, next to the typical education and training requirements in the field overall. In general, the Southwest Minnesota Business, Management, and Administration workforce is more likely to have a 2-year degree than what is in demand. While 16.9% of the workforce holds a 2-year degree, just 0.3% of the occupations in this field require a 2-year degree. Nearly two-thirds of all positions in this field (59.5%) require no degree, no experience, and only short-term on-the-job training. Another 20.5% require experience or some on-the-job training, but still no degree. In contrast, only 4.5% of the workforce in this field has no degree at all, and 26.4% hold a high school diploma as their highest credential. The table below indicates typical education and training requirements rather than the mix of attainment of workers in some key positions in this field.

### Educational Attainment



### Education and Training Requirements



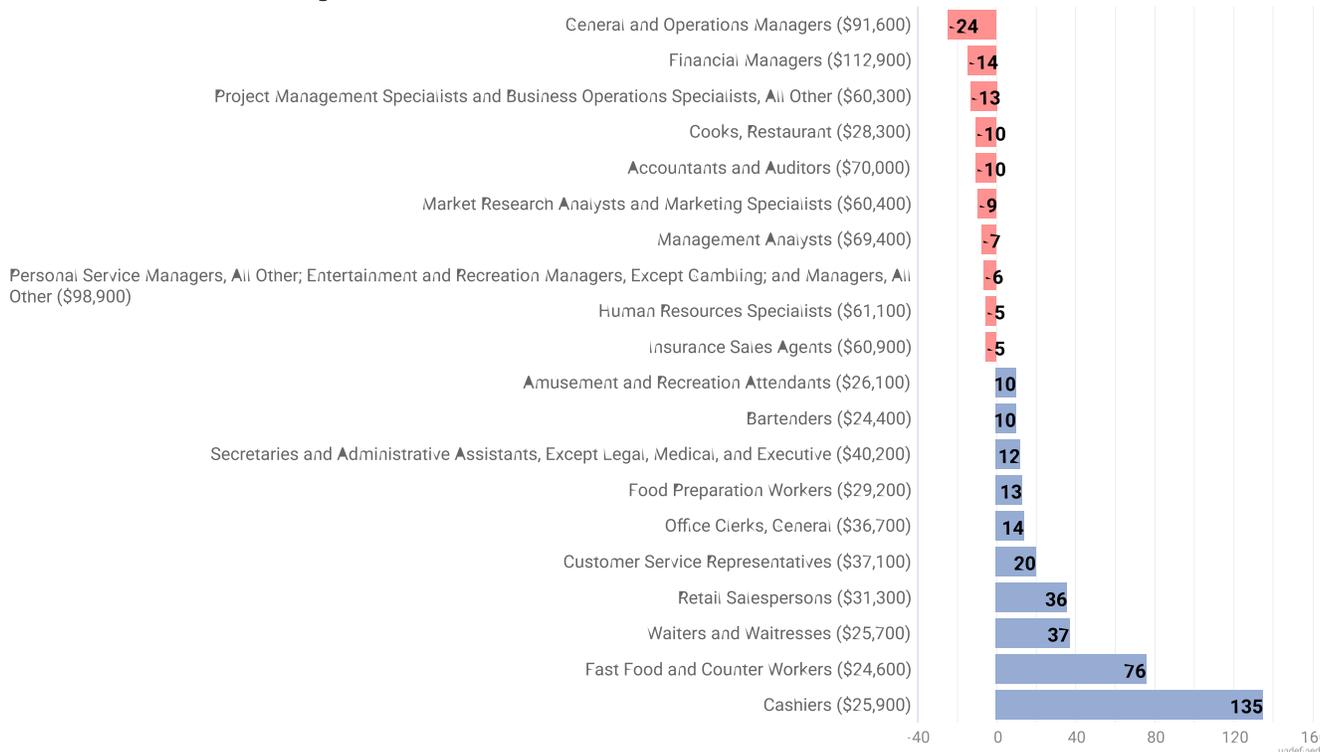
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Cashiers	None	None	Short-term on-the-job training
Retail Salespersons	None	None	Short-term on-the-job training
Fast Food and Counter Workers	None	None	Short-term on-the-job training
Office Clerks, General	High school diploma or equivalent	None	Short-term on-the-job training
Stockers and Order Fillers	High school diploma or equivalent	None	Short-term on-the-job training
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	None	None	Short-term on-the-job training
Customer Service Representatives	High school diploma or equivalent	None	Short-term on-the-job training
General and Operations Managers	Bachelor's degree	5 years or more	None
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	High school diploma or equivalent	None	Short-term on-the-job training
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	Moderate-term on-the-job training

## Occupation Gaps

The chart below shows the potential average annual gaps over ten years. A number of management and finance roles indicate significant shortages in the years ahead, with the General and Operations Manager talent pool likely falling short at least 24 skilled workers needed annually (averaged over the next ten years) to meet employer demand. Financial Managers, Project Management Specialists, and Accountants are other likely regional shortages. These critical talent shortages are primarily due to moderate growth and retirements which outpace demand.

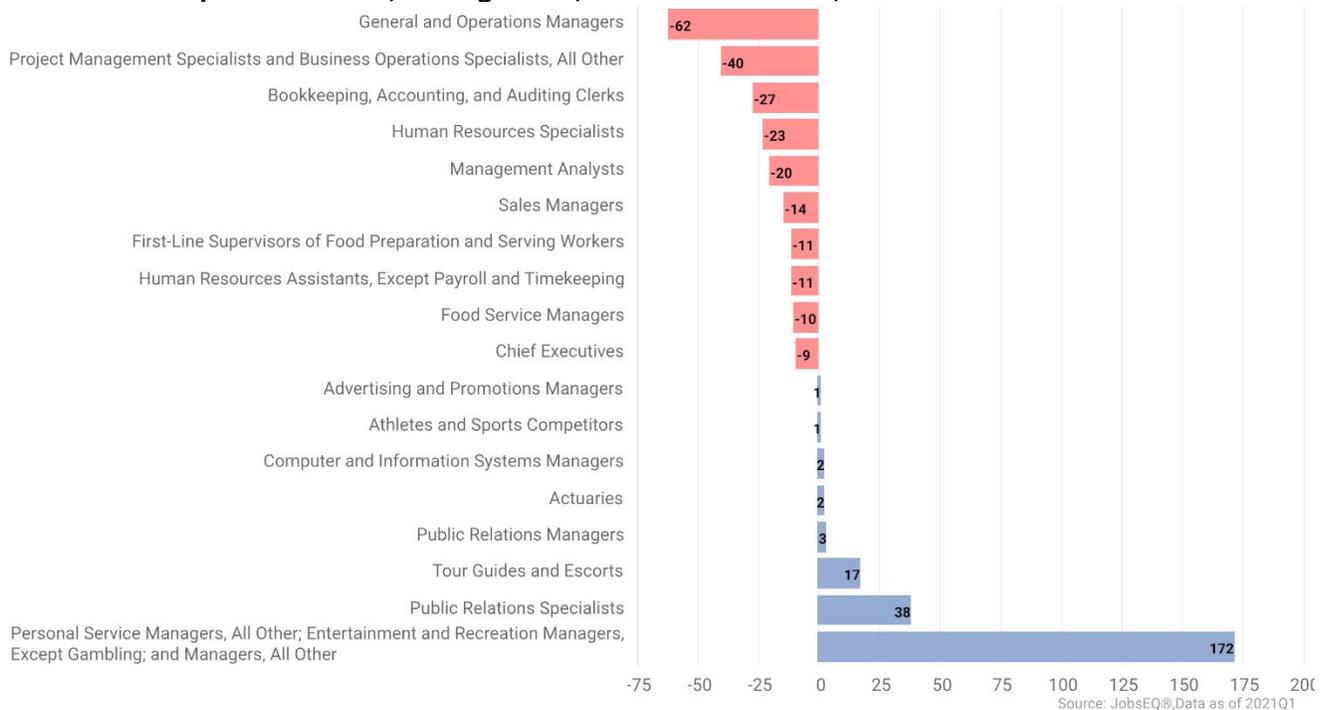
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, Southwest Minnesota 2021Q1



## 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 region currently under-train talent in some important Business, Management, and Administration roles when compared to national benchmarks. Most of the roles with shortages of awards require industry credentials in management, finance, human resources, or sales. The greatest award gaps regionally are also some of the largest occupation gaps, indicating an opportunity for postsecondary institutions to play a critical role in boosting the local talent pipeline in key occupations.

## Award Gaps in Business, Management, and Administration, Southwest Minnesota 2021Q1



### Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities.

#### Top 10 Certification Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Commercial Driver's License (CDL)	21	41	-20
HAZMAT	2	15	-13
Class A Commercial Driver's License (CDL-A)	10	21	-10
Basic Life Support (BLS)	2	12	-10
Certified Management Accountant (CMA)	7	12	-5
Forklift Certified	14	19	-5
Certified Information Systems Auditor (CISA)	1	4	-3
Certified Professional Dog Trainer (CPDT)	0	3	-3
Series 63	4	7	-3
Notary Public	4	7	-3

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high demand among Southwest Minnesota employers hiring Business, Management, and Administration talent that potential candidates have not indicated in their professional networking platforms as a strength.

### Top 10 Skill Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Cash Registers	419	686	-267
People Skills	180	416	-236
Calculators	159	311	-152
Merchandising	317	433	-116
Point of Sale Systems (POS Systems)	119	234	-115
Teaching/Training, Job	190	252	-62
Food Safety	46	105	-60
Change Management	58	112	-54
Word Processing	155	205	-50
Finance	188	234	-46

### Promising Pathways

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

### Origin-to-Gateway-to-Target Occupations for Business, Management, and Administration, Southwest Minnesota 2021Q1

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

General and Operations Managers (OG, AG)  
 Project Management Specialists (OG, AG)  
 Accountants and Auditors (OG)  
 Financial Managers (OG)  
 Market Research Analysts & Marketing Specialists (OG)

#### Gateway Occupations

Supervisors of Retail Sales Workers (HD, AG)  
 Real Estate Sales Agents (OG, AG)  
 Loan Interviewers and Clerks (HD, AG)  
 Supervisors of Housekeepers and Janitorial Workers (HD, OG)  
 Insurance Claims and Policy Processing Clerks

#### Origin Occupations

##### Likely

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

##### Aligned

Personal Care Aides  
 Eligibility Interviewers  
 Childcare Workers  
 Library Technicians

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

Origin Occupations are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Business, Management, and Administration roles locally, or aligned opportunities that share a large number of skillsets in-demand in the field.

Likely Origins	Aligned Origins
Cashiers	Personal Care Aides
Retail Salespersons	Eligibility Interviewers
Fast Food and Counter Workers	Childcare Workers
Office Clerks, General	Library Technicians
Stockers and Order Fillers	

**Gateway Occupations** are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in the Southwest region). Below are a few Gateway Occupations in Business, Management, and Administration locally. 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. None of the gateway occupations in this career field are considered high-skill, meaning that the majority of roles listed here would be accessible to an individual without formal education or training.

Likely Gateways	Aligned Gateways
Supervisors of Retail Sales Workers	Graphic Designers
Real Estate Sales Agents	Editors
Loan Interviewers and Clerks	Writers
Supervisors of Housekeeping and Janitorial Workers	Computer User Support Specialists
Insurance Claims and Policy Processing Clerks	

**Target Occupations** refer to high-wage occupations that pay at or above the region's average wage (\$49,900 in the Southwest region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively. Only occupations that hit the designated high-wage, high-skill, and high-demand thresholds have been included in this chart, thus putting extra weight and emphasis on current demand rather than future shortage. Some critical occupations for the region that forecast high gaps, but perhaps not currently high-demand should also be included in Career and Technical Education programs of study.

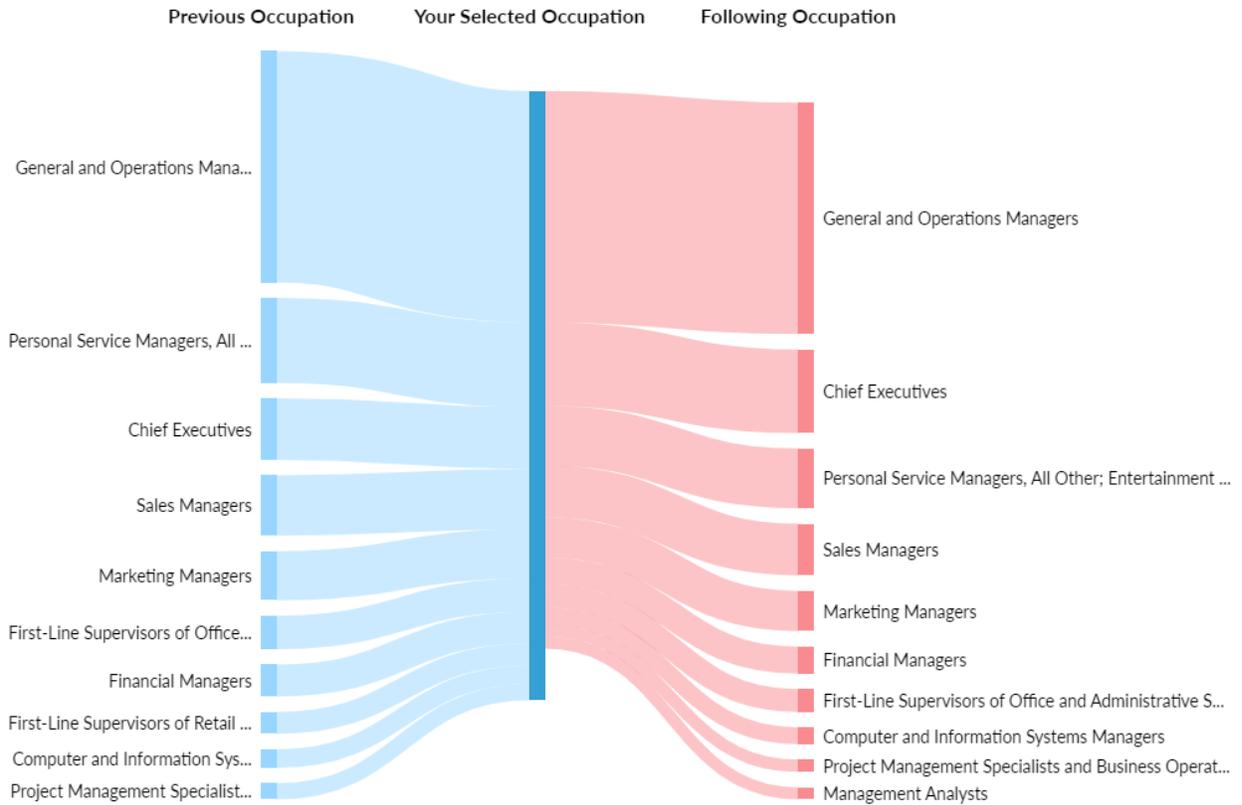
### Top Target Occupations in Business, Management, and Administration, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
11-1021	General and Operations Managers	3,975	\$91,600	HW	HS	HD	OG	AG
13-1198	Project Management Specialists and Business Operations Specialists, All Other	2,065	\$60,300	HW	HS	HD	OG	AG
13-2011	Accountants and Auditors	2,037	\$70,000	HW	HS	HD	OG	
11-3031	Financial Managers	1,099	\$112,900	HW	HS	HD	OG	
13-1161	Market Research Analysts and Marketing Specialists	983	\$60,400	HW	HS	HD	OG	
13-1111	Management Analysts	891	\$69,400	HW	HS	HD	OG	AG
27-3031	Public Relations Specialists	392	\$54,200	HW	HS	HD	OG	
13-2052	Personal Financial Advisors	298	\$112,000	HW	HS	HD	OG	
13-1131	Fundraisers	184	\$50,800	HW	HS	HD	OG	AG
15-2031	Operations Research Analysts	119	\$77,700	HW	HS	HD	OG	AG

General and Operations Management roles are in-demand, high-wage, and high-skill opportunities in the Southwest that are forecast to be in shortage. In addition, regional colleges and universities underproduce General and Operations Management-aligned program graduates in comparison to national benchmarks. Below, this occupation is analyzed in more detail for better understanding of occupation “gain and drain.” The chart

below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from other occupations to General and Operations Manager. The right column shows job transitions from this role to other occupations. Clearly, there are a number of likely entrypoints, such as Marketing Manager or Sales Manager, but there are also a few aligned occupations that may not be initially associated with Operations Management: Personal Service Managers, Financial Managers, and Computer and Information Systems Managers.

### General and Operations Manager Talent Gain and Drain, Southwest Minnesota 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

### Graduate Pipeline for General and Operations Managers, Southwest Minnesota 2021

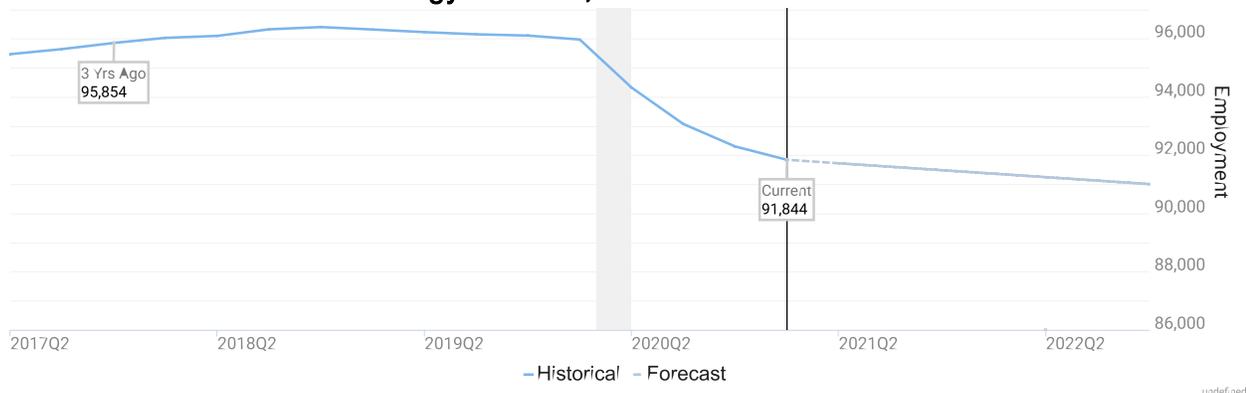


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## ENGINEERING, MANUFACTURING, AND TECHNOLOGY

Engineering, Manufacturing, and Technology is a wide career field with transportation, logistics, STEM, architecture, construction, manufacturing, and machining careers, which all experienced somewhat diverging trends during over the course of the COVID-19 pandemic thus far. Over the next three years, under a pessimistic baseline forecast, this career field's employment is forecast to fall moderately (-0.6% annually). In the most optimistic scenario feasible based on employer demand, and given the existing talent shortage and talent pipelines in place, employment growth of 1.2% annually in this field could be possible. Most of the growth is attributable to transportation, automotive, and manufacturing careers. Shoe Machine Operators and Tenders, for example, have a 26.25 Location Quotient, meaning that the region has a dramatically higher concentration in shoe machine talent than the nation.

**Baseline Worst-Case Scenario 3-Year Forecast for Engineering, Manufacturing, and Technology Careers, Southwest Minnesota 2021Q1**



### Top Ten Engineering, Manufacturing, and Technology Occupations by Employment Volume in the Southwest, 2021Q1

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-	Annual	Baseline
				Year Empl Change	Demand	Forecast Ann Growth
Heavy and Tractor-Trailer Truck Drivers	6,427	\$47,200	1.56	-48	672	-0.6%
Laborers and Freight, Stock, and Material Movers, Hand	5,425	\$34,400	0.90	103	726	-0.3%
Team Assemblers	3,039	\$35,700	1.35	-88	247	-2.6%
Maintenance and Repair Workers, General	2,820	\$45,300	0.97	-164	265	-0.2%
Slaughterers and Meat Packers	2,363	\$32,500	15.10	-161	285	-0.2%
Construction Laborers	2,343	\$42,600	0.83	-14	256	-0.1%
Packaging and Filling Machine Operators and Tenders	2,227	\$38,300	2.84	69	240	-0.6%
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	2,219	\$37,400	1.46	-334	271	0.0%
First-Line Supervisors of Production and Operating Workers	2,186	\$65,700	1.71	-140	201	-0.7%
Carpenters	2,110	\$47,600	1.04	-132	200	-0.6%
Remaining Component Occupations	60,689	\$49,500	1.17	-3,276	6,223	-0.5%
<b>Engineering, Manufacturing, &amp; Technology (CTE Field)</b>	<b>91,844</b>	<b>\$47,000</b>	<b>1.18</b>	<b>-4,185</b>	<b>9,583</b>	<b>-0.6%</b>

"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 Southwest region. Locally, the industries with the greatest share of this field's talent are Animal Slaughtering and Processing (9.3%) and General Freight Trucking (4.0%). 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 broad strategies that cross each of these sectors.

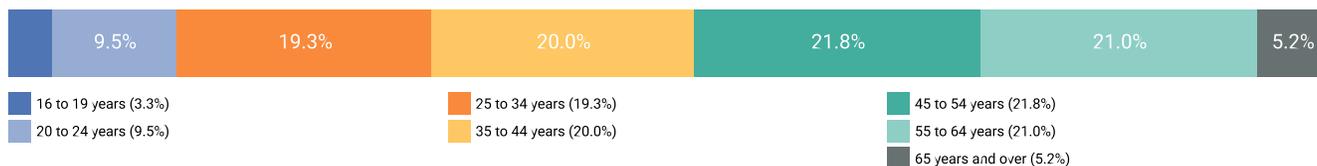
### Engineering, Manufacturing, and Technology Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Animal Slaughtering and Processing	9.3%	8,508	10,398	-199	10,199
General Freight Trucking	4.0%	3,646	3,996	-254	3,742
Building Equipment Contractors	3.3%	3,050	3,326	43	3,369
Agriculture, Construction, and Mining Machinery Manufacturing	2.3%	2,091	2,062	-226	1,836
Fruit and Vegetable Preserving and Specialty Food Manufacturing	2.2%	2,054	2,387	-272	2,115
Executive, Legislative, and Other General Government Support	2.2%	2,023	2,184	24	2,208
Other Specialty Trade Contractors	2.2%	2,003	2,182	-32	2,150
Grain and Oilseed Milling	2.1%	1,930	2,119	-207	1,911
Highway, Street, and Bridge Construction	2.0%	1,879	2,024	-4	2,020
Automotive Repair and Maintenance	2.0%	1,860	1,931	-88	1,843
Glass and Glass Product Manufacturing	1.8%	1,644	1,655	-321	1,333
Residential Building Construction	1.8%	1,609	1,562	-41	1,521
Building Finishing Contractors	1.7%	1,564	1,560	-82	1,478
School and Employee Bus Transportation	1.7%	1,551	1,836	-19	1,817
Plastics Product Manufacturing	1.7%	1,548	1,627	-185	1,442
Dairy Product Manufacturing	1.7%	1,538	1,859	-21	1,838
Foundation, Structure, and Building Exterior Contractors	1.6%	1,508	1,576	-34	1,542
Employment Services	1.6%	1,445	1,786	0	1,786
Converted Paper Product Manufacturing	1.5%	1,354	1,425	-177	1,248
Services to Buildings and Dwellings	1.4%	1,290	1,647	70	1,717
All Others	52.0%	47,751	51,143	-2,635	48,508

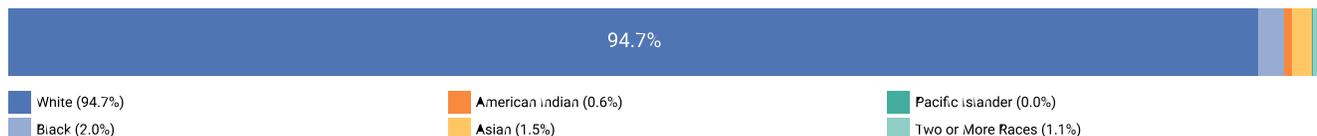
### Career Field Demographics

Talent employed in Engineering, Manufacturing, and Technology field is heavily male (80.7%) and White (94.7%). Just under half of workers in this field are 45 years or older (48.0%), pointing to the importance of developing younger talent pipelines into the sector to address retirements likely over the next five to ten years.

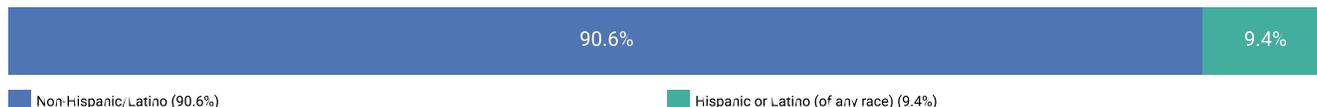
#### Age



#### Race



#### Ethnicity



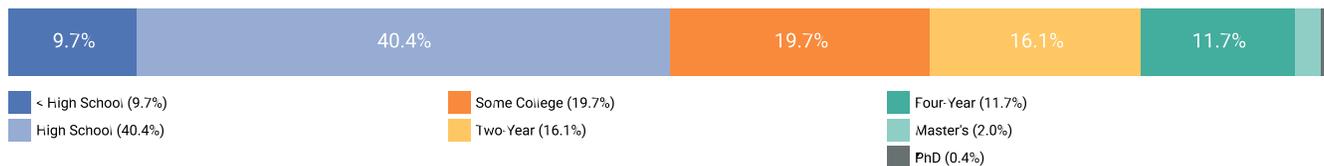
## Gender



## Educational Attainment and Requirements

The stacked bar charts here illustrate the mix of educational attainment of the workers in this career field as well as the typical education requirements for roles in the field. 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 (28.8%) require no degree, no experience, and only short-term on-the-job training. About 51.9% require experience or some on-the-job training, but still no degree. Almost 1 in 10 of the workforce in this field has no degree at all (9.7%), and almost 2 in 5 (40.4%) hold a high school diploma as their highest credential. In all, 59.8% of the Engineering, Manufacturing, and Technology workforce have not completed a postsecondary credential. The table below indicates typical education and training requirements rather than the mix of attainment of workers in some key positions in this field.

## Educational Attainment



## Education and Training Requirements



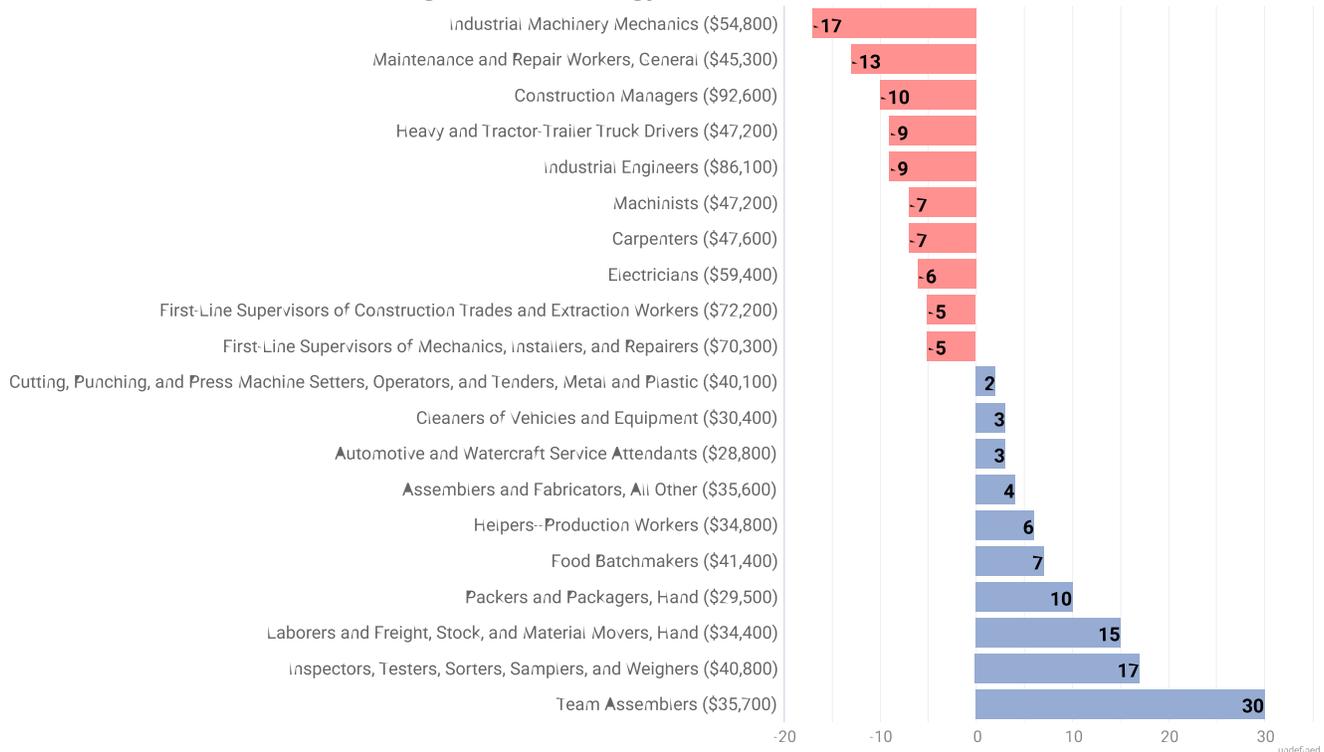
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Heavy and Tractor-Trailer Truck Drivers	Postsecondary non-degree award	None	Short-term on-the-job training
Laborers and Freight, Stock, and Material Movers, Hand	None	None	Short-term on-the-job training
Team Assemblers	High school diploma or equivalent	None	Moderate-term on-the-job training
Maintenance and Repair Workers, General	High school diploma or equivalent	None	Moderate-term on-the-job training
Slaughterers and Meat Packers	None	None	Short-term on-the-job training
Construction Laborers	None	None	Short-term on-the-job training
Packaging and Filling Machine Operators and Tenders	High school diploma or equivalent	None	Moderate-term on-the-job training
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	None	None	Short-term on-the-job training
First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	Less than 5 years	None
Carpenters	High school diploma or equivalent	None	Apprenticeship

## 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 Industrial Machinery Mechanic and Maintenance and Repair Worker talent pools likely falling short of meeting employer demand. These talent shortages are primarily due to growth in demand and retirements which far outpace the local talent pipeline.

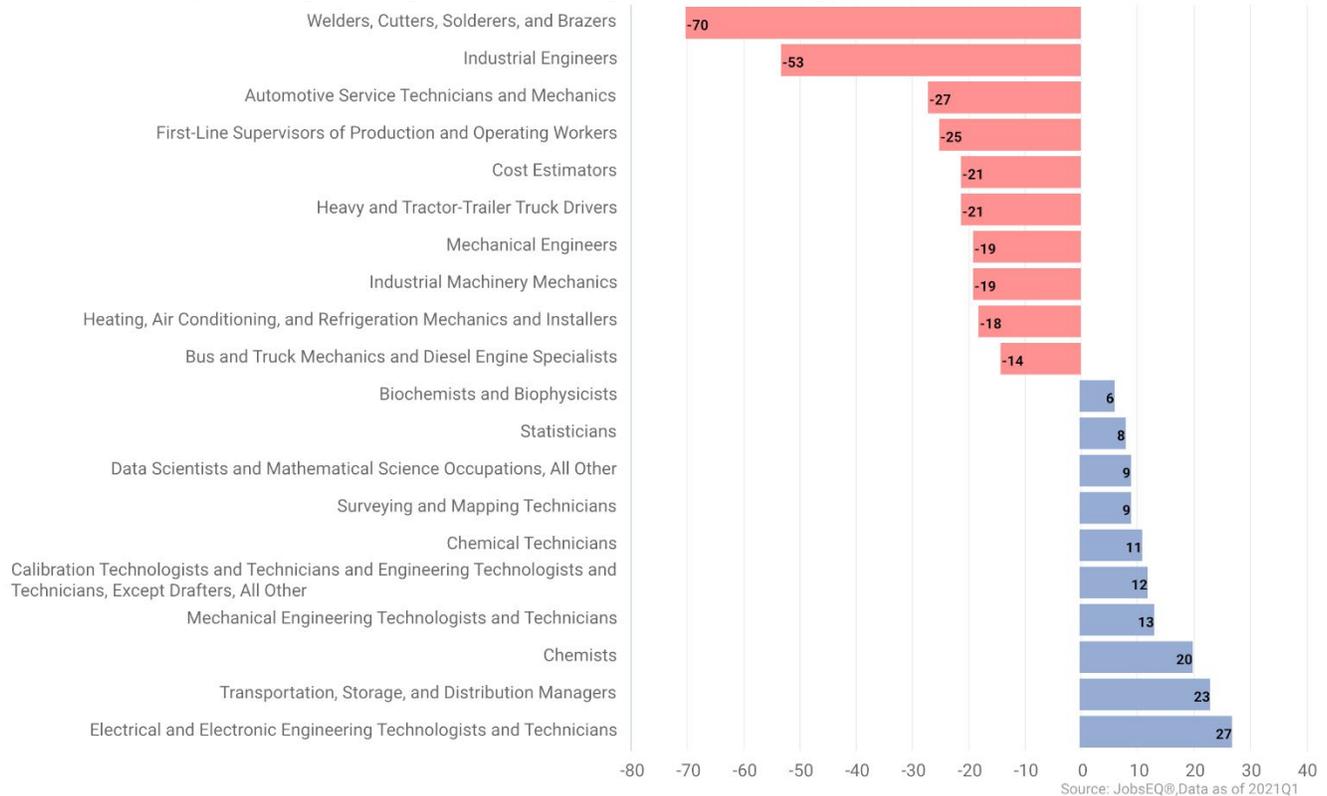
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, Southwest Minnesota 2021Q1



## Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a number of 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 70 graduates annually that are needed to fill welding and soldering positions open with employers based in this region alone. Second, there are at least 53 fewer Industrial Engineering graduates and 27 fewer Automotive Service Technicians and Mechanics graduating locally annually than what employers currently need to support demand.

## Award Gaps in Engineering, Manufacturing, and Technology, Southwest Minnesota 2021Q1



### Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities. The certification gaps listed below reiterate the award gaps above.

#### Top 10 Certification Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
HAZMAT	39	44	-5
Certified Welder	6	11	-5
Certified Pesticide Applicator	0	3	-3
Light Commercial Refrigeration Certification (NATE Certified)	0	3	-2
The National Institute for Metalworking Skills (NIMS) Certification (unspecified)	1	3	-2
Certified Professional in Supply Management (CPSM)	1	3	-2
Class C Commercial Driver's License (CDL-C)	0	2	-2
Project Management Professional (PMP)	3	4	-1
IPC-A-610 Acceptability of Electronic Assemblies (IPC-A-610)	1	2	-1
Certified Maintenance & Reliability Professional (CMRP)	0	1	0

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high demand among Southwest Minnesota employers hiring Engineering, Manufacturing, and Technology

talent that potential candidates have not indicated in their professional networking platforms as a strength.

#### Top 10 Skill Gaps in the Southwest, September 2021

Name	Candidates	Openings	Gap
Power Tools	205	250	-45
Food Safety	13	44	-30
Mathematics	199	228	-30
Hand Trucks	40	69	-29
Soldering	69	97	-28
Computer Aided Design Software (CAD Software)	87	111	-24
Boilers	105	128	-23
Radio Frequency (RF)	13	34	-21
Landscaping	122	141	-19
Telecommunications	17	34	-17

### Promising Pathways

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

#### Origin-to-Gateway-to-Target Occupations for Engineering, Manufacturing, and Technology, Southwest Minnesota Metro 2021Q1

**Target Occupations** (all HW, HD, HS)  
 Industrial Engineers (OG, AG)  
 Construction Managers (OG)  
 Mechanical Engineers (OG, AG)  
 Cost Estimators (OG, AG)  
 Tool and Die Makers (AG)

#### Gateway Occupations

Heavy and Tractor-Trailer Truck Drivers (HS, HD, OG, AG)  
 Maintenance and Repair Workers, General (HD, OG, AG)  
 Construction Laborers  
 Carpenters (OG)  
 Industrial Truck and Tractor Operators

#### Origin Occupations

##### Likely

Laborers & Freight, Stock Movers  
 Team Assemblers  
 Slaughterers & Meat Packers  
 Packaging & Filling Machine Operators & Tenders  
 Passenger Vehicle Drivers (HD, AG)

##### Aligned

Parking Lot Attendants  
 Retail Sales Workers  
 Stockers and Order Fillers  
 Janitors and Cleaners  
 Customer Service Reps

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

*Origin Occupations* are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Engineering, Manufacturing, and Technology roles locally, or aligned opportunities that share a large number of skillsets in-demand in the field.

Likely Origins	Aligned Origins
Laborers and Freight, Stock, and Material Movers, Hand	Parking Lot Attendants
Team Assemblers	Retail Sales Workers
Slaughterers and Meat Packers	Stockers and Order Fillers
Packaging and Filling Machine Operators and Tenders	Janitors and Cleaners
Passenger Vehicle Drivers	Customer Service Representatives

**Gateway Occupations** are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in the Southwest). Below are a few Gateway Occupations in Engineering, Manufacturing, and Technology locally. 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.

Likely Gateways	Aligned Gateways
Heavy and Tractor-Trailer Drivers	General Managers
Maintenance and Repair Workers, General	Product Demonstrators
Construction Laborers	Computer User Support Specialists
Carpenters	Supervisors of Retail Workers
Industrial Truck and Tractor Operators	

**Target Occupations** refer to high-wage occupations that pay at or above the region's average wage (\$49,900 in the Southwest region). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively. Only occupations that hit the designated high-wage, high-skill, and high-demand thresholds have been included in this chart, thus putting extra weight and emphasis on current demand rather than future shortage. Some critical occupations for the region that forecast high gaps, but perhaps not currently high-demand should also be included in Career and Technical Education programs of study.

The top three occupations listed below have average annual forecasted growth well above the region's average over the next five years, and the next seven occupations listed will all see over half of their current workforce needing replacement during the next five years. Six of these occupations also have unemployment rates under 3% (the top five and Environmental Scientists), while Mechanical Engineering Technicians and Interior Designers had more than 500 job postings in August 2021.

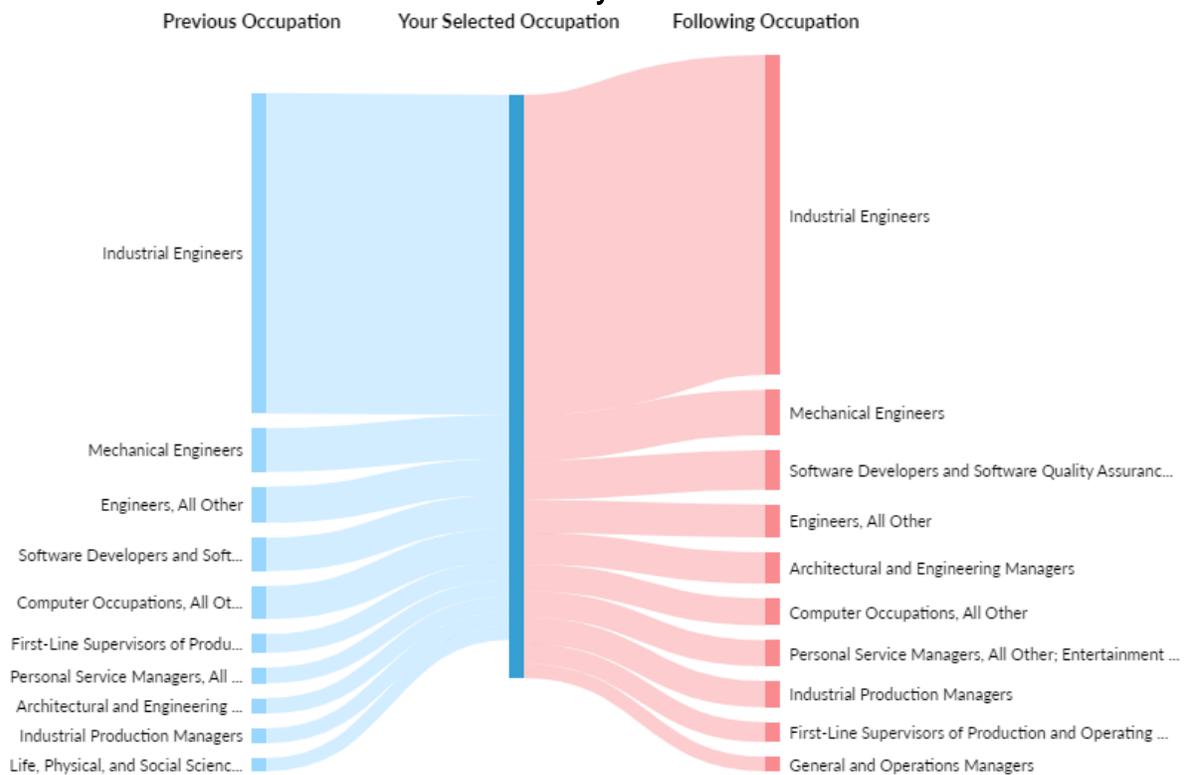
### Top Target Occupations in Engineering, Manufacturing, and Technology, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
17-2112	Industrial Engineers	994	\$86,100	HW	HS	HD	OG	AG
11-9021	Construction Managers	947	\$92,600	HW	HS	HD	OG	
17-2141	Mechanical Engineers	695	\$80,800	HW	HS	HD	OG	AG
13-1051	Cost Estimators	418	\$63,700	HW	HS	HD	OG	AG
51-4111	Tool and Die Makers	207	\$55,500	HW	HS	HD		AG
51-9162	Computer Numerically Controlled Tool Programmers	121	\$58,900	HW	HS	HD	OG	
17-3027	Mechanical Engineering Technologists and Technicians	117	\$56,300	HW	HS	HD	OG	
19-2041	Environmental Scientists and Specialists, Including Health	103	\$70,100	HW	HS	HD	OG	
27-1025	Interior Designers	92	\$53,200	HW	HS	HD		AG
49-9081	Wind Turbine Service Technicians	85	\$56,500	HW	HS	HD	OG	AG

Industrial Engineers are more highly concentrated in Southwest Minnesota than in most communities of its size (location quotient of 1.63 for this occupation). Southwest Minnesota will need more of this talent in the years ahead than what is likely to be available in the local talent pool. Wages for Industrial Engineers average \$86,100 in the region, well above the area's average wage.

Below, this occupation is analyzed in more detail for better understanding of occupation "gain and drain." The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from other occupations to Industrial Engineer. The right column shows job transitions from Industrial Engineering to other occupations—including both likely transitions and aligned transitions.

### Industrial Engineer Talent Gain and Drain, Southwest Minnesota 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

### Graduate Pipeline for Industrial Engineers, Southwest Minnesota 2021

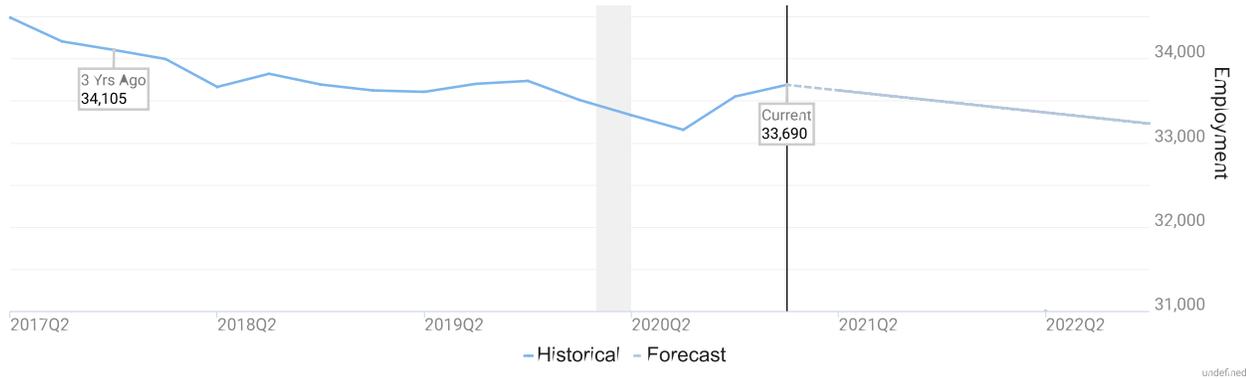


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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. Over the next three years, under a pessimistic baseline forecast, this career field's employment is forecast to decline by about -0.8% in Southwest Minnesota. In the most optimistic scenario likely based on employer demand, given the existing talent shortage and talent pipelines in place, more minimal declines in employment of -0.2% annually in this field could be possible.

**Baseline Worst-Case Scenario 3-Year Forecast for Agriculture, Food, and Natural Resources Careers, Southwest Minnesota 2021Q1**



### Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume in the Southwest, 2021Q1

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Farmers, Ranchers, and Other Agricultural Managers	10,693	\$80,500	5.89	-362	807	-1.7%
Farmworkers, Farm, Ranch, and Aquacultural Animals	3,343	\$29,700	9.51	195	466	-1.6%
Meat, Poultry, and Fish Cutters and Trimmers	2,103	\$32,100	6.62	-26	253	-0.2%
Landscaping and Groundskeeping Workers	2,021	\$33,100	0.85	-105	280	0.6%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,536	\$32,700	1.26	123	241	-0.4%
Food Batchmakers	1,416	\$41,400	4.33	86	196	-0.6%
Plumbers, Pipefitters, and Steamfitters	1,002	\$58,300	1.03	-46	110	-0.1%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	934	\$58,300	0.92	-3	95	-0.3%
Farm Equipment Mechanics and Service Technicians	666	\$50,600	7.85	17	59	-0.8%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	540	\$53,100	0.69	17	51	-0.2%
Remaining Component Occupations	9,433	\$51,500	1.29	-203	1,081	-0.3%
<b>AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)</b>	<b>33,690</b>	<b>\$55,400</b>	<b>1.85</b>	<b>-307</b>	<b>3,640</b>	<b>-0.8%</b>

"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 Southwest Minnesota. Locally, the industries with the greatest share of this field's talent are Animal Production (22.1%) and Animal Slaughtering and Processing (7.6%). Most industries employing talent in this field touch less than 2% of total talent skilled in this field, and span from grocery to ranching to electric power generation.

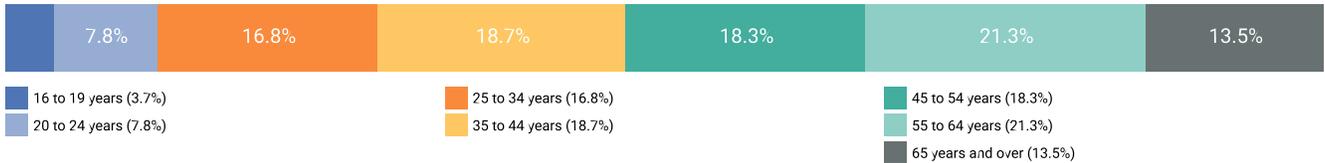
### Agriculture, Food, and Natural Resources Field Employment by Industry, 2021Q1, Southwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Animal Production (Proprietors)	22.1%	7,456	6,704	-1,320	5,384
Animal Slaughtering and Processing	7.6%	2,564	3,207	-60	3,147
Hog and Pig Farming	7.5%	2,527	3,319	-359	2,960
Poultry and Egg Production	5.1%	1,732	2,308	-200	2,108
Crop Production (Proprietors)	4.4%	1,467	1,425	-207	1,218
Building Equipment Contractors	3.7%	1,256	1,341	10	1,352
Services to Buildings and Dwellings	3.7%	1,239	1,607	71	1,678
Cattle Ranching and Farming	3.7%	1,231	1,638	-146	1,492
Support Activities for Crop Production	2.6%	878	1,268	-22	1,247
Oilseed and Grain Farming	2.5%	849	1,239	6	1,245
Executive, Legislative, and Other General Government Support	2.3%	782	854	4	858
Other Professional, Scientific, and Technical Services	2.1%	707	702	81	783
Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.9%	643	864	-84	780
Machinery, Equipment, and Supplies Merchant Wholesalers	1.9%	640	611	-49	562
Electric Power Generation, Transmission and Distribution	1.8%	605	497	-131	366
Grocery Stores	1.5%	512	633	-17	616
Farm Product Raw Material Merchant Wholesalers	1.4%	480	662	-69	593
Dairy Product Manufacturing	1.3%	448	624	-7	617
Grain and Oilseed Milling	1.3%	423	535	-41	494
Wired and Wireless Telecommunications Carriers	1.1%	368	380	-47	333
All Others	20.4%	6,885	8,468	41	8,509

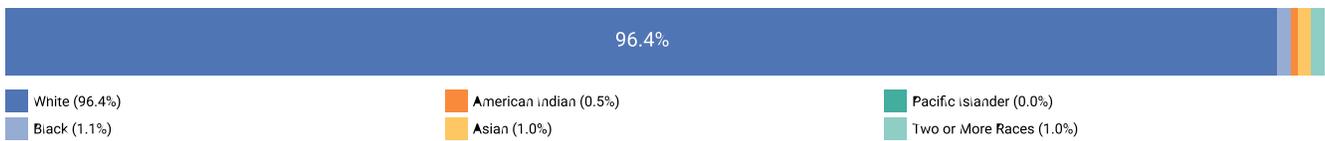
### Career Field Demographics

The talent employed in the Agriculture, Food, and Natural Resources field is predominantly male (73.5%) and White (96.4%), but with variation by career pathway. The largest share of talent employed in this field are between the ages of 45 and 54 (21.3%), and another 13.5% are 65 years or older—signaling the challenge of impending retirements and a limited talent pool entering this field regionally. 9.9% of the talent in Agriculture, Food, and Natural Resources identify as Hispanic or Latinx, one of the highest shares of regional talent identifying as such in any field in any region of Minnesota.

#### Age



#### Race



#### Ethnicity



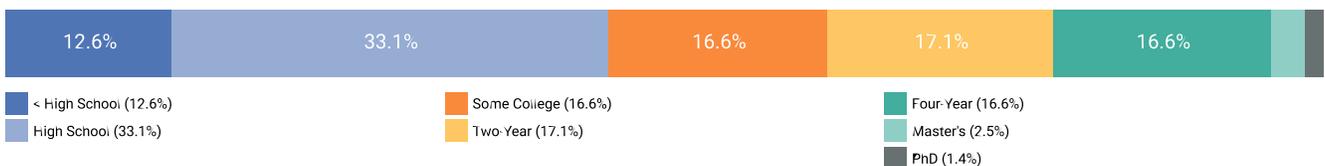
#### Gender



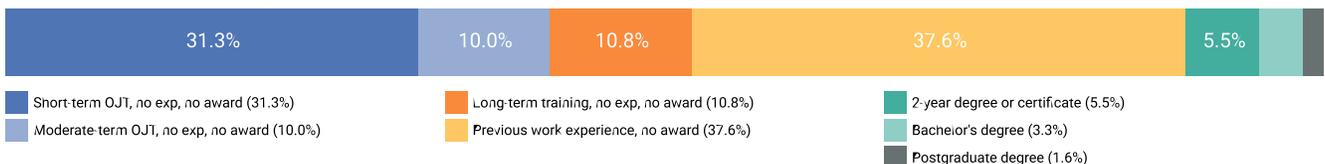
### Educational Attainment and Requirements

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. Nearly three in ten of all positions in this field regionally (31.3%) require no degree, no experience, and only short-term on-the-job training. Over half (58.4%) require experience or some on-the-job training, but still no degree; in all, 89.7% 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 (33.1%) hold a high school diploma as their highest credential. In all, 62.3% of the Agriculture, Food, and Natural Resources workforce have not completed a postsecondary credential. The table below indicates typical education and training requirements rather than the mix of attainment of workers in some key positions in this field.

#### Educational Attainment



#### Education and Training Requirements



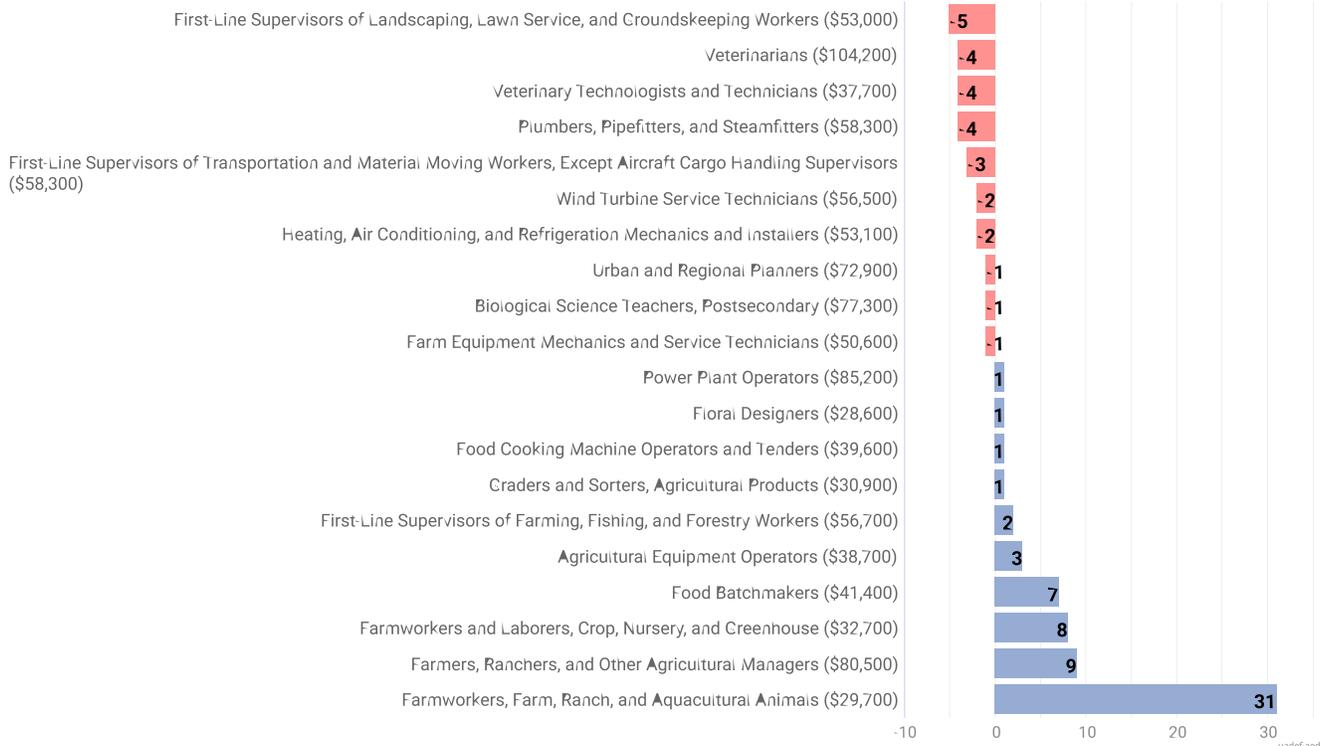
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Farmers, Ranchers, and Other Agricultural Managers	High school diploma or equivalent	5 years or more	None
Farmworkers, Farm, Ranch, and Aquacultural Animals	None	None	Short-term on-the-job training
Meat, Poultry, and Fish Cutters and Trimmers	None	None	Short-term on-the-job training
Landscaping and Groundskeeping Workers	None	None	Short-term on-the-job training
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	None	None	Short-term on-the-job training
Food Batchmakers	High school diploma or equivalent	None	Moderate-term on-the-job training
Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	None	Apprenticeship
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	None
Farm Equipment Mechanics and Service Technicians	High school diploma or equivalent	None	Long-term on-the-job training
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary non-degree award	None	Long-term on-the-job training

### Occupation Gaps

The chart below shows the potential average annual gaps over ten years. A number of crucial trades, animal science, environmental services, and natural science roles indicate shortages in the years ahead, with talent pools of Landscaping Supervisors, Veterinarians and Vet Techs, Plumbers, Wind Turbine Service Technicians, and HVAC Mechanics likely falling behind the most. Retirements and growing demand unmet by the local talent supply chain are both contributing factors.

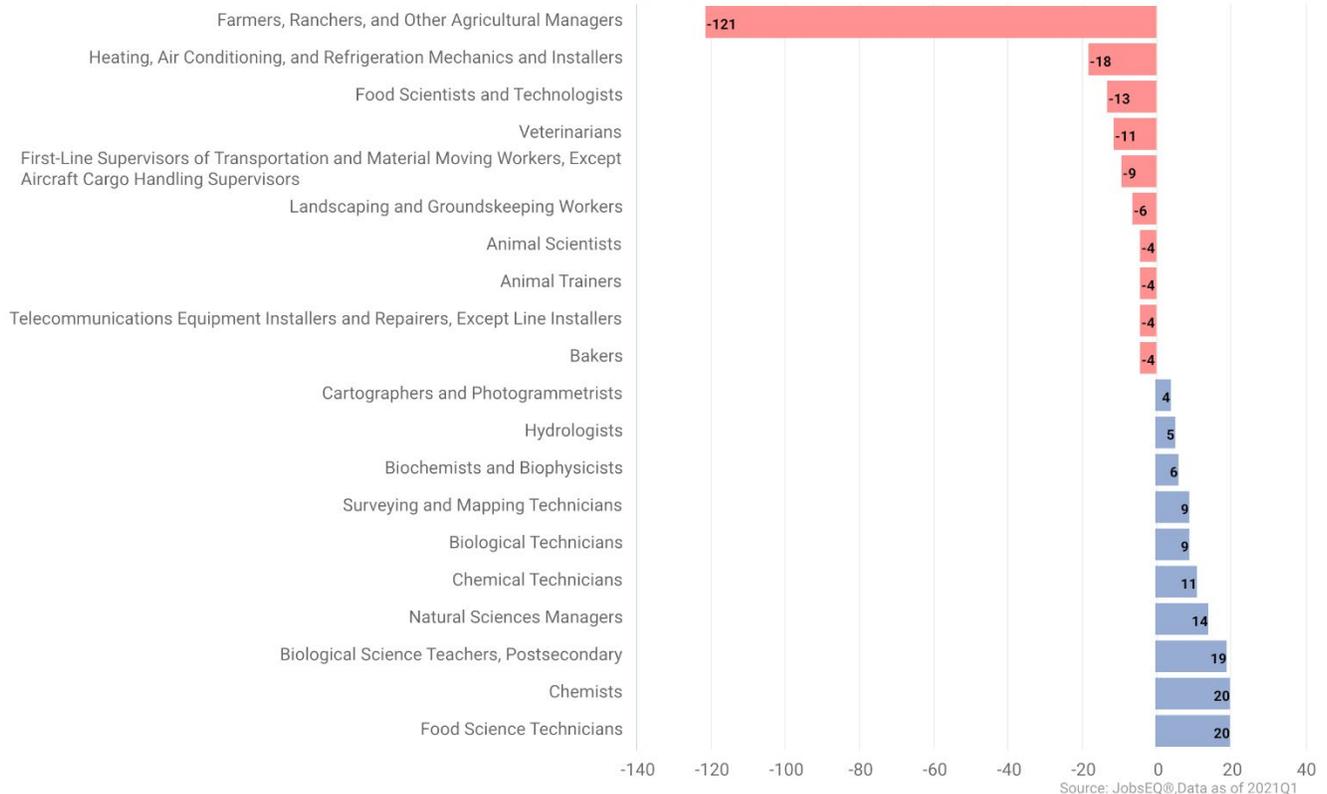
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Southwest Minnesota 2021Q1



## Award Gaps

A comparison of the graduate talent pipeline through certificate and other postsecondary degree programs to the current estimated openings by occupation illuminate a number of notable shortages. Schools in Southwest Minnesota currently under-train talent in some career pathways in Agriculture, Food, and Natural Resources when compared to national benchmarks. Southwest Minnesota colleges and universities are underproducing at least 121 graduates annually that are needed to fill farming and agricultural management positions open with employers based in the Southwest region. This is a common shortage across many Minnesota regions and likely a persistent credential shortage in the state. HVAC Mechanics, Food Scientists, and Veterinarian roles are also lagging in local graduate awards, as the majority of Animal Systems, Food Science, and Plant Systems completions are made in the MSP Metro (only one food science completion was delivered outside the Metro in the 2019-20 school year, and that was at Riverland Community College).

### Award Gaps in Agriculture, Food, and Natural Resources, Southwest Minnesota 2021Q1



## Certification Gaps

Similar to award gaps, an analysis of certification gaps identify where the existing talent pool lacks particular credentials in comparison to current openings. However, this analysis uses real-time labor market data in the form of online candidate profiles and job postings to analyze the alignment between the available workforce and local opportunities. In the table below, it is apparent that the programs aligned to the occupations above as well as shorter training programs are both needed to connect local talent with opportunities.

### Top 10 Certification Gaps in Southwest Minnesota, September 2021

Name	Candidates	Openings	Gap
Forklift Certified	26	35	-9
Certified Professional Dog Trainer (CPDT)	0	3	-3
Certified Pesticide Applicator	4	7	-3
Light Commercial Refrigeration Certification (NATE Certified)	0	3	-2
Registered Veterinary Technician (RVT)	1	3	-2
Laboratory Animal Technician (LAT)	1	2	-1
EPA Section 608 Certification (EPA 608)	1	3	-1
Assistant Laboratory Animal Technician (ALAT)	0	1	0
Certified Arborist	2	2	0
EPA Universal Certification	1	1	0

### Skill Gaps

Likewise, there is a degree of misalignment between the skills of the available workforce and the skills advertised by local employers. The ten skills listed below are examples of the skills in most high demand among Southwest Minnesota employers hiring Agriculture, Food, and Natural Resources talent that potential candidates have not indicated in their professional networking platforms as a strength.

### Top 10 Skill Gaps in Southwest Minnesota, September 2021

Name	Candidates	Openings	Gap
Production Management	37	246	-209
Animal Care/Animal Handling	60	96	-36
Landscaping	111	141	-30
Microsoft Outlook	48	74	-26
Inventory Management	17	39	-22
Routers	5	25	-20
Google	7	26	-20
People Skills	29	46	-18
Heavy Equipment Operation	14	30	-17
Food Safety	11	28	-16

### Promising Pathways

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

## Origin-to-Gateway-to-Target Occupations for Agriculture, Food, and Natural Resources, Southwest Minnesota 2021Q1

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

Veterinarians (OG, AG)  
 Environmental Scientists and Specialists (OG)  
 Wind Turbine Service Technicians (OG, AG)  
 Postsecondary Biological Science Teachers (OG)  
 Soil & Plant Scientists (AG)

### Gateway Occupations

Telecommunications Equipment Installers (HS, AG)  
 Telecommunications Line Installers (HD)  
 Food Science Technicians (HS)  
 Animal Breeders (HD, AG)  
 Tree Trimmers & Pruners (HD)

Origin Occupations	Likely	Aligned
	Farmworkers, Farm, Ranch, & Aquacultural Animals	Compliance Officers
	Meat, Poultry, & Fish Cutters & Trimmers	Laborers / Freight Movers
	Landscaping & Groundskeeping Workers (HD, AG)	Stockers and Order Fillers
	Farmworkers & Laborers, Crop Nursery & Greenhouse	Cooks
	Food Batchmakers (AG)	Customer Service Reps

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

Origin Occupations are roles that are low-wage (<\$37,000 per year) or mid-wage (\$37,000-\$42,000) that have high unemployment locally among workers without 4-year degrees. Below are a few Origin Occupations that are likely entrypoints into Agriculture, Food, and Natural Resources roles locally, or aligned opportunities that share a large number of skillsets in-demand in the field.

Likely Origins	Aligned Origins
Farmworkers, Farm, Ranch, and Aquacultural Animals	Compliance Officers
Meat, Poultry, and Fish Cutters and Trimmers	Laborers and Freight, Stock Movers
Landscaping and Groundskeeping Workers	Stockers and Order Fillers
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	Cooks
Food Batchmakers	Customer Service Representatives

Gateway Occupations are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$42,000 up to the regional average wage (\$49,900 in Southwest Minnesota). Below are a few Gateway Occupations in Agriculture, Food, and Natural Resources locally. 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.

Likely Gateways	Aligned Gateways
Telecommunications Equipment Installers and Repairers	Heavy and Trailer-Truck Mechanics
Telecommunications Line Installers and Repairers	Automobile Service Technicians
Food Science Technicians	General Managers
Animal Breeders	Computer User Support Specialists
Tree Trimmers and Pruners	Machinists
Biological Technicians	Engineering Managers

*Target Occupations* refer to high-wage occupations that pay at or above the region’s average wage (\$49,900 in Southwest Minnesota). 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.

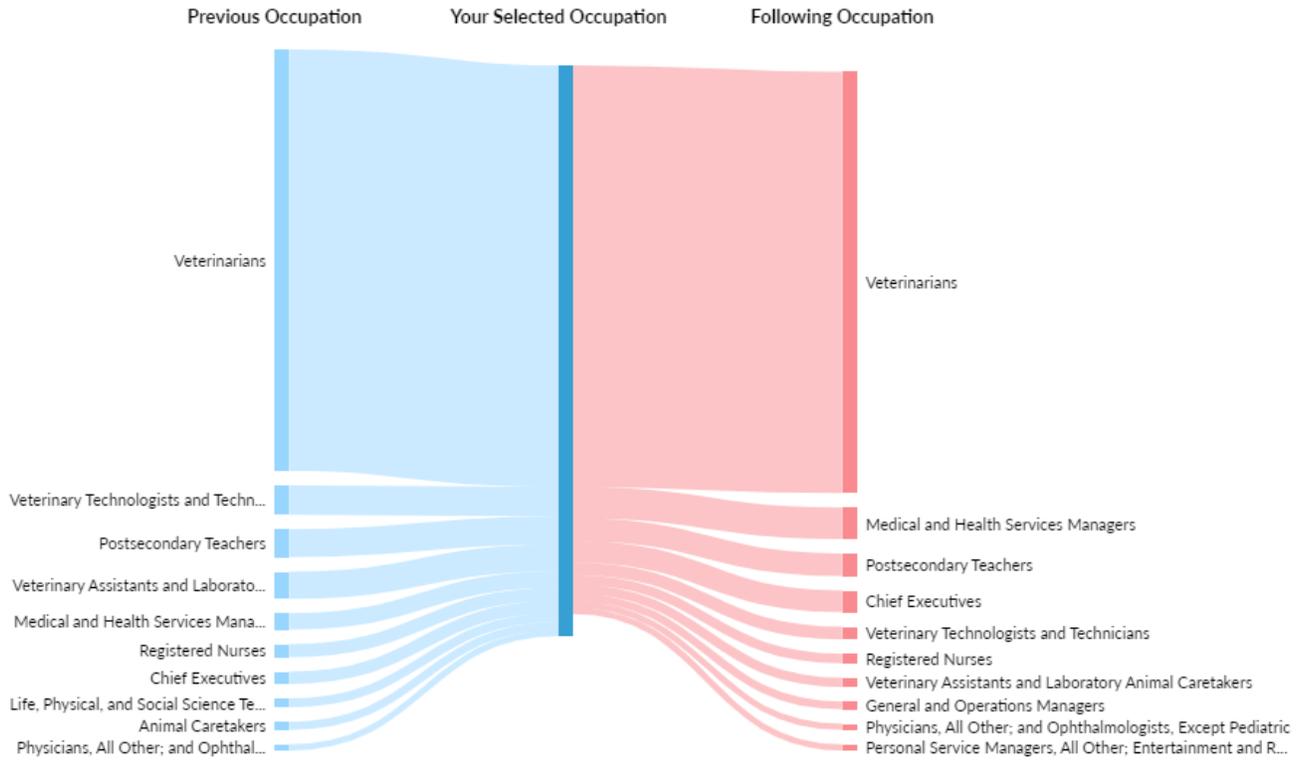
#### Top Target Occupations in Agriculture, Food, and Natural Resources, Southwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
29-1131	Veterinarians	269	\$104,200	HW	HS	HD	OG	AG
19-2041	Environmental Scientists and Specialists, Including Health	103	\$70,100	HW	HS	HD	OG	
49-9081	Wind Turbine Service Technicians	85	\$56,500	HW	HS	HD	OG	AG
25-1042	Biological Science Teachers, Postsecondary	82	\$77,300	HW	HS	HD	OG	
19-1013	Soil and Plant Scientists	48	\$63,200	HW	HS	HD		AG
19-4042	Environmental Science and Protection Technicians, Including Health	35	\$57,400	HW	HS	HD		
25-1041	Agricultural Sciences Teachers, Postsecondary	24	\$90,500	HW	HS	HD		AG

Animal Systems are a specialization of Southwest Minnesota. Veterinarians are more highly concentrated in Southwest Minnesota than in a typical community of its size (location quotient of 1.42). To meet replacement demand and growth needs, Southwest Minnesota requires a stronger pipeline of Veterinarians in the years ahead. The only program in Minnesota in Veterinary Sciences or Veterinary Medicine is through the University of Minnesota-Twin Cities, which delivered 98 postgraduate awards and 22 Bachelor degrees in the 2019-20 school year.

Below, this occupation is analyzed in more detail for better understanding of occupation “gain and drain.” The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from other occupations to Veterinarians—which includes a variety of educational fields. The right column shows job transitions from Veterinarians to other occupations—including both likely transitions and aligned transitions.

## Veterinarian Talent Gain and Drain, Southwest Minnesota 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

## Graduate Pipeline for Veterinarians, Southwest Minnesota 2021



2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

# Conclusion

The region's most in-demand occupations of the future require a 2-year degree or higher, offer high average wages, and will likely experience talent shortages within the next three years and beyond due to low qualified talent pool located within the region. All six career and technical education Career Fields are likely to experience talent shortages and oversupply in certain occupations and skill areas in the current anticipated trajectory of workforce demand and overall economic recovery, though much remains uncertain. Overall, digital skills, human skills, and business enablers will be the foundational skills of the future in Southwest Minnesota. Remote work and digital skills have grown in importance during the first year and a half of the COVID-19 pandemic and all signs indicate that these features of the workplace are here to stay.

The region's most in-demand occupations of the future require a 2-year degree or higher, offer high average wages, and will likely experience talent shortages by 2025 due to low qualified talent pool located within the region. All six career and technical education Career Field areas will experience talent shortages and oversupply in certain occupations and skill areas. It is likely that Southwest Minnesota careers that require a Bachelor's degree or higher have some of the largest anticipated shortages and highest wages.

The region is poised to see changes in demand for talent over the next five years and beyond as the region responds to the impacts of COVID-19 on the local population, economy, and business infrastructure. The disruptions of COVID-19, social unrest, and heightened inequalities have exacerbated concerns over the economy, business viability, and workforce opportunities. The region faces an immediate and short-term challenge of high unemployment among high contact-intensity roles and rapidly changing job requirements. However, many of the occupation shortages initially identified prior to the pandemic and early on in the first months of the pandemic's impact continue to be relevant to the current and future needs of Southwest Minnesota businesses. There is greater urgency to address these talent shortages now the pandemic accelerates some businesses to automate, modernize, and reskill the workforce in a changing market.