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.
Who’s in the Virtual “Room”

In the chat field, please share your name, your role, and the organization that you represent.
CAREER & TECHNICAL EDUCATION

Workforce Trends & Careers of Tomorrow

RealTime Talent
Erin Olson, Director of Strategic Research
October 2021
Overview

Northwest Minnesota

- Community Profile
- Workforce Forecast
- Mid-Term Occupational Impacts
- Career Field Insights

Access the full report here: http://www.realtimetalent.org
Community Profile

Population Ethnicity, All Ages

<table>
<thead>
<tr>
<th>Location</th>
<th>Non-Hispanic White</th>
<th>Hispanic/Latinx, Any Race</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moorhead</td>
<td>95.5%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Alexandria</td>
<td>98.3%</td>
<td>1.7%</td>
</tr>
<tr>
<td>Bemidji</td>
<td>97.6%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Northwest</td>
<td>96.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Minnesota</td>
<td>94.7%</td>
<td>5.4%</td>
</tr>
</tbody>
</table>

Community Profile

Educational Attainment, Age 25-64

- **Moorhead**: 4.0% No High School Diploma, 17.8% High School Graduate or GED, 20.9% Some College, No Degree, 17.7% Associate's Degree, 28.9% Bachelor's Degree, 10.8% Postgraduate Degree
- **Alexandria**: 4.1% No High School Diploma, 22.6% High School Graduate or GED, 21.1% Some College, No Degree, 24.8% Associate's Degree, 20.3% Bachelor's Degree, 7.1% Postgraduate Degree
- **Bemidji**: 7.9% No High School Diploma, 25.9% High School Graduate or GED, 24.0% Some College, No Degree, 13.4% Associate's Degree, 18.5% Bachelor's Degree, 10.3% Postgraduate Degree
- **Northwest**: 6.2% No High School Diploma, 27.2% High School Graduate or GED, 23.4% Some College, No Degree, 17.5% Associate's Degree, 18.6% Bachelor's Degree, 7.1% Postgraduate Degree
- **Minnesota**: 6.1% No High School Diploma, 21.7% High School Graduate or GED, 21.0% Some College, No Degree, 12.9% Associate's Degree, 25.6% Bachelor's Degree, 12.7% Postgraduate Degree

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.
Community Profile

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.
Community Profile

Northwest Minnesota

- Gross Regional Product (GRP) contracted -1.4%
- Manufacturing contributes most to GRP
Workforce of Today & Tomorrow Forecast

Northwest Minnesota
Polling Question

When you think about the current economic situation in your community, which of the following career fields do you feel has the most challenging or pressing workforce needs to be addressed right now? (select up to two)

1. Agriculture, Food, and Natural Resources
2. Arts, Communications, and Information Systems
3. Business, Management, and Administration
4. Engineering, Manufacturing, and Technology
5. Health Science Technology
6. Human Services
Polling Question

When you think about your local school, district, or consortium’s programming, how well do you feel current program offerings address your community’s most challenging or pressing workforce needs right now?

1. To a Great Extent
2. Somewhat
3. Very Little
4. Not at all
5. I do not know
Workforce of Today & Tomorrow

Forecast

Industry Clusters for Northwest Minnesota as of 2021Q1

Average Wages ($1,000s)

Average Annual Employment Forecast Rate(%) 2021Q1-2031Q1

Northwest Minnesota
Mid-Term Occupational Impacts

High Contact-Intensity Occupations

Diverging Mid-Term Impacts (greatest losses)
- Waiters and Waitresses (-27.2%)
- Bartenders (-26.1%)
- Supervisors of Food Preparation Workers (-18.9%)
- Passenger Vehicle Drivers (-5.7%)

- Of all high contact-intensity roles, only LPNs saw growth over the past year.

Average unemployment rate of 6.2% across all high contact-intensity roles.
COVID-19 has accelerated talent surplus anticipated in lower-wage, lower-education positions, particularly:
1) high contact-intensity occupations and
2) positions that cannot be done remotely.

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

Source: JobsEQ® Data as of 2019Q4 except wages which are as of 2019

Northwest Minnesota
Emerging Career Paths

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%)

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%)

Chmura Economics JobsEQ, 2021Q1 dataset.
Emerging Career Paths

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

Change in Volume of Remote Work Opportunities

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%)

Chmura Economics JobsEQ, 2021Q1 dataset.
Baseline Worst-Case Scenario 10-Year Forecasts by Career Cluster, Northwest Minnesota 2021Q1

Shifting Opportunities

Northwest Minnesota
**Career Field Analysis**

**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)

**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)

**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*
Career Field Analysis

Occupation Characteristics for Consideration

- High-Wage: Paying above the area mean wage
- High-Skill: Requiring some form of credential
- High-Demand: 2/4 of the following requirements met:
  - Low unemployment
  - High volume of job postings in the past 3 months
  - Forecasted growth outpaces average regional forecasted growth
  - Forecasted total demand equal to or greater than 50% of total current employment
- Occupation Gaps
- Award Gaps
Baseline Worst-Case Scenario 3-Year Forecast for Health Science Technology Careers, Northwest Minnesota 2021Q1

3 Yrs Ago 17,186
Current 17,269

Chmura Economics JobsEQ, 2021Q1 dataset.
<table>
<thead>
<tr>
<th>Occupation</th>
<th>Annual Average Occupation Gap</th>
<th>Certification Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registered Nurses ($71,900)</td>
<td>-36</td>
<td>Licensed Practical Nurse (LPN)</td>
</tr>
<tr>
<td>Medical and Health Services Managers ($98,000)</td>
<td></td>
<td>Trauma Nursing Core Course (TNCC)</td>
</tr>
<tr>
<td>Licensed Practical and Licensed Vocational Nurses ($45,200)</td>
<td></td>
<td>Registered Dental Assistant (RDA)</td>
</tr>
<tr>
<td>Nurse Practitioners ($113,500)</td>
<td></td>
<td>Certified Dental Assistant (CDA)</td>
</tr>
<tr>
<td>Nursing Assistants ($32,600)</td>
<td></td>
<td>Medical Laboratory Technician (MLT)</td>
</tr>
<tr>
<td>Medical Assistants ($40,600)</td>
<td></td>
<td>Pediatric Advanced Life Support (PALS)</td>
</tr>
<tr>
<td>Medical Secretaries and Administrative Assistants ($39,000)</td>
<td></td>
<td>Health &amp; Safety Certification</td>
</tr>
<tr>
<td>Physical Therapists ($84,600)</td>
<td></td>
<td>Medical Technologist (Medical Technologist)</td>
</tr>
<tr>
<td>Physicians, All Other; and Ophthalmologists, Except Pediatric ($247,900)</td>
<td></td>
<td>Emergency Nursing Pediatric Course (ENPC)</td>
</tr>
<tr>
<td>Speech-Language Pathologists ($70,100)</td>
<td></td>
<td>Registered Respiratory Therapist (RRT)</td>
</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
### Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nursing Assistants (HS, OG)</td>
<td>Personal Care Aides</td>
</tr>
<tr>
<td>Home Health Aides (HD)</td>
<td>Childcare Workers</td>
</tr>
<tr>
<td>Psychiatric Technicians (HS, OG, AG)</td>
<td>Secretaries</td>
</tr>
<tr>
<td>Pharmacy Technicians (OG)</td>
<td>Cashiers</td>
</tr>
<tr>
<td>Psychiatric Aides (HD, AG)</td>
<td>Cooks</td>
</tr>
</tbody>
</table>

### 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)

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

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

*Note: The data is from the Chmura Economics JobsEQ, 2021Q1 dataset.*
Baseline Worst-Case Scenario 3-Year Forecast for Human Services Careers, Northwest Minnesota 2021Q1

Historical - Forecast

3 Yrs Ago
29,422

Current
28,449

Northwest Minnesota
Human Services

Award Gaps in Human Services, Northwest Minnesota 2021Q1

- Childcare Workers: -34
- Lawyers: -23
- Hairdressers, Hairstylists, and Cosmetologists: -22
- Clergy: -20
- Social and Human Service Assistants: -16
- Emergency Medical Technicians: -16
- Crematory Operators and Personal Care and Service Workers, All Other: -15
- Firefighters: -11
- Legislators: -9
- Directors, Religious Activities and Education: -7
- Health Specialties Teachers, Postsecondary: 15
- First-Line Supervisors of Police and Detectives: 15
- Education Administrators, Postsecondary: 17
- Exercise Trainers and Group Fitness Instructors: 20
- Security Guards: 31
- Education Administrators, Kindergarten through Secondary: 32
- Middle School Teachers, Except Special and Career/Technical Education: 42
- Instructional Coordinators: 54
- Elementary School Teachers, Except Special Education: 105
- Police and Sheriff’s Patrol Officers: 110

Source: JobsEQ, Data as of 2021Q1
**Human Services**

Northwest, 2021Q1

---

### 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

---

### 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)

---

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

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

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

Chmura Economics JobsEQ, 2021Q1 dataset.
Arts, Communications, & Information Systems

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

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Average Salary</th>
<th>Gap 2021Q1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software Developers and Software Quality Assurance Analysts and Testers</td>
<td>$84,400</td>
<td>-7</td>
</tr>
<tr>
<td>Computer Systems Analysts</td>
<td>$71,800</td>
<td>-2</td>
</tr>
<tr>
<td>Producers and Directors</td>
<td>$64,500</td>
<td></td>
</tr>
<tr>
<td>Database Administrators and Architects</td>
<td>$83,200</td>
<td></td>
</tr>
<tr>
<td>Computer Network Support Specialists</td>
<td>$65,100</td>
<td></td>
</tr>
<tr>
<td>Photographers</td>
<td>$49,500</td>
<td></td>
</tr>
<tr>
<td>Network and Computer Systems Administrators</td>
<td>$71,700</td>
<td></td>
</tr>
<tr>
<td>Computer Occupations, All Other</td>
<td>$73,200</td>
<td></td>
</tr>
<tr>
<td>Information Security Analysts</td>
<td>$85,300</td>
<td></td>
</tr>
<tr>
<td>Musicians and Singers</td>
<td>$52,100</td>
<td></td>
</tr>
<tr>
<td>Floral Designers</td>
<td>$27,200</td>
<td></td>
</tr>
<tr>
<td>Print Binding and Finishing Workers</td>
<td>$38,300</td>
<td></td>
</tr>
<tr>
<td>News Analysts, Reporters, and Journalists</td>
<td>$39,900</td>
<td></td>
</tr>
<tr>
<td>Editors</td>
<td>$59,100</td>
<td></td>
</tr>
<tr>
<td>Prepress Technicians and Workers</td>
<td>$38,300</td>
<td></td>
</tr>
<tr>
<td>Graphic Designers</td>
<td>$46,000</td>
<td></td>
</tr>
<tr>
<td>Printing Press Operators</td>
<td>$36,700</td>
<td></td>
</tr>
</tbody>
</table>

Certification Gaps

- Project Management Professional (PMP)
- Certified Security Software Lifecycle Professional (CSSLP)
- Microsoft Certified Solutions Expert (MCSE)
- Certified Associate in Project Management (CAPM)
- Cisco Certified Network Associate (CCNA)
- Certified Cloud Security Professional (CCSP)
- Certified Information Systems Auditor (CISA)
- Commercial Driver's License (CDL)
Arts, Communications, & Information Systems

Northwest, 2021Q1

**Origin Occupations**
- Likely:
  - Printing Press Operators (AG)
  - Floral Designers
  - Broadcast Announcers & Radio Disc Jockeys (HS, HD)
  - Print Binding and Finishing Workers
  - News Analysts, Reporters, and Journalists
- Aligned:
  - Library Technicians
  - Recreation Attendants
  - Hosts and Hostesses
  - Customer Service Reps
  - Machine Operators

**Target Occupations** (all HW, HD, HS)
- Software Developers (OG)
- Writers and Authors
- Computer Programmers
- Database Administrators and Architects (OG)
- Computer Network Architects

**Gateway Occupations**
- Computer User Support Specialists (HS, AG)
- Graphic Designers (HS)
- Music Directors and Composers (HS, HD)
## Top Ten Target Occupations in Arts, Communications, and Information Systems, Northwest Minnesota 2021Q1

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Empl</th>
<th>Mean Ann Wages</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-1256</td>
<td>Software Developers and Software Quality Assurance Analysts and Testers</td>
<td>545</td>
<td>$84,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>27-3043</td>
<td>Writers and Authors</td>
<td>99</td>
<td>$54,700</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-1251</td>
<td>Computer Programmers</td>
<td>88</td>
<td>$84,900</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-1245</td>
<td>Database Administrators and Architects</td>
<td>76</td>
<td>$83,200</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>15-1241</td>
<td>Computer Network Architects</td>
<td>68</td>
<td>$100,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-2012</td>
<td>Producers and Directors</td>
<td>64</td>
<td>$64,500</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>27-1011</td>
<td>Art Directors</td>
<td>58</td>
<td>$96,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-1021</td>
<td>Commercial and Industrial Designers</td>
<td>52</td>
<td>$66,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-3042</td>
<td>Technical Writers</td>
<td>34</td>
<td>$63,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27-1014</td>
<td>Special Effects Artists and Animators</td>
<td>31</td>
<td>$62,600</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Baseline Worst-Case Scenario 3-Year Forecast for Business, Management, and Administration Careers, Northwest Minnesota 2021Q1

3 Years Ago
70,131

Current
64,396

Chmura Economics JobsEQ, 2021Q1 dataset.
### Business, Management, & Administration

#### Certification Gaps

<table>
<thead>
<tr>
<th>Certification</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>ServSafe Food Protection Manager Certification</td>
<td>-8</td>
</tr>
<tr>
<td>HAZMAT</td>
<td>-7</td>
</tr>
<tr>
<td>Basic Life Support (BLS)</td>
<td>-6</td>
</tr>
<tr>
<td>Project Management Professional (PMP)</td>
<td>-6</td>
</tr>
<tr>
<td>Certified Public Accountant (CPA)</td>
<td>-5</td>
</tr>
<tr>
<td>Class A Commercial Driver's License (CDL-A)</td>
<td>-5</td>
</tr>
<tr>
<td>Commercial Driver's License (CDL)</td>
<td>-4</td>
</tr>
<tr>
<td>Notary Public</td>
<td>-4</td>
</tr>
<tr>
<td>Certified Management Accountant (CMA)</td>
<td>-3</td>
</tr>
<tr>
<td>Program Management Professional (PgMP)</td>
<td>-3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Average Pay</th>
<th>Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>General and Operations Managers</td>
<td>$94,700</td>
<td>14</td>
</tr>
<tr>
<td>Project Management Specialists and Business Operations Specialists, All Other</td>
<td>$60,600</td>
<td>-8</td>
</tr>
<tr>
<td>Financial Managers</td>
<td>$111,800</td>
<td>-7</td>
</tr>
<tr>
<td>Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products</td>
<td>$65,300</td>
<td>-6</td>
</tr>
<tr>
<td>Accountants and Auditors</td>
<td>$63,700</td>
<td>-6</td>
</tr>
<tr>
<td>Market Research Analysts and Marketing Specialists</td>
<td>$55,500</td>
<td>5</td>
</tr>
<tr>
<td>Cooks, Restaurant</td>
<td>$30,300</td>
<td>5</td>
</tr>
<tr>
<td>Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other</td>
<td>$97,300</td>
<td>4</td>
</tr>
<tr>
<td>Management Analysts</td>
<td>$61,000</td>
<td>4</td>
</tr>
<tr>
<td>Insurance Sales Agents</td>
<td>$69,500</td>
<td>3</td>
</tr>
<tr>
<td>Amusement and Recreation Attendants</td>
<td>$24,900</td>
<td>7</td>
</tr>
<tr>
<td>Food Preparation Workers</td>
<td>$29,700</td>
<td>8</td>
</tr>
<tr>
<td>Secretaries and Administrative Assistants, Except Legal, Medical, and Executive</td>
<td>$38,600</td>
<td>8</td>
</tr>
<tr>
<td>Bartenders</td>
<td>$27,200</td>
<td>8</td>
</tr>
<tr>
<td>Office Clerks, General</td>
<td>$30,000</td>
<td>9</td>
</tr>
<tr>
<td>Customer Service Representatives</td>
<td>$39,000</td>
<td>11</td>
</tr>
<tr>
<td>Retail Salespersons</td>
<td>$33,400</td>
<td>23</td>
</tr>
<tr>
<td>Waiters and Waitresses</td>
<td>$29,400</td>
<td>26</td>
</tr>
<tr>
<td>Fast Food and Counter Workers</td>
<td>$24,700</td>
<td>42</td>
</tr>
<tr>
<td>Cashiers</td>
<td>$25,400</td>
<td>82</td>
</tr>
</tbody>
</table>

Chmura Economics JobsEQ, 2021Q1 dataset.
**Business, Management, & Administration**

**Northwest, 2021Q1**

### 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

### 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

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

<table>
<thead>
<tr>
<th>SOC</th>
<th>Occupation</th>
<th>2021Q1 Empl</th>
<th>Mean Ann Wages (^2)</th>
<th>High-Wage</th>
<th>High-Skill</th>
<th>High-Demand</th>
<th>OG</th>
<th>AG</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-1021</td>
<td>General and Operations Managers</td>
<td>2,083</td>
<td>$94,700</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-1198</td>
<td>Project Management Specialists and Business Operations Specialists, All Other</td>
<td>1,109</td>
<td>$60,600</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-2011</td>
<td>Accountants and Auditors</td>
<td>1,026</td>
<td>$63,700</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-3031</td>
<td>Financial Managers</td>
<td>517</td>
<td>$111,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>13-1161</td>
<td>Market Research Analysts and Marketing Specialists</td>
<td>509</td>
<td>$55,500</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td>AG</td>
</tr>
<tr>
<td>13-1111</td>
<td>Management Analysts</td>
<td>460</td>
<td>$61,000</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-2022</td>
<td>Sales Managers</td>
<td>427</td>
<td>$107,800</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-3013</td>
<td>Facilities Managers</td>
<td>262</td>
<td>$86,300</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>11-3021</td>
<td>Computer and Information Systems Managers</td>
<td>253</td>
<td>$115,400</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
<tr>
<td>27-3031</td>
<td>Public Relations Specialists</td>
<td>218</td>
<td>$57,600</td>
<td>HW</td>
<td>HS</td>
<td>HD</td>
<td>OG</td>
<td></td>
</tr>
</tbody>
</table>
Baseline Worst-Case Scenario 3-Year Forecast for Engineering, Manufacturing, and Technology Careers, Northwest Minnesota 2021Q1

3 Yrs Ago  
46,076

Current  
44,997

Historical  
Forecast

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

Certification Gaps

Chmura Economics JobsEQ, 2021Q1 dataset.
**Engineering, Manufacturing, & Technology**

Northwest, 2021Q1

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

**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

**Aligned**
- Parking Lot Attendants
- Retail Sales Workers
- Stockers and Order Fillers
- Janitors and Cleaners
- Personal Services Managers
### Top Ten Target Occupations in Engineering, Manufacturing, and Technology, Northwest Minnesota 2021Q1

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

Chmura Economics JobsEQ, 2021Q1 dataset.
Baseline Worst-Case Scenario 3-Year Forecast for Agriculture, Food, and Natural Resources Careers, Northwest Minnesota 2021Q1

Chmura Economics JobsEQ, 2021Q1 dataset.
Agriculture, Food, & Natural Resources

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

First Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers ($52,500)
Veterinarians ($69,700)
First Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors ($54,600)
Plumbers, Pipefitters, and Steamfitters ($53,400)
Wind Turbine Service Technicians ($56,100)
Biological Science Teachers, Postsecondary ($74,500)
Urban and Regional Planners ($71,200)
Heating, Air Conditioning, and Refrigeration Mechanics and Installers ($52,600)
Veterinary Technologists and Technicians ($37,000)
Logging Equipment Operators ($36,800)
Power Plant Operators ($83,500)
Floral Designers ($27,200)
Agricultural Equipment Operators ($34,000)
First Line Supervisors of Farming, Fishing, and Forestry Workers ($54,700)
Food Batchmakers ($38,300)
Farmers, Ranchers, and Other Agricultural Managers ($78,900)
Farmworkers, Farm, Ranch, and Aquacultural Animal ($32,200)
Farmworkers and Laborers, Crop, Nursery, and Greenhouse ($39,100)

Certification Gaps
Registered Veterinary Technician (RVT)
Certified Professional Dog Trainer (CPDT)
Laboratory Animal Technician (LAT)
EPA Section 608 Certification (EPA 608)
ServSafe Food Protection Manager Certification
Doctor of Veterinary Medicine (DVM)
HAZMAT
Certified Arborist
Certified Pesticide Applicator
OSHA 10
### Origin Occupations

<table>
<thead>
<tr>
<th>Likely</th>
<th>Aligned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Landscaping and Groundskeeping Workers (HD, AG)</td>
<td>Compliance Officers</td>
</tr>
<tr>
<td>Farmworkers and Laborers</td>
<td>Laborers and Freight Movers</td>
</tr>
<tr>
<td>Food Batchmakers (HD)</td>
<td>Stockers and Order Fillers</td>
</tr>
<tr>
<td>Farmworkers, Farm Ranch and Aquacultural Animals</td>
<td>Cooks</td>
</tr>
<tr>
<td>Meat, Poultry, and Fish Cutters and Trimmers (HD)</td>
<td>Customer Service Reps</td>
</tr>
</tbody>
</table>

### 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)

### 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)
# Top Ten Target Occupations in Agriculture, Food, and Natural Resources, Northwest Minnesota 2021Q1

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

Chmura Economics JobsEQ, 2021Q1 dataset.
Summary and Discussion
What piece of the data surprised, inspired, validated, or challenged you?
Discussion Question 2

From your perspective, what are the most important considerations in these data for Career and Technical Education programs?
What is one barrier that you can help remove for BIPOC students?
What additional information will you seek out next?
What changes or evaluations to your program will you prioritize next as a result of this data?
Thank you!

If you have questions about this report, please contact:
Erin Olson, Director of Strategic Research,
erin@realtimetalentmn.org
Appendix