CAREER & TECHNICAL EDUCATION BEYOND 2020

——

Workforce Trends & Economic Impacts

RealTime Talent

370 Wabasha Street, Suite 900
St. Paul, MN 55102

Erin Olson, Research Strategist
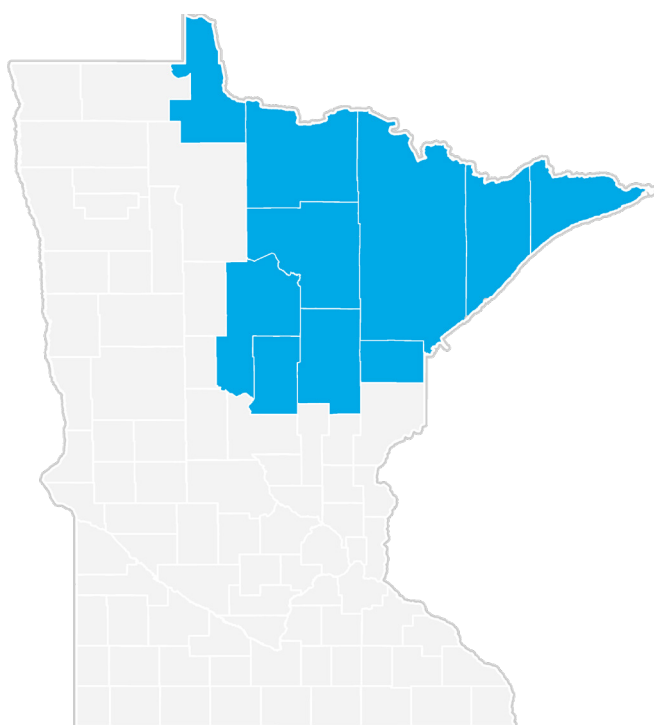Erin@realtimetalentmn.org

Minnesota State

30 East 7th Street
St. Paul, MN 55101

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

Northeast Minnesota

October 2020
Created by RealTime Talent for the Minnesota State
System Office and the Perkins Consortia of Minnesota

Authors:
Erin Olson, Research Strategist
Brooke Dirtzu, Research Analyst

Workforce Trends & Economic Impacts
Introduction

In the first five and a half months of the economic impact of COVID-19, 928,038 Minnesota residents applied for unemployment insurance—about 29% of the state's employed workforce in the first quarter of 2021.[1] At the county level, anywhere from 9.2% (Wilkin County) to 63.7% (Roseau County) of the local workforce applied for unemployment insurance. Although the employment impacts of the pandemic have been forecast to be sharp and short by most economists, recovery is unlikely to be felt equally across the state.

This report aims to support Consortia in navigating changes in their local labor market due to COVID-19 and exploring how these changes may impact enrollment, industry, career advancement, and the needed programs of study by region. Each of the five regional reports include:

- Regional economic and demographic overview
- Economic Vulnerability Analysis due to COVID-19: Industries and occupations greatest and least impacted
- Review of remote work opportunities, impacts, and mid-term regional projections
- Mapping of significant labor market needs, including forecasted regional talent shortages and workforce skill mismatches over the next 3-5 years
- Identification of key priorities and barriers for youth and adult career pathways in 6 career clusters for the Perkins Comprehensive Local Needs Assessment:
    - Health Science Technology
    - Engineering, Manufacturing, and Technology
    - Arts, Communications, and Information Systems
    - Agriculture, Food, and Natural Resources
    - Business, Management, and Administration
    - Human Services

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. If you have questions about the data found in this report, or are interested in learning more, please contact Research Strategist Erin Olson at erin@realtimetalentmn.org

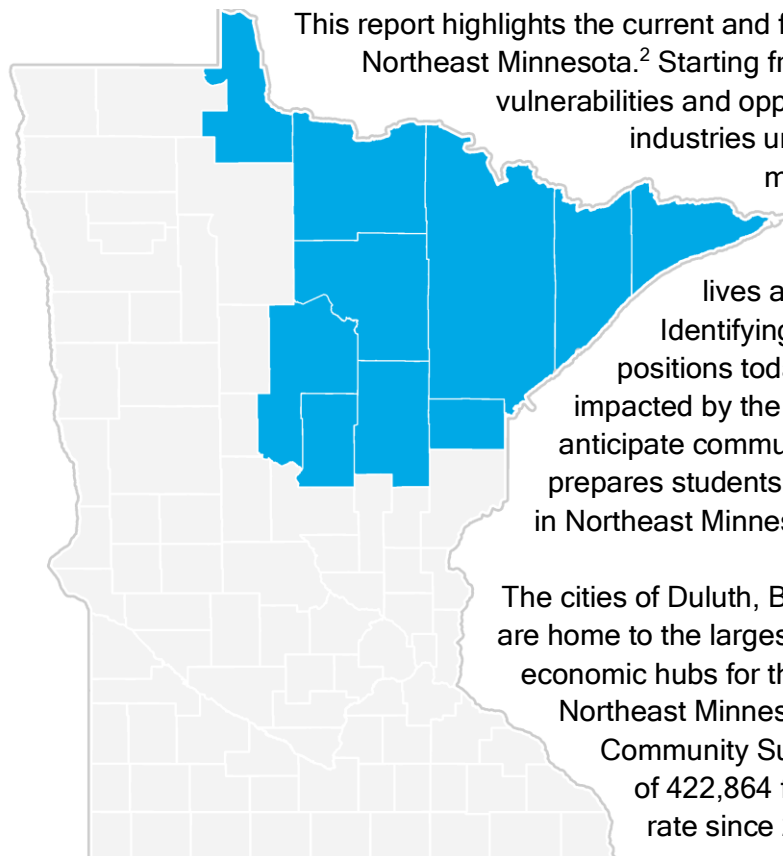---

[1] 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/

Table of Contents

Northeast Minnesota
Introduction

This report highlights the current and future talent needs in the ten counties of Northeast Minnesota.[2] 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 Northeast Minnesota.

The cities of Duluth, Brainerd, Grand Rapids, Hibbing, and Virginia are home to the largest local concentrations of population, and are economic hubs for the region. In all, 421,867 people live in Northeast Minnesota, according to 2014-2018 American Community Survey Estimates, with an estimated population of 422,864 for the region using the average annual growth rate since 2009.

---

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

Resident Population of Northeast Minnesota

Legend:
- ≤ 10,569
- 10,569 to 15,834
- 15,834 to 35,540
- 35,540 to 63,855
- ≥ 63,855

Values on map: 3,809; 12,644; 5,311; 200,080; 10,569; 45,203; 29,022; 15,834; 35,540; 63,855

Source: JobsEQ®, ESRI. American Community Survey 2014-2018
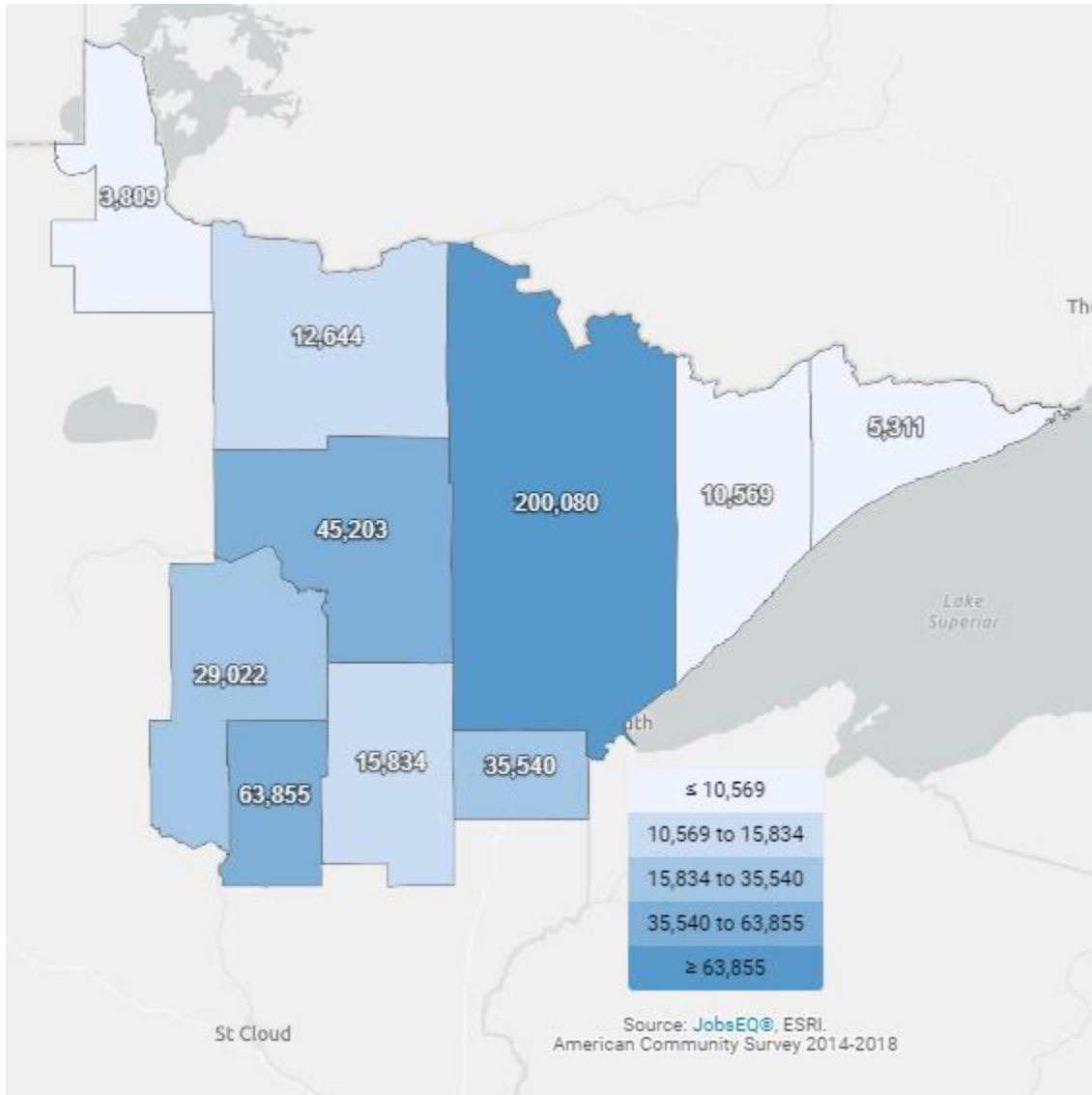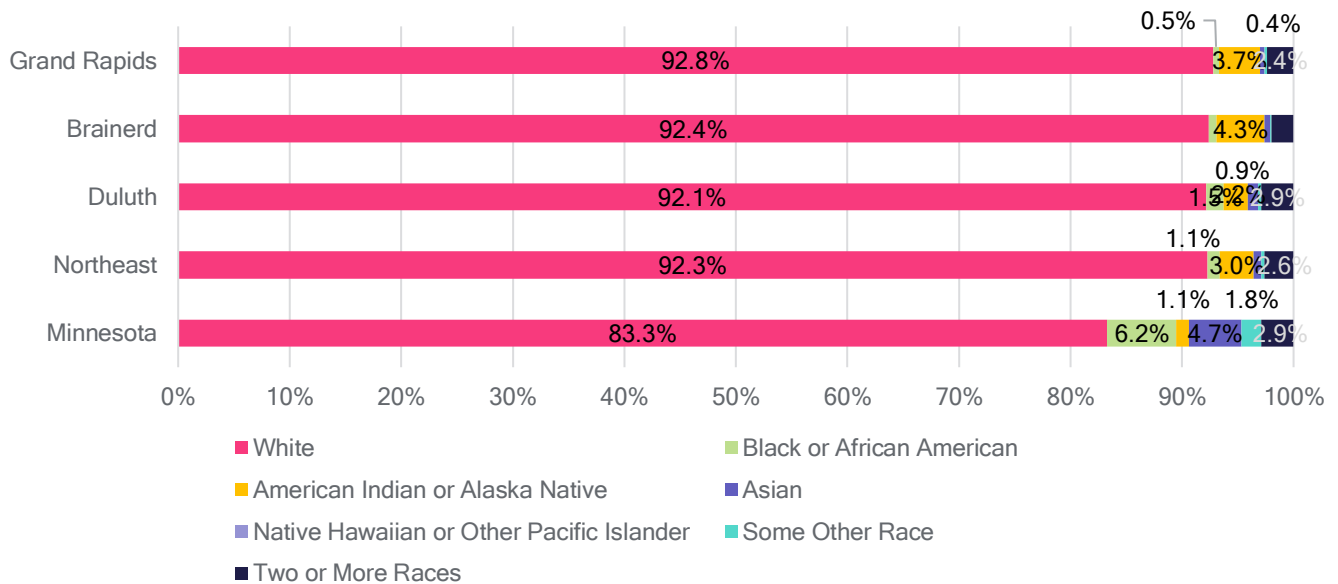
Community Profile
Demographics

Communities across Northeast Minnesota are diverse in unique ways. Across the region overall, only about 8.7% of the population identify as Black, Asian, American Indian, Native Hawaiian, or some other race. The demographic makeup of communities across the Northeast are fairly similar, though Brainerd has a greater share of American Indian residents than the other larger cities in the region. Approximately 1.6% of Northeast Minnesota's residents are Hispanic or Latinx (for comparison, about half the share of the population that is Hispanic/Latinx in the Northwest).

Population Race, All Ages

	White	Black or African American	American Indian or Alaska Native	Asian	Native Hawaiian or Other Pacific Islander	Some Other Race	Two or More Races
Grand Rapids	92.8%		3.7%			0.5%	0.4% / 1.4%
Brainerd	92.4%		4.3%				
Duluth	92.1%	1.3%		2.0%	0.9%		2.9%
Northeast	92.3%		3.0%		1.1%		2.6%
Minnesota	83.3%	6.2%		4.7%	1.1%	1.8%	2.9%

■ White
■ Black or African American
■ American Indian or Alaska Native
■ Asian
■ Native Hawaiian or Other Pacific Islander
■ Some Other Race
■ Two or More Races

American Community Survey 2014-2018.

Population Ethnicity, All Ages

	Non-Hispanic White	Hispanic/Latinx, Any Race
Grand Rapids	98.6%	1.4%
Brainerd	98.3%	1.7%
Duluth	98.4%	1.6%
Northeast	98.4%	1.6%
Minnesota	94.7%	5.3%

■ Non-Hispanic White
■ Hispanic/Latinx, Any Race
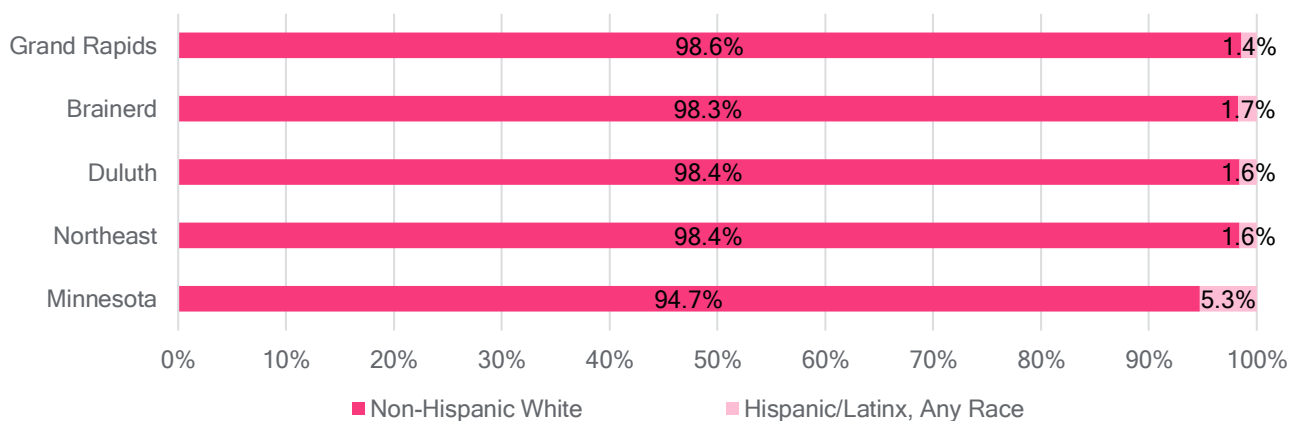
American Community Survey 2014-2018.

Community Demographics

Demographics	Percent			Value		
	Northeast Minnesota	Minnesota	USA	Northeast Minnesota	Minnesota	USA
Population (ACS)	–	–	–	421,867	5,527,358	322,903,030
Male	50.5%	49.8%	49.2%	213,206	2,751,748	158,984,190
Female	49.5%	50.2%	50.8%	208,661	2,775,610	163,918,840
Median Age	–	–	–	43.9	37.9	37.9
Under 18 Years	20.0%	23.4%	22.8%	84,518	1,291,607	73,553,240
18 to 24 Years	9.6%	9.1%	9.6%	40,318	503,989	30,903,719
25 to 34 Years	10.9%	13.6%	13.8%	45,775	752,944	44,567,976
35 to 44 Years	10.8%	12.4%	12.6%	45,580	685,568	40,763,210
45 to 54 Years	12.5%	13.1%	13.2%	52,828	725,714	42,589,573
55 to 64 Years	15.8%	13.3%	12.8%	66,624	737,424	41,286,731
65 to 74 Years	11.7%	8.5%	8.8%	49,193	470,691	28,535,419
75 Years, and Over	8.8%	6.5%	6.4%	37,031	359,421	20,703,162
Race: White	92.3%	83.3%	72.7%	389,348	4,606,044	234,904,818
Race: Black or African American	1.1%	6.2%	12.7%	4,698	342,186	40,916,113
Race: American Indian and Alaska Native	3.0%	1.1%	0.8%	12,618	58,982	2,699,073
Race: Asian	0.7%	4.7%	5.4%	3,109	262,359	17,574,550
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.2%	168	2,187	582,718
Race: Some Other Race	0.3%	1.8%	4.9%	1,098	97,833	15,789,961
Race: Two or More Races	2.6%	2.9%	3.2%	10,828	157,767	10,435,797
Hispanic or Latino (of any race)	1.6%	5.3%	17.8%	6,692	292,764	57,517,935

American Community Survey 2014-2018 unless noted otherwise.

Employment

As of 2020Q1, total employment for the Northeast Minnesota was 199,664 (based on a four-quarter moving average). Over the year ending 2020Q1, employment declined 0.7% in the region.

Employment for Northeast Minnesota

■ NHED Region (County-Based) (-0.7%) — Minnesota (0.0%) — USA (0.7%)

Source: JobsEQ®. Data as of 2020Q1. The shaded areas of the graph represent national recessions.
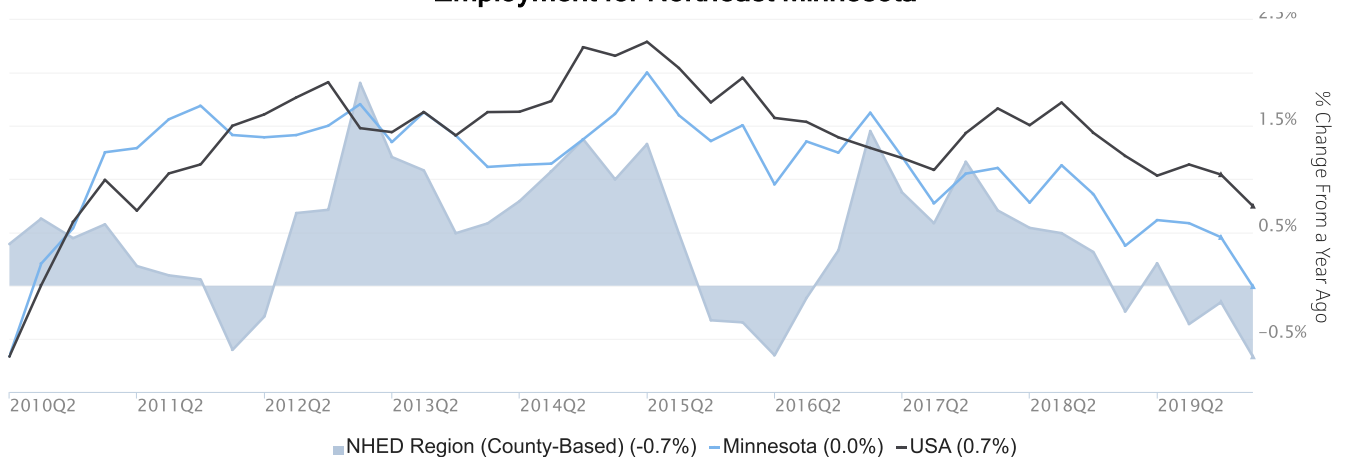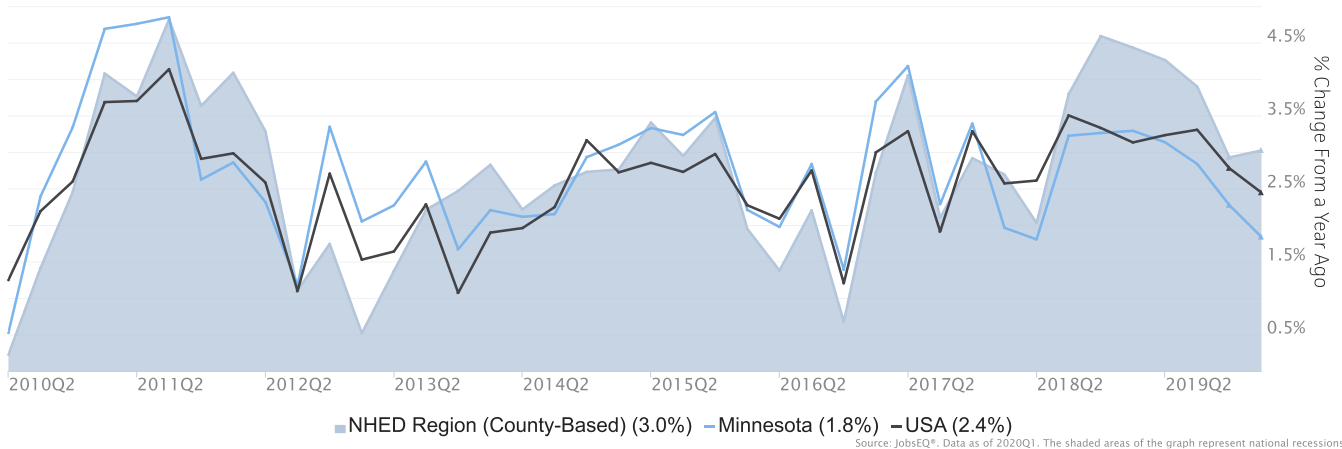
Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q3 with preliminary estimates updated to 2020Q1.

The average worker in Northeast Minnesota earned annual wages of $44,387 as of 2020Q1. Average annual wages per worker increased 3.0% in the region over the preceding four quarters, similar to trends seen across Minnesota overall. For comparison purposes, annual average wages were $57,624 in the nation as of 2020Q1.

Average Annual Wages for Northeast Minnesota

NHED Region (County-Based) (3.0%) — Minnesota (1.8%) — USA (2.4%)

Source: JobsEQ®. Data as of 2020Q1. The shaded areas of the graph represent national recessions.

Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2019Q3 with preliminary estimates updated to 2020Q1.
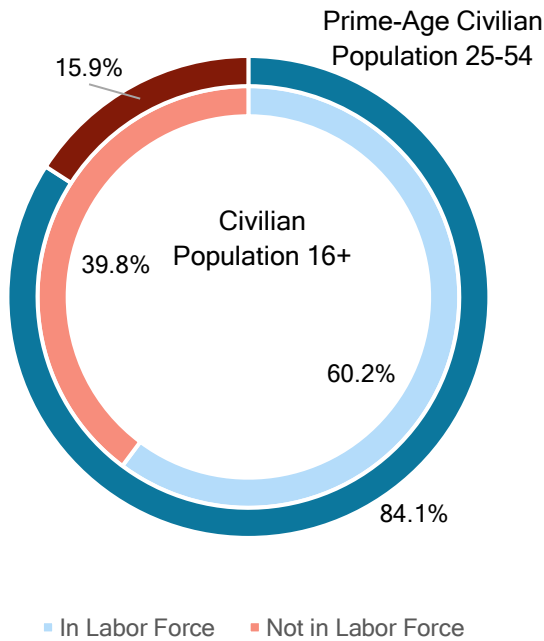
Labor Force Participation Rate

In Labor Force   Not in Labor Force

The region has a civilian labor force of 208,706 with a participation rate of 60.2%, which lags nearly 10 percentage points behind Minnesota's labor force participation rate for the population over 16. This is due, in large part, to the higher median age in the Northeast (43.9 years) than in other parts of the state (37.9 years statewide). However, the participation rate of the prime working age population (between the ages of 25 and 64) also lags the statewide rate— 84.1% compared to the statewide 88.2%.

The Northeast region has a higher share of veterans in the region, at 5.8% of the regional population compared to 4.1% broadly across the state. However, labor force participation of the veteran population is only 68.4% in the Northeast, compared to 79.5% statewide. Other contributing factors to a lower regional labor force participation rate are the region's higher rate of children in single-parent households (32.6% in the Northeast compared to 28% statewide) and higher disability rates of the prime working age population (12.1% in the Northeast compared to 8.7% statewide).

Economic and Social Characteristics of Northeast Minnesota

	Percent			Values		
Economic and Social Characteristics	Northeast Minnesota	Minnesota	USA	Northeast Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	60.2%	69.7%	63.2%	208,706	3,050,676	162,248,196
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	84.1%	88.2%	81.8%	120,855	1,906,910	104,136,254
Armed Forces Labor Force	0.1%	0.1%	0.4%	489	2,329	1,028,133
Veterans, Age 18-64	5.8%	4.1%	4.7%	14,620	138,077	9,398,789
Veterans Labor Force Participation Rate and Size, Age 18-64	68.4%	79.5%	76.3%	9,993	109,835	7,168,168
Median Household Income*	–	–	–	$53,394	$68,411	$60,293
Per Capita Income	–	–	–	$29,895	$36,245	$32,621
Poverty Level (of all people)	13.6%	10.1%	14.1%	55,633	547,442	44,257,979
Households Receiving Food Stamps/SNAP	9.9%	8.2%	12.2%	17,954	178,604	14,635,287
Enrolled in Grade 12 (% of total population)	1.2%	1.4%	1.4%	5,137	79,941	4,442,295
Disconnected Youth**	2.0%	1.8%	2.6%	439	5,025	438,452
Children in Single Parent Families (% of all children)	32.6%	28.0%	34.3%	25,946	348,224	23,973,249
Uninsured	4.6%	4.7%	9.4%	19,056	254,764	29,752,767
With a Disability, Age 18-64	12.1%	8.7%	10.3%	30,106	292,907	20,240,504
With a Disability, Age 18-64, Labor Force Participation Rate and Size	43.5%	52.5%	41.6%	13,095	153,894	8,421,018
Foreign Born	2.0%	8.4%	13.5%	8,289	461,758	43,539,499

American Community Survey 2014-2018 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

95.2% of prime working age adult residents have at least a high school diploma or GED.

Just 4.8% of Northeast adults between the ages of 25 and 64 do not have a high school diploma or equivalent, and about 27.4% have a high school diploma as their highest level of education (compared with 22% statewide). In contrast, some communities of the Minneapolis-Saint Paul Metro have as high as 20% of prime working age adults in a neighborhood with no high school diploma or GED credential. Nationwide, 11.2% 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 Brainerd has a larger share of residents with a high school diploma or less, while Duluth and Grand Rapids have a smaller share of residents with lower educational attainment.

Educational Characteristics of Northeast Minnesota

Educational Characteristics	Percent			Values		
	Northeast Minnesota	Minnesota	USA	Northeast Minnesota	Minnesota	USA
No High School Diploma	4.8%	6.2%	11.2%	10,214	178,547	18,885,967
High School Graduate	27.4%	22.0%	25.8%	57,716	639,601	43,699,272
Some College, No Degree	25.9%	21.4%	21.0%	54,583	620,252	35,525,113
Associate's Degree	15.4%	12.8%	9.1%	32,544	372,692	15,389,737
Bachelor's Degree	18.3%	25.2%	20.8%	38,597	731,462	35,261,652
Postgraduate Degree	8.1%	12.4%	12.1%	17,153	359,096	20,445,749

American Community Survey 2014-2018 unless noted otherwise.

Educational Attainment, Age 25-64
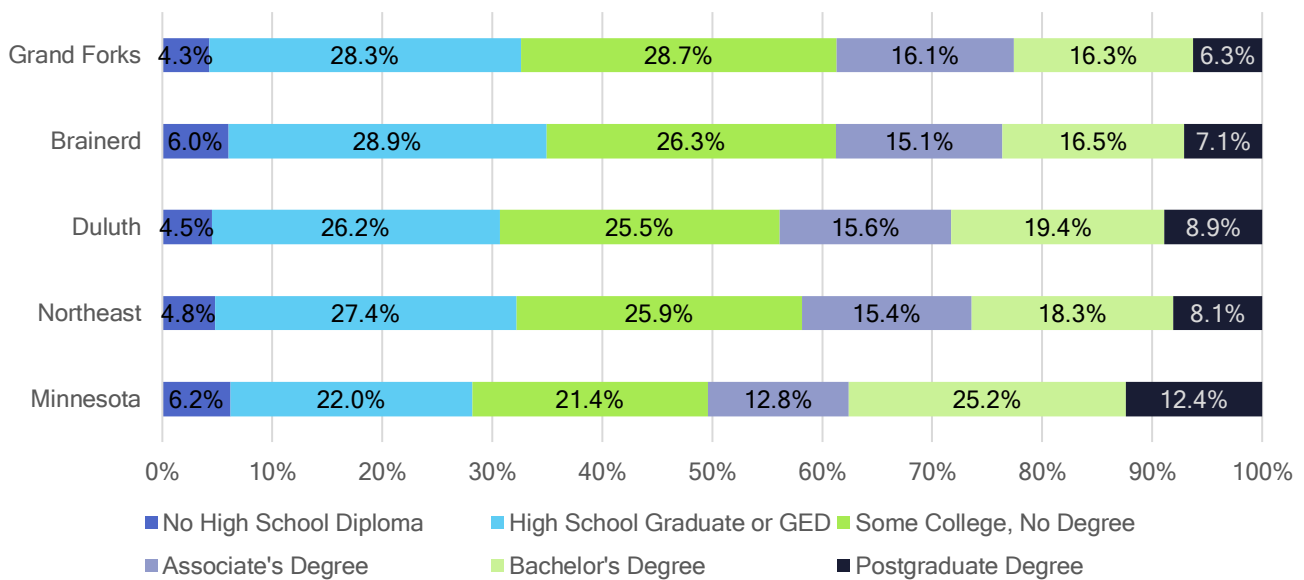
American Community Survey 2014-2018.

Expected growth rates for occupations vary by the education and training required. While all employment in Northeast Minnesota is projected to contract 0.3% over the next ten years, occupations typically requiring a postgraduate degree are expected to grow 0.3% per year, those requiring a bachelor's degree are forecast to contract 0.1% per year, and occupations typically needing a 2-year degree or certificate are expected to grow 0.1% per year. Forecasted demand by education level does not vary significantly by community across the region.

Annual Average Projected Job Growth by Training Required for Northeast Minnesota

Postgraduate degree ($104,300) — 0.3%
Bachelor's degree ($72,100) — −0.1%
2-year degree or certificate ($46,800) — −0.1%
Previous work experience, no award ($51,600) — −0.3%
Long-term training, no exp, no award ($55,800) — −0.2%
Moderate-term OJT, no exp, no award ($46,600) — −0.7%
Short-term OJT, no exp, no award ($30,800) — −0.4%
All Levels ($48,800) — −0.3%

Source: JobsEQ®,Data as of 2020Q1
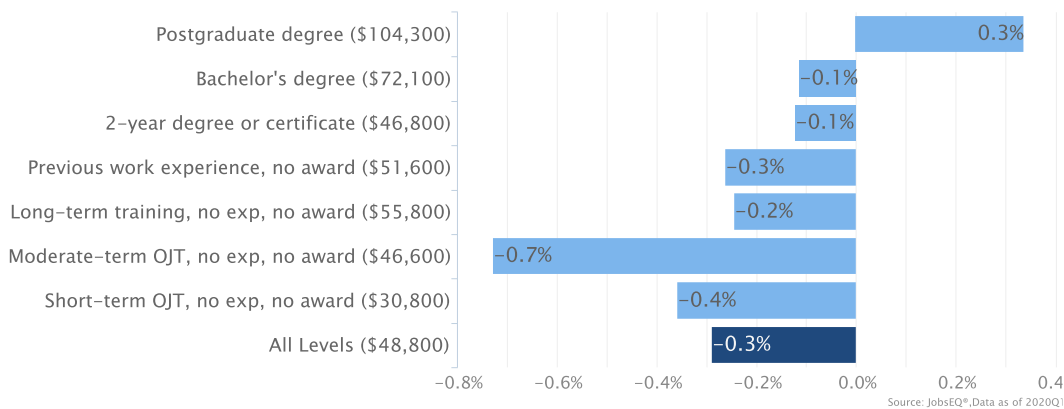
Employment by occupation data are estimates are as of 2020Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

Regional Colleges and Universities
Northeast Minnesota has twelve 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
University of Minnesota-Duluth	39	2,165	11,024	$16,993
Lake Superior College	1,221	0	5,281	$12,339
The College of Saint Scholastica	14	1,014	4,043	$24,007
Central Lakes College-Brainerd	817	0	4,029	$12,173
Fond du Lac Tribal and Community College	253	0	1,982	$9,631
Itasca Community College	340	0	1,195	$11,487
Mesabi Range College	252	0	1,188	$6,540
Hibbing Community College	330	0	1,118	$9,431
Vermilion Community College	165	0	660	$11,383
Rainy River Community College	58	0	236	$9,085
Leech Lake Tribal College	64	0	173	$8,811
Cosmetology Careers Unlimited College of Hair Skin and Nails	17	0	31	$10,957
Total	3,570	3,179	30,960	n/a

Businesses

According to DatabaseUSA's sample of 10,000 businesses located in Northeast Minnesota, nearly 28% (2,796 businesses) are located Duluth; Brainard has the second highest concentration of businesses with 847 (8%). Of the sample Northeast Minnesota businesses, 629 are confirmed to be female-owned, and 43 are confirmed to be "minority-owned."

Businesses by City in Northeast MN
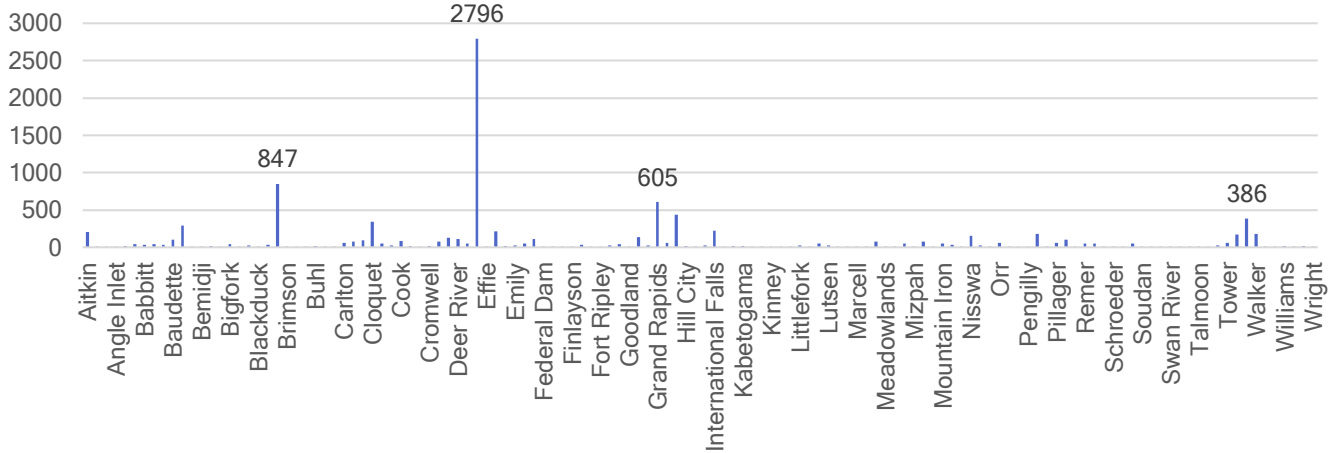
Small Businesses and Non-Profits in Northeast MN

■ Count of Business Name
■ Count of Small Business
■ Count of Non-profit
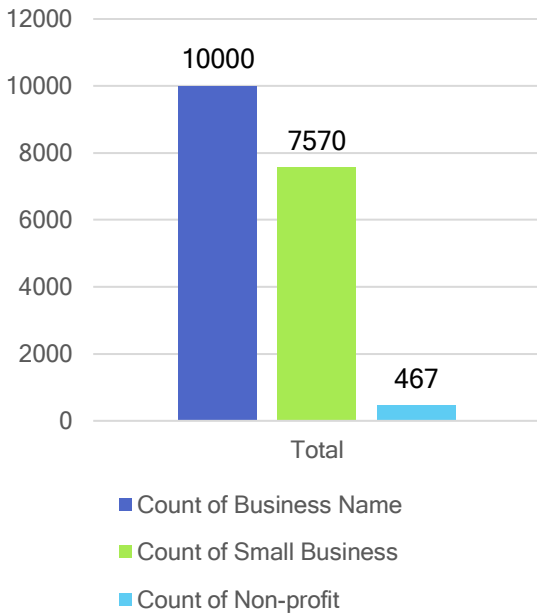
Female & Minority-Owned Businesses in Northeast MN

■ Count of Female Owned
■ Count of Minority Owned
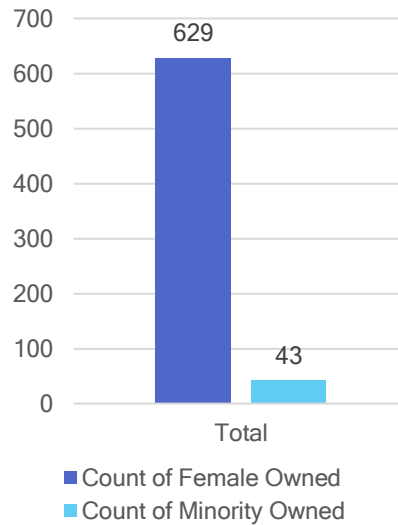
Among the 10,000 local businesses in the sample, the industries with the largest number of establishments are Full-Service Restaurants, Hotels and Motels, and Individual and Family Services.

Businesses by Industry (Top 10 by Number) in Northeast Minnesota

Industry	Number
Full-Service Restaurants	728
Hotels (except Casino Hotels) and Motels	328
Other Individual and Family Services	278
New Multifamily Housing Construction (except For-…	258
Plumbing, Heating, and Air-Conditioning…	252
Convenience Stores	226
Elementary and Secondary Schools	211
Other Social Advocacy Organizations	178
Offices of Physicians (except Mental Health…	150
Other Residential Care Facilities	145

About 11% (1,116) of sample of businesses in Northeast Minnesota have just ten employees. With a high volume of small businesses in the region, it is notable that about 65% of all regional businesses have been in business for ten or more years.

Businesses by Size in Northeast Minnesota
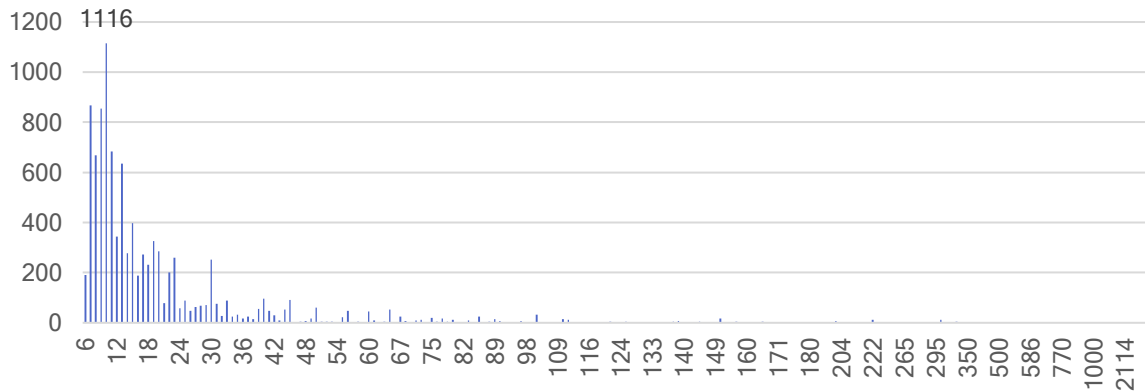
Businesses by Small Business Status and Number of Years in Business in Northeast Minnesota

	Yes				No			
	10 or More Years	3 to 5 Years	6 to 9 Years	Up to 2 Years	10 or More Years	3 to 5 Years	6 to 9 Years	Up to 2 Years
	4948	825	945	852	1543	203	299	385
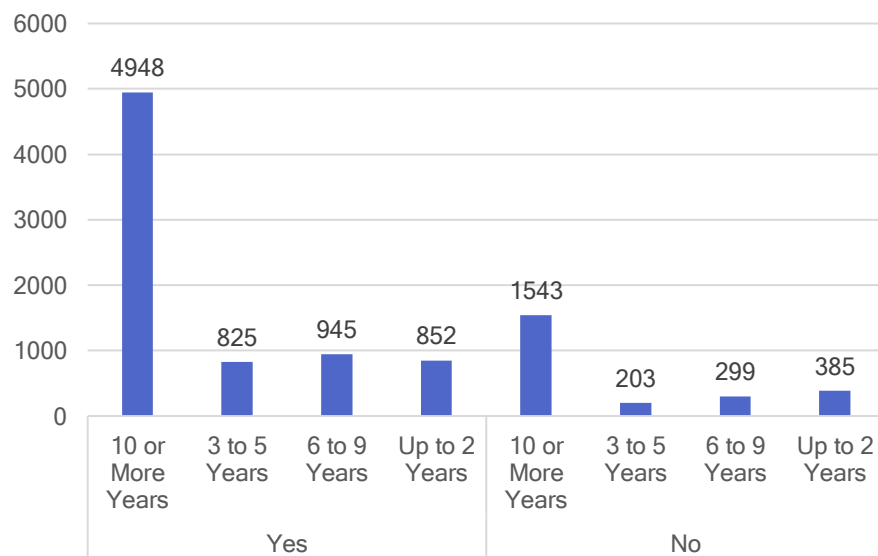
Workforce Impacts of COVID-19

Community Vulnerability

Because COVID-19 is a new disease, more work is needed to better understand the risk factors for severe illness or complications. Potential risk factors that have been identified by the Center for Disease Control (CDC) to date include:

- Age
- Race/ethnicity
- Gender
- Some medical conditions
- Use of certain medications
- Poverty and crowding
- Certain occupations
- Pregnancy

Older adults and people with medical conditions are at increased risk for severe illness. People who may need extra precautions, as prevalence of the virus is higher for these groups, include racial and ethnic minority groups, people living in rural communities, and people experiencing homelessness. Additional groups advised by the CDC to take additional precautions are those who may have more complex treatment needs if they were to fall seriously ill, such as people who are pregnant or breastfeeding, people with disabilities, and people with developmental or behavioral disorders.

AGE
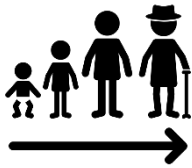
Northeast MN has a HIGHER share of residents 65 or older (20.5% of residents).

Residents 65+

	Residents 65 or Older	Residents under 65
Grand Rapids	22.0%	78.0%
Brainerd	22.5%	77.5%
Duluth	18.2%	81.8%
Northeast	20.5%	79.5%
Minnesota	15.0%	85.0%

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ Residents 65 or Older ▢ Residents under 65
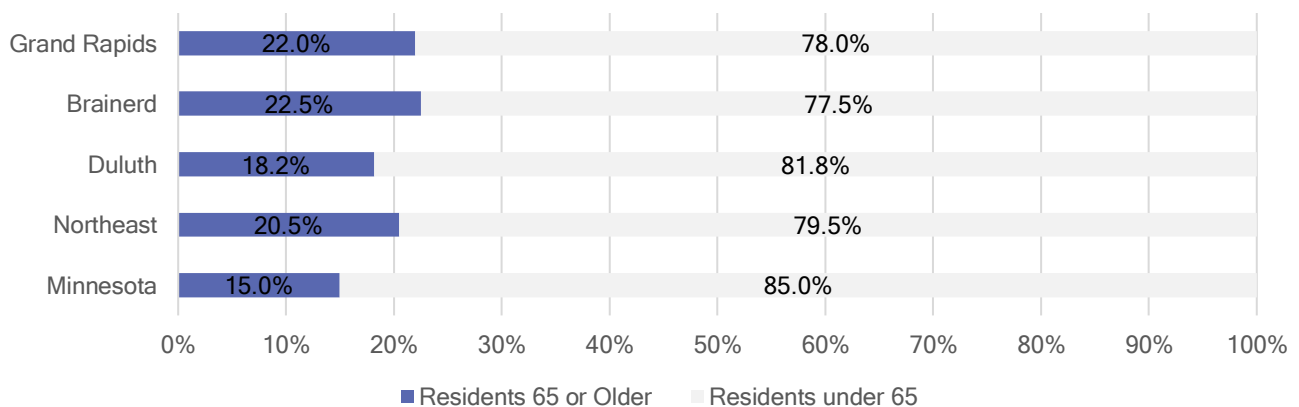
American Community Survey 2014-2018.

POVERTY

Northeast MN has a HIGHER share of residents living in poverty (13.6%).

The per-capita income of residents of Northeast Minnesota is $29,895, which is about $6,350 lower than the per-capita income of Minnesota residents overall ($36,245). About one in eight (13.6%) Northeast Minnesota residents live in poverty. About 9.9% receive food stamps, compared to 8.2% and 12.2% in Minnesota and nationwide, respectively.

Residents in Poverty

	Residents In Poverty	All Other Residents
Grand Rapids	13.3%	86.7%
Brainerd	11.8%	88.2%
Duluth	14.1%	85.9%
Northeast	13.6%	86.4%
Minnesota	10.1%	89.9%

■ Residents In Poverty   ■ All Other Residents
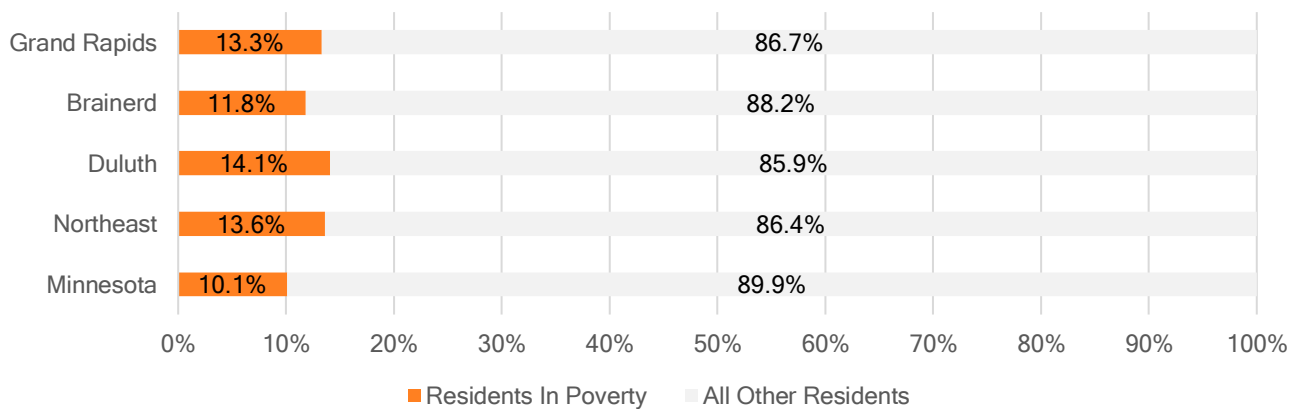
American Community Survey 2014-2018.

DISCONNECTED YOUTH

Northeast MN has a HIGHER share of disconnected youth (2.0%).

There are an estimated 439 disconnected youth living in Northeast Minnesota, which is about 2.0% of the total population of people between the ages of 16 and 19. These youth are not in school, not high school graduates, and are either unemployed or not in the labor force. The Northeast's disconnected youth represent about 9% of all disconnected youth in the state (5,025 total statewide). Brainerd has a greater share of disconnected youth than Duluth or Grand Rapids.

Disconnected Youth

Grand Rapids	0.4%	99.6%
Brainerd	2.6%	97.4%
Duluth	2.0%	98.0%
Northeast	2.0%	98.0%
Minnesota	1.8%	98.2%

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

■ Disconnected Youth (16-19 Year Olds)   ■ All Other Youth (16-19 Year Olds)
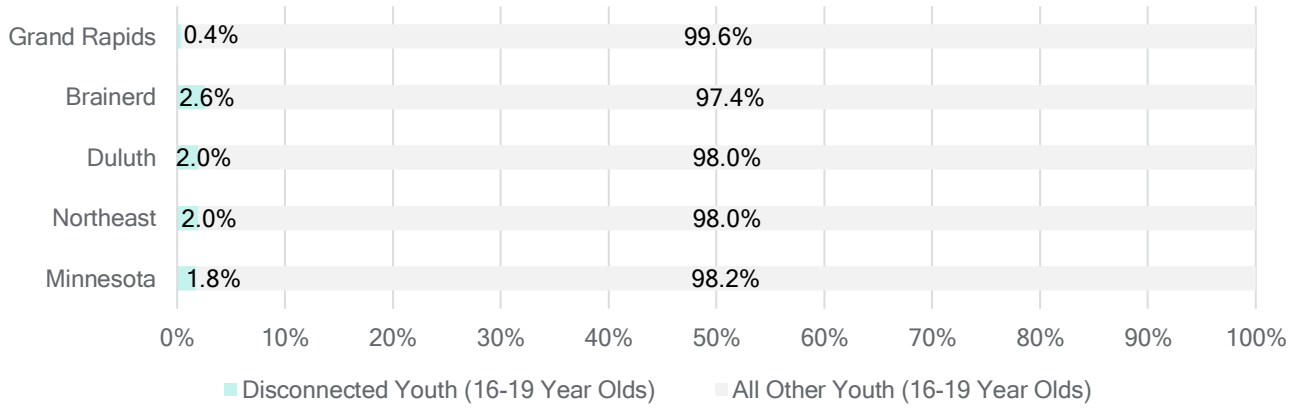
American Community Survey 2014-2018.

UNINSURED

Northeast MN has a LOWER share of residents without health insurance (4.6%).

Uninsured Residents

Grand Rapids	5.5%	94.5%
Brainerd	5.7%	94.3%
Duluth	4.4%	95.6%
Northeast	4.6%	95.4%
Minnesota	4.7%	95.3%

0%   10%   20%   30%   40%   50%   60%   70%   80%   90%   100%

■ Uninsured Residents   ■ Insured Residents
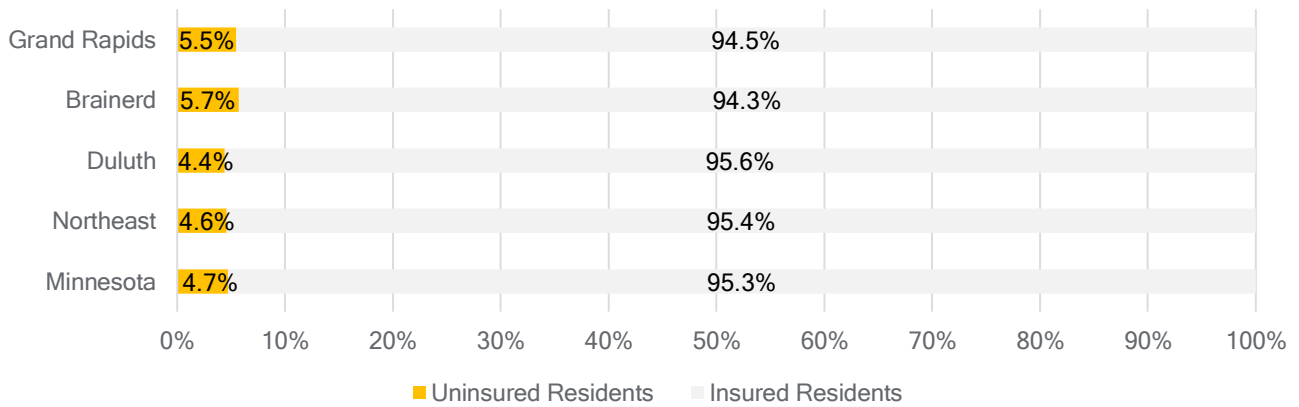
American Community Survey 2014-2018.

DISABILITY

Northeast MN has a HIGHER share of
residents with disabilities (12.1%).

Northeast Minnesota has a greater share of residents between the ages of 18 and 64 with a disability
compared to Minnesota as a whole (8.7%) and the nation overall (10.3%). In all, about 30,106 adults
(12.1%) in this age range living in Northeast Minnesota have some form of disability. Of these, 43.5%
participate in the labor force (13,095 total working or seeking work), compared to 52.5% statewide.

Residents with Disabilities, Ages 18-64

	With Disabilities	Without Disabilities
Grand Rapids	11.9%	88.1%
Brainerd	12.0%	88.0%
Duluth	12.1%	87.9%
Northeast	12.1%	87.9%
Minnesota	8.7%	91.3%

■ With Disabilities   ■ Without Disabilities
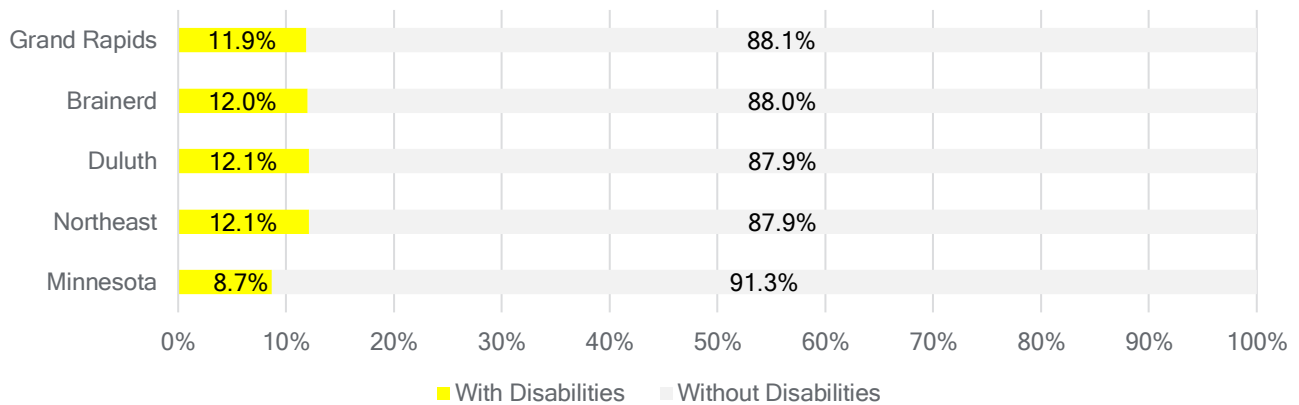
American Community Survey 2014-2018.

Industry Vulnerability

The Economic Vulnerability Index is a measurement developed by Chmura Economics to estimate the negative impact that the coronavirus crisis can have on employment based upon a community's mix of industries.[3] For example, accommodation and food services are projected to lose more jobs as a result of the coronavirus (over half of jobs lost, on average across the broad industry category) compared to utilities and education services (with mild or no job contractions in most cases). Overall, this index measure the possible impact in a community dependent upon the local industry mix—it does not take into account variation due to a region's rate of viral infection, health services, policies, or other considerations.

According to Chmura Economics, "the average Vulnerability Index score is 100, representing the average job loss expected in the United States. Higher scores indicate the degree to which job losses may be greater—an index of 200, for example, means the rate of job loss can be twice as large as the national average. Conversely, an index of 50 would mean a possible job loss of half the national average." In the Northeast, Cook County may have over double the job losses than the national average (ranking #25 from the top nationwide in possible negative economic impact), while Aitkin County may have about 7% lower job losses than the national average.

Economic Vulnerability of Select Northeast Counties by Industry Mix, July 2020

Northeast Minnesota	Vulnerability Index	National Rank
Cook County, Minnesota	201.25	25
Cass County, Minnesota	148.05	87
Lake of The Woods County, Minnesota	138.49	114
Koochiching County, Minnesota	114.42	332
Lake County, Minnesota	108.46	443
St. Louis County, Minnesota	103.22	629
Crow Wing County, Minnesota	103.08	634
Itasca County, Minnesota	95.15	1040
Carlton County, Minnesota	94.41	1096
Aitkin County, Minnesota	93.95	1121

Economic Vulnerability Index model from Chmura Economics & Analytics

Industries like Accommodation and Food Services and Arts, Entertainment, and Recreation have been hardest-hit by the impacts of COVID-19. In fact, losses as high as 60% are anticipated short-term impacts in both of these industries. An estimated 16% of local occupations by industry in the Northeast are vulnerable to the immediate-term impacts of COVID-19.

[3] Chmura Economics, April 2020. http://www.chmuraecon.com/interactive/covid-19-economic-vulnerability-index/

Short-Term Industry Vulnerability to the COVID-19 Pandemic, Northeast Minnesota

Industry	Anticipated Short-Term Job Loss from COVID-19	Total Local Employment	Total Vulnerable Jobs
Accommodation and Food Services	60%	22,014	13,208
Arts, Entertainment, and Recreation	60%	5,859	3,515
Other Services (except Public Administration)	25%	9,564	2,391
Transportation and Warehousing	20%	6,307	1,261
Retail Trade	20%	24,430	4,886
Wholesale Trade	20%	3,760	752
Information	15%	1,853	278
Manufacturing	7%	13,061	914
Construction	7%	11,536	808
Mining, Quarrying, and Oil and Gas Extraction	5%	4,156	208
Real Estate and Rental and Leasing	5%	2,379	119
Health Care and Social Assistance	5%	42,389	2,119
Finance and Insurance	5%	5,961	298
Educational Services	5%	15,498	775
Administrative and Support and Waste Management and Remediation Services	2%	5,243	105
Agriculture, Forestry, Fishing and Hunting	2%	2,288	46
Public Administration	1%	14,560	146
Professional, Scientific, and Technical Services	1%	6,278	63
Management of Companies and Enterprises	1%	939	9
Utilities	1%	1,588	16
Total Jobs	**16%**	**199,664**	**31,917**

Economic Vulnerability Index model from Chmura Economics & Analytics

Occupational Vulnerability

Research by Dingel and Neiman[4] and by Leibovici, Santacreu, and Famiglietti[5] highlight occupations that cannot be done from home and are consistently high contact-intensity. Following their models, a combination of occupational employment estimates as of the fourth quarter of 2020, coupled with an index of occupational contact-intensity from O*NET, gives us a picture of local occupations in high vulnerability due to their level of close proximity to patients or the general public. O*NET classifies positions based on a rating system of job requirements in close physical proximity to other people. The possible answers and corresponding scores are:

> I don't work near other people (beyond 100 ft.): 0
> I work with others but not closely (e.g. private office): 25
> Slightly close (e.g. shared office): 50
> Moderately close (at arm's length): 75
> Very close (near touching): 100

All occupations are then classified into low-medium and high contact-intensity categories based on scores of 0-50 (low), 50-75 (medium), and 75+ (high). Fifteen out of 107 occupations at the four-digit Standard Occupation Level (SOC) are considered high contact-intensity. The occupation cluster of highest contact intensity are Barbers, Hairstylists, and Cosmetologists, with a physical proximity index of 92.17. Other occupations that are contact-intensive include teachers, health care workers, and a multitude of roles in the service industry. Minnesota has around 21% of workers in high contact-intensity roles, on the lower end of states ranging from 20% to 25% overall.

The Northeast region has higher share of high contact-intensity positions than Minnesota overall, at about 28% of individuals employed in the first quarter of 2020 being employed in high contact-intensity positions. The majority of these were in direct health care support roles, health diagnosing and treating roles, food and beverage service roles, or motor vehicle operators. Of these, the Home Health and Personal Care Aides roles are expecting the greatest volume in annual growth. In all, about 31% of new positions opening due to job exits, job changes, or job growth under normal economic conditions would be for high contact-intensity positions in the region. Across Minnesota, these high contact-intensity roles pay an average $51,000 per year compared to just $47,600 for jobs located in Northeast Minnesota.

[4] Dingel, C. L., and B. Neiman (2020): "How Many Jobs Can be Done at Home?" *NBER Working Paper No. 26948*.
[5] Leibovici, F., A. M. Santacreu, and M. Famiglietti (2020): "Social Distancing and Contact-Intensive Occupations," FRB St. Louis Technical Report, URL: https://www.stlouisfed.org/on-the-economy/2020/march/social-distancing-contact-intensive-occupations#:~:text=Food%20and%20beverage%20serving%20workers%20are%20at%20the%20bottom%20of,K%20to%2012th%20grade%20teachers.

Summary Statistics of High Contact-Intensity Positions in Northeast Minnesota, 2020Q1

SOC	Occupation	Proximity Index	Annual Supply Gap	Current Empl. 2020Q1	Annual Growth Demand	Annual Sep Demand	Total Annual Demand	Projected Empl 2030	Accum. Supply 2025	Accum. Demand 2025	Avg Wages
31-2000	Occupational Therapy and Physical Therapist Assistants and Aides	90.5	(1)	200	2	33	35	217	82	86	$52,900
31-1100	Home Health and Personal Care Aides; and Nursing Assistants, Orderlies, and Psychiatric Aides	90.3	0	9,537	112	1,891	2,003	10,662	4,272	4,274	$29,300
35-1000	Supervisors of Food Preparation and Serving Workers	88.0	5	1,563	2	302	304	1,582	739	712	$36,900
29-1000	Healthcare Diagnosing or Treating Practitioners	86.2	(97)	10,818	18	819	837	11,000	1,676	2,159	$93,600
39-1000	Supervisors of Personal Care and Service Workers	84.5	(1)	642	-2	97	95	625	236	240	$41,400
29-2000	Health Technologists and Technicians	82.7	(28)	4,820	-4	477	473	4,776	1,093	1,235	$48,700
31-9000	Other Healthcare Support Occupations	80.2	(8)	1,892	11	311	322	2,007	719	760	$41,100
25-2000	Preschool, Elementary, Middle, Secondary, and Special Education Teachers	79.5	(4)	5,101	-20	543	523	4,903	1,353	1,375	$59,500
25-3000	Other Teachers and Instructors	79.0	(1)	1,617	1	278	278	1,622	608	615	$43,000
53-3000	Motor Vehicle Operators	75.6	2	5,379	-20	879	859	5,179	1,999	1,990	$42,100
39-9000	Other Personal Care and Service Workers	75.5	28	3,210	-2	708	707	3,193	1,712	1,571	$30,200
35-3000	Food and Beverage Serving Workers	75.2	188	11,971	16	3,066	3,082	12,132	7,442	6,503	$25,500
All High Contact-Intensity Occupations				56,750	114	9,404	9,518	57,898	21,931	21,520	$47,600
Total - All Occupations				199,664	-573	31,530	30,960	193,984	76,230	73,991	$48,800
Share High Contact-Intensity				28%	HIGH	30%	31%	30%	29%	29%	

The ongoing pandemic affects each of these occupations, though in different ways: for instance, with hospitality and food service roles being largely eliminated during the first three months of the pandemic, while essential occupations remained in high demand and experienced dramatic shortages of workers. Health Diagnosing and Treating Practitioners is one occupation area that has had extremely varied experiences, as some medical procedures not deemed essential were placed on hold for a period of time and sending many into furlough. Long-term, Health Diagnosing and Treating Practitioners are expected to be in shortage in the Northeast and experiencing higher than average growth demand. Average wages for these roles are $93,600 in this region and positions typically require a college degree. See more on detailed occupation impacts in the immediate-term through local unemployment application trends and the mid-term based on occupation supply-demand analysis.

General Workforce Impact Trend

Overall, impacts of COVID-19 have been expected to be sharp and short, with an eventual return to the forecasted trends anticipated prior to the impact of the virus. Future growth in jobs in the region is forecasted to decline by about 0.3% annually through 2025, under official forecasts by the Bureau of Labor Statistics and the MN Department of Employment and Economic Development.

5-Year Forecast Comparison in Northeast Minnesota
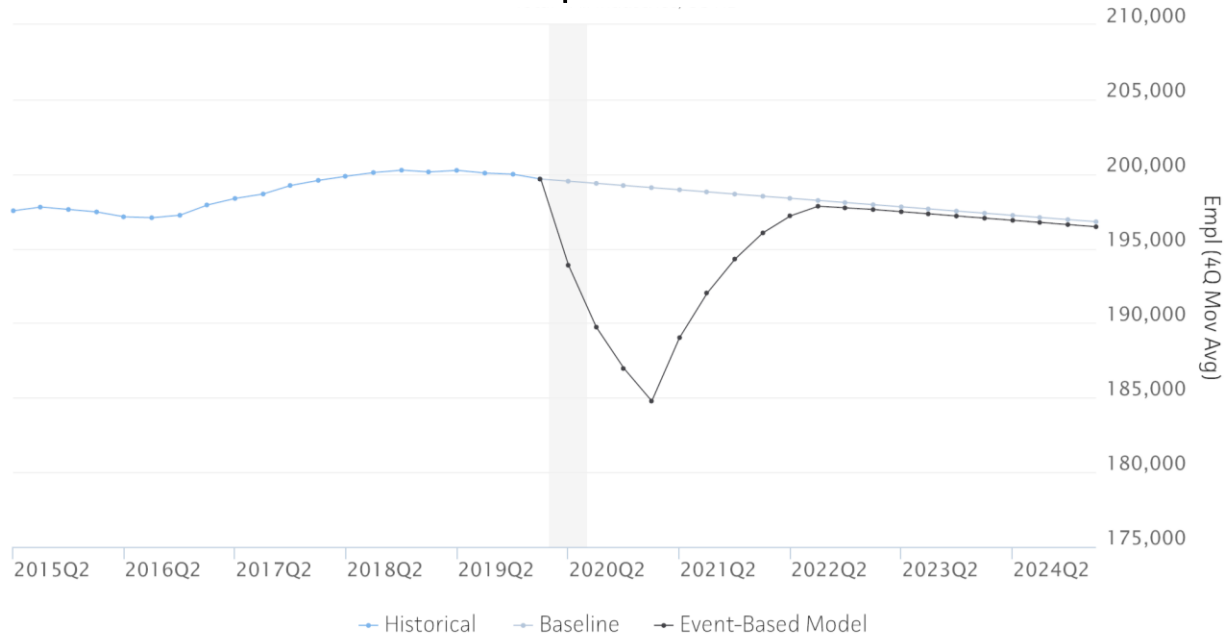
Source: JobsEQ®, Data as of 2020Q1

For roles that require close contact with the public, moderate growth was forecast in the Northeast. Across the Northeast, it is anticipated that from the 56,751 people employed locally in high contact-intensity roles during the first quarter of 2020 will see a dramatic drop of 5,032 (-8.9%) by the first quarter of 2021, and then gradually rise through the third and fourth quarters of 2022 to return to a similar annual growth rate for these positions that was anticipated prior to the pandemic. An estimated drop from 0.2% annual growth formerly forecast for Northeast Minnesota's high contact-intensity roles down to about 0.1% average annual growth over five years in these positions is a reasonable estimated impact.

Baseline High Contact-Intensity Occupation Employment 5-Year Forecast in Northeast Minnesota (Pre-COVID-19)
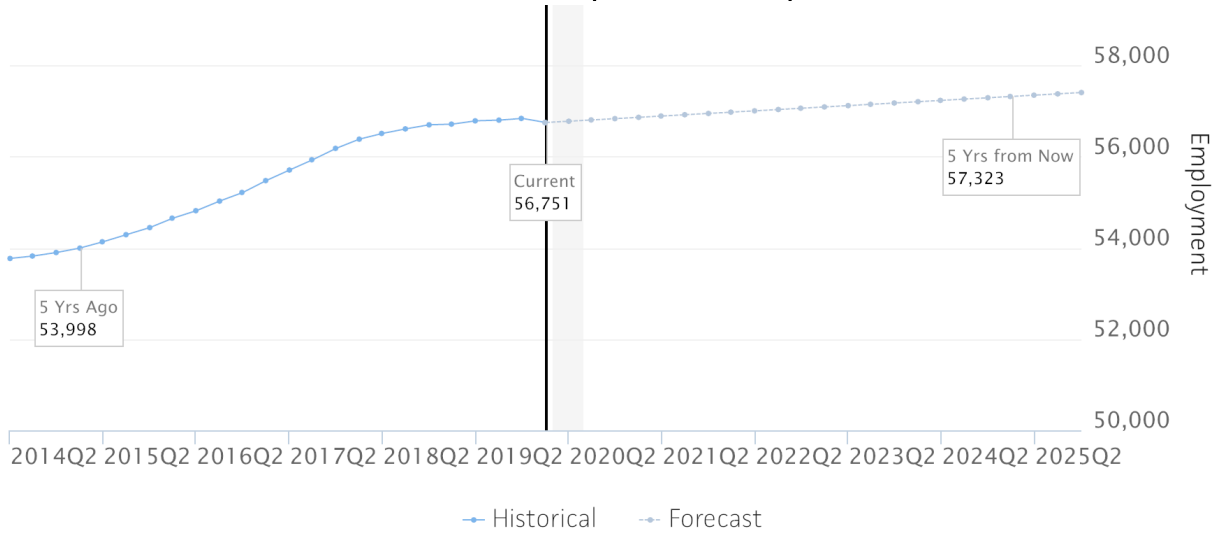
Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

COVID-19-Impacted High Contact-Intensity Occupation Employment 5-Year Forecast in Northeast Minnesota
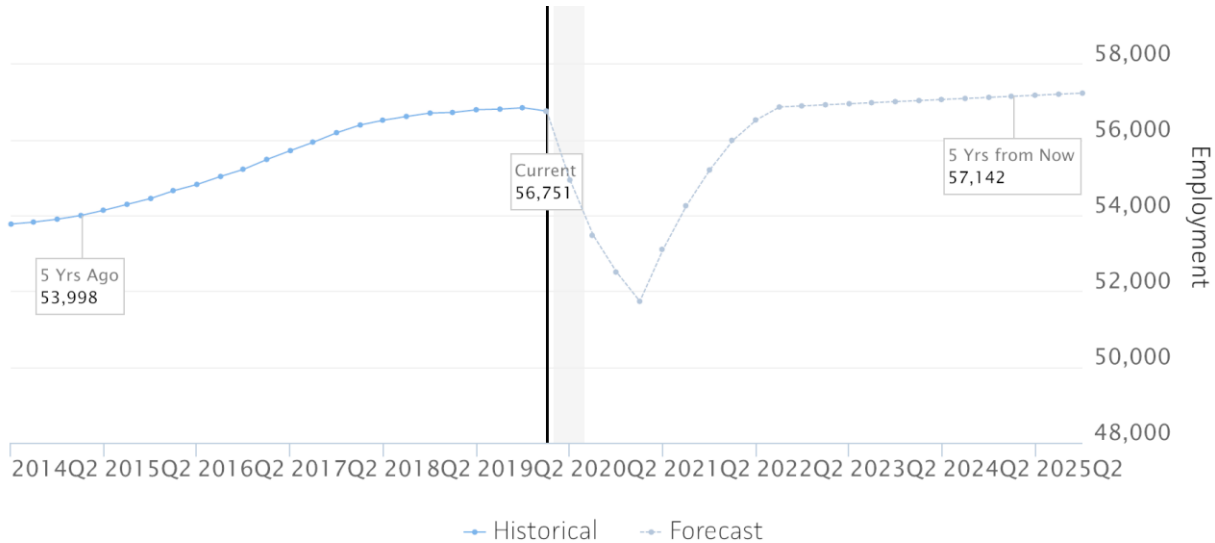
Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Immediate-Term Occupational Impacts

Non-essential occupations that require a high-degree of close physical interaction have been hit hardest in the early weeks of the pandemic, as consumers reduced demand in pursuit of social distancing and regulation at state and local levels shut down business functions in high-contact roles. According to Leibovici and collaborating authors, "these occupations are likely to be more vulnerable to the shock, leading either to layoffs of nonessential workers or to an increase in the risk of contagion among those workers that have to stay in the workplace to perform essential

activities. Carrying out some of these occupations remotely, when plausible, is likely to allow them to better absorb the negative shock."[6]

Across Minnesota, there have been 928,038 applicants for unemployment insurance since March 16, 2020 according to the MN Department of Employment and Economic Development. Among the Northeast counties, Cook County has had the greatest share of its overall labor force apply for unemployment insurance since March 16, 2020. Over the past five and a half months, Cook County saw 39.7% of its existing workforce apply for unemployment insurance.

Unemployment Insurance Applicants as a Share of Total Labor Force by County

Since March 16, there have been 928,038 unemployment insurance applicants in Minnesota.

Share of Labor Force
9.6%   64.1%
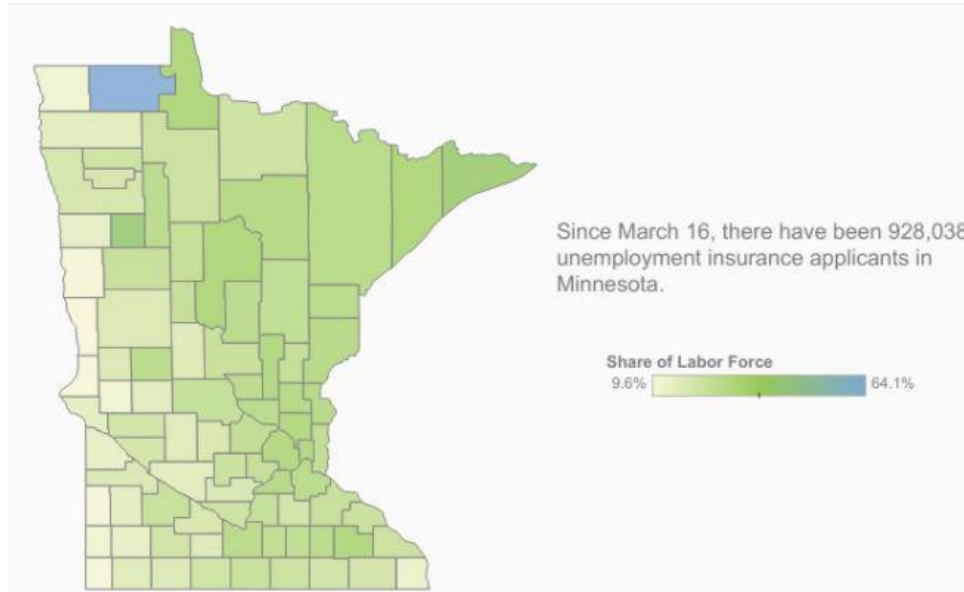
MN DEED, Unemployment Insurance Statistics. Accessed 9/3/2020 at https://mn.gov/deed/data/data-tools/unemployment-insurance-statistics/

Food and Beverage Serving Workers and Construction Trades Workers had the most applicants for unemployment in Northeast Minnesota since the beginning of the COVID-19 Pandemic, representing nearly 19% of all applications, or a total of 10,923 workers. These two occupation groups account for 10.5% of total employment in the Northeast.

---

[6] Unemployment Insurance Applications, MN Department of Employment and Economic Development.

Unemployment Insurance Applicants and Employment in Top 20 Occupations Requesting Insurance in Northeast Minnesota from March 16, 2020 – August 27, 2020

Occupations, March 16 - August 27, 2020	Total UI Applicants in Northeast MN	% of Total Applicants in Northeast MN*	2020Q1 Empl in Northeast MN	% of Total Empl in Northeast MN	% of Total Workforce Applying for UI Relief**
Food and Beverage Serving Workers	5589	9.7%	11,971	6.1%	46.7%
Construction Trades Workers	5334	9.3%	7,606	3.8%	44.6%
Retail Sales Workers	3739	6.5%	13,071	6.6%	31.2%
Cooks and Food Preparation Workers	3132	5.5%	4,652	2.4%	26.2%
Healthcare Diagnosing or Treating Practitioners	2181	3.8%	10,818	5.5%	18.2%
Other Healthcare Support Occupations	2018	3.5%	1,892	1.0%	16.9%
Information and Record Clerks	1973	3.4%	7,148	3.6%	16.5%
Other Production Occupations	1692	3.0%	3,161	1.6%	14.1%
Other Food Preparation and Serving Related Workers	1663	2.9%	2,089	1.1%	13.9%
Health Technologists and Technicians	1606	2.8%	4,820	2.4%	13.4%
Building Cleaning and Pest Control Workers	1574	2.7%	5,771	2.9%	13.1%
Nursing, Psychiatric, and Home Health Aides	1347	2.3%	9,537	4.8%	11.3%
Vehicle and Mobile Equipment Mechanics, Installers	1264	2.2%	2,883	1.5%	10.6%
Motor Vehicle Operators	1242	2.2%	5,379	2.7%	10.4%
Other Installation, Maintenance, and Repair Occupation	1223	2.1%	4,372	2.2%	10.2%
Personal Appearance Workers	1216	2.1%	1,005	0.5%	10.2%
Other Office and Administrative Support Workers	1141	2.0%	4,100	2.1%	9.5%
Other Management Occupations	1027	1.8%	5,850	3.0%	8.6%
Other Personal Care and Service Workers	999	1.7%	3,210	1.6%	8.3%
Other Education, Training, and Library Occupations	897	1.6%	2,736	1.4%	7.5%
Grand Total – All Occupations	**57,918**	**100.0%**	**197,703**	**100.0%**	**29.3%**

*Fields marked in orange have a higher than anticipated concentration of UI applicants relative to the size of the existing workforce in that occupation, or higher than the overall ratio of unemployment insurance applicants to total workforce (**)

By demographic, employed Northeast Minnesota residents between the ages of 20 and 44 years had their careers disproportionately negatively impacted by COVID-19, applying for unemployment insurance at higher rates than would be expected based on the overall share of all workers they represent. In the Northeast, there is a greater share of people under the age of 34 in high contact-intensity roles than when compared to overall employment across all occupations. Individuals in these groups may be more likely to be exposed to the virus in their place of work, or experience layoffs associated with being in proximity to the public.

Occupations requiring no education, a high school diploma, or only some college education were disproportionately impacted by COVID-19 across the Northeast. This region has a relatively highly educated workforce, with a higher percent of the local workforce with 2-year degrees or higher than the rates seen statewide–primarily due to a smaller share of residents with less than high school, high school, or some college education. People with higher levels of educational attainment saw greater job stability, based on what can be inferred by unemployment insurance application rates by worker educational background.

By sex, females have applied for unemployment insurance at higher rates in the Northeast than males. In addition, females were employed in high contact intensity positions at higher rates than male workers; although females comprise a smaller share of the Northeast's workforce, they represent 66.3% of local workers in high contact-intensity occupation groups. Black, Indigenous, and People of Color have applied for unemployment insurance at higher rates than would be expected by their local employment rate in the Northeast. Although American Indian workers comprise only 2.5% of local employment as of the fourth quarter of 2020, they represent 4.1% of all regional unemployment insurance applications since the pandemic began. In the Northeast, there is a relatively higher share of Black/African American and Asian talent working in high contact-intensity occupations in comparison to their share of overall employment.

Unemployment Insurance Applicant Demographics from March 16 – August 27, 2020 in Northeast Minnesota, with Employment in High Contact-Intensity Occupations

Age Group	Minnesota		Northeast MN				
	Workers Filing for Unemployment between March 16 and August 27, 2020	Percent of Total Filing for Unemployment	Workers Filing for Unemployment between March 16 and August 27, 2020	Percent of Total Filing for Unemployment	Share of Total 2020Q1 Empl	Difference (> 0 Indicates Higher Than Expected UI App by Group)	Share of Empl in High Contact-Intensity Occupations**
16-19	27,240	3.0%	1,992	3.0%	5.3%	-2.3%	6.9%
20-24	114,325	12.7%	8,657	13.2%	11.2%	2.0%	12.8%
25-34	224,175	25.0%	15,367	23.4%	18.5%	4.9%	19.4%
35-44	187,084	20.8%	13,450	20.5%	18.6%	1.9%	18.3%
45-54	149,831	16.7%	10,716	16.3%	21.0%	-4.7%	19.4%
55-64	143,557	16.0%	11,348	17.3%	19.8%	-2.5%	18.1%
65+	51,385	5.7%	4,235	6.4%	5.7%	0.7%	5.2%
Education Level							
Less than HS	56,001	6.2%	3,995	6.1%	4.9%	1.2%	3.9%
HS	276,623	30.8%	21,427	32.6%	27.4%	5.2%	23.8%
Some college	253,846	28.3%	21,484	32.7%	21.8%	10.9%	21.1%
2-year degree	89,039	9.9%	7,743	11.8%	16.6%	-4.8%	20.0%
4-year degree	169,303	18.9%	8,764	13.3%	20.7%	-7.4%	20.5%
Advanced	52,766	5.9%	2,343	3.6%	8.5%	-4.9%	10.7%
Gender							
Female	469,818	52.3%	33,329	50.7%	48.2%	2.5%	66.3%
Male	427,792	47.7%	32,434	49.3%	51.8%	-2.5%	33.7%
Race and Ethnicity							
American Indian Alaska Native	10,359	1.2%	2,670	4.1%	2.5%	1.6%	2.2%
Asian	51,032	5.7%	561	0.9%	0.8%	0.1%	1.0%
Black	94,085	10.5%	1,192	1.8%	0.9%	0.9%	1.2%
Hispanic	46,315	5.2%	1,104	1.7%	1.6%	0.1%	1.3%
Non-Hispanic White	634,637	70.7%	56,581	86.0%	93.8%	-7.8%	93.7%
Total UI Applications with Demographics	**897,631**		**65,765**				

Note: Totals may not sum due to rounding and incomplete demographic reporting. Total shown on this table indicates the total UI applicants reporting demographics. The actual total number of applicants during this period according to MN DEED was 928,038.
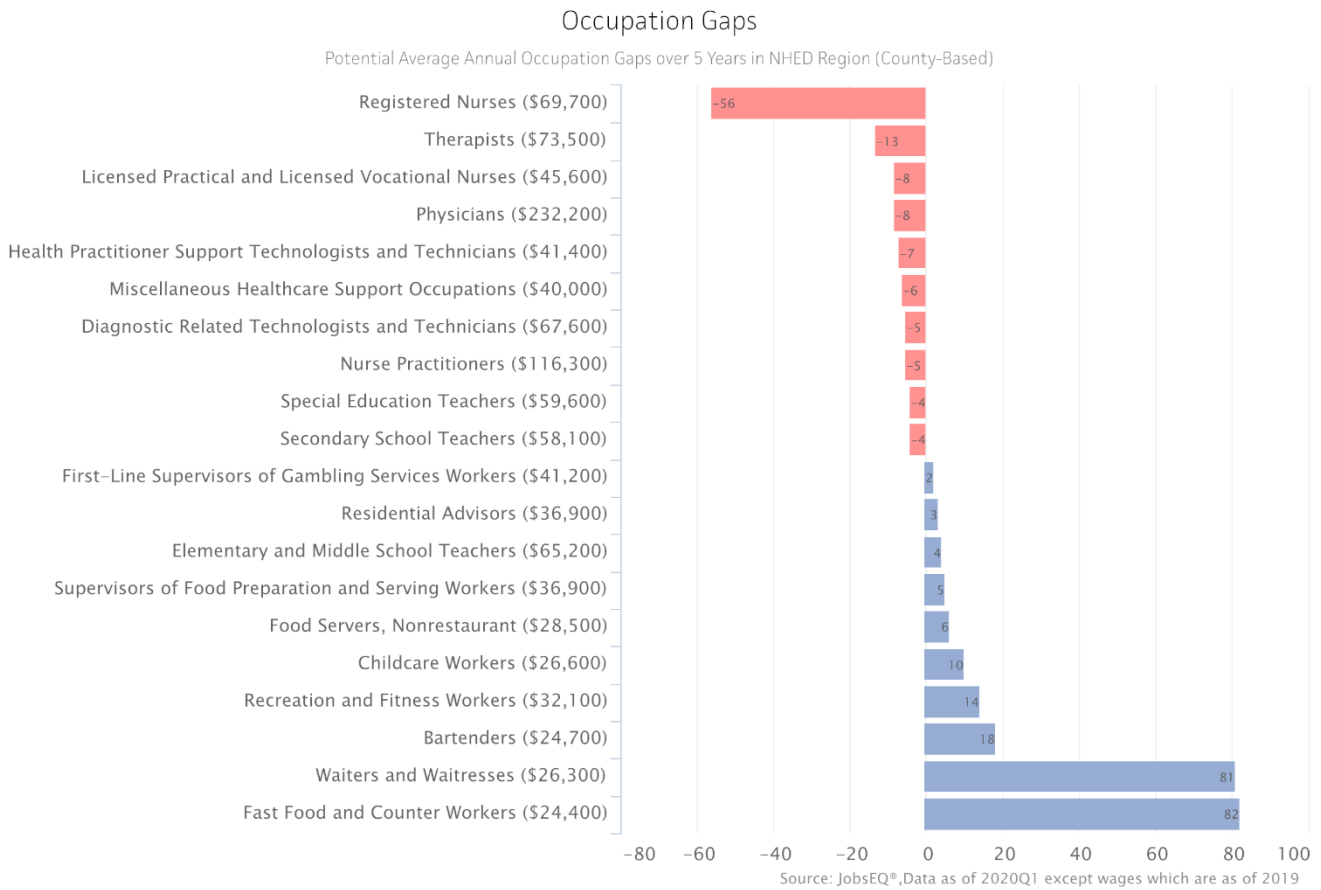
*Race percent are of those who indicated a race/ethnicity. Some race data was not available online at the county level through the UI Applicant Data Tool.

**Fields marked in orange are found in greater concentration in High-Contact Intensity occupations than in all occupations broadly.

Mid-Term Occupational Impacts

Estimation of mid-term and long-term recovery of critical local occupations is based on our most reasonable hypothesis given current conditions. In the Northeast, an analysis of local labor market occupational gaps as of the first quarter of 2020 showed that there was a shortage of local Nurses, Therapists, Physicians, Health Practitioner Support and Diagnostic Technicians, Nurse Practitioners, and Teachers. 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 over the next five years pay wages of $40,000 per year. Most occupations of shortage require an Associate's degree or higher, though several–such as some of the Healthcare support occupations–have industry credential pathways that do not require an advanced degree.

Conversely, the nine out of the ten positions forecast to have the highest surplus of talent as of the first quarter of 2020 require less than a high school diploma on average, and generally pay under $41,200 per year. Nine out of ten of these positions typically cannot be done remotely, and ten out of ten of these positions 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.

Occupation Gaps

Potential Average Annual Occupation Gaps over 5 Years in NHED Region (County-Based)

Occupation	Gap
Registered Nurses ($69,700)	-56
Therapists ($73,500)	-13
Licensed Practical and Licensed Vocational Nurses ($45,600)	-8
Physicians ($232,200)	-8
Health Practitioner Support Technologists and Technicians ($41,400)	-7
Miscellaneous Healthcare Support Occupations ($40,000)	-6
Diagnostic Related Technologists and Technicians ($67,600)	-5
Nurse Practitioners ($116,300)	-5
Special Education Teachers ($59,600)	-4
Secondary School Teachers ($58,100)	-4
First-Line Supervisors of Gambling Services Workers ($41,200)	2
Residential Advisors ($36,900)	3
Elementary and Middle School Teachers ($65,200)	4
Supervisors of Food Preparation and Serving Workers ($36,900)	5
Food Servers, Nonrestaurant ($28,500)	6
Childcare Workers ($26,600)	10
Recreation and Fitness Workers ($32,100)	14
Bartenders ($24,700)	18
Waiters and Waitresses ($26,300)	81
Fast Food and Counter Workers ($24,400)	82

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

Shifting Opportunities

An analysis of current opportunities in Northeast Minnesota reveals that approximately 67.6% of all jobs offered in the community are non-remote, and just 8.4% of positions in the Northeast are able to be made fully remote. The remaining positions (24.0%) may be able to function as partially-remote but will still require in-person activities.

Grand Rapids and Brainerd have a mix of remote, partially-remote, and non-remote job opportunities similar to the mix region-wide, while Duluth has a larger share of jobs that can be done remotely or at least partially remotely.

Remote, Partial, and Non-Remote Jobs by Place of Employment, Northeast Minnesota, 2020Q1

	Grand Rapids	Brainerd	Duluth MSA	Northeast
Remote	1,285	3,503	12,356	16,852
Partially-Remote	4,193	10,379	34,002	47,911
Non-Remote	12,161	30,258	94,006	134,901
All Occupations	**17,638**	**44,140**	**140,364**	**199,664**

	Grand Rapids	Brainerd	Duluth MSA	Northeast
Remote	7.3%	7.9%	8.8%	8.4%
Partially-Remote	23.8%	23.5%	24.2%	24.0%
Non-Remote	68.9%	68.6%	67.0%	67.6%
All Occupations	**17,638**	**44,140**	**140,364**	**199,664**

Remote Work

Across the 199,664 positions employing people in Northeast Minnesota, about 8.4% are either remote full-time or able to be made fully remote without dramatic changes to the occupational role. Across the 10 counties comprising Minnesota's Northeast, St. Louis County has the greatest number of remote work positions and non-remote positions. Overall, Cook County (73.4%) and Lake County (73.4%) have the greatest shares of non-remote work positions out of the total number of positions employing workers in their counties.

Remote Work Employment by County in Northeast Minnesota, 2020Q1
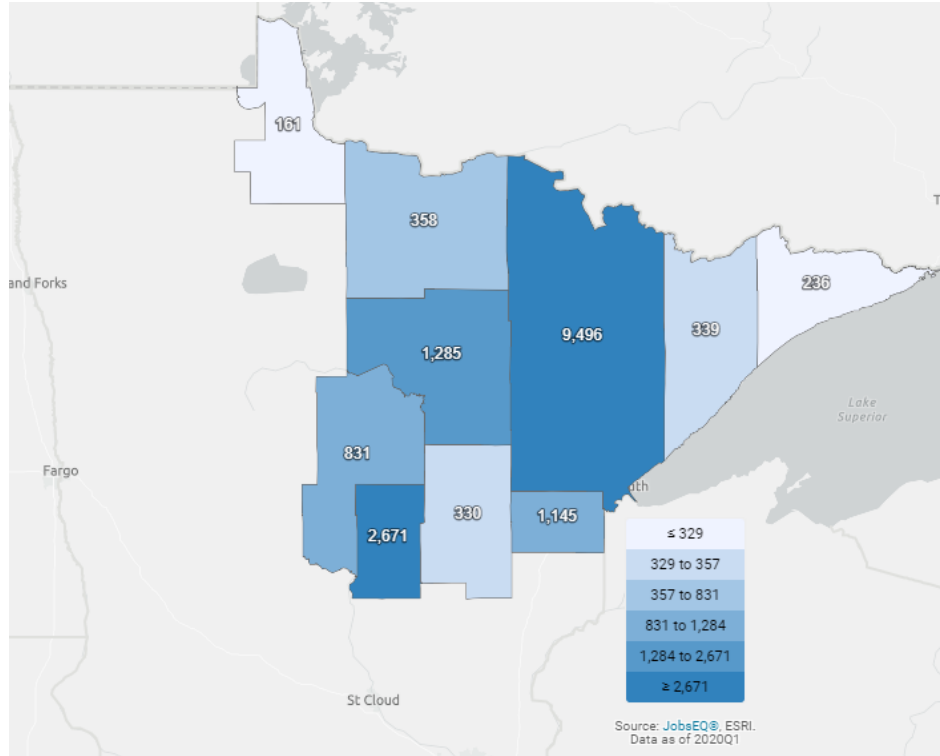
County	Remote Work Empl 2020Q1	Partially-Remote Work Empl 2020Q1	Non-Remote Work Empl 2020Q1	Total Empl 2020Q1	% Remote
Northeast Minnesota	16,852	47,911	134,901	199,664	8.4%
Aitkin County, Minnesota	330	1,051	3,377	4,758	6.9%
Carlton County, Minnesota	1,145	3,469	9,894	14,509	7.9%
Cass County, Minnesota	831	2,693	8,392	11,917	7.0%
Cook County, Minnesota	236	620	2,364	3,220	7.3%
Crow Wing County, Minnesota	2,671	7,686	21,866	32,223	8.3%
Itasca County, Minnesota	1,285	4,193	12,161	17,638	7.3%
Koochiching County, Minnesota	358	1,023	3,552	4,933	7.3%
Lake County, Minnesota	339	906	3,439	4,684	7.2%
Lake of the Woods County, Minnesota	161	380	1,401	1,942	8.3%
St. Louis County, Minnesota	9,496	25,890	68,454	103,841	9.1%

Analysis of employment by race, ethnicity, and gender reveal that a disproportionately large share of White, Asian, and non-Hispanic talent are employed in remote work roles, whereas all other race and ethnic groups have a smaller share of local workers in these roles. Among the top twenty remote work positions by volume of residents employed, all had a higher than baseline concentration of non-Hispanic employees by ethnicity. Project Management Specialists and Business Operations Specialists have a higher concentration of American Indian talent than seen on average in Northeast Minnesota; Insurance Claims and Policy Processing Clerks have a higher concentration of Black or African American talent than seen on average in the region.

Among the top 20 remote work positions by volume in this region, 17 require some college or higher. Additionally, 16 out of the 20 positions require a Bachelor's degree, but little to no prior experience or on-the-job training. Remote work positions in Northeast Minnesota pay an average annual salary of $75,300 compared to $48,800 across all local employment. Overall, remote work positions in Northeast Minnesota are forecast to decline over the next five years.

Top 20 Remote Work Occupation Talent by Place of Residence in Northeast Minnesota, 2020Q1

SOC	Occupation	Total Empl 2020Q1	White	Black	American Indian	Asian	Two or More Races	Non-Hispanic/Latino	Hispanic or Latino (of any race)	Male	Female
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1,761	96.7%	0.4%	1.2%	0.7%	1.0%	99.0%	1.0%	13.7%	86.3%
13-1198	Project Management Specialists and Business Operations Specialists, All Other	1,271	92.5%	0.7%	3.9%	1.5%	1.5%	99.2%	0.8%	47.8%	52.2%
13-2011	Accountants and Auditors	1,176	95.5%	0.5%	1.0%	1.7%	1.2%	99.3%	0.7%	43.6%	56.4%
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	1,110	95.9%	0.4%	1.7%	0.9%	1.1%	99.3%	0.7%	68.3%	31.7%
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	768	90.2%	0.6%	0.6%	7.3%	1.4%	99.6%	0.4%	84.7%	15.3%
15-1211	Computer Systems Analysts	644	93.1%	0.8%	0.9%	3.2%	2.0%	99.4%	0.6%	65.4%	34.6%
13-1111	Management Analysts	638	95.6%	0.5%	0.7%	2.1%	1.1%	99.4%	0.6%	63.5%	36.5%
11-3031	Financial Managers	617	95.6%	0.5%	0.8%	1.3%	1.7%	99.1%	0.9%	52.0%	48.0%
23-1011	Lawyers	603	97.0%	0.3%	0.9%	0.8%	1.0%	99.6%	0.4%	68.3%	31.7%
13-1161	Market Research Analysts and Marketing Specialists	484	97.4%	0.4%	0.1%	1.6%	0.6%	99.5%	0.5%	49.1%	50.9%
11-2022	Sales Managers	387	97.4%	0.4%	0.4%	0.7%	1.2%	99.3%	0.7%	56.9%	43.1%
13-2098	Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	336	96.0%	0.7%	0.4%	1.7%	1.1%	99.3%	0.7%	69.4%	30.6%
11-3013	Facilities Managers	322	94.7%	0.6%	1.7%	0.4%	2.5%	99.2%	0.8%	63.5%	36.5%
11-1011	Chief Executives	321	98.0%	0.2%	0.4%	0.8%	0.6%	99.6%	0.4%	76.5%	23.5%
11-3021	Computer and Information Systems Managers	315	94.2%	0.7%	0.7%	2.6%	1.7%	99.7%	0.3%	76.3%	23.7%
13-2072	Loan Officers	314	96.2%	0.7%	1.4%	0.5%	1.1%	99.1%	0.9%	51.3%	48.7%
41-1012	First-Line Supervisors of Non-Retail Sales Workers	291	97.3%	0.4%	0.6%	0.7%	1.0%	98.9%	1.1%	76.3%	23.7%
43-9041	Insurance Claims and Policy Processing Clerks	287	96.2%	1.6%	1.2%	0.3%	0.7%	98.8%	1.2%	22.0%	78.0%
27-1024	Graphic Designers	282	96.4%	0.4%	0.9%	1.1%	1.3%	99.2%	0.8%	51.3%	48.7%
13-1075	Labor Relations Specialists	280	95.6%	1.0%	0.6%	1.0%	1.8%	98.9%	1.1%	31.6%	68.4%
	Remote Jobs	16,296	95.4%	0.6%	1.1%	1.6%	1.3%	99.3%	0.7%	55.0%	45.0%
	Total - All Occupations	194,083	93.8%	0.9%	2.5%	0.8%	1.9%	98.4%	1.6%	51.8%	48.2%

Note: Employment estimates as of 2020Q1 by place of residence, derived from the Chmura Industry/Occupation Matrix and industry employment data from the Quarterly Census of Employment and Wages (QCEW) provided by the Bureau of Labor Statistics. They will not directly match with employment estimates in other parts of this report which refer to place of work.

Wages, Forecast, and Experience Requirements of Remote Work Talent by Occupation and Place of Residence in Northeast Minnesota, 2020Q1
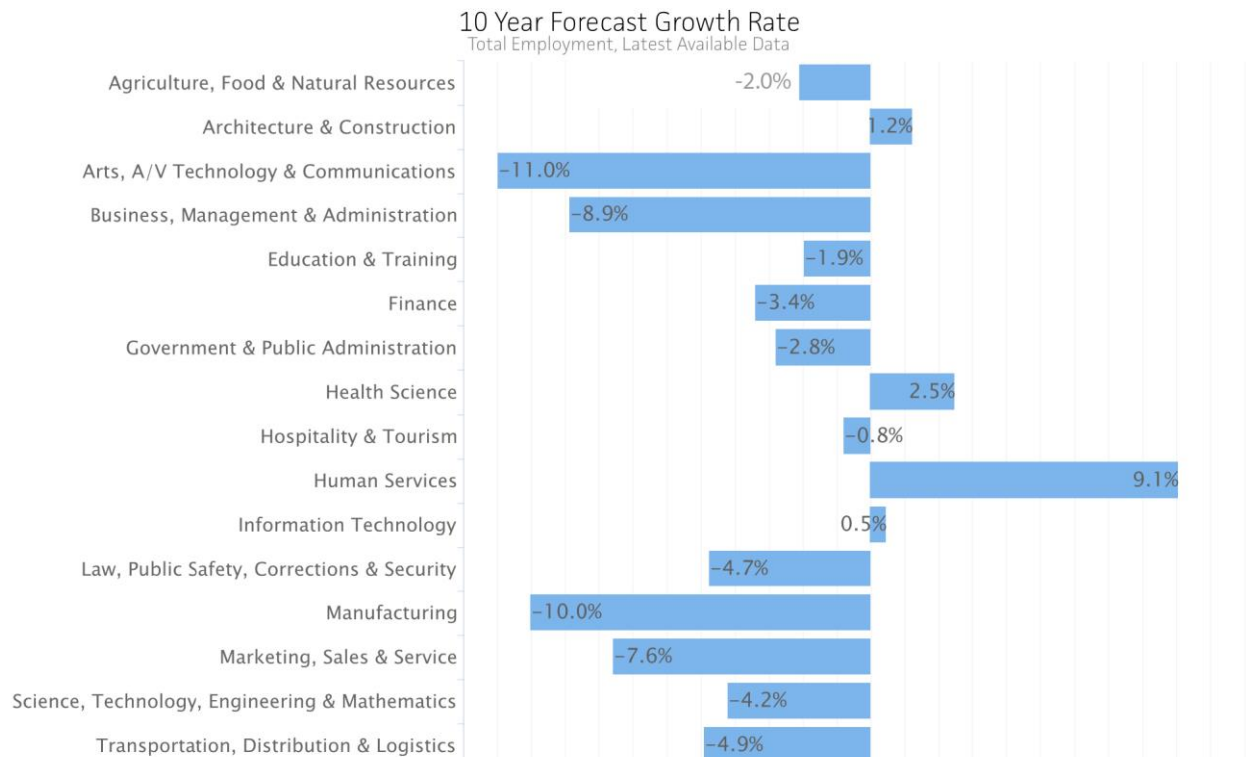
SOC	Occupation	Total Empl 2020Q1	Avg Ann Wages	Forecast Ann Growth	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
43-3031	Bookkeeping, Accounting, and Auditing Clerks	1,761	$38,500	-1.2%	Some college, no degree	None	Moderate-term on-the-job training
13-1198	Project Management Specialists and Business Operations Specialists, All Other	1,271	$61,400	-0.2%	Bachelor's degree	None	None
13-2011	Accountants and Auditors	1,176	$67,300	-0.2%	Bachelor's degree	None	None
11-9198	Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other	1,110	$101,000	-0.2%	Bachelor's degree	Less than 5 years	None
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	768	$85,700	0.3%	Bachelor's degree	None	None
15-1211	Computer Systems Analysts	644	$76,600	0.1%	Bachelor's degree	None	None
13-1111	Management Analysts	638	$70,600	0.3%	Bachelor's degree	Less than 5 years	None
11-3031	Financial Managers	617	$103,600	0.6%	Bachelor's degree	5 years or more	None
23-1011	Lawyers	603	$102,300	-0.2%	Doctoral or professional degree	None	None
13-1161	Market Research Analysts and Marketing Specialists	484	$63,600	0.8%	Bachelor's degree	None	None
11-2022	Sales Managers	387	$103,000	-0.4%	Bachelor's degree	Less than 5 years	None
13-2098	Financial and Investment Analysts, Financial Risk Specialists, and Financial Specialists, All Other	336	$67,600	-0.3%	Bachelor's degree	None	None
11-3013	Facilities Managers	322	$89,300	0.1%	Bachelor's degree	Less than 5 years	None
11-1011	Chief Executives	321	$148,500	-1.3%	Bachelor's degree	Less than 5 years	None
11-3021	Computer and Information Systems Managers	315	$110,300	0.0%	Bachelor's degree	5 years or more	None
13-2072	Loan Officers	314	$66,600	-0.5%	Bachelor's degree	None	Moderate-term on-the-job training
41-1012	First-Line Supervisors of Non-Retail Sales Workers	291	$75,000	-1.2%	High school diploma or equivalent	Less than 5 years	None
43-9041	Insurance Claims and Policy Processing Clerks	287	$42,700	0.2%	High school diploma or equivalent	None	Moderate-term on-the-job training
27-1024	Graphic Designers	282	$43,700	-0.8%	Bachelor's degree	None	None
13-1075	Labor Relations Specialists	280	$63,700	-2.1%	Bachelor's degree	Less than 5 years	None
	Remote Jobs	**16,296**	**$75,300**	**-0.3%**	**n/a**	**n/a**	**n/a**
	Total - All Occupations	**194,083**	**$48,800**	**-0.3%**	**n/a**	**n/a**	**n/a**

Note: Average Annual Wages as of 2019 by the Bureau of Labor Statistics and imputed by Chmura as necessary. Forecast employment growth uses projections from the Bureau of Labor Statistics for 2016-2026, adapted for regional growth patterns by Chmura.

Future Growth by Field and Cluster

With hundreds of occupations, it can be difficult for educators to pinpoint the most promising high-demand and high-wage occupations in their region that provide rewarding careers for their students. Analysis of the sixteen CTE Clusters provides an entryway into career pathways.

Of sixteen career clusters used by Career and Technical Education (CTE), four are expected to grow and twelve are expected to decline in the Northeast over the next ten years. The clusters expecting the greatest growth are Human Services (9.1%), Health Science (2.5%), and Architecture and Construction (1.2%)–the same three clusters anticipating the most growth in Northwest Minnesota as well. In contrast, Arts, Audio/Video Technology and Communications (-11.0%) and Manufacturing (-10.0%) are anticipating the greatest declines in overall employment.

10 Year Forecast Growth Rate
Total Employment, Latest Available Data

Cluster	Growth Rate
Agriculture, Food & Natural Resources	-2.0%
Architecture & Construction	1.2%
Arts, A/V Technology & Communications	-11.0%
Business, Management & Administration	-8.9%
Education & Training	-1.9%
Finance	-3.4%
Government & Public Administration	-2.8%
Health Science	2.5%
Hospitality & Tourism	-0.8%
Human Services	9.1%
Information Technology	0.5%
Law, Public Safety, Corrections & Security	-4.7%
Manufacturing	-10.0%
Marketing, Sales & Service	-7.6%
Science, Technology, Engineering & Mathematics	-4.2%
Transportation, Distribution & Logistics	-4.9%

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 Northeast Minnesota, Hospitality & Tourism, Marketing, Sales & Service and Business, Management & Administration 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 Health Science clusters.

Career Cluster	Employment	Avg Ann Wages	Job Ads	Ann Empl Growth	Ann Total Demand
Science, Technology, Engineering & Mathematics	2,157	$86,900	67	-9	155
Information Technology	3,148	$73,500	187	1	233
Health Science	24,021	$66,700	2,286	58	1,881
Finance	5,099	$66,200	348	-18	449
Government & Public Administration	2,121	$58,300	54	-6	180
Agriculture, Food & Natural Resources	9,296	$55,200	361	-24	1,010
Architecture & Construction	14,910	$55,900	296	18	1,625
Law, Public Safety, Corrections & Security	6,193	$55,800	202	-30	523
Education & Training	12,550	$54,600	284	-25	1,119
Business, Management & Administration	28,008	$52,800	1,051	-259	2,698
Arts, A/V Technology & Communications	2,519	$47,100	90	-29	235
Manufacturing	14,504	$46,800	450	-153	1,344
Transportation, Distribution & Logistics	13,249	$45,700	648	-67	1,441
Marketing, Sales & Service	21,385	$39,600	1,586	-168	2,768
Human Services	15,124	$38,000	882	131	2,058
Hospitality & Tourism	31,465	$28,600	1,520	-25	5,091
Total - All Occupations	**199,664**	**$48,800**	**10,064**	**-580**	**22,178**

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.
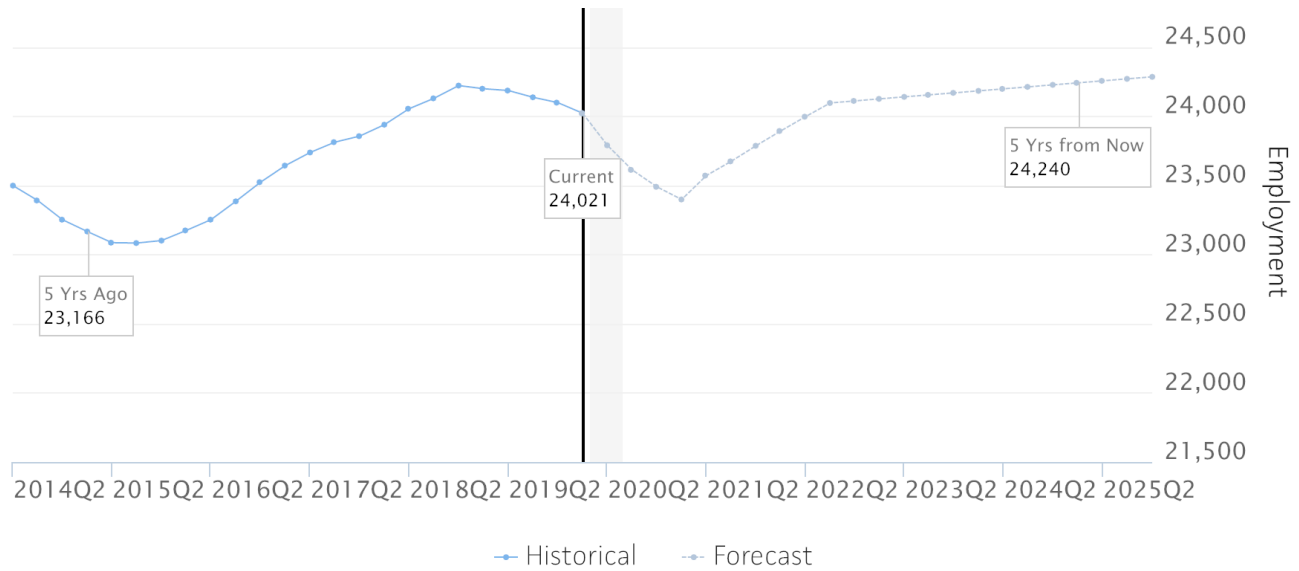
HEALTH SCIENCE TECHNOLOGY

5 Yrs Ago
23,166

Current
24,021

5 Yrs from Now
24,240

Historical   Forecast

Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

Occupation	Gap
Registered Nurses ($69,700)	−61
Licensed Practical and Licensed Vocational Nurses ($45,600)	−9
Nursing Assistants ($33,600)	−8
Medical and Health Services Managers ($99,600)	−7
Medical Secretaries and Administrative Assistants ($40,200)	−6
Medical Assistants ($41,000)	−6
Physicians, All Other; and Ophthalmologists, Except Pediatric ($238,500)	−5
Nurse Practitioners ($116,300)	−5
Respiratory Therapists ($63,500)	−4
Medical Dosimetrists, Medical Records Specialists, and Health Technologists and Technicians, All Other ($51,000)	−4

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

HUMAN SERVICES

Current
35,988

5 Yrs from Now
36,267

5 Yrs Ago
34,064

Employment

37,000
36,000
35,000
34,000
33,000
32,000
31,000

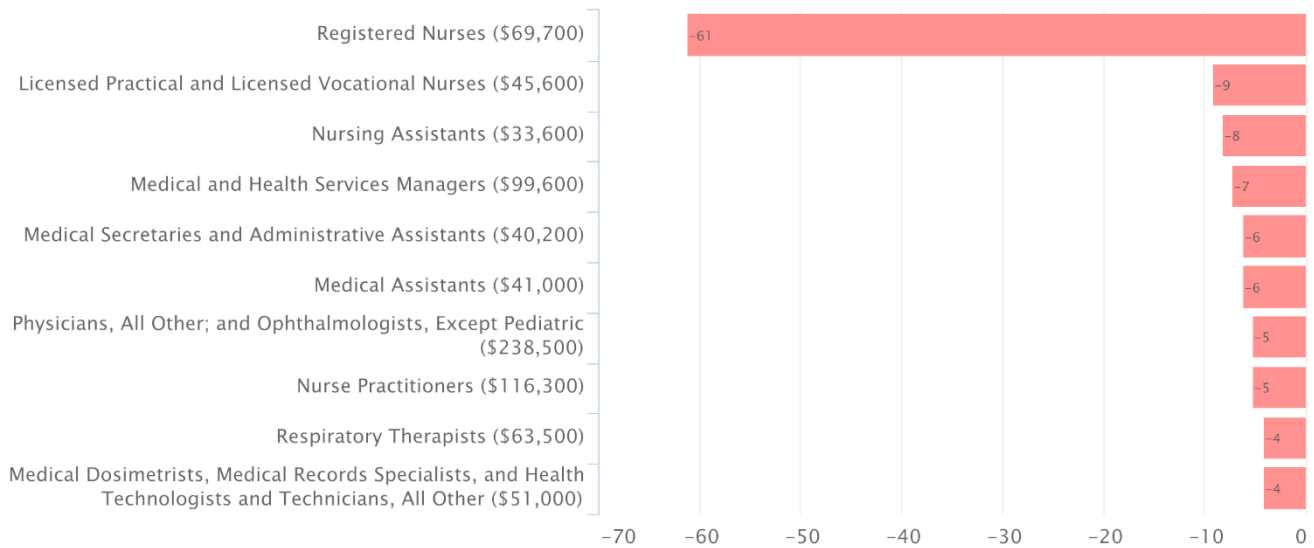2014Q2 2015Q2 2016Q2 2017Q2 2018Q2 2019Q2 2020Q2 2021Q2 2022Q2 2023Q2 2024Q2 2025Q2

Historical   Forecast

Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

Occupation	Gap
Substance Abuse, Behavioral Disorder, and Mental Health Counselors ($48,600)	−13
Police and Sheriff's Patrol Officers ($63,900)	−8
Secondary School Teachers, Except Special and Career/Technical Education ($58,000)	−6
Child, Family, and School Social Workers ($53,200)	−6
Firefighters ($44,400)	−5
Social and Community Service Managers ($67,000)	−5
Clinical, Counseling, and School Psychologists ($80,700)	−5
Mental Health and Substance Abuse Social Workers ($59,400)	−4
Self-Enrichment Teachers ($43,400)	−4
Court, Municipal, and License Clerks ($45,900)	−4
Legal Secretaries and Administrative Assistants ($48,200)	1
Laundry and Dry-Cleaning Workers ($28,600)	1
Paralegals and Legal Assistants ($46,700)	1
Kindergarten Teachers, Except Special Education ($52,700)	1
Exercise Trainers and Group Fitness Instructors ($37,700)	3
Security Guards ($33,700)	3
Residential Advisors ($36,900)	3
School Bus Monitors and Protective Service Workers, All Other ($34,000)	4
Childcare Workers ($26,600)	6
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers ($24,600)	8

−15 −12 −10 −7 −5 −2 0 3 5 8 10

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

ARTS, COMMUNICATIONS, AND INFORMATION SYSTEMS

5 Yrs Ago
5,730

Current
5,667

5 Yrs from Now
5,531

- Historical   - Forecast

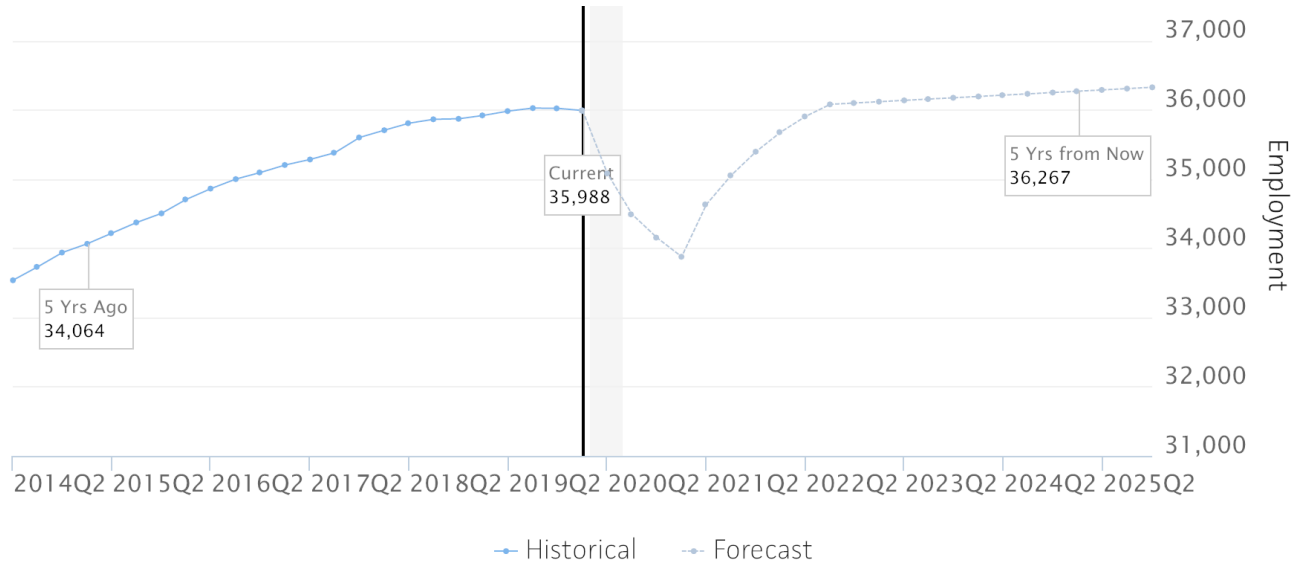Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

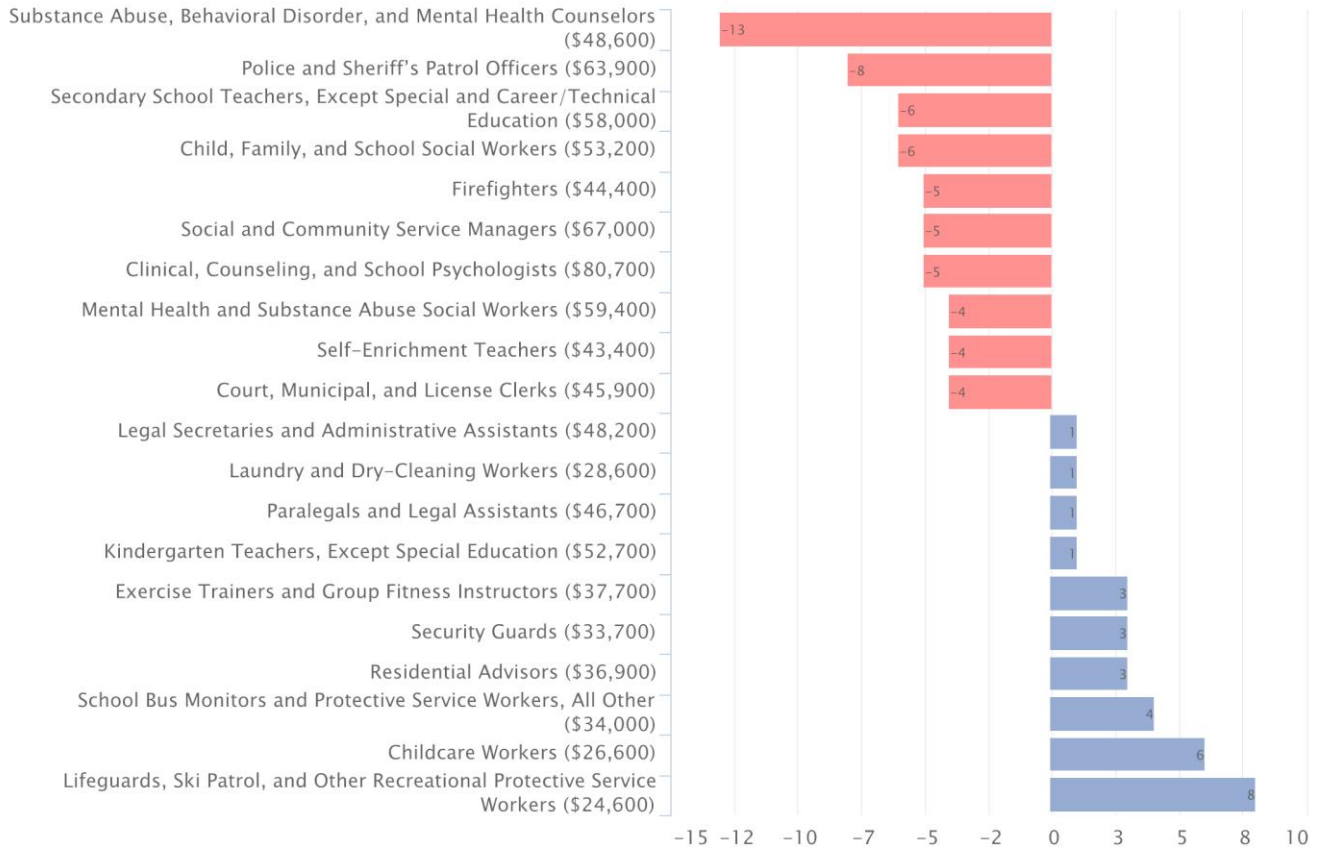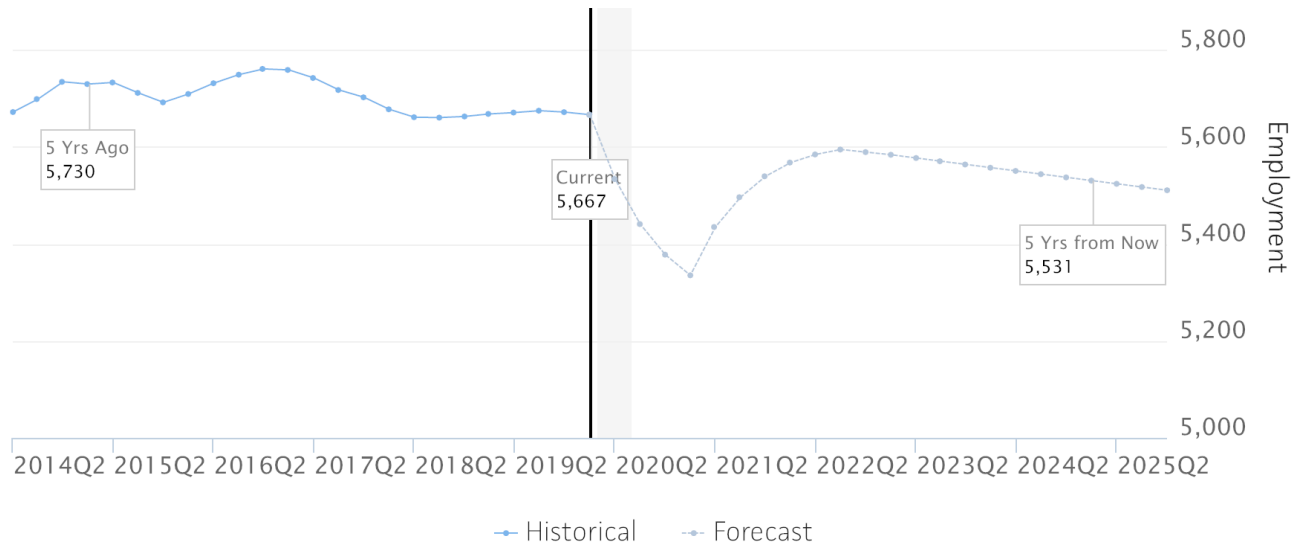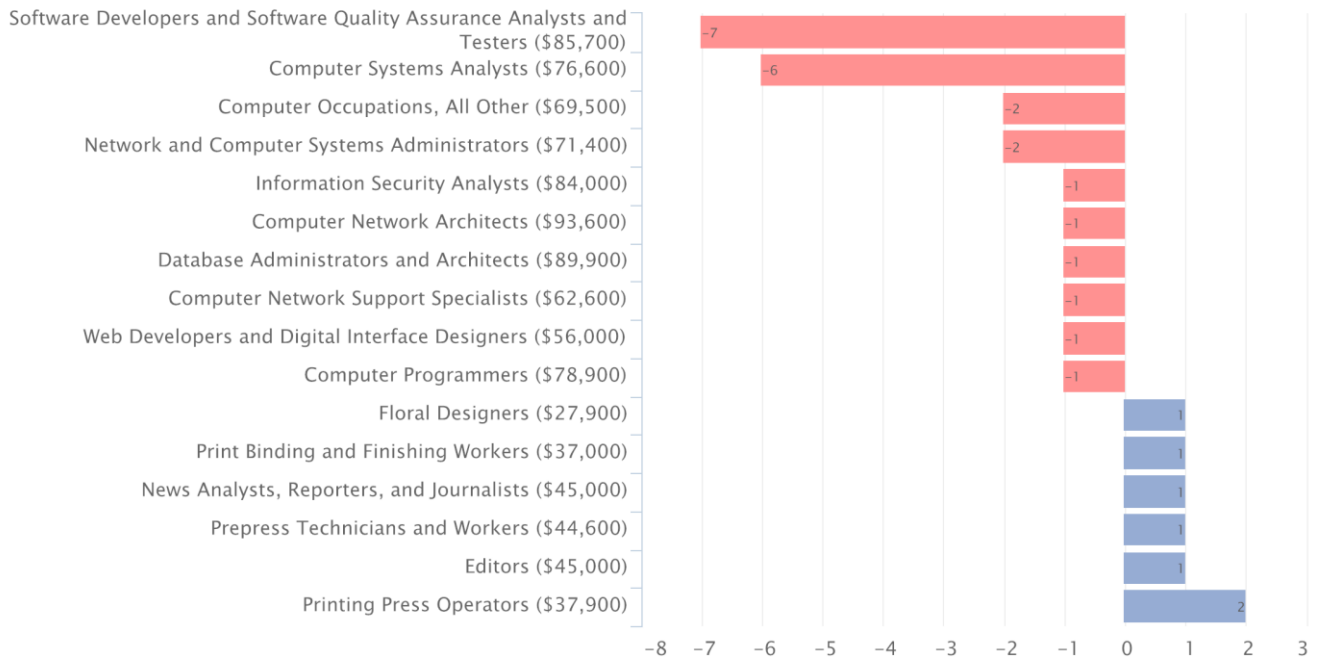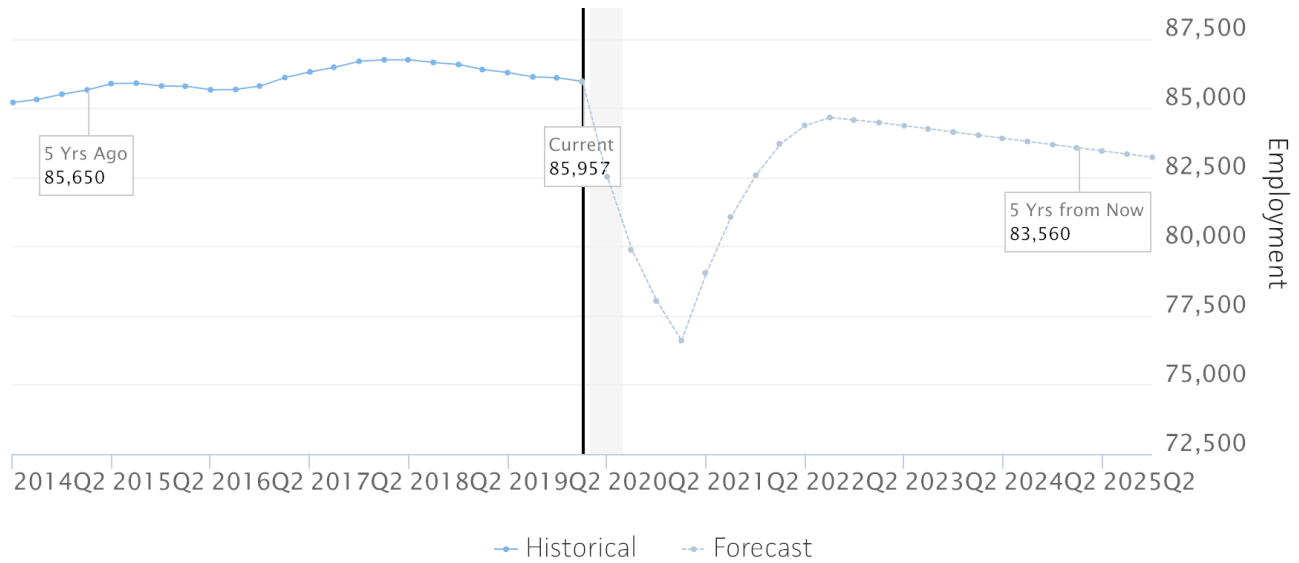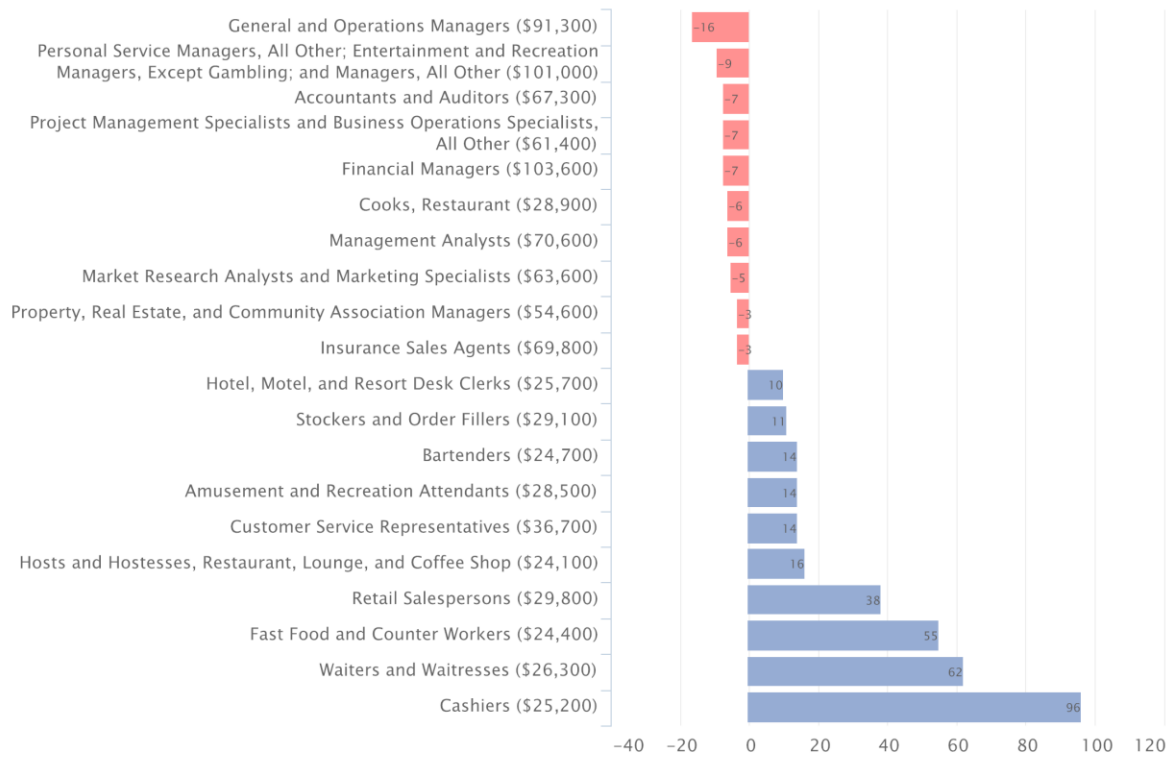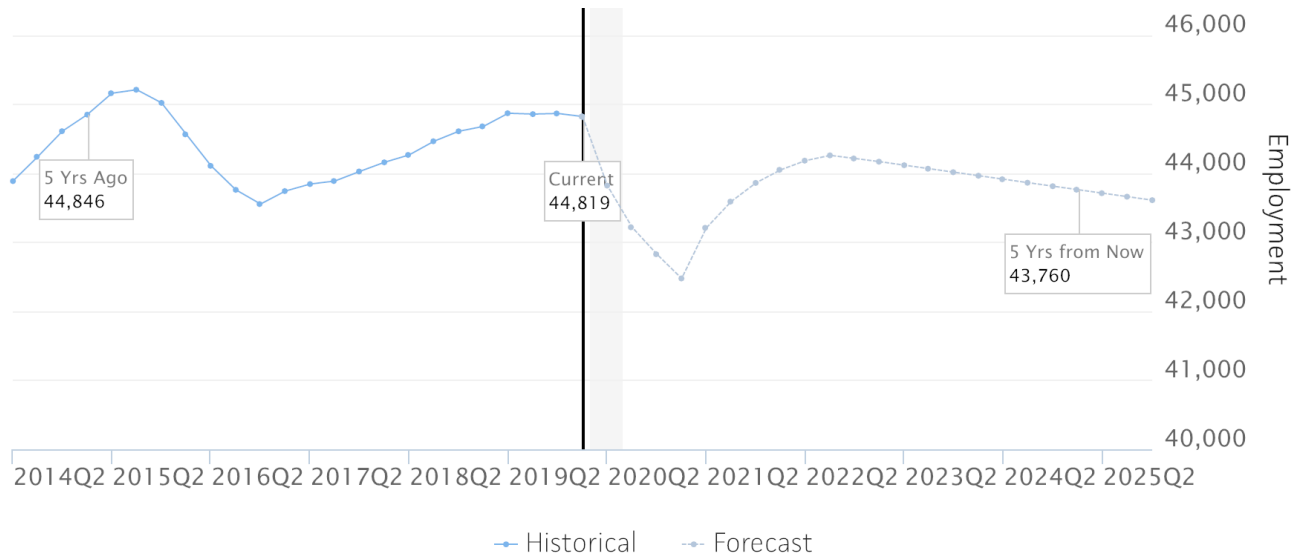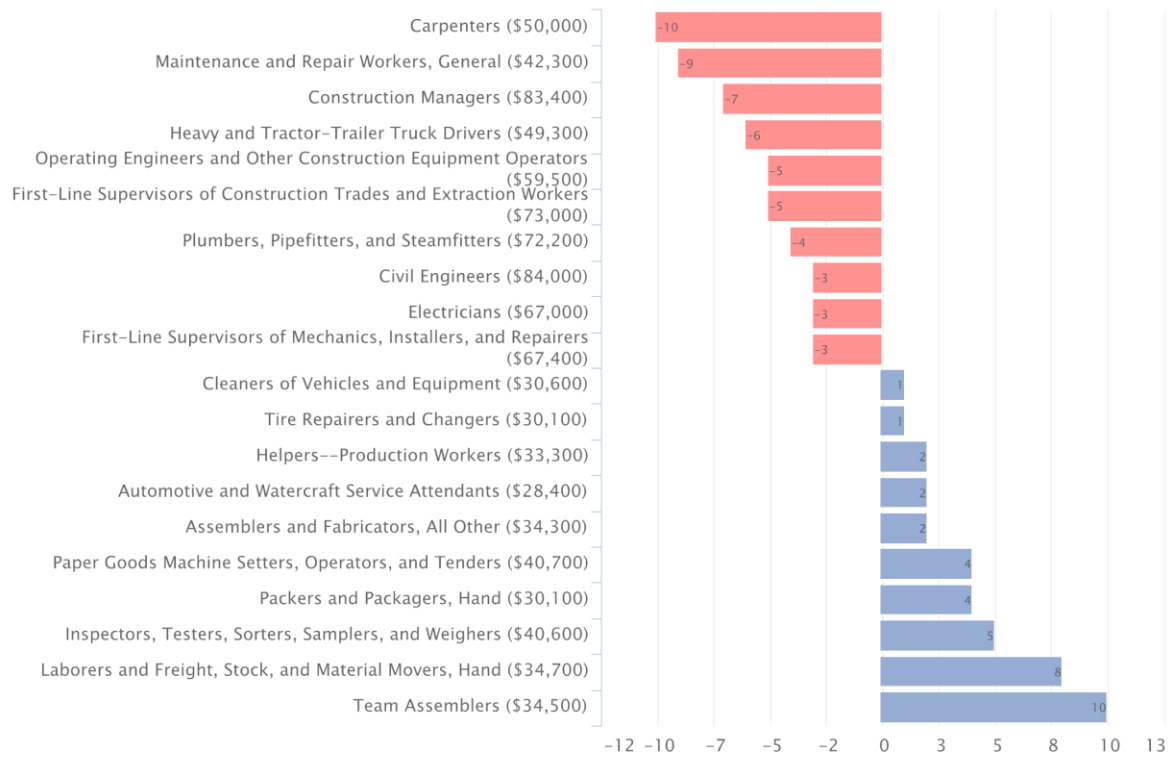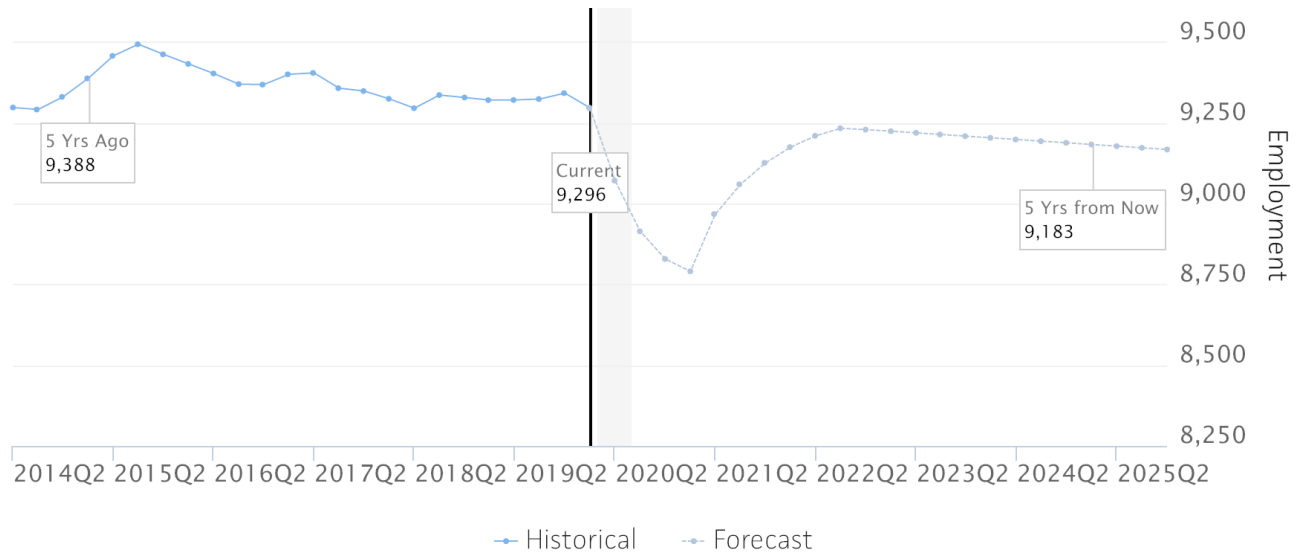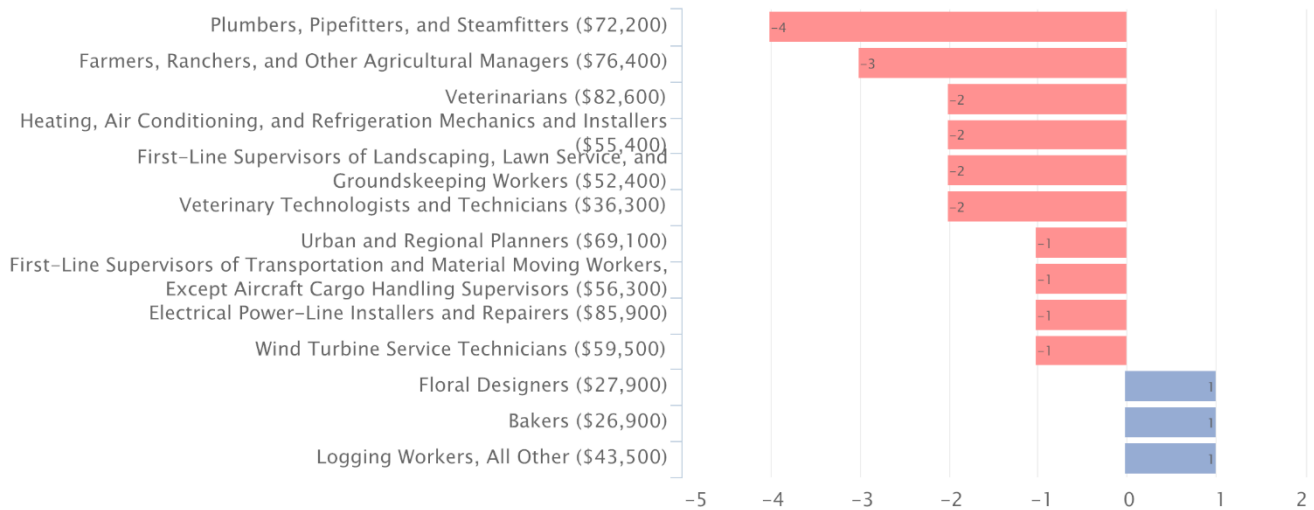Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

BUSINESS, MANAGEMENT, AND ADMINISTRATION

5 Yrs Ago
85,650

Current
85,957

5 Yrs from Now
83,560

Historical   Forecast

Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

Occupation	Gap
General and Operations Managers ($91,300)	-16
Personal Service Managers, All Other; Entertainment and Recreation Managers, Except Gambling; and Managers, All Other ($101,000)	-9
Accountants and Auditors ($67,300)	-7
Project Management Specialists and Business Operations Specialists, All Other ($61,400)	-7
Financial Managers ($103,600)	-7
Cooks, Restaurant ($28,900)	-6
Management Analysts ($70,600)	-6
Market Research Analysts and Marketing Specialists ($63,600)	-5
Property, Real Estate, and Community Association Managers ($54,600)	-3
Insurance Sales Agents ($69,800)	-3
Hotel, Motel, and Resort Desk Clerks ($25,700)	10
Stockers and Order Fillers ($29,100)	11
Bartenders ($24,700)	14
Amusement and Recreation Attendants ($28,500)	14
Customer Service Representatives ($36,700)	14
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop ($24,100)	16
Retail Salespersons ($29,800)	38
Fast Food and Counter Workers ($24,400)	55
Waiters and Waitresses ($26,300)	62
Cashiers ($25,200)	96

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

ENGINEERING, MANUFACTURING, AND TECHNOLOGY

5 Yrs Ago
44,846

Current
44,819

5 Yrs from Now
43,760

— Historical — Forecast

Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

Occupation	Gap
Carpenters ($50,000)	-10
Maintenance and Repair Workers, General ($42,300)	-9
Construction Managers ($83,400)	-7
Heavy and Tractor-Trailer Truck Drivers ($49,300)	-6
Operating Engineers and Other Construction Equipment Operators ($59,500)	-5
First-Line Supervisors of Construction Trades and Extraction Workers ($73,000)	-5
Plumbers, Pipefitters, and Steamfitters ($72,200)	-4
Civil Engineers ($84,000)	-3
Electricians ($67,000)	-3
First-Line Supervisors of Mechanics, Installers, and Repairers ($67,400)	-3
Cleaners of Vehicles and Equipment ($30,600)	1
Tire Repairers and Changers ($30,100)	1
Helpers--Production Workers ($33,300)	2
Automotive and Watercraft Service Attendants ($28,400)	2
Assemblers and Fabricators, All Other ($34,300)	2
Paper Goods Machine Setters, Operators, and Tenders ($40,700)	4
Packers and Packagers, Hand ($30,100)	4
Inspectors, Testers, Sorters, Samplers, and Weighers ($40,600)	5
Laborers and Freight, Stock, and Material Movers, Hand ($34,700)	8
Team Assemblers ($34,500)	10

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

AGRICULTURE, FOOD, AND NATURAL RESOURCES

5 Yrs Ago
9,388

Current
9,296

5 Yrs from Now
9,183

Historical   Forecast

Source: JobsEQ®,Data as of 2020Q1,The shaded areas of the graph represent national recessions.

Occupation Gaps

Potential Average Annual Occupation Gaps over 10 Years in NHED Region (County-Based)

Occupation	Gap
Plumbers, Pipefitters, and Steamfitters ($72,200)	-4
Farmers, Ranchers, and Other Agricultural Managers ($76,400)	-3
Veterinarians ($82,600)	-2
Heating, Air Conditioning, and Refrigeration Mechanics and Installers ($55,400)	-2
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers ($52,400)	-2
Veterinary Technologists and Technicians ($36,300)	-2
Urban and Regional Planners ($69,100)	-1
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors ($56,300)	-1
Electrical Power-Line Installers and Repairers ($85,900)	-1
Wind Turbine Service Technicians ($59,500)	-1
Floral Designers ($27,900)	1
Bakers ($26,900)	1
Logging Workers, All Other ($43,500)	1

Source: JobsEQ®,Data as of 2020Q1 except wages which are as of 2019

Emerging Career Paths

Online job posting data can tell us a lot about employer demand for certain skills, certifications, qualifications, and occupational competencies. There is rich data available by city, county, and even by specific employer. However, it can be challenging to pinpoint exactly which positions advertised would be physically located in a specific geography without a complete address being included in a job post–or, when job postings are only advertised in a local newspaper, physical job board, or on a street corner.

Despite these limitations, there are still a sufficient number of job postings that do include a city, address, or a zip code for the location of the job opportunity being advertised. Looking at positions in this way will favor employers that have the particular practice of including the business' physical location in the posting. Although attempting to use these approximation for local job opportunities may not be a complete picture of all demand in the community, it can give a glimpse into the trending opportunities and how they compare to opportunities in the past.

During the first six months of the COVID-19 pandemic,[7] there were 30,150 new jobs advertised in the region–a decrease of about 3% 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. Insurance Sales Agents postings grew by 75% between 2020 and 2019. This reflects the sudden and growing local demand for Finance Cluster talent, particularly those with at least a 2-year degree in a related area of study.

Top Emerging Occupations in Northeast Minnesota, March 1-August 31, 2020
1. Heavy and Tractor-Trailer and Truck Drivers (+63%)
2. Personal Care Aides (+112%)
3. Retail Salespersons (+24%)
4. Insurance Sales Agents (+75%)
5. Customer Service Representatives (+8%)
6. Medical and Health Services Managers (+8%)
7. Sales Representatives, All Other Services (+7%)
8. Cashiers (+26%)
9. Laborers and Freight, Stock, and Material Movers (+251%)
10. Light Truck or Delivery Services Drivers (+33%)

The certifications and technical skills in demand locally match in particular to the customer service, and entry-level health care positions available in high volumes in the region, with Commercial Drivers Licenses, Registered Nurse Certification, and HAZMAT Certification appeared in high volumes in local job postings during this period compared to a full year prior. 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. This reflects the high and growing demand for healthcare and human services positions that is expected to continue over the next five to ten years.
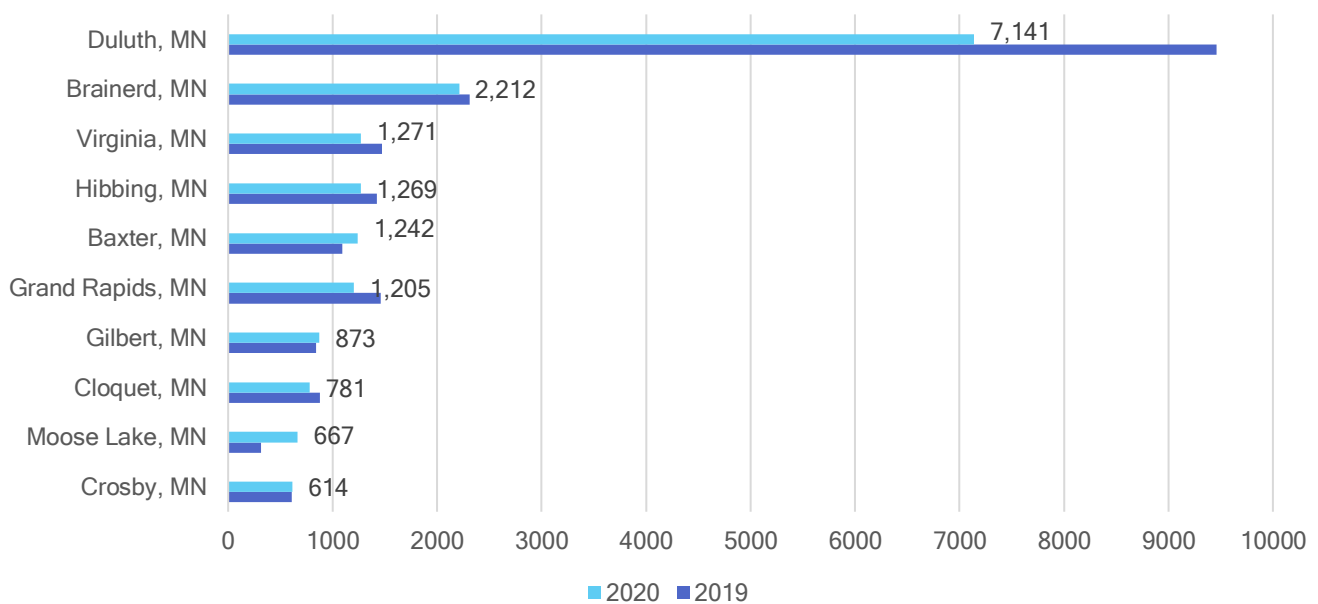
[7] March 15-June 15, 2020.

**Top Emerging Skills in Northeast Minnesota in Order of Frequency
in Job Postings, March 1-August 31, 2020**
1. Scheduling (+5% from pre-COVID-19)
2. Friendliness (+6% from pre-COVID-19)
3. Administering Medications (+26% from pre-COVID-19)
4. Flexibility (+26% from pre-COVID-19)
5. Passion (+17% from pre-COVID-19)

By city, Baxter, Gilbert, and Moose Lake saw small increases in total volume of new job postings advertised in their communities between March and August 2020 compared to 2019. Most other cities and towns in the Northeast saw drops in total volume of new positions.

Top Cities by Job Posting Volume, March 1-August 31, 2020

City	2020
Duluth, MN	7,141
Brainerd, MN	2,212
Virginia, MN	1,271
Hibbing, MN	1,269
Baxter, MN	1,242
Grand Rapids, MN	1,205
Gilbert, MN	873
Cloquet, MN	781
Moose Lake, MN	667
Crosby, MN	614

■ 2020 ■ 2019

There are over 800 defined occupations at the detailed level. Among those occupations that support a living wage, Mental Health Counselors and Social and Human Service Assistants are expected to add the most jobs over the next ten years in the Northeast Minnesota.

Occupation	Employment	Avg Ann Wages	Job Ads	Hist 10yr Change	Proj 10yr Growth
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	912	$48,600	80	296	182
Social and Human Service Assistants	1,138	$37,200	307	-4	113
Medical Assistants	670	$41,000	62	-16	77
Construction Laborers	1,657	$42,700	52	399	63
Child, Family, and School Social Workers	724	$53,200	7	20	48
Mental Health and Substance Abuse Social Workers	330	$59,400	23	-14	47
Clinical, Counseling, and School Psychologists	276	$80,700	11	46	44
Market Research Analysts and Marketing Specialists	512	$63,600	14	224	43
Nurse Practitioners	261	$116,300	74	81	42
Financial Managers	644	$103,600	16	72	39

Of occupations supporting a living wage, administrative support positions are projected to have the largest decline in employment in this region over the next ten years.

Occupation	Employment	Avg Ann Wages	Job Ads	Hist 10yr Change	Proj 10yr Growth
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2,237	$39,600	95	32	-349
Office Clerks, General	3,264	$36,600	15	64	-343
Customer Service Representatives	2,731	$36,700	222	222	-316
Team Assemblers	967	$34,500	7	247	-229
Bookkeeping, Accounting, and Auditing Clerks	1,754	$38,500	39	-459	-206
First-Line Supervisors of Retail Sales Workers	2,195	$48,400	282	-81	-187
Executive Secretaries and Executive Administrative Assistants	592	$56,100	3	-716	-155
Inspectors, Testers, Sorters, Samplers, and Weighers	502	$40,600	12	163	-125
Postal Service Mail Carriers	424	$51,200	16	-34	-117
Laborers and Freight, Stock, and Material Movers, Hand	2,062	$34,700	59	276	-116

Skill and Certification Gaps

Below are the top 10 skill and certification gaps (supply shortfalls) among occupations which support a living wage within the Northeast Minnesota. These data are based on online resumes and job ads live as of September 2020 that reflect local supply and demand.

Top 10 Skill Gaps in Northeast Minnesota

Name	Candidates	Openings	Gap
Heavy Equipment Operation	72	108	-36
Merchandising	89	123	-34
Bookkeeping	63	96	-34
Word Processing	74	108	-33
Graders	3	29	-26
Aviation	7	34	-26
Bilingual	41	67	-26
Budgeting	36	61	-25
Commercial Construction	7	32	-25
CSS	25	48	-23

Top 10 Certification Gaps in Northeast Minnesota

Name	Candidates	Openings	Gap
Advanced Cardiac Life Support Certification (ACLS)	71	83	-12
Certified Pharmacy Technician (CPT)	11	22	-11
Emergency Nursing Pediatric Course (ENPC)	7	17	-10
Trauma Nursing Core Course (TNCC)	16	25	-9
Critical Care Registered Nurse (CCRN)	0	8	-8
Emergency Medical Technician (EMT)	24	31	-7
Certified Public Accountant (CPA)	31	38	-7
Pediatric Advanced Life Support (PALS)	42	48	-6
Registered Respiratory Therapist (RRT)	3	9	-6
Medical Technologist (Medical Technologists)	5	11	-6

Accessible Career Pathways

Local Careers for People with an Associate's Degree or Less

Taking a holistic look at high-wage, accessible career opportunities in Northeast Minnesota reveals a large number of opportunities are 1) uniquely concentrated in this community, 2) have seen high historic employment growth, 3) are trending in job postings since March 2020, and 3) could see shortages in talent in the next five to ten years.

A significant share of the certificate shortages in the region are in the Health Science Technology, Engineering, Manufacturing, and Technology, and Human Services fields, and applicable to positions that require an Associate's degree or less. Opportunities are less numerous in the Arts, Communications and Information Systems in careers that require lower levels of education and experience; it is likely that the Northeast will have a surplus of talent in most career pathways in the Arts, Audio/Video Technology, and Communications career cluster specifically.

Skill gaps point to shortfalls in other career fields. For example, the region is facing a near-term shortage of heavy equipment operators, based on the ratio of local opportunities seeking this skill and the estimated local talent pool seeking work with this related skill set. Talent with Advanced Cardiac Life Support and Pharmacy Technician certifications are also not likely to be sufficient to meet local demand.

Job postings also reveal a large number of Engineering, Manufacturing, and Technology Career Field opportunities that may not be fully captured in current vacancy estimates or official forecasts. Carpenters, Truck Drivers, Maintenance and Repair Workers, and Plumbers are all anticipating shortages by 2025.

Lower Education Pathways and Occupations in Demand by Career Field

Career Field	Top Pathway(s) In Demand	Top Occupations in Shortage Over 10 years	Top Occupations Advertised March 1, 2020 – August 31, 2020	Top Employers Recruiting
Health Science Technology	• Therapeutic Services • Support Services • Health Informatics	• Licensed Practical and Licensed Vocational Nurses • Nursing Assistants • Medical and Health Services Managers • Medical Secretaries and Administrative Assistants	• Personal Care Aides • Nursing Assistants • Licensed Practical Nurses • Medical Assistants • Medical and Health Services Managers	1. Essentia Health 2. The Mentor Network 3. SMDC Health System 4. REM Hennepin Inc. 5. Cuyuna Regional Medical Center
Engineering, Manufacturing, & Technology	• Construction • Maintenance/Operations • Transportation Operations • Warehousing and Distribution Center Operations	• Carpenters • Maintenance and Repair Workers, General • Heavy and Tractor-Trailer Truck Drivers • Supervisors of Construction Trades and Extraction Workers • Plumbers, Pipefitters, and Steamfitters	• Heavy and Tractor-Trailer Truck Drivers • Laborers and Freight, Stock, and Material Movers • Light Truck or Delivery Service Drivers • Drivers/Sales Workers • Maintenance and Repair Workers, General • Bus and Truck Mechanics and Diesel Engine Specialists • Electronic Home Entertainment Equipment Installers	1. U.S. Xpress 2. A.D. Transport 3. Roehl Transport, Inc. 4. Midnite Express 5. Van Lines
Arts, Communications, & Information Systems	• Communications Technology	N/A	• Merchandise Displayers and Window Trimmers • Computer User Support Specialists • Coaches and Scouts • Web Developers	1. Home Depot 2. Lawrence Merchandising Services 3. Driveline Retail Merchandising 4. Hibbing Independent School District 701 5. Spar Group
Agriculture, Food, & Natural Resources	• Environmental Service Systems • Animal Systems • Natural Resources Systems • Power, Structural, and Technical Systems • Plant Systems	• Plumbers, Pipefitters, and Steamfitters • Farmers, Ranchers, and Other Agricultural Managers • Heating, Air Conditioning, and Refrigeration Mechanics and Installers • Supervisors of Landscaping, Lawn Service, and Groundskeeping workers • Veterinary Technologists and Technicians	• Customer Service Representatives • Maintenance and Repair Workers • Insurance Sales Agents • Environmental Science and Protection Technicians • Wind Turbine Service Technician	1. Kwik Trip 2. UnitedHealth Group 3. Duane Reade 4. Holiday Companies 5. Army
Business, Management, & Administration	• Professional Sales • Insurance • General Management • Restaurants and Food/Beverage Services	• Personal Service Managers, All Other • Cooks, Restaurant • Insurance Sales Agents	• Retail Salespersons • Insurance Sales Agents • Customer Service Representatives • Supervisors of Retail Sales Workers • Cashiers	1. Platinum Supplemental Insurance 2. Home Depot 3. LiveOps, Inc. 4. Kwik Trip 5. Essentia Health
Human Services	• Security and Protective Services • Law Enforcement Services • Public Management and Administration • Family and Community Services • Personal Care Services	• Police and Sheriff's Patrol Officers • Firefighters • Social and Community Service Managers • Self-Enrichment Teachers • Court, Municipal, and License Clerks	• Social and Human Services Assistants • Security Guards • Teacher Assistants • Forest Firefighters • Tutors • Correctional Officers and Jailers	1. Lutheran Social Services 2. The Mentor Network 3. Essentia Health 4. Duluth Public Schools 5. REM Hennepin Inc.

* The occupations by job posting and employer data shown in this section is based on content found in jobs newly posted online during the period identified. Data from Gartner TalentNeuron Recruit, accessed 9/15/2020 at www.wantedanalytics.com.

Local Careers for People with a Bachelor's Degree or Higher

The Northeast will see a growing shortage of Health Science Technology and Human Services talent if it does not cultivate a stronger talent pipeline in local education and training programs. Therapeutic Services and Diagnostic Services pathway talent, and to a lesser degree Health Informatics will maintain and grow demand over the next five years and beyond. Registered Nurses are the number one occupation of shortage in the region by 2025, and rank high in regional job posting volume.

Information Technology careers are increasing in importance in the region, typically requiring a Bachelor's degree or higher for entry. Software Developers will be in shortage regionally by 2025 on the current talent trajectory, and cybersecurity skills are in critical demand across IT careers in the health, finance, retail, and insurance industries.

Higher Education Pathways and Occupations in Demand by Career Field

Career Field	Top Pathway(s) In Demand	Top Occupations in Shortage Over 10 years	Top Occupations Advertised March 1, 2020 – August 31, 2020	Top Employers Recruiting
Health Science Technology	• Therapeutic Services • Diagnostic Services • Health Informatics	• Registered Nurses • Medical and Health Services Managers • Physicians, All Other • Nurse Practitioners • Respiratory Therapists • Medical Records Specialists	• Registered Nurses • Medical and Health Services Managers • Physicians and Surgeons • Family and General Practitioners • Speech-Language Pathologists	1. Essentia Health 2. Anthem, Inc. 3. SMDC Health System 4. Comphealth Inc. 5. Fairview Health Services
Engineering, Manufacturing, & Technology	• Construction • Pre-Construction • Engineering and Technology	• Construction Managers • Civil Engineers • Electricians	• Civil Engineers • Industrial Engineers • Electrical Engineers • Mechanical Engineers • Architectural and Engineering Managers	1. BH Trans Corporation 2. U.S. Xpress 3. GPAC 4. Parsons 5. Honeywell
Arts, Communications, & Information Systems	• Programming and Software Development • Network Systems • Information Support and Services • Web and Digital Communication	• Software Developers, Applications • Computer Systems Analysts • Computer Occupations, All Other • Network and Computer Systems Administrators • Information Security Analysts	• Software Developers, Applications • Information Security Analysts • Computer Systems Analysts • Network and Computer Systems Administrators • Computer Systems Engineers/Architects	1. Anthem Inc. 2. Humana Inc. 3. Change Health Care Inc. 4. Target Corporation 5. Compass
Agriculture, Food, & Natural Resources	• Animal Systems • Environmental Service Systems • Agribusiness • Natural Resources Systems	• Veterinarians • Urban and Regional Planners	• Sales Managers • General and Operations Managers • Market Research Analysts • Foresters • Veterinarians • Environmental Engineers	1. Bayer 2. Robert Half International 3. GPAC 4. Department of Agriculture 5. Humana Inc.
Business, Management, & Administration	• Operations Management • General Management • Accounting • Insurance	• General and Operations Managers • Personal Service Managers (Entertainment and Recreation) • Accountants and Auditors • Project Management Specialists and Business Operations Specialists • Financial Managers	• Management Analysts • Sales Agents, Financial Services • Sales Managers • Managers, All Other • General and Operations Managers • Accountants • Market Research Analysts and Marketing Specialists	1. Anthem Inc. 2. Allstate 3. Bayer 4. Change Health Care Inc. 5. Essentia Health
Human Services	• Counseling and Mental Health Services • Teaching/Training • Family and Community Services	• Substance Abuse, Behavioral Disorder, and Mental Health Counselors • Secondary School Teachers • Child, Family, and School Social Workers • Clinical, Counseling, and School Psychologists	• Social and Human Services Assistants • Elementary School Teachers • Healthcare Social Workers • Teachers and Instructors (All Other)	1. Duluth Public Schools 2. Itasca Area Schools Collaborative–Grand Rapids 3. Lutheran Social Services 4. University of Minnesota 5. Soliant

		• Substance Abuse Social Workers	• Special Education Teachers, Kindergarten and Elementary School • Vocational Education Teachers, Postsecondary • Special Education Teachers, Secondary • Social and Community Service Managers	

* The occupations by job posting and employer data shown in this section is based on content found in jobs newly posted online during the period identified. Data from Gartner TalentNeuron Recruit, accessed 9/15/2020 at www.wantedanalytics.com.

Conclusion

Northeast Minnesota 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. Many of the workforce needs of businesses across the region still remain the same, but with a greater emphasis on addressing occupation and skill gaps once anticipated for 10 years out with greater urgency, as the pandemic accelerates some businesses to automate, modernize, and reskill their workforce to a changing market and a stagnant labor pool.

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. Overall, digital skills, human skills, and business enablers will be the foundational skills of the future in Northeast Minnesota.

Region Definitions

Northwest MN

Northwest Minnesota is comprised of 19 counties:

Becker County, Minnesota	Norman County, Minnesota
Beltrami County, Minnesota	Otter Tail County, Minnesota
Clay County, Minnesota	Pennington County, Minnesota
Clearwater County, Minnesota	Polk County, Minnesota
Douglas County, Minnesota	Red Lake County, Minnesota
Grant County, Minnesota	Roseau County, Minnesota
Hubbard County, Minnesota	Todd County, Minnesota
Kittson County, Minnesota	Wadena County, Minnesota
Mahnomen County, Minnesota	Wilkin County, Minnesota
Marshall County, Minnesota	

Northeast MN

Northeast Minnesota is comprised of:

Aitkin County, Minnesota	Itasca County, Minnesota
Carlton County, Minnesota	Koochiching County, Minnesota
Cass County, Minnesota	Lake County, Minnesota
Cook County, Minnesota	Lake of The Woods County, Minnesota
Crow Wing County, Minnesota	St. Louis County, Minnesota

Central MN

Central Minnesota is comprised of 15 counties:

Benton County, Minnesota	Pine County, Minnesota
Big Stone County, Minnesota	Pope County, Minnesota
Chisago County, Minnesota	Sherburne County, Minnesota
Isanti County, Minnesota	Stearns County, Minnesota
Kanabec County, Minnesota	Stevens County, Minnesota
Mille Lacs County, Minnesota	Swift County, Minnesota
Morrison County, Minnesota	Traverse County, Minnesota
	Wright County, Minnesota

Southeast MN

Southeast Minnesota is comprised of 7 counties:

Dodge County, Minnesota	Olmsted County, Minnesota
Fillmore County, Minnesota	Wabasha County, Minnesota
Houston County, Minnesota	Winona County, Minnesota
Mower County, Minnesota	

Southwest MN

Southwest Minnesota is comprised of 29 counties:

Blue Earth County, Minnesota	Meeker County, Minnesota
Brown County, Minnesota	Murray County, Minnesota
Chippewa County, Minnesota	Nicollet County, Minnesota
Cottonwood County, Minnesota	Nobles County, Minnesota
Faribault County, Minnesota	Pipestone County, Minnesota
Freeborn County, Minnesota	Redwood County, Minnesota
Goodhue County, Minnesota	Renville County, Minnesota
Jackson County, Minnesota	Rice County, Minnesota
Kandiyohi County, Minnesota	Rock County, Minnesota
Lac Qui Parle County, Minnesota	Sibley County, Minnesota
Le Sueur County, Minnesota	Steele County, Minnesota
Lincoln County, Minnesota	Waseca County, Minnesota
Lyon County, Minnesota	Watonwan County, Minnesota
McLeod County, Minnesota	Yellow Medicine County, Minnesota
Martin County, Minnesota	

MSP Metro MN

The MSP Metro is comprised of 7 counties:

Anoka County, Minnesota	Ramsey County, Minnesota
Carver County, Minnesota	Scott County, Minnesota
Dakota County, Minnesota	Washington County, Minnesota
Hennepin County, Minnesota	

Sources and Data Notes

- Demographic data comes from the 2014-2018 American Community Survey 5-year estimates provided by the US Census Bureau, unless otherwise noted.

- Graduate awards, enrollment, and average net price data are provided by National Center for Education Statistics (NCES) IPEDS data from the 2017-18 school year, unless otherwise noted.

- Occupation employment is imputed by Chmura to 2020Q1 based on industry employment and local staffing patterns calculated by Chmura and utilizing BLS Occupation Employment Statistics (OES) base data. Occupation wages are per the BLS OES data and are as of 2018. Occupation employment forecasts are modeled by Chmura and are consistent with BLS national-level 10-year forecasts to the identified geography. Alternate forecasts based on COVID-19 impacts are modeled by RealTime Talent utilizing Chmura Economics JobsEQ software for specific geographies.

- Job ads data are online job posts from Gartner TalentNeuron Recruit's legacy platform accessed in September 2020 at www.wantedanalytics.com. These job posting data are scraped from over 30,000 unique websites and deduplicated for accuracy. Most reference to job posting data in the Accessible Career Pathways section of this report reflects newly-advertised, unique and deduplicated jobs posted from March 1, 2020 – August 31, 2020. Data found in summary tables reflect ads active during the twelve month period from 08/31/2019 through 09/01/2020 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Staffing agency job postings are included in results.

- For skill and certification gaps, openings and candidates are based upon regional occupation demand (growth plus separations) and the percent of skill demand and supply. Skill demand mix data are per a one-year sample of Chmura Economics RTI (job posting) data; skill supply data are estimated using a four-year sample of resumes data scraped from online candidate profiles.

- Figures may not sum due to rounding.

FAQ

What is a location quotient?

A location quotient (LQ) is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation.

What is a cluster?

A cluster is a geographic concentration of interrelated industries or occupations. If a regional cluster has a location quotient of 1.25 or greater, the region is considered to possess a competitive advantage in that cluster.

What is the difference between industry wages and occupation wages?

Industry wages and occupation wages are estimated via separate data sets, often the time periods being reported do not align, and wages are defined slightly differently in the two systems (for example, certain bonuses are included in the industry wages but not the occupation wages). It is therefore common that estimates of the average industry wages and average occupation wages in a region do not match exactly.

How are industries, occupations, and the CTE career fields and clusters defined?

Industries are defined via the North American Industry Classification System (NAICS). "Sectors" in this report represent 2-digit NAICS codes and industries in the "Industry Analysis" section of this report represent 4-digit NAICS codes. Occupations are defined via the Standard Occupational Classification System (SOC). Occupations in the "Occupation Analysis" section of this report represent 6-digit SOC codes. "CTE Clusters" are collections of 6-digit SOC occupations as defined through the National Career Clusters® Framework. The only exception to this is the Agriculture, Food, and Natural Resources Cluster, which is more inclusive of occupations that fall under respective career pathways and thus overlaps with other career clusters. All other clusters used in this report have distinct classifications of occupations.

What is NAICS?

The North American Industry Classification System (NAICS) is used to classify business establishments according to the type of economic activity. The NAICS Code comprises six levels, from the "all industry" level to the 6-digit level.

What is SOC?

The Standard Occupational Classification system (SOC) is used to classify workers into occupational categories. All workers are classified into one of over 804 occupations according to their occupational definition. To facilitate classification, occupations are combined to form 22 major groups, 95 minor groups, and 452 occupation groups. Each occupation group includes detailed occupations requiring similar job duties, skills, education, or experience.

How is "Ann Total Demand" defined?

Annual total employment demand is forecast job demand that includes job needs due to growth, exits (such as retirements), and transfers (individuals moving from one career into another).

What is separation demand?

Separation demand is the number of jobs required due to separations–labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover–it does not include when workers stay in the same occupation but switch employers. The total projected demand for an occupation is the sum of the separation demand and the growth demand (which is the increase or decrease of jobs in an occupation expected due to expansion or contraction of the overall number of jobs in that occupation).

What is the Living Wage used in this report?

The living wage in the United States is $16.14 per hour in 2018, before taxes for a family of four (two working adults, two children) - MIT Living Wage Calculator.