

2024 Regional Career Trends

For Career and Technical Education

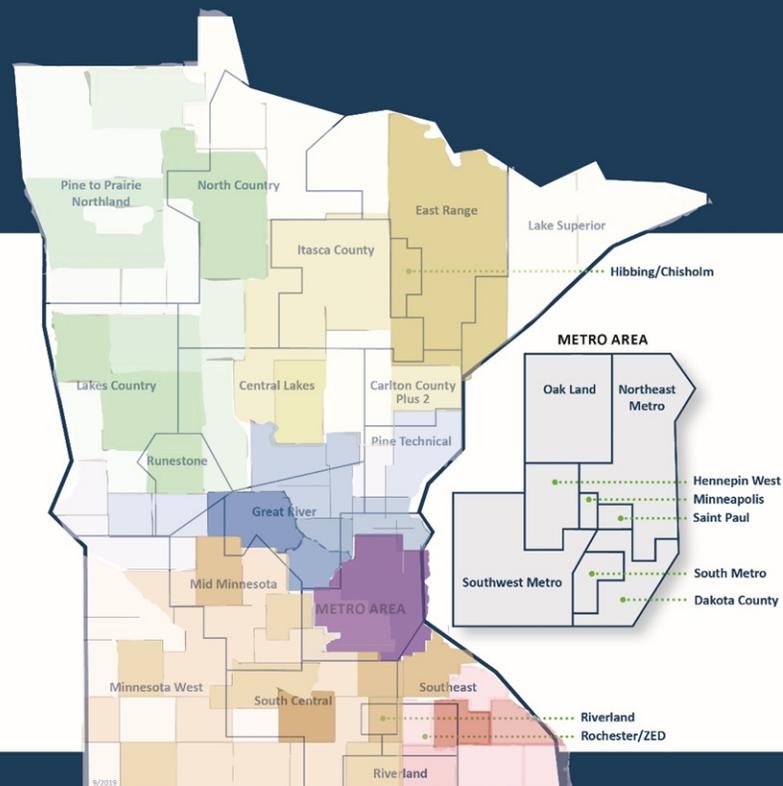


MSP Metro

RealTime Talent
370 Wabasha Street N.
St. Paul, MN 55102

Minnesota State
30 East 7th Street
St. Paul, MN 55101

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Overview

Minnesota's workforce landscape is undergoing a dramatic transformation, shaped by a confluence of demographic shifts, technological advancements, and evolving economic needs. As Baby Boomers retire and younger generations enter the labor market, employers are facing an urgent demand for skilled workers across industries ranging from healthcare and manufacturing to tech and green energy. At the same time, the rise of automation and remote work is redefining traditional job roles, prompting businesses to rethink recruitment strategies and workforce development. In this dynamic environment, Minnesota must navigate the challenges of upskilling its existing workforce, ensuring young people have access to well-paying local careers, and attracting new talent to ensure long-term economic growth and resilience.

The local job market remains strong in Minnesota, with a variety of high-quality career opportunities available in every career field. As of October 2024, Minnesota's unemployment rate remained at 3.4% for the fourth consecutive month, with labor force participation also holding steady at 67.7%. The state continues to have more available jobs than jobseekers—about 75 jobseekers for every 100 jobs. Although the job market has changed dramatically since 2018 or 2020, Minnesota is still experiencing significant talent shortages plaguing every industry and career cluster.

This report details the current workforce landscape of Minnesota and the regional nuances of talent demand by career field. The content is intended to support Minnesota Perkins Consortia in navigating changes in their local labor market and guide their understanding of how these changes may impact enrollment, industry, career advancement, and the needed programs of study by region.¹ Each report includes:

- Regional economic and demographic overview
- Career field analysis including regional importance of each sector, key labor market statistics, and forecasting for future demand and talent shortages in the six career fields:
 - Health Science Technology
 - Human Services
 - Arts, Communications, and Information Systems
 - Business, Management, and Administration
 - Engineering, Manufacturing, and Technology
 - Agriculture, Food, and Natural Resources
- An Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into other aligned careers

About This Report

This report was developed by RealTime Talent for the Career and Technical Education Consortia of Minnesota with funding provided by Minnesota State. The contents of this publication were made possible through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) Federal grant from the United States Department of Education administered through Minnesota State Colleges and Universities.

¹ All labor market data in this report comes from Chmura Economics JobsEQ Dataset 2024Q1 unless otherwise noted. www.jobseq.com

Table of Contents

Overview.....	1
About This Report	1
MSP Metro Minnesota.....	4
Introduction.....	4
Community Profile	6
Demographics	6
Economic and Social Characteristics	9
Education	11
Economy	14
Economic Indicators.....	14
Labor Market	15
Quantifying Talent Shortages.....	17
Occupation Gaps.....	17
The Role of Education	18
Occupations in Current Shortage	20
Job Posting Trends in the MSP Metro	22
Career Fields	25
Career Cluster Detail	26
Key Takeaways by Career Field	30
Health Science Technology	31
Human Services.....	41
Arts, Communications, and Information Systems	51
Business, Management, and Administration.....	60
Engineering, Manufacturing, and Technology.....	70
Agriculture, Food, and Natural Resources.....	80
Conclusion	90
FAQ.....	91

Data Notes 93

 Chmura JobsEQ Source Details 93

 Job Posting Source Details 94

Definitions and Methodology 95

MSP Metro Minnesota

Introduction

This report examines the current and future talent needs across the seven counties of MSP Metro Minnesota.² Beginning with an analysis of local demographics, unique opportunities, and the key industries driving the regional economy, this macroeconomic overview is designed to help educators and administrators align educational programs with the evolving needs of local businesses. By grouping regional careers by wage, skill requirements, and demand, the report aims to guide the education community in anticipating future workforce demands and ensuring that curricula are tailored to prepare students for relevant career opportunities in the region.

This series has been developed in partnership with Minnesota State through the Strengthening Career and Technical Education for the 21st Century Act (Perkins V) annually since 2020. The 2024 iteration of this report has shifted from a definition of “high-wage” aligned to average (mean) wages to one which more closely aligns to Minnesota’s official definition, “occupations that have an annual median salary higher than the area’s composite median salary of all occupations.” For more information on this and other Career and Technical Education (CTE) definitions, please refer to Minnesota’s Perkins Glossary.³

This report uses an Origin-to-Gateway-to-Target Occupation model, used by the Rework America Alliance and modified in this report by RealTime Talent, and illustrates promising likely and aligned pathways into each career field. This model supports students looking for entry points from an initial occupation of interest into other aligned careers, considering automation, remote work, and the changing work environment. The model is shown below, along with the definitions of each grouping of occupations.

Origin-to-Gateway-to-Target (OGT) Model

Target Occupations

High wage (above regional median)

High skill (require some credential)

High demand (2/4 indicators: under 3% unempl, higher than average 5-year growth, total 5-year demand >50% of current empl, high job posting volume)

*often also high occupation gap and award gap

Gateway Occupations

Mid wage (\$45,000 – regional median)

Low-middle skills (HS diploma, some OJT)

Sufficient demand (3-5% unemployment and/or high volumes of current opportunities)

Origin Occupations

Low wage (<\$45,000/year)

Low skill (no credential)

Varied demand (may have over 5% unemployment, low growth, low replacement demand, and/or low job postings)

² Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington Counties.

³ Perkins Glossary. Section 14. Accessed November 30, 2024 at <https://www.minnstate.edu/system/cte/operational-guide/section-14-glossary.html>

Origin Occupations are roles that are low-wage (<\$45,000 median annual wages), typically do not require a postsecondary credential, and may or may not be in high demand.

Gateway Occupations are good jobs that can lead to Target Occupations as skills and experience are developed. These typically offer between \$45,000 up to the regional median wage (\$58,000 in the MSP Metro). Gateway occupations offer a wage uplift to those previously employed in Origin Occupations and offer longer-term economic mobility and career advancement opportunities. These are most often best suited for adult workforce programming and first postsecondary experiences.

Target Occupations refer to high-wage occupations that pay at or above the region's median wage (\$58,000 in the MSP Metro). These positions are also high-skill—meaning that they require an industry credential, certification, or higher education—and high-demand. Many of these Target Occupations are also facing Opportunity Gaps and Award Gaps locally, labeled below as “OG” and “AG” respectively.

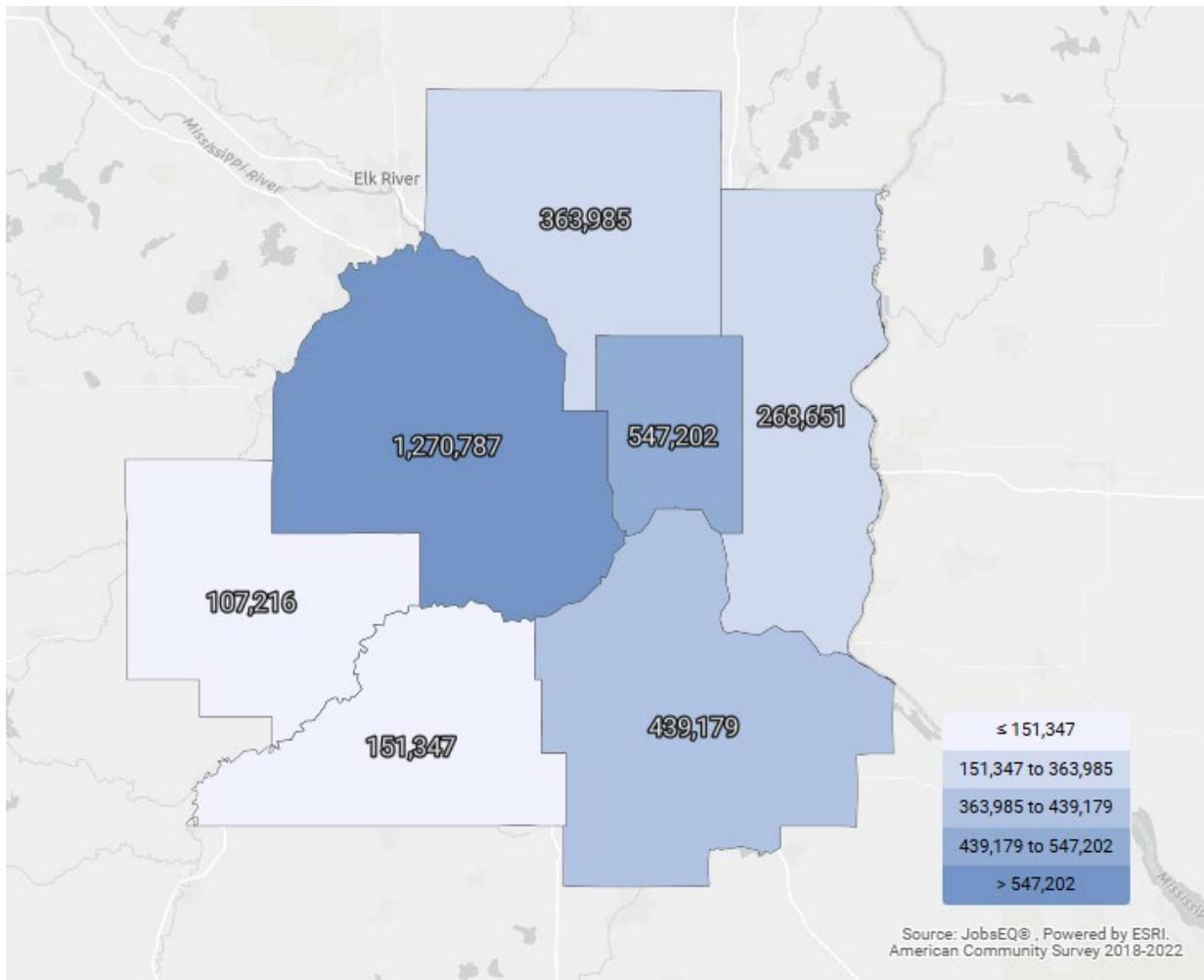
Community Profile

Demographics

POPULATION

- Total population in the MSP Metro: 3,148,367
 - Change from prior year: +12,000 people
 - Share of Minnesota's total population who live in the MSP Metro: 55.3%
- Largest local concentrations of population: cities of Minneapolis and Saint Paul
- Suburban MSP Metro comprises 72% of the region's population
- Median age: 37.6 years
 - The median age in the MSP Metro is just shy of 1 year younger than that of the state and nation as a whole
 - Minors under 18 years of age are 23.1% of the MSP Metro's population

Resident Population of MSP Metro Minnesota



American Community Survey 2018-2022.

RACE AND ETHNICITY

The MSP Metro region is home to residents of many racial and ethnic backgrounds, though 72.5% of residents are white.

- 27.5% of residents are Black, Asian, American Indian, Native Hawaiian, two or more race(s), or some other race other than white (BIPOC), while 6.7% are of Hispanic/Latine ethnicity
- The MSP Metro is more diverse than the state overall, with an additional 7.2% of residents who identify as BIPOC
- The MSP Metro has a very small percentage of American Indian residents as compared to many other regions of Minnesota, with 15,906 American Indian residents, or 0.5% of the population
- The city of Saint Paul is particularly diverse by race, with 45.5% BIPOC residents, over double the share of BIPOC residents statewide
 - Saint Paul also has a notably higher percentage of people who identify as Asian than the average statewide, with 56,755 residents, or 18.4% of the city’s population

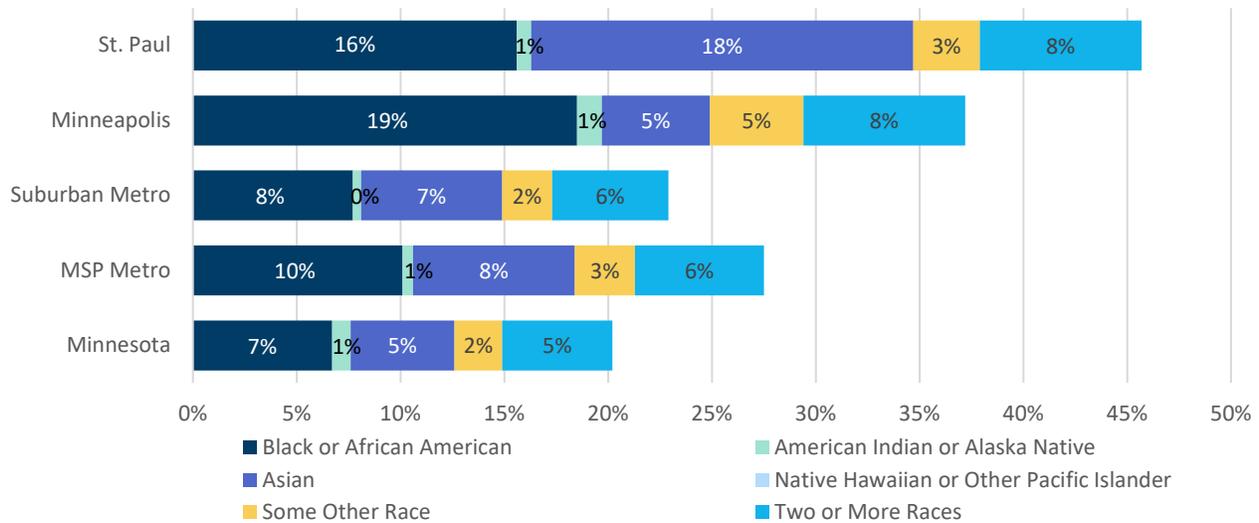
Race and Ethnicity Summary Info

Geography	% BIPOC by Race	% white by Race	% Hispanic/Latine Ethnicity
St. Paul	45.5%	54.5%	8.6%
Minneapolis	37.3%	62.7%	9.9%
Suburban Metro	23.0%	77.0%	5.7%
MSP Metro	27.5%	72.5%	6.7%
Minnesota	20.3%	79.7%	5.7%

American Community Survey 2018-2022

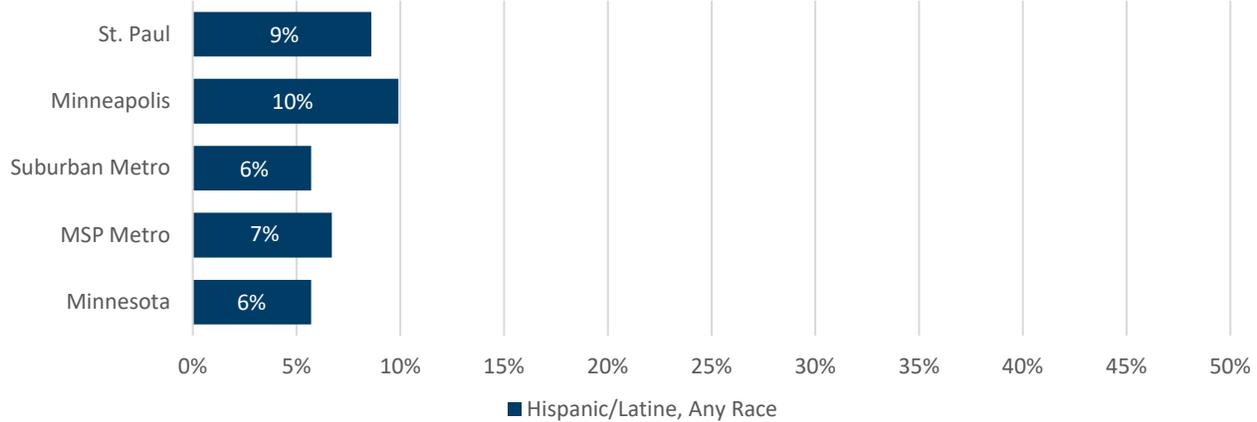
BIPOC residents are those who identify as Black, Asian, American Indian, Native Hawaiian, two or more races, or some other race other than white
Hispanic/Latine ethnicity is reported separately from race in the American Community Survey

Population Race of BIPOC Residents, All Ages



American Community Survey 2018-2022.

Population Hispanic/Latine Ethnicity, All Ages



American Community Survey 2018-2022.

Detailed Community Demographics

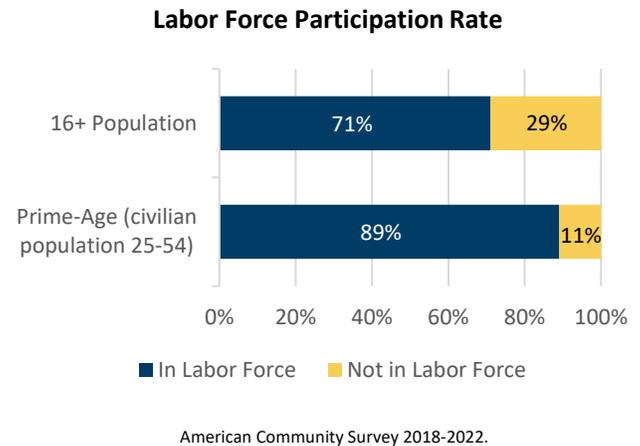
Demographics	Metro Area			Region			Region (Value)		
	Suburban MSP Metro	City of Minneapolis, MN	City of St. Paul, MN	MSP Metro Minnesota	Minnesota	USA	MSP Metro Minnesota	Minnesota	USA
Population (ACS)	—	—	—	—	—	—	3,148,367	5,695,292	331,097,593
Male	49.6%	51.2%	49.5%	49.8%	50.2%	49.6%	1,567,647	2,857,964	164,200,298
Female	50.4%	48.8%	50.5%	50.2%	49.8%	50.4%	1,580,720	2,837,328	166,897,295
Median Age ²	—	—	—	—	—	—	37.6	38.5	38.5
Under 18 Years	23.9%	19.1%	24.0%	23.1%	23.0%	22.1%	725,970	1,307,084	73,213,705
18 to 24 Years	7.3%	13.5%	10.9%	8.6%	9.0%	9.4%	269,588	513,816	31,282,896
25 to 34 Years	12.6%	21.6%	18.1%	14.6%	13.2%	13.7%	459,318	751,997	45,388,153
35 to 44 Years	13.9%	14.6%	13.7%	14.0%	13.2%	12.9%	439,630	751,128	42,810,359
45 to 54 Years	12.9%	10.4%	10.9%	12.3%	11.9%	12.4%	385,986	675,835	41,087,357
55 to 64 Years	13.7%	10.1%	10.7%	12.8%	13.3%	12.9%	404,317	756,036	42,577,475
65 to 74 Years	9.3%	6.9%	7.6%	8.8%	9.7%	9.7%	278,540	550,838	32,260,679
75 Years, and Over	6.3%	3.8%	4.2%	5.9%	6.8%	6.8%	185,018	388,558	22,476,969
Race: White	77.0%	62.7%	54.3%	72.5%	79.7%	65.9%	2,283,001	4,537,219	218,123,424
Race: Black or African American	7.7%	18.5%	15.6%	10.1%	6.7%	12.5%	316,468	382,082	41,288,572
Race: American Indian and Alaska Native	0.4%	1.2%	0.7%	0.5%	0.9%	0.8%	15,906	51,434	2,786,431
Race: Asian	6.8%	5.2%	18.4%	7.8%	5.0%	5.8%	246,215	286,146	19,112,979
Race: Native Hawaiian and Other Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	757	2,324	624,863
Race: Some Other Race	2.4%	4.5%	3.2%	2.9%	2.3%	6.0%	91,227	133,098	20,018,544
Race: Two or More Races	5.6%	7.8%	7.8%	6.2%	5.3%	8.8%	194,793	302,989	29,142,780
Hispanic or Latino (of any race)	5.7%	9.9%	8.6%	6.7%	5.7%	18.7%	210,024	327,049	61,755,866

American Community Survey 2018-2022.

Economic and Social Characteristics

LABOR FORCE PARTICIPATION

- Civilian labor force: 1,776,931 workers (an increase of 1,763 from the prior year)
- Labor force participation rate: 71.0%
 - This leads Minnesota's statewide rate by nearly 2.5 percentage points
 - MSP Metro Minnesota's higher rate is primarily due to the younger age of residents
- Participation rate for the prime working-age population (ages 25 to 54): 89.1%
- Three in five members of the prime working-age civilian labor force in Minnesota are in the MSP Metro (59.4%)



SOCIAL CHARACTERISTICS

- The MSP Metro region has a lower percentage of veterans and of people with disabilities than the statewide average:
 - Veterans are 3.0% of the regional population vs. 3.5% statewide
 - People with disabilities are 8.4% in the region vs. 9.2% statewide
- Labor force participation for those groups is higher in the MSP Metro region than statewide:
 - Veteran labor force participation in the region is 83.9% vs. 81.1% for Minnesota
 - Labor force participation rate for people with disabilities is 55.8% in the region vs. 54.4% statewide
 - The Suburban MSP Metro area has a veteran labor force participation rate of 86.2% and a labor force participation rate of 57.5% for the population of people with a disability, both of which are above the average rates for the overall region and the state
- The MSP Metro region's share of disconnected youth is similar to the statewide average:
 - 1.6% in the MSP Metro vs. 1.7% statewide, with the city of Saint Paul having the highest rate of 2.2%
- The MSP Metro region's share of children in a single parent family is on par with the state (28.4% vs. 28.3%) but that rate varies within the communities:
 - In the Suburban MSP Metro, 25.1% of children live in single parent families, compared to 39.0% in the city of Minneapolis and 40% in the city of Saint Paul

Detailed Economic and Social Characteristics

Characteristic	Metro Area			Region			Region (Value)		
	Suburban MSP Metro	City of Minneapolis, MN	City of St. Paul, MN	MSP Metro Minnesota	Minnesota	USA	MSP Metro Minnesota	Minnesota	USA
Labor Force Participation Rate and Size (civilian population 16 years and over)	70.8%	73.5%	70.3%	71.0%	68.7%	63.3%	1,776,931	3,112,649	167,857,207
Prime-Age Labor Force Participation Rate and Size (civilian population 25-54)	89.8%	88.3%	85.4%	89.1%	88.4%	82.8%	1,143,680	1,924,211	106,380,520
Armed Forces Labor Force	0.1%	0.1%	0.0%	0.1%	0.1%	0.5%	1,929	4,104	1,236,378
Veterans, Age 18-64	3.3%	2.0%	2.5%	3.0%	3.5%	4.3%	58,744	119,296	8,636,019
Veterans Labor Force Participation Rate and Size, Age 18-64	86.2%	72.1%	78.9%	83.9%	81.1%	77.1%	49,303	96,710	6,656,238
Median Household Income ²	—	—	—	—	—	—	\$94,934	\$84,313	\$75,149
Per Capita Income	—	—	—	—	—	—	\$50,581	\$44,947	\$41,261
Poverty Level (of all people)	6.0%	16.8%	16.7%	8.5%	9.3%	12.5%	263,051	516,284	40,521,584
Households Receiving Food Stamps/SNAP	5.2%	12.2%	15.3%	7.2%	7.4%	11.5%	89,613	167,713	14,486,880
Enrolled in Grade 12 (% of total population)	1.6%	1.2%	1.3%	1.5%	1.4%	1.4%	46,478	80,290	4,476,703
Disconnected Youth ³	1.3%	1.9%	2.2%	1.6%	1.7%	2.5%	2,463	5,089	430,795
Children in Single Parent Families (% of all children)	25.1%	39.0%	40.5%	28.4%	28.3%	34.0%	198,921	355,832	23,568,955
Uninsured	3.7%	6.0%	6.5%	4.4%	4.6%	8.7%	137,032	260,483	28,315,092
With a Disability, Age 18-64	7.6%	10.1%	11.8%	8.4%	9.2%	10.5%	163,686	313,760	20,879,820
With a Disability, Age 18-64, Labor Force Participation Rate and Size	57.5%	56.0%	49.8%	55.8%	54.4%	45.5%	91,325	170,629	9,492,098
Foreign Born	10.5%	14.5%	18.8%	12.0%	8.5%	13.7%	377,728	481,922	45,281,071

American Community Survey 2018-2022.

*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

EDUCATIONAL ATTAINMENT

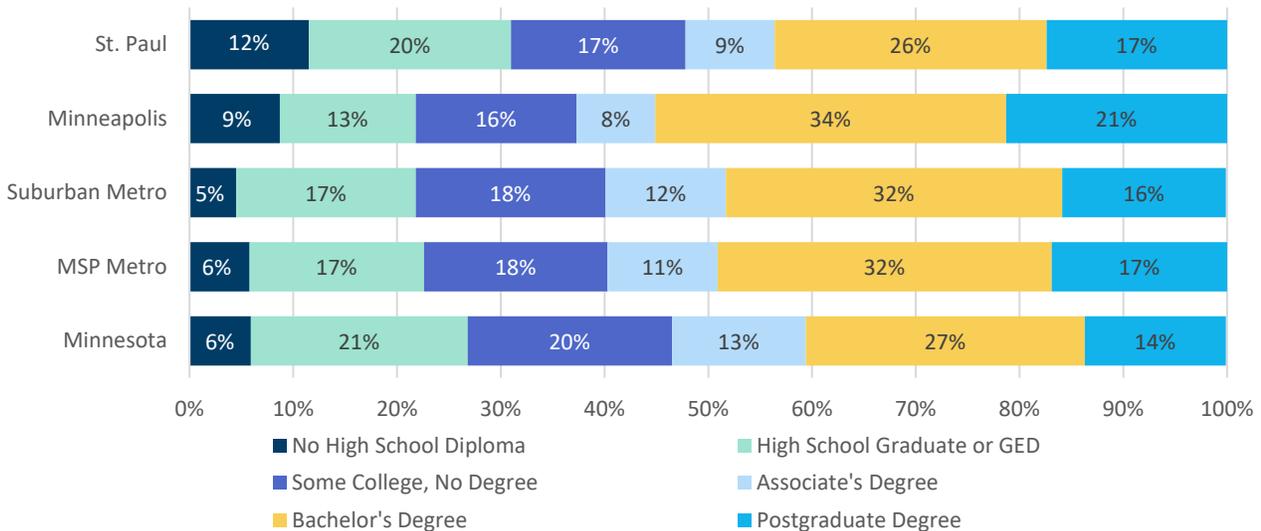
- Residents of the MSP Metro have relatively high levels of education compared to average statewide and nationwide attainment
- Almost half of the people in the MSP Metro region have at least a bachelor’s degree (49.1%), compared to 40.7% statewide
 - The city of Minneapolis has the highest educational attainment in the region, with 55.1% of adults attaining at least a bachelor’s degree
- About 16.8% of adults in the region have a high school diploma as their highest level of education (compared to 20.9% statewide)
- In the Suburban MSP Metro and the city of Minneapolis, 21.8% of adults have a high school diploma or less; this figure rises to 31% in the city of Saint Paul

Educational Attainment of MSP Metro Minnesota Residents, Age 25-64

Educational Attainment	Metro Area			Region			Region (Value)		
	Suburban Metro MSA	City of Minneapolis, MN	City of St. Paul, MN	MSP Metro Minnesota	Minnesota	USA	MSP Metro Minnesota	Minnesota	USA
No High School Diploma	4.5%	8.7%	11.5%	5.8%	5.9%	10.1%	98,721	173,843	17,373,867
High School Graduate	17.3%	13.1%	19.5%	16.8%	20.9%	25.1%	283,912	614,415	43,176,248
Some College, No Degree	18.3%	15.5%	16.8%	17.7%	19.7%	19.7%	298,796	578,062	33,916,989
Associate degree	11.6%	7.6%	8.6%	10.6%	12.9%	9.2%	179,225	377,910	15,886,884
Bachelor’s Degree	32.4%	33.8%	26.2%	32.2%	26.9%	22.4%	543,183	790,857	38,451,123
Postgraduate Degree	15.8%	21.3%	17.4%	16.9%	13.6%	13.4%	285,414	399,909	23,058,233

American Community Survey 2018-2022.

Educational Attainment, Age 25-64



American Community Survey 2018-2022.

REGIONAL COLLEGES AND UNIVERSITIES

The MSP Metro region has 44 institutions of higher education that offer both degree and non-degree awards, two-year degrees, four-year degrees, and graduate degrees. The table below shows these postsecondary institutions sorted by total awards conferred from all programs during SY2022-23. There were a total of 70,120 awards conferred in the region in SY2022-23, compared to 71,564 awards conferred in the region in SY2021-22, a decrease of 1,444 awards.

Postsecondary Awards by Institution, School Year 2022-23

School	Certificate	Certificate	Certificate	Bachelor's	Post-Bacc	Master's	Post Master's/ Doctorate	Total Awards	Total School Enrollment	Avg Net Price*	
	< 1 Yr	1+ but < 2 Yr	Associate								2+ but < 4 Yr
Capella University	0	3	0	0	7,543	653	6,955	1,077	16,231	39,727	\$17,840
University of Minnesota-Twin Cities	187	11	0	0	8,508	221	3,100	1,804	13,831	54,955	\$17,468
Walden University	0	0	0	0	1,399	327	8,833	1,732	12,291	42,312	\$18,772
University of St Thomas	0	0	44	17	1,533	200	886	207	2,887	9,025	\$30,099
Century College	504	382	1,041	35	0	0	0	0	1,962	7,646	\$10,901
Concordia University-Saint Paul	2	0	30	0	893	27	880	123	1,955	5,544	\$15,944
Metropolitan State University	9	11	0	0	1,567	22	206	15	1,830	6,294	\$16,830
Hennepin Technical College	662	422	478	51	0	0	0	0	1,613	3,974	\$11,194
Normandale Community College	255	0	1,115	0	0	0	0	0	1,370	9,346	\$12,354
St Catherine University	15	0	154	0	616	46	421	93	1,345	3,577	\$19,252
Minneapolis Community and Technical College	422	150	733	7	0	0	0	0	1,312	6,030	\$12,314
Saint Paul College	350	297	526	65	0	0	0	0	1,238	5,365	\$12,391
Bethel University	15	0	34	0	638	35	286	38	1,046	3,546	\$28,840
Anoka-Ramsey Community College	56	17	967	0	0	0	0	0	1,040	7,902	\$10,929
Hamline University	3	9	0	0	475	163	266	71	987	2,638	\$20,239
North Hennepin Community College	350	17	512	0	0	0	0	0	879	4,896	\$11,368
Anoka Technical College	434	188	166	71	0	0	0	0	859	1,580	\$12,407
Augsburg University	0	0	0	0	551	6	230	26	813	3,088	\$23,871
Dakota County Technical College	149	210	421	12	0	0	0	0	792	2,717	\$11,472
Macalester College	0	0	0	0	684	0	0	0	684	2,175	\$30,939
University of Northwestern-St Paul	0	0	33	0	581	5	50	0	669	3,253	\$22,965
Inver Hills Community College	214	20	432	0	0	0	0	0	666	3,459	\$10,184
Dunwoody College of Technology	23	19	358	0	89	0	0	0	489	1,359	\$24,738
Summit Academy Opportunities	484	0	0	0	0	0	0	0	484	440	\$16,725

Industrialization Center												
Aveda Arts & Sciences Institute Minneapolis	181	162	0	0	0	0	0	0	343	508	\$17,977	
Crown College	1	1	29	0	183	0	129	0	343	1,583	\$25,513	
Mitchell Hamline School of Law	0	0	0	0	0	19	0	308	327	1,192		
Herzing University-Minneapolis	0	61	50	0	172	0	7	0	290	815	\$22,055	
Northwestern Health Sciences University	0	23	45	0	18	1	35	153	275	1,031	\$23,003	
North Central University	0	0	0	0	207	0	14	0	221	992	\$24,232	
Minneapolis College of Art and Design	0	0	0	0	125	0	40	0	165	821	\$28,520	
Bethany Global University	1	17	6	0	108	0	15	0	147	261	\$19,093	
Luther Seminary	0	0	0	0	0	0	135	4	139	410		
Nova Academy of Cosmetology Woodbury	76	38	0	0	0	0	0	0	114	150	\$16,730	
Empire Beauty School-Bloomington	57	38	0	0	0	0	0	0	95	142	\$16,566	
PCI Academy-Plymouth	58	35	0	0	0	0	0	0	93	73		
Adler Graduate School	0	0	0	0	0	1	75	9	85	227		
The Salon Professional Academy Maplewood	25	29	0	0	0	0	0	0	54	0		
Bethlehem College & Seminary	0	0	1	0	18	0	34	0	53	242	\$7,500	
Empire Beauty School-Spring Lake Park	0	42	0	0	0	0	0	0	42	95	\$15,342	
United Theological Seminary of the Twin Cities	0	0	0	0	0	0	27	5	32	224		
Academy College	0	0	5	0	9	0	0	0	14	105	\$24,488	
Hastings Beauty School	0	9	0	0	0	0	0	0	9	13	\$12,926	
American Academy of Health and Wellness	0	0	0	0	0	0	5	1	6	23		
Total	4,533	2,211	7,180	258	25,917	1,726	22,629	5,666	70,120			

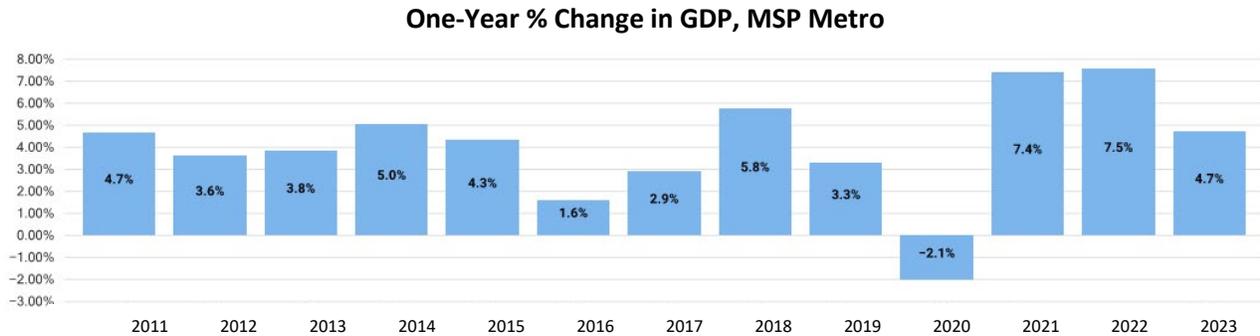
* Average net price represents full-time beginning undergraduate students who paid the in-state or in-district tuition rate and were awarded grant or scholarship aid from federal, state or local governments, or the institution. Data as of the 2022-2023 academic year.

Economy

Economic Indicators

GROSS DOMESTIC PRODUCT

Gross Domestic Product (GDP) is the total value of goods and services produced by a region. In 2023, nominal GDP in the MSP Metro region grew by 4.7%. This follows an expansion of 7.5% in 2022. As of 2023, total GDP in the region was \$308,412,695,000.



Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2023

INDUSTRY CONTRIBUTIONS TO GDP

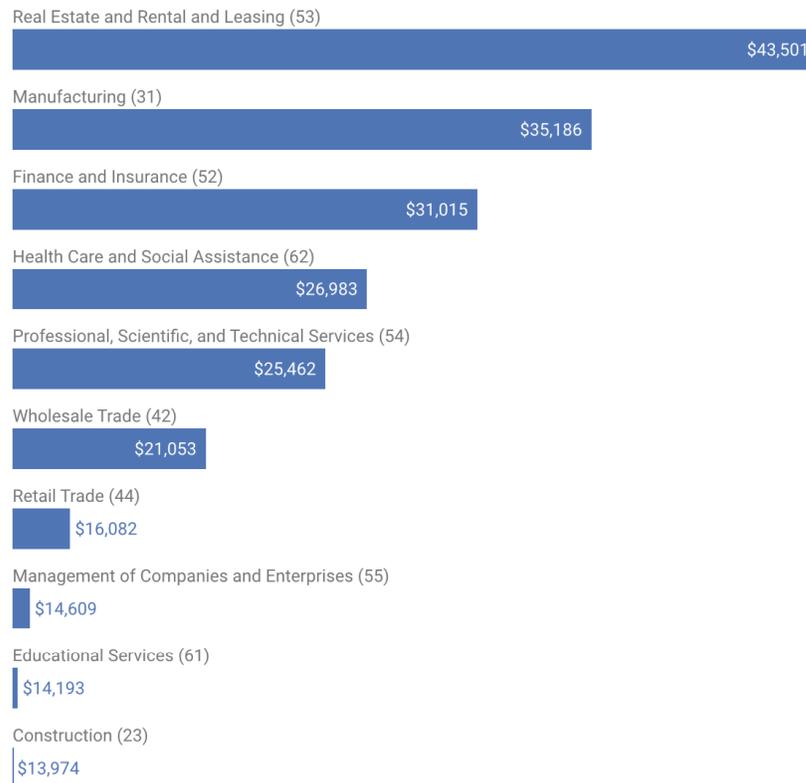
Top Industry Contributions to GDP (2023):

1. Real Estate and Rental and Leasing: \$43.5 billion
2. Manufacturing: \$35.2 billion
3. Finance and Insurance: \$31.0 billion
4. Health Care and Social Assistance: \$27.0 billion
5. Professional, Scientific, and Technical Services: \$25.5 billion

Key Changes:

- All of the top ten contributing industries in the MSP Metro region that were in the top ten in 2022 remained in the top ten for 2023
- Most of the top ten industries saw an increase from 2022 to 2023 with the exception of Finance and Insurance (\$0.5 billion decrease) and Management of Companies and Enterprises (\$0.7 billion decrease)
- Retail Trade moved from 8th place in 2022 to 7th place in 2023 with an almost \$2 billion increase replacing Management of Companies and Enterprises which fell from 7th place to 8th place

Industry Contributions to GDP in MSP Metro Minnesota (in \$ Millions), 2023



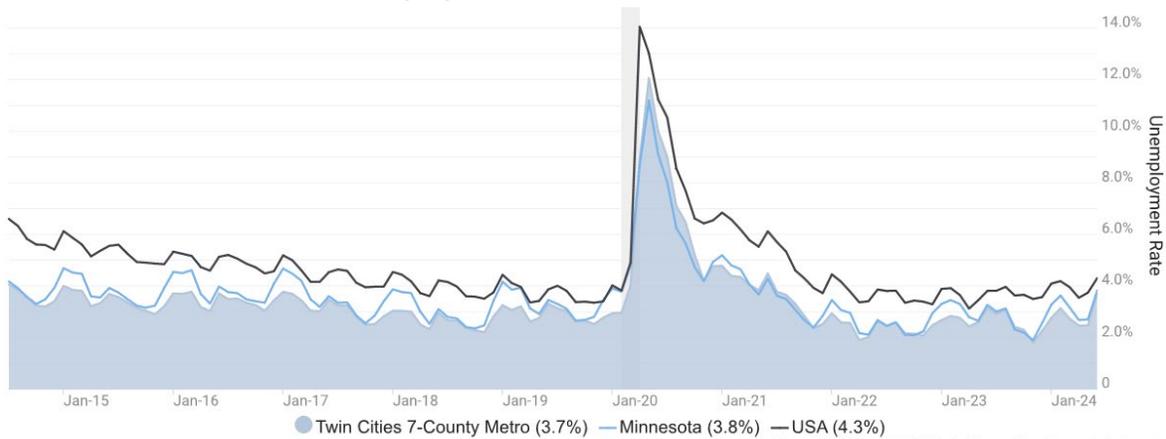
Gross Domestic Product data are provided by the Bureau of Economic Analysis, imputed by Chmura where necessary, updated through 2023.

Labor Market

UNEMPLOYMENT TRENDS

- The unemployment rate in the MSP Metro region was 3.7% as of June 2024
 - The regional unemployment rate was slightly lower than the statewide rate (3.8%) and lower than the national rate (4.3%)
 - One year earlier, in June 2023, the unemployment rate in MSP Metro Minnesota was 3.2%.

Unemployment for MSP Metro Minnesota

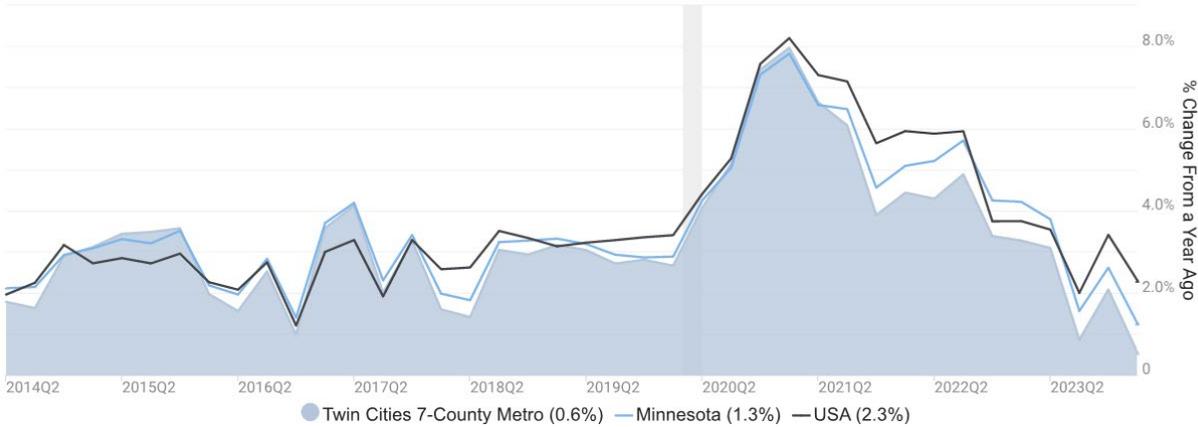


Unemployment rate data are from the Local Area Unemployment Statistics, provided by the Bureau of Labor Statistics and updated through June 2024.

WAGE TRENDS

- In the MSP Metro region, average annual wages were \$76,536 as of 2024Q1
 - This is an increase of 0.6% over the past four quarters
- Nationwide, average annual wages were \$70,857 as of 2024Q1

Change in Average Annual Wages for MSP Metro Minnesota

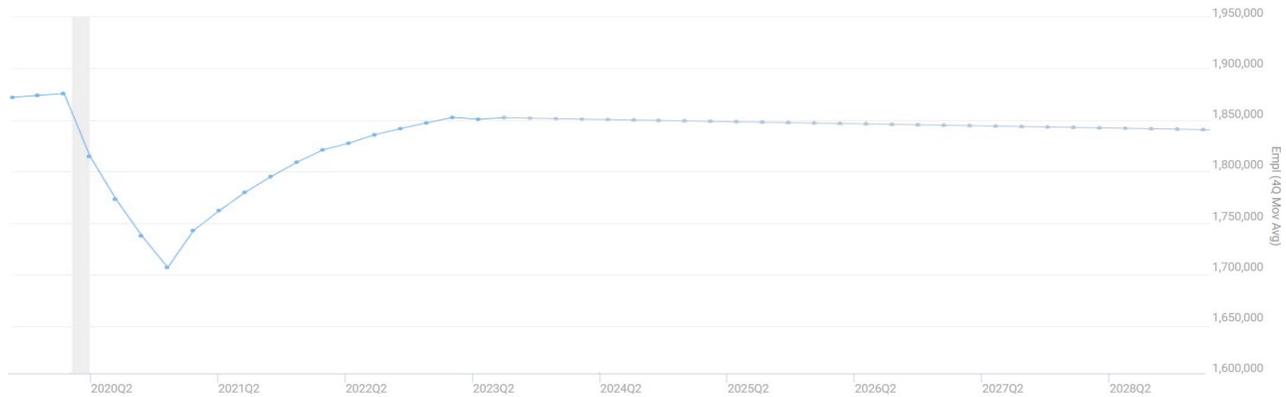


Annual average wages per worker data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2023Q4 with preliminary estimates updated to 2024Q1.

EMPLOYMENT TRENDS AND FORECAST

Employment rose by 1.1% in MSP Metro Minnesota between 2023Q1 and 2024Q1, growing more slowly than the prior 12 months. Employment in the region is forecast to decline by -0.2% on average annually through 2029Q1 in a baseline scenario.

5-Year Employment Forecast in MSP Metro Minnesota



INDUSTRY CLUSTER FORECASTS

Employment forecasts vary considerably by industry. An industry cluster is a geographic concentration of interrelated industries or occupations. The chart below shows industry clusters employing talent in MSP Metro Minnesota. The larger the circle, the more concentrated the industry is in the region (compared to the national average); this is called a Location Quotient (LQ). Clusters are positioned on the chart based on their wages and forecast employment. Clusters higher up on the Y-axis of the chart have higher average wages, and clusters located further to the right on the X-axis of the chart have higher forecasted employment growth. In summary,

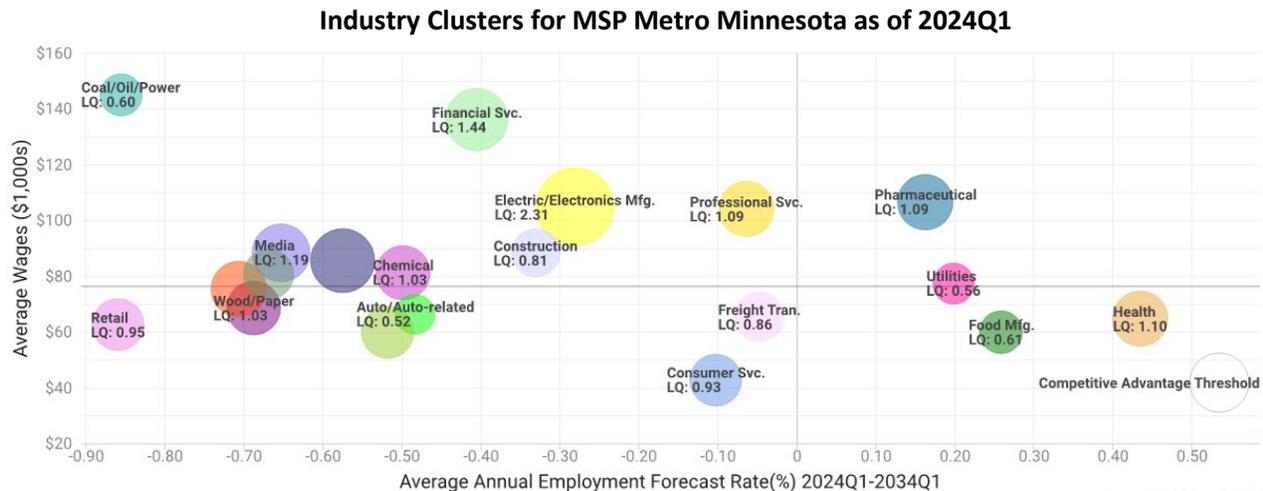
large circles in the top-right corner of the chart would be considered high-wage, high-growth, uniquely important clusters for the region's economy. Smaller circles further to the bottom-left corner of the chart would be lower-wage, declining, underrepresented clusters.

The most highly concentrated cluster in the MSP Metro region is Electric/Electronics Manufacturing:

- Location Quotient: 2.31 (slightly up from 2023)
- Employment: 45,039 workers (up by ~300 from 2023)
- Average Wage: \$104,806 (down by nearly \$5,000 from 2023)
- Employment Forecast: Projected to decline by -0.3% annually over the next 10 years

Industry Cluster Employment Forecast Trends:

- Food Manufacturing, Pharmaceutical, Utilities, and Health are the only industry clusters projected to have positive average employment growth in the region; all others are forecast to shrink
- All industries saw a decline in forecasted employment from 2023Q2 to 2024Q1



Quantifying Talent Shortages

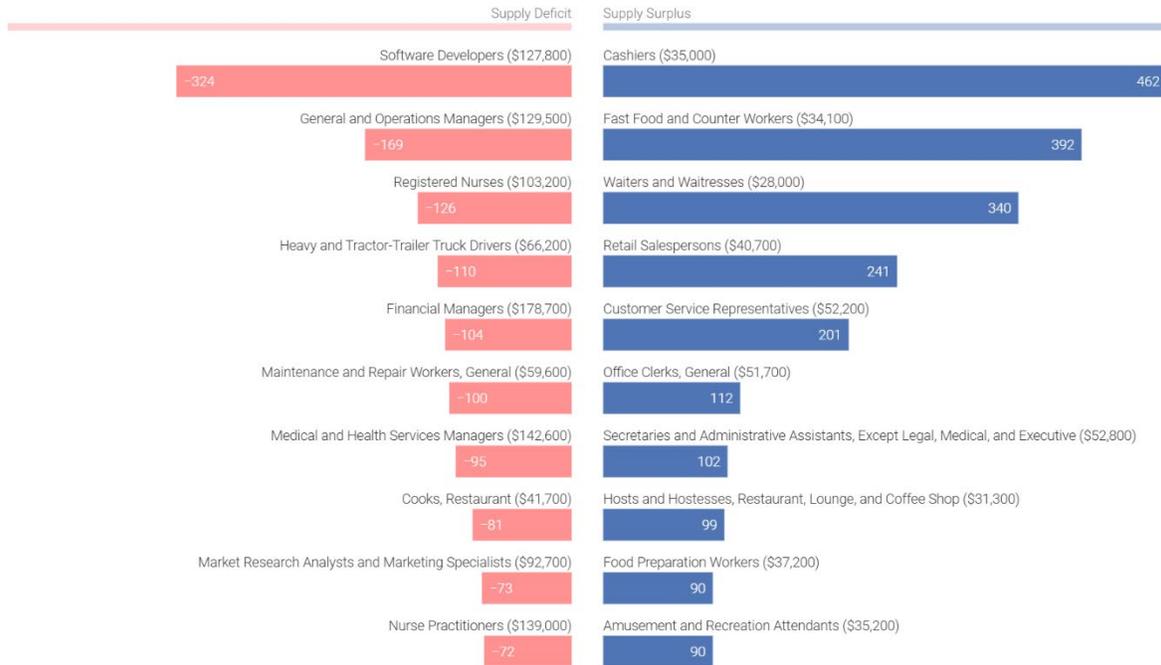
Occupation Gaps

The chart below shows the potential average annual talent gaps by occupation in the MSP Metro region over the next ten years. This summary estimate is based on a forecast comparing occupation demand growth to the local population growth and the projected educational attainment of those residents, matched to specific related programs offered locally. When an area, for example, has an occupation expected to grow quickly but the educational requirement for the occupation does not match well with the educational attainment of its residents, there is a high potential for an occupation shortfall in the region. Alternatively, slow-growing or contracting occupations often represent potential supply surpluses. While this an important high-level analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, award and skill gap analyses, as well as local employer insights.

Key Insights:

- Software Developers and General and Operations Managers are the top occupations in talent shortage
- Growing talent shortage of Maintenance and Repair Workers and Heavy and Tractor-Trailer Truck Drivers
- Shrinking talent surplus of all of the top ten occupations from the previous year's estimates
- Nurse Practitioners and Restaurant Cooks are newly on the list of top occupation shortages, while Industrial Engineers and Management Analysts have fallen out of the top ten

Average Annual Occupation Gaps (i.e. Talent Shortage), 2024Q1 through 2034Q1



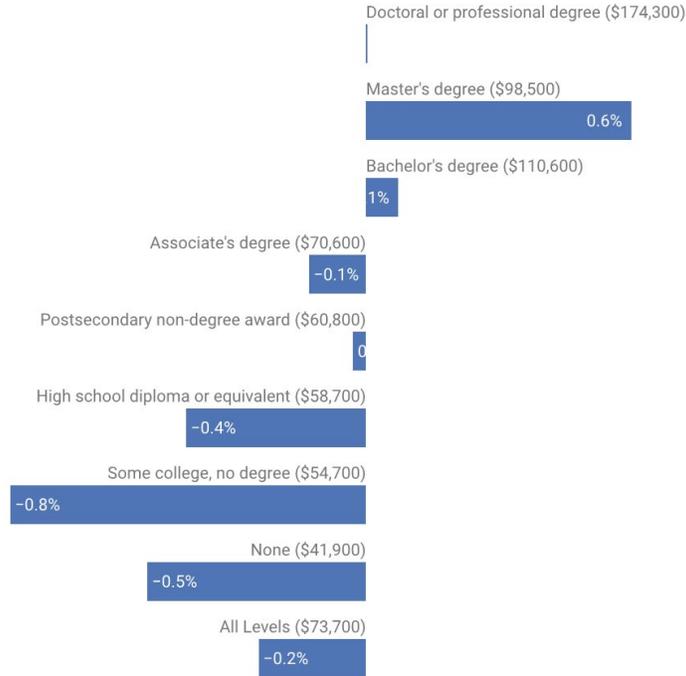
The Role of Education

EMPLOYMENT FORECAST BY EDUCATION

While overall employment in MSP Metro Minnesota is forecast to decline by -0.2% annually on average, expected forecasts for occupations vary by the education required:

- Roles typically requiring a bachelor' or master's degree are the only ones expected to grow (0.1%, and 0.6% respectively)
- Roles typically requiring a doctoral degree are expected to stay flat
- Occupations requiring a high school diploma or any other postsecondary credential are forecast to contract <0.1% (postsecondary non-degree award) to 0.8% (some college, no degree)

Annual Average Projected Job Growth by Education Required for MSP Metro Minnesota, 2024Q1

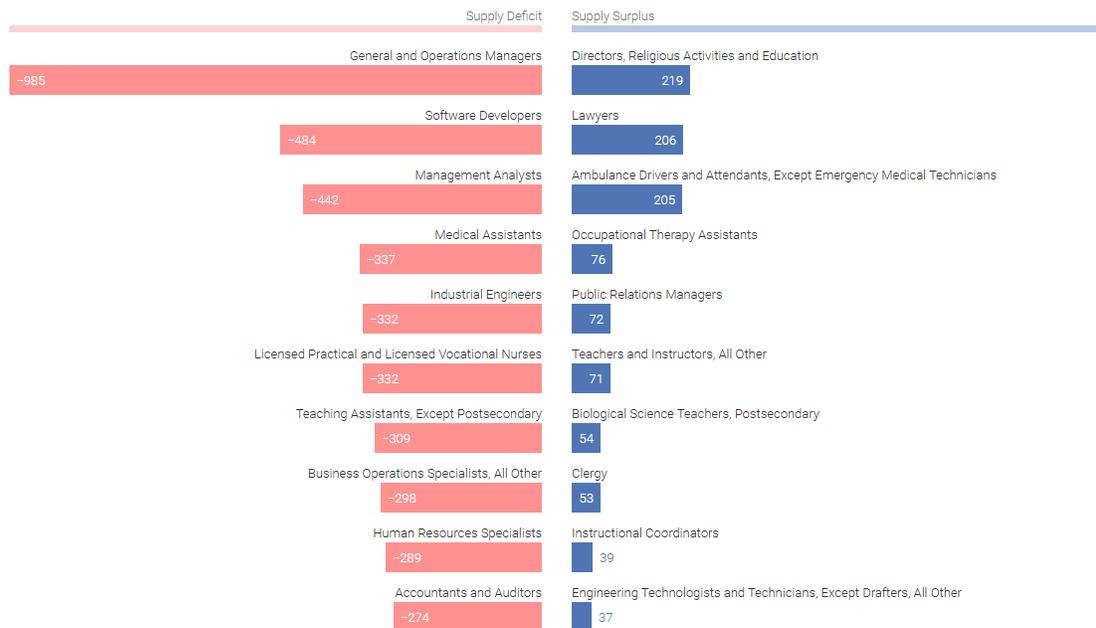


Employment by occupation data are estimates as of 2024Q1. Education levels of occupations are based on BLS assignments. Forecast employment growth uses national projections from the Bureau of Labor Statistics adapted for regional growth patterns.

AWARD GAPS

Award gaps quantify the total number of postsecondary award completions in a region tied to an occupation benchmarked against national rates. In the MSP Metro region, local postsecondary programs are likely underproducing General and Operations Managers, Software Developers, and Management Analysts among other occupations. There is an oversupply of Religious Activities and Education Directors, Lawyers, and Ambulance Drivers completing local postsecondary programs compared to national volumes.

Award Gaps, All Occupations, MSP Metro Minnesota, 2024Q1



Occupations in Current Shortage

Several occupations have zero unemployed talent in the MSP Metro as of 2024Q1 estimates, resulting in an estimated unemployment rate of 0%. The occupations listed below have nonexistent unemployed talent at the regional level and 75 people or more working in these positions locally. Some of these roles have low volumes of online job postings due to unique methods of recruiting talent for specialty roles, while others show high posting volumes which indicates unmet demand and significant likely shortages. Most of these roles pay over the regional median of \$58,000 annually, with some significantly higher.

Occupations with No Unemployed Workforce and Employing over 75 Workers, MSP Metro Minnesota 2024Q1

SOC	Occupation	Current						5-Year History		Total Demand	5-Year Forecast			
		Empl	Median Ann Wages ²	LQ	Unempl	Unempl Rate	30-Day Online Job Ads ³	Empl Change	Ann %		Exits	Transfers	Empl Change	Ann % Change
29-1041	Optometrists	547	\$149,100	1.09	0	n/a	137	121	5.1%	93	67	17	10	0.4%
33-9093	Transportation Security Screeners	515	\$61,900	0.91	0	n/a	7	37	1.5%	214	107	122	-16	-0.6%
33-1091	First-Line Supervisors of Security Workers	382	\$81,900	0.52	0	n/a	39	21	1.1%	147	73	93	-19	-1.0%
11-1031	Legislators	370	\$84,000	0.78	0	n/a	n/a	9	0.5%	128	57	77	-5	-0.3%
31-9094	Medical Transcriptionists	323	\$52,700	0.59	0	n/a	16	-187	-8.7%	242	96	166	-20	-1.3%
27-2091	Disc Jockeys, Except Radio	320	\$42,500	1.13	0	n/a	5	-9	-0.6%	120	59	65	-4	-0.2%
51-8013	Power Plant Operators	310	\$116,000	0.81	0	n/a	5	40	2.8%	68	39	72	-43	-3.0%
11-9072	Entertainment and Recreation Managers, Except Gambling	298	\$107,300	0.95	0	n/a	55	39	2.8%	166	62	98	6	0.4%
53-4031	Railroad Conductors and Yardmasters	235	\$84,200	0.50	0	n/a	12	-30	-2.4%	88	28	64	-4	-0.3%
49-2097	Audiovisual Equipment Installers and Repairers	234	\$57,500	0.78	0	n/a	42	-105	-7.1%	96	29	78	-11	-1.0%
11-9131	Postmasters and Mail Superintendents	188	\$91,200	1.23	0	n/a	1	-8	-0.9%	53	28	37	-12	-1.3%
19-5012	Occupational Health and Safety Technicians	165	\$72,000	0.61	0	n/a	1	35	4.9%	93	24	65	4	0.5%
53-6099	Transportation Workers, All Other	132	\$42,000	0.90	0	n/a	n/a	-38	-4.9%	67	25	43	-2	-0.2%
19-3032	Industrial-Organizational Psychologists	124	\$155,700	1.09	0	n/a	n/a	24	4.4%	39	19	20	0	0.0%
51-8012	Power Distributors and Dispatchers	119	\$128,300	1.04	0	n/a	3	18	3.3%	39	16	30	-7	-1.2%
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	101	\$68,900	0.57	0	n/a	5	-27	-4.6%	49	32	27	-9	-1.9%
29-9092	Genetic Counselors	87	\$98,700	2.07	0	n/a	3	10	2.4%	30	15	12	3	0.7%
19-2012	Physicists	81	\$117,000	0.34	0	n/a	11	7	1.9%	22	10	14	-1	-0.2%
Total - All Occupations		1,855,958	\$58,000	1.00	47,869	2.6%	123,574	-8,946	-0.1%	953,788	428,811	547,113	-22,136	-0.2%

Job Posting Trends in the MSP Metro

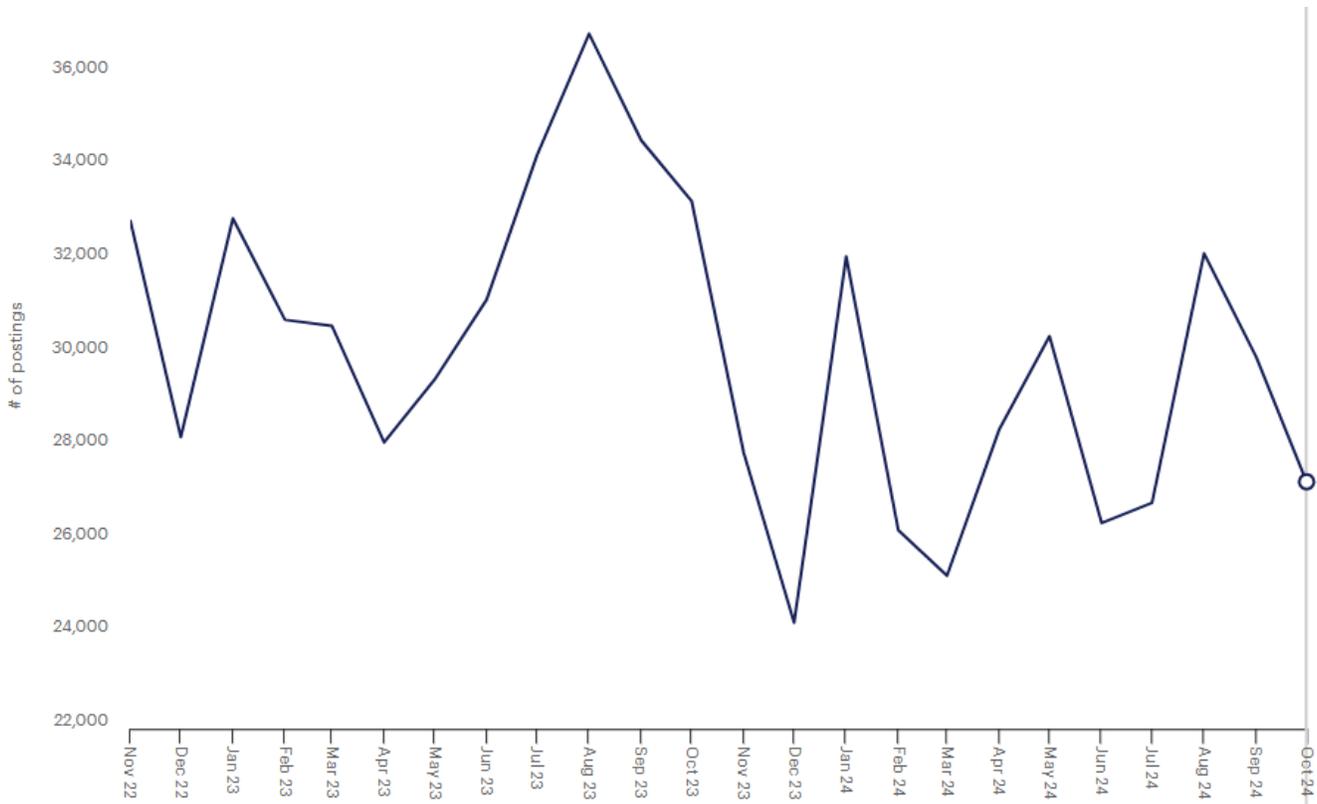
Online job posting data reveals much about employer demand for certain skills, certifications, qualifications, and occupational competencies.

TOTAL JOBS

Total job postings in the past 12 months (11/1/23 – 10/31/24):

- 337,361 unique job postings advertised online in the MSP Metro
 - -12% compared to the 12 months prior
- 594,113 unique postings statewide
 - -10% compared to the 12 months prior

Total Jobs Advertised Monthly in the MSP Metro, October 2023-2024



SOURCE: TalentNeuron accessed 11/1/2024

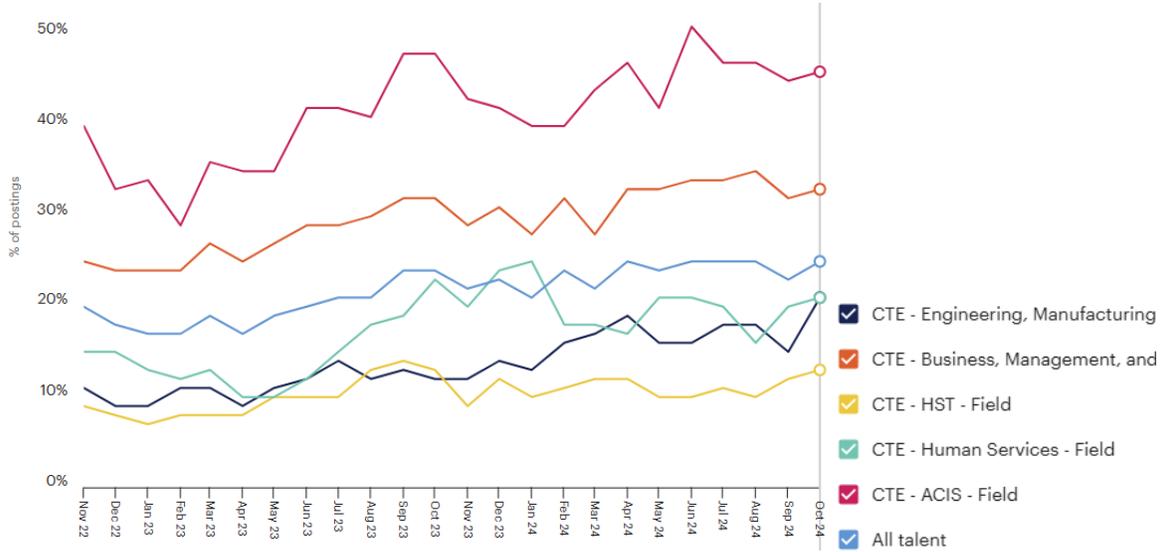
REMOTE AND HYBRID POSITIONS

Remote and hybrid positions have been shifting greatly in the past five years, and this trend plays out differently across Career and Technical Education (CTE) fields:

- 24% of all positions advertised in the past 12 months were explicitly listed as remote, hybrid, or telecommute roles—either permanently or temporarily
- Remote work is increasing year over year
 - Among all positions, the share of positions that are remote and hybrid remote increased by five percentage points from the prior year

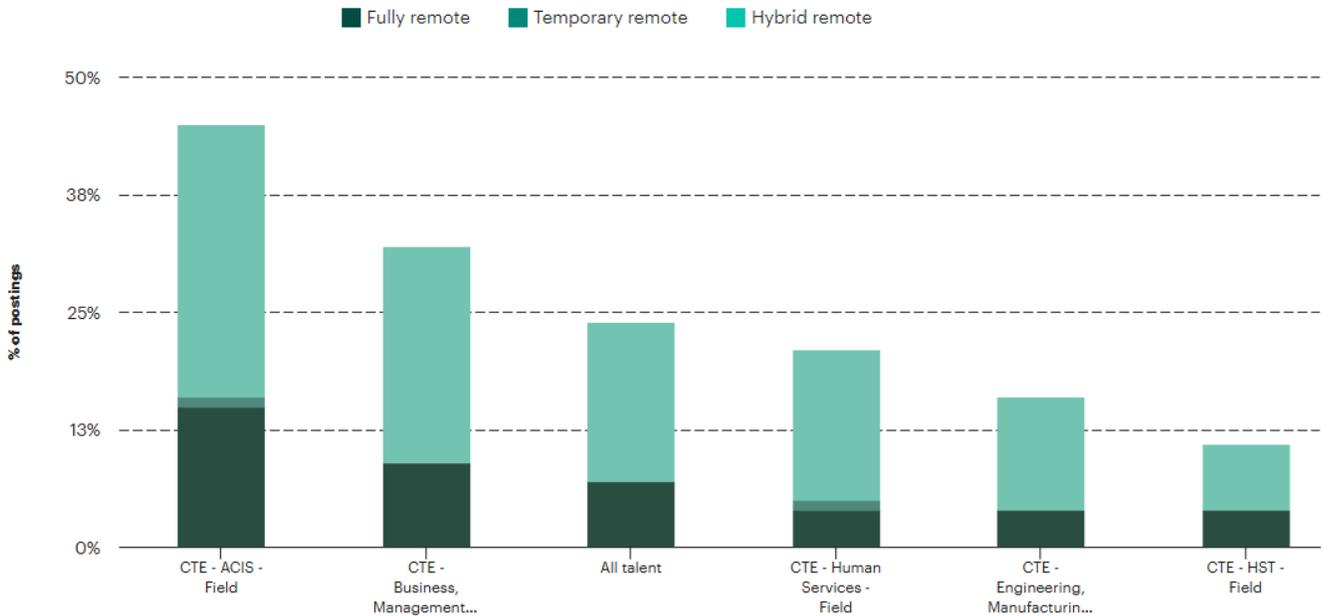
- All growth was due to increases in hybrid remote positions, which rose five percentage points from the prior year, representing 17% of all postings
- Arts, Communications and Information Systems and Human Services roles have particularly seen increases (by six percentage points in both cases from the prior year)

Total Remote Job Postings Advertised Monthly in the MSP Metro, October 2023-2024



SOURCE: TalentNeuron accessed 11/1/2024

Remote Job Postings by Career Field Advertised in the MSP Metro, October 2023-2024



Talent Profile ▾	% of postings				
	Unspecified /Onsite ▾	Total remote ▾	Fully remote ▾	Temporary remote ▾	Hybrid remote ▾
CTE - ACIS - Field	55% ▼ -6 pp	45% ▲ 6 pp	15% ▲ 0 pp	1% ▲ 0 pp	29% ▲ 6 pp
CTE - Business, Management, and Administration - Field	68% ▼ -4 pp	32% ▲ 4 pp	9% ▼ -1 pp	0% ▼ -1 pp	23% ▲ 6 pp
All talent	76% ▼ -5 pp	24% ▲ 5 pp	7% ▲ 0 pp	0% ▲ 0 pp	17% ▲ 5 pp
CTE - Human Services - Field	79% ▼ -6 pp	21% ▲ 6 pp	4% ▲ 0 pp	1% ▲ 0 pp	16% ▲ 6 pp
CTE - Engineering, Manufacturing, and Technology - Field	84% ▼ -5 pp	16% ▲ 5 pp	4% ▲ 1 pp	0% ▲ 0 pp	12% ▲ 4 pp
CTE - HST - Field	89% ▼ -2 pp	11% ▲ 2 pp	4% ▲ 0 pp	0% ▲ 0 pp	7% ▲ 2 pp

SOURCE: TalentNeuron accessed 11/1/2024

EVOLVING SKILLS

Talent accumulates valuable skills in many different ways beyond just work and education. Everything from self-study to apprenticeships/internships, as well as workforce training programs and general life experience all develop relevant skills. Assessing experience in terms of skills unearths a person’s qualifications and more clearly identifies training needs for career growth. For example, servers trying to move beyond a likely transition (bartending, retail sales, and other hospitality jobs) to an aligned transition like public relations specialist, skills tell us where their current qualifications align and where there are gaps. This kind of gap analysis is possible at the occupation level and supports postsecondary planning, workforce development, and employer talent strategy.

Evolving skills key trends:

- Most of the **newest** skills on the rise in regional job postings are specialized technical skills
- **Core** skills have remained relatively consistent with human skills such as communication and relationship management ranking in high importance

Top Evolving Skills in the MSP Metro, October 2023-2024

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

Each of the six Career and Technical Education (CTE) career fields has unique talent demand and employment forecasts, based on its mix of occupations and industry needs.

Health Science Technology

- Lowest unemployment rates (1.5%)
- Tied for second highest forecast growth rate (0.4%)
- Lowest average entry-level wages but second highest median wages in the region

Human Services

- Concentration comparable to the national average (LQ 1.03)
- Third largest employment in the region
- Highest forecast growth (1.0%)

Arts, Communications, and Information Systems

- Second smallest local employment volume
- High concentration in the region (LQ 1.20)
- Highest median and average entry-level wages

Business, Management, and Administration

- Largest employment volume
- Concentration comparable to the national average (LQ 1.02)
- Moderate unemployment, at 2.8%, but only slightly higher than the average for the region (2.6%)

Engineering, Manufacturing, and Technology

- Second highest employment volume
- Second highest volume of job postings
- Highest unemployment (3.2%)

Agriculture, Food, and Natural Resources

- Smallest share of regional employment
- Third highest entry level wages and median wages
- Tied for second highest projected growth rate (0.4%)

CTE Field Employment and Wages in MSP Metro Minnesota, 2024Q1

CTE Field (occupation overlap exists, will not sum)	Current 2024Q1 Estimates							5-Year History	
	Empl	Avg Entry- Level Wages	Median Wages	LQ	Unempl	Unempl Rate	Online Job Ads ³	Empl Change	Ann %
Health Science Technology	171,525	\$42,100	\$73,800	1.00	2,440	1.5%	18,708	3,706	0.4%
Human Services	302,403	\$46,100	\$61,600	1.03	6,320	2.1%	18,867	15,204	1.0%
Arts, Communications, and Information Systems	101,141	\$66,600	\$96,000	1.20	2,254	2.1%	8,306	-5,355	-1.0%
Business, Management, and Administration	833,742	\$47,400	\$66,600	1.02	23,608	2.8%	54,048	-28,608	-0.7%
Engineering, Manufacturing, and Technology	429,113	\$50,100	\$67,100	0.95	12,727	3.2%	22,460	5,353	0.3%
Agriculture, Food, and Natural Resources*	69,416	\$48,800	\$67,600	0.72	1,877	2.8%	4,456	1,249	0.4%
Total - All Occupations	1,855,958			1.00	47,869	2.6%	123,574	-8,946	-0.1%

Data as of 2024Q1 unless noted otherwise

Note: Figures may not sum due to rounding and overlap in occupations between career fields. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. Employment by place of work.

1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

3. Data represent found online ads active 10/1/2024-11/1/2024 in the selected region. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list). Ad counts for ZCTA-based regions are estimates.

CTE Field Baseline Employment Forecast for MSP Metro Minnesota, 2029Q1

CTE Field (occupation overlap exists, will not sum)	Current	5-Year Growth 2029Q1				
	Empl	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Health Science Technology	171,525	72,128	33,916	35,269	2,943	0.3%
Human Services	302,403	160,047	76,097	82,544	1,406	0.1%
Arts, Communications, and Information Systems	101,141	36,831	13,984	21,668	1,179	0.2%
Business, Management, and Administration	833,742	469,316	214,971	277,774	-23,429	-0.6%
Engineering, Manufacturing, and Technology	429,113	202,671	85,649	122,715	-5,693	-0.3%
Agriculture, Food, and Natural Resources*	69,416	37,881	14,390	23,738	-247	-0.1%
Total - All Occupations	1,855,958	953,788	428,811	547,113	-22,136	-0.2%

Data as of 2024Q1 unless noted otherwise

Note: Figures may not sum due to rounding and overlap in occupations between career fields. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters. Employment by place of work.

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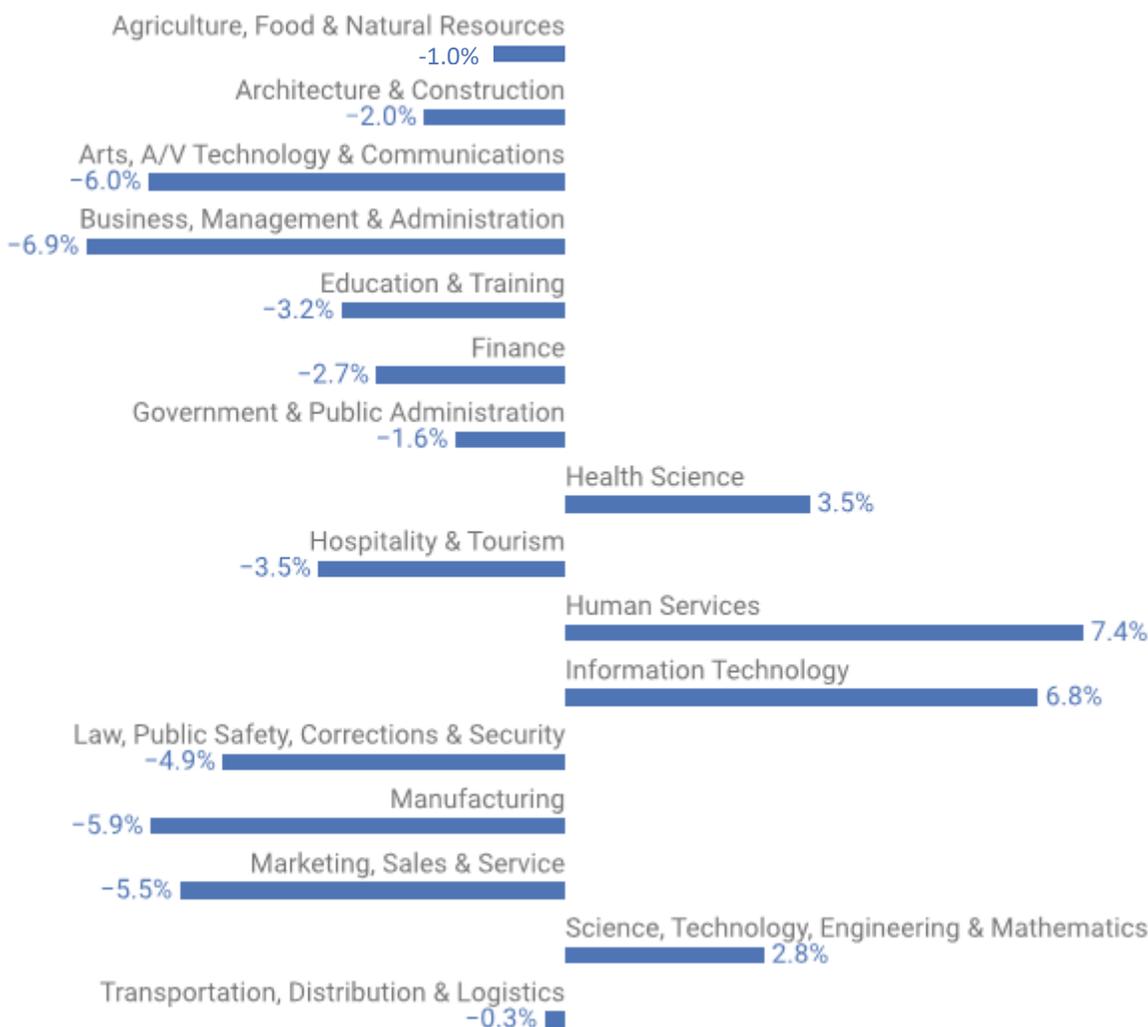
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Career Cluster Detail

Of the sixteen career clusters used by Career and Technical Education (CTE), twelve are forecast to decline in overall employment over the next ten years as of 2024Q1 estimates. The only four clusters forecasting growth are Human Services (+7.4%), Information Technology (+6.8%), Health Science (+3.5%), and STEM (+2.8%). Clusters were mixed in terms of change in employment outlook from the prior year's forecast: some improved and others worsened.

Baseline 10-Year Forecasts by Career Cluster, MSP Metro Minnesota, 2024Q1



Cluster forecasts estimated using Chmura, JobsEQ, based on 2024Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters.

An accurate assessment of future occupation demand requires that future growth, retirements, and other job exits be considered. In the MSP Metro, Hospitality and Tourism, Business, Management, and Administration, and Marketing, Sales, and Service clusters are expected to have the highest annual job demand by volume of opportunities—due to retirements and job changes.

Ten of the sixteen career clusters have average wages above the average occupation wage in the region. The Science, Technology, Engineering and Mathematics cluster has the highest wages of the Career Clusters followed by the Information Technology and Health Science clusters.

Employment, Wages, and Forecast by Career Cluster, 2024Q1

Career Cluster	Employment	Avg Ann Wages	Job Ads	Ann Empl Change	Ann Total Demand
Science, Technology, Engineering & Mathematics	32,518	\$116,300	5,286	88	2,068
Information Technology	68,563	\$111,200	6,949	448	4,500
Finance	87,494	\$105,200	6,739	-246	6,246
Health Science	171,525	\$94,600	18,456	578	14,362
Law, Public Safety, Corrections & Security	47,627	\$90,300	2,972	-245	4,060
Business, Management & Administration	357,648	\$84,000	18,145	-2,583	33,217
Government & Public Administration	16,567	\$82,000	1,091	-28	1,398
Architecture & Construction	107,726	\$77,000	3,688	-237	9,083
Marketing, Sales & Service	189,840	\$71,100	15,834	-1,097	20,998
Education & Training	109,214	\$69,500	6,680	-366	9,385
Arts, A/V Technology & Communications	32,578	\$69,500	1,251	-205	2,869
Agriculture, Food & Natural Resources*	69,416	\$68,300	4,931	-1,249	7,568
Transportation, Distribution & Logistics	139,399	\$60,500	5,612	-70	15,570
Manufacturing	149,470	\$60,000	7,708	-935	13,915
Human Services	128,994	\$49,200	7,865	922	17,107
Hospitality & Tourism	198,759	\$38,500	12,873	-749	34,014
Total - All Occupations	1,855,958	\$73,700	122,524	-4,532	191,251

*Cluster forecasts estimated using Chmura, JobsEQ, based on 2024Q1 employment data. All clusters are distinct occupations except for Agriculture, Food, and Natural Resources, which overlaps with other clusters.

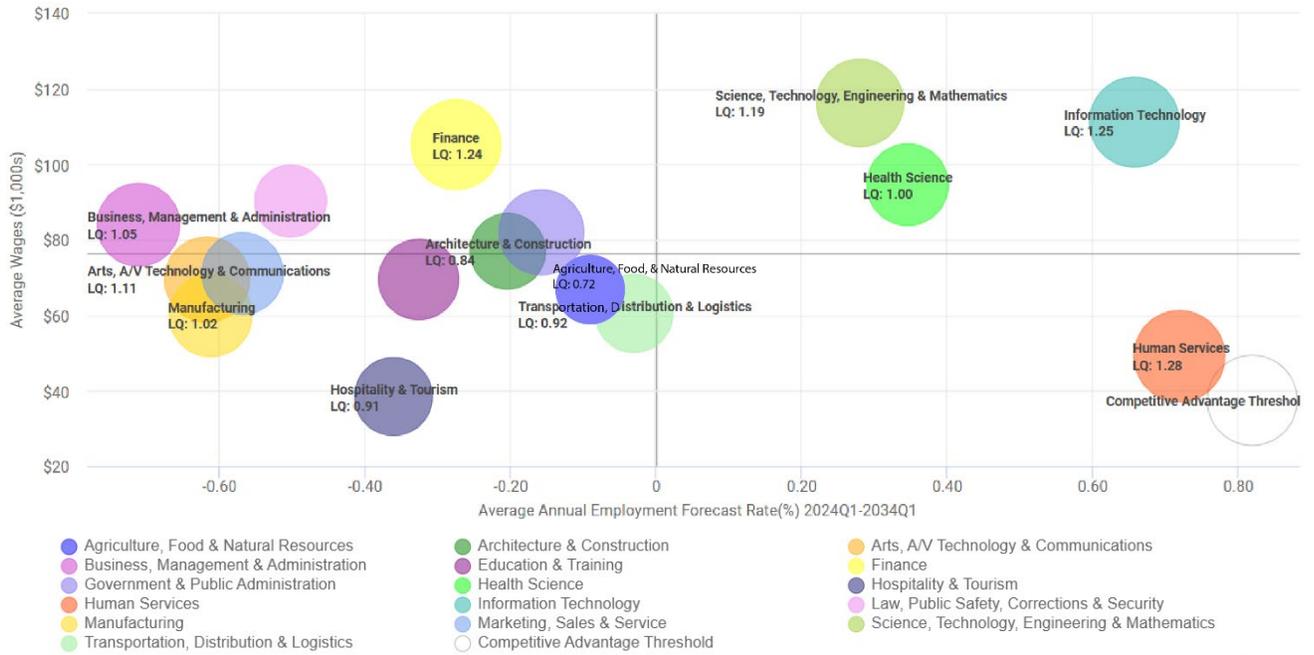
CAREER CLUSTER FORECASTS

Just as with industry clusters, it is possible to chart Career and Technical Education career clusters by wage, forecast, and local concentration. The chart below shows career clusters of employment in MSP Metro Minnesota. The larger the circle, the more concentrated the career cluster is in the region (compared to the national average); this is called a Location Quotient (LQ). Clusters are positioned on the chart based on their wages and forecast employment. Clusters higher up on the Y-axis of the chart have higher average wages, and clusters located further to the right on the X-axis of the chart have higher forecasted employment growth. In summary, large circles in the top-right corner of the chart would be considered high-wage, high-growth, uniquely important clusters for the region's economy. Smaller circles further to the bottom-left corner of the chart would be lower-wage, declining, underrepresented clusters.

The most highly concentrated career cluster in the MSP Metro region is Human Services:

- Location Quotient: 1.28
- Employment: 128,994 workers
- Average Wage: \$49,200
- Employment Forecast: Projected to grow by 0.7% annually over the next 10 years

Career Clusters for MSP Metro Minnesota as of 2024Q1



Source: Job Outlook Database 2024Q1

Key Takeaways by Career Field

Health Science Technology	Human Services	Arts, Communications, and Information Technology
<ul style="list-style-type: none"> • Largest volumes of occupations forecasting shortages • Award gaps for Therapeutic Services talent at all education levels • Registered Nurse occupation remains in high demand and moderate shortage • Opportunities for expanded career laddering, stackable credentials, or microcredentials 	<ul style="list-style-type: none"> • Educational institutions dominate overall demand • Education and Training pathway in significant talent shortage • 46.1% of positions do not require postsecondary credentials yet 67.6% of workforce holds one • Mental health, behavioral health, and counseling have an undersupply of talent and low volumes of postsecondary awards 	<ul style="list-style-type: none"> • Highest average entry-level and median wages • Systematic undersupply of Information Technology cluster talent and postsecondary awards • Highly educated workforce aligned with high level education and training requirements (70% require bachelor's or higher, almost 80% hold a bachelor's degree or higher)
Business, Management, and Administration	Engineering, Manufacturing, and Technology	Agriculture, Food, and Natural Resources
<ul style="list-style-type: none"> • Largest share of employment by career field • Forecasting moderate decline in overall employment but high replacement demand • General and Operations roles in high local concentration experiencing shortages unlikely to be met by existing local talent providers 	<ul style="list-style-type: none"> • Comparatively high unemployment (3.2%) • Industrial Engineering and Transportation industries in need of career pathway expansion • Aging talent signaling exacerbation of talent shortage due to upcoming retirements with 23.7% being 55 or older 	<ul style="list-style-type: none"> • Veterinarian Technologists and Technicians and Aircraft Mechanics are uniquely concentrated in the region and have significantly low unemployment • Animal related occupations are in high need for career pathway expansion • The workforce in this career field is predominately male (71.5%) and white (80.1%)

Health Science Technology

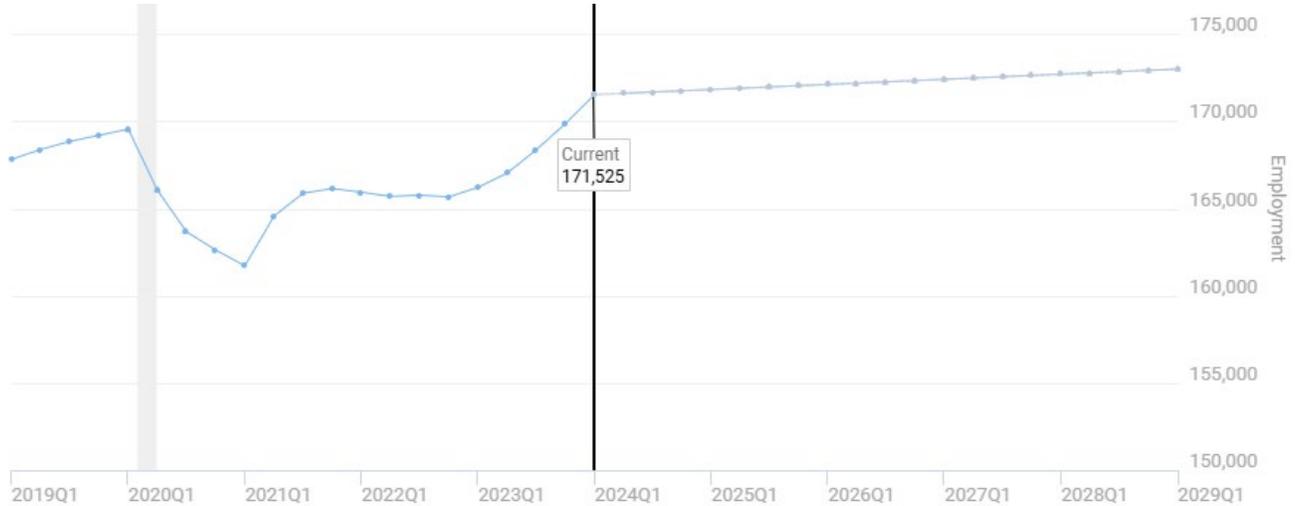
The Health Science Technology field includes an array of careers in the health sciences, including the following career pathways:

- Therapeutic Services
- Diagnostic Services
- Support Services
- Health Informatics
- Biotechnology Research and Development

EMPLOYMENT FORECAST

Over the next five years, Health Science Technology field employment is forecast to increase by 0.3% on average annually in the MSP Metro, continuing a longstanding upward trend in total field employment.

Baseline 5-Year Forecast for Health Science Technology Careers, MSP Metro Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 171,525 people are employed in Health Science Technology roles regionally, accounting for about 9% of all regional employment. The field's median wage is \$73,800. Home Health Aides and Medical and Health Services Managers are expected to see the highest growth of these top occupations.

Top Ten Health Science Technology Occupations by Employment Volume, MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Registered Nurses	36,284	\$105,300	0.99	1,243	9,515	-0.1%
Home Health Aides	17,744	\$36,000	1.54	-1,944	11,796	1.4%
Nursing Assistants	14,245	\$47,000	0.89	-633	9,779	-0.2%
Medical Secretaries and Administrative Assistants	8,368	\$51,200	1.04	667	4,327	0.0%
Licensed Practical and Licensed Vocational Nurses	7,889	\$63,100	1.04	-941	2,940	-0.1%
Medical Assistants	6,720	\$53,000	0.75	563	4,607	0.7%
Medical and Health Services Managers	6,000	\$128,900	1.01	839	2,835	1.9%
Pharmacy Technicians	4,854	\$50,300	0.95	265	2,117	-0.1%
Dental Assistants	3,863	\$67,800	0.91	169	2,694	0.2%
Pharmacists	3,833	\$160,300	1.02	89	628	-0.4%
Health Science (CTE Field)	171,525	\$73,800	1.00	3,706	72,128	0.3%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

The largest share of Health Science Technology workers in MSP Metro Minnesota are employed by General Medical and Surgical Hospitals (28.0%). The next most common industry is Offices of Physicians (14.8%).

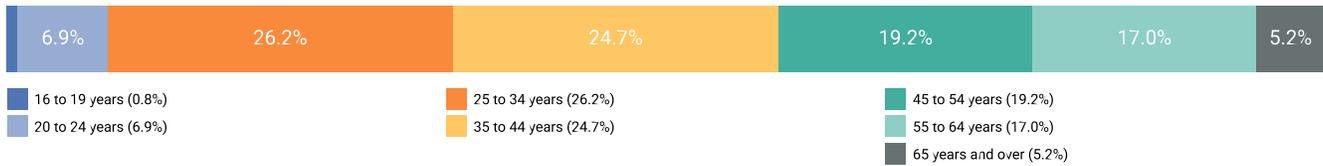
Health Science Technology Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
General Medical and Surgical Hospitals	28.0%	47,951	32,257	-732	31,525
Offices of Physicians	14.8%	25,322	17,788	928	18,716
Individual and Family Services	7.4%	12,650	14,876	2,746	17,622
Nursing Care Facilities (Skilled Nursing Facilities)	6.1%	10,404	10,364	-860	9,504
Offices of Dentists	5.1%	8,696	8,181	171	8,352
Home Health Care Services	5.0%	8,553	8,003	1,157	9,160
Offices of Other Health Practitioners	4.1%	7,017	5,370	779	6,149
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	3.0%	5,082	5,772	461	6,233
Health and Personal Care Retailers	2.9%	4,939	3,629	-275	3,354
Outpatient Care Centers	2.8%	4,817	3,680	786	4,466
Other Professional, Scientific, and Technical Services	2.2%	3,743	3,884	593	4,476
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	2.1%	3,545	3,424	-27	3,397
Employment Services	1.7%	2,890	2,323	-108	2,215
Management of Companies and Enterprises	1.6%	2,795	1,987	169	2,156
Colleges, Universities, and Professional Schools	1.4%	2,332	1,473	-22	1,450
Insurance Carriers	1.3%	2,167	1,371	115	1,486
Other Ambulatory Health Care Services	1.2%	2,057	1,835	218	2,053
Elementary and Secondary Schools	1.1%	1,948	1,264	-32	1,232
Medical and Diagnostic Laboratories	0.8%	1,386	1,054	32	1,085
Specialty (except Psychiatric and Substance Abuse) Hospitals	0.6%	1,073	793	80	873
All Others	7.1%	12,158	9,077	-150	8,927

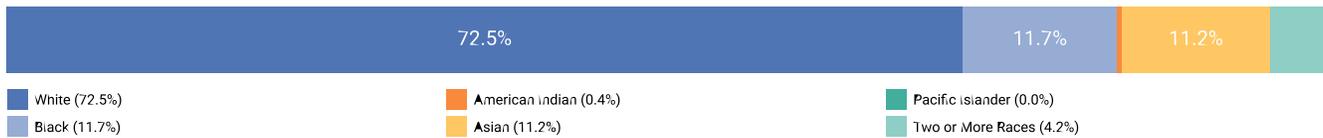
CAREER FIELD DEMOGRAPHICS

- The Health Science Technology field is predominantly white (72.5%) by race and non-Hispanic/Latinx by ethnicity (95.7%), but more diverse than any other region; The Health Science Technology field is also more diverse than the workforce as a whole, with 4.4 percentage points more Black, Indigenous, and people of color represented in this field than observed across all occupations
- Nearly four out of every five people employed in the field are female (77.9%)
- A higher share of Health Science Technology workers fall between the ages of 25 and 44 than observed across all occupations in the MSP Metro region, with 50.9% of the field’s talent falling in this age range (45.6% in this age cohort across all occupations)

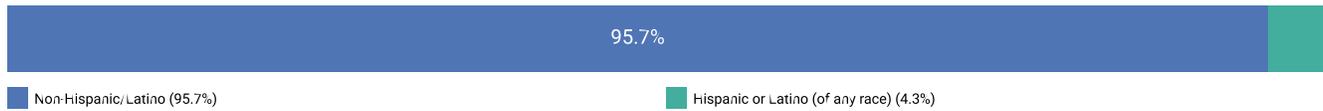
Age



Race



Ethnicity



Gender

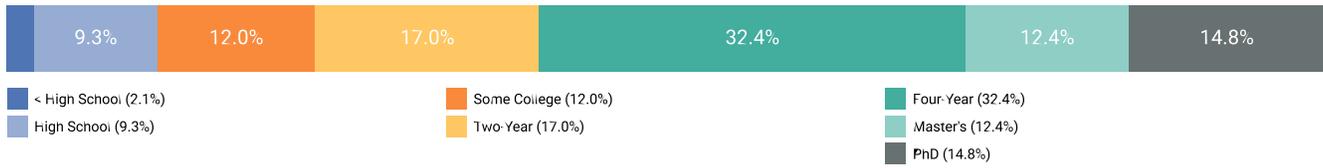


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

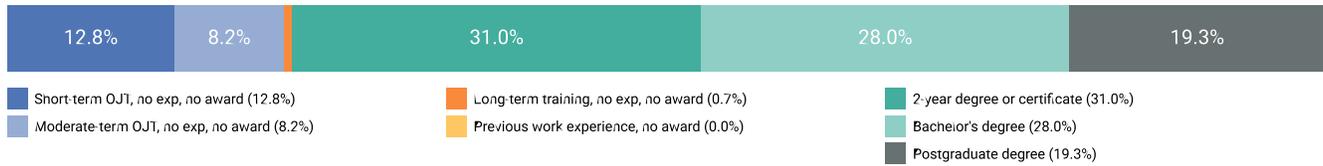
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The MSP Metro Health Science Technology workforce is highly educated compared to requirements of local roles
 - Although 22% of local roles typically do not require a postsecondary award (although they may require on-the-job training), only 11% of local talent holds a high school diploma or less as their highest form of credential
 - While 28% of local positions in the field require a bachelor’s degree and 19.3% require a postgraduate degree, 32.4% of local talent hold a bachelor’s degree and another 27.2% hold a postgraduate credential

Educational Attainment



Education and Training Requirements

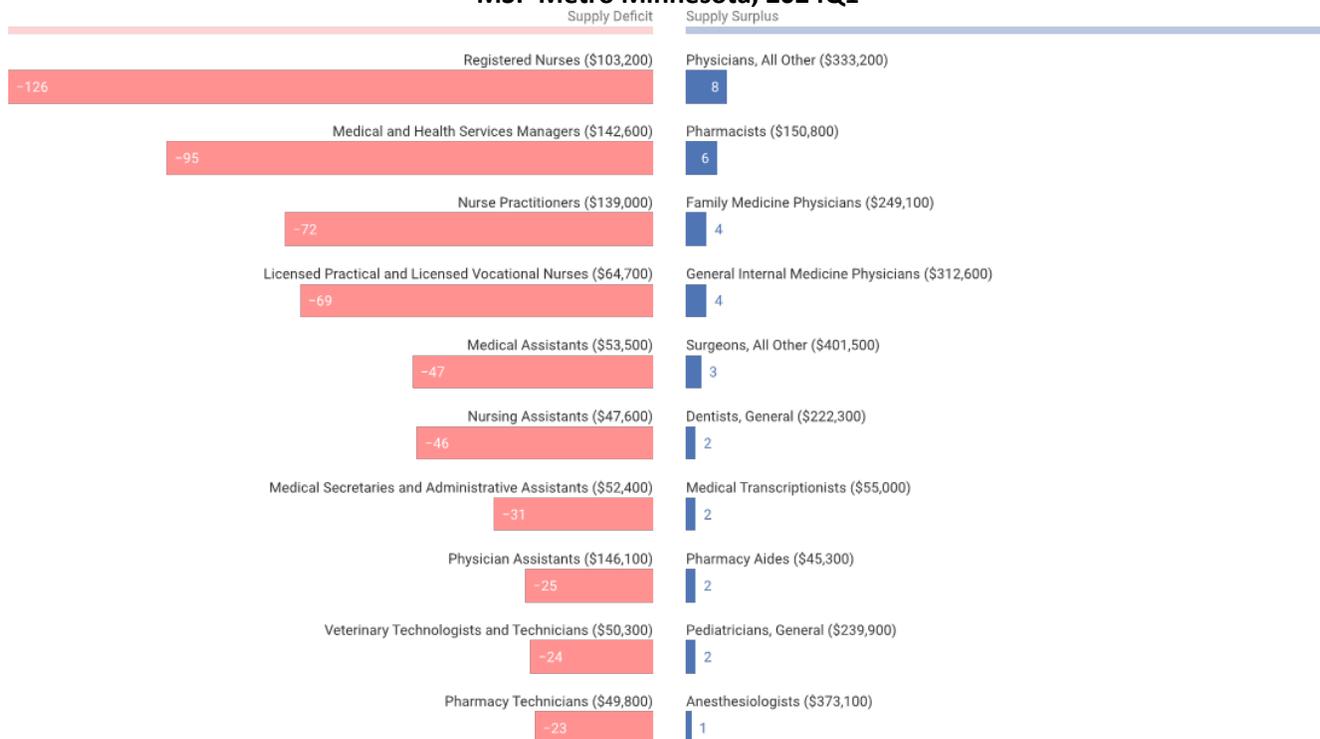


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

In the Health Science Technology field, Registered Nurses and Medical and Health Services Managers are the two occupations with the greatest annual shortages in the MSP Metro. All other nursing occupations also forecast significant regional shortages. Very few roles in this field have a sufficient supply of local talent; among them are Physicians, Pharmacists, Dentists, and Surgeons.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Health Science Technology, MSP Metro Minnesota, 2024Q1



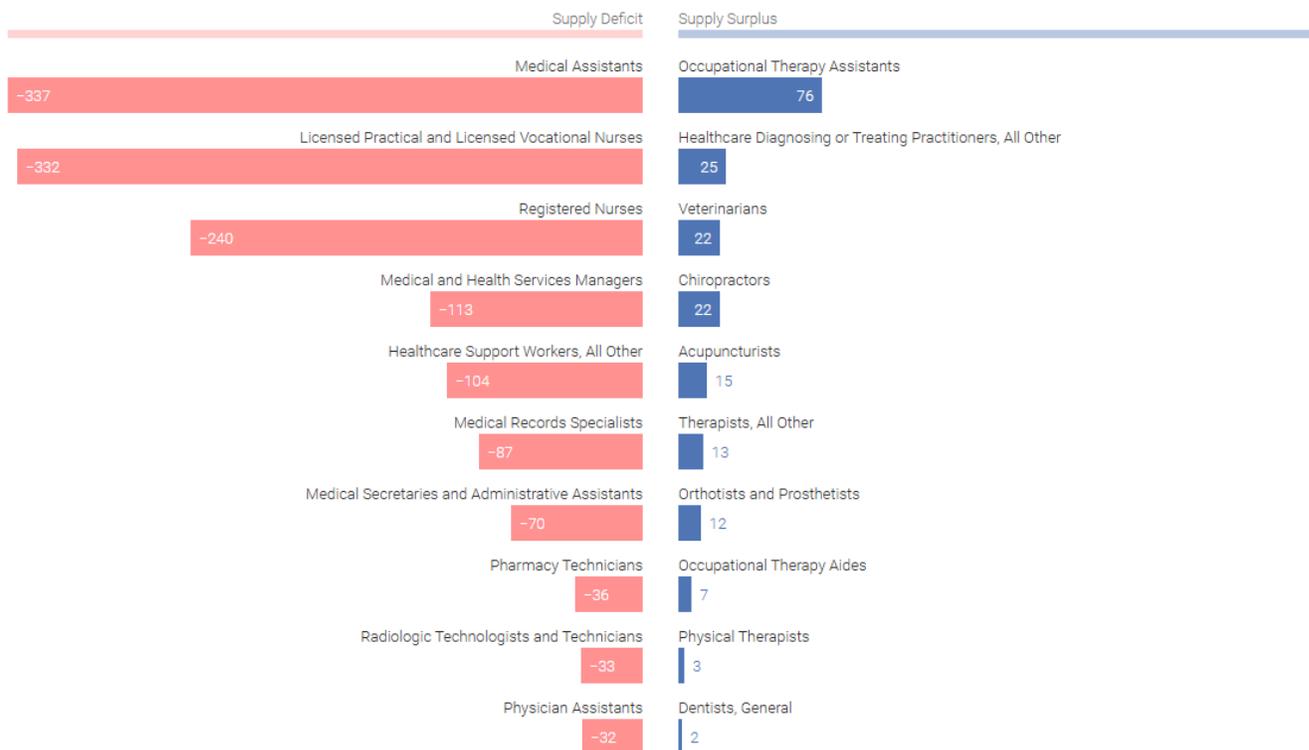
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The MSP Metro has several Health Science Technology award shortages and some general misalignments:

- A majority of roles in Health Science Technology have an undersupply of local graduates relative to demand, when benchmarked against national averages, indicating that local employers likely filling a large share of local job openings with talent trained outside of the region
- MSP Metro colleges and universities are underproducing about 337 Medical Assistant graduates, 332 Licensed Practical Nurse graduates, and 240 Registered Nurse graduates annually that are needed to fill positions open with employers in the region
- About half of Health Science Technology occupations have a local shortage of new graduates from local postsecondary programs

Award Gaps in Health Science Technology, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Health Science Technology, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HD, HS, OG)

Registered Nurses (AG)
 Licensed Practical & Licensed Vocational Nurses (AG)
 Medical & Health Services Managers (AG)
 Dental Assistants
 Nurse Practitioners (AG)

Gateway Occupations (All HD)

Nursing Assistants (HS, OG)
 Medical Secretaries & Administrative Assistants (OG, AG)
 Medical Assistants (HS, OG, AG)
 Pharmacy Technicians (OG, AG)
 Healthcare Support Workers, All Other (AG)

Origin Occupations (All HD)

Home Health Aides (AG)
 Veterinary Assistants & Laboratory Animal Caretakers (AG)
 Pharmacy Aides (AG)
 Physical Therapy Aides

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

Other Promising Occupations

Another Health Science Technology occupation that is high-wage and high-demand, yet does not meet the high-skill threshold to be considered Target Occupations, may be a promising career for students to consider. This occupation may offer a fast track to a good job for those interested in starting a career in the field without requiring a postsecondary credential. The occupation to consider is:

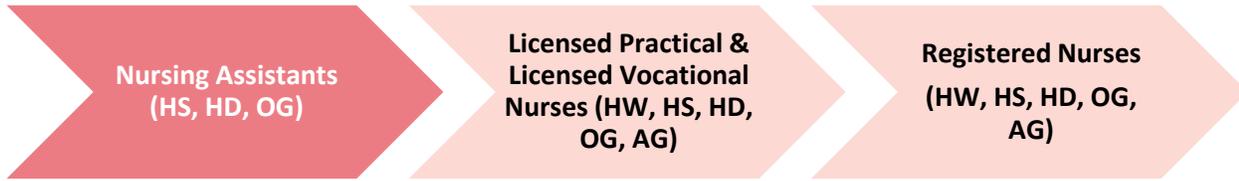
- Hearing Aid Specialists (OG)

Featured Pathway

Consistent with observations in 2023, the MSP Metro region's nursing pathway requires further expansion and stabilization to respond to rising demand. The Target occupation of Registered Nurse is in high demand and currently experiencing an occupation gap, with postsecondary degrees completed in 2023 falling short of national benchmarks. Licensed Practical and Licensed Vocational Nurse (LPN) median wages are now above the region's overall median wage, making it a Target occupation in the field. LPNs are slightly more concentrated in the MSP Metro region than a typical community nationwide (LQ 1.04) and are experiencing an occupation gap and award gap. The Gateway occupation of Nursing Assistant is an example of a potential feeder occupation into these roles, given overlapping foundational skillsets and training required. Stackability of credentials is vital to building viable career pathways up to Registered Nursing positions at the AS, BSN, or MSN levels.

Gateway

Target



OGT Wages and Experience Level Requirements, Health Science Technology, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	29-1141	Registered Nurses	36,284	\$103,200	\$81,800	\$113,900	\$80,200	\$87,600	\$105,300	\$114,300	\$128,500	BA	None	None
	29-2061	Licensed Practical and Licensed Vocational Nurses	7889	\$64,700	\$55,700	\$69,300	\$53,500	\$59,500	\$63,100	\$66,400	\$78,600	Certificate	None	None
	11-9111	Medical and Health Services Managers	6000	\$142,600	\$88,300	\$169,800	\$82,100	\$102,500	\$128,900	\$146,200	\$205,200	BA	< 5 years	None
	31-9091	Dental Assistants	3863	\$69,500	\$59,600	\$74,400	\$55,600	\$65,900	\$67,800	\$74,900	\$79,100	Certificate	None	None
	29-1171	Nurse Practitioners	2951	\$139,000	\$117,400	\$149,700	\$110,500	\$129,200	\$137,800	\$144,700	\$167,000	MA	None	None
Gateway	31-1131	Nursing Assistants	14245	\$47,600	\$40,900	\$51,000	\$40,500	\$42,300	\$47,000	\$49,500	\$56,600	Certificate	None	None
	43-6013	Medical Secretaries and Administrative Assistants	8368	\$52,400	\$44,600	\$56,200	\$42,300	\$48,500	\$51,200	\$58,700	\$62,500	HS/GED	None	Mod-term OJT
	31-9092	Medical Assistants	6720	\$53,500	\$44,400	\$58,000	\$41,100	\$49,800	\$53,000	\$57,900	\$60,100	Certificate	None	None
	29-2052	Pharmacy Technicians	4854	\$49,800	\$39,200	\$55,000	\$39,900	\$40,300	\$50,300	\$52,900	\$61,800	HS/GED	None	Mod-term OJT
	31-9099	Healthcare Support Workers, All Other	2250	\$46,400	\$38,100	\$50,500	\$38,600	\$38,900	\$46,800	\$49,600	\$55,800	HS/GED	None	None
Origin	31-1121	Home Health Aides	17744	\$36,200	\$31,300	\$38,600	\$31,000	\$32,400	\$36,000	\$38,400	\$43,300	HS/GED	None	Short-term OJT
	31-9096	Veterinary Assistants and Laboratory Animal Caretakers	905	\$44,000	\$38,100	\$47,000	\$37,400	\$39,300	\$40,500	\$46,900	\$57,900	HS/GED	None	Short-term OJT
	31-9095	Pharmacy Aides	423	\$45,300	\$35,400	\$50,300	\$33,800	\$38,300	\$40,900	\$51,100	\$60,600	HS/GED	None	Short-term OJT
	31-2022	Physical Therapist Aides	74	\$41,700	\$35,300	\$44,900	\$35,500	\$36,000	\$41,600	\$45,700	\$48,900	HS/GED	None	Short-term OJT

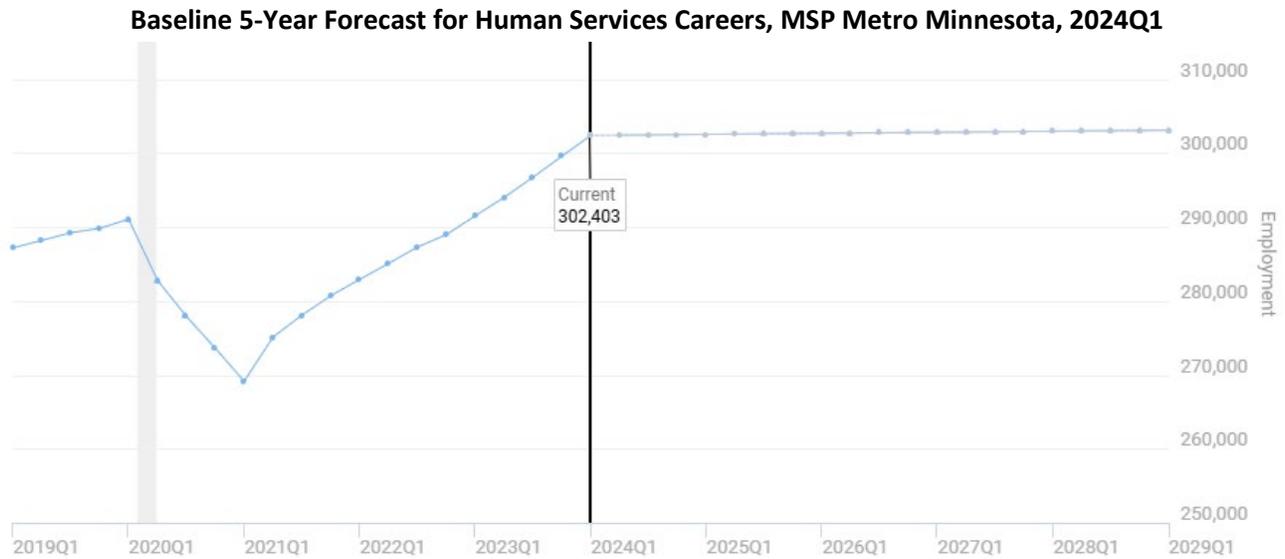
Human Services

The Human Services field includes a wide range of career pathways sorted into the following career clusters:

- Education and Training
- Law, Public Safety, Corrections, and Security
- Government and Public Administration
- Human Services

EMPLOYMENT FORECAST

Over the next five years, Human Services employment is forecast to grow by 0.1% on average annually – a significant decline from the 1.0% average annual growth observed over the past five years.



TOP OCCUPATIONS

A total of 302,403 people are employed in Human Services roles regionally, accounting for about 16% of all regional employment. The field's median wage is \$61,600. Personal Care Aides, the top occupation by employment, is forecast to grow 1.4% annually—in contrast to other top occupations, which are projected to decline or grow more slowly.

Top Ten Human Services Occupations by Employment Volume, MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Personal Care Aides	50,257	\$36,100	1.54	16,169	40,561	1.4%
Teaching Assistants, Except Postsecondary	18,348	\$42,600	1.27	-30	9,943	-0.5%
Elementary School Teachers, Except Special Education	13,169	\$68,100	0.83	173	4,029	-0.4%
Childcare Workers	10,258	\$35,600	1.09	-1,215	7,948	-0.6%
Secondary School Teachers, Except Special and Career/Technical Education	10,228	\$71,600	0.86	258	2,847	-0.4%
Lawyers	9,236	\$165,100	1.00	-388	1,773	0.0%
Preschool Teachers, Except Special Education	8,694	\$40,300	1.50	-126	4,435	-0.2%
Security Guards	8,505	\$46,600	0.62	-36	5,051	-0.8%
Social and Human Service Assistants	6,861	\$47,900	1.41	261	3,723	0.5%
Hairdressers, Hairstylists, and Cosmetologists	5,711	\$37,100	0.92	-1,474	3,996	0.3%
Human Services (CTE Field)	302,403	\$61,600	1.03	15,204	160,047	0.1%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

The largest share of regional Human Services talent in the MSP Metro is employed by Elementary and Secondary Schools (21.4%) or Individual and Family Services (13.8%). Individual and Family Services continues to have high forecasted growth and replacement demand needs.

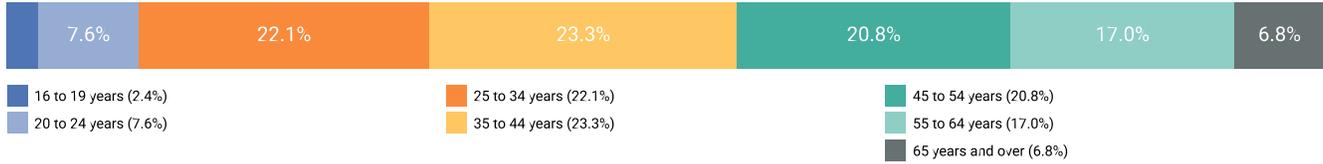
Human Services Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Elementary and Secondary Schools	21.4%	64,620	54,298	-2,858	51,440
Individual and Family Services	13.8%	41,589	56,739	8,697	65,435
Colleges, Universities, and Professional Schools	5.6%	17,063	14,095	-311	13,784
Executive, Legislative, and Other General Government Support	5.2%	15,850	13,489	-487	13,002
Child Care Services	4.4%	13,378	16,254	-934	15,319
Legal Services	3.8%	11,486	7,676	-644	7,032
Personal Care Services	3.5%	10,512	13,865	556	14,421
Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	3.2%	9,637	11,590	-149	11,441
Religious Organizations	3.2%	9,564	9,487	-392	9,095
Home Health Care Services	3.0%	9,054	12,839	1,130	13,969
Other Schools and Instruction	2.7%	8,081	10,188	-152	10,035
Justice, Public Order, and Safety Activities	2.5%	7,702	6,379	-472	5,908
Investigation and Security Services	2.0%	6,120	7,697	-416	7,281
Other Amusement and Recreation Industries	1.8%	5,457	9,602	391	9,993
Offices of Other Health Practitioners	1.7%	5,012	4,256	730	4,986
Administration of Human Resource Programs	1.5%	4,581	3,667	-429	3,238
Other Residential Care Facilities	1.4%	4,235	4,943	-235	4,708
Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	1.3%	3,845	5,554	603	6,157
Management of Companies and Enterprises	1.2%	3,732	3,164	146	3,310
General Medical and Surgical Hospitals	1.0%	3,133	2,800	-111	2,689
All Others	15.8%	47,751	48,730	-1,153	47,577

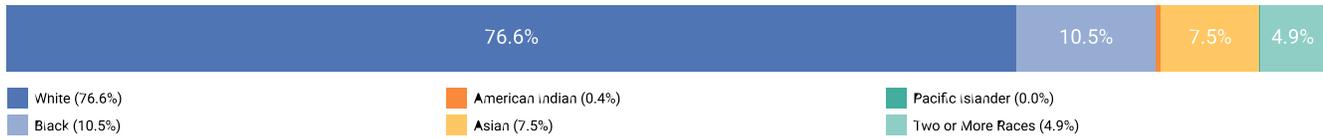
CAREER FIELD DEMOGRAPHICS

- The MSP Metro Human Services field has a higher share of female (64.2%) and Black (10.5%) talent than the regional workforce overall
- The age demographics of the Human Services workforce are comparable to the overall regional workforce’s age composition, but with fewer younger workers between the ages of 16-24 years (lower by 2.7 percentage points) and more that are 65 years or older (higher by 1.5 percentage points)

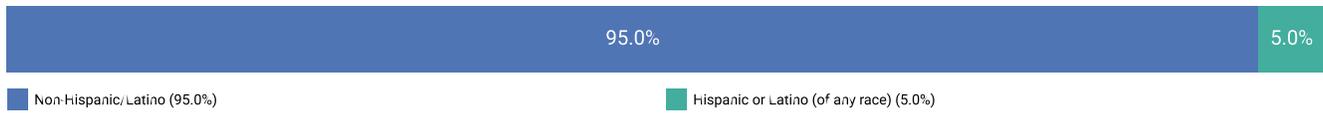
Age



Race



Ethnicity



Gender

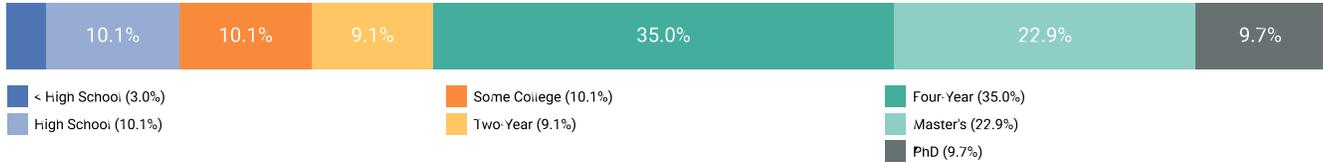


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

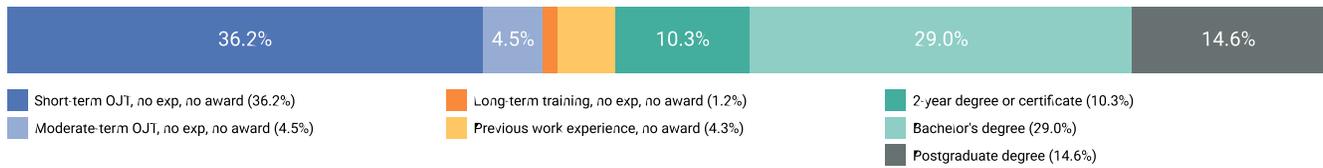
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- In general, the MSP Metro Human Services workforce is well-matched for local jobs in terms of educational attainment, but the local talent pool has a higher overall level of educational attainment than typically observed for the mix of local careers
- For example, about two-thirds (67.6%) of the Human Services workforce has a four-year degree or more, whereas only 43.6% of jobs require a bachelor’s or postgraduate degree

Educational Attainment



Education and Training Requirements



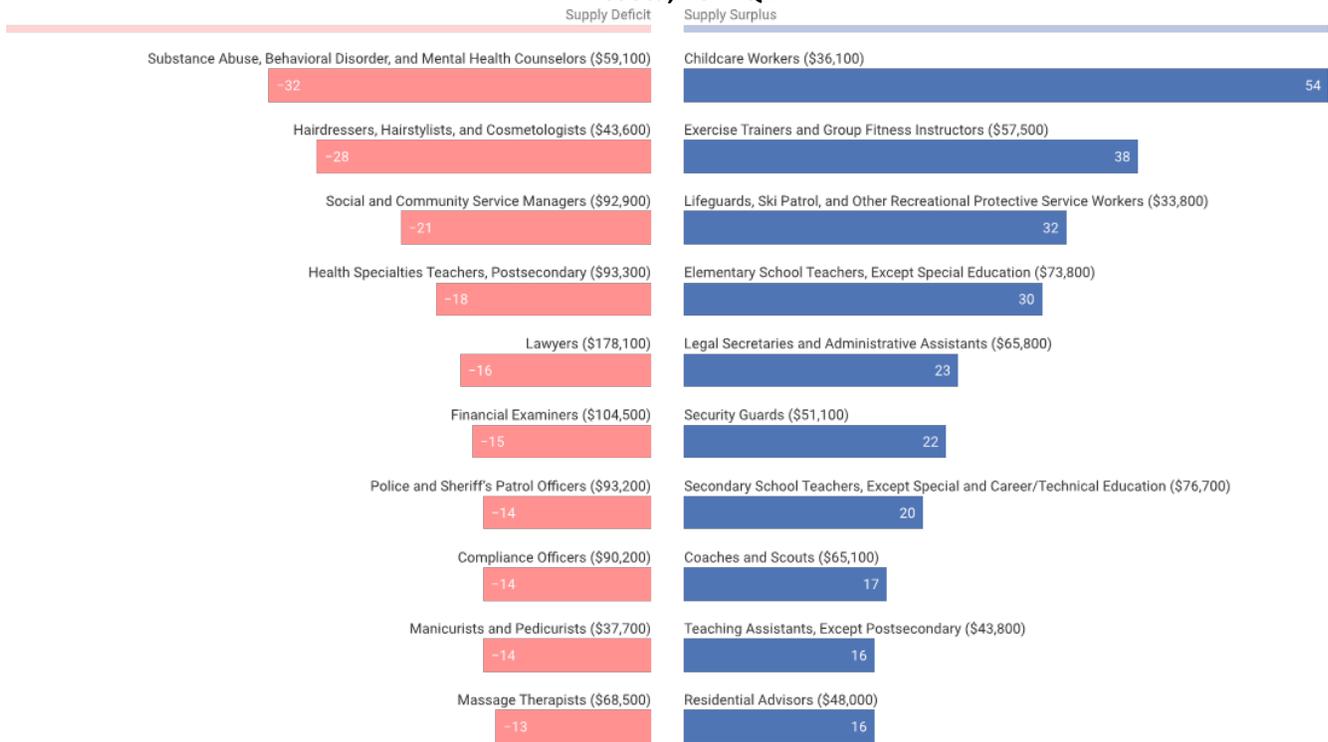
OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

In Human Services, Mental Health Counselors, Hairdressers, Community Service Managers, and Postsecondary Health Specialties Teachers are the top occupations of shortage in the MSP Metro region. A large number of occupations also forecast small to moderate talent surpluses in the region in relation to demand, from Childcare Workers to Exercise Trainers and Lifeguards. The relative surplus of Elementary School Teachers and Teaching Assistants in the MSP Metro region may be an opportunity to redistribute talent opportunity to other parts of Minnesota where shortages in the Education and Training cluster of occupations are severe.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Human Services, MSP Metro

Minnesota, 2024Q1



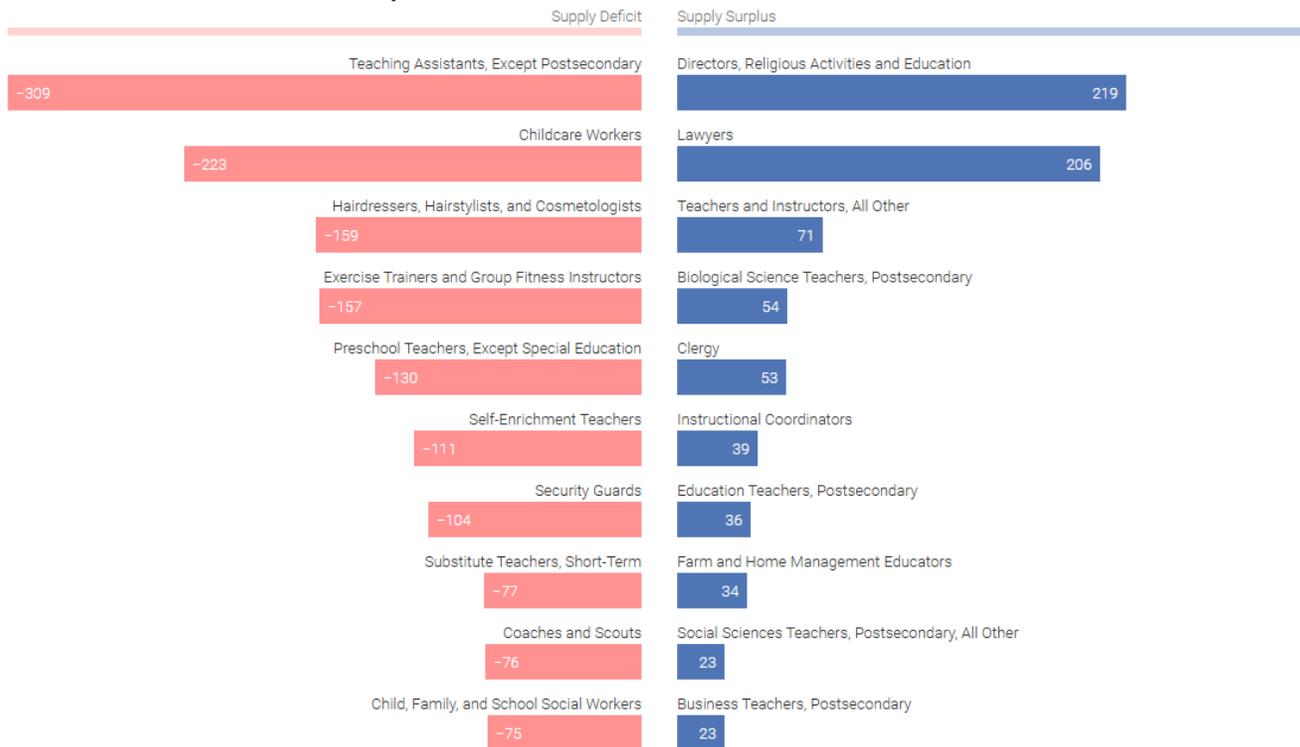
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

MSP Metro Minnesota faces several notable Human Services award shortages and some general misalignments:

- Eighty-five of the 170 occupations in the Human Services field have a local shortage of new graduates from local postsecondary programs, with local employers likely filling a large share of local job openings with talent trained outside of the region
- The most severe regional postsecondary award shortages for the field compared to national averages are for Teaching Assistants (-309), Childcare Workers (-223), and Hairdressers (-159)
- About 64 positions have sufficient postsecondary awards conferred to match local demand, while 21 Human Services careers have surpluses of awards, likely helping to address shortages of new graduate talent found in other parts of the state

Award Gaps in Human Services, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Human Services, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HS, HD)

Elementary School Teachers, Except Special Education

Secondary School Teachers, Except Special & CTE Lawyers (OG)

Middle School Teachers, Except Special & CTE Child, Family, & School Social Workers (OG, AG)

Gateway Occupations (All HD, AG)

Security Guards

Social & Human Service Assistants (HD)

Self-Enrichment Teachers

Substance Abuse, Behavioral Disorder, & Mental Health Counselors (HS, OG)

Exercise Trainers & Group Fitness Instructors

Origin Occupations (All HD, AG)

Personal Care Aides

Teaching Assistants, Except Postsecondary (HS)

Childcare Workers

Preschool Teachers, Except Special Education (HS)

Hairdressers, Hairstylists, & Cosmetologists (HS, OG)

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

Other Promising Occupations

Two other Human Services occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Construction and Building Inspectors
- Occupational Health & Safety Technicians (OG, AG)

Featured Pathway

Similar to 2023, all pathways in Human Services continue to have significant talent needs. The Mental Health pathway remains a strong choice with high local concentrations. In addition, the Teaching and Training Pathway could be a potential focus for Career and Technical Education programs. Teaching careers are in high local concentration across the region from preschool through postsecondary education, with shortages observed across the entire pathway. Elementary and Secondary School Teachers are both Target occupations in the region, meaning that median wages for these roles exceed the overall median wage in the MSP Metro. The region also has a higher-than-normal concentration of Teaching Assistants—27% more in this region than found nationwide. A challenge of this pathway is that there are no aligned Gateway occupations that pay living wages and create a path from Origin occupations into Target occupations, meaning that individuals choosing this career path may experience financial burdens on their career journey. Each of these roles is experiencing high demand and low local volumes of new graduates entering the field compared to national rates.

Origin

Target



OGT Wages and Experience Level Requirements, Human Services, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	25-2021	Elementary School Teachers, Except Special Education	13,169	\$73,800	\$51,500	\$84,900	\$52,000	\$53,600	\$68,100	\$86,600	\$101,800	BA	None	None
	25-2031	Secondary School Teachers, Except Special and Career/Technical Education	10,228	\$76,700	\$56,700	\$86,700	\$52,700	\$64,000	\$71,600	\$86,700	\$105,300	BA	None	None
	23-1011	Lawyers	9,236	\$178,100	\$92,400	\$220,900	\$86,600	\$110,100	\$165,100	\$218,700	\$306,000	PhD	None	None
	25-2022	Middle School Teachers, Except Special and Career/Technical Education	5,604	\$74,200	\$51,700	\$85,500	\$51,500	\$54,700	\$68,400	\$87,900	\$105,500	BA	None	None
	21-1021	Child, Family, and School Social Workers	4,781	\$74,300	\$49,800	\$86,600	\$48,800	\$54,500	\$71,400	\$89,100	\$103,400	BA	None	None
Gateway	33-9032	Security Guards	8,505	\$51,100	\$37,700	\$57,900	\$36,100	\$41,000	\$46,600	\$61,500	\$67,900	HS/GED	None	Short-term OJT
	21-1093	Social and Human Service Assistants	6,861	\$48,900	\$39,100	\$53,800	\$38,200	\$41,700	\$47,900	\$52,300	\$61,400	HS/GED	None	Short-term OJT
	25-3021	Self-Enrichment Teachers	5,181	\$51,300	\$34,200	\$59,800	\$30,700	\$39,200	\$47,800	\$60,800	\$81,900	HS/GED	< 5 years	None
	21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	5,166	\$59,100	\$48,300	\$64,500	\$47,100	\$50,900	\$55,400	\$64,000	\$75,900	BA	None	None
	39-9031	Exercise Trainers and Group Fitness Instructors	4,693	\$57,500	\$39,300	\$66,600	\$38,500	\$42,500	\$52,300	\$66,500	\$85,700	HS/GED	None	Short-term OJT
Origin	39-5012	Hairdressers, Hairstylists, and Cosmetologists	5,711	\$43,600	\$27,600	\$51,600	\$25,100	\$29,800	\$37,100	\$58,400	\$65,000	Certificate	None	None
	25-3031	Substitute Teachers, Short-Term	3,515	\$43,500	\$29,500	\$50,600	\$26,600	\$32,600	\$41,000	\$50,500	\$61,200	BA	None	None
	33-2011	Firefighters	2,524	\$53,200	\$33,600	\$63,000	\$32,500	\$36,300	\$42,500	\$68,700	\$82,300	Certificate	None	Long-term OJT
	39-5092	Manicurists and Pedicurists	2,442	\$37,700	\$27,100	\$43,000	\$25,200	\$28,600	\$37,900	\$43,900	\$46,500	Certificate	None	None
	51-6011	Laundry and Dry-Cleaning Workers	1,921	\$37,000	\$32,700	\$39,100	\$31,200	\$35,200	\$36,500	\$38,900	\$42,900	None	None	Short-term OJT

Arts, Communications, and Information Systems

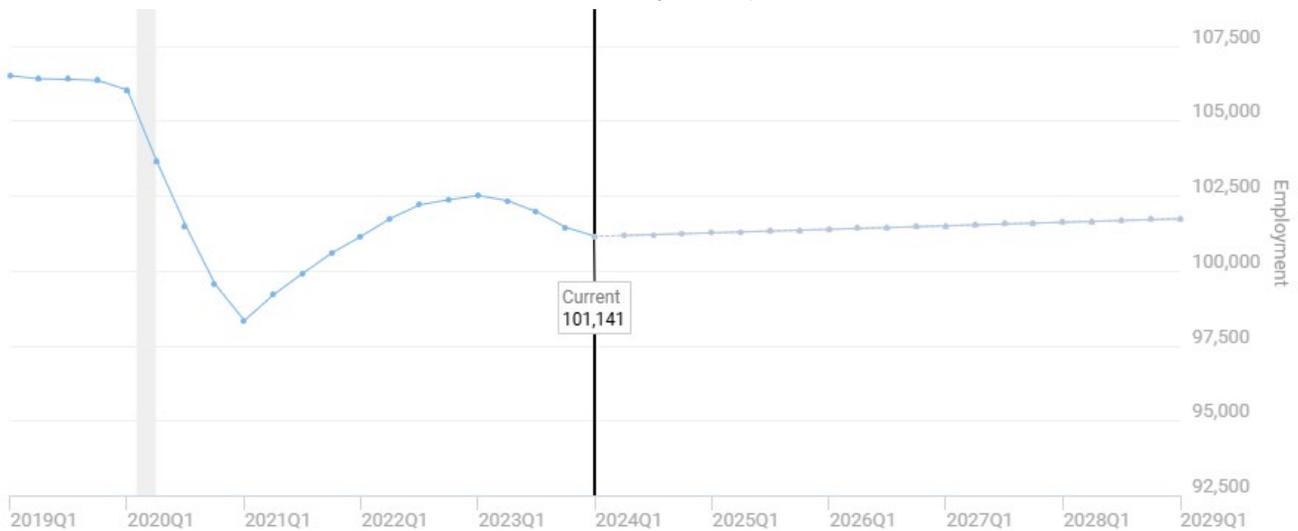
Arts, Communications, and Information Systems is a diverse career field with artistic careers as well as Information Technology career paths. The specific career clusters included in this field are:

- Arts, Audio/Video Technology, and Communications
- Information Technology

EMPLOYMENT FORECAST

Over the next five years, Arts, Communications, and Information Systems Field employment is forecast to grow by 0.2% on average annually, despite a downturn in the past four quarters.

Baseline 5-Year Forecast for Arts, Communications, and Information Systems Careers, MSP Metro Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 101,141 people are employed in Arts, Communications, and Information Systems roles regionally, accounting for about 5% of all regional employment. The field's median wage of \$96,000 is the highest of all career fields, and the field's concentration in the region is slightly above average (LQ 1.20). While most occupations are forecast to remain flat or decline in employment, Information Security Analysts and Software Developers are projected to grow.

Top Ten Arts, Communications, and Information Systems Occupations by Employment Volume, MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Software Developers	26,041	\$132,200	1.43	2,264	9,397	1.5%
Computer User Support Specialists	9,412	\$67,200	1.15	412	2,956	-0.2%
Computer Systems Analysts	9,144	\$113,800	1.55	-679	2,739	0.2%
Computer Network Support Specialists	4,292	\$77,200	2.17	-259	1,426	0.0%
Graphic Designers	4,156	\$66,500	1.37	-410	1,554	-0.4%
Computer Occupations, All Other	3,857	\$105,600	0.78	33	1,205	0.1%
Network and Computer Systems Administrators	3,496	\$106,100	0.92	-383	863	-0.4%
Printing Press Operators	3,485	\$48,600	2.04	-655	1,399	-1.7%
Information Security Analysts	2,134	\$130,600	1.11	326	897	1.9%
Writers and Authors	2,112	\$75,800	1.22	-373	979	-0.3%
Arts, Communications, & Information Systems (CTE Field)	101,141	\$96,000	1.20	-5,355	36,831	0.2%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

The largest share of talent in the MSP Metro working in Arts, Communications, and Information Systems roles are employed in Computer Systems Design and Related Services (15.9%) or Management of Companies and Enterprises (10.1%). Overall, employment in this field is relatively spread out across a number of different industries.

Arts, Communications, and Information Systems Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Computer Systems Design and Related Services	15.9%	16,116	9,972	2,314	12,286
Management of Companies and Enterprises	10.1%	10,229	6,408	621	7,029
Printing and Related Support Activities	5.2%	5,264	4,727	-1,141	3,587
Independent Artists, Writers, and Performers	4.2%	4,220	4,068	-106	3,962
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.8%	3,823	2,181	145	2,326
Insurance Carriers	3.6%	3,618	2,139	132	2,271
Software Publishers	3.4%	3,471	2,132	477	2,609
Management, Scientific, and Technical Consulting Services	2.8%	2,875	1,908	211	2,118
Newspaper, Periodical, Book, and Directory Publishers	2.7%	2,771	2,406	-83	2,323
Computing Infrastructure Providers, Data Processing, Web Hosting, and Related Services	2.5%	2,491	1,538	297	1,835
Advertising, Public Relations, and Related Services	2.3%	2,320	2,009	79	2,087
Employment Services	2.3%	2,313	1,481	-70	1,411
Depository Credit Intermediation	2.3%	2,291	1,329	78	1,407
Professional and Commercial Equipment and Supplies Merchant Wholesalers	2.1%	2,117	1,264	-36	1,228
Colleges, Universities, and Professional Schools	1.8%	1,864	1,235	-85	1,150
Other Professional, Scientific, and Technical Services	1.8%	1,864	1,503	-15	1,488
Religious Organizations	1.8%	1,786	1,829	-84	1,745
Wired and Wireless Telecommunications (except Satellite)	1.4%	1,464	1,160	-67	1,092
Architectural, Engineering, and Related Services	1.4%	1,399	843	37	881
Performing Arts Companies	1.3%	1,291	1,512	-51	1,461
All Others	27.2%	27,553	19,656	44	19,700

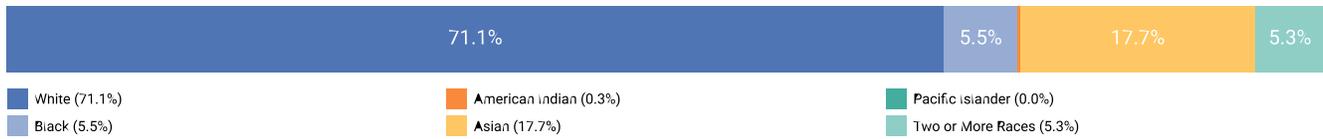
CAREER FIELD DEMOGRAPHICS

- The Arts, Communications, and Information Systems field has an overrepresentation of male (73.0%) and Asian (17.7%) talent compared to the overall workforce, and an underrepresentation of Black (5.5%) and white (71.1%) talent
- Compared to regional workforce as a whole, this field has a significantly smaller share of younger workers under age 25 (by 6.0 percentage points) and a larger share of workers between the ages of 25 and 44 (by 9.2 percentage points)

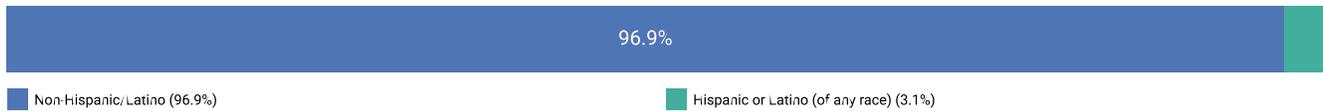
Age



Race



Ethnicity



Gender

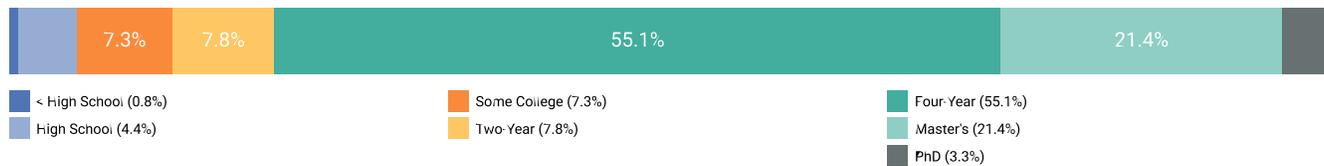


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

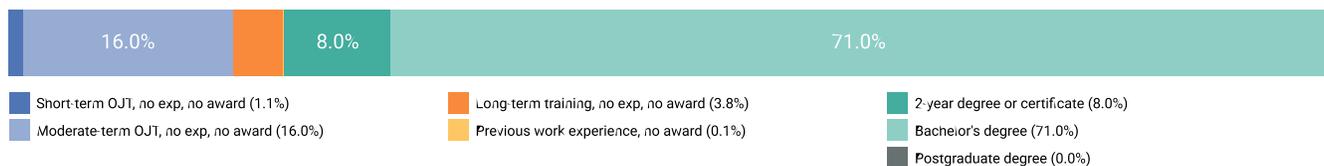
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The MSP Metro Minnesota Arts, Communications, and Information Systems workforce is highly educated—in fact, it is the most highly-educated Arts, Communications, and Information Systems workforce in the state, aligning with high education requirements in local positions
 - Seven out of ten (71%) positions require a bachelor's degree, while an even greater share of the workforce (79.8%) hold a bachelor's degree or higher

Educational Attainment



Education and Training Requirements

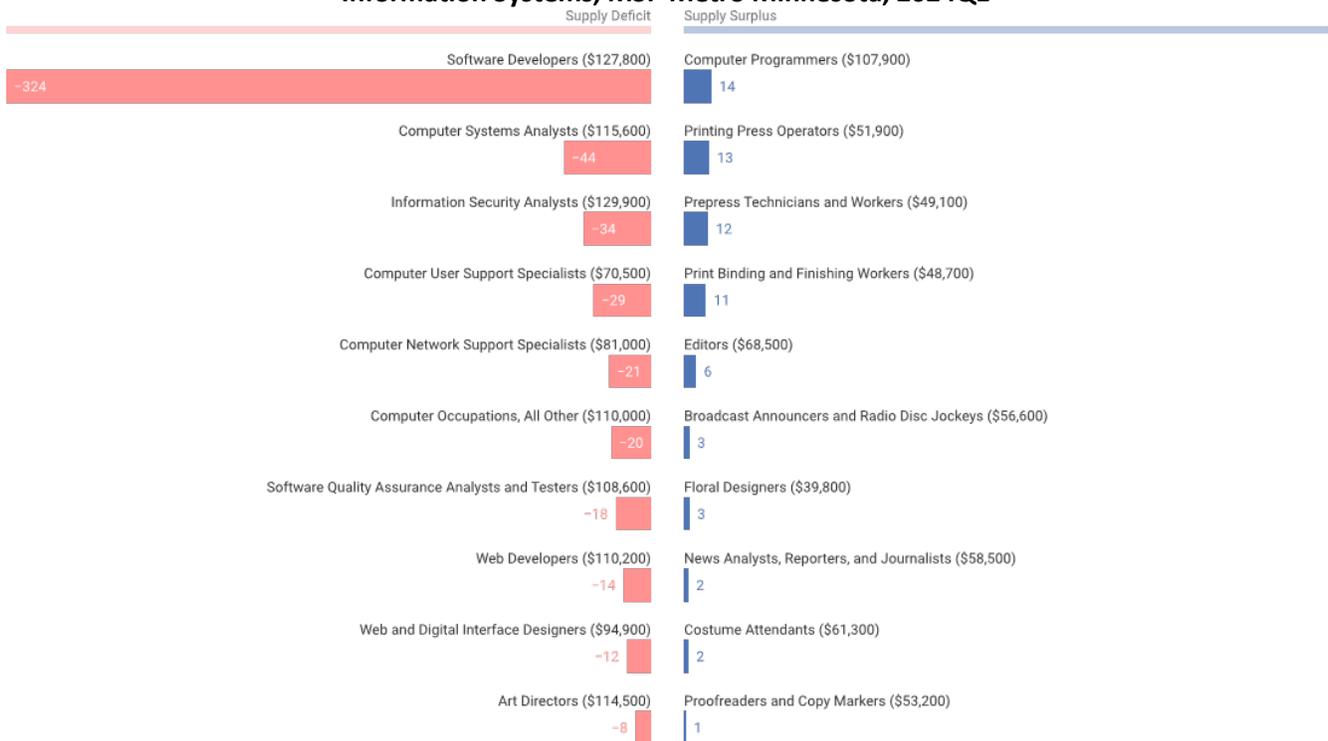


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Software Developers remains the top occupation of shortage in this field, falling short at least 324 skilled workers needed annually (averaged over the next ten years) to meet employer demand across the MSP Metro region. This significant and persistent talent shortage is complex in the landscape of changing employer needs and expectations regarding automation, artificial intelligence, remote work, and more in the tech industry. The Computer Systems Analyst role has the second greatest forecasted shortage for the field, while there are moderate talent surpluses of Computer Programmers and a variety of printing and publishing careers.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Arts, Communications, and Information Systems, MSP Metro Minnesota, 2024Q1



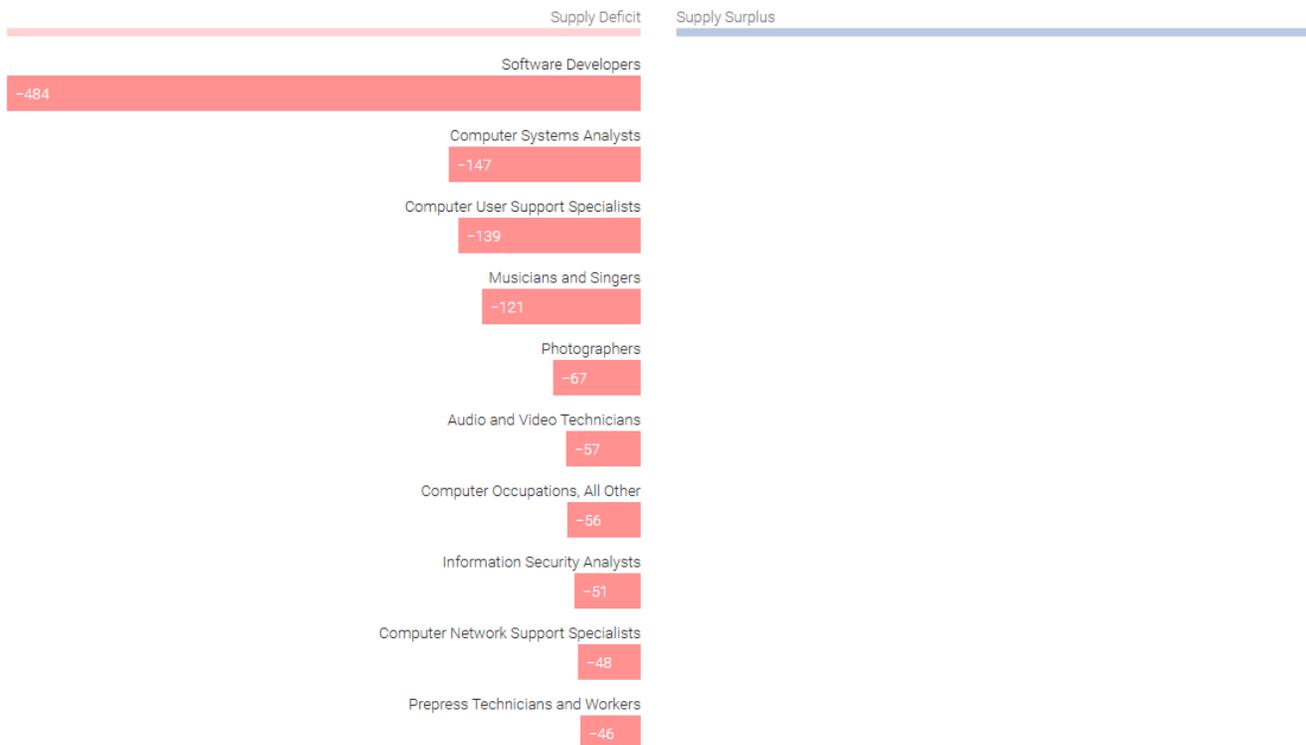
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The MSP Metro is underproducing graduates in several Arts, Communications, and Information Systems programs:

- No occupations in the field are forecasting award surpluses, and only six have sufficient talent to meet demand (neither surplus nor shortage)
- MSP Metro Minnesota colleges and universities are underproducing a significant number of Software Developers (-484) compared to national benchmarks for a metro area of similar size and industry mix. This shortage is likely to have an adverse impact on long-term availability of technology talent in the regional market without expansion of the local graduate talent pool

Award Gaps in Arts, Communications, and Information Systems, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Arts, Communications, and Information Systems, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, OG, AG)

Software Developers
 Computer User Support Specialists
 Computer Systems Analysts
 Computer Occupations, All Other
 Network & Computer Systems Administrators

Gateway Occupations

Printing Press Operators (AG)
 Photographers (OG, AG)
 Prepress Technicians & Workers (AG)
 Print Binding & Finishing Workers
 Audio & Video Technicians (HS, OG, AG)

Origin Occupations

News Analysts, Reporters, & Journalists (HS)
 Floral Designers
 Broadcast Announcers & Radio Disc Jockeys (HS, AG)
 Disc Jockeys, Except Radio (AG)
 Artists & Related Workers, All Other (OG, AG)

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

Featured Pathway

With a projected occupation gap, high wages, high demand, and high local concentration of opportunities, the occupation of Computer Systems Analysts is a promising pathway to explore in the MSP Metro region. There are about 55% more Computer Systems Analysts in the region compared to an average community nationally. The Gateway occupation of Audio and Visual Technicians is a potential feeder occupation for Computer Systems Analysts, but this occupation has a shortfall of graduates in this region as compared to national graduate volumes. This may also be a strong feeder occupation for other local Target occupations; Computer User Support Specialists, and Network and Computer Systems Administrators.



OGT Wages and Experience Level Requirements, Arts, Communications, and Information Systems, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	15-1252	Software Developers	26,041	\$127,800	\$89,000	\$147,200	\$83,200	\$103,000	\$132,200	\$148,600	\$170,500	BA	None	None
	15-1232	Computer User Support Specialists	9,412	\$70,500	\$52,100	\$79,700	\$50,300	\$56,700	\$67,200	\$80,800	\$98,100	Some college	None	Mod-term OJT
	15-1211	Computer Systems Analysts	9,144	\$115,600	\$78,900	\$134,000	\$73,500	\$91,100	\$113,800	\$136,000	\$158,000	BA	None	None
	15-1299	Computer Occupations, All Other	3,857	\$110,000	\$62,900	\$133,500	\$54,100	\$78,800	\$105,600	\$139,000	\$171,400	BA	None	None
	15-1244	Network and Computer Systems Administrators	3,496	\$108,400	\$75,400	\$124,900	\$71,100	\$85,600	\$106,100	\$130,000	\$143,100	BA	None	None
Gateway	51-5112	Printing Press Operators	3,485	\$51,900	\$36,600	\$59,500	\$35,000	\$40,300	\$48,600	\$63,400	\$73,100	HS/GED	None	Mod-term OJT
	27-4021	Photographers	1,772	\$63,700	\$36,300	\$77,300	\$36,100	\$39,200	\$57,200	\$81,100	\$98,100	HS/GED	None	Mod-term OJT
	51-5111	Prepress Technicians and Workers	1,070	\$49,100	\$36,200	\$55,500	\$35,600	\$38,700	\$48,500	\$60,300	\$64,500	Certificate	None	None
	51-5113	Print Binding and Finishing Workers	1,049	\$48,700	\$37,400	\$54,400	\$38,200	\$38,200	\$48,600	\$59,600	\$61,400	HS/GED	None	Mod-term OJT
	27-4011	Audio and Video Technicians	780	\$49,900	\$33,000	\$58,400	\$33,800	\$33,800	\$45,300	\$61,000	\$77,800	Certificate	None	Short-term OJT
Origin	27-3023	News Analysts, Reporters, and Journalists	439	\$58,500	\$37,900	\$68,800	\$38,100	\$38,100	\$41,000	\$74,500	\$87,000	BA	None	None
	27-1023	Floral Designers	418	\$39,800	\$32,700	\$43,400	\$30,100	\$36,600	\$38,800	\$40,100	\$50,200	HS/GED	None	Mod-term OJT
	27-3011	Broadcast Announcers and Radio Disc Jockeys	336	\$56,600	\$33,200	\$68,300	\$32,600	\$35,100	\$40,300	\$63,300	\$100,400	BA	None	None
	27-2091	Disc Jockeys, Except Radio	320	\$61,000	\$29,700	\$76,700	\$25,900	\$33,100	\$42,500	\$68,300	\$116,600	HS/GED	None	Short-term OJT
	27-1019	Artists and Related Workers, All Other	187	\$43,200	\$33,800	\$47,800	\$34,100	\$34,100	\$37,300	\$37,300	\$69,700	None	None	Long-term OJT

Business, Management, and Administration

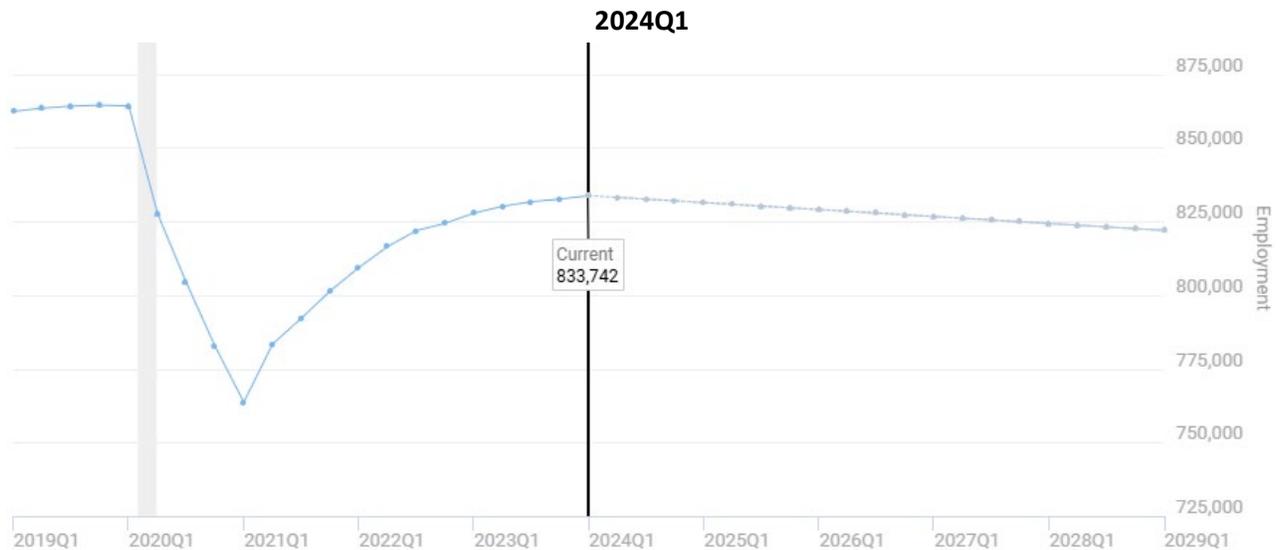
Business, Management, and Administration is a diverse career field with the following career clusters:

- Hospitality and Tourism
- Finance
- Marketing
- Business, Management, and Administration

EMPLOYMENT FORECAST

Over the next five years, Business, Management, and Administration Field employment is forecast to decline by -0.6%, returning the region to a similar trajectory observed five years ago (-0.7% average annual employment decline).

Baseline 5-Year Forecast for Business, Management, and Administration Careers, MSP Metro Minnesota



TOP OCCUPATIONS

A total of 833,742 people are employed in Business, Management and Administration Systems roles regionally, accounting for about 45% of all regional employment. This is the largest career field in the MSP metro area, although its concentration is on par with the average nationally. The field's median wage is \$66,600.

Top Ten Business, Management, and Administration Systems Occupations by Employment Volume in MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
General and Operations Managers	47,759	\$109,100	1.20	6,081	18,243	-0.2%
Retail Salespersons	40,691	\$37,300	0.97	-6,303	27,030	-0.7%
Customer Service Representatives	38,601	\$50,200	1.17	-920	22,116	-1.2%
Office Clerks, General	33,580	\$49,800	1.11	-3,406	16,850	-1.2%
Fast Food and Counter Workers	33,007	\$32,700	0.84	-3,049	36,063	-0.5%
Cashiers	31,354	\$35,600	0.82	-2,868	25,847	-1.6%
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	26,830	\$40,200	0.99	-945	17,617	-0.5%
Stockers and Order Fillers	26,211	\$40,600	0.81	2,632	21,254	0.1%
Waiters and Waitresses	24,223	\$26,000	0.95	-3,106	22,999	-0.9%
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	22,170	\$52,000	0.97	-1,205	9,420	-1.8%
Business, Management, & Administration (CTE Field)	833,742	\$66,600	1.02	-28,608	469,316	-0.6%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

In the MSP Metro, the industry with the greatest share of Business, Management, and Administration talent and greatest forecast demand is Restaurants (12.6%), followed by Management of Companies and Enterprises (6.0%). Beyond these, employment is relatively spread out across different industries.

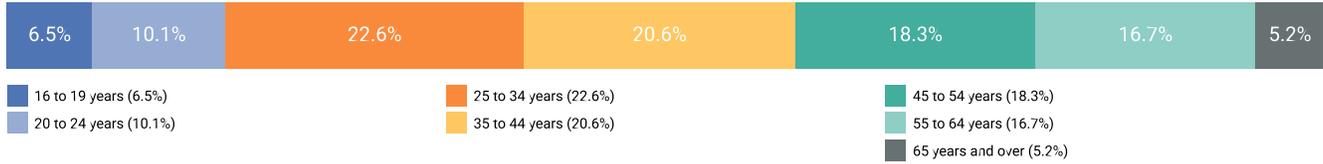
Business, Management, and Administration Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Restaurants and Other Eating Places	12.6%	105,258	190,504	-4,108	186,396
Management of Companies and Enterprises	6.0%	50,252	45,178	-71	45,107
Depository Credit Intermediation	3.1%	26,230	21,620	-2,534	19,086
Insurance Carriers	3.0%	24,949	21,509	-1,573	19,936
Management, Scientific, and Technical Consulting Services	2.7%	22,318	19,278	217	19,495
Grocery and Convenience Retailers	2.5%	20,812	32,415	-1,490	30,925
Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	2.3%	19,264	27,994	-1,457	26,537
Services to Buildings and Dwellings	2.0%	16,279	20,784	-988	19,796
Agencies, Brokerages, and Other Insurance Related Activities	1.8%	14,745	12,993	-124	12,869
Employment Services	1.6%	13,045	14,292	-1,324	12,968
Elementary and Secondary Schools	1.5%	12,425	15,338	-1,301	14,037
Traveler Accommodation	1.5%	12,382	18,249	-260	17,988
Department Stores	1.5%	12,157	17,759	-882	16,877
Computer Systems Design and Related Services	1.4%	11,336	9,851	691	10,541
Other Amusement and Recreation Industries	1.3%	11,212	19,808	316	20,124
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	1.3%	11,026	9,543	-877	8,667
General Medical and Surgical Hospitals	1.3%	10,994	12,662	-973	11,689
Building Material and Supplies Dealers	1.2%	10,407	14,252	-354	13,897
Colleges, Universities, and Professional Schools	1.2%	10,310	10,424	-1,081	9,343
Activities Related to Real Estate	1.2%	9,883	9,429	-287	9,143
All Others	49.0%	408,459	440,830	-26,111	414,720

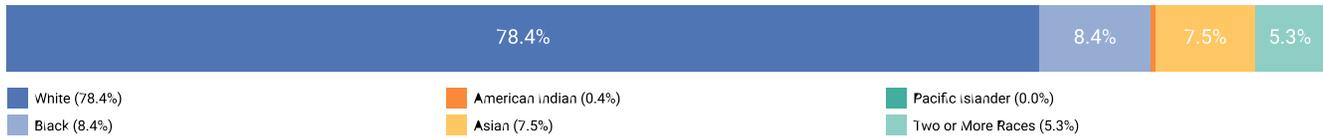
CAREER FIELD DEMOGRAPHICS

- The Business, Management, and Administration field has a similar distribution of talent by age, race, ethnicity, and gender as the overall workforce in the region, but with a slight overrepresentation of female (by 5 percentage points) and white talent (by 1.5 percentage points)
- Compared to the workforce statewide, MSP Metro Minnesota’s Business, Management, and Administration workforce is more diverse by race and ethnicity

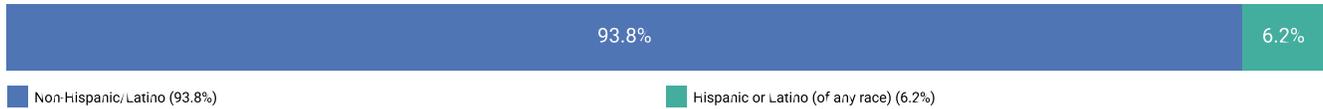
Age



Race



Ethnicity



Gender

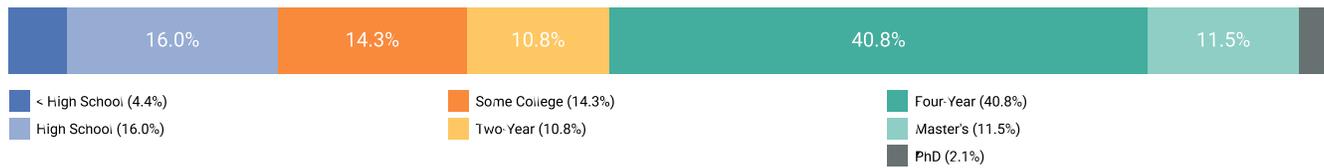


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

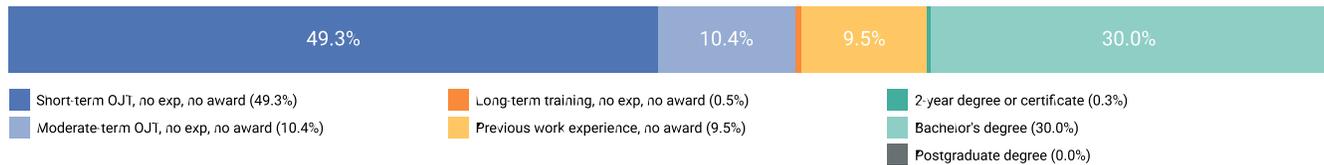
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The MSP Metro Minnesota Business, Management, and Administration workforce generally has higher educational attainment than the mix of education sought for roles in the field
 - Less than one percent (0.3%) of Business, Management, and Administration roles require a certificate or two-year degree, while 15.1% of talent hold some college or a two-year degree as their highest level of education
 - In addition, there are significantly more professionals with a bachelor's degree or higher (54.4%) than typically required across roles regionally (30%)

Educational Attainment



Education and Training Requirements

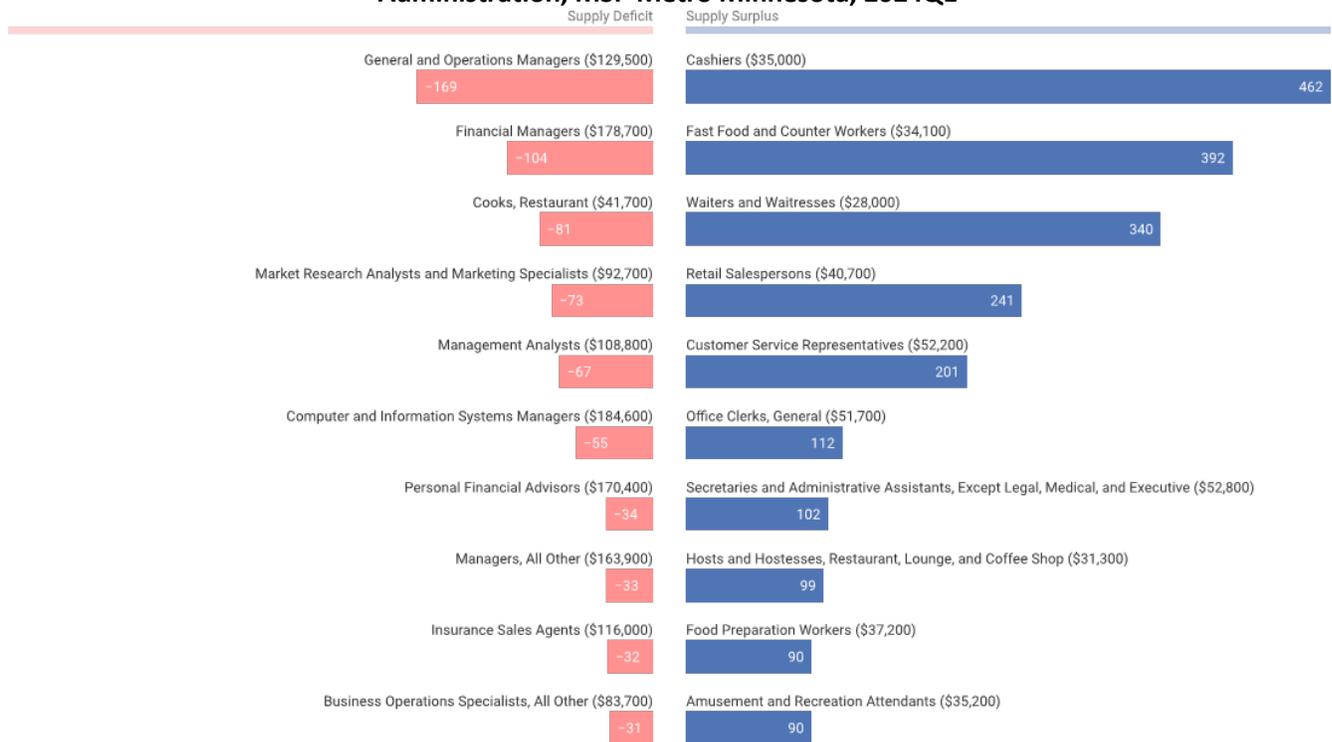


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Many management roles indicate significant shortages in the years ahead, for example, the General and Operations Manager talent pool in this region will likely fall short at least 160 skilled workers needed annually to meet employer demand in the MSP Metro. Occupations shortage forecasts have remained consistent in comparison to 2023 estimates.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Business, Management, and Administration, MSP Metro Minnesota, 2024Q1



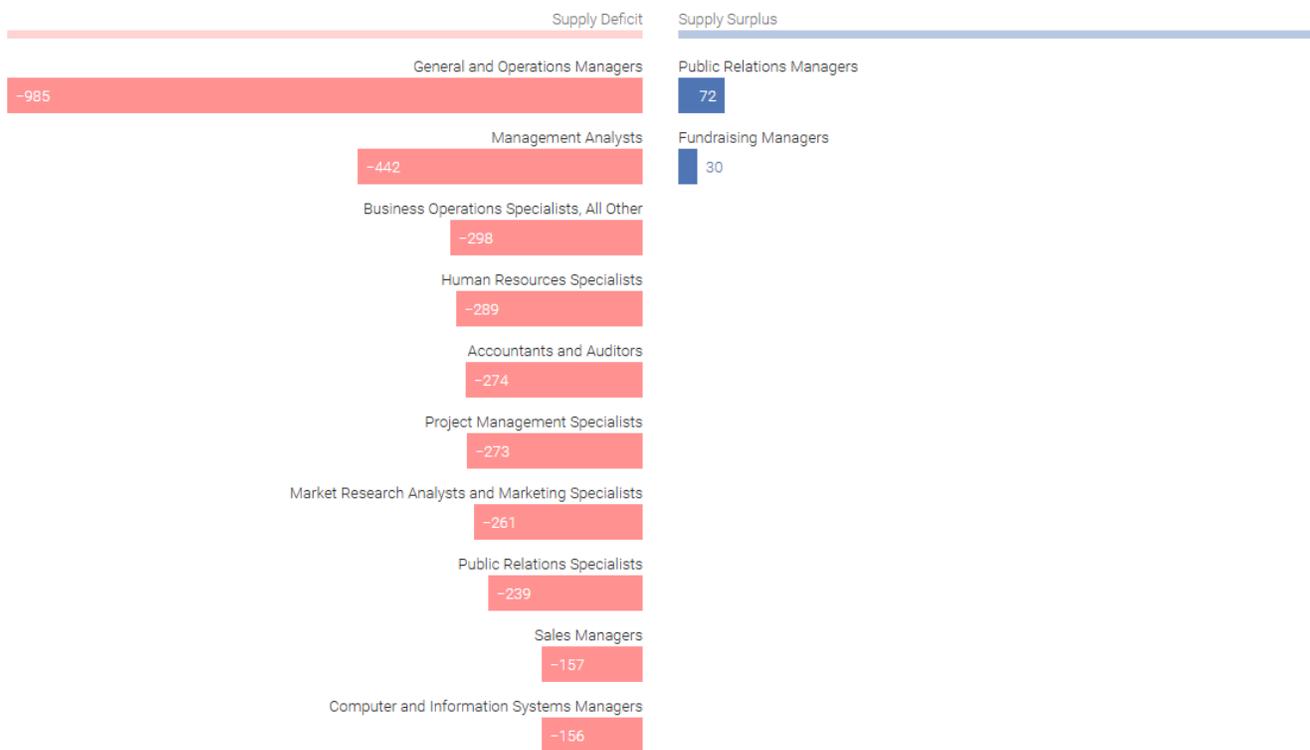
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

The MSP Metro faces several shortages in Business, Management and Administration awards:

- Most notably, regional colleges and universities are underproducing nearly 1,000 graduates annually that are needed to fill General and Operations Manager positions in the MSP Metro alone, a significant increase in award gaps from 2023 and 2022, and compounded by shortages in this occupation in every other region of the state
- Only two occupations have a relative oversupply of new graduates in the MSP Metro compared to national volumes: Public Relations Managers and Fundraising Managers

Award Gaps in Business, Management, and Administration, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Business, Management, and Administration, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, OG, AG)

General & Operations Managers
 Accountants & Auditors
 Market Research Analysts & Marketing Specialists
 Management Analysts
 Business Operations Specialists, All Others

Gateway Occupations (All HD)

Customer Service Representatives (AG)
 Office Clerks, General (AG)
 Secretaries & Administrative Assistants (AG)
 Bookkeeping, Accounting, & Auditing Clerks (HS, AG)
 First-Line Supervisors of Retail Sales Workers

Origin Occupations (All HD)

Retail Salespersons
 Fast Food & Counter Workers
 Cashiers
 Janitors & Cleaners, Except Maids & Housekeeping Cleaners
 Stockers & Order Fillers

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

Other Promising Occupations

A number of other Business, Management, and Administration occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- First-Line Supervisors of Office & Administrative Support Workers (AG)
- Insurance Sales Agents (OG, AG)
- Executive Secretaries & Executive Administrative Assistants (AG)
- Property, Real Estate, & Community Association Managers (OG, AG)
- Food Service Managers (OG, AG)

Featured Pathway

Shortfall of postsecondary graduates have been exacerbated across this career field compared to prior years, with nearly all Target occupations seeing fewer local postsecondary graduates than national averages for a community of the region's size and industry mix. Careers in the Hospitality and Tourism career cluster are overrepresented in the MSP Metro region by about 25% in comparison to the national average; however, this cluster's median annual wages are about \$32,200 and many roles have elevated unemployment rates across the region. Addressing low wages and increasing cross-pathway access to higher-wage, higher-growth

occupations in other Business, Management, and Administration career clusters will ensure that the local hospitality and tourism industries continue to have sustained talent pools.

With a projected occupation gap, a projected award gap, and high demand, the Target occupation of General and Operations Managers is a promising pathway to explore in the MSP Metro region. This occupation is somewhat highly concentrated in the region with a location quotient of 1.2. The Gateway occupation of First-Line Supervisors of Retail Sales Workers is moderately concentrated locally (LQ .87) and is also in high demand. Two Origin occupations with related skillsets in the region are also in high demand—Retail Salespersons and Fast-Food Workers. These retail Origin and Gateway occupations are a potential entry point for the Target occupation of General Operations Managers, recognizing that this role typically has an education requirement of a bachelor’s degree, but that opportunities to expand skill-based hiring are increasing in popularity statewide.



OGT Wages and Experience Level Requirements, Business, Management, and Administration, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	11-1021	General and Operations Managers	47,759	\$129,500	\$58,000	\$165,300	\$51,000	\$71,600	\$109,100	\$166,800	\$227,800	BA	> 5 years	None
	13-2011	Accountants and Auditors	20,350	\$92,900	\$59,800	\$109,500	\$56,800	\$67,300	\$84,000	\$106,000	\$139,200	BA	None	None
	13-1161	Market Research Analysts and Marketing Specialists	16,692	\$92,700	\$55,600	\$111,200	\$51,500	\$65,000	\$85,300	\$115,900	\$141,400	BA	None	None
	13-1111	Management Analysts	16,162	\$108,800	\$69,500	\$128,400	\$65,400	\$79,800	\$101,800	\$133,600	\$171,900	BA	< 5 years	None
	13-1199	Business Operations Specialists, All Other	12,906	\$83,700	\$53,000	\$99,000	\$49,400	\$61,000	\$77,300	\$102,900	\$134,500	BA	None	None
Gateway	43-4051	Customer Service Representatives	38,601	\$52,200	\$38,100	\$59,300	\$36,900	\$41,400	\$50,200	\$61,200	\$69,400	HS/GED	None	Short-term OJT
	43-9061	Office Clerks, General	33,580	\$51,700	\$37,600	\$58,800	\$36,100	\$41,400	\$49,800	\$60,300	\$68,500	HS/GED	None	Short-term OJT
	43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	22,170	\$52,800	\$42,100	\$58,100	\$39,400	\$46,900	\$52,000	\$60,000	\$65,300	HS/GED	None	Short-term OJT
	43-3031	Bookkeeping, Accounting, and Auditing Clerks	19,297	\$57,400	\$43,000	\$64,500	\$40,100	\$48,400	\$55,200	\$64,100	\$76,500	Some college	None	Mod-term OJT
	41-1011	First-Line Supervisors of Retail Sales Workers	13,563	\$56,600	\$41,400	\$64,200	\$39,800	\$45,000	\$51,300	\$63,800	\$80,200	HS/GED	< 5 years	None
Origin	41-2031	Retail Salespersons	40,691	\$40,700	\$31,000	\$45,500	\$30,400	\$32,600	\$37,300	\$40,400	\$51,300	None	None	Short-term OJT
	35-3023	Fast Food and Counter Workers	33,007	\$34,100	\$29,300	\$36,500	\$28,800	\$30,500	\$32,700	\$37,600	\$39,400	None	None	Short-term OJT
	41-2011	Cashiers	31,354	\$35,000	\$30,200	\$37,400	\$29,900	\$31,500	\$35,600	\$37,500	\$39,800	None	None	Short-term OJT
	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	26,830	\$41,900	\$33,400	\$46,100	\$31,500	\$36,700	\$40,200	\$46,800	\$55,000	None	None	Short-term OJT
	53-7065	Stockers and Order Fillers	26,211	\$42,600	\$34,200	\$46,700	\$32,500	\$37,300	\$40,600	\$46,100	\$55,700	HS/GED	None	Short-term OJT

Engineering, Manufacturing, and Technology

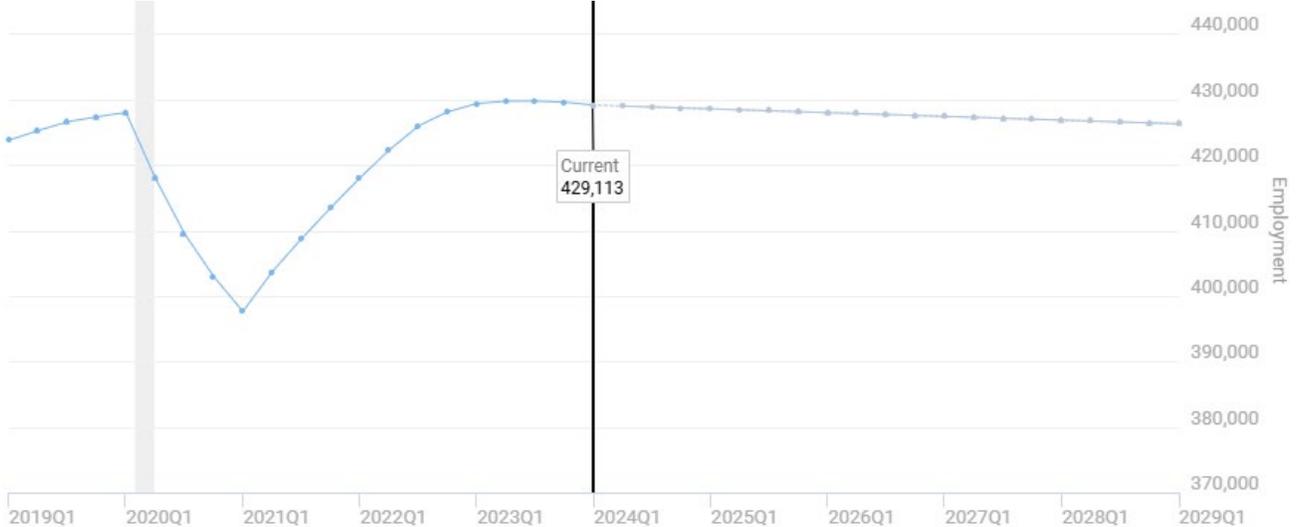
Engineering, Manufacturing, and Technology is a wide career field with the following career clusters:

- Transportation, Distribution, and Logistics
- Architecture and Construction
- Manufacturing
- Science, Technology, Engineering, and Mathematics

EMPLOYMENT FORECAST

Over the next five years, this career field's employment is forecast to decline slightly (-0.3% annually), breaking trend with the 0.3% average annual growth in the field's employment observed regionally over the past five years.

5-Year Forecast for Engineering, Manufacturing, and Technology Careers, MSP Metro Minnesota 2024Q1



TOP OCCUPATIONS

A total of 429,113 people are employed in Engineering, Manufacturing, and Technology roles regionally, accounting for about 23% of all regional employment. Light Truck Drivers and Industrial Engineers have the highest forecast growth of the top ten occupations, at 0.5% and 0.6%, respectively.

Top Ten Engineering, Manufacturing, and Technology Occupations by Employment Volume, MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Laborers and Freight, Stock, and Material Movers, Hand	32,508	\$48,100	0.99	599	20,763	-0.1%
Heavy and Tractor-Trailer Truck Drivers	19,965	\$65,300	0.80	1,478	10,241	-0.1%
Maintenance and Repair Workers, General	17,475	\$59,500	0.95	71	7,605	-0.2%
Team Assemblers	14,920	\$46,400	1.07	519	7,155	-1.4%
Construction Laborers	14,515	\$63,200	0.88	1,148	6,211	0.0%
Light Truck Drivers	13,069	\$50,400	1.02	294	7,215	0.5%
Landscaping and Groundskeeping Workers	11,071	\$48,400	0.83	-331	6,988	-0.1%
Carpenters	10,965	\$74,700	1.02	-126	4,225	-0.4%
Industrial Engineers	10,110	\$106,000	2.67	1,515	3,084	0.6%
First-Line Supervisors of Production and Operating Workers	7,494	\$80,700	0.97	99	3,191	-0.5%
Engineering, Manufacturing, & Technology (CTE Field)	429,113	\$67,100	0.95	5,353	202,671	-0.3%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

Many different industries employ Engineering, Manufacturing, and Technology talent in the MSP Metro region. Locally, the industries with the greatest share of this field's talent are Employment Services (4.5%) and Building Equipment Contractors (4.4%). Most industries employing talent in this field touch less than 3% of total talent skilled in this field, suggesting that education and training programs will need to build broad strategies that cross each of these sectors.

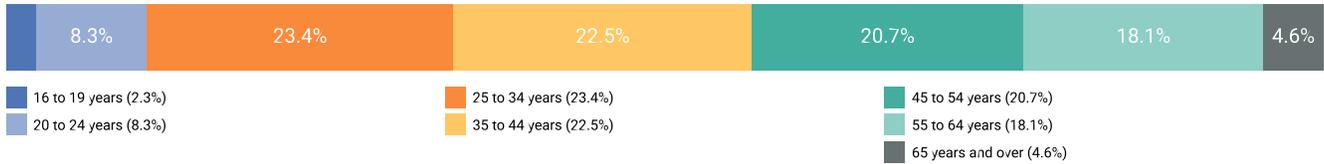
Engineering, Manufacturing, and Technology Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Employment Services	4.5%	19,464	21,612	-1,207	20,405
Building Equipment Contractors	4.4%	19,070	16,346	-272	16,074
Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.1%	13,392	11,069	-755	10,313
Architectural, Engineering, and Related Services	3.0%	12,837	9,382	-433	8,949
Building Finishing Contractors	2.8%	12,106	9,518	-412	9,106
Medical Equipment and Supplies Manufacturing	2.8%	12,067	11,543	-647	10,896
General Freight Trucking	2.4%	10,148	10,439	-208	10,232
Management of Companies and Enterprises	2.3%	9,795	8,403	363	8,767
Couriers and Express Delivery Services	2.2%	9,529	11,101	1,043	12,144
Scheduled Air Transportation	2.2%	9,448	10,673	-267	10,406
Foundation, Structure, and Building Exterior Contractors	2.0%	8,663	7,126	-165	6,961
Services to Buildings and Dwellings	2.0%	8,408	9,921	-223	9,698
Residential Building Construction	2.0%	8,407	6,780	-148	6,632
Automotive Repair and Maintenance	2.0%	8,376	7,957	-167	7,790
Warehousing and Storage	1.9%	8,224	10,286	1,600	11,887
Other Specialty Trade Contractors	1.9%	8,141	7,015	-92	6,922
Plastics Product Manufacturing	1.8%	7,591	7,468	-378	7,089
Nonresidential Building Construction	1.7%	7,116	5,665	-228	5,437
Executive, Legislative, and Other General Government Support	1.5%	6,523	6,008	-116	5,892
Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	1.5%	6,469	6,199	-215	5,984
All Others	52.0%	223,336	222,046	-7,632	214,414

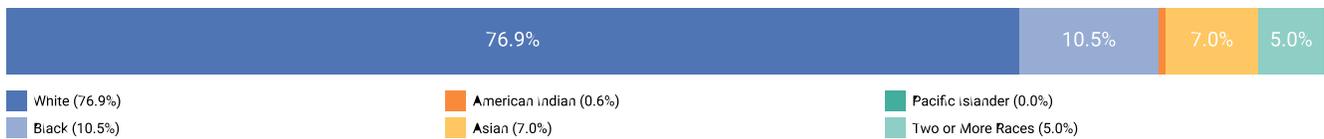
CAREER FIELD DEMOGRAPHICS

- The Engineering, Manufacturing, and Technology field is heavily male (81.0%) and has an overrepresentation of Hispanic/Latine workers (9.5%) compared to the overall regional workforce (6.4%)
- This field has a slightly older workforce than others in the region; 43.4% of workers this field are 45 years or older (higher than the overall workforce by 1.8 percentage points) signaling potential exacerbation of the talent shortage with further waves of retirements

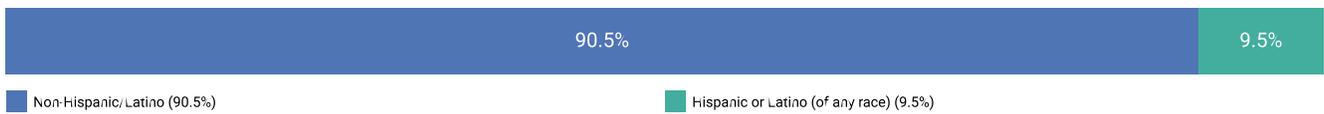
Age



Race



Ethnicity



Gender



EDUCATIONAL ATTAINMENT AND REQUIREMENTS

The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The MSP Metro region’s Engineering, Manufacturing, and Technology workforce has a similar level of educational attainment to the requirements in the field, with a large share of roles requiring no more than a high school diploma and some relevant work experience, but generally higher educational attainment in this region compared to others
 - Just over half (55.9%) of Engineering, Manufacturing, and Technology talent working in the region do not hold a postsecondary credential beyond a certificate, while 75.9% of positions in this field require no postsecondary credential
 - The share of the workforce with a two-year credential in the region (12.6%) are closely aligned with industry demand (11.3% of positions require a two-year credential or certificate)

Educational Attainment



Education and Training Requirements

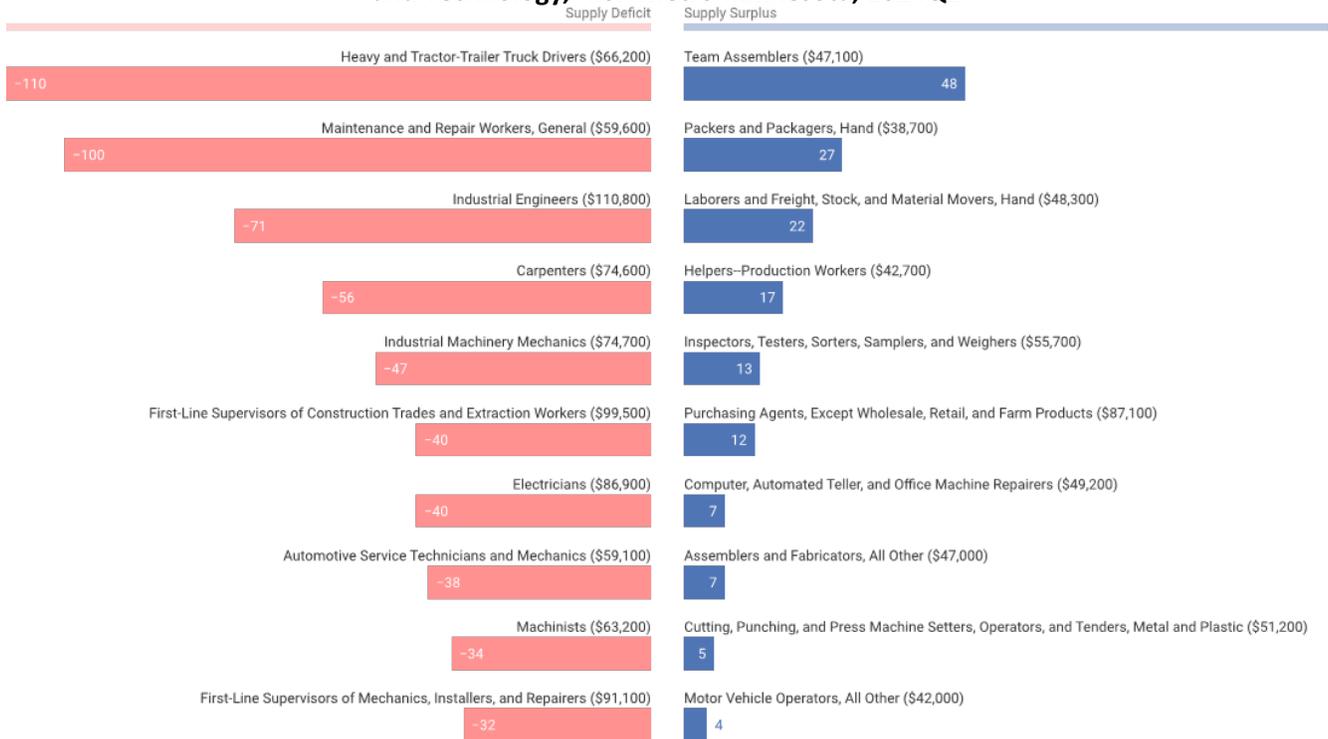


OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Many transportation, manufacturing, and trades roles continue to signal shortages in the years ahead, with the Heavy Truck Driver talent pool likely falling short at least 110 skilled workers needed annually to meet employer demand, growing in intensity from the prior year. A number of entry-level production and manufacturing occupations are forecasting small talent surpluses in the region under current talent pipeline forecasts.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Engineering, Manufacturing, and Technology, MSP Metro Minnesota, 2024Q1



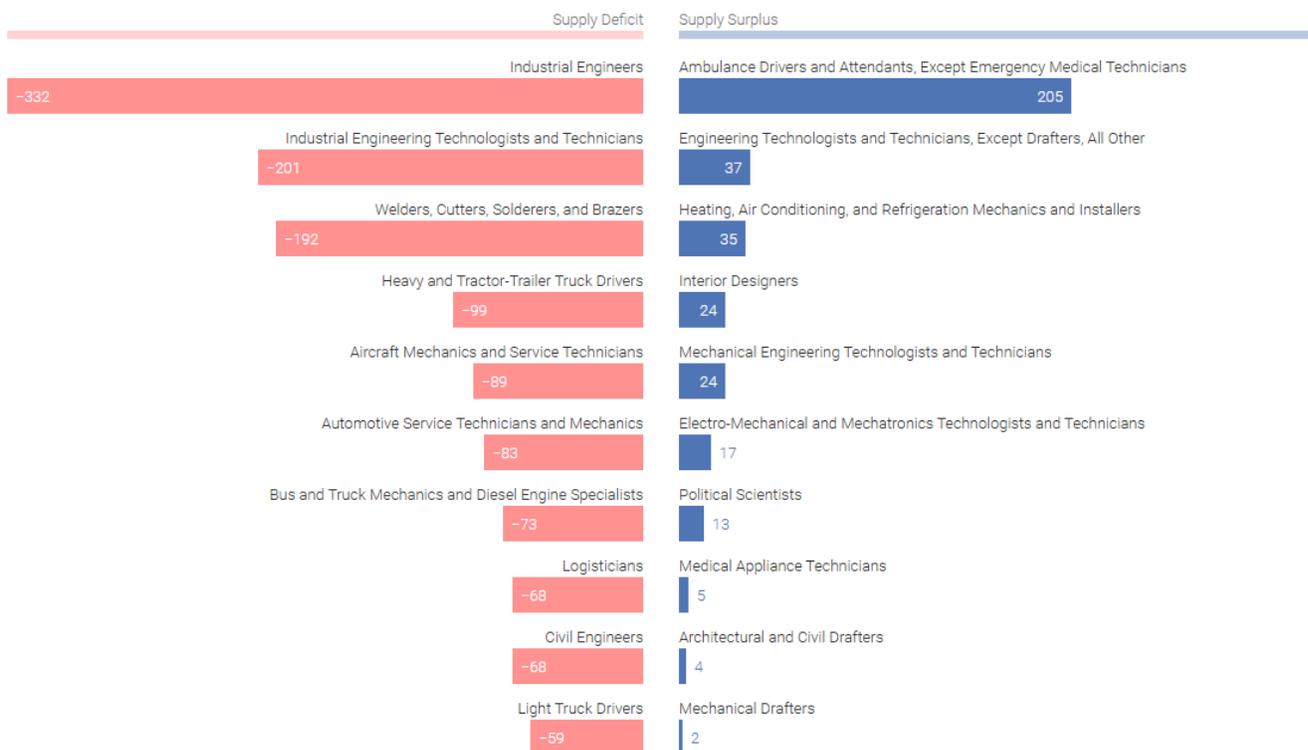
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

MSP Metro Minnesota faces many Engineering, Manufacturing and Technology award shortages and generates a surplus of graduates in several specialized occupations:

- Postsecondary institutions based in the MSP Metro region continue to underproduce Industrial Engineers, Industrial Engineering Technologists, Welders, and Heavy and Tractor-Trailer Truck Drivers as compared with national volumes of new graduates for a region of equivalent size and industry mix
- Occupations such as Ambulance Drivers, Other Engineering Technologists, and HVAC Installers all show higher awards conferred in the region than what is currently needed in the local talent market; these programs likely serve other parts of the state and the Midwest where talent demand is high but relevant programs may not exist

Award Gaps in Engineering, Manufacturing, and Technology, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Engineering, Manufacturing, and Technology, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HS, HD, AG)

Heavy & Tractor-Trailer Truck Drivers (OG)
 Industrial Engineers (OG)
 Automotive Services Technicians & Mechanics (OG)
 Construction Managers (OG)
 Purchasing Agents, Except Wholesale, Retail, & Farm Products

Gateway Occupations

Laborers & Freight, Stock & Material Movers, Hand (HD)
 Team Assemblers
 Light Truck Drivers (HD, AG)
 Landscaping & Groundskeeping Workers (HD, AG)
 Inspectors, Testers, Sorters, Samplers, & Weighers (HD)

Origin Occupations

Packers & Packagers, Hand
 Packaging & Filling Machine Operators & Tenders (OG)
 Cleaners of Vehicles & Equipment
 Shuttle Drivers & Chauffeurs (HD, AG)
 Couriers & Messengers

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

Other Promising Occupations

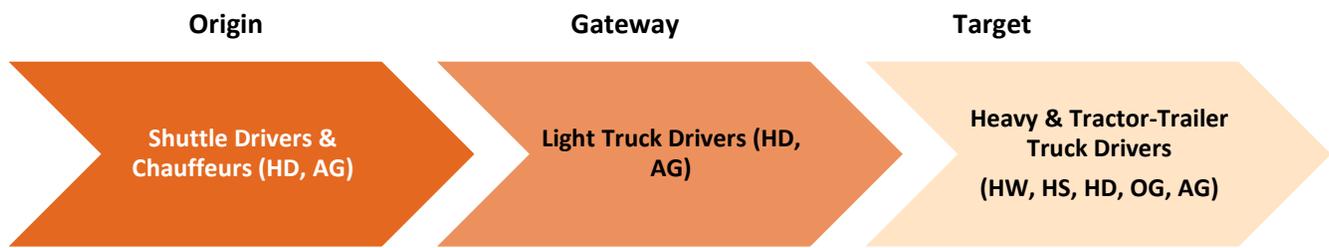
Several other Engineering, Manufacturing, and Technology occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Maintenance & Repair Workers, General (OG)
- First-Line Supervisors of Production & Operating Workers (OG)
- Electricians (OG)
- Machinists (OG, AG)
- First-line Supervisors of Mechanics, Installers, & Repairers (OG)

Featured Pathway

Careers in the Transportation Pathway are highly concentrated in the MSP Metro region and in high demand. With a projected occupation gap, a projected award gap, and high demand, expanding opportunities for talent to enter Heavy & Tractor-Trailer Truck Driver careers should be considered in the MSP Metro region. The related Gateway occupation of Light Truck Drivers has an average concentration in the region (location quotient of 1.02). The Origin occupation of Shuttle Drivers and Chauffeurs is in high demand and highly

concentrated in the region with a location quotient of 1.32. It could serve as a strong entry point into this pathway given the overlap in skillsets.



OGT Wages and Experience Level Requirements, Engineering, Manufacturing, and Technology, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	53-3032	Heavy and Tractor-Trailer Truck Drivers	19,965	\$66,200	\$51,600	\$73,500	\$50,200	\$55,500	\$65,300	\$73,400	\$85,200	Certificate	None	Short-term OJT
	17-2112	Industrial Engineers	10,110	\$110,800	\$80,700	\$125,900	\$79,800	\$85,900	\$106,000	\$133,600	\$146,800	BA	None	None
	49-3023	Automotive Service Technicians and Mechanics	7,314	\$59,100	\$41,000	\$68,100	\$39,400	\$45,700	\$59,500	\$66,900	\$82,100	Certificate	None	Short-term OJT
	11-9021	Construction Managers	4,436	\$123,800	\$86,700	\$142,400	\$83,600	\$94,600	\$111,700	\$140,600	\$176,500	BA	None	Mod-term OJT
	13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4,433	\$87,100	\$57,200	\$102,000	\$53,700	\$65,600	\$82,700	\$104,000	\$133,400	BA	None	Mod-term OJT
Gateway	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	32,508	\$48,300	\$38,600	\$53,200	\$38,000	\$40,800	\$48,100	\$52,500	\$62,300	None	None	Short-term OJT
	51-2092	Team Assemblers	14,920	\$47,100	\$38,700	\$51,300	\$38,600	\$40,100	\$46,400	\$50,200	\$60,200	HS/GED	None	Mod-term OJT
	53-3033	Light Truck Drivers	13,069	\$53,700	\$39,000	\$61,100	\$35,400	\$45,000	\$50,400	\$61,300	\$78,800	HS/GED	None	Short-term OJT
	37-3011	Landscaping and Groundskeeping Workers	11,071	\$46,800	\$34,600	\$52,900	\$31,800	\$39,300	\$48,400	\$51,400	\$60,400	None	None	Short-term OJT
	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	6,480	\$55,700	\$43,000	\$62,100	\$40,400	\$47,700	\$53,100	\$63,400	\$72,200	HS/GED	None	Mod-term OJT
Origin	53-7064	Packers and Packagers, Hand	5,860	\$38,700	\$29,400	\$43,400	\$28,700	\$31,000	\$39,700	\$42,400	\$47,300	None	None	Short-term OJT
	51-9111	Packaging and Filling Machine Operators and Tenders	3,820	\$46,700	\$37,700	\$51,300	\$37,400	\$39,200	\$44,900	\$52,100	\$62,700	HS/GED	None	Mod-term OJT
	53-7061	Cleaners of Vehicles and Equipment	3,545	\$41,600	\$33,100	\$45,800	\$33,000	\$34,400	\$39,500	\$47,500	\$50,100	None	None	Short-term OJT
	53-3053	Shuttle Drivers and Chauffeurs	3,465	\$40,700	\$32,300	\$44,900	\$31,100	\$34,900	\$40,600	\$46,700	\$48,500	None	None	Short-term OJT
	43-5021	Couriers and Messengers	2,554	\$45,300	\$32,600	\$51,600	\$30,800	\$35,900	\$43,200	\$51,200	\$65,500	HS/GED	None	Short-term OJT

Agriculture, Food, and Natural Resources

Agriculture, Food, and Natural Resources is a wide career field that includes eight career pathways:

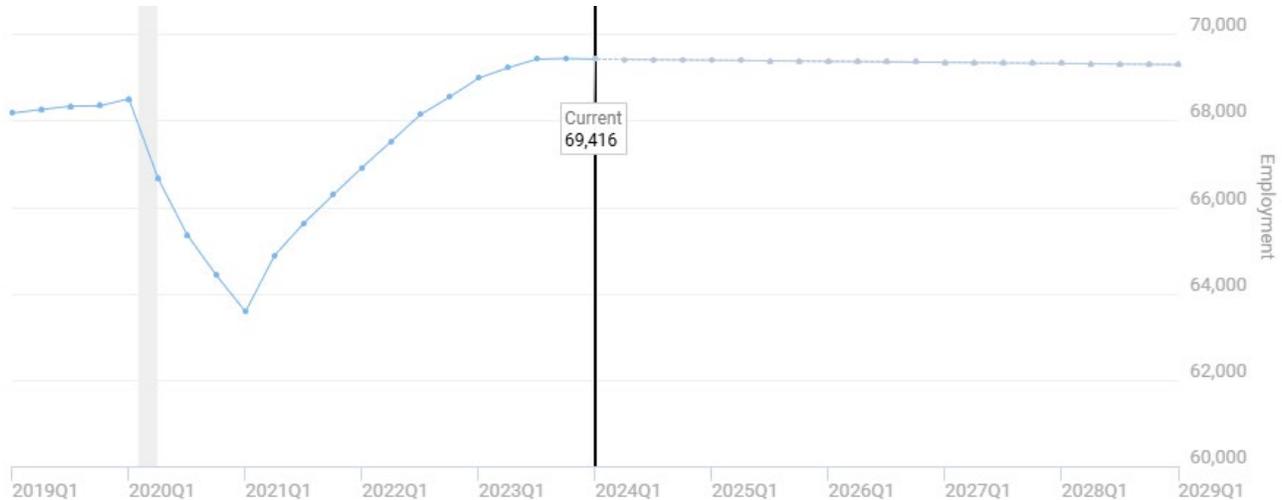
- Food Products and Processing Systems
- Plant Systems
- Animal Systems
- Natural Resources Systems
- Agribusiness Systems
- Environmental Services Systems
- Power, Structural and Technical Systems
- Biotechnology Systems

These roles represent positions that are at least 50% or more concentrated in Agriculture, Food, and Natural Resources industries, and as such exclude some occupations that are critical to the industry but may have smaller in-industry employment numbers (such as Ag Loan Officers, Ag Financing, or some trades). This career field is the only one of the six Career and Technical Education career fields that has overlapping occupations with other fields.

EMPLOYMENT FORECAST

Over the next five years, this career field's employment is forecast to decline by about -0.1% on average annually in the MSP Metro region, following three years of considerable growth since the pandemic.

5-Year Forecast for Agriculture, Food, and Natural Resources Careers, MSP Metro Minnesota, 2024Q1



TOP OCCUPATIONS

A total of 69,416 people are employed in Agriculture, Food, and Natural Resources roles regionally, accounting for about 4% of all regional employment. This is the smallest CTE Career Field in the MSP Metro region. While most occupations are forecast to decline, Animal Caretakers are projected to grow by 1.0% annually over the next five years, and Veterinary Technologists and Technicians by 1.3% annually.

Top Ten Agriculture, Food, and Natural Resources Occupations by Employment Volume, MSP Metro Minnesota, 2024Q1

6-Digit Occupation	Empl	Median Wages	LQ	Historical 5-Year Empl Change	Forecast 5-Year Demand	Forecast Annual Change
Landscaping and Groundskeeping Workers	11,071	\$48,400	0.83	-331	6,988	-0.1%
Plumbers, Pipefitters, and Steamfitters	5,073	\$99,300	0.91	301	2,067	-0.3%
Animal Caretakers	3,620	\$36,600	0.93	467	3,586	1.0%
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3,199	\$81,000	0.67	569	1,331	0.0%
Food Batchmakers	2,197	\$41,600	1.12	191	1,670	0.3%
Bakers	2,141	\$41,300	0.86	95	1,544	-0.1%
Veterinary Technologists and Technicians	2,030	\$49,500	1.46	379	1,106	1.3%
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,998	\$35,100	0.31	189	1,390	-0.5%
Aircraft Mechanics and Service Technicians	1,858	\$86,700	1.07	106	626	-0.3%
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	1,730	\$74,700	0.65	40	860	-0.2%
Agriculture, Food, and Natural Resources (CTE Field)	69,416	\$67,600	0.72	1,249	37,881	-0.1%

"Forecast 5-Year Demand" is the projected need for new entrants into an occupation over the next five years. New entrants are needed due to expected growth and to replace workers who left the occupation due to factors such as retirement or switching careers.

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

TOP INDUSTRIES

Many different industries employ Agriculture, Food, and Natural Resources talent in the MSP Metro. Locally, the industries with the greatest share of this field's talent are Services to Buildings and Dwellings (11.5%) and Building Equipment Contractors (10.1%). Overall, employment in this field is relatively spread out across many different industries.

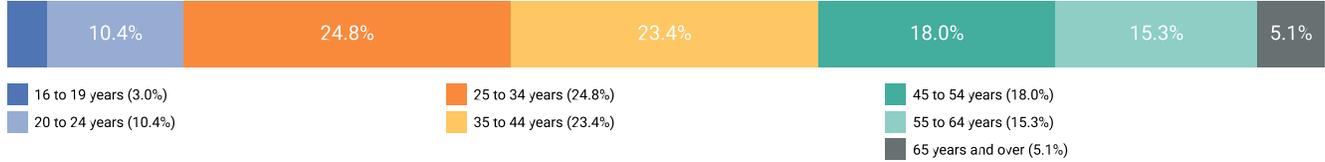
Agriculture, Food, and Natural Resources Field Employment by Industry, MSP Metro Minnesota, 2024Q1

Industry Title	% of Career Field Empl	Career Field Empl	10-Year Separations	10-Year Empl Change	10-Year Total Demand
Services to Buildings and Dwellings	11.5%	7,981	9,776	-176	9,600
Building Equipment Contractors	10.1%	7,020	5,978	-85	5,894
Other Professional, Scientific, and Technical Services	6.0%	4,163	4,656	637	5,293
Other Personal Services	4.0%	2,774	4,952	380	5,332
Architectural, Engineering, and Related Services	4.0%	2,757	2,380	-76	2,304
Executive, Legislative, and Other General Government Support	3.4%	2,338	2,325	-74	2,250
Colleges, Universities, and Professional Schools	3.2%	2,253	2,125	-78	2,047
Other Amusement and Recreation Industries	2.8%	1,916	2,430	89	2,520
Greenhouse, Nursery, and Floriculture Production	2.5%	1,766	2,353	1	2,354
Grocery and Convenience Retailers	2.4%	1,686	2,054	-118	1,936
Bakeries and Tortilla Manufacturing	2.2%	1,502	2,206	47	2,253
Restaurants and Other Eating Places	2.1%	1,485	1,918	-6	1,911
Electric Power Generation, Transmission and Distribution	1.9%	1,349	1,034	-161	873
Management of Companies and Enterprises	1.9%	1,328	1,173	17	1,191
Employment Services	1.9%	1,304	1,446	-82	1,364
Management, Scientific, and Technical Consulting Services	1.9%	1,289	1,110	32	1,142
Scientific Research and Development Services	1.7%	1,184	1,045	6	1,051
Justice, Public Order, and Safety Activities	1.5%	1,053	1,009	-64	945
Scheduled Air Transportation	1.3%	878	616	-43	573
Wired and Wireless Telecommunications (except Satellite)	1.2%	848	811	4	814
All Others	32.5%	22,543	24,863	-617	24,245

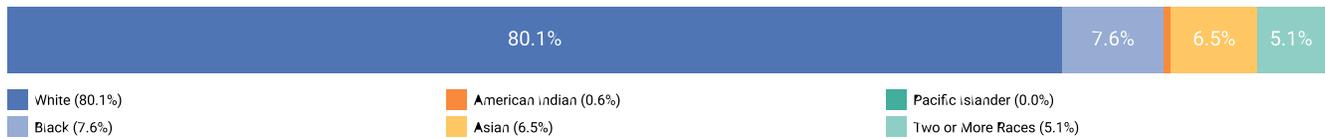
CAREER FIELD DEMOGRAPHICS

- The Agriculture, Food, and Natural Resources field remains predominantly male (71.5%) and white (80.1%), with a greater representation of these demographics in the field than observed across the region’s workforce overall
- The field also has a significant overrepresentation of Hispanic/Latine talent (10.4%) compared to the region’s workforce overall (6.4%)
- A larger share of workers in the Agriculture, Food, and Natural Resources careers are between the ages of 20 and 34 (35.2%) compared to the region’s workforce overall (32.1%)

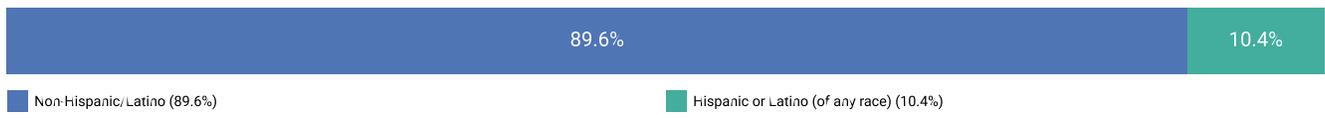
Age



Race



Ethnicity



Gender

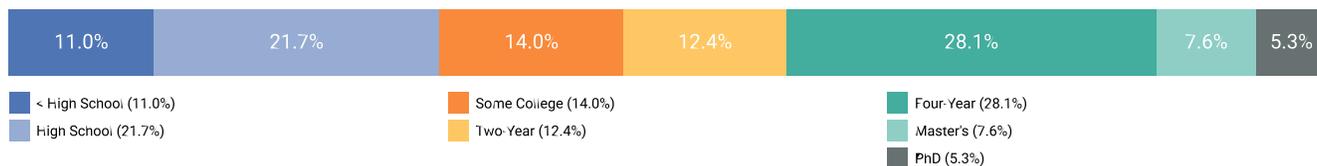


EDUCATIONAL ATTAINMENT AND REQUIREMENTS

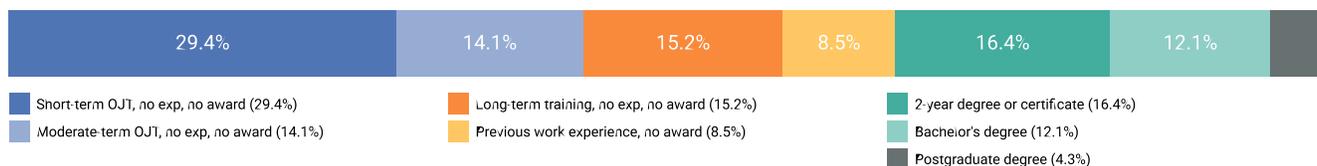
The charts below illustrate the estimated educational attainment of current workers in this career field, followed by the typical education and training requirements in the field.

- The MSP Metro Minnesota Agriculture, Food, and Natural Resources workforce has a higher level of educational attainment on average than is typically required for positions in the field
 - 28.1% of Agriculture, Food, and Natural Resources talent working in the region hold a bachelor’s degree as their highest level of educational attainment, while only 12.1% of positions in the field require a bachelor’s degree
 - Similarly, 12.9% of regional workers in the field hold a postgraduate degree, while only 4.3% of the field’s positions typically require postgraduate degrees

Educational Attainment



Education and Training Requirements



OCCUPATION GAPS

The chart below shows the potential average annual talent shortages over ten years.

Top talent shortages in the region are concentrated in the Animal Systems, Agribusiness Systems, and the Power, Structural and Technical Systems pathways. While forecasted growth across the field is flat, there is significant continued replacement demand for talent.

Annual Average Occupation Gaps (i.e. Talent Shortages) for the next 10 Years in Agriculture, Food, and Natural Resources, MSP Metro Minnesota, 2024Q1



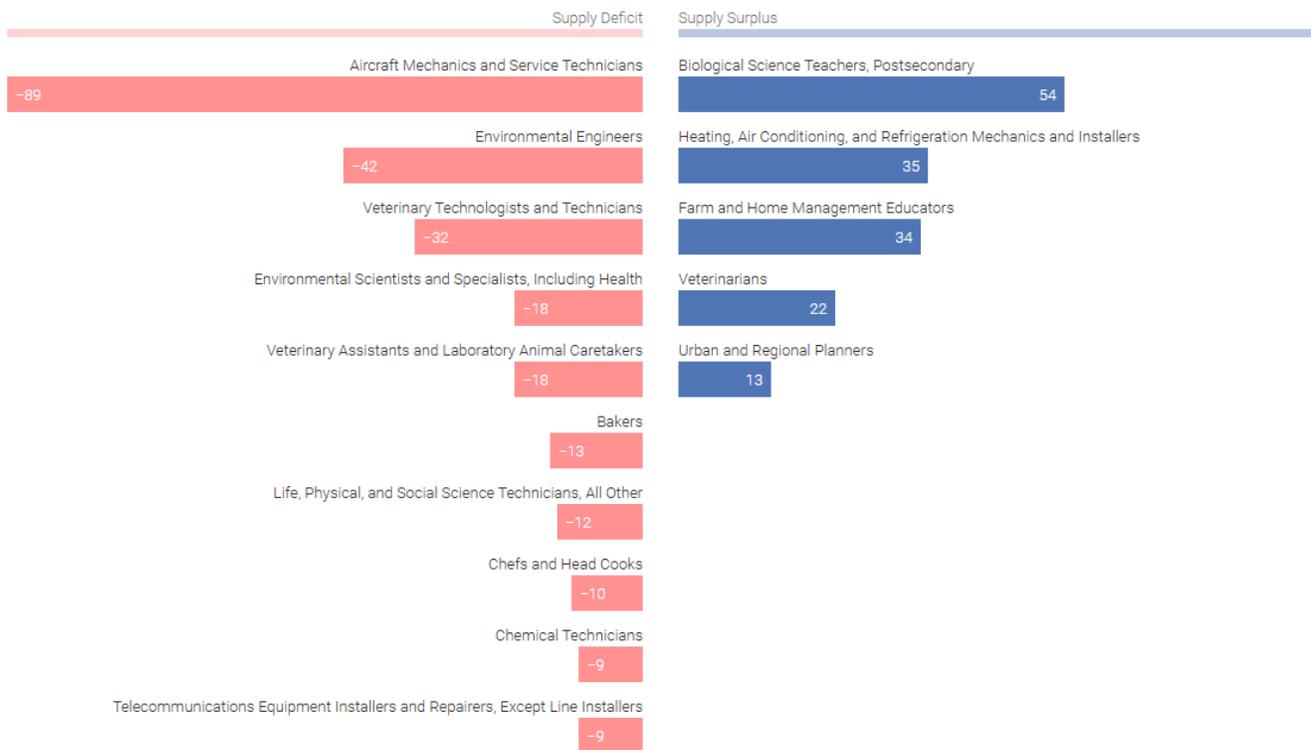
AWARD GAPS

The chart below shows the shortfall of new postsecondary graduates needed to meet local demand, benchmarked against national average volumes of graduates in the 2022-23 school year.

MSP Metro Minnesota faces some moderate Agriculture, Food, and Natural Resources postsecondary award shortages and generates a surplus of graduates in other areas:

- MSP Metro Minnesota colleges and universities are underproducing at least 89 graduates annually that are needed to fill Aircraft Mechanic positions open with employers based in the MSP Metro
- Environmental Engineer, Veterinary Technologist, Environmental Scientist, and Veterinary Assistant postsecondary awards also lag national volumes considerably and contribute to regional talent shortages
- Only five occupations have a higher supply of local postsecondary graduates from aligned local programs than the national average for a community of similar size and industry composition; occupations such as Postsecondary Biological Science Teachers, HVAC Mechanics, Farm and Home Management Educators, and Veterinarians with a higher relative share of postsecondary completions in the local talent market serve other parts of the state or Midwest region where talent demand is high but relevant programs may not exist

Award Gaps in Agriculture, Food, and Natural Resources, MSP Metro Minnesota, 2024Q1



ORIGIN, GATEWAY, AND TARGET OCCUPATIONS

This section offers an Origin-to-Gateway-to-Target model analysis for how to help move students from entry points into their field of interest into both likely and other aligned careers, considering automation, remote work, and the changing work environment.

Origin-to-Gateway-to-Target Occupations for Agriculture, Food, and Natural Resources, MSP Metro Minnesota, 2024Q1

Target Occupations (All HW, HS, HD)

HVAC Mechanics & Installers (OG)

Chemists

Veterinarians (OG)

Chemical Technicians (OG, AG)

Food Science Technicians (OG)

Gateway Occupations

Landscaping & Groundskeeping Workers (HD, AG)

Veterinary Technologists & Technicians (HS, HD, OG, AG)

Butchers & Meat Cutters

Biological Technicians (HS, HD, OG)

Life, Physical, & Social Science Technicians, All Other (HS, HD, AG)

Origin Occupations

Animal Caretakers (HD, AG)

Food Batchmakers (HD, OG, AG)

Bakers (AG)

Farmworkers & Laborers, Crop, Nursery, & Greenhouse

Veterinary Assistants & Laboratory Animal Caretakers (HD, AG)

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

Other Promising Occupations

Several other Agriculture, Food, and Natural Resources occupations that are high-wage and high-demand, yet do not meet the high-skill threshold to be considered Target Occupations, may be promising careers for students to consider. These occupations may offer a fast track to good jobs for those interested in starting a career in the field without requiring a postsecondary credential. These occupations to consider include:

- Farmers, Ranchers, & Other Agricultural Managers (OG)
- Chefs & Head Cooks (OG, AG)
- Refuse & Recyclable Material Collectors (AG)
- Surveying & Mapping Technicians (OG, AG)
- Farm Equipment Mechanics & Service Technicians (OG, AG)

Featured Pathway

The MSP Metro region has many Agriculture, Food, and Natural Resources career pathways that could be featured for greater development, including Environmental Services Systems and Natural Resource Systems, with many roles in these pathways having a low local supply of new graduates compared to national averages.

The Animal Systems (veterinary) pathway featured below is of particular importance to the MSP Metro region. The MSP Metro is the only region with existing postsecondary programming in the state for this talent pipeline. The Target occupation of Veterinarian is moderately concentrated with a location quotient of 1.05. Even more concentrated is the Gateway occupation of Veterinary Technicians and Technologists (LQ 1.46) and

many other related occupations. The two featured Origin occupations are moderately concentrated as well and could serve as good entry points into the pathway.



OGT Wages and Experience Level Requirements, Agriculture, Food, and Natural Resources, MSP Metro Minnesota, 2024Q1

	SOC	Occupation	Empl	Mean	Entry Level	Experienced	10%	25%	50% Median	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
Target	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3,199	\$77,600	\$53,500	\$89,600	\$50,000	\$61,800	\$81,000	\$89,400	\$104,200	Certificate	None	Long-term OJT
	19-2031	Chemists	1,226	\$93,700	\$56,100	\$112,400	\$51,700	\$65,900	\$85,600	\$113,900	\$143,300	BA	None	None
	29-1131	Veterinarians	1,059	\$121,100	\$94,900	\$134,200	\$88,400	\$105,900	\$114,200	\$134,800	\$161,800	PhD	None	None
	19-4031	Chemical Technicians	745	\$68,000	\$47,700	\$78,100	\$47,800	\$49,700	\$61,100	\$75,000	\$91,200	AS	None	Mod-term OJT
	19-4013	Food Science Technicians	131	\$61,300	\$50,500	\$66,700	\$49,300	\$53,400	\$58,700	\$68,300	\$79,600	AS	None	Mod-term OJT
Gateway	37-3011	Landscaping and Groundskeeping Workers	1,1071	\$46,800	\$34,600	\$52,900	\$31,800	\$39,300	\$48,400	\$51,400	\$60,400	None	None	Short-term OJT
	29-2056	Veterinary Technologists and Technicians	2,030	\$50,300	\$43,800	\$53,600	\$41,800	\$47,100	\$49,500	\$51,800	\$61,100	AS	None	None
	51-3021	Butchers and Meat Cutters	1,173	\$49,300	\$35,200	\$56,300	\$32,700	\$39,700	\$49,300	\$57,100	\$62,100	None	None	Long-term OJT
	19-4021	Biological Technicians	897	\$57,900	\$40,300	\$66,700	\$39,400	\$43,900	\$56,900	\$65,500	\$83,100	BA	None	None
	19-4099	Life, Physical, and Social Science Technicians, All Other	746	\$57,500	\$40,200	\$66,100	\$39,700	\$42,200	\$49,000	\$66,800	\$95,200	AS	None	None
Origin	39-2021	Animal Caretakers	3,620	\$37,000	\$29,600	\$40,700	\$28,400	\$31,700	\$36,600	\$38,400	\$46,500	HS/GED	None	Short-term OJT
	51-3092	Food Batchmakers	2,197	\$45,100	\$37,900	\$48,700	\$37,900	\$38,400	\$41,600	\$48,700	\$62,400	HS/GED	None	Mod-term OJT
	51-3011	Bakers	2,141	\$43,600	\$36,500	\$47,200	\$35,100	\$39,000	\$41,300	\$48,700	\$56,700	None	None	Mod-term OJT
	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1,998	\$40,800	\$31,500	\$45,500	\$30,600	\$33,100	\$35,100	\$48,900	\$64,000	None	None	Short-term OJT
	31-9096	Veterinary Assistants and Laboratory Animal Caretakers	905	\$44,000	\$38,100	\$47,000	\$37,400	\$39,300	\$40,500	\$46,900	\$57,900	HS/GED	None	Short-term OJT

Conclusion

Minnesota continues to experience a persistent labor shortage in critical career fields and has seen slower workforce growth in the past two years compared to other states due to retirement-related departures. Demand for talent in Architecture, Engineering, Health Science, and other Life Sciences continues to grow significantly, with the diversity of Minnesota's industries remaining one of its greatest economic strengths. Minnesota's highly educated workforce is a critical asset for addressing future talent gaps, as many occupations forecasting shortages typically require an associate or bachelor's degree, although interest in skills-based hiring and developments in Learning and Employment Records (LERs) may shift the landscape of career opportunities rapidly for individuals with related experience and skillsets.

Despite a solid recovery in the region since 2021, employment in the MSP Metro still lags peak pre-pandemic employment volumes by about 25,000 workers and declined in 2024Q1 for the first time since 2021. Employment forecasts overall and for all six career fields worsened in the MSP Metro compared to last year's estimates. The MSP Metro is now likely to experience an overall employment decline of about -0.2% on average annually over the next five years due in large part to the local shortage of talent.

The Health and Pharmaceutical Industry Clusters both have an above average concentration in the region and are two of the only four broad industries currently forecast to grow—contributing to a modest growth forecast for the Health Science Technology CTE career field. At 0.3% growth annually, this is the best employment outlook of all CTE career fields. Health Science Technology has continued to make a strong recovery in the past year, with employment well above the 2019 pre-pandemic peak, yet it is experiencing shortages across many occupations, particularly nursing.

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 CTE Career Field, Cluster, and Pathway taxonomy used in this report?

Career clusters and pathways have been identified for this report by the Source: National Career Clusters® Framework external site implemented by Department of Defense ASVAB Career Exploration Program, Advance CTE and viewable on ONET <https://www.onetonline.org/find/career?c=8>, updated to the 2020 SOC classification system. A summary of these six career fields and associated clusters and pathways can be found at https://www.minnstate.edu/system/cte/consortium_resources/documents/pos-career-wheel-8x11-2016.pdf. This report uses the prior Framework currently in use nationally, *not* the Modern Framework, which was released in October 2024.

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 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.

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. The first two digits define the top level category, known as the “sector,” which is the level examined in this report.

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.

What is CIP?

The Classification of Instructional Programs (CIP) is a taxonomy of academic programs developed by the US Department of Education. Colleges and universities across the country assign CIP codes to their academic programs. CIP codes are also often assigned to courses, certificates, and degrees.

Where can I learn more about the sources that were used in this report?

Lightcast offers a suite of labor market data analysis tools that are used to analyze candidate profiles and educational data from NCES IPEDS to track program graduate data and estimate talent pool availability. These tools scrape millions of candidate profiles and model skills, credentials, and employment experience to link where talent is located to where talent is in demand.

Chmura JobsEQ is a labor market data analysis tool that provides employment, unemployment, and education data from sources like the Bureau of Labor Statistics, Census Bureau, and NCES IPEDS and models this data at detailed geographic levels. This tool is utilized by RealTime Talent to model alternate forecasts impacted by COVID-19 to show possible future-state talent gaps, award gaps, and optimistic employment growth.

Who created this report?

This report was developed by RealTime Talent for Minnesota State in November 2024. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org

Data Notes

Chmura JobsEQ Source Details

- Occupation employment by default indicates employment by place of work. Occupation employment is as of 2024Q1 and based on industry employment and local staffing patterns calculated by JobsEQ and utilizing BLS OES data. Employment forecasts are by RealTime Talent using models provided by JobsEQ and are consistent with BLS national-level 10-year forecasts. Occupation wages (mean, median, and percentiles) are derived from BLS OES data as of 2023 and represent the average for all Covered Employment. Entry-level and experienced wages are derived from these source data, computed by JobsEQ.
- Industry employment is as of 2024Q1 and based upon BLS QCEW data that are imputed by JobsEQ where necessary and supplemented by additional sources including Census ZBP data.
- Education and training requirements are from the BLS. Educational attainment mix and other occupation demographics data are modeled by JobsEQ for 2024Q1 using regional occupation employment from JobsEQ, ZCTA-level demographics data from the Census Bureau, and national occupation-demographics patterns from the BLS.
- Postsecondary awards are per the NCES and for the 2022-2023 academic year. Any programs shown are linked with the occupation(s) being analyzed via the program-occupation crosswalk, which may not be comprehensive. Any programs shown reflect only data reported to the NCES; reporting is required of all Title IV schools. Training providers that do not report data to the NCES are not reflected.
- The sections on Employer Demand include Job ads data from TalentNeuron, which allows for greater specificity on education, experience level, and employer names. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
- Occupation gaps are modeled by JobsEQ, indicating long-term potential supply and demand mismatches in a region due, in part, to job demand and labor pool dynamics, including educational attainment and projected growth.
- Occupation employment by place of residence is as of 2024Q1 and modeled by JobsEQ based upon occupation employment by place of work and commuting patterns. Commuting patterns are derived from source data from the Census Bureau, occupation-specific commuting tendencies, and updated to reflect more recent population and employment estimates.
- Annual demand is the sum of the annual projected growth demand and separation demand. Separation demand is the number of jobs required due to separations—labor force exits (including retirements) and turnover resulting from workers moving from one occupation into another. Note that separation demand does not include all turnover—it does not include when workers stay in the same occupation but switch employers. Growth demand is the increase or decrease of jobs expected due to expansion or contraction of the overall number of jobs.
- Figures may not sum due to rounding.

Job Posting Source Details

- **Chmura JobsEQ:** General job ads data from the Regional Overview section of the report are based on online job posts from the Real-Time Intelligence (RTI) data set, produced by JobsEQ and gleaned from over 45,000 websites. Data reflect ads active during October 2024 and advertised for any Zip Code Tabulation Area in or intersecting with the region for which this report was produced. Historical ad volume is revised as additional data are made available and processed.
- **TalentNeuron:** Detailed job posting data insights provided in the Job Postings section of the report are aggregated using TalentNeuron (<https://www.talentneuron.com/>), a job posting aggregation tool which allows for greater specificity on education, experience level, and employer names. This report summarizes information from postings newly advertised between November 1, 2023, and October 31, 2024. Since many extraneous factors can affect short-term volume of online job postings, time-series data can be volatile and should be used with caution. All ad counts represent deduplicated figures.
 - Demand: TalentNeuron scrapes approximately 1.3 million job postings daily, which are cleaned, deduplicated, and aggregated on the platform daily.
 - Skills: TalentNeuron categorizes and tags skill and experience data from individual job postings for analysis at the aggregate level. The platform recognizes over 30,000 unique individual skills.
 - Salary: TalentNeuron AI algorithms scrape job postings for salaries which are added to a historical database. As not all job postings include salaries, statistical analysis is used to predict or model the likely salary offer, which is vetted against U.S. Bureau of Labor Statistics employment wage data.

Definitions and Methodology

<p>High-Wage</p> <p>High-Wage occupations are defined as occupations that have average annual wages greater than the overall regional median wage (\$58,000 in the region as of 2024Q1).</p>
<p>High-Skill</p> <p>High-Skill occupations are those that typically require a certificate or other formal credential for employment. Occupation by educational attainment are regional data modeled by JobsEQ using U.S. Census Bureau Educational Attainment data projected to 2024Q1 along with source data from the BLS.</p>
<p>High-Demand</p> <p>High-Demand occupations are defined as occupations that fulfill two or more of the following demand criteria: 1) high growth, 2) high total demand, 3) low unemployment, 4) high unemployment-to-posting ratio, and/or 5) high posting volume.</p>
<p>D1: 5-Yr Growth</p> <p>An occupation is considered to have high growth in that occupation has forecasted 5-year growth that is greater than the overall regional forecasted 5-year pessimistic growth model.</p>
<p>D2: Total Demand</p> <p>An occupation is considered to have high total demand if the total 5-year forecast employment growth, transfers, and exits combined is greater than 50% of total employment in that occupation as of 2024Q1 (i.e. high long-term demand)</p>
<p>D3: Unempl <3%</p> <p>An occupation is considered to have low unemployment if the estimated unemployment rate for the occupation is below 3% in the region as of 2024Q1 (i.e. high employer retention demand)</p>
<p>D4: Posting Ratio</p> <p>An occupation is considered to have a strained unemployment-to-posting ratio if the estimated volume of unemployed individuals regionally exceeds the number of online job postings advertised in the month of October 2024 (i.e. ratio of unemployed-to-posts is greater than 1; low talent supply)</p>
<p>D5: Posting Volume</p> <p>An occupation is considered to have high posting volumes if the volume of online job postings in August 2024 was greater than 200 in the region, the occupation is considered to have high job posting volumes (i.e. high immediate employer demand).</p>
<p>Occupation Gaps</p> <p>Occupation gaps are developed by JobsEQ and use a multitude of data sources. Employment supply and demand projections are based on a starting date of 2024Q1 using baseline low-growth forecasts modeled from the Bureau of Labor Statistics (more pessimistic forecast outlook than utilized in D1 and D2). The potential supply shortfall is an underlying force that the market needs to resolve one way or another, such as by employers recruiting from further distances for these occupations, wages going up to attract more candidates, and/or increased demand and wages enticing more local residents to get training for these occupations. While this is an important analysis for determining local occupation needs, the occupation gap should be considered along with other regional data including growth and separation forecasts, unemployment rates, wage trends, and award and skill gap analyses.</p>

Award Gaps

This metric illustrates the difference between the number of awards conferred (which are post-secondary certificates or degrees) and the occupation demand in your region. Negative values represent the gap, or shortage, of degrees being awarded in the region to meet the demand for the occupations selected. The positive values represent the surplus of awards meaning that the number of awards awarded are greater than the target range of demand for the region. Awards data are based upon degrees conferred for the academic year 2022-2023 and are provided by the National Center for Education Statistics (NCES). Occupation employment data are derived from the most recent four quarters of industry employment (from the Bureau of Labor Statistics, updated quarterly) and the industry/occupation matrix available for the region. Occupation training concentrations and shortfalls are calculated by JobsEQ. The percent college educated are provided by the BLS per the Employment Projections Program.

Location Quotient

Location quotient is a measurement of concentration in comparison to the nation. An LQ of 1.00 indicates a region has the same concentration of an industry (or occupation) as the nation. An LQ of 2.00 would mean the region has twice the expected employment compared to the nation and an LQ of 0.50 would mean the region has half the expected employment in comparison to the nation. [Click here to see the formula for LQ.](#) Occupations with a LQ greater than or equal to 1.2 have been flagged in this analysis of having a unique specialization in the region.