

# Northwest 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)

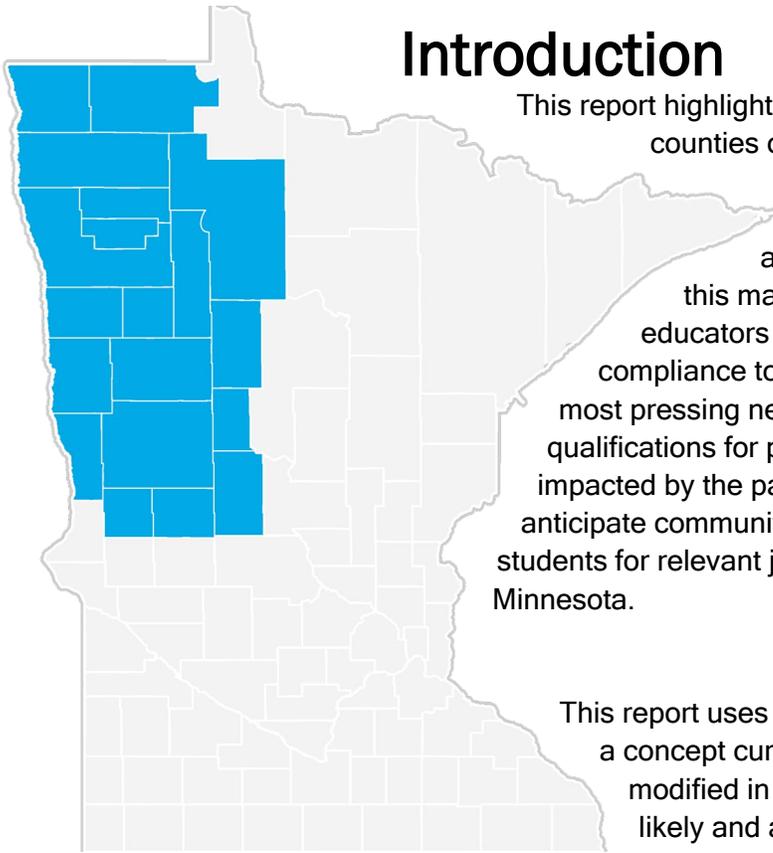
<sup>1</sup> Unemployment Statistics, MN Department of Employment and Economic Development. March 16, 2020 - August 27, 2020. Accessed 9/4/2020 at <https://mn.gov/deed/data/data-tools/unemployment-insurance-statistics/>

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# Northwest Minnesota

## Introduction



This report highlights the current and future talent needs in the ten counties of Northwest 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 Northwest 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

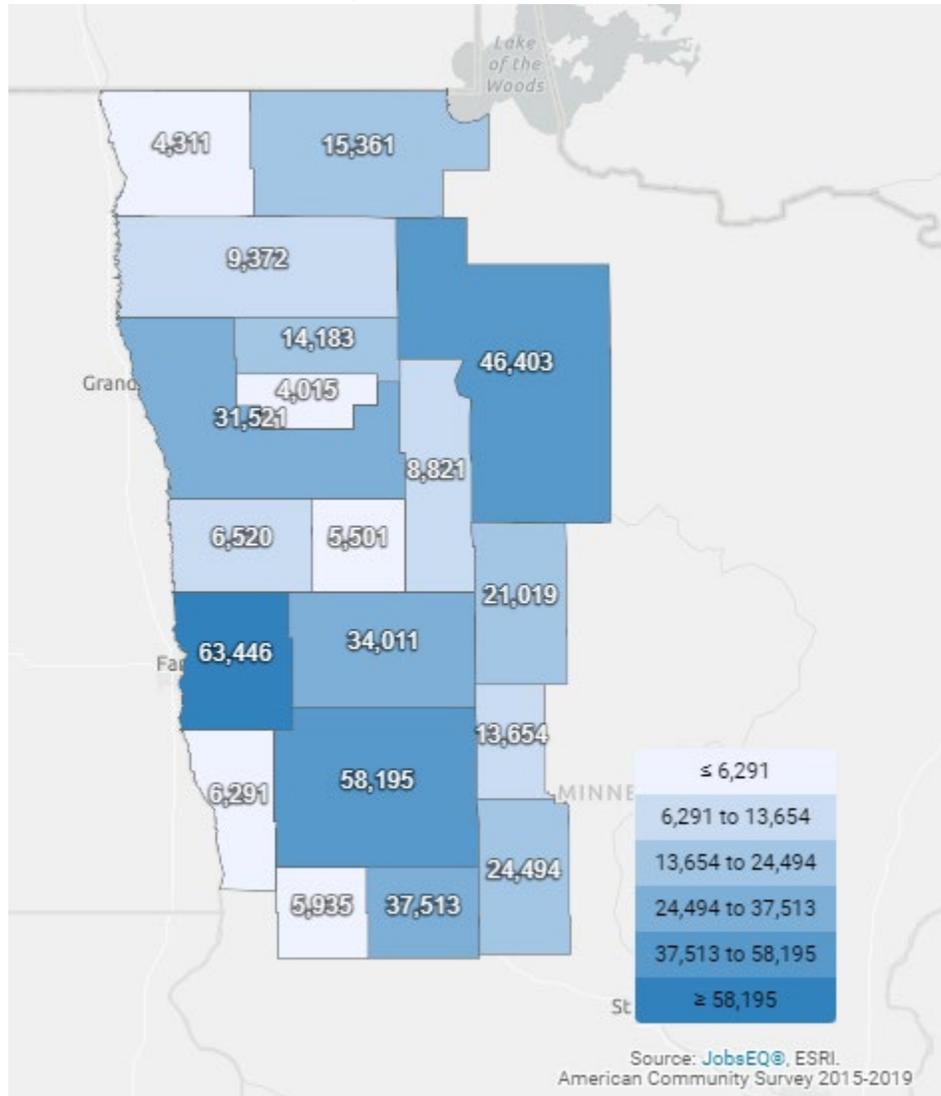
*Low wage* (<\$42,000/year)  
*Low skill* (no credential)  
*Low demand* (over 5% unemployment, low growth, low replacement demand, and/or low job postings)

The cities of Bemidji, Alexandria, and Moorhead are home to the largest local concentrations of population, and are economic hubs for the region. In all, about 410,566 people live in Northwest Minnesota, according to 2015-2019 American Community Survey Estimates—an increase of about 1,600 people from the prior year's estimates. Based on year-over-year population growth, about 414,466 people are estimated to live in the region as of 2021. About 23.6% of Northwest Minnesota's

<sup>2</sup> Becker, Beltrami, Clay, Clearwater, Douglas, Grant, Hubbard, Kittson, Mahnomen, Marshall, Norman, Otter Tail, Pennington, Polk, Red Lake, Roseau, Todd, Wadena, and Wilkin Counties.

population are minors under 18 years of age. Overall, the region's median age is nearly three years older (40.7 years) than the statewide median (38 years), mostly attributable to a larger share of adults over 55 years of age in the region.

### Resident Population of Northwest Minnesota

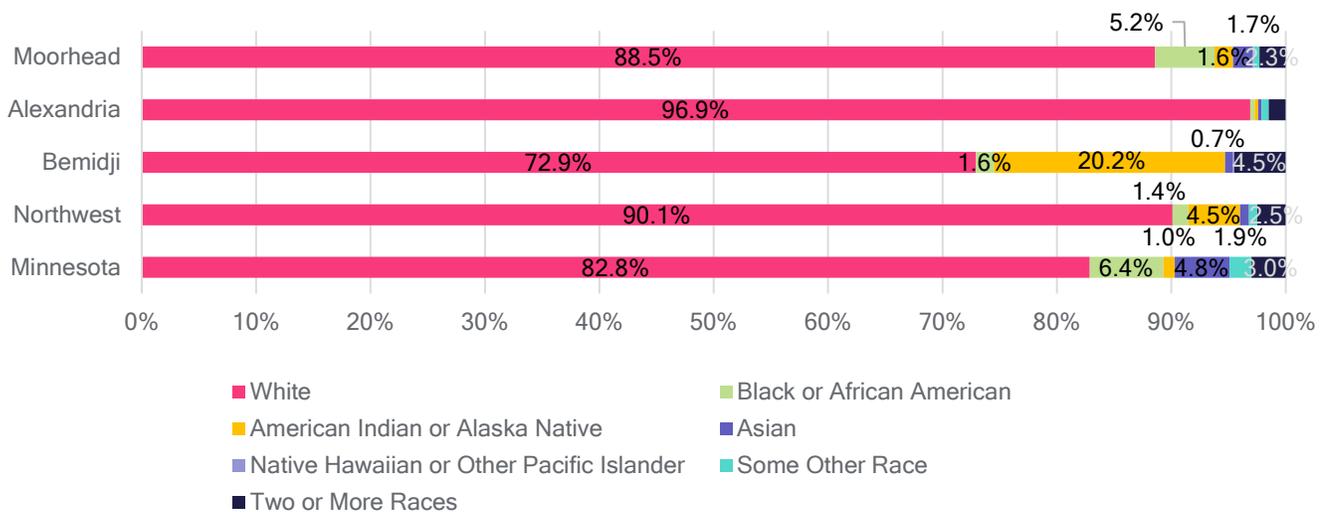


# Community Profile

## Demographics

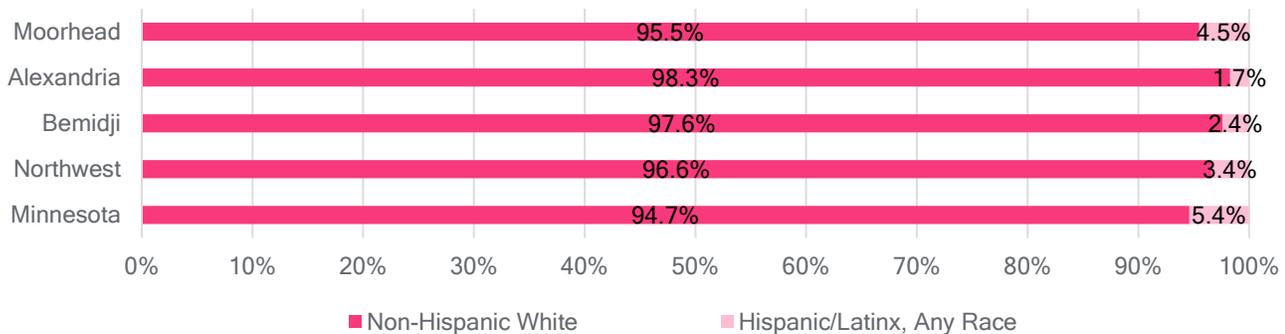
Population diversity increased between the two most recent population estimates statewide by half of a percentage point, but in the Northwest by only 0.2 percentage points, primarily in the Moorhead area. Across the region overall, 9.9% of the population identify as Black, Asian, American Indian, Native Hawaiian, or some other race. The demographic makeup of communities across the Northwest look quite different from one another; one in five people living in Bemidji identify as American Indian, compared to just 0.3% in Alexandria. Approximately 3.4% of Northwest Minnesota's residents are Hispanic or Latinx, double the share of the population that is Hispanic or Latinx in Northeast Minnesota. This was an increase of 0.1 percentage point from last year's estimates. Moorhead continues to have a particularly high concentration of Hispanic and Latinx residents at 4.5% of the population, though this was a slight decrease in the share of the population observed one year prior (4.8%).

### Population Race, All Ages



American Community Survey 2015-2019.

### Population Ethnicity, All Ages



American Community Survey 2015-2019.

## Community Demographics

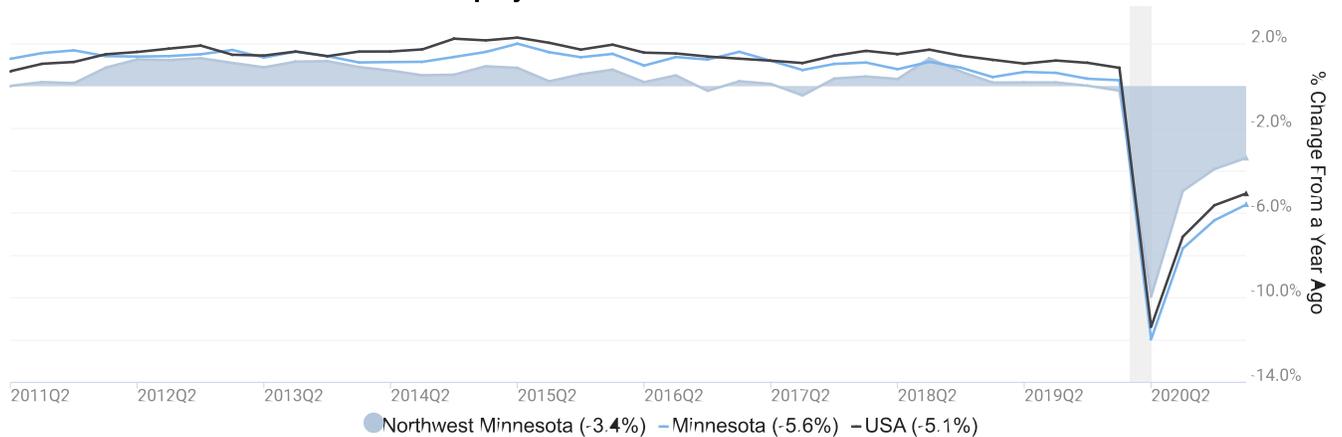
Demographics	Percent			Value		
	Northwest Minnesota	Minnesota	USA	Northwest Minnesota	Minnesota	USA
Population (ACS)	—	—	—	410,566	5,563,378	324,697,795
Male	50.2%	49.8%	49.2%	206,266	2,770,873	159,886,919
Female	49.8%	50.2%	50.8%	204,300	2,792,505	164,810,876
Median Age <sup>2</sup>	—	—	—	40.7	38.0	38.1
Under 18 Years	23.6%	23.3%	22.6%	96,864	1,295,848	73,429,392
18 to 24 Years	9.1%	9.0%	9.4%	37,292	500,630	30,646,327
25 to 34 Years	11.3%	13.6%	13.9%	46,245	756,337	45,030,415
35 to 44 Years	11.0%	12.5%	12.6%	45,305	697,077	40,978,831
45 to 54 Years	11.5%	12.7%	13.0%	47,378	708,668	42,072,620
55 to 64 Years	14.3%	13.4%	12.9%	58,692	746,120	41,756,414
65 to 74 Years	10.5%	8.8%	9.1%	43,149	490,739	29,542,266
75 Years, and Over	8.7%	6.6%	6.5%	35,641	367,959	21,241,530
Race: White	90.1%	82.8%	72.5%	370,009	4,609,049	235,377,662
Race: Black or African American	1.4%	6.4%	12.7%	5,887	356,515	41,234,642
Race: American Indian and Alaska Native	4.5%	1.0%	0.8%	18,478	58,011	2,750,143
Race: Asian	0.8%	4.8%	5.5%	3,238	268,181	17,924,209
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.2%	174	2,194	599,868
Race: Some Other Race	0.7%	1.9%	4.9%	2,719	104,032	16,047,369
Race: Two or More Races	2.5%	3.0%	3.3%	10,061	165,396	10,763,902
Hispanic or Latino (of any race)	3.4%	5.4%	18.0%	13,873	299,556	58,479,370

American Community Survey 2015-2019 unless noted otherwise.

## Employment

As of 2020Q1, total employment in Northwest Minnesota was 179,070 (based on a four-quarter moving average). By 2021Q1, employment was hit hard by the COVID-19 pandemic and dropped to 168,863 (based on a four-quarter moving average). Over the year ending 2021Q1, employment declined an average of 3.4% in the region.

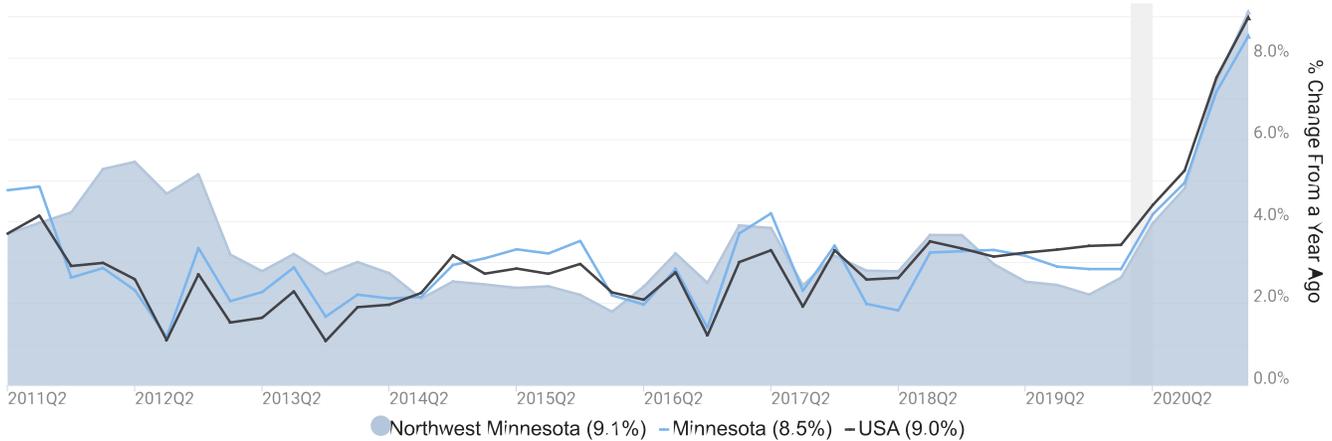
### Employment for Northwest Minnesota



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

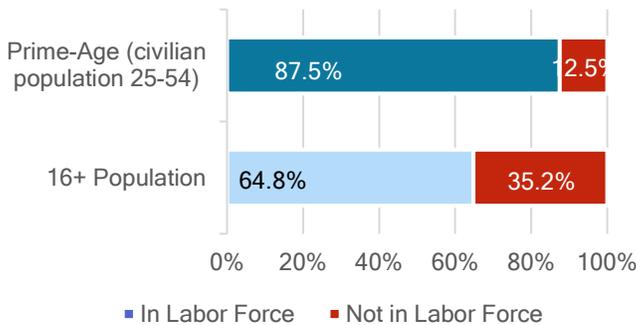
The average worker in Northwest Minnesota earned annual wages of \$45,655 as of 2021Q1, an increase of about \$4,000 from one year prior, 2020Q1. Average annual wages per worker increased 9.1% in the region over the preceding four quarters. Wages rose similarly nationwide, where annual average wages were \$63,393 as of 2021Q1 compared to \$57,624 as of 2020Q1. This is due in 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 Northwest 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 209,965 with a participation rate of 64.8%, which lags Minnesota’s labor force participation rate for the population over 16 by just nearly 5 percentage points. This is due primarily to the older age of residents in Northwest Minnesota. The participation rate of the prime working age population (between the ages of 25 and 64) also lags the statewide rate—87.5% compared to the statewide 88.4%.

The Northwest area has a higher share of veterans in the region, at 4.5% 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 also lower in the region, 77.8% compared to 80.4% statewide. Similarly, the Northwest has a higher share of persons with a disability, 10.3% compared to 8.7% statewide, and a lower labor force participation rate for the population with a disability, 50.2% compared to 53% statewide. The Northwest region overall has a higher share of disconnected youth (2.4% of youth) compared to statewide (1.8%), closer to what is observed nationally (2.5%). While just 0.3% of Moorhead youth are disconnected from school, training, or work, while in Bemidji about 5.4% are disconnected.

## Economic and Social Characteristics of Northwest Minnesota

Economic and Social Characteristics	Percent			Values		
	Northwest Minnesota	Minnesota	USA	Northwest Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	64.8%	69.6%	63.2%	209,965	3,069,730	163,555,585
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	87.5%	88.4%	82.1%	121,355	1,908,936	104,634,905
Armed Forces Labor Force	0.1%	0.1%	0.4%	171	2,514	1,073,907
Veterans, Age 18-64	4.5%	3.8%	4.6%	10,525	130,320	9,143,042
Veterans Labor Force Participation Rate and Size, Age 18-64	77.8%	80.4%	76.6%	8,189	104,731	7,003,778
Median Household Income <sup>2</sup>	–	–	–	\$58,344	\$71,306	\$62,843
Per Capita Income	–	–	–	\$30,254	\$37,625	\$34,103
Poverty Level (of all people)	11.7%	9.7%	13.4%	46,743	526,065	42,510,843
Households Receiving Food Stamps/SNAP	8.8%	7.9%	11.7%	14,684	172,477	14,171,567
Enrolled in Grade 12 (% of total population)	1.3%	1.4%	1.4%	5,410	80,319	4,422,344
Disconnected Youth <sup>3</sup>	2.4%	1.7%	2.5%	507	4,961	423,273
Children in Single Parent Families (% of all children)	29.7%	28.1%	34.1%	27,294	350,236	23,790,005
Uninsured	5.4%	4.5%	8.8%	21,922	246,184	28,248,613
With a Disability, Age 18-64	10.3%	8.7%	10.3%	24,076	293,656	20,187,604
With a Disability, Age 18-64, Labor Force Participation Rate and Size	50.2%	53.0%	42.2%	12,083	155,592	8,509,463
Foreign Born	2.5%	8.5%	13.6%	10,458	472,849	44,011,870

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



**93.8%** of prime working age adult residents have at least a high school diploma or GED.

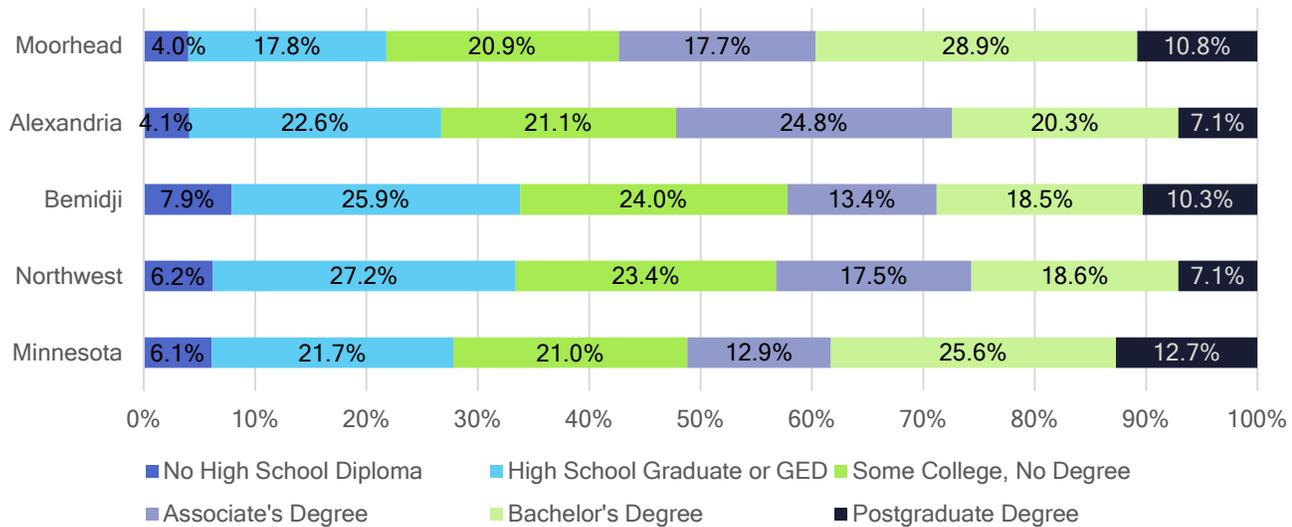
In Northwest Minnesota, 6.2% of adults between the ages of 25 and 64 do not have a high school diploma or equivalent, and 27.2% have a high school diploma as their highest level of education (compared with 21.7% statewide). Nationwide, 10.9% of U.S. residents between the ages of 25 and 64 never completed high school or obtained an equivalent credential. The prime working age population of Bemidji has a larger share of residents with a high school diploma or less, while Moorhead has the smallest share of residents with lower educational attainment.

## Educational Characteristics of Northwest Minnesota

Educational Characteristics	Percent			Values		
	Northwest Minnesota	Minnesota	USA	Northwest Minnesota	Minnesota	USA
No High School Diploma	6.2%	6.1%	10.9%	12,228	178,196	18,550,150
High School Graduate	27.2%	21.7%	25.7%	53,656	632,253	43,627,868
Some College, No Degree	23.4%	21.0%	20.7%	46,326	610,250	35,174,790
Associate's Degree	17.5%	12.9%	9.1%	34,658	374,770	15,526,064
Bachelor's Degree	18.6%	25.6%	21.2%	36,778	744,024	35,997,848
Postgraduate Degree	7.1%	12.7%	12.3%	13,974	368,709	20,961,560

American Community Survey 2015-2019 unless noted otherwise.

## Educational Attainment, Age 25-64



American Community Survey 2015-2019.

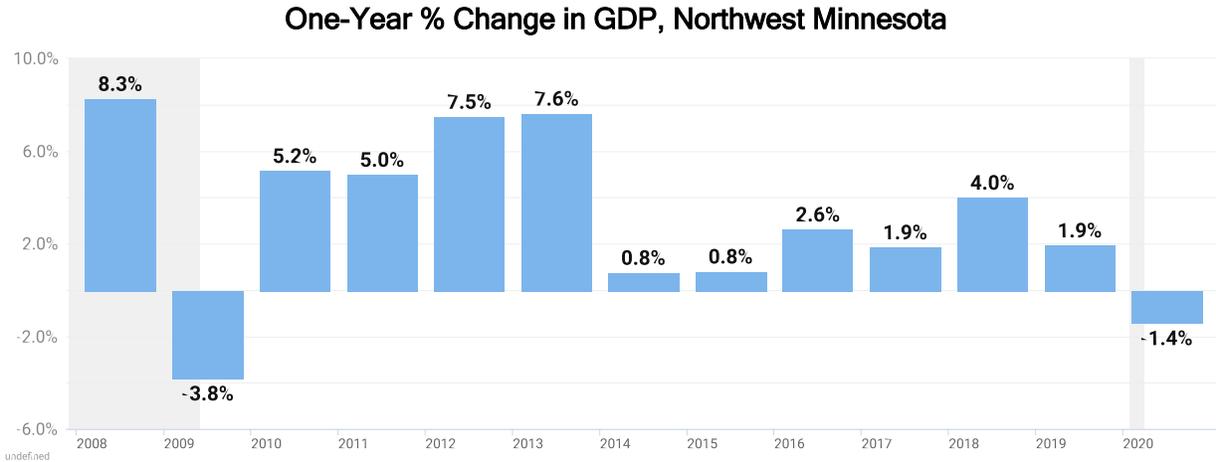
## Regional Colleges and Universities

Northwest Minnesota has eleven 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 Community and Technical College	1,207	0	6,222	\$10,235
Minnesota State University Moorhead	91	1,246	5,860	\$16,397
Bemidji State University	69	1,050	5,111	\$14,814
Northland Community and Technical College	927	0	3,500	\$10,406
University of Minnesota-Crookston	7	448	2,810	\$12,135
Alexandria Technical & Community College	783	0	2,614	\$13,735
Concordia College at Moorhead	0	540	2,129	\$23,109
Northwest Technical College	192	0	1,022	\$11,348
Red Lake Nation College	12	0	143	\$3,789
White Earth Tribal and Community College	14	0	106	\$10,829
Oak Hills Christian College	8	14	98	\$18,221
<b>Total</b>	<b>3,310</b>	<b>3,298</b>	<b>29,615</b>	<b>n/a</b>

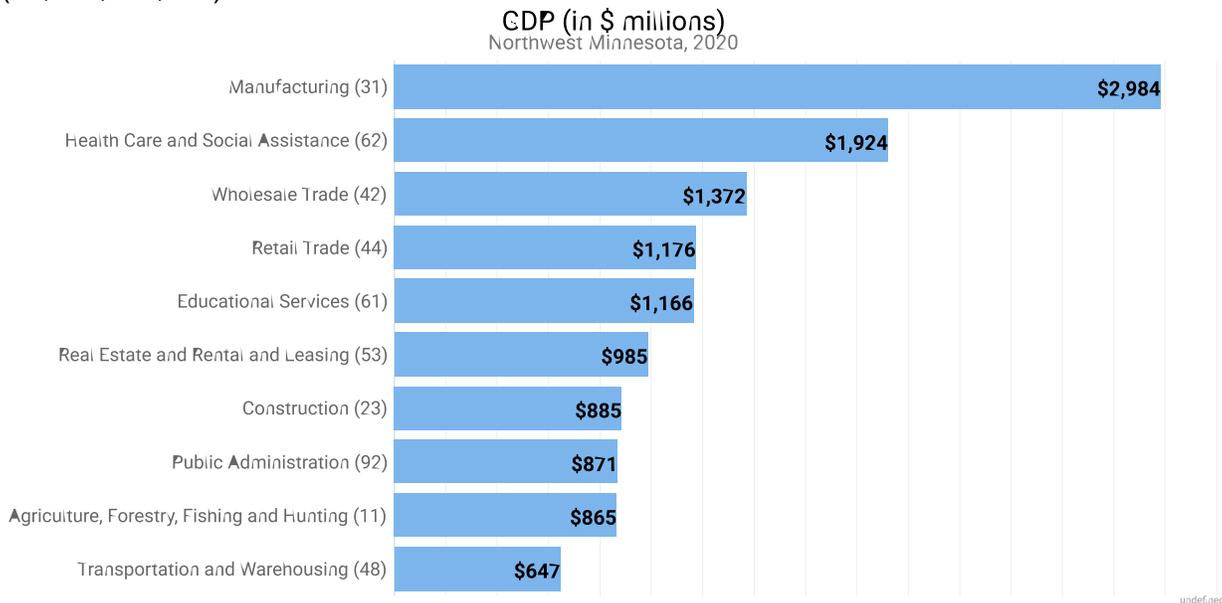
## Economic Indicators

Gross Domestic Product (GDP) is the total value of goods and services produced by a region. In 2020, nominal GDP in the Northwest region contracted -1.4%. This follows growth of 1.9% in 2019. As of 2020, total GDP in the region was \$15,828,042,000.



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 Northwest, Manufacturing contributed the largest portion of GDP in 2020, \$2,984,024,000. The next-largest contributions came from Health Care and Social Assistance (\$1,923,658,000).



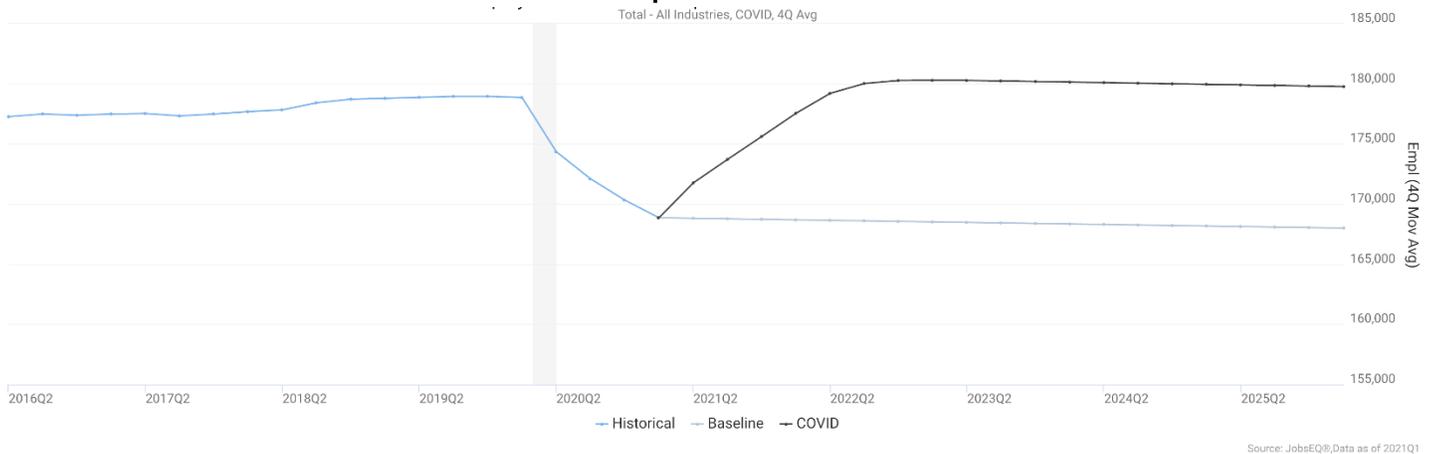
Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2020.

# The Workforce of Today and Tomorrow

## Workforce Forecast

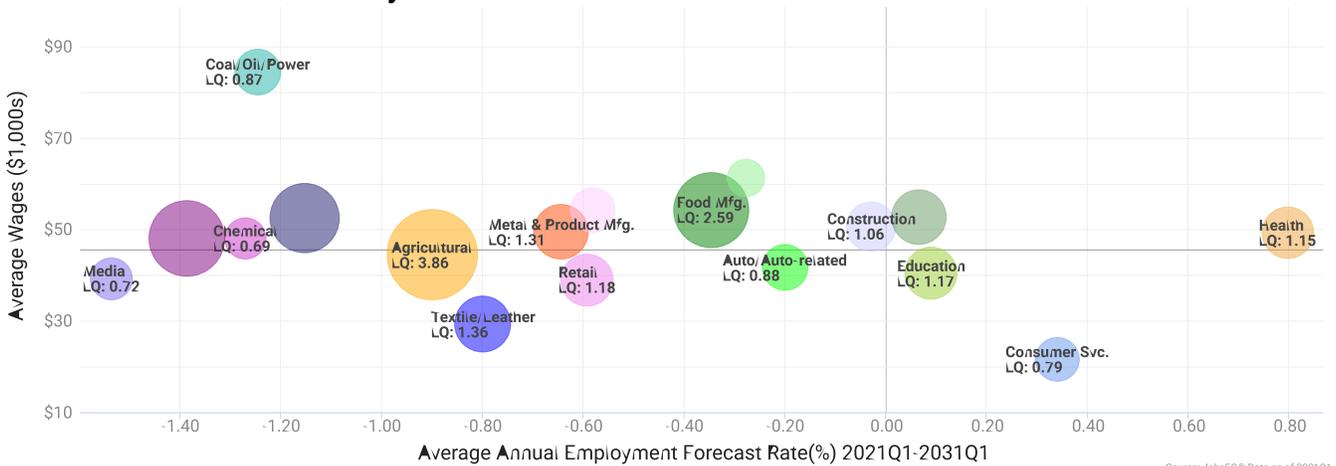
The pandemic has been anything but “sharp and short.” Instead, many businesses have sustained ongoing impacts which have translated into business closures and reduction in workforce. Additionally, some individuals have chosen to exit the workforce entirely to care for family members or support children who are attending school remotely. Employment dropped by -5.6% between 2020Q1 and 2021Q1, with an estimated 5.6% of the Northwest region’s workforce being unemployed by 2021Q1. Future growth in jobs in the region is forecasted to grow by about 1.3% 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 declining by an annual average of -0.1%

5-Year Forecast Comparison in Northwest Minnesota



An industry cluster is a geographic concentration of interrelated industries or occupations. The industry cluster in the Northwest region with the highest relative concentration is Agricultural with a location quotient of 3.86. This cluster employs 9,713 workers in the region with an average wage of \$44,465. Employment in the Agricultural cluster is projected to contract in the region about 0.9% per year over the next ten years.

Industry Clusters for Northwest Minnesota 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 Northwest just prior to the pandemic, but quickly shifted as businesses temporarily or permanently closed their doors. One year ago, we had estimated that about 3,819 (-8.3%) of the workers employed locally in high contact-intensity roles during 2020Q1 would lose their employment by 2021Q1. The outcome was slightly better; employment in these high contact-intensity roles dropped to 42,690 across the region, about 3,114 workers in losses. About 3,209 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 Waiters and Waitresses (-695 or -27.2%) and Bartenders (-332 or -26.1%). These occupations also have the highest estimated unemployment rates along with Passenger Vehicle Drivers (16.4% estimated unemployment). None of the top 15 high contact-intensity roles increased in employment counts between 2020Q1 and 2021Q1.

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

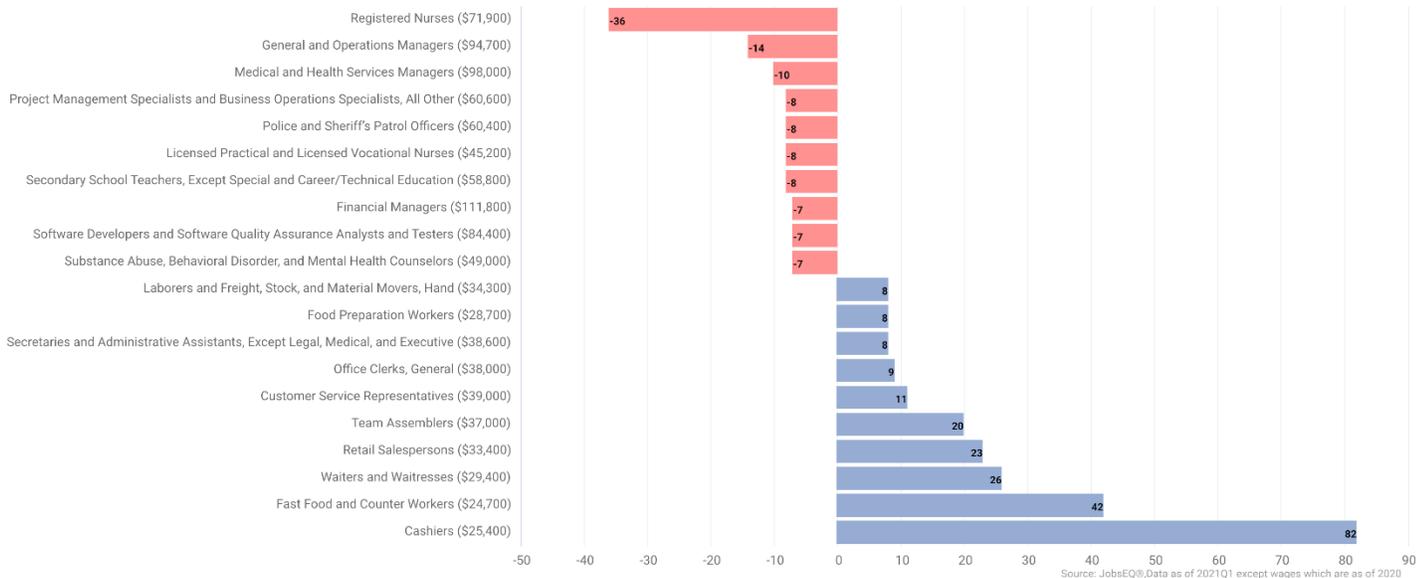
SOC	Occupation	2021Q1						1-Year History		Optimistic 5-Year Forecast				
		Empl	Mean Ann Wages <sup>2</sup>	LQ	Unempl	Unempl Rate	Online Job Ads <sup>3</sup>	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
29-1141	Registered Nurses	4,240	\$71,900	1.23	75	1.5%	392	-131	-3.0%	1,304	607	563	134	0.6%
35-3023	Fast Food and Counter Workers	3,701	\$24,700	0.97	450	9.4%	263	-418	-10.1%	4,971	1,874	2,207	890	4.4%
31-1122	Personal Care Aides	2,845	\$27,800	0.99	138	4.1%	190	-24	-0.9%	2,655	1,187	1,042	426	2.8%
31-1131	Nursing Assistants	2,811	\$32,600	1.78	122	3.7%	316	34	1.2%	1,828	794	853	182	1.3%
53-3032	Heavy and Tractor-Trailer Truck Drivers	2,686	\$46,200	1.21	165	4.8%	206	-80	-2.9%	1,572	555	988	29	0.2%
25-2021	Elementary School Teachers, Except Special Education	1,892	\$56,600	1.30	69	3.5%	5	-167	-8.1%	876	311	431	134	1.4%
35-3031	Waiters and Waitresses	1,861	\$29,400	0.92	402	15.7%	19	-695	-27.2%	2,815	812	1,447	557	5.4%
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	1,445	\$58,800	1.35	35	2.4%	18	-124	-7.9%	639	215	322	103	1.4%
39-9011	Childcare Workers	1,283	\$26,000	1.35	153	9.5%	31	-120	-8.5%	1,329	548	556	225	3.3%
29-2061	Licensed Practical and Licensed Vocational Nurses	1,162	\$45,200	1.52	30	2.3%	211	3	0.3%	540	207	256	77	1.3%
53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	1,076	\$43,000	1.32	227	16.4%	52	-65	-5.7%	1,025	457	327	241	4.1%
53-3033	Light Truck Drivers	1,000	\$39,700	0.84	55	4.4%	68	-27	-2.6%	633	213	378	42	0.8%
31-1121	Home Health Aides	978	\$27,800	0.97	42	3.7%	33	-131	-11.8%	764	298	320	146	2.8%
35-3011	Bartenders	942	\$27,300	1.90	284	21.1%	13	-332	-26.1%	1,633	315	863	455	8.2%
	<b>High Contact-Intensity Occupations</b>	<b>42,690</b>	<b>\$48,000</b>	<b>1.11</b>	<b>3,209</b>	<b>6.2%</b>	<b>3,114</b>	<b>-3,273</b>	<b>-7.1%</b>	<b>32,050</b>	<b>11,601</b>	<b>15,244</b>	<b>5,204</b>	<b>2.3%</b>
	<b>Total - All Occupations</b>	<b>168,863</b>	<b>\$49,500</b>	<b>1.00</b>	<b>11,263</b>	<b>5.6%</b>	<b>8,441</b>	<b>-9,997</b>	<b>-5.6%</b>	<b>113,183</b>	<b>39,880</b>	<b>62,447</b>	<b>10,855</b>	<b>1.3%</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 Northwest 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, Public Safety Officers, various types of Financial, General, Operations and Construction Managers, Teachers, Mental Health Counselors, and a range of talent in construction and carpentry. By the first quarter of 2021, forecasted talent gaps for each of these occupations remained, but with some changes to the volume of anticipated gaps. Among high contact-intensity roles in shortage, Registered Nurses remained ranked as the occupation with highest forecasted shortages, but General and Operations Managers jumped up to second place and Farming shortages dropped out of the top ten. 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 \$49,000 per year on average. Most occupations of shortage require an Associate's degree or higher.

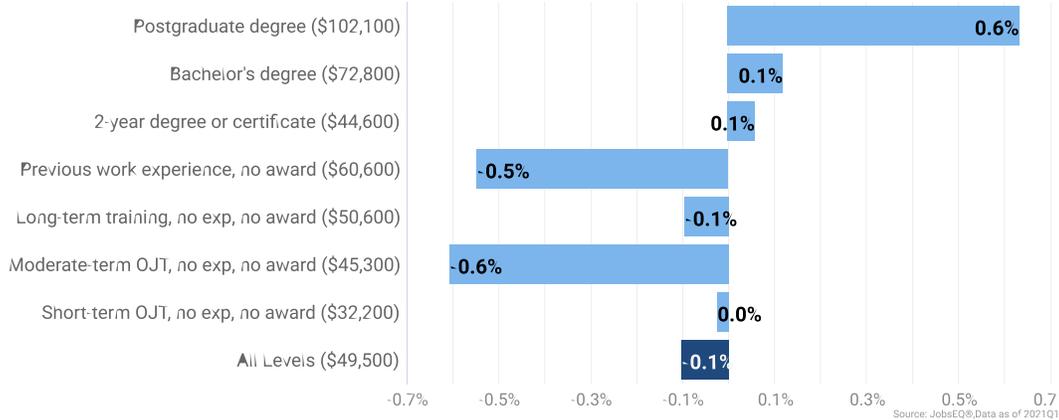
Conversely, none of the ten positions forecast to have the highest surplus of talent in the Northwest as of the first quarter of 2020 or 2021 typically require an advanced degree, and none of them pay over \$40,000 on average. Seven out of ten of these positions typically cannot be done remotely, and the three 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 Northwest Minnesota is projected to contract 0.1% over the next ten years under baseline estimates, occupations typically requiring a postgraduate degree are expected to grow 0.6% per year, those requiring a bachelor's degree are forecast to grow 0.1% per year, and occupations typically needing a 2-year degree or certificate are expected to grow 0.1% per year. Estimated wages have increased across careers at each education level requirement.

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

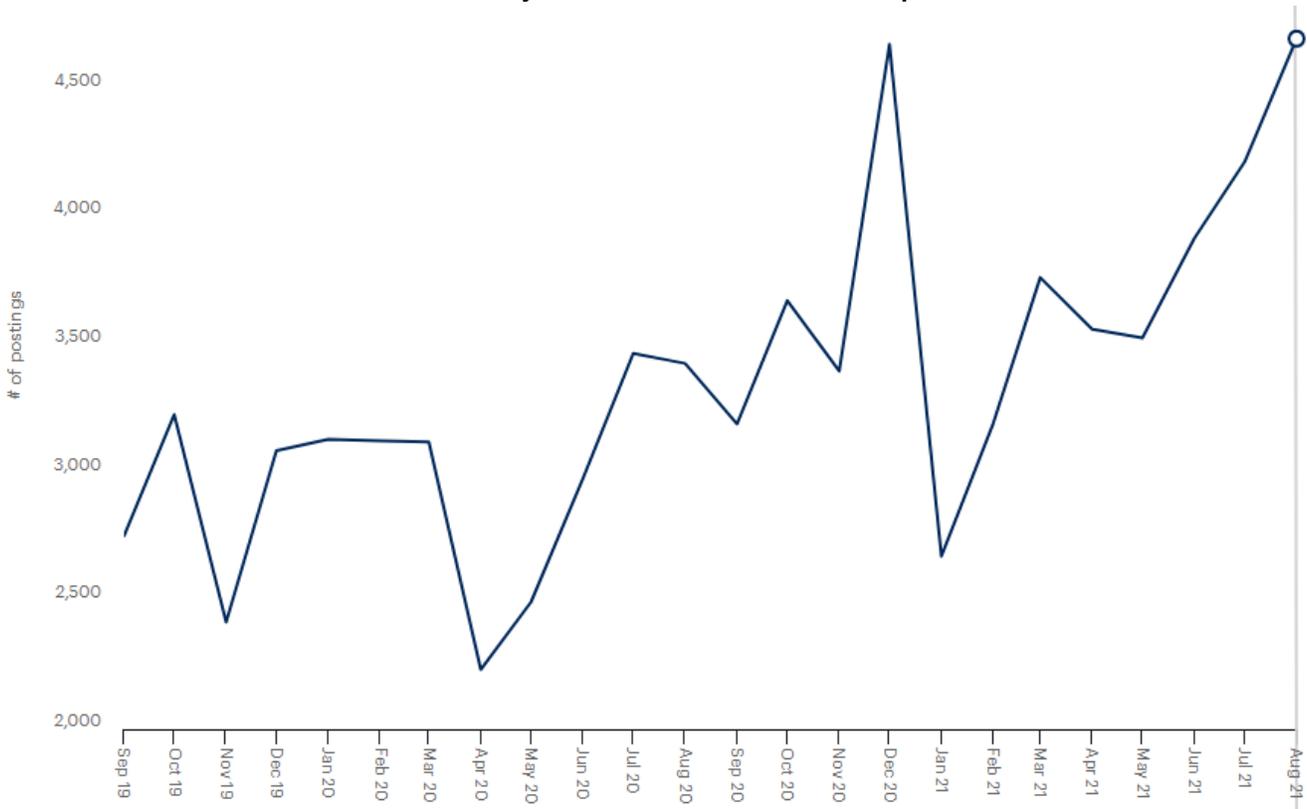


Employment by occupation data are estimates as of 2021Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

## 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 Northwest Minnesota, September 2019 - 2021



During the first six months of the COVID-19 pandemic,<sup>3</sup> there were 29,608 new jobs advertised in the region—an increase of 17% from the same six months in 2019. The top three positions advertised by volume were for Heavy Truck Drivers, Registered Nurses, and Personal Care Aides. Several positions had new postings triple between 2020 and 2019, such as Sales Agents of Financial Services, Insurance Sales Agents, and Bus and Truck Mechanics and Diesel Engine Specialists. This reflects the sudden and growing local demand for Finance Cluster and Transportation, Distribution, and Logistics Cluster talent, particularly those with at least a 2-year degree in a related area of study.

Over the past 12 months, several of these occupations have continued to see growth in postings, including Delivery Drivers, Registered Nurses, and Laborers. Overall, healthcare and shipping/logistics roles have continued to spike in volume considerably, showing much higher demand since March 2021 compared to early months of the pandemic. Telemarketer job posting volumes are about 6 times higher in volume than during the same period last year.

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

1. Nursing Assistants (+47%)
2. Light Truck or Delivery Services Drivers (+200%)
3. Social and Human Service Assistants (+24%)
4. Personal Care Aides (+24%)
5. Licensed Practical and Licensed Vocational Nurses (+47%)
6. Insurance Sales Agents (+45%)
7. Drivers/Sales Workers (+113%)
8. Cashiers (+61%)
9. Supervisors of Production and Operating Workers (+30%)
10. Merchandise Displayers and Window Trimmers (+49%)

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

1. Registered Nurses (+85%)
2. Heavy Tractor-Trailer and Truck Drivers (+67%)
3. Customer Service Representatives (+41%)
4. Laborers and Freight, Stock, and Material Movers (+196%)
5. Stock Clerks and Order Fillers (+44%)

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

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

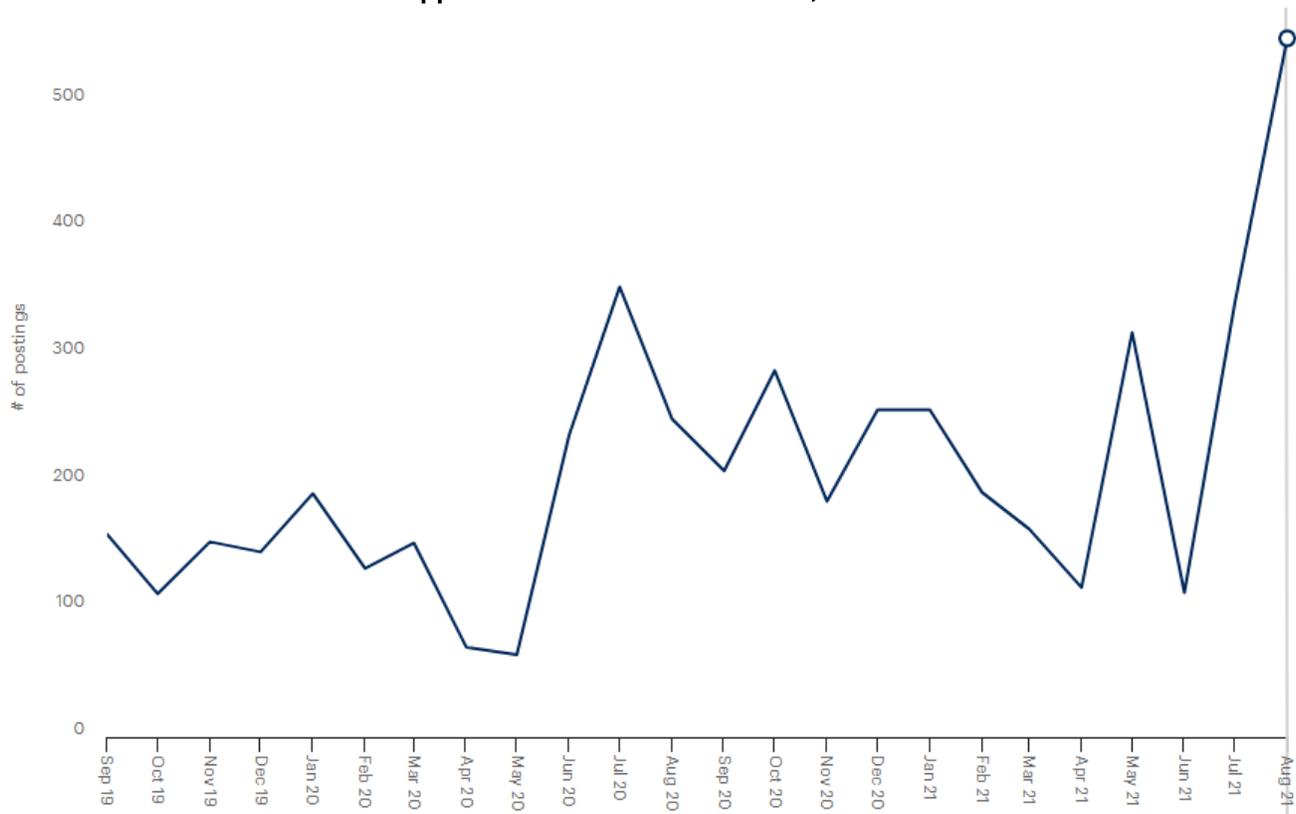
Human skills and other competencies like scheduling, managing a flexible work environment, and handling general healthcare needs were mentioned in job postings as required competencies for candidates in higher volumes from March through August in comparison to early 2020 or any point in 2019, but declined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

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

1. Life Support (+139%)
2. Cardiac Life Support (+428%)
3. Intervening (+218%)
4. Delegation (+201%)
5. Typing (+81%)

Telecommuting and work-from-home continues to appear in job posting requirements locally, increasing 25% in the past 12 months (September 2020-2021) compared to the prior year (September 2019-2020).

#### Trends in Remote Work Opportunities Advertised Online, Northwest Minnesota 2021Q1



Remote work opportunities increased significantly among Business, Management, and Administration, Health Science, and Information Technology roles over the past 12 months compared to the 12 months prior. The volume of remote Office and Administrative Support Workers increased by 367% and for Human Resources Specialists by 323%.

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

1. Customer Service Representatives (+1,138%)
2. Insurance Sales Agents (+969%)
3. Accountants and Auditors (+971%)
4. Human Resources Specialists (+323%)
5. Construction Laborers (+240%)

Currently, the occupations with highest estimated unemployment rates in Northwest Minnesota are Choreographers (32.7%), Dancers (+31.5%), Gambling and Sports Book Writers and Runners (27.3%), and Gambling Service Workers (25.8%). Gambling Dealers (25.2% unemployment) 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 the Human Services field. Likely transitions for local entry-level Gambling Dealers include Orderlies, and Coatroom Attendants. Other aligned positions that could support movement into entirely different high-shortage career paths with some additional training or education include Pharmacy Technicians, Barbers, Skincare Specialists, and Manicurists or Pedicurists.

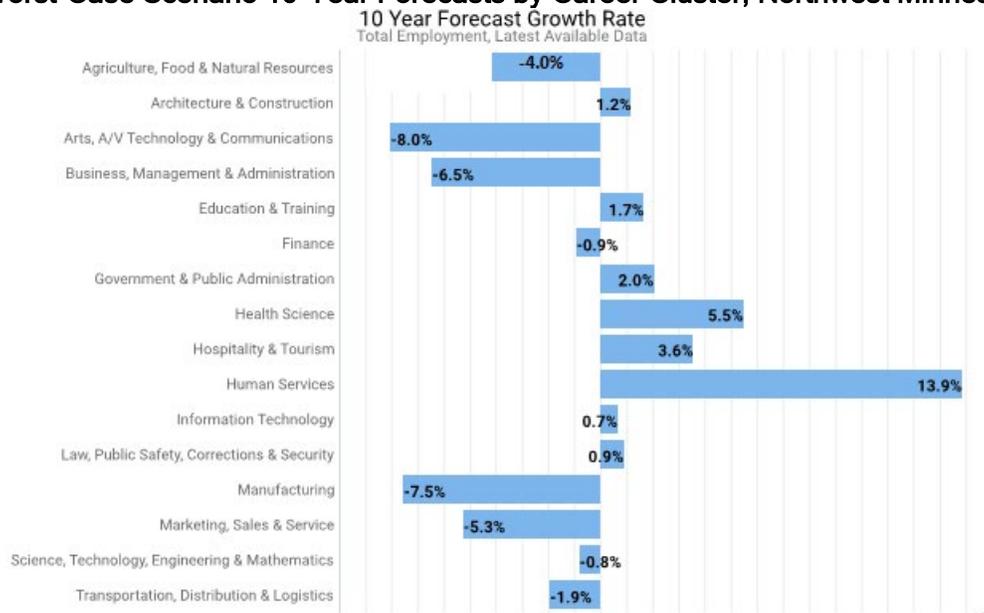
## Career Field Insights

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), eight are forecast in a worst-case scenario model to grow in overall employment over the next ten years. The clusters forecasting highest growth are Human Services (13.9%) and Health Science (5.5%) in a worst-case scenario. Five of these growing career clusters have average wages above the average occupation wage in the region (\$49,500 in 2020).<sup>4</sup>

Comparing current baseline forecasts to the same forecasts modeled one year ago, all but Manufacturing are forecasting lower baseline employment growth over ten years than what was estimated last year.

### Baseline Worst-Case Scenario 10-Year Forecasts by Career Cluster, Northwest 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 Northwest, Hospitality & Tourism, Business, Management, and Administration, and Marketing, Sales, and Service clusters are expected to have the highest annual job demand by volume of opportunities—due to retirements and job changes.

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	1,756	\$83,600	111	-0.8%	-2	129
Information Technology	2,244	\$71,800	185	0.7%	1	167
Finance	4,017	\$68,200	210	-0.9%	-4	368
Health Science	17,269	\$64,600	1,801	5.5%	91	1,448
Agriculture, Food & Natural Resources	9,326	\$62,900	118	-4.0%	-86	995
Government & Public Administration	1,701	\$55,700	43	2.0% (+)	3	156
Business, Management & Administration	23,885	\$54,700	894	-6.5%	-161	2,369
Law, Public Safety, Corrections & Security	4,595	\$54,700	154	0.9% (+)	4	415
Education & Training	12,258	\$53,900	289	1.7%	19	1,124
Architecture & Construction	12,492	\$50,900	238	1.2%	14	1,363
Arts, A/V Technology & Communications	2,180	\$48,900	44	-8.0%	-18	213
Marketing, Sales & Service	18,172	\$43,400	1,270	-5.3%	-99	2,360
Manufacturing	17,765	\$43,300	624	-7.5%	-143	1,789
Transportation, Distribution & Logistics	12,984	\$42,400	585	-1.9%	-27	1,499
Human Services	9,895	\$38,400	743	13.9% (+)	128	1,417
Hospitality & Tourism	18,322	\$29,400	1,189	3.6%	63	3,068
<b>Total - All Occupations</b>	<b>168,863</b>	<b>\$49,500</b>	<b>8,498</b>	<b>-1.0%</b>	<b>-191</b>	<b>18,906</b>

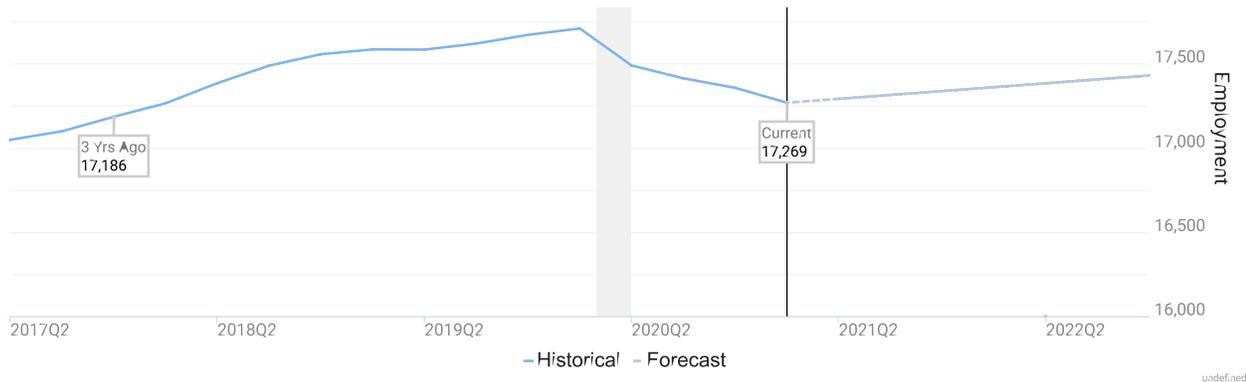
\*Cluster forecasts estimated using Chmura, JobsEQ, based on 2021Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. (+) indicates an improved forecast from 2020Q1 estimates.

## 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 0.5% 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 1.7% annually in this field could be possible.

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



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

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-	Annual	Baseline
				Year Empl Change	Demand	Forecast Ann Growth
Registered Nurses	4,240	\$71,900	1.23	180	237	0.2%
Nursing Assistants	2,811	\$32,600	1.78	15	314	0.0%
Licensed Practical and Licensed Vocational Nurses	1,162	\$45,200	1.52	-34	90	0.1%
Home Health Aides	978	\$27,800	0.97	-257	143	2.5%
Medical Secretaries and Administrative Assistants	613	\$39,000	0.89	-3	72	0.5%
Medical Assistants	508	\$40,600	0.62	-14	65	1.4%
Pharmacy Technicians	478	\$35,100	1.01	12	38	0.0%
Medical and Health Services Managers	466	\$98,000	0.99	20	51	2.3%
Pharmacists	387	\$116,000	1.04	8	14	-0.8%
Dental Assistants	371	\$44,800	0.99	36	44	0.4%
Remaining Component Occupations	5,260	\$89,700	0.93	42	372	0.6%
<b>Health Science (CTE Cluster)</b>	<b>17,269</b>	<b>\$64,600</b>	<b>1.09</b>	<b>4</b>	<b>1,448</b>	<b>0.5%</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).

About one-third of talent in Northwest Minnesota that is working in Health Science Technology roles are employed by General Medical and Surgical Hospitals (35.9%) or Nursing Care Facilities (20.7%).

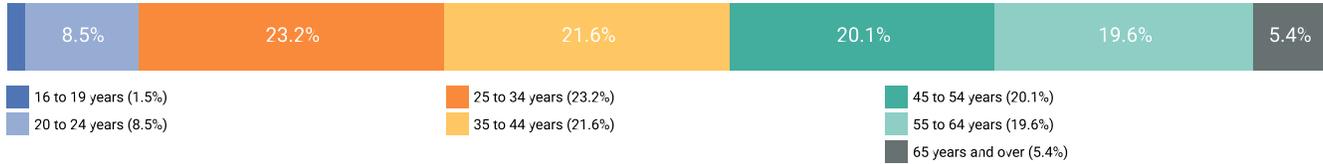
### Health Science Technology Field Employment by Industry, 2021Q1, Northwest Minnesota

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	35.9%	6,204	4,136	108	4,245
Nursing Care Facilities (Skilled Nursing Facilities)	20.7%	3,566	3,194	-133	3,061
Offices of Physicians	8.1%	1,395	1,019	158	1,176
Offices of Dentists	5.0%	866	748	37	785
Individual and Family Services	3.0%	525	642	224	867
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	3.0%	519	562	134	696
Offices of Other Health Practitioners	2.9%	499	367	67	434
Health and Personal Care Stores	2.7%	465	308	-41	267
Home Health Care Services	2.7%	465	446	125	570
Psychiatric and Substance Abuse Hospitals	2.2%	386	302	9	310
Outpatient Care Centers	2.0%	350	280	104	384
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	2.0%	345	360	55	416
Elementary and Secondary Schools	1.5%	259	159	10	168
Other Professional, Scientific, and Technical Services	1.5%	256	240	36	276
Executive, Legislative, and Other General Government Support	1.1%	188	145	9	153
Colleges, Universities, and Professional Schools	0.8%	132	94	7	101
Other Ambulatory Health Care Services	0.6%	106	93	30	123
Grocery Stores	0.5%	86	61	3	63
All Others	3.8%	657	500	6	506
General Medical and Surgical Hospitals	35.9%	6,204	4,136	108	4,245
Nursing Care Facilities (Skilled Nursing Facilities)	20.7%	3,566	3,194	-133	3,061

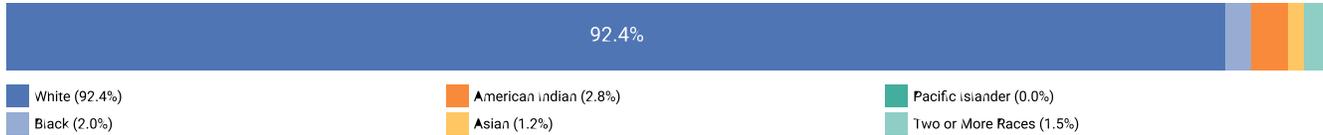
### Career Field Demographics

The Health Science Technology field is heavily female (80.7%) and white (92.4%). The age distribution of talent in Health Science Technology is relatively even from age 25 through 64, but with the largest proportion of talent between the ages of 25 and 34 years (23.2% of talent).

#### Age



#### Race



#### Ethnicity



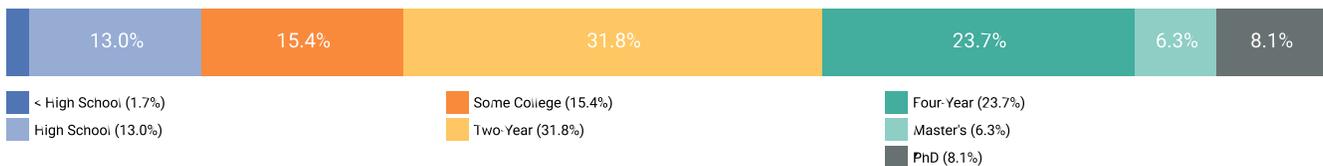
#### Gender



### Educational Attainment and Requirements

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate. In general, the Northwest Minnesota Health Science Technology workforce has a close match to the education and training required for existing roles. For example, just 15.3% of Health Science Technology positions require no educational award, and about 14.7% of the workforce holds only a high school diploma or less. About 31.8% of the Health Science Technology workforce hold a two-year degree and 15.4% completed some college (such as a certificate), or 47.2% in all, compared to about 39.7% 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
Licensed Practical and Licensed Vocational Nurses	Postsecondary non-degree award	None	None
Home Health Aides	High school diploma or equivalent	None	Short-term on-the-job training
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
Pharmacy Technicians	High school diploma or equivalent	None	Moderate-term on-the-job training
Medical and Health Services Managers	Bachelor's degree	Less than 5 years	None
Pharmacists	Doctoral or professional degree	None	None
Dental Assistants	Postsecondary non-degree award	None	None

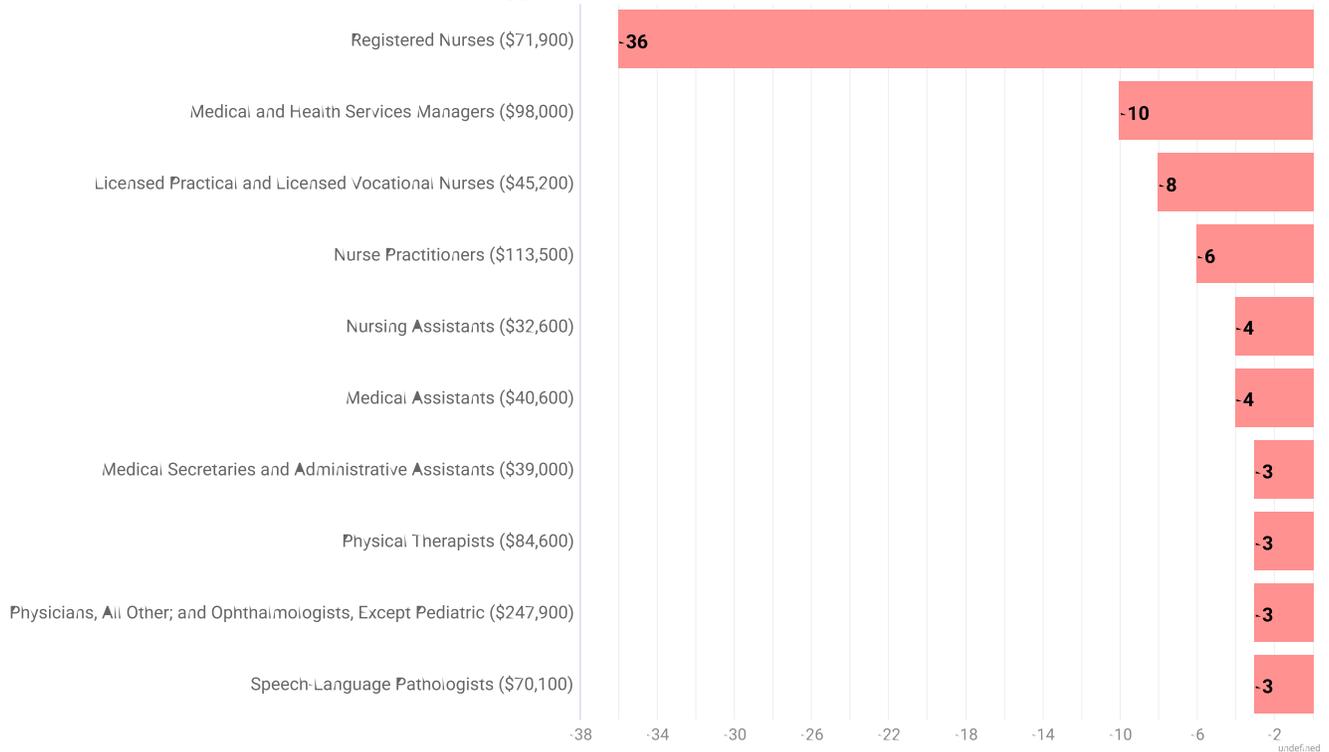
### Occupation Gaps

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 Northwest 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.

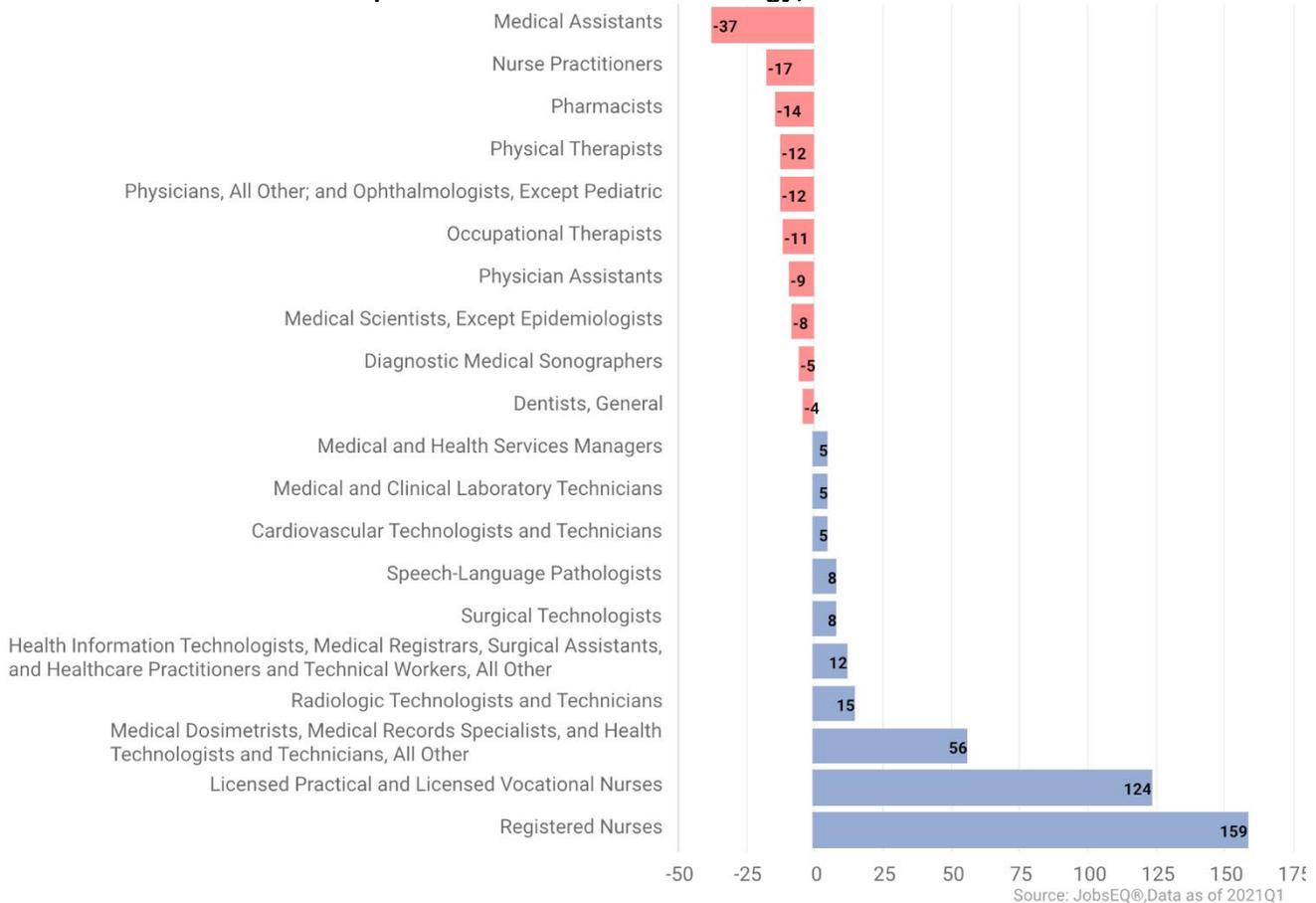
## Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, Northwest Minnesota 2021Q1



### 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 Northwest has several Health Science Technology award gaps, meaning that the region is underproducing local talent in relation to employer demand. For instance, Northwest colleges and universities are underproducing about 37 graduates annually that are needed to fill Medical Assistant positions open with employers in the region. Several important occupations that require advanced education, including doctorates also have local award gaps, such as Nurse Practitioners, Pharmacists, and Physical Therapists. 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 Northwest is likely helping to meet award gaps found in the 7-county MSP Metro and elsewhere.

## Award Gaps in Health Science Technology, Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
Licensed Practical Nurse (LPN)	86	97	-10
Trauma Nursing Core Course (TNCC)	6	12	-6
Registered Dental Assistant (RDA)	1	6	-6
Certified Dental Assistant (CDA)	3	8	-5
Medical Laboratory Technician (MLT)	3	6	-3
Pediatric Advanced Life Support (PALS)	16	19	-3
Health & Safety Certification	0	2	-2
Medical Technologist (Medical Technologists)	3	5	-2
Emergency Nursing Pediatric Course (ENPC)	4	6	-2
Registered Respiratory Therapist (RRT)	2	4	-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 Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
Medical Terminology	45	69	-24
Physiology	7	22	-15
Anatomy	11	23	-13
Medication Administration	54	61	-7
IV Therapy	3	9	-6
Radiology	7	12	-6
Patient Care	37	43	-5
Hearing Aids	1	6	-5
Inventory Control	4	8	-4
Food Service	1	5	-4

### 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, Northwest Minnesota 2021Q1

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

Medical and Health Services Managers (OG)  
 Speech-Language Pathologists (OG)  
 Nurse Practitioners (OG, AG)  
 Respiratory Therapists (OG, AG)  
 Physician Assistants (OG, AG)

##### Gateway Occupations

Licensed Practical Nurses (HS, OG)  
 Medical Assistants (HS, HD, OG, AG)  
 Medical Secretaries and Administrative Assistants (HD, OG)  
 Dental Assistants (HS, HD, OG)  
 Medical Dosimetrists (HS, OG)

##### Origin Occupations

##### Likely

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

##### Aligned

Personal Care Aides  
 Childcare Workers  
 Secretaries  
 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 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	Customer Service Representatives
Home Health Aides	Childcare Workers
Psychiatric Technicians	Secretaries or Executive Assistants
Pharmacy Aides / Pharmacy Technicians	Cashiers
Psychiatric Aides	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 (\$49,500 in the Northwest). 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
Medical Assistants	Social and Human Services Assistants
Medical Secretaries and Administrative Assistants	Supervisors of Office and Administrative Support Workers
Dental Assistants	Eligibility Interviewers
Medical Dosimetrists	Residential Advisors

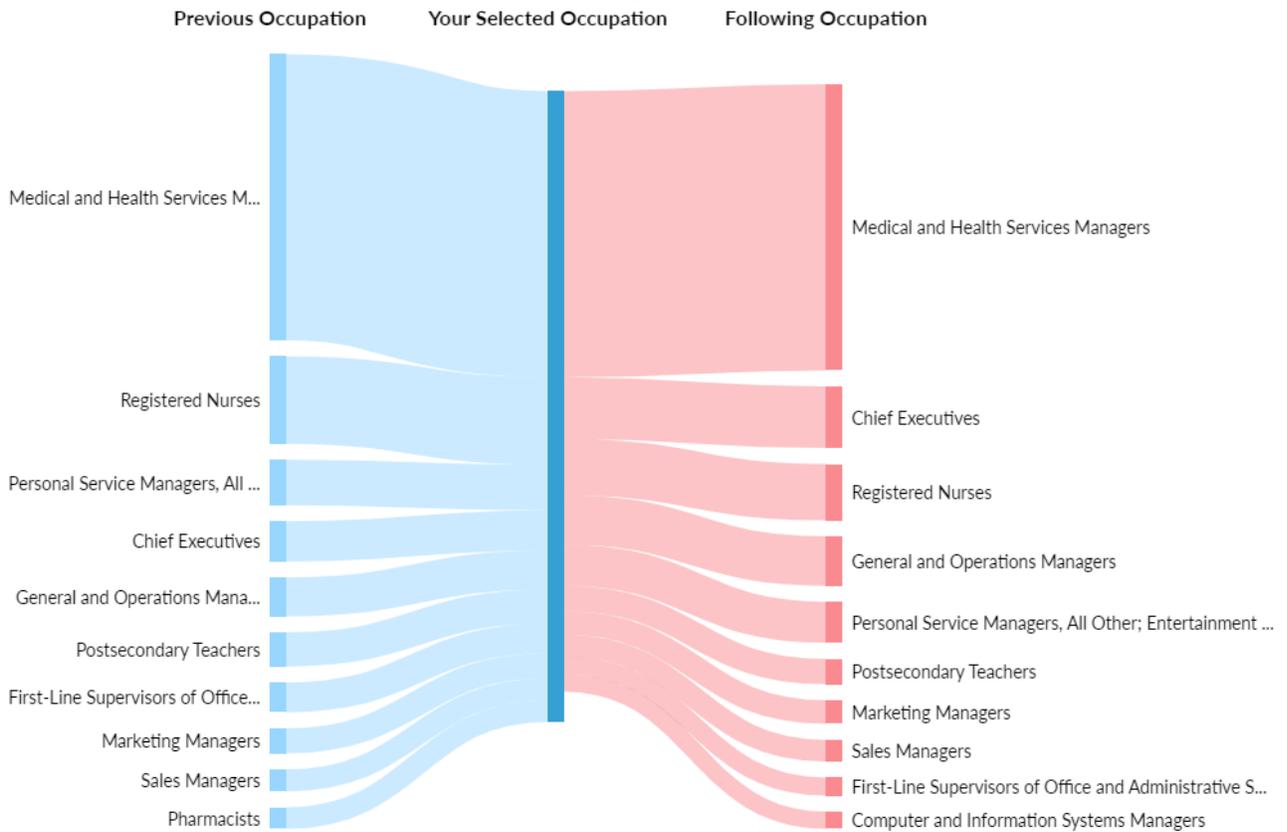
**Target Occupations** refer to high-wage occupations that pay at or above the region's average wage (\$49,500 in the Northwest). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively.

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

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
11-9111	Medical and Health Services Managers	466	\$98,000	HW	HS	HD	OG	
29-1127	Speech-Language Pathologists	186	\$70,100	HW	HS	HD	OG	
29-1171	Nurse Practitioners	183	\$113,500	HW	HS	HD	OG	AG
29-1126	Respiratory Therapists	155	\$64,000	HW	HS	HD	OG	AG
29-1071	Physician Assistants	107	\$122,200	HW	HS	HD	OG	AG
31-2021	Physical Therapist Assistants	94	\$55,700	HW	HS	HD	OG	
29-1011	Chiropractors	82	\$78,300	HW	HS	HD	OG	AG
31-2011	Occupational Therapy Assistants	49	\$52,100	HW	HS	HD		
29-1129	Therapists, All Other	30	\$53,400	HW	HS	HD		AG
29-1023	Orthodontists	7	\$240,200	HW	HS	HD	OG	

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, Northwest Minnesota 2021

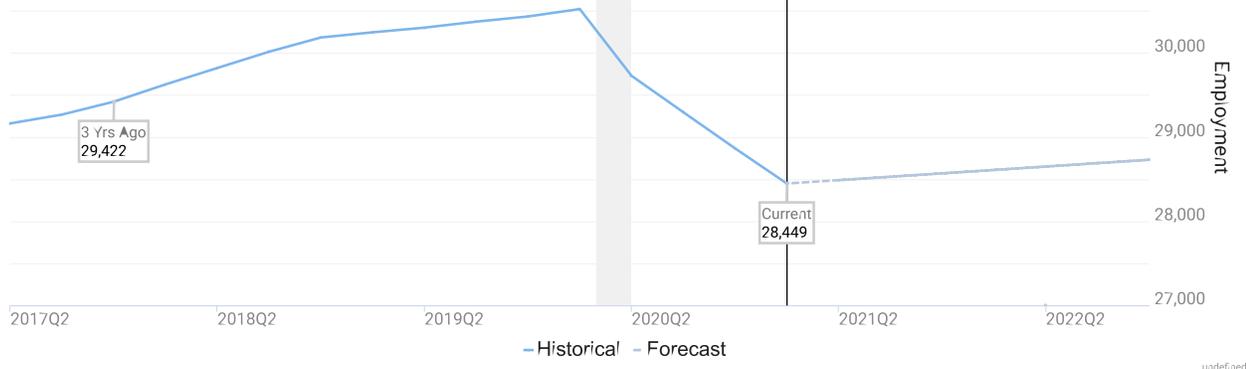


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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 0.5% 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 1.7% annually in this field could be possible.

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



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

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Personal Care Aides	2,845	\$27,800	0.99	289	501	2.5%
Teaching Assistants, Except Postsecondary	2,429	\$31,900	1.76	-142	257	0.1%
Elementary School Teachers, Except Special Education	1,892	\$56,600	1.30	-109	140	0.0%
Secondary School Teachers, Except Special and Career/Technical Education	1,445	\$58,800	1.35	-80	101	0.0%
Childcare Workers	1,283	\$26,000	1.35	-85	192	0.0%
Police and Sheriff's Patrol Officers	959	\$60,400	1.34	-14	71	0.3%
Middle School Teachers, Except Special and Career/Technical Education	762	\$65,600	1.21	-44	56	0.0%
Social and Human Service Assistants	642	\$38,300	1.39	-37	91	1.6%
Court, Municipal, and License Clerks	636	\$46,600	3.64	-8	61	0.3%
Firefighters	551	\$38,600	1.65	-11	40	0.4%
Remaining Component Occupations	15,012	\$54,800	0.96	-932	1,587	0.4%
<b>Human Services (CTE Field)</b>	<b>28,449</b>	<b>\$48,800</b>	<b>1.06</b>	<b>-1,178</b>	<b>3,106</b>	<b>0.5%</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 Northwest that is working in Human Services roles are employed by Elementary and Secondary Schools (32%) or Executive, Legislative, and Other General Government Support (13.4%)

However, Individual and Family Services is forecasted to grow at a higher rate and have more replacement demand needs.

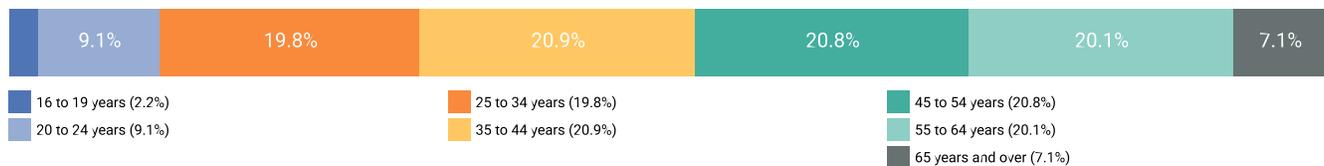
### Human Services Field Employment by Industry, 2021Q1, Northwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Elementary and Secondary Schools	32.0%	9,103	8,051	-8	8,043
Executive, Legislative, and Other General Government Support	13.4%	3,816	3,362	111	3,473
Individual and Family Services	7.3%	2,081	3,066	862	3,928
Religious Organizations	4.8%	1,370	1,588	55	1,643
Colleges, Universities, and Professional Schools	3.9%	1,119	1,030	86	1,116
Child Day Care Services	3.7%	1,060	1,400	-25	1,375
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.1%	890	1,201	137	1,339
Junior Colleges	2.4%	678	619	43	662
Justice, Public Order, and Safety Activities	2.2%	619	540	-1	539
Personal Care Services	1.9%	546	669	20	689
Home Health Care Services	1.6%	464	713	139	852
General Medical and Surgical Hospitals	1.6%	455	457	2	459
Legal Services	1.5%	426	313	-11	302
Nursing Care Facilities (Skilled Nursing Facilities)	1.4%	412	515	1	516
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.2%	344	528	103	631
Other Residential Care Facilities	1.2%	333	402	-10	392
Civic and Social Organizations	1.2%	332	492	5	497
Administration of Environmental Quality Programs	1.1%	310	270	-4	266
Administration of Human Resource Programs	1.0%	288	253	1	254
Offices of Other Health Practitioners	0.9%	260	283	54	337
All Others	12.5%	3,543	4,035	91	4,126

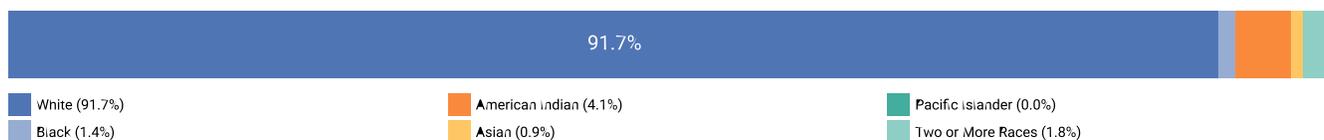
### Career Field Demographics

The Human Services field is predominantly female (66.7%) and white (91.7%). The age of the workforce is evenly distributed between 25 and 64 years of age.

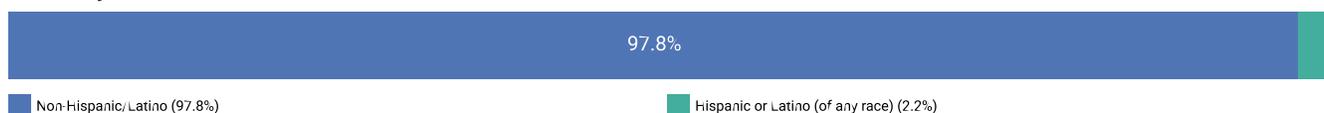
#### Age



#### Race



#### Ethnicity



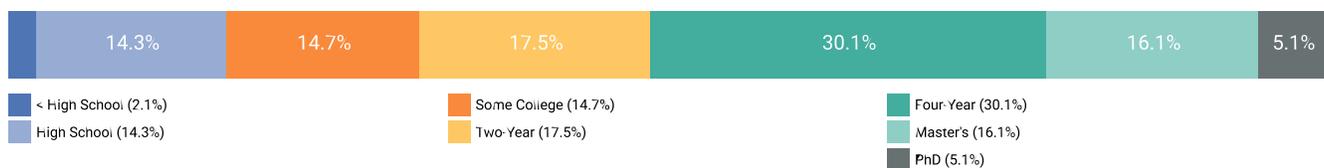
## Gender



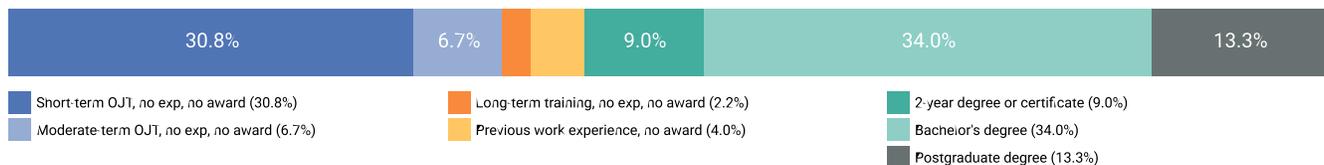
## Educational Attainment and Requirements

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate. In general, the Northwest Human Services workforce is overskilled for the typical credentials of entry-level positions. For example, 2.1% of the Human Services workforce has no diploma at all, and 14.3% hold a high school diploma as their highest credential. In contrast, about 43.7% 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



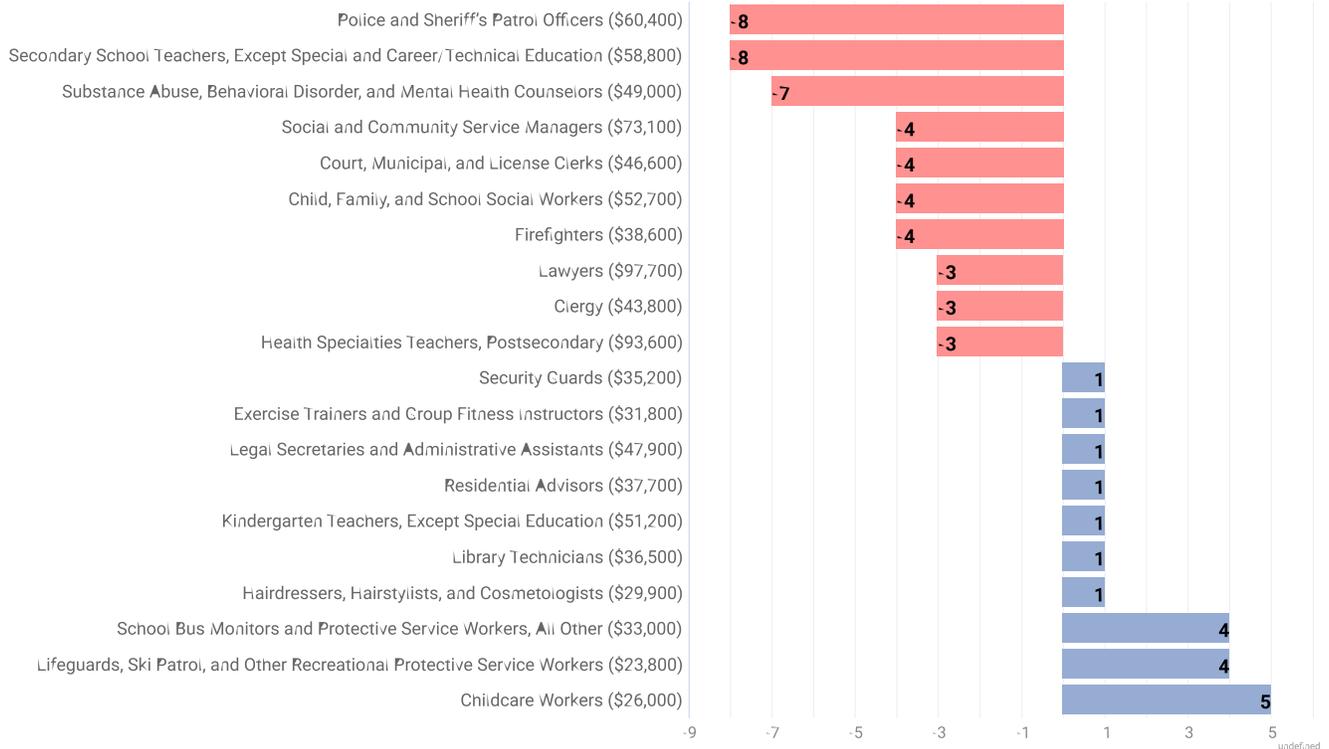
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

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
Middle School Teachers, Except Special and Career/Technical Education	Bachelor's degree	None	None
Social and Human Service Assistants	High school diploma or equivalent	None	Short-term on-the-job training
Court, Municipal, and License Clerks	High school diploma or equivalent	None	Long-term on-the-job training
Firefighters	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. In Human Services, Police Officers and Secondary School Teachers 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.

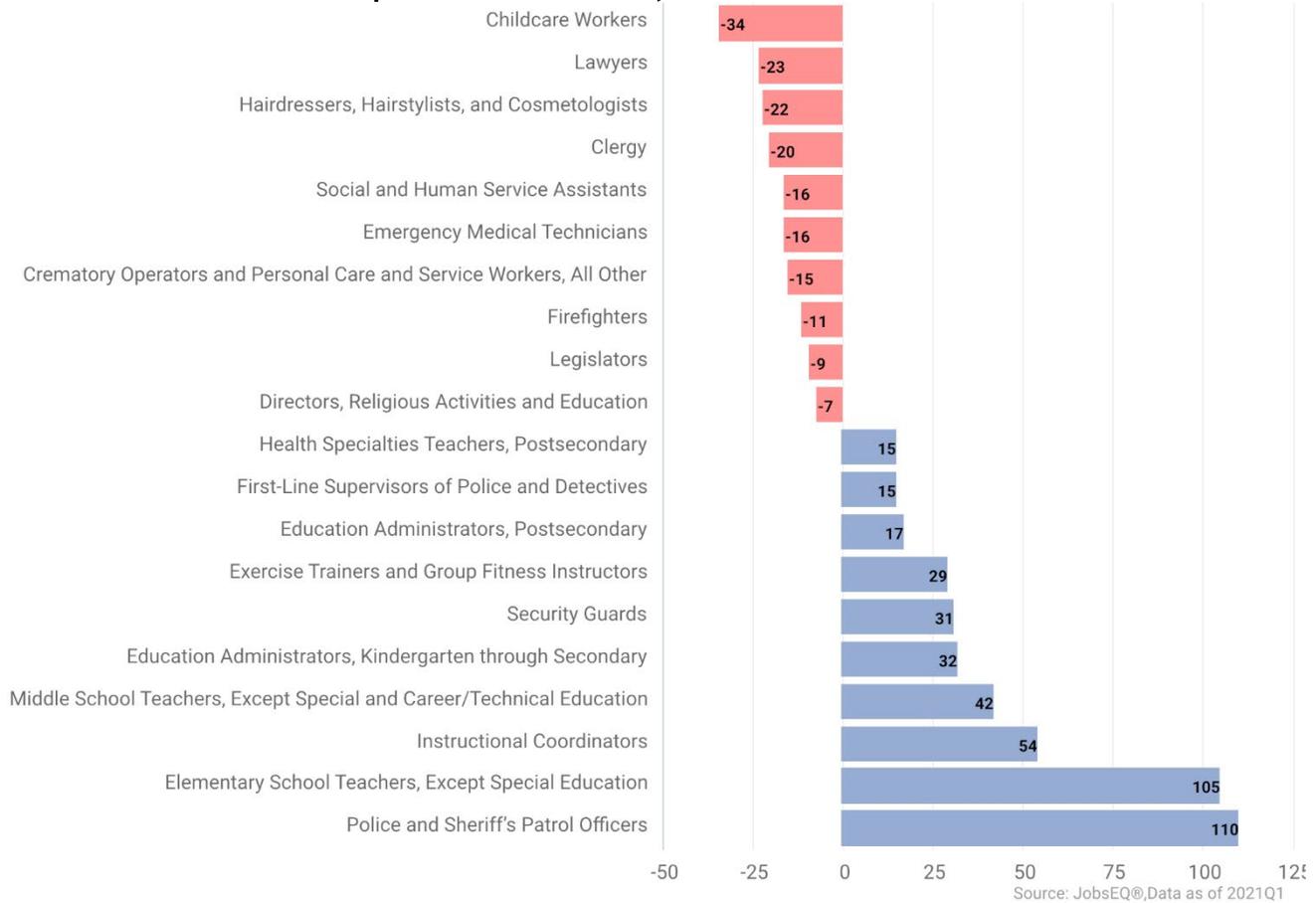
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, Northwest Minnesota 2021Q1



## 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. Northwest Minnesota faces several moderate Human Services award gaps, meaning that the region is underproducing local talent in relation to employer demand. Northwest colleges and universities are underproducing about 23 graduates annually that are needed to fill Lawyer positions open with employers based in the region. Several occupations that typically require a certificate or industry credential also have local award gaps, including childcare workers, hairdressers, clergy, and human service assistant roles. 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, Northwest 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 Northwest September 2021

Name	Candidates	Openings	Gap
Basic Life Support (BLS)	12	23	-11
Child Development Associate (CDA)	27	34	-7
Commercial Driver's License (CDL)	2	7	-5
Certified in Health Care Compliance (CHC)	0	4	-4
Licensed Professional Counselor (LPC)	4	8	-4
Certified Professional Coder (CPC)	0	3	-3
Emergency Medical Technician (EMT)	16	20	-3
AED Essentials	4	7	-3
Secret Clearance	3	5	-3
Advanced Cardiac Life Support Certification (ACLS)	3	5	-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 Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
Medication Administration	85	222	-137
Teaching/Training, School	602	653	-51
Personal Computers (PC)	28	58	-30
Caregiving	30	53	-23
Sports Coaching	14	29	-15
Legal Terminology	3	17	-14
Health/Wellness	111	123	-12
Adobe Acrobat	3	15	-12
Client Relations	1	12	-11
Marriage and Family Counseling	1	10	-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, Northwest Minnesota 2021Q1

**Target Occupations** (all HW, HD, HS)  
 Secondary School Teachers (OG)  
 Child, Family, and School Social Workers (OG)  
 Educational, Guidance, and Career Counselors (OG)  
 Secondary Special Education Teachers (OG)  
 Kindergarten Special Education Teachers (OG)

#### Gateway Occupations

Court, Municipal, and License Clerks (OG)  
 Clergy (HS, HD, OG, AG)  
 Substance Abuse and Mental Health Counselors (HS, HD, OG)  
 Correctional Officers and Jailers (AG)  
 Self-Enrichment Teachers (HD, AG)  
 Supervisors of Personal Service and Recreation Workers (HD, AG)

#### Origin Occupations

##### Likely

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

##### Aligned

Tellers  
 Retail Sales Workers  
 Waiters and Waitresses  
 Cashiers

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	Tellers
Teaching Assistants	Retail Sales Workers
Childcare Workers	Waiters and Waitresses
Social and Human Service Assistants	Cashiers
Firefighters	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 (\$49,500 in the Northwest). 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	Supervisors of Office and Administrative Support Workers
Clergy	Medical Secretaries
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	Human Resources Assistants
Correctional Officers and Jailers	Financial Advisors
Self-Enrichment Teachers	
Supervisors of Personal Service and Entertainment and Recreation Workers	

**Target Occupations** refer to high-wage occupations that pay at or above the region's average wage (\$49,500 in the Northwest). 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.

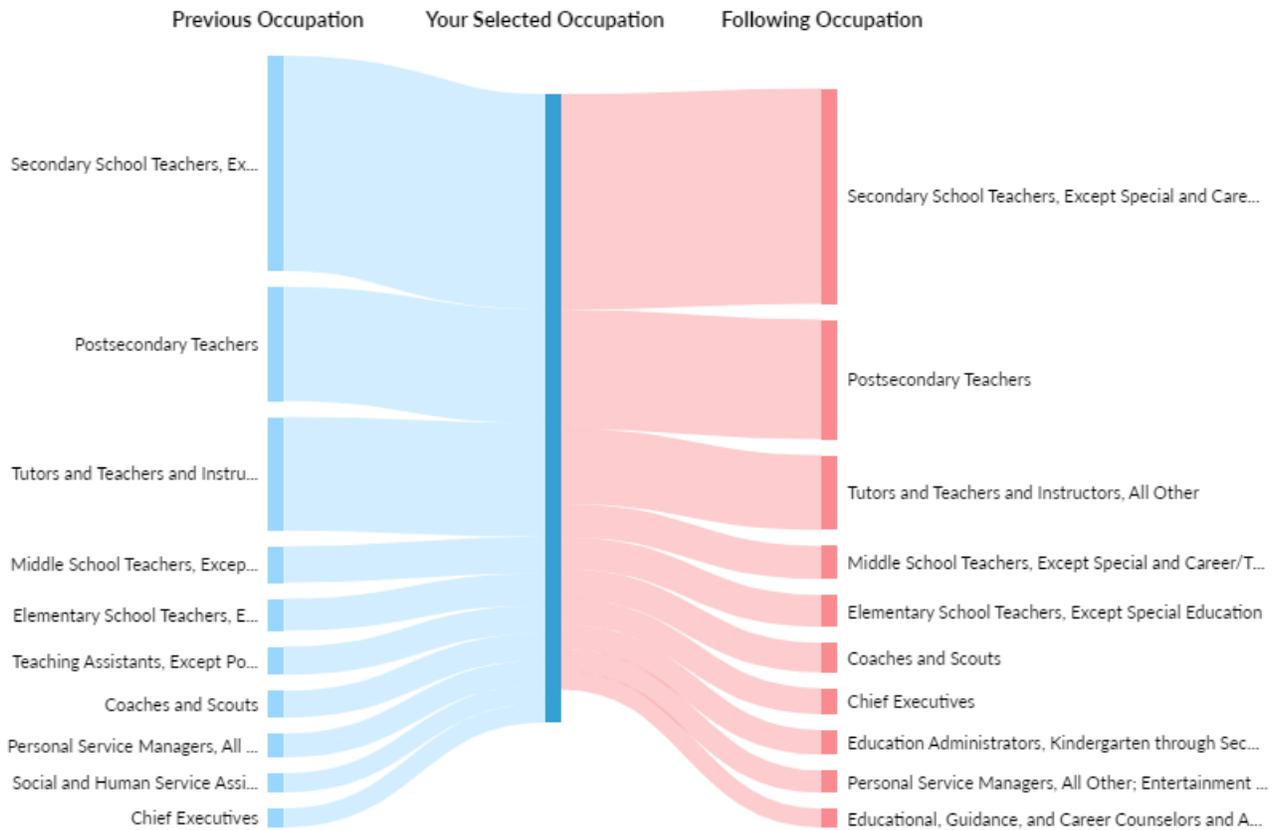
### Top Target Occupations in Human Services, Northwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	1,445	\$58,800	HW	HS	HD	OG	
21-1021	Child, Family, and School Social Workers	419	\$52,700	HW	HS	HD	OG	
21-1012	Educational, Guidance, and Career Counselors and Advisors	320	\$57,400	HW	HS	HD	OG	
25-2058	Special Education Teachers, Secondary School	313	\$59,100	HW	HS	HD	OG	
25-2052	Special Education Teachers, Kindergarten and Elementary School	290	\$55,400	HW	HS	HD	OG	
11-9032	Education Administrators, Kindergarten through Secondary	289	\$100,200	HW	HS	HD	OG	
11-9151	Social and Community Service Managers	250	\$73,100	HW	HS	HD	OG	
21-1022	Healthcare Social Workers	241	\$58,000	HW	HS	HD	OG	
25-9031	Instructional Coordinators	222	\$70,900	HW	HS	HD	OG	
21-2021	Directors, Religious Activities and Education	221	\$57,800	HW	HS	HD	OG	AG

Secondary School Teacher is a high-skill, high-demand, high-wage occupation forecasting shortages in the Northwest. 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 Secondary Education. The right column shows job transitions from this role to other occupations.

### Secondary Education Talent Gain and Drain, 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

### Graduate Pipeline for Secondary School Teachers, Northwest Minnesota 2021

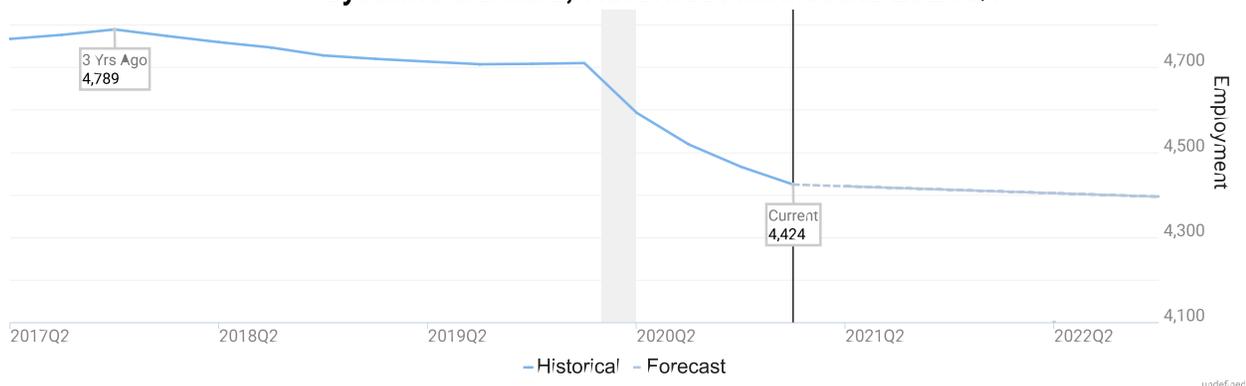


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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 -0.4% 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 0.8% annually in this field could be possible.

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



### Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume in Northwest, 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	545	\$84,400	0.32	24	46	1.0%
Computer Systems Analysts	412	\$71,800	0.61	-4	28	-0.3%
Computer User Support Specialists	380	\$47,300	0.52	-5	30	-0.2%
Graphic Designers	240	\$46,000	0.82	-27	20	-1.3%
Network and Computer Systems Administrators	224	\$71,700	0.58	-14	14	-0.5%
Printing Press Operators	218	\$36,700	1.18	-109	18	-2.0%
Telecommunications Equipment Installers and Repairers, Except Line Installers	201	\$56,500	0.91	4	20	-0.6%
Musicians and Singers	179	\$52,100	0.97	-10	22	0.1%
Computer Network Support Specialists	159	\$65,100	0.75	-2	12	-0.3%
Computer Occupations, All Other	144	\$73,200	0.32	-1	11	-0.3%
Remaining Component Occupations	1,724	\$56,600	0.70	-203	160	-0.7%
<b>Arts, Communications, &amp; Information Systems (CTE Field)</b>	<b>4,424</b>	<b>\$60,500</b>	<b>0.57</b>	<b>-349</b>	<b>378</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).

The largest share of talent in the Northwest that is working in Arts, Communications, and Information Systems roles are employed by Telecommunications Carriers (7.7%) or the Printing Industry (6.8%). Overall, employment is relatively spread out across many different industries.

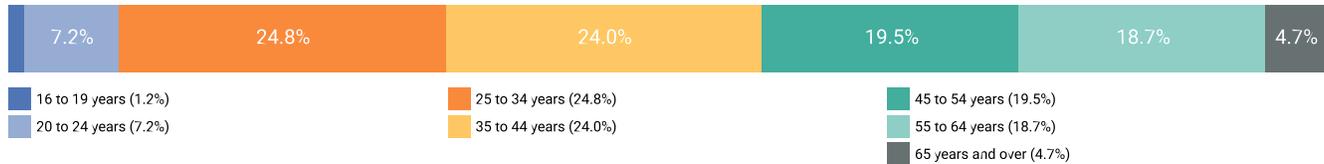
### Arts, Communications, and Information Systems Field Employment by Industry, 2021Q1, Northwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Wired and Wireless Telecommunications Carriers	7.7%	341	310	-49	261
Printing and Related Support Activities	6.8%	299	305	-60	245
Religious Organizations	5.8%	254	288	9	297
Independent Artists, Writers, and Performers	5.4%	237	253	-5	248
Newspaper, Periodical, Book, and Directory Publishers	4.1%	182	155	-70	85
Computer Systems Design and Related Services	3.8%	170	136	30	165
Depository Credit Intermediation	3.8%	169	124	2	126
Executive, Legislative, and Other General Government Support	3.3%	147	116	2	118
Other Information Services	3.2%	142	126	17	142
Radio and Television Broadcasting	2.9%	126	133	-8	125
General Medical and Surgical Hospitals	2.8%	126	93	-3	90
Elementary and Secondary Schools	2.7%	118	94	-3	91
Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	2.6%	116	96	-3	93
Colleges, Universities, and Professional Schools	2.6%	115	95	2	97
Other Professional, Scientific, and Technical Services	2.4%	105	101	1	102
Management of Companies and Enterprises	1.9%	83	64	4	68
Other Miscellaneous Manufacturing	1.4%	64	59	-8	51
Florists	1.4%	61	50	-20	31
Building Equipment Contractors	1.3%	59	62	1	62
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1.3%	56	42	3	44
All Others	32.9%	1,455	1,246	-2	1,245

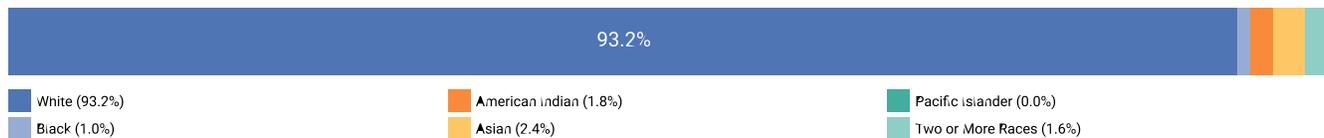
## Career Field Demographics

The Arts, Communications, and Information Systems field is predominantly male (70.2%) and white (93.2%). Over half of the Arts, Communications, and Information Systems workforce in the region is between the ages of 20 and 44 (56%).

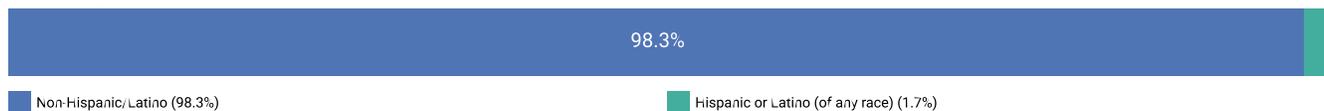
### Age



### Race



### Ethnicity



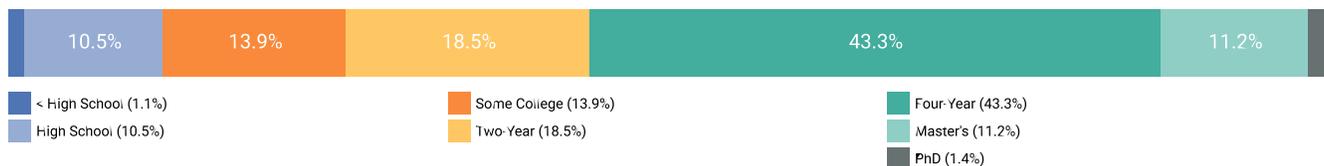
### Gender



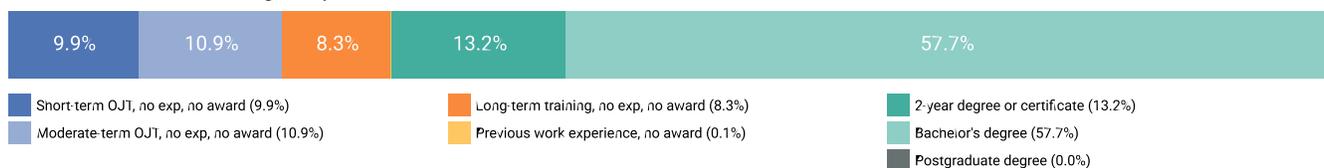
## Educational Attainment and Requirements

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate. Over half (57.7%) of all occupations in this field require a Bachelor's degree, while 43.3% 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

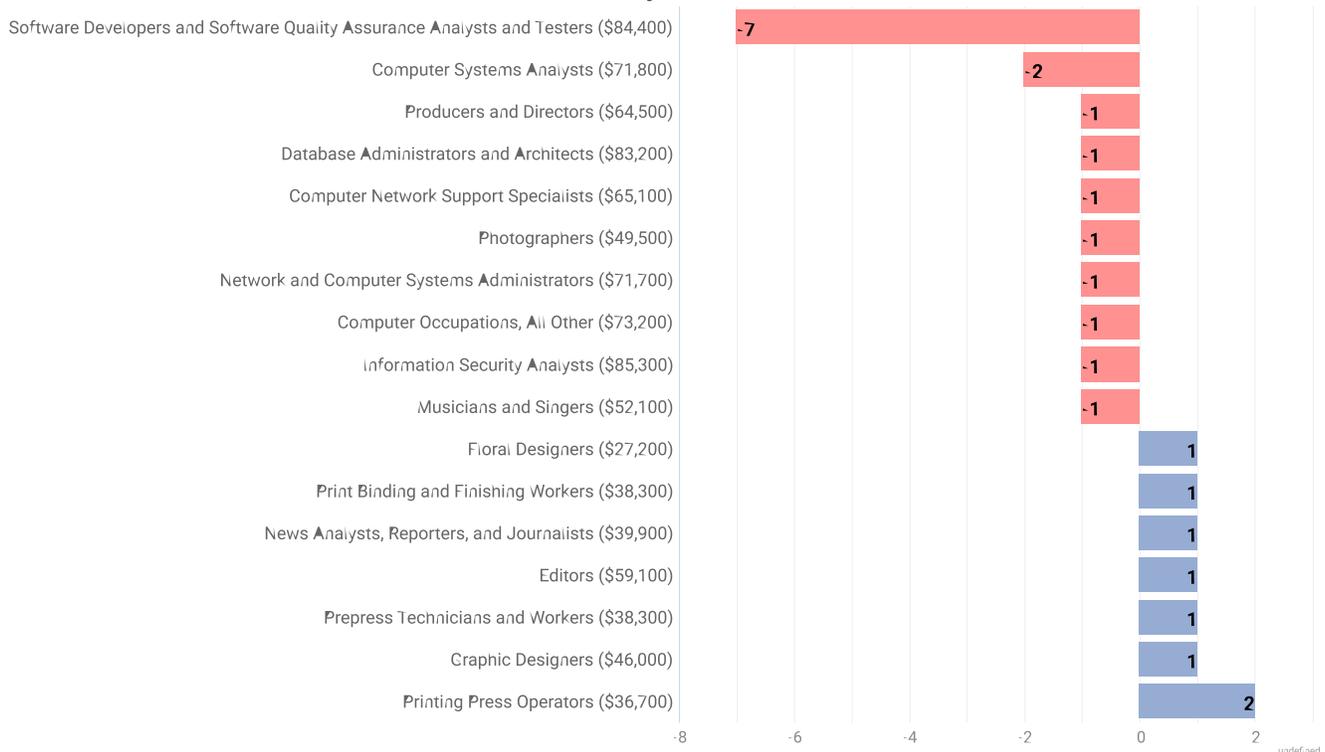
Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Software Developers and Software Quality Assurance Analysts and Testers	Bachelor's degree	None	None

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical 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
Printing Press Operators	High school diploma or equivalent	None	Moderate-term on-the-job training
Telecommunications Equipment Installers and Repairers, Except Line Installers	Postsecondary non-degree award	None	Moderate-term on-the-job training
Musicians and Singers	None	None	Long-term on-the-job training
Computer Network Support Specialists	Associate's degree	None	None
Computer Occupations, All Other	Bachelor's degree	None	None

### 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 seven skilled workers needed annually (averaged over the next ten years) to meet employer demand. This moderate talent shortage is primarily due to employment growth which is outpacing the growth in supply of trained software professionals in this region.

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

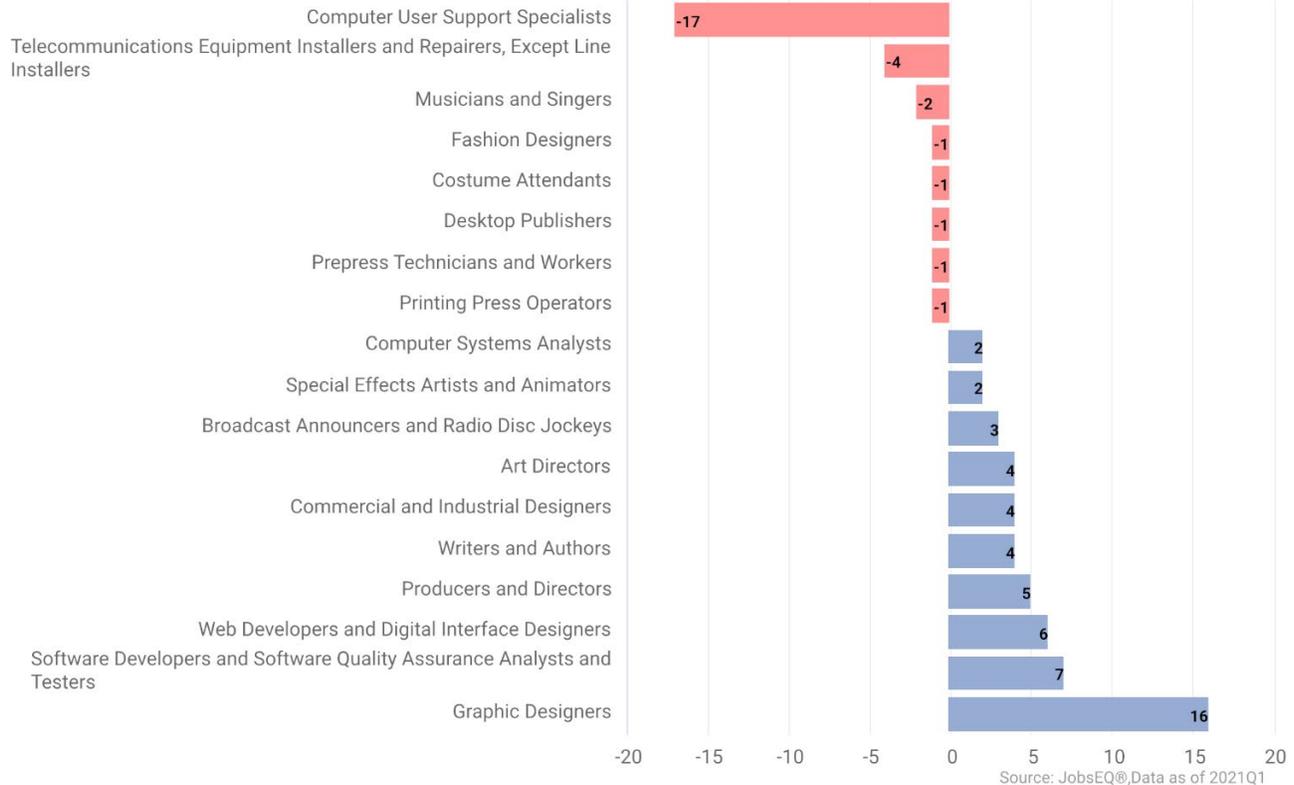


### Award Gaps

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 Northwest 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. Northwest Minnesota colleges and universities are underproducing trained Computer User Support Specialists (certifications), Telecommunications Equipment Installers, and Musicians against national benchmarks. Very few Information Technology careers make the list of award gaps or surpluses. Occupations that show higher awards given than what is currently needed in the local talent market are examples of programs that serve other parts of the state where talent demand is high but relevant programs may not exist.

### Award Gaps in Arts, Communications, and Information Systems, Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
Project Management Professional (PMP)	0	3	-3
Certified Security Software Lifecycle Professional (CSSLP)	0	1	-1
Microsoft Certified Solutions Expert (MCSE)	0	1	-1
Certified Associate in Project Management (CAPM)	0	1	-1
Cisco Certified Network Associate (CCNA)	5	6	-1
Certified Cloud Security Professional (CCSP)	0	1	-1
Certified Information Systems Auditor (CISA)	0	1	0
Commercial Driver's License (CDL)	1	1	0

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

Name	Candidates	Openings	Gap
Cisco Certified Internetwork Expert (CCIE)	0	1	0
Certified Technology Specialist (CTS)	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 Northwest Minnesota employers hiring Arts, Communications, and Information Systems talent that potential candidates have not indicated in their professional networking platforms as a strength.

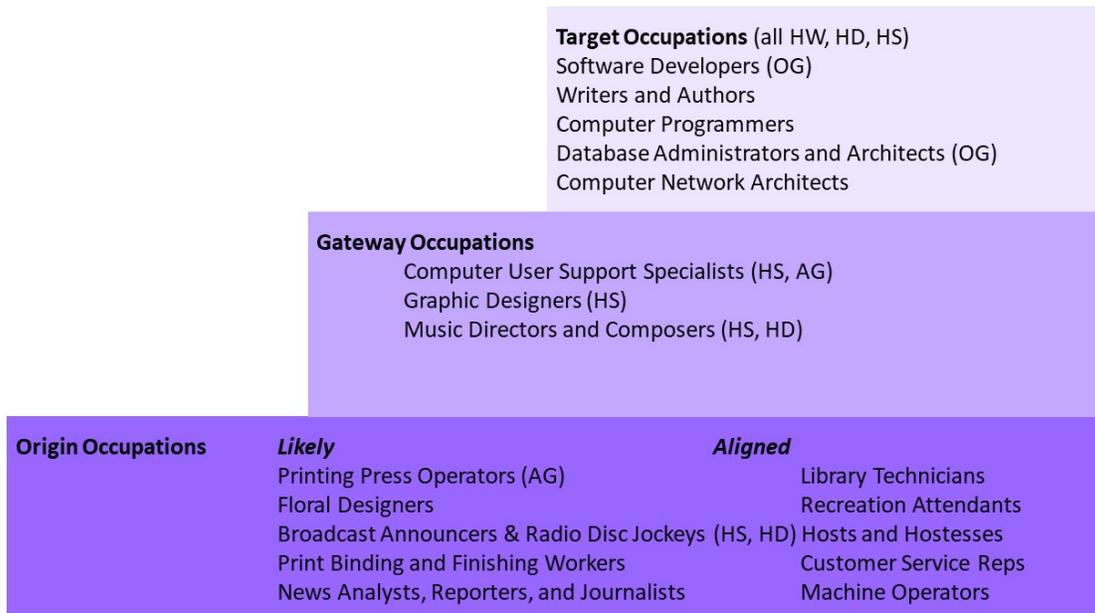
### Top 10 Skill Gaps in the Northwest, September 2021

Name	Candidates	Openings	Gap
Amazon Web Services (AWS)	8	16	-9
Application Development	6	14	-8
Structured Query Language (SQL)	25	33	-8
Java	16	24	-8
Information Security	6	13	-7
MySQL	3	10	-7
Microsoft Outlook	6	13	-6
Docker	3	9	-6
Career Development/Professional Development	0	6	-6
JavaScript	15	21	-5

### 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, Northwest Minnesota 2021Q1



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
Printing Press Operators	Library Technicians
Floral Designers	Amusement and Recreation Attendants
Broadcast Announcers and Radio Disc Jockeys	Hosts and Hostesses
Print Binding and Finishing Workers	Customer Service Representatives
News Analysts, Reporters, and Journalists	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 (\$49,500 in the Northwest). 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
Computer User Support Specialists	Supervisors of Office and Administrative Support Workers
Graphic Designers	Painting, Coating, and Decorating Workers
Music Directors and Composers	Window Trimmers

*Target Occupations* refer to high-wage occupations that pay at or above the region's average wage (\$49,500 in the Northwest). 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.

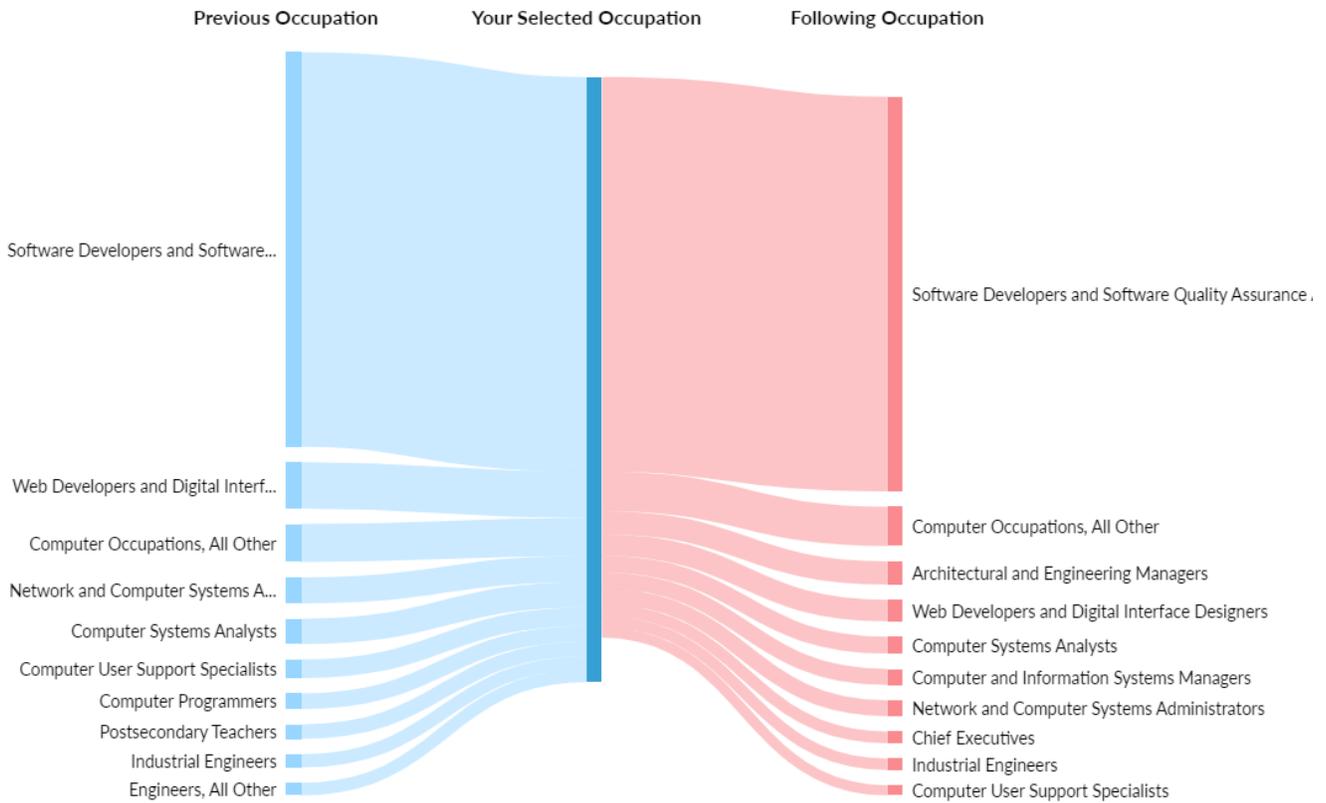
### Top Target Occupations in Arts, Communications, and Information Systems, Northwest Minnesota 2021Q1

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	545	\$84,400	HW	HS	HD	OG	
27-3043	Writers and Authors	99	\$54,700	HW	HS	HD		
15-1251	Computer Programmers	88	\$84,900	HW	HS	HD		
15-1245	Database Administrators and Architects	76	\$83,200	HW	HS	HD	OG	
15-1241	Computer Network Architects	68	\$100,300	HW	HS	HD		
27-2012	Producers and Directors	64	\$64,500	HW	HS	HD	OG	
27-1011	Art Directors	58	\$96,400	HW	HS	HD		
27-1021	Commercial and Industrial Designers	52	\$66,000	HW	HS	HD		
27-3042	Technical Writers	34	\$63,000	HW	HS	HD		
27-1014	Special Effects Artists and Animators	31	\$62,600	HW	HS	HD		

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. 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, Northwest Minnesota 2021

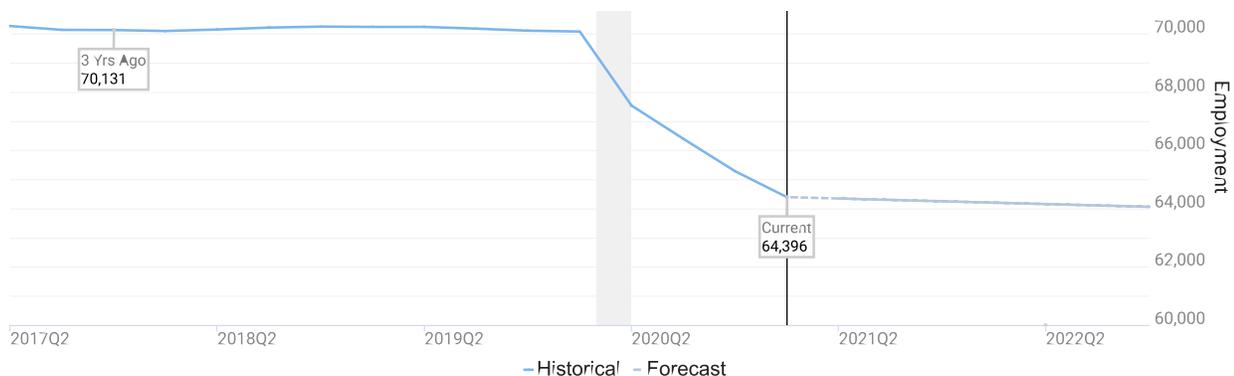


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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 -0.3% 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 1.7% annually in this field could be possible. Most of the growth is attributable to the Hospitality and Tourism Cluster careers in this field.

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



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

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year Empl Change	Annual Demand	Baseline Forecast Ann Growth
Cashiers	4,965	\$25,400	1.30	-473	855	-1.0%
Retail Salespersons	4,179	\$33,400	0.98	-471	588	-0.3%
Fast Food and Counter Workers	3,701	\$24,700	0.97	-274	718	0.7%
Office Clerks, General	2,789	\$38,000	0.86	-117	299	-0.9%
Stockers and Order Fillers	2,524	\$29,900	0.99	-82	328	-0.2%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,178	\$32,100	0.90	-160	292	0.2%
Customer Service Representatives	2,108	\$39,000	0.65	-44	248	-1.1%
General and Operations Managers	2,083	\$94,700	0.78	9	182	0.0%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	2,030	\$66,300	1.37	-66	200	-0.4%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	1,988	\$38,600	0.90	-113	185	-1.4%
Remaining Component Occupations	35,855	\$50,400	0.96	-3,909	4,260	-0.3%
<b>Business, Management, &amp; Administration (CTE Field)</b>	<b>64,396</b>	<b>\$45,100</b>	<b>0.88</b>	<b>-5,701</b>	<b>8,154</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).

Employment in Business, Management, and Administration careers is spread out across a number of different industries. In the Northwest, the industries with the greatest share of Business, Management, and Administration talent are Restaurants (12.0%) and General Merchandise Stores (4.4%), reflecting the importance of the Hospitality and Tourism career cluster in this region. These two industries account for a substantial amount of talent demand over the next ten years (restaurants alone accounts for nearly half of future positions needing to be filled in this field), but overall both current employment and future growth are relatively spread out over many different industries.

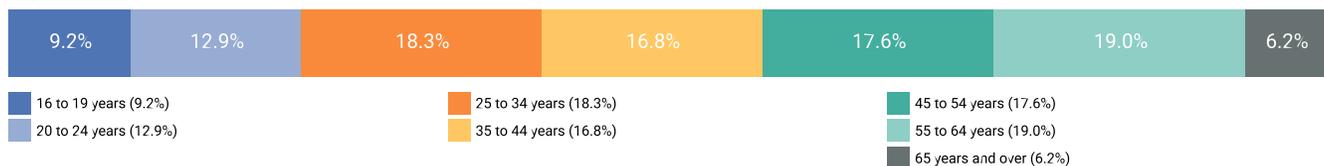
### Business, Management, and Administration Field Employment by Industry, 2021Q1, Northwest Minnesota

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	12.0%	7,757	13,560	449	14,009
General Merchandise Stores, including Warehouse Clubs and Supercenters	4.4%	2,858	4,127	-155	3,971
Grocery Stores	4.3%	2,776	4,199	-135	4,064
Gasoline Stations	4.0%	2,575	4,299	-170	4,130
Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	3.1%	2,024	2,135	-100	2,035
Depository Credit Intermediation	3.0%	1,955	1,940	-122	1,817
Elementary and Secondary Schools	3.0%	1,904	2,426	-114	2,313
Executive, Legislative, and Other General Government Support	3.0%	1,902	2,280	-48	2,232
Traveler Accommodation	2.7%	1,732	2,573	-2	2,570
Building Material and Supplies Dealers	2.5%	1,581	2,172	-43	2,129
General Medical and Surgical Hospitals	2.3%	1,484	1,785	-61	1,724
Nursing Care Facilities (Skilled Nursing Facilities)	2.2%	1,428	1,952	-105	1,846
Religious Organizations	1.6%	1,043	1,231	-25	1,205
Agencies, Brokerages, and Other Insurance Related Activities	1.6%	1,037	1,050	-1	1,049
Direct Selling Establishments	1.3%	828	903	-148	756
Grocery and Related Product Merchant Wholesalers	1.2%	792	875	-13	862
Postal Service	1.1%	739	537	-130	407
Automobile Dealers	1.1%	736	918	-18	900
Drinking Places (Alcoholic Beverages)	1.1%	736	1,252	8	1,260
Other Amusement and Recreation Industries	1.1%	724	1,298	77	1,375
All Others	43.1%	27,786	31,889	-1,022	30,867

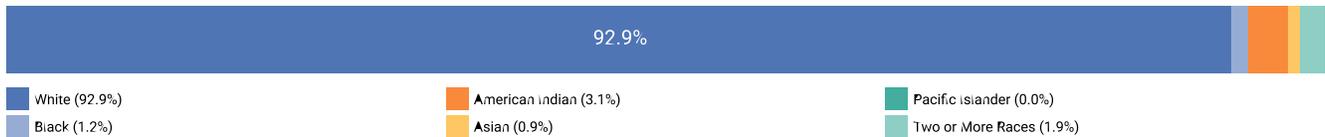
### Career Field Demographics

The Business, Management, and Administration field has a slightly higher concentration of female workers (56.9%) than male, and is 92.9% White. About 3.2% of the workforce is Hispanic or Latinx. Nearly 43% of workers in Business, Management, and Administration roles are over 45 years old.

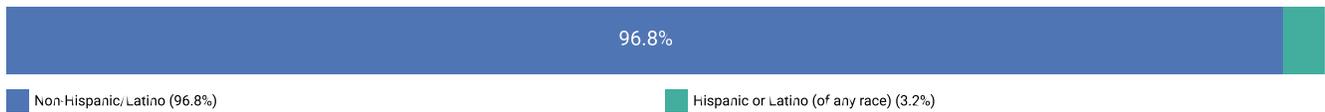
### Age



## Race



## Ethnicity



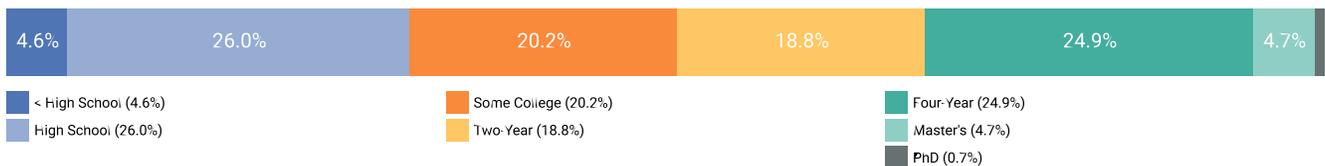
## Gender



## 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 Northwest Minnesota Business, Management, and Administration workforce is more likely to have a 2-year degree than what is in demand. While 18.8% of the workforce holds a 2-year degree, just 0.2% of the occupations in this field require a 2-year degree. Nearly two-thirds of all positions in this field (60.3%) require no degree, no experience, and only short-term on-the-job training. Another 20.8% require experience or some on-the-job training, but still no degree. In contrast, only 4.6% of the workforce in this field has no degree at all, and 26.0% 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

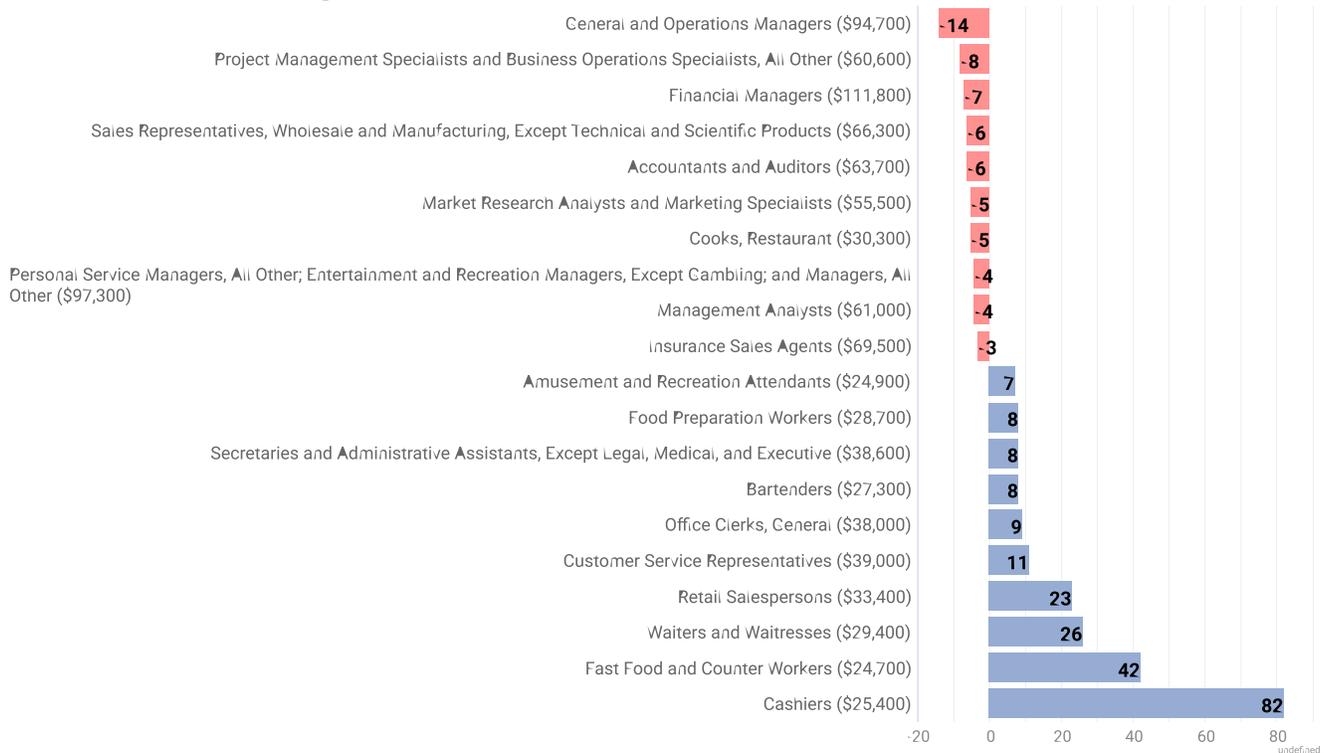
Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Cashiers	None	None	Short-term on-the-job training
Retail Salespersons	None	None	Short-term on-the-job training
Fast Food and Counter Workers	None	None	Short-term on-the-job training
Office Clerks, General	High 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

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical 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
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	High school diploma or equivalent	None	Moderate-term on-the-job training
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	High school diploma or equivalent	None	Short-term on-the-job training

### Occupation Gaps

The chart below shows the potential average annual gaps over ten years. A number of management roles indicate significant shortages in the years ahead, with the General and Operations Manager talent pool likely falling short at least 14 skilled workers needed annually (averaged over the next ten years) to meet employer demand. This critical talent shortage is primarily due to moderate growth and retirements which far outpace demand.

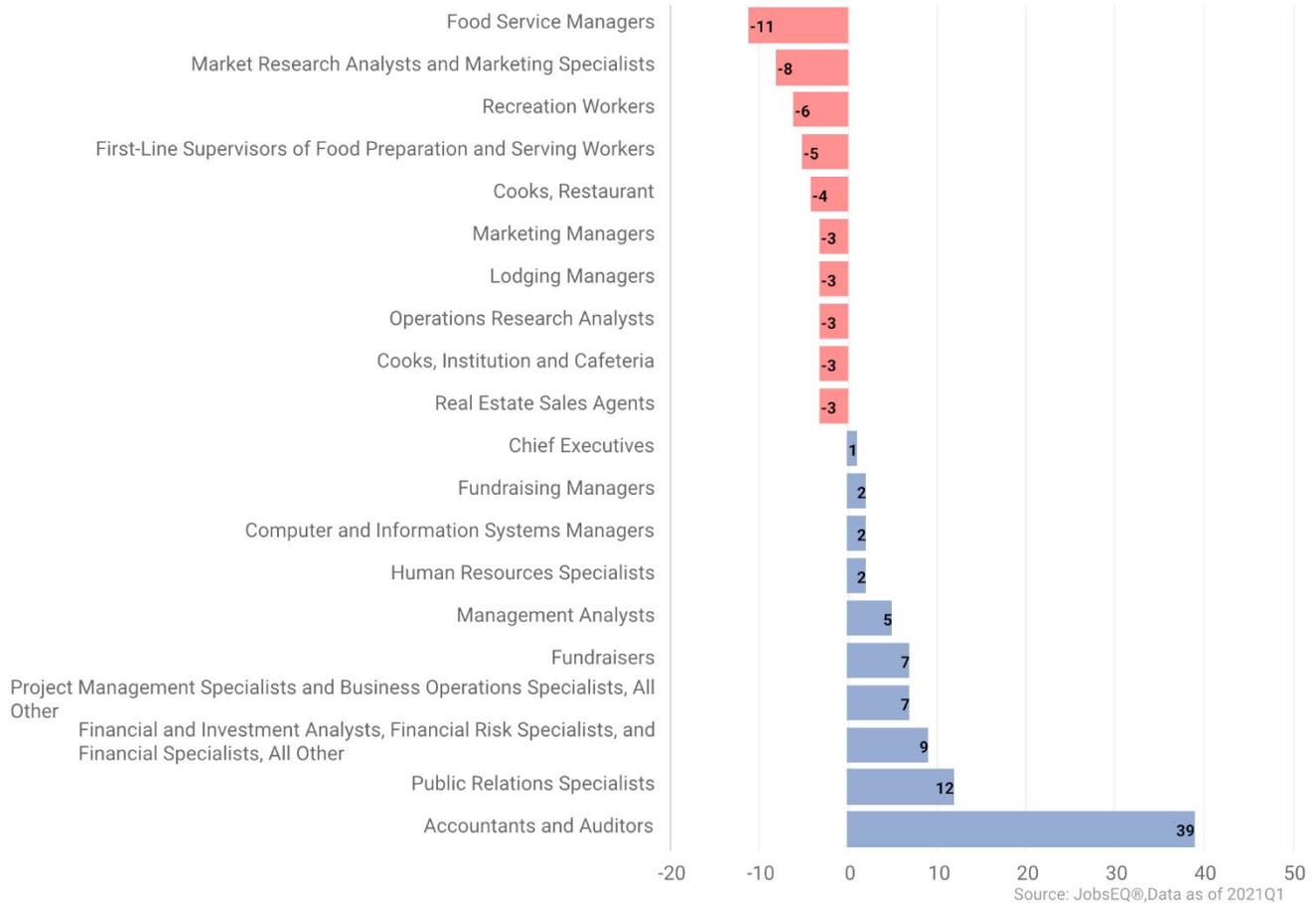
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, Northwest Minnesota 2021Q1



### 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 Northwest 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 food service and hospitality.

## Award Gaps in Business, Management, and Administration, Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
ServSafe Food Protection Manager Certification	10	26	-16
HAZMAT	2	10	-9
Basic Life Support (BLS)	2	10	-8
Project Management Professional (PMP)	3	10	-6
Certified Public Accountant (CPA)	32	38	-6
Class A Commercial Driver's License (CDL-A)	6	11	-5
Commercial Driver's License (CDL)	20	24	-4
Notary Public	3	7	-4
Certified Management Accountant (CMA)	1	5	-4
Program Management Professional (PgMP)	0	4	-4

## 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 Northwest 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 Northwest, September 2021**

Name	Candidates	Openings	Gap
Merchandising	150	327	-176
Cash Registers	209	310	-101
Mathematics	125	162	-37
Retail Sales	386	420	-34
Food Safety	20	50	-30
Point of Sale Systems (POS Systems)	93	122	-29
Reconciliation	32	53	-21
Bilingual	26	46	-20
Personal Computers (PC)	170	190	-20
Spreadsheet Programs	4	23	-19

## 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, Northwest Minnesota 2021Q1

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

#### Gateway Occupations

Supervisors of Retail Sales Workers (HD)  
 Supervisors of Housekeeping and Janitorial Workers (HD, OG)  
 Postal Service Mail Sorters, Processors, and Machine Operators  
 Insurance Claims and Policy Processing Clerks  
 Payroll and Timekeeping Clerks (HD)  
 Postal Service Clerks

#### Origin Occupations

##### *Likely*

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

##### *Aligned*

Library Technicians  
 Eligibility Interviewers  
 Childcare Workers

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	Library Technicians
Retail Salespersons	Eligibility Interviewers
Fast Food and Counter Workers	Childcare Workers
Office Clerks, General	
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 (\$49,500 in the Northwest). 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
Supervisors of Housekeeping and Janitorial Workers	Editors
Postal Service Mail Sorters, Processors, and Processing Machine Operators	Writers
Insurance Claims and Policy Processing Clerks	Computer User Support Specialists
Payroll and Timekeeping Clerks	
Postal Service Clerks	

***Target Occupations*** refer to high-wage occupations that pay at or above the region's average wage (\$49,500 in the Northwest). 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.

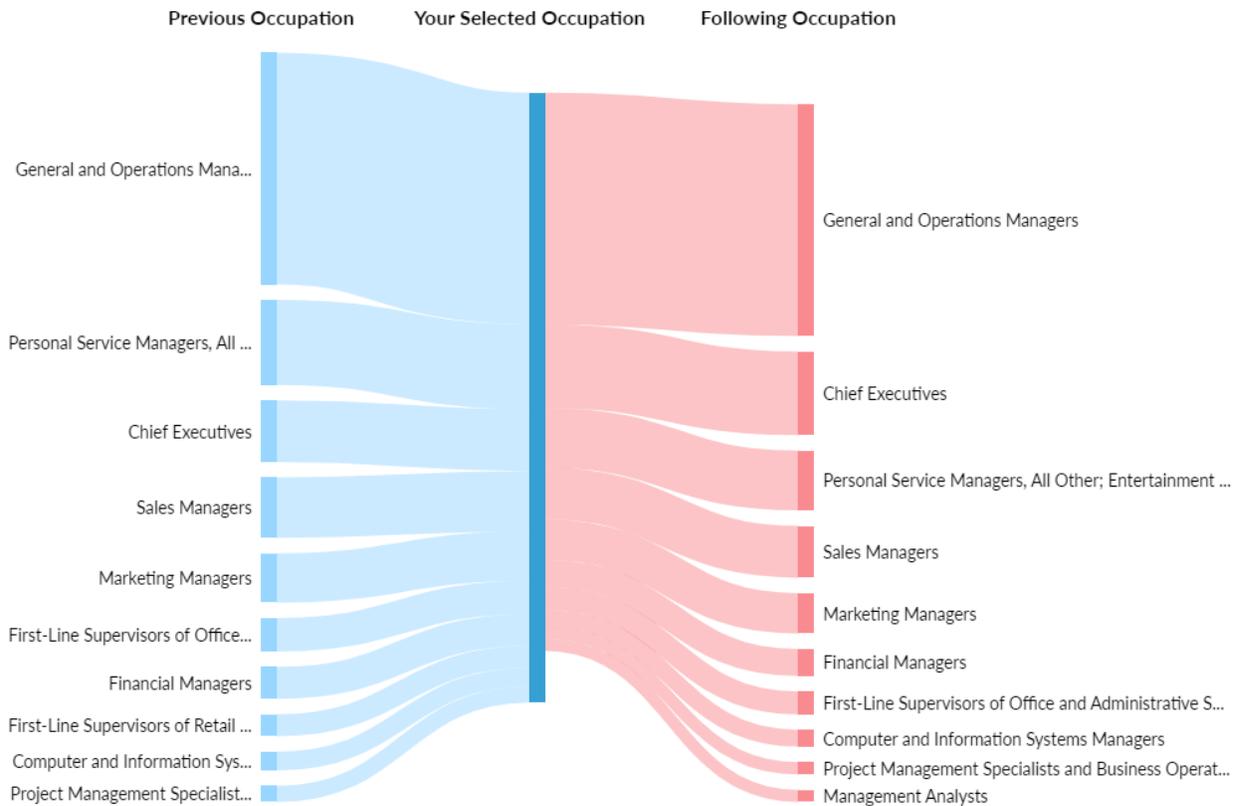
### Top Target Occupations in Business, Management, and Administration, Northwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
11-1021	General and Operations Managers	2,083	\$94,700	HW	HS	HD	OG	
13-1198	Project Management Specialists and Business Operations Specialists, All Other	1,109	\$60,600	HW	HS	HD	OG	
13-2011	Accountants and Auditors	1,026	\$63,700	HW	HS	HD	OG	
11-3031	Financial Managers	517	\$111,800	HW	HS	HD	OG	
13-1161	Market Research Analysts and Marketing Specialists	509	\$55,500	HW	HS	HD	OG	AG
13-1111	Management Analysts	460	\$61,000	HW	HS	HD	OG	
11-2022	Sales Managers	427	\$107,800	HW	HS	HD	OG	
11-3013	Facilities Managers	262	\$86,300	HW	HS	HD	OG	
11-3021	Computer and Information Systems Managers	253	\$115,400	HW	HS	HD	OG	
27-3031	Public Relations Specialists	218	\$57,600	HW	HS	HD	OG	

General and Operations Management roles are in-demand, high-wage, and high-skill opportunities in the Northwest that are forecast to be in shortage. In addition, regional colleges and universities underproduce General and Operations Management-aligned

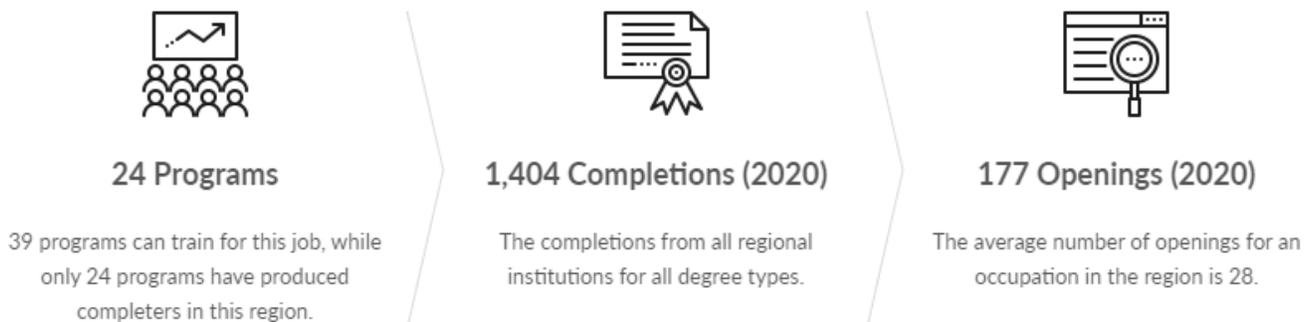
program graduates in comparison to national benchmarks. Below, this occupation is analyzed in more detail for better understanding of occupation “gain and drain.” The chart below illustrates the national profiles of current and past people in this occupation. The left column shows job transitions from 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, Northwest Minnesota 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

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

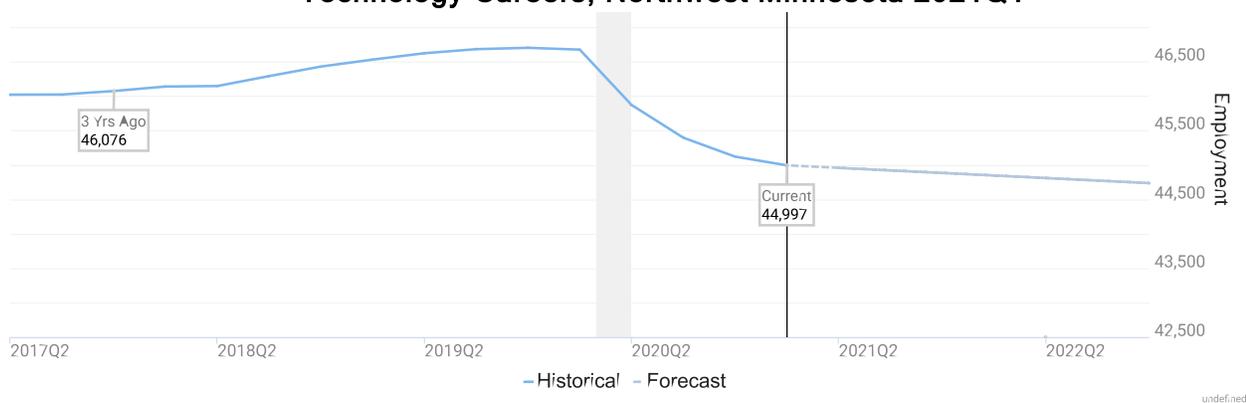


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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 decline moderately (-0.4% 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 0.7% annually in this field could be possible. Most of the growth is attributable to transportation, automotive, and renewable energy occupations, such as Wind Turbine Service Technicians.

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



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

6-Digit Occupation	Empl	Avg Mean Wages	LQ	Historical 3-Year		Baseline Forecast
				Empl Change	Annual Demand	Ann Growth
Heavy and Tractor-Trailer Truck Drivers	2,686	\$46,200	1.21	-111	291	-0.4%
Laborers and Freight, Stock, and Material Movers, Hand	2,501	\$34,300	0.77	8	340	-0.2%
Team Assemblers	2,032	\$37,000	1.68	-44	162	-2.7%
Construction Laborers	1,572	\$36,300	1.04	70	177	0.1%
Landscaping and Groundskeeping Workers	1,530	\$34,000	1.20	102	217	0.8%
Carpenters	1,459	\$44,100	1.33	-37	142	-0.4%
Maintenance and Repair Workers, General	1,445	\$42,100	0.92	-83	141	0.1%
Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	1,076	\$43,000	1.32	-30	136	0.4%
Light Truck Drivers	1,000	\$39,700	0.84	19	114	0.0%
First-Line Supervisors of Production and Operating Workers	911	\$61,400	1.32	-49	85	-0.6%
Remaining Component Occupations	28,779	\$50,100	1.01	-989	2,954	-0.4%
<b>Engineering, Manufacturing, &amp; Technology (CTE Field)</b>	<b>44,997</b>	<b>\$46,700</b>	<b>1.07</b>	<b>-1,144</b>	<b>4,769</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).

Many different industries employ Engineering, Manufacturing, and Technology talent in the Northwest. Locally, the industries with the greatest share of this field's talent are Wood Product Manufacturing (4.6%) and Transportation Equipment Manufacturing (4.0%). Most industries employing talent in this field only touch less than 1% of total talent skilled in this field, suggesting that education and training programs will need to build broad strategies that cross each of these sectors.

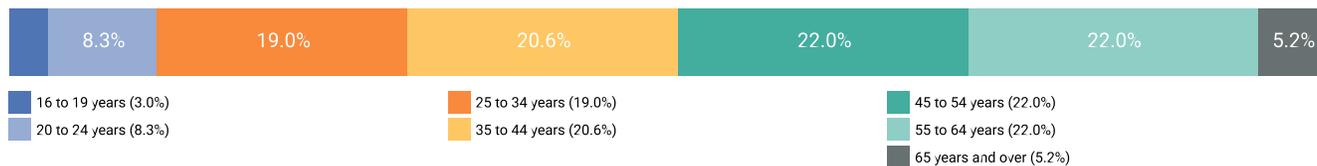
### Engineering, Manufacturing, and Technology Field Employment by Industry, 2021Q1, Northwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Other Wood Product Manufacturing	4.6%	2,064	2,237	-352	1,885
Other Transportation Equipment Manufacturing	4.0%	1,818	1,708	-425	1,283
Animal Slaughtering and Processing	3.8%	1,706	2,096	-23	2,073
Building Equipment Contractors	3.5%	1,576	1,740	62	1,802
Executive, Legislative, and Other General Government Support	3.3%	1,488	1,626	58	1,684
Highway, Street, and Bridge Construction	3.1%	1,395	1,526	41	1,567
General Freight Trucking	3.0%	1,361	1,496	-87	1,409
Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	3.0%	1,355	1,547	-40	1,507
Residential Building Construction	2.9%	1,304	1,268	-9	1,259
Other General Purpose Machinery Manufacturing	2.7%	1,205	1,245	-21	1,223
Other Specialty Trade Contractors	2.5%	1,127	1,237	-2	1,234
Building Finishing Contractors	2.3%	1,024	1,031	-33	998
Automotive Repair and Maintenance	2.2%	1,003	1,081	-19	1,062
Foundation, Structure, and Building Exterior Contractors	2.2%	996	1,051	0	1,052
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	2.0%	911	939	-33	905
Services to Buildings and Dwellings	1.9%	874	1,128	63	1,191
Other Food Manufacturing	1.9%	850	1,092	79	1,171
Sugar and Confectionery Product Manufacturing	1.7%	776	875	-151	724
Utility System Construction	1.5%	653	698	17	715
Nonresidential Building Construction	1.3%	573	566	11	577
All Others	46.5%	20,937	22,969	-594	22,375

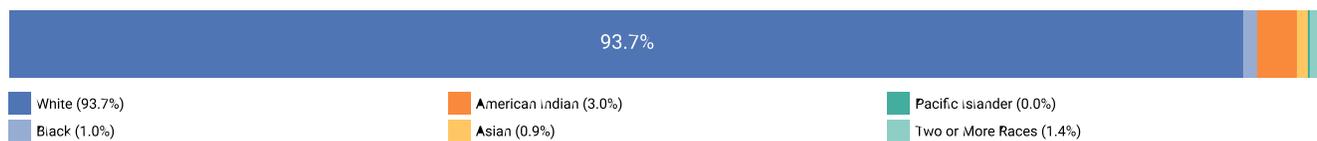
### Career Field Demographics

Engineering, Manufacturing, and Technology field is heavily male (82.8%) and White (93.7%). Just under half of workers in this field are 45 years or older (49.2%), signaling potential exacerbation of the talent shortage due to impending retirements.

#### Age



#### Race



## Ethnicity



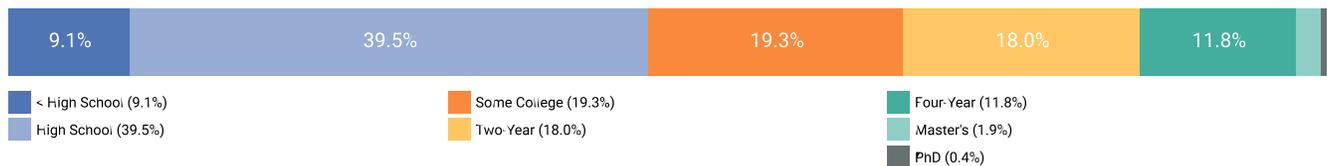
## Gender



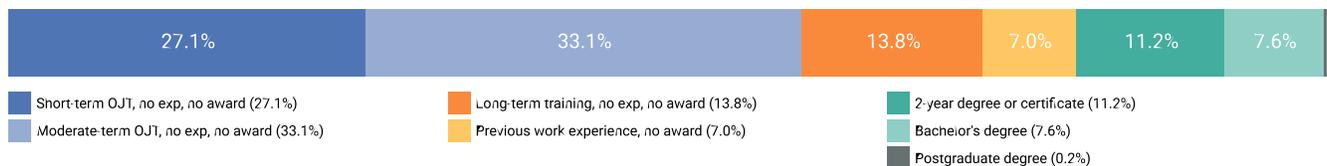
## Educational Attainment and Requirements

The stacked bar chart here illustrates the estimated mix of educational attainment of the workers in this career field in aggregate. In general, the Northwest Minnesota Engineering, Manufacturing, and Technology workforce is well-aligned for the typical credentials of entry-level positions. Over 1 in 4 of all positions in this field (27.1%) require no degree, no experience, and only short-term on-the-job training. About 53.9% 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 (9.1%), and almost 1 in 5 (39.5%) hold a high school diploma as their highest credential. In all, 67.9% 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

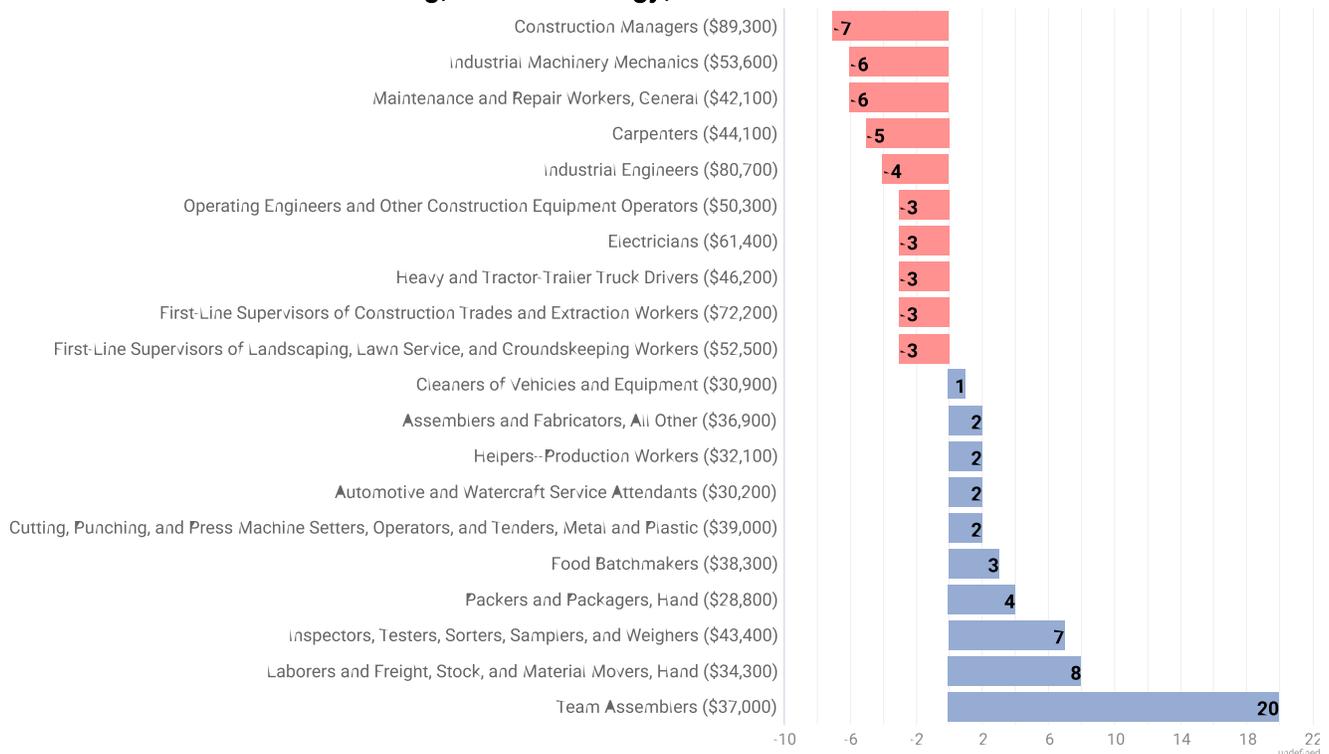
Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Heavy and Tractor-Trailer Truck Drivers	Postsecondary non-degree award	None	Short-term on-the-job training
Laborers and Freight, Stock, and Material Movers, Hand	None	None	Short-term on-the-job training
Team Assemblers	High school diploma or equivalent	None	Moderate-term on-the-job training
Construction Laborers	None	None	Short-term on-the-job training
Landscaping and Groundskeeping Workers	None	None	Short-term on-the-job training
Carpenters	High school diploma or equivalent	None	Apprenticeship
Maintenance and Repair Workers, General	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

Occupation	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Light Truck Drivers	High school diploma or equivalent	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

### Occupation Gaps

The chart below shows the potential average annual gaps over ten years. A number of management, maintenance, construction, and automotive roles indicate shortages in the years ahead, with the Construction Manager talent pool likely falling short at least 7 skilled workers needed annually (averaged over the next ten years) to meet employer demand. This talent shortage is primarily due to growth in demand and retirements which far outpace the talent pipeline.

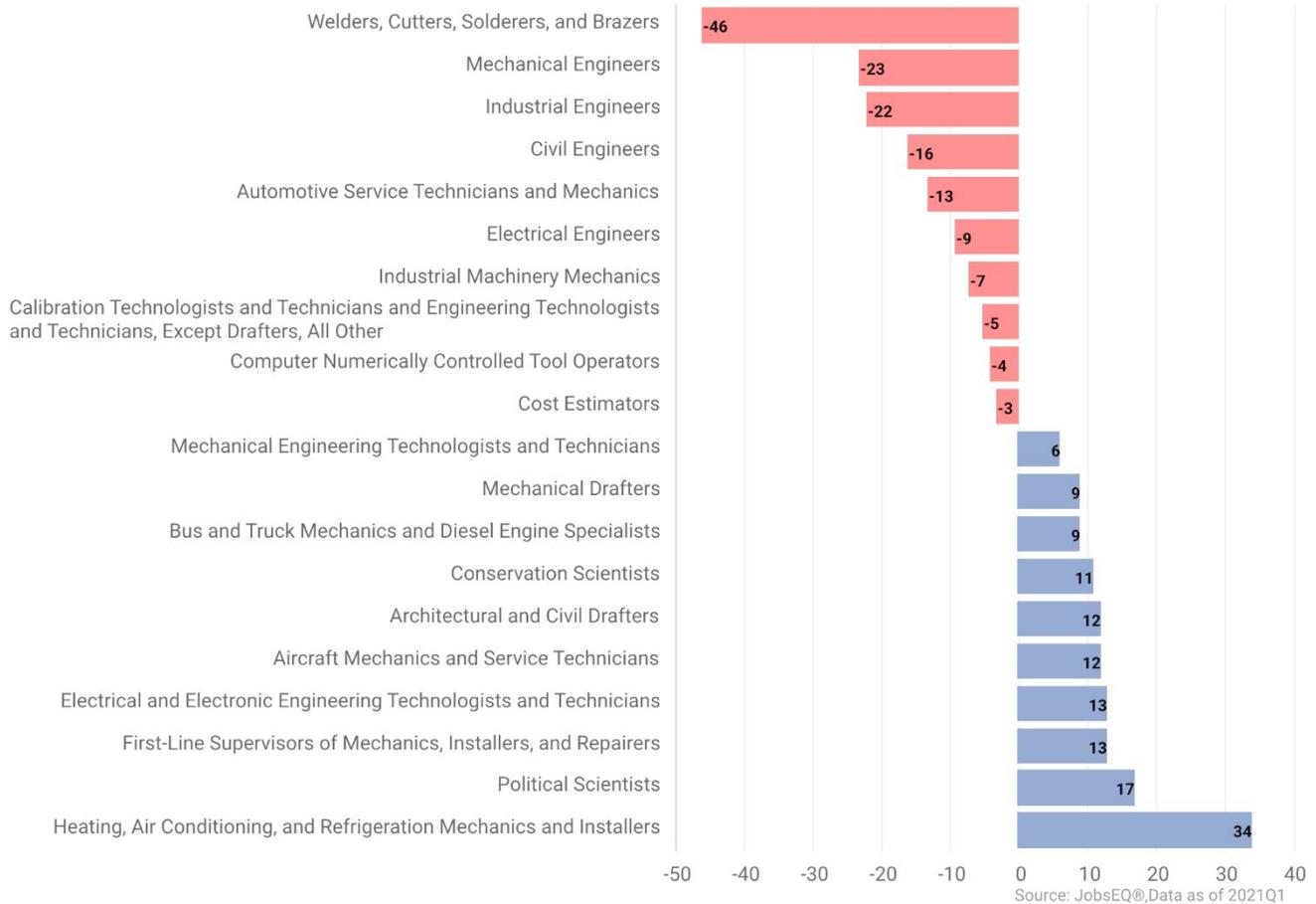
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, Northwest Minnesota 2021Q1



### 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 Northwest currently under-trains some talent in Engineering, Manufacturing, and Technology when compared to national benchmarks. Northwest Minnesota colleges and universities are underproducing around 46 graduates annually that are needed to fill welding and soldering positions open with employers based in this region alone. Second, there are at least 23 fewer Mechanical Engineers and 22 fewer Industrial Engineers graduating locally annually than what employers currently need to support demand.

## Award Gaps in Engineering, Manufacturing, and Technology, Northwest 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 Northwest, September 2021

Name	Candidates	Openings	Gap
HAZMAT	15	26	-12
Certified Welder	4	10	-6
Automotive Service Excellence (ASE) Certification	6	9	-3
Basic Life Support (BLS)	0	2	-2
Certified Quality Auditor (CQA)	0	2	-1
Forklift Certified	22	23	-1
Certified Pesticide Applicator	0	1	0
National Center for Construction Education & Research Certification (NCCER)	0	1	0
Mobile Product Specialist (MECP)	1	1	0
Six Sigma Green Belt Certification (SSGB)	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 Northwest 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 Northwest, September 2021**

Name	Candidates	Openings	Gap
Blueprint Reading	78	131	-53
Tape Measures	96	145	-49
Heavy Equipment Operation	71	94	-23
Gauges	54	70	-16
Packaging	25	38	-14
Power Tools	124	137	-13
Lathes	50	63	-13
Drill Presses	22	34	-12
Telecommunications	9	20	-11
Hydraulic Presses	1	11	-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 Engineering, Manufacturing, and Technology, Northwest Minnesota Metro 2021Q1

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

Construction Managers (OG)  
 Cost Estimators (OG, AG)  
 Logisticians  
 Tool and Die Makers (AG)  
 CNC Tool Programmers (OG, AG)  
 Aircraft Mechanics and Service Technicians

#### Gateway Occupations

Heavy and Tractor-Trailer Truck Drivers (HS, OG, AG)  
 Carpenters (OG)  
 Maintenance and Repair Workers, General (HD, OG, AG)  
 Passenger Vehicle Drivers (HD)  
 Automotive Service Technicians and Mechanics (HS, AG)  
 Welders, Cutters, Solderers, and Brazers (OG, AG)

#### Origin Occupations

##### Likely

Laborers and Freight, Stock Movers  
 Team Assemblers  
 Construction Laborers  
 Landscaping and Groundskeeping Workers (HD, AG)  
 Light Truck Drivers

##### Aligned

Parking Lot Attendants  
 Retail Sales Workers  
 Stockers and Order Fillers  
 Janitors and Cleaners  
 Personal Services Managers

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
Landscaping and Groundskeeping Workers	Retail Sales Workers
Passenger Vehicle Drivers	Stockers and Order Fillers
Team Assemblers	Janitors and Cleaners
Light Truck 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 (\$49,500 in the Northwest). 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	Parking Lot Attendants
Carpenters	Product Demonstrators
Maintenance and Repair Workers, general	General Managers
Passenger Vehicle Drivers	Computer User Support Specialists
Automotive Service Technicians and Mechanics	Software Developers
Welders, Cutters, Solders, and Brazers	

*Target Occupations* refer to high-wage occupations that pay at or above the region's average wage (\$49,500 in the Northwest). 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.

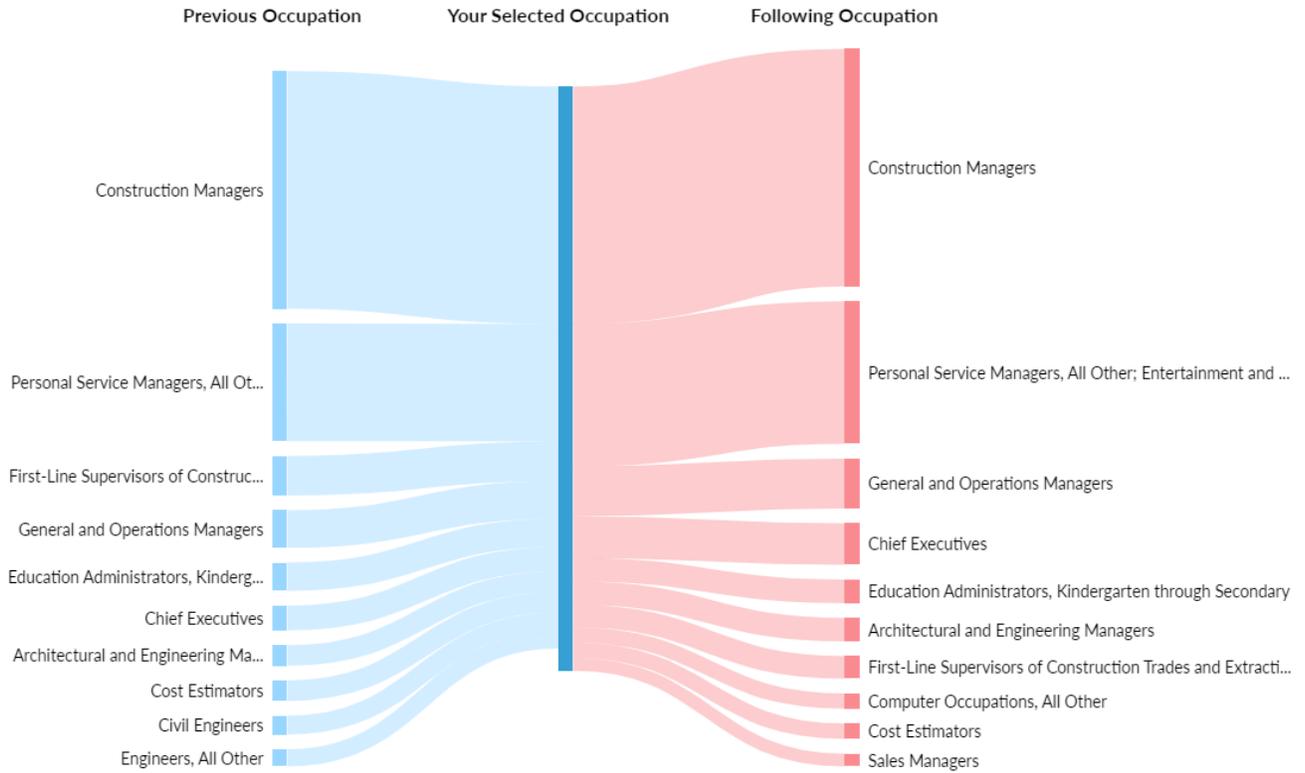
### Top Target Occupations in Engineering, Manufacturing, and Technology, Northwest Minnesota 2021Q1

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
11-9021	Construction Managers	677	\$89,300	HW	HS	HD	OG	
13-1051	Cost Estimators	231	\$56,100	HW	HS	HD	OG	AG
13-1081	Logisticians	127	\$59,800	HW	HS	HD		
51-4111	Tool and Die Makers	106	\$56,900	HW	HS	HD		AG
51-9162	Computer Numerically Controlled Tool Programmers	67	\$65,100	HW	HS	HD	OG	AG
49-3011	Aircraft Mechanics and Service Technicians	47	\$53,600	HW	HS	HD		
19-2099	Physical Scientists, All Other	35	\$101,000	HW	HS	HD		AG

Although the Northwest is not a hotspot for Construction Managers the region will need more of this talent in the years ahead than what is likely to be available in the local talent pool. Wages are some of the highest in the region for the required education level.

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 Construction Manager. The right column shows job transitions from Construction Management to other occupations—including both likely transitions and aligned transitions.

## Construction Manager Talent Gain and Drain, Northwest Minnesota 2021Q3 Candidate Profile Analysis



Candidate profile analysis from Emsi 2021Q3 national dataset.

## Graduate Pipeline for Industrial Construction Managers, Northwest Minnesota 2021

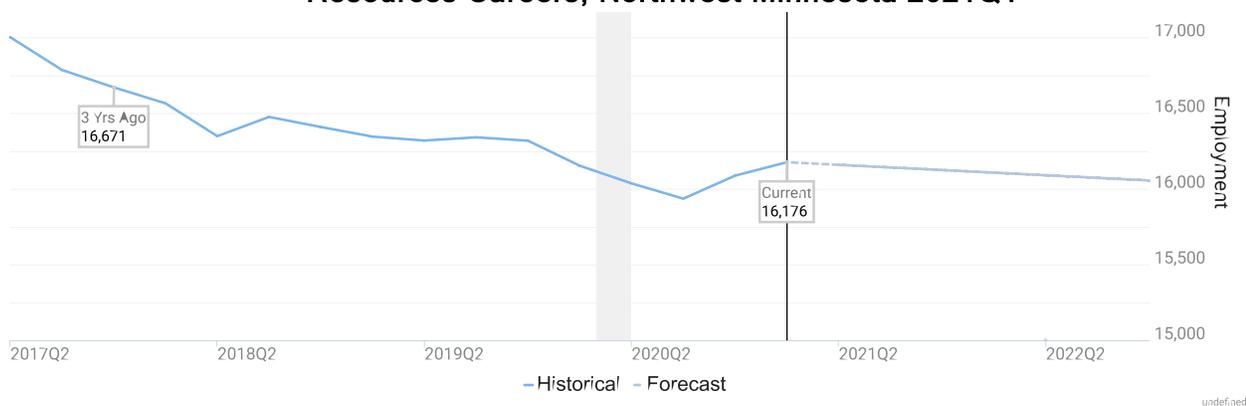


2020 IPEDS Completions Data; Visualizations from Emsi 2021Q3 dataset.

## 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 -0.5% in the Northwest. In the most optimistic scenario feasible based on employer demand and given the existing talent shortage, flat employment (0% growth) in this field could be possible. Most of the growth is attributable to Environmental Services Systems and Plant Systems careers.

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



### Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume in the Northwest, 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	5,336	\$78,900	5.46	-452	420	-1.5%
Landscaping and Groundskeeping Workers	1,530	\$34,000	1.20	102	217	0.8%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,306	\$39,100	1.99	24	211	-0.2%
Plumbers, Pipefitters, and Steamfitters	598	\$53,400	1.14	19	67	0.2%
Food Batchmakers	541	\$38,300	3.07	14	76	-0.5%
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	484	\$54,600	0.88	0	51	-0.1%
Farmworkers, Farm, Ranch, and Aquacultural Animals	454	\$32,200	2.40	-43	65	-1.3%
Meat, Poultry, and Fish Cutters and Trimmers	439	\$31,000	2.57	9	54	-0.1%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	320	\$52,600	0.76	26	31	0.1%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	314	\$52,500	1.65	17	38	0.9%
Remaining Component Occupations	4,854	\$49,200	1.17	-104	566	-0.1%
<b>AFNR - Agriculture, Food, and Natural Resources (CTE Field - Updated 2021)</b>	<b>16,176</b>	<b>\$55,900</b>	<b>1.65</b>	<b>-389</b>	<b>1,802</b>	<b>-0.5%</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 the Northwest. Locally, the industries with the greatest share of this field's talent are Crop Production (16.8%) and Animal Production (15.5%). Most industries employing talent in this field only touch less than 1% of total talent skilled in this field, and span from grocery to ranching to electric power generation.

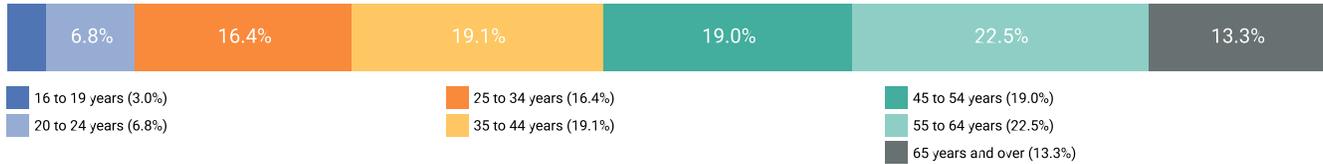
### Agriculture, Food, and Natural Resources Field Employment by Industry, 2021Q1, Northwest Minnesota

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Growth	10-Year Total Demand
Crop Production (Proprietors)	16.8%	2,723	2,667	-343	2,324
Animal Production (Proprietors)	15.5%	2,512	2,297	-370	1,927
Services to Buildings and Dwellings	5.4%	874	1,143	63	1,207
Oilseed and Grain Farming	4.5%	721	1,054	8	1,062
Building Equipment Contractors	4.3%	700	758	26	783
Support Activities for Crop Production	3.7%	591	872	-13	859
Executive, Legislative, and Other General Government Support	3.6%	575	636	19	655
Animal Slaughtering and Processing	3.2%	514	646	-7	640
Other Crop Farming	2.4%	385	561	3	564
Cattle Ranching and Farming	2.1%	342	459	-36	423
Vegetable and Melon Farming	2.0%	320	477	15	491
Other Professional, Scientific, and Technical Services	1.7%	279	281	39	320
Sugar and Confectionery Product Manufacturing	1.7%	270	349	-54	295
Grocery Stores	1.7%	270	337	-3	334
Other Food Manufacturing	1.5%	238	351	24	374
Electric Power Generation, Transmission and Distribution	1.5%	235	187	-59	128
Machinery, Equipment, and Supplies Merchant Wholesalers	1.4%	226	218	-13	205
Wired and Wireless Telecommunications Carriers	1.3%	214	224	-22	202
Poultry and Egg Production	1.3%	212	287	-20	267
Farm Product Raw Material Merchant Wholesalers	1.2%	186	258	-25	233
All Others	23.4%	3,788	4,662	91	4,752

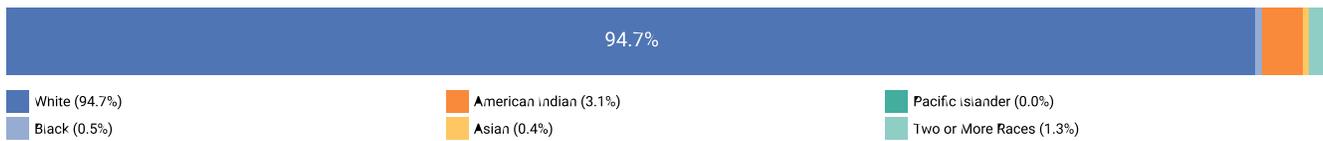
### Career Field Demographics

The Agriculture, Food, and Natural Resources field is predominantly male (75.3%) and White (94.7%), but with variation by career pathway. Overall, the age of the workforce in this field trends older, but key careers in Animal Systems, Power, Structural, and Technical Systems, and Biotechnology Systems in particular have a rapidly aging workforce with limited new talent entering.

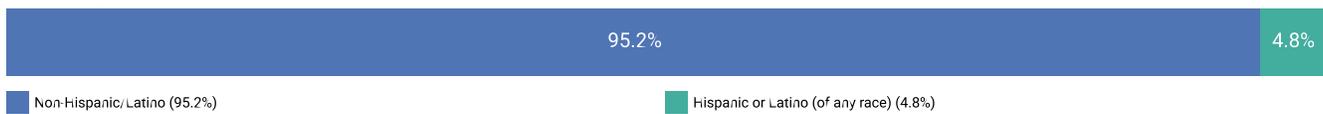
#### Age



#### Race



#### Ethnicity



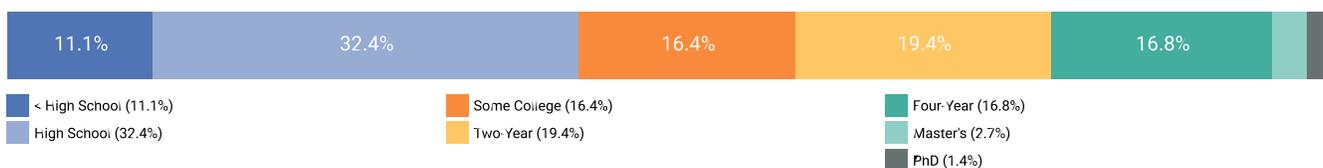
#### Gender



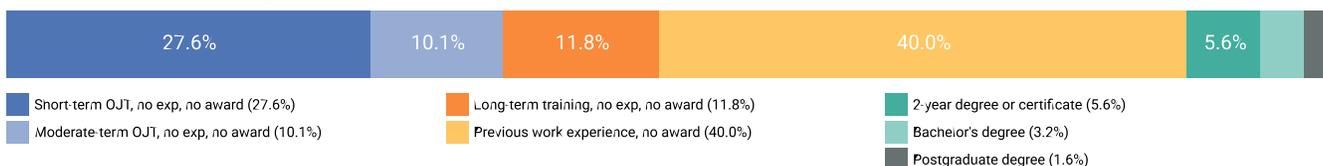
### Educational Attainment and Requirements

The stacked bar charts here illustrates the estimated mix of educational attainment of the workers in the career field in aggregate, and the typically-required education of positions in the field. Just over one in five of all positions in this field regionally (27.6%) require no degree, no experience, and only short-term on-the-job training. Almost two out of three (61.9%) require experience or some on-the-job training, but still no degree; in all, 89.5% of positions require no formal education. About 11.1% of the workforce in this field has no degree at all, and about one in three workers in this field (32.4%) hold a high school diploma as their highest credential. In all, 59.9% 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



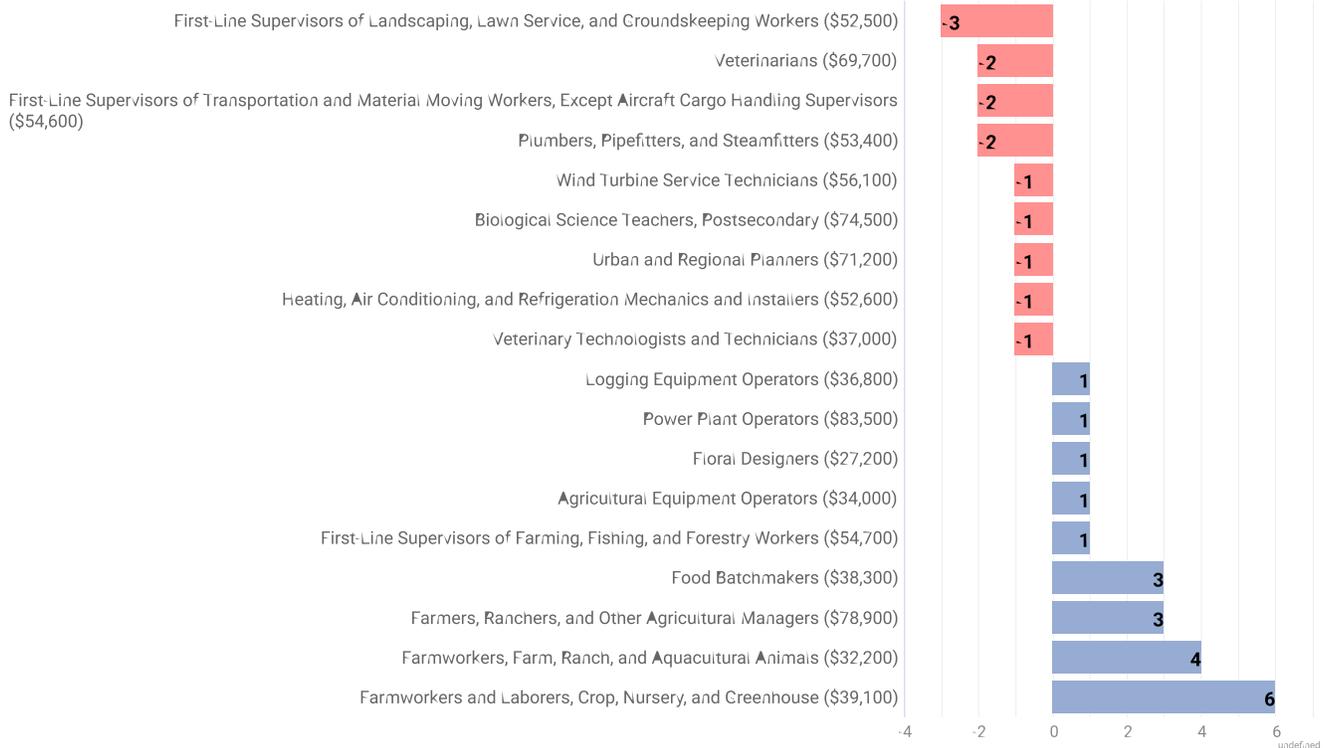
## Typical Education Requirements for Top Occupations by Volume, 2021Q1

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
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
Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	None	Apprenticeship
Food Batchmakers	High school diploma or equivalent	None	Moderate-term on-the-job training
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	High school diploma or equivalent	Less than 5 years	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
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Postsecondary non-degree award	None	Long-term on-the-job training
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	High school diploma or equivalent	Less than 5 years	None

### 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 Landscaper, Veterinarian, Transportation Supervisors, Plumber, and Wind Turbine Service Technician talent pools likely falling behind the most. Retirements and growing demand unmet by the local talent supply chain are both contributing factors.

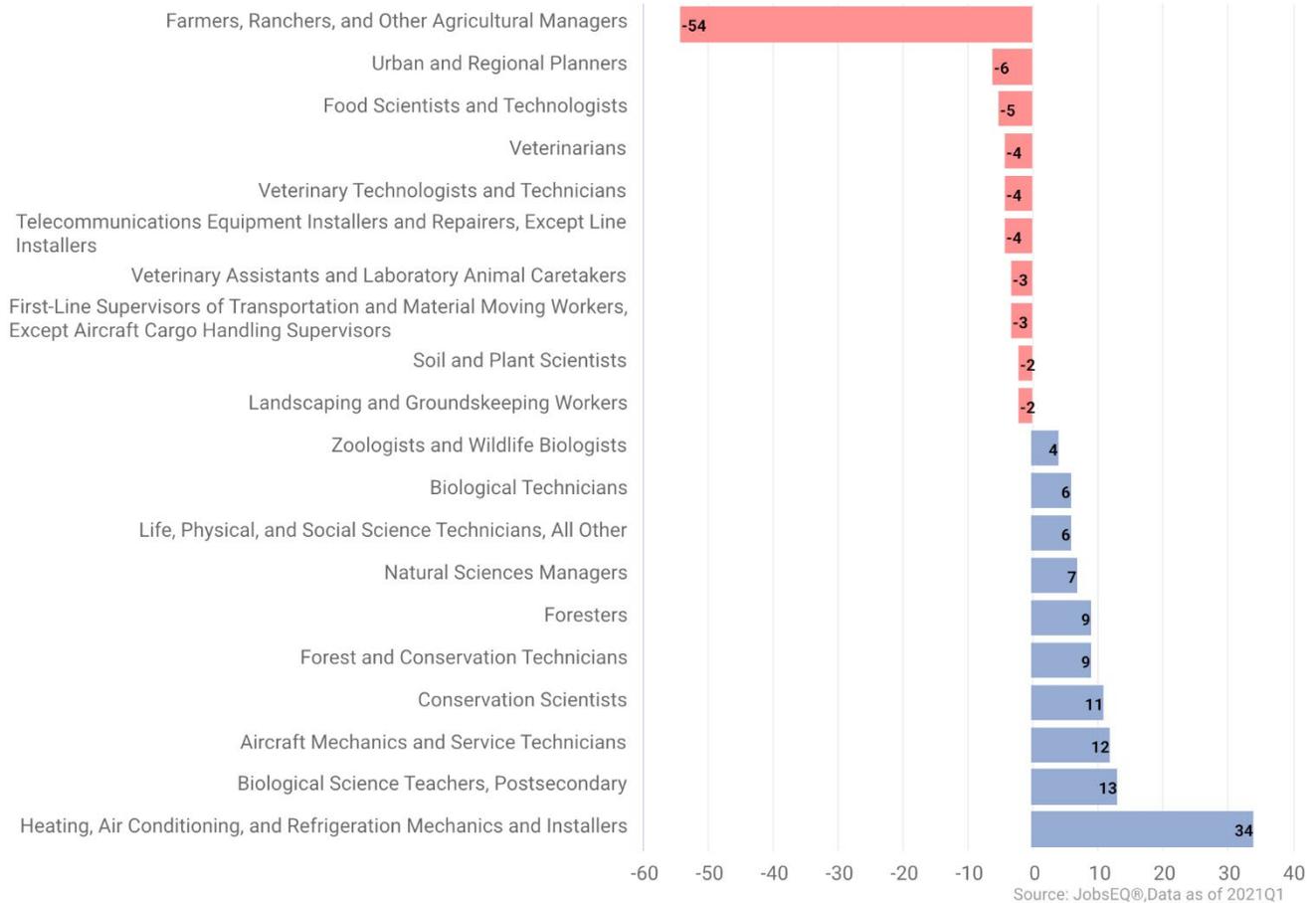
### Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, Northwest Minnesota 2021Q1



## 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 moderate shortages. The Northwest currently under-trains some talent in Agriculture, Food, and Natural Resources when compared to national benchmarks. Northwest Minnesota colleges and universities are underproducing at least 54 graduates annually that are needed to fill farming and agricultural management positions open with employers based in the Northwest. Planner, Food Scientist, Veterinarian, and Vet Tech roles are also lagging in local graduate awards, as the majority of Animal Systems and Urban/Regional Planning completions are made in the MSP Metro.

### Award Gaps in Agriculture, Food, and Natural Resources, Northwest 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 Northwest Minnesota, September 2021

Name	Candidates	Openings	Gap
Registered Veterinary Technician (RVT)	0	2	-1
Certified Professional Dog Trainer (CPDT)	0	1	-1
Laboratory Animal Technician (LAT)	0	1	-1
EPA Section 608 Certification (EPA 608)	1	1	0
ServSafe Food Protection Manager Certification	1	0	0
Doctor of Veterinary Medicine (DVM)	1	0	1
HAZMAT	1	1	1
Certified Arborist	2	1	1
Certified Pesticide Applicator	2	2	1
OSHA 10	2	1	1

### 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 Northwest 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 Northwest Minnesota, September 2021

Name	Candidates	Openings	Gap
Heavy Equipment Operation	11	29	-18
Retail Management	4	19	-14
Landscaping	99	112	-13
Plumbing	69	81	-12
Routers	2	11	-9
Apple	2	10	-7
Telecommunications	5	12	-7
Data Analysis	5	10	-5
Generators	1	4	-3
Knife Skills	1	3	-3

### 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, Northwest Minnesota 2021Q1

**Target Occupations** (all HW, HD, HS)  
 Urban and Regional Planners (OG, AG)  
 Biological Science Teachers, Postsecondary (OG)  
 Aircraft Mechanics and Service Technicians  
 Agricultural inspectors  
 Wind Turbine Service Technicians (OG)

### Gateway Occupations

Farm Equipment Mechanics and Service Technicians  
 Tree Trimmers and Pruners  
 Chefs and Head Cooks (HD, AG)  
 Chemical Technicians (HS)  
 Forest and Conservation Technicians (HS)  
 Life, Physical, and Social Science Technicians, All Other (HS)

Origin Occupations	Likely	Aligned
	Landscaping and Groundskeeping Workers (HD, AG)	Compliance Officers
	Farmworkers and Laborers	Laborers and Freight Movers
	Food Batchmakers (HD)	Stockers and Order Fillers
	Farmworkers, Farm Ranch and Aquacultural Animals	Cooks
	Meat, Poultry, and Fish Cutters and Trimmers (HD)	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
Landscaping and Groundskeeping Workers	Compliance Officers
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	Laborers and Freight, Stock Movers
Food Batchmakers	Stockers and Order Fillers
Farmworkers, Farm, Ranch, and Aquacultural Animals	Cooks
Meat, Poultry, and Fish Cutters and Trimmers	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 (\$49,500 in the Northwest). 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
Farm Equipment Mechanics and Service Technicians	Heavy and Trailer-Truck Mechanics
Tree Trimmers and Pruners	Automobile Service Technicians
Chefs and Head Cooks	General Managers
Chemical Technicians	Computer User Support Specialists
Forest and Conservation Technicians	Machinists
Life, Physical, and Social Science Technicians, All Other	Engineering Managers

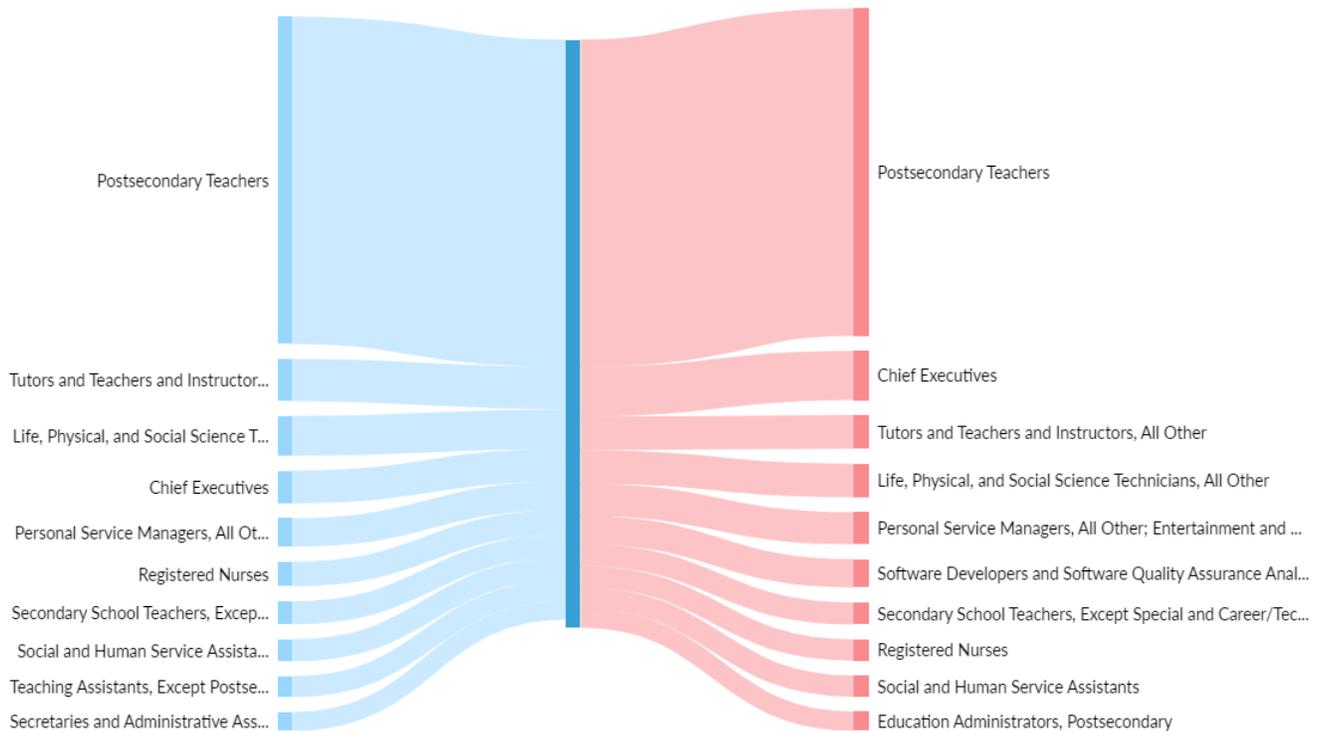
*Target Occupations* refer to high-wage occupations that pay at or above the region’s average wage (\$49,500 in the Northwest). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively.

**Top Target Occupations in Agriculture, Food, and Natural Resources, Northwest Minnesota 2021Q1**

SOC	Occupation	2021Q1 Empl	Mean Ann Wages <sup>2</sup>	High-Wage	High-Skill	High-Demand	OG	AG
19-3051	Urban and Regional Planners	61	\$71,200	HW	HS	HD	OG	AG
25-1042	Biological Science Teachers, Postsecondary	48	\$74,500	HW	HS	HD	OG	
49-3011	Aircraft Mechanics and Service Technicians	47	\$53,600	HW	HS	HD		
45-2011	Agricultural Inspectors	21	\$52,600	HW	HS	HD		
49-9081	Wind Turbine Service Technicians	15	\$56,100	HW	HS	HD	OG	

Northwest Minnesota will need a stronger pipeline of postsecondary-level Biological Science Teachers in the years ahead. 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 Postsecondary Teachers—which includes a variety of educational fields. The right column shows job transitions from Biological Science Teachers to other occupations—including both likely transitions and aligned transitions.

**Postsecondary Teacher Talent Gain and Drain, Northwest Minnesota 2021Q3 Candidate Profile Analysis**



Candidate profile analysis from Emsi 2021Q3 national dataset.

## Graduate Pipeline for Postsecondary Teachers, Northwest Minnesota 2021



### 7 Programs

227 programs can train for this job, while only 7 programs have produced completers in this region.



### 605 Completions (2020)

The completions from all regional institutions for all degree types.



### 172 Openings (2020)

The average number of openings for an occupation in the region is 28.

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 Northwest 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 Northwest 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 Northwest 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.