

SUPPLY AND DEMAND ANALYSIS

2024 Transportation Pathways Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence



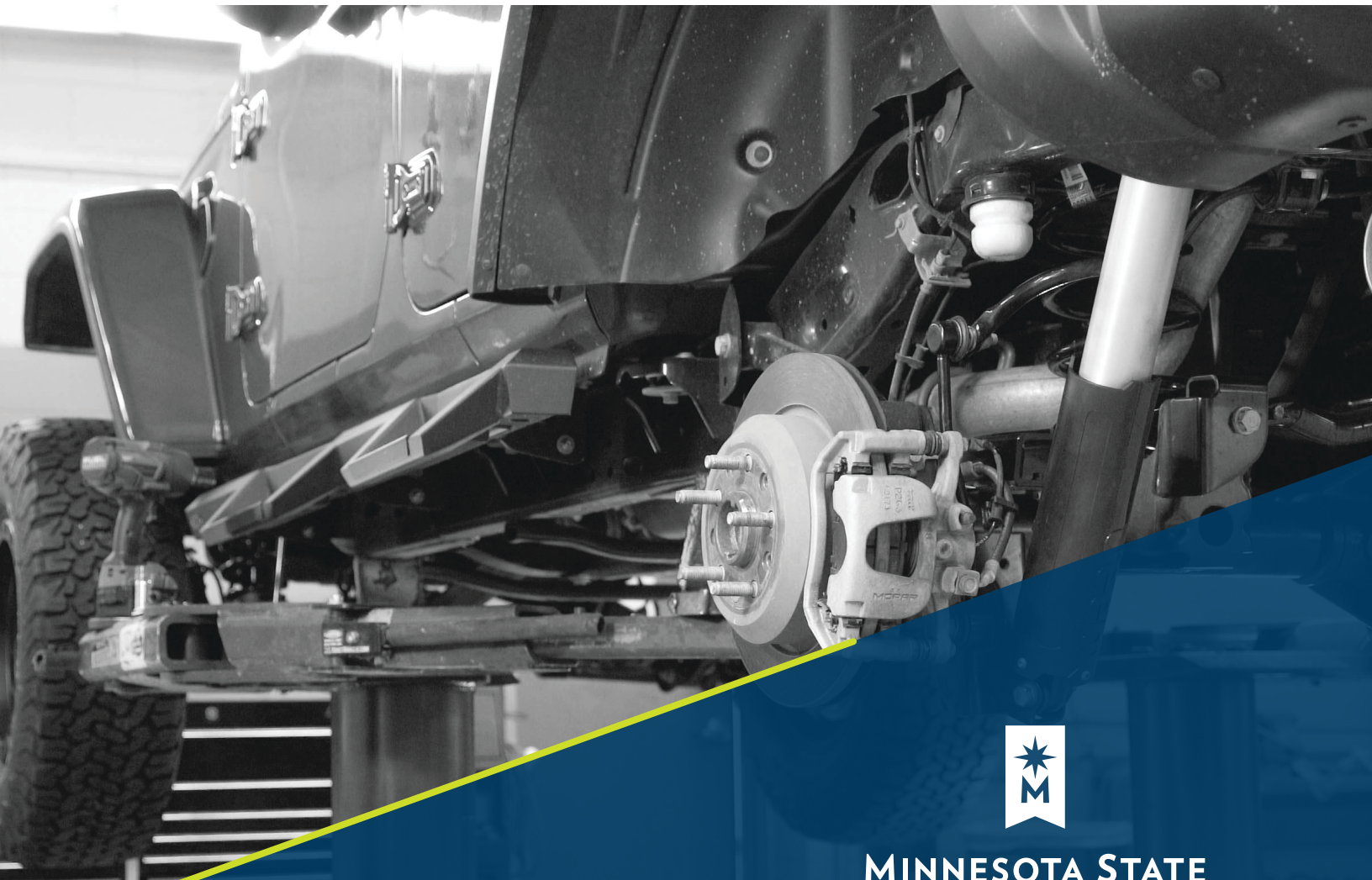
**Developed for the Minnesota State
Transportation Center of Excellence
by RealTime Talent**

Published January 2025

AUTOMOTIVE TECHNOLOGY

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Introduction and Sector Overview

This report highlights the importance of the Automotive Technology career pathway for Minnesota’s Transportation Industry. Professionals in Automotive Technology work in diverse roles from automotive service technicians to farm equipment mechanics, serving industries as diverse as Navigational Manufacturing and Automobile Dealerships. In all, about 20,796 people work in Automotive Technology roles in Minnesota as of the second quarter of 2024—a 0.4% decrease (88 fewer workers) from a year prior in the second quarter of 2023.

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or a 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% average annual growth. Automotive Technology employment is anticipated to grow slightly in Minnesota by about 78 total jobs over the next five years (0.1% on average annually) due to a tight talent pool. Total baseline demand for Automotive Technology talent is anticipated to be around 7,773 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2¹

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

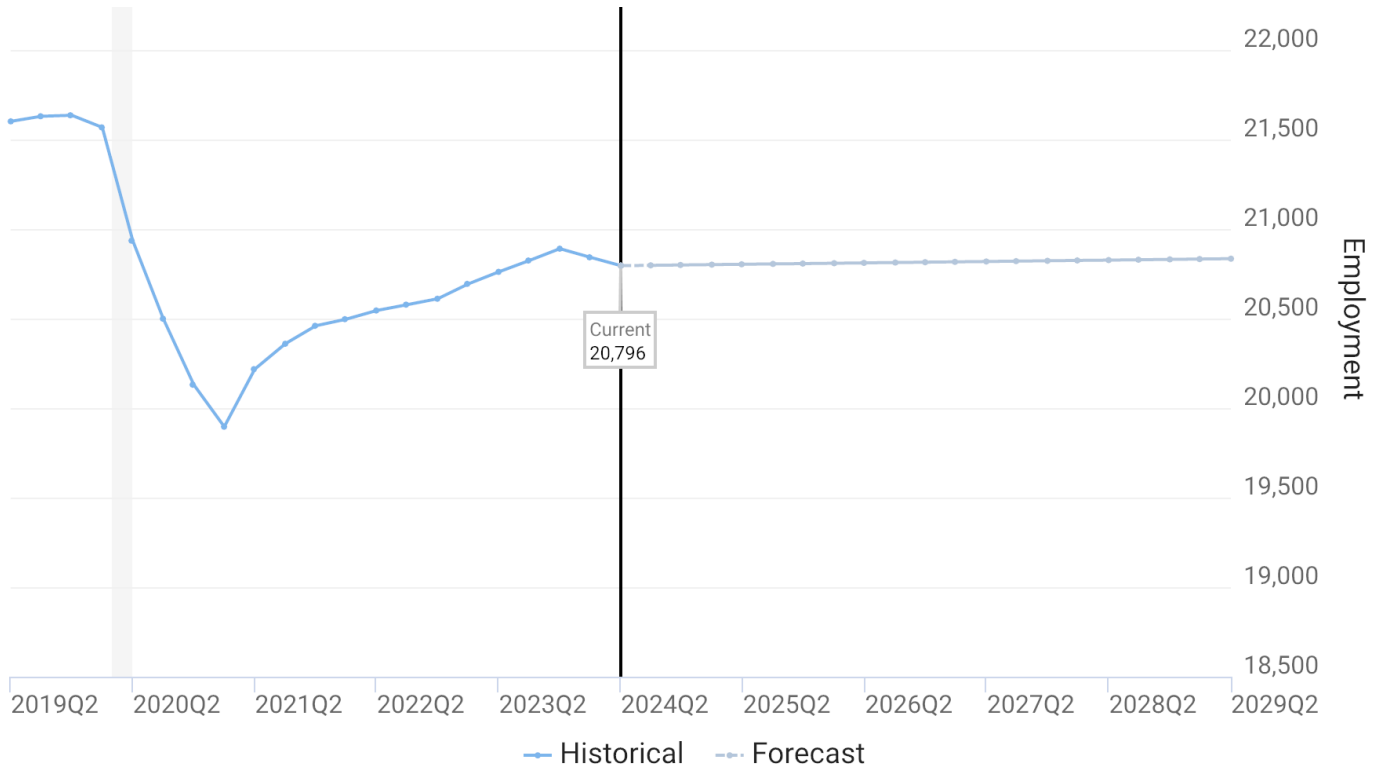
Note: Figures may not sum due to rounding.

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

2. Wage data represent the average for all Covered Employment

Minnesota’s job market continued to cool in 2024 from the strong recovery between 2021 and 2023. Unemployment rates have stabilized around 2.8% as of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Automotive Technology suggest that there may be shortages of talent across a large share of occupations in this career pathway unless more talent decides to enter the field. Employment in Automotive Technology shrank in the past two quarters for the first time since 2021. Current forecasts estimate about 0.1% average annual growth in overall employment through the second quarter of 2029.

Automotive Technology Employment Forecast Under Baseline Scenario, Minnesota



Source: JobsEQ® Data as of 2024Q2 The shaded areas of the graph represent national recessions.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Industry/Occupation Mix

Automotive Technology talent is primarily concentrated in the Automotive Repair and Maintenance industry (25.4%), decreasing in concentration from estimates in 2023 by 0.3 percentage points. The next highest industry of employment concentration is Automobile Dealers (23.1%), but Automotive Technology talent are important across a wide range of transportation, manufacturing, and agriculture sub-industries. These top industries (Automotive Repair and Maintenance, and Automobile Dealers) account for the most total demand for this talent over the next ten years.

Top Industry Distribution for Automotive Technology Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT		10-YEAR DEMAND				
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
8111	Automotive Repair and Maintenance	25.4%	5,292	\$54,400	1,623	2,669	-106	4,186
4411	Automobile Dealers	23.1%	4,801	\$62,100	1,495	2,459	56	4,010
5413	Architectural, Engineering, and Related Services	5.3%	1,094	\$98,400	224	407	11	642
4413	Automotive Parts, Accessories, and Tire Retailers	4.4%	907	\$50,200	276	451	-41	686
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.6%	751	\$104,900	157	285	41	483
3339	Other General Purpose Machinery Manufacturing	2.5%	514	\$100,300	105	191	13	308
4552	Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	1.9%	392	\$56,800	117	193	-27	282
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.7%	356	\$67,900	106	176	24	306
5511	Management of Companies and Enterprises	1.6%	323	\$106,400	70	125	24	220
3331	Agriculture, Construction, and Mining Machinery Manufacturing	1.5%	320	\$100,300	65	118	7	190
4571	Gasoline Stations	1.4%	291	\$50,700	84	139	-38	185
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	1.3%	275	\$88,800	64	112	11	187
9211	Executive, Legislative, and Other General Government Support	1.2%	252	\$63,200	77	125	2	203
3391	Medical Equipment and Supplies Manufacturing	1.1%	224	\$92,100	50	89	9	148
5417	Scientific Research and Development Services	1.0%	218	\$113,500	49	89	34	171
3332	Industrial Machinery Manufacturing	0.9%	186	\$100,300	38	69	6	113
3335	Metalworking Machinery Manufacturing	0.9%	182	\$81,200	36	66	4	106
3344	Semiconductor and Other Electronic Component Manufacturing	0.8%	175	\$104,100	39	71	26	136
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	0.8%	174	\$80,200	36	66	10	112
4551	Department Stores	0.8%	168	\$56,800	50	83	-12	121
-	All Others	18.8%	3,901	-	977	1,670	113	2,761

Source: JobsEQ®
 Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

Talent Demand Detail

Employment and Wage Overview

While most Automotive Technology Pathway occupations are now about as concentrated in Minnesota as in the nation overall, Mechanical Engineers remain uniquely concentrated, with an LQ of 1.08. On average, Automotive Technology careers pay about \$70,800 per year—about \$1,300 higher than the average wage statewide across all positions. Demand slackened over the past year, with employment decreasing by 0.4%, and the pathway is forecast to remain relatively flat at 0.1% annual growth. All occupations in the Automotive Technology pathway have lower unemployment rates than the statewide average, with Electrical and Electronics Installers and Repairers having a very low unemployment rate of 0.9%. Unemployment among Mechanical Engineers, which had previously been 0.0%, has come up to 1.5%—still a very low rate.

		Current					5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
49-3023	Automotive Service Technicians and Mechanics	13,796	\$56,700	0.92	209	1.5%	5,541	2,124	3,495	-78	-0.1%
17-2141	Mechanical Engineers	5,931	\$103,600	1.08	92	1.5%	1,820	577	1,063	180	0.6%
17-3027	Mechanical Engineering Technologists and Technicians	788	\$71,600	1.01	18	2.3%	311	120	205	-14	-0.4%
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	144	\$55,100	0.85	3	2.2%	41	23	30	-13	-1.8%
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	138	\$86,400	0.97	1	0.9%	59	25	32	3	0.4%
Automotive Technology Pathway		20,796	\$70,800	0.97	323	1.5%	7,773	2,869	4,826	78	0.1%
Total - All Occupations		3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

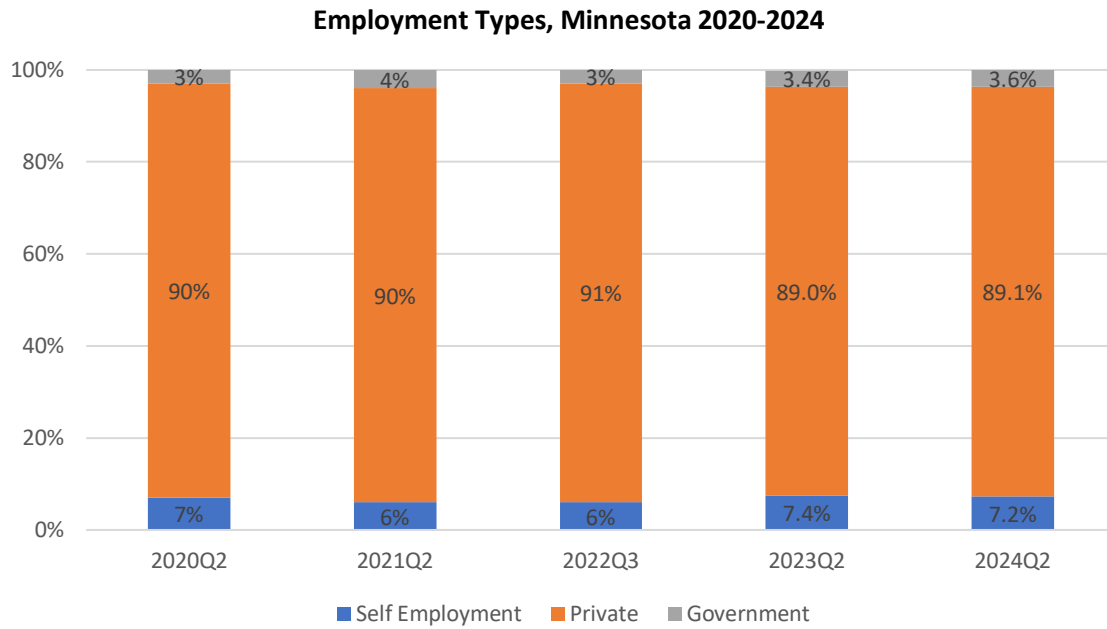
Note: Figures may not sum due to rounding.

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

2. Wage data are the average for all Covered Employment

Employment Types

About 89% of people employed in Automotive Technology in Minnesota work for private employers, while just over 7% are self-employed (holding fairly steady from 2023). The remaining 3.6% work for state, federal, or local government entities.



Wage Analysis

Automotive Technology saw some significant wage gains across the pathway, with average wages rising by \$2,500 from prior estimates.¹ Entry-level wages in the pathways exceed the average entry-level wages observed across all occupations statewide by \$14,000, paying an average of \$48,600 annually for entry-level talent. Education and training requirements vary across the different occupations in this pathway, with Mechanical Engineers requiring a Bachelor’s degree whereas Auto Electronic Equipment Installers, and Repairers typically requires a High School Diploma or equivalent. None of these occupations require previous work experience and three require some level of on-the-job training.

Automotive Technology Pathway Wages and Experience Level Requirements, MN, 2024Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	Percentiles					Education and Training		
						10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
17-2141	Mechanical Engineers	5,931	\$103,600	\$70,700	\$120,100	\$66,800	\$80,000	\$97,900	\$124,100	\$148,800	BA	None	None
17-3027	Mechanical Engineering Technologists and Technicians	788	\$71,600	\$52,500	\$81,200	\$49,500	\$59,400	\$73,300	\$82,300	\$90,700	AS	None	None
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	138	\$86,400	\$59,400	\$99,800	\$53,100	\$71,400	\$86,600	\$98,700	\$109,800	Certificate	None	Long-term OJT
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	144	\$55,100	\$42,600	\$61,300	\$41,300	\$46,500	\$56,100	\$61,100	\$65,000	HS/GED	None	Mod-term OJT
49-3023	Automotive Service Technicians and Mechanics	13,796	\$56,700	\$38,800	\$65,600	\$37,000	\$43,500	\$55,300	\$66,300	\$78,900	Certificate	None	Short-term OJT
	Automotive Technology Pathway	20,796	\$70,800	\$48,600	\$82,000	\$46,100	\$54,700	\$68,300	\$83,600	\$99,400			
	Total - All Occupations	3,101,622	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Wages in the Automotive Technology pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-county MSP Metro. The MSP Metro region has the highest wages across experience levels and percentiles and contains 57% of the pathway’s total statewide employment. The Rural Greater Minnesota region and the Urban Greater Minnesota region have very close average and median wage rates; Average Automotive Technology Pathway wages in the Greater Minnesota regions are nearly \$15,000 below the average pathway wages in the MSP Metro.

Automotive Technology Pathway Wages, 2024Q2

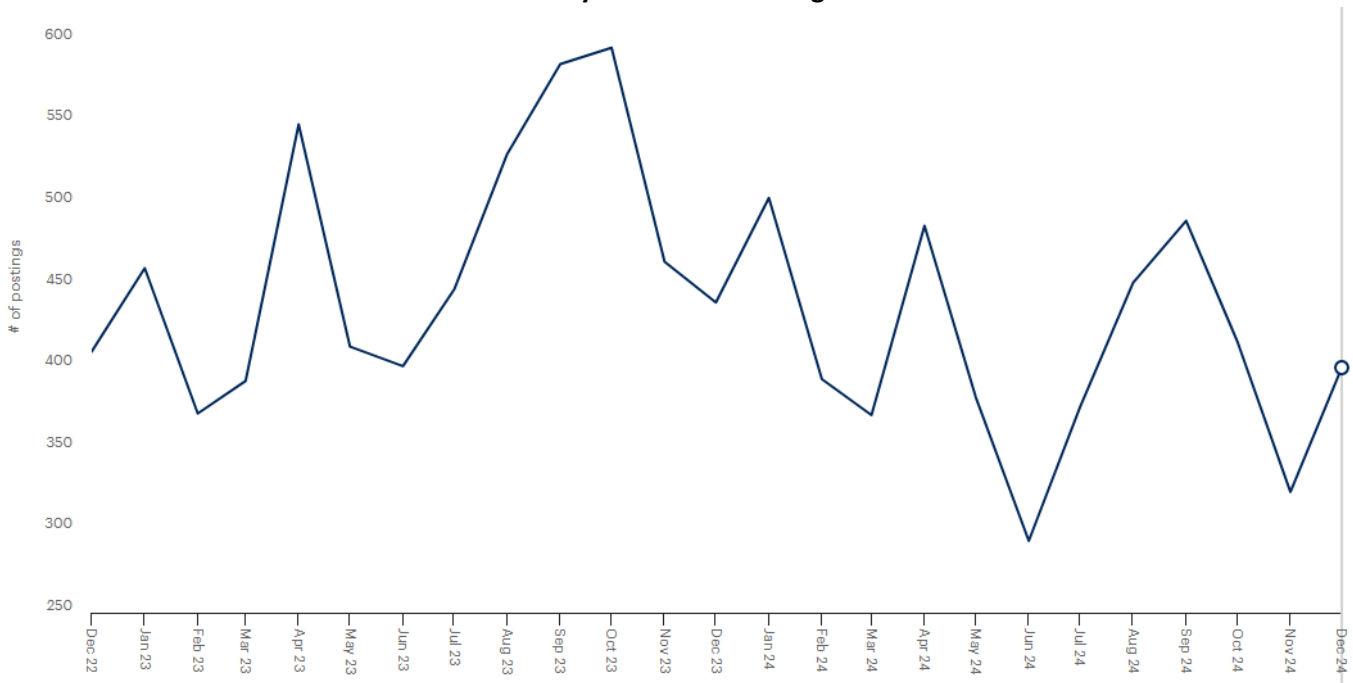
Region	Empl Count	Mean	Entry Level	Experienced	Percentiles				
					10%	25%	50% (Median)	75%	90%
Rural Greater Minnesota	5,501	\$61,900	\$44,800	\$70,400	\$42,900	\$49,500	\$59,400	\$71,600	\$85,700
Urban Greater Minnesota	3,174	\$63,400	\$44,200	\$72,900	\$42,800	\$48,500	\$60,100	\$75,000	\$90,600
MSP Metro	11,765	\$76,700	\$52,800	\$88,600	\$50,200	\$59,400	\$75,600	\$89,200	\$106,600
Minnesota	20,796	\$70,800	\$48,600	\$82,000	\$46,100	\$54,700	\$68,300	\$83,600	\$99,400

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Job Posting Trends

Data in this section focuses on newly advertised jobs between January 1 and December 31, 2024 in Automotive Technology roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2023Q4 dataset. Overall, there were 4,889 new jobs advertised in Automotive Technology careers across Minnesota during this timeframe, a decrease of -14% from the prior 12-month period (2023). Volume of positions advertised by staffing and temp agencies in the Automotive Technology pathway remained roughly consistent with 2023, at about 16% of all postings. Posted wages increased to an average of \$28.98 per hour as of 2024, and there was only one hire per every one unique job posting advertised based on Lightcast estimates.

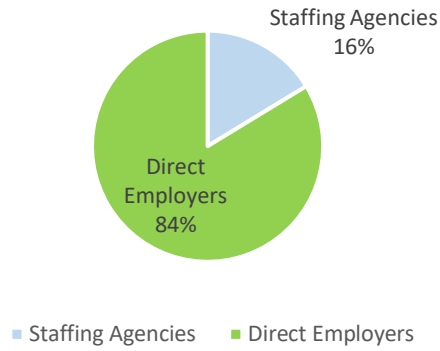
Volume of Career Pathway Online Job Postings in 2023 and 2024



Top Employers by Volume of New Job Postings, With Change from Prior Year

Employer	Percent Change between 2023 and 2024
1. Firestone Complete Auto Care	43%
2. Valvoline	-53%
3. Honeywell	51%
4. Army	-57%
5. Luther Automotive Group	592%
6. Walser Automotive Group	1680%
7. Bridgestone	161%
8. BOSTON SCIENTIFIC CORPORATION	107%
9. Xcel Energy	108%
10. M. A. Mortenson Company	5,300%

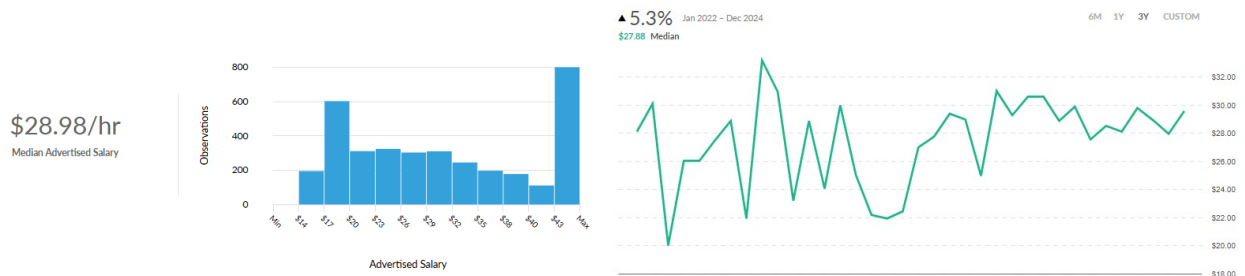
New Job Postings Advertised in Minnesota by Employer Type



New Job Postings by Industry or Employer Type

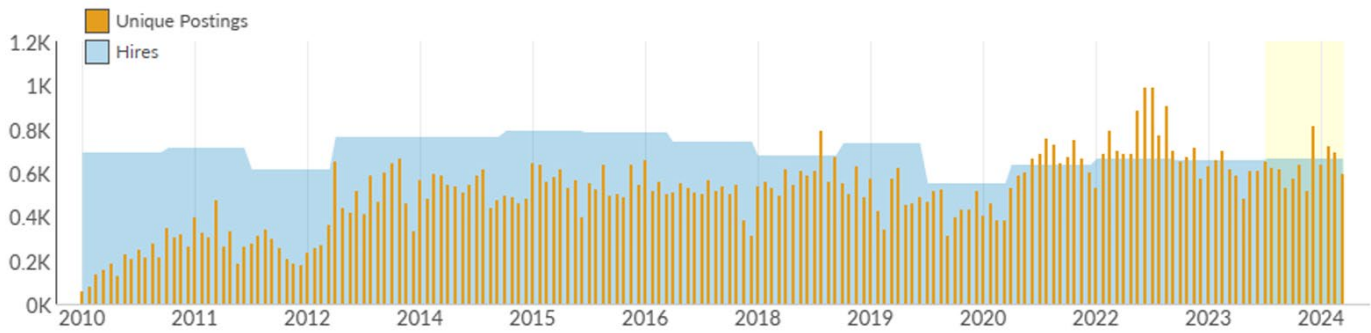
Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
Employment Placement Agencies	2,420 / 1,068	2 : 1	25 days
All Other Automotive Repair and Maintenance	1,242 / 412	3 : 1	22 days
New Car Dealers	600 / 328	2 : 1	27 days
Tire Manufacturing (except Retreading)	939 / 319	3 : 1	27 days
General Automotive Repair	583 / 313	2 : 1	26 days
Warehouse Clubs and Supercenters	538 / 276	2 : 1	31 days
Engineering Services	561 / 255	2 : 1	28 days
Temporary Help Services	403 / 196	2 : 1	19 days
Surgical and Medical Instrument Manufacturing	731 / 193	4 : 1	23 days
All Other General Merchandise Retailers	579 / 128	5 : 1	38 days

Pathway Advertised Salary Range

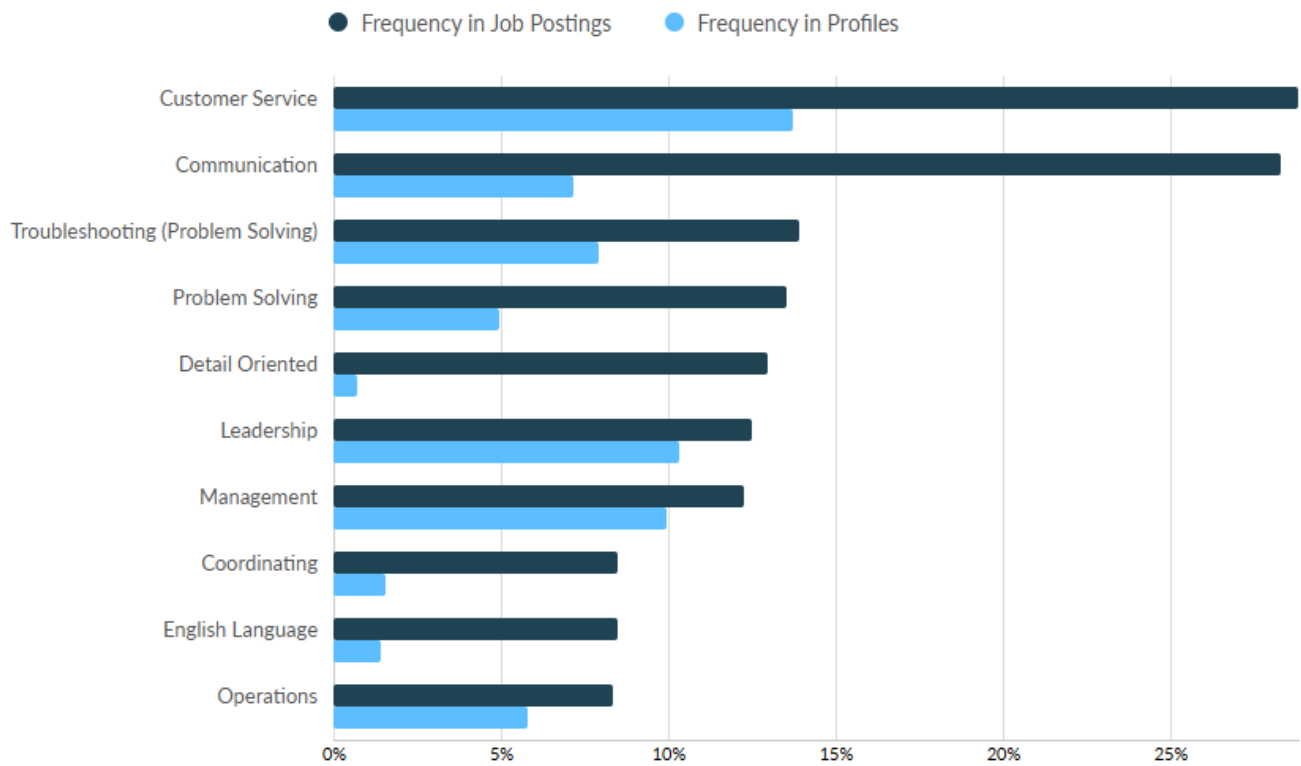


Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Monthly Ratio of Unique Job Postings to Estimated Hires

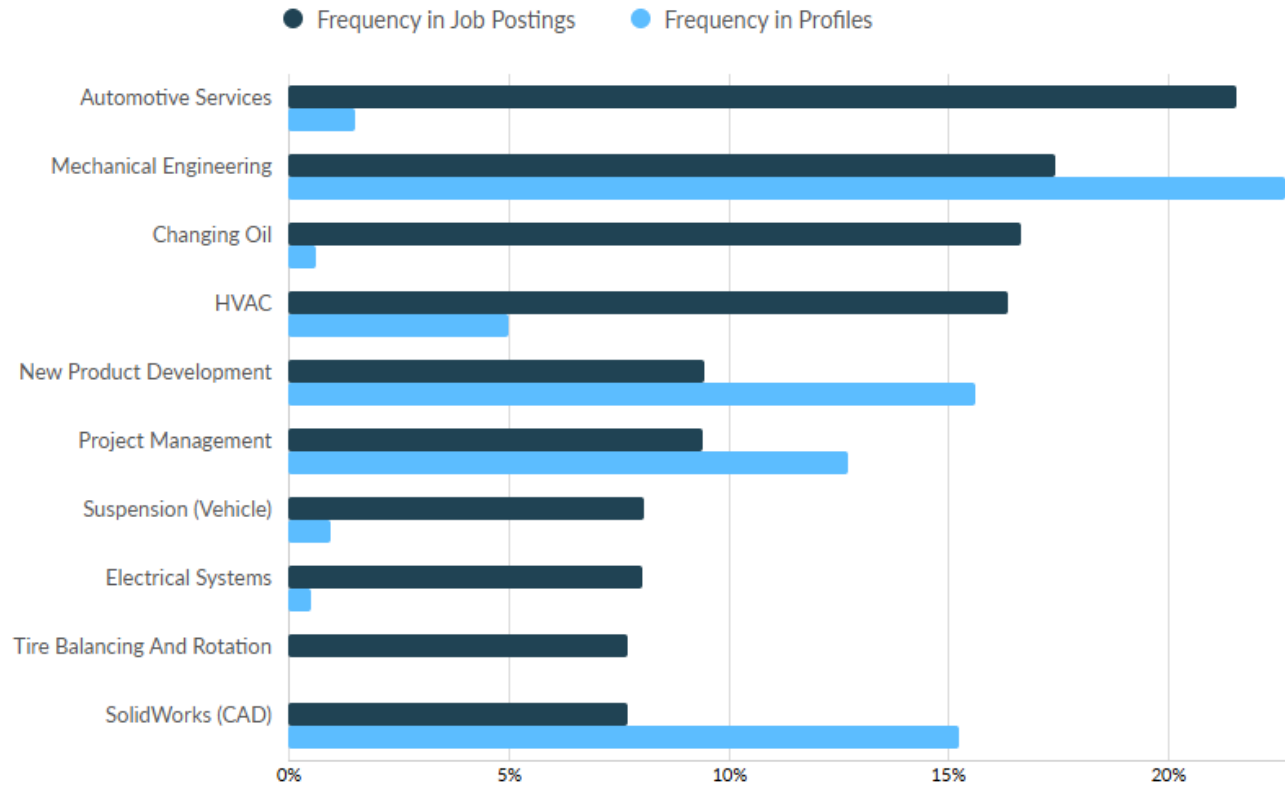


Top Common Skills



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	2,475
Automotive Service Excellence (ASE) Certification	638
Professional Engineer (PE) License	149
Commercial Driver's License (CDL)	102
CDL Class B License	53
Security Clearance	53
Engineer in Training	44
CFC Refrigeration Certification	24
LEED Accredited Professional (AP)	23
NICET Certification (National Institute For Certification In Engineering Technologies)	23

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 1.5%, there are about 323 unemployed Automotive Technology professionals statewide. An additional 1,307 Automotive Technology professionals are underemployed—meaning they are working in roles for which they are overqualified by education or experience.²

Automotive Technology Pathway in Minnesota

SOC	Occupation	Empl (Place of Residence)								Overall Occupation ¹		
		< High School	High School	Some College	2-Year	4-Year	Master's	PhD	Total Empl	Underemployed	Unemployed	Unempl Rate
17-2141	Mechanical Engineers	0.2%	1.9%	3.0%	7.4%	63.2%	20.5%	3.7%	5,960	N/A	92	1.5%
17-3027	Mechanical Engineering Technologists and Technicians	1.7%	16.4%	19.4%	28.1%	27.8%	5.3%	1.3%	790	237	18	2.3%
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	2.5%	24.1%	21.8%	34.1%	14.8%	1.2%	1.3%	138	21	1	0.9%
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	2.5%	23.8%	21.9%	33.9%	15.2%	1.3%	1.3%	149	25	3	2.2%
49-3023	Automotive Service Technicians and Mechanics	10.0%	38.9%	19.4%	23.4%	7.1%	1.0%	0.3%	13,757	1,023	209	1.5%
	Automotive Technology Pathway	6.8%	27.2%	14.7%	19.1%	24.1%	6.7%	1.4%	20,793	1,307	323	1.5%
	Total - All Occupations	5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

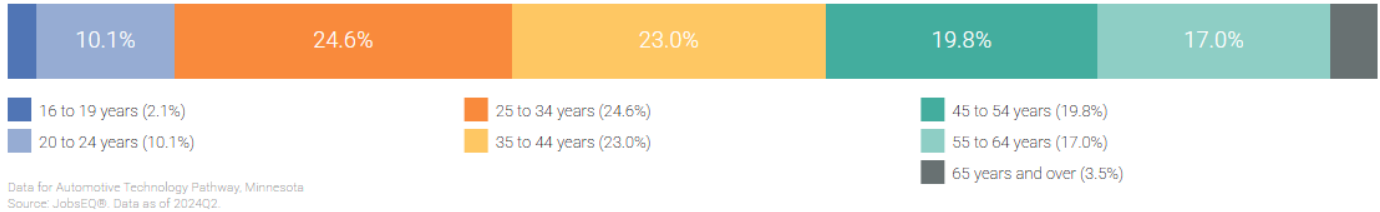
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

² Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

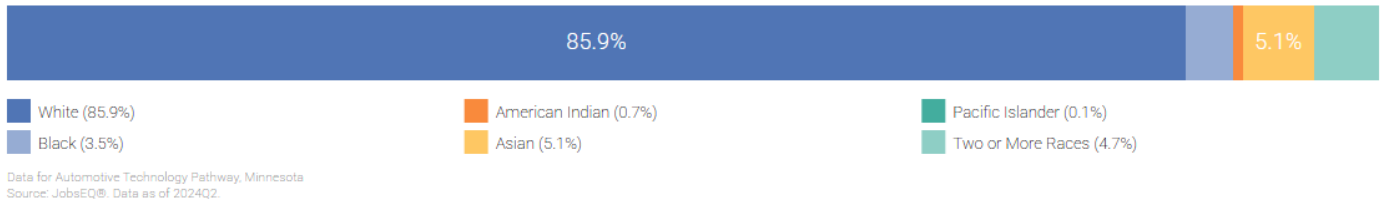
Workforce Demographics

About 12.2% (12.5% in the prior year) of the Automotive Technology workforce is under the age of 25, and 3.5% (4.5% in the previous year) are over 64 years old. The largest demographic group by race are white, representing 85.9% of the total pathway's workforce, a decrease of two percentage points since 2023. The next largest cohort is Asian talent, representing 5.1% of the workforce. Just over 6% of the pathway's workforce are Hispanic or Latinx, and 5% are female.

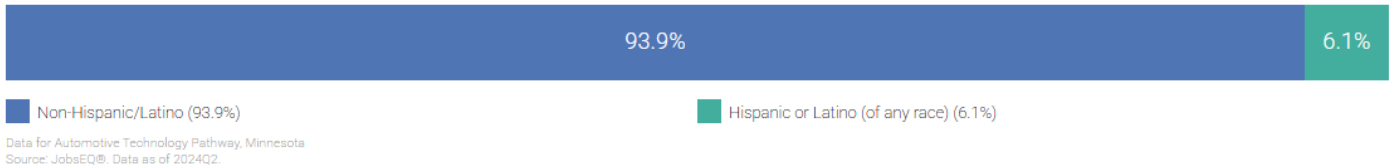
Automotive Technology Workforce Age Demographics, 2024Q2



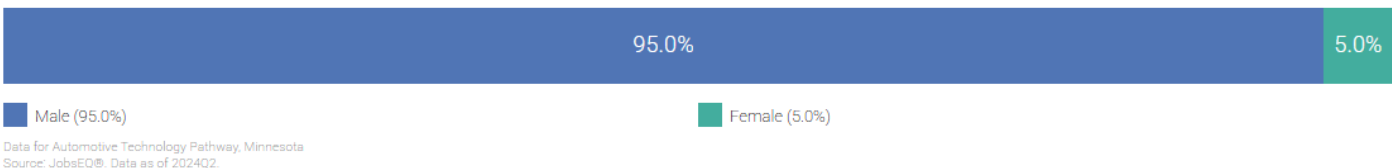
Automotive Technology Workforce Race Demographics, 2024Q2



Automotive Technology Workforce Ethnicity Demographics, 2024Q2



Automotive Technology Workforce Gender Demographics, 2024Q2



Aligned Postsecondary Programs

There were about 1,501 awards conferred at 27 different Minnesota postsecondary institutions in programs aligned to Automotive Technology careers in SY2023. Among these, 373 were at the Associate level, and 360 were certificates that could be earned in less than two years. The average school had about 55 completions, but range from five to 298 completions. One program was delivered remotely.

Postsecondary Program Awards Aligned to Automotive Technology Careers by Level, SY2023

CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Master's	Doctorate	Total Awards
14.1901	Mechanical Engineering	0	0	0	0	487	66	28	581
47.0604	Automobile/Automotive Mechanics Technology/Technician	54	90	162	128	0	0	0	434
15.0406	Automation Engineer Technology/Technician	21	43	99	10	0	0	0	173
15.1103	Hydraulics and Fluid Power Technology/Technician	61	50	28	0	0	0	0	139
47.0605	Diesel Mechanics Technology/Technician	4	24	42	14	0	0	0	84
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	3	10	36	15	0	0	0	64
15.0803	Automotive Engineering Technology/Technician	0	0	0	0	20	0	0	20
15.0805	Mechanical/Mechanical Engineering Technology/Technician	0	0	6	0	0	0	0	6
47.0614	Alternative Fuel Vehicle Technology/Technician	0	0	0	0	0	0	0	0
	Total	143 (10%)	217 (14%)	373 (25%)	167 (11%)	507 (34%)	66 (4%)	28 (2%)	1,501



Institution Type	Completions (2023)	Market Share
Public, 2-year	863	57.5%
Public, 4-year or above	490	32.6%
Private not-for-profit, 4-year or above	148	9.9%

Just over half (57.5%) of SY2023 awards were conferred at public two-year institutions, with Hennepin Technical College with the largest number of completions in SY2023, followed by the University of Minnesota, Twin Cities, comprising 19.8% and 17.5% respectively of related awards conferred. Completions are up overall by 3% from 2019.

Automotive Technology Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023)	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
⊞ Hennepin Technical College	297	-0.3%	19.8%	\$5,881	
⊞ University of Minnesota-Twin Cities	263	-2.2%	17.5%	\$16,488	
⊞ University of Minnesota-Duluth	129	18.3%	8.6%	\$14,318	
⊞ University of St Thomas	93	-7.0%	6.2%	\$52,284	
⊞ Dakota County Technical College	77	4.1%	5.1%	\$6,419	
⊞ Minnesota State University-Mankato	66	32.0%	4.4%	\$9,490	
⊞ St Cloud Technical and Community College	56	5.7%	3.7%	\$4,957	
⊞ Alexandria Technical & Community College	51	-3.8%	3.4%	\$6,213	
⊞ South Central College	51	96.2%	3.4%	\$6,146	
⊞ Dunwoody College of Technology	46	39.4%	3.1%	\$25,659	
⊞ Saint Paul College	42	31.3%	2.8%	\$6,318	
⊞ Century College	42	0.0%	2.8%	\$6,182	
⊞ Central Lakes College-Brainerd	36	-45.5%	2.4%	\$6,209	
⊞ Saint Cloud State University	32	-5.9%	2.1%	\$10,117	
⊞ Minnesota State Community and Technical College	29	16.0%	1.9%	\$5,900	
⊞ Riverland Community College	28	12.0%	1.9%	\$6,249	
⊞ Northland Community and Technical College	26	85.7%	1.7%	\$6,262	
⊞ Pine Technical & Community College	24	-20.0%	1.6%	\$4,681	
⊞ Minnesota West Community and Technical College	22	-40.5%	1.5%	\$6,484	
⊞ Ridgewater College	20	5.3%	1.3%	\$6,109	

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Graduate Demographics

Postsecondary program student diversity varies by program across the Automotive Technology pathway. Mechanical Engineering programs have the largest number of international students, and all programs have an overrepresentation of male students.³ Overall, the total number of Hispanic or Latino graduates increased by 25 from the previous school year. There was a decrease in the total number of female graduates, with 24 fewer female graduates in 2023 in programs aligned to the Automotive Technology pathway.

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
14.1901	Mechanical Engineering	581	70	9	2	28	23	423	26	484	97
15.0406	Automation Engineer Technology/Technician	173	0	10	1	10	20	125	7	158	15
15.0803	Automotive Engineering Technology/Technician	20	1	0	0	0	1	18	0	20	0
15.0805	Mechanical/Mechanical Engineering Technology/Technician	6	0	0	0	2	0	4	0	6	0
15.1103	Hydraulics and Fluid Power Technology/Technician	139	0	1	0	11	8	113	6	130	9
47.0604	Automobile/Automotive Mechanics Technology/Technician	434	3	35	2	39	59	269	27	415	19
47.0605	Diesel Mechanics Technology/Technician	84	0	0	0	1	1	81	1	81	3
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	64	1	9	0	0	4	42	8	64	0
47.0614	Alternative Fuel Vehicle Technology/Technician	0	0	0	0	0	0	0	0	0	0
All Automotive Technology Postsecondary Programs		1,501	75	64	5	91	116	1,075	75	1,358	143

IPEDS SY2023 demographics by award conferred. Count of awards may double count individuals who obtained multiple credentials in the same calendar year. *[NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

³ [NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Postsecondary programs aligned to three of the five Automotive Technology pathway occupations are underproducing graduates in comparison to national benchmarks (Automotive Service Technicians and Mechanics, Electronic Equipment Installers and Repairers, Motor Vehicles and Transportation). Automotive Service Technicians, Mechanical Engineers, and Mechanical Engineering Technologists and Technicians are experiencing talent shortages. The nine aligned programs for the Automotive Technology pathway all have a low share of BIPOC graduates, and a low share of female graduates. The share of BIPOC graduates in the pathway shrank by 2.3 percentage points, to 24.6% in the 2023 school year, and the share of graduates that are female decreased back to SY2021 levels, currently at 9.5%. Automotive Service Technicians have the highest volume of employment and the highest number of related graduates; there were 381 graduates specifically from Automotive Mechanic programs in Minnesota during the 2023 school year, plus another 90 graduates of Truck and Diesel Mechanic programs—both of which are counted in the table below.

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)**	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Automotive Service Technicians and Mechanics	<ul style="list-style-type: none"> • Automobile/Automotive Mechanics Technology/Technician • Hydraulics and Fluid Power Technology/Technician • Diesel Mechanics Technology/Technician • Medium/Heavy Vehicle and Truck Technology/Technician 	13,796	13.5%	7.9%	2.6%	60.9%	721	Y	29.6%	4.3%
Mechanical Engineers	<ul style="list-style-type: none"> • Mechanical Engineering 	5,931	15.3%	2.3%	9.0%	58.7%	0	N	17.2%	16.7%
Mechanical Engineering Technologists and Technicians	<ul style="list-style-type: none"> • Mechanical Engineering Technology/Technician • Automotive Engineering Technology/Technician • Automation Engineer Technology/Technician 	788	17.3%	2.9%	17.1%	50.6%	179	N	25.8%	7.5%
Electronic Equipment Installers and Repairers, Motor Vehicles	<ul style="list-style-type: none"> • Alternative Fuel Vehicle Technology/Technician 	144	11.9%	4.9%	4.3%	54.3%	0	Y	N/A	N/A
Electrical and Electronics Installers and Repairers, Transportation Equipment	N/A	138	11.4%	4.6%	4.3%	53.7%	N/A	Y	N/A	N/A
Automotive Technology Pathway	All nine aligned programs	20,796	14.1%	6.1%	5.0%	59.8%	1501	Y	24.6%	9.5%
All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *Related programs may overlap among occupations within the pathway or across other Transportation career pathways. Only those programs most tightly aligned to the occupation in question are listed in this column. **Award gaps are estimated based on a wider alignment of programs than what is illustrated in this table.

Conclusion

While employment in Automotive Technology shrank in the past two quarters for the first time since 2021, the forecast has remained steady: employment is anticipated to grow slightly by about 78 total jobs over the next five years (0.1% on average annually). Total baseline demand for Automotive Technology talent in this timeframe is anticipated to be around 7,773 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes

On average, Automotive Technology careers pay about \$70,800 per year—about \$1,300 higher than the average wage statewide across all positions. All occupations in the Automotive Technology pathway have lower unemployment rates than the statewide average, with Electrical and Electronics Installers and Repairers having a very low unemployment rate of 0.9%. Unemployment among Mechanical Engineers, which had previously been 0.0%, has come up to 1.5%—still quite low.

The programs of Alternative Fuel Vehicle Technology/Technician, Mechanical Engineering Technology, and Automotive Engineering Technology are prime for exploration of certificate or two-year program growth or development given local employer demand and low award numbers. Each of the nine programs aligned with the Automotive Technology pathway have a low share of BIPOC graduates and a low share of female graduates, showcasing the opportunity to diversify student enrollment into these programs.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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.

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



AVIATION AND DRONE TECH

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence

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Introduction and Sector Overview

This report highlights the importance of the Aviation and Drone Technology career pathway for Minnesota’s Transportation Industry. Professionals in Aviation and Drone Technology work in diverse roles from piloting, air traffic controlling, and aircraft maintenance, as well as designing, servicing, or piloting drones.¹ In all, about 10,297 people work in Aviation and Drone Technology roles in Minnesota as of the second quarter of 2024—a 9.9% increase (927 workers) from a year prior.

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or an 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% average annual growth. During this time frame, Aviation and Drone Technology employment is also anticipated to be relatively flat in Minnesota (-0.1% annually), with employment declining by about 57 total jobs. Total baseline demand for Aviation and Drone Technology talent is anticipated to be around 4,429 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

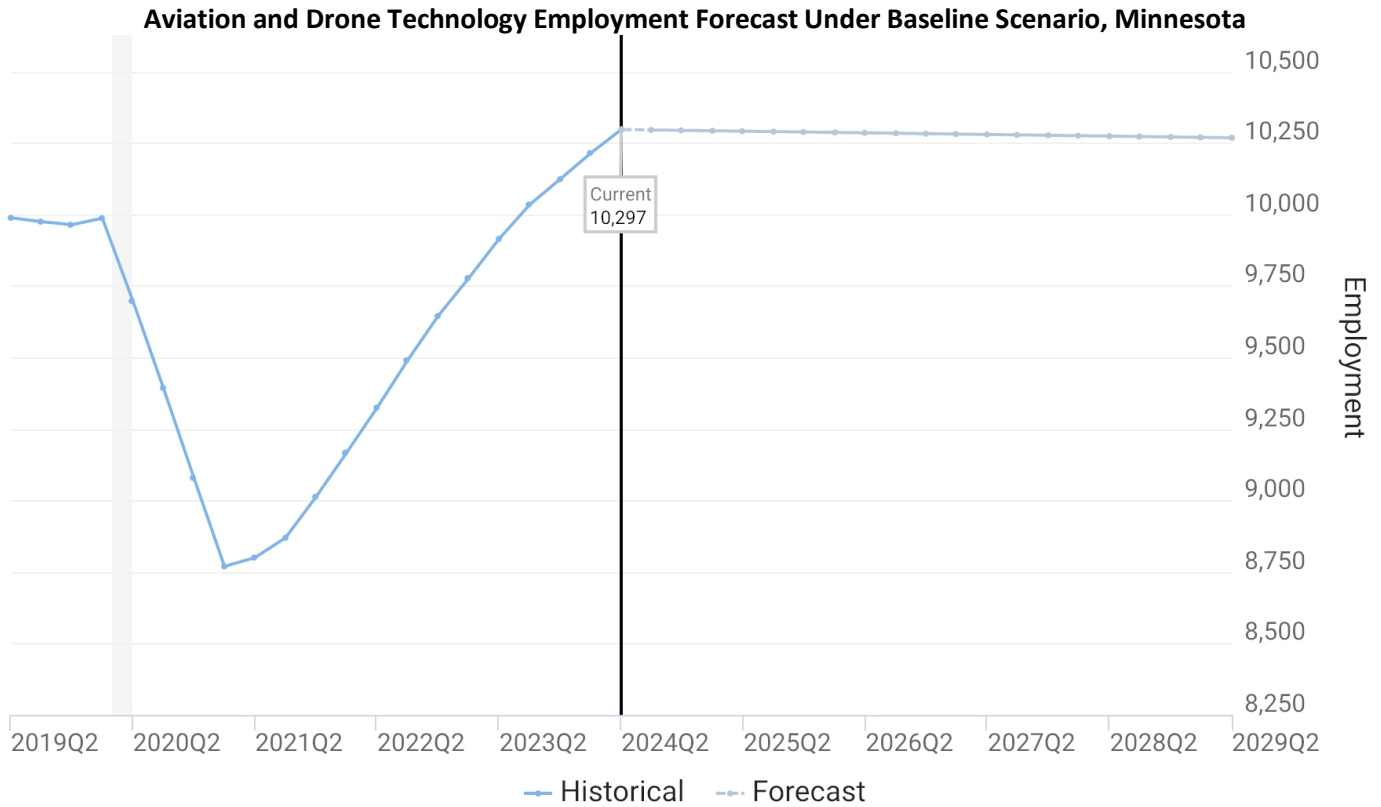
Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

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

2. Wage data represent the average for all Covered Employment

Minnesota’s job market continued to cool in 2024 from the strong recoveries of 2021-2023. Unemployment rates have stabilized around 2.8% as of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Aviation and Drone Technology careers suggest that there may be shortages of talent across a large share of occupations in this career pathway unless more talent decides to enter the field. The pathway has seen continued employment growth in the past four quarters, surpassing pre-pandemic employment, though the forecast for the next five years is flat (-0.1% change annually).



Source: JobsEQ® Data as of 2024Q2. The shaded areas of the graph represent national recessions.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Industry/Occupation Mix

Aviation and Drone Technology talent is primarily concentrated in the Scheduled Air Transportation Industry (39.5%) but are critical to a wide range of air transportation and aerospace industries in Minnesota, now surpassing the pre-pandemic volumes of Aviation and Drone Technology talent employment.

Top Industry Distribution for Aviation and Drone Technology Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT			10-YEAR DEMAND			Total Demand
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	
4811	Scheduled Air Transportation	39.5%	4,069	\$160,100	1,277	2,805	-121	3,961
4881	Support Activities for Air Transportation	9.9%	1,023	\$91,700	282	571	1	853
5511	Management of Companies and Enterprises	4.0%	411	\$137,100	111	231	3	345
5413	Architectural, Engineering, and Related Services	3.9%	398	\$111,700	91	161	-4	248
4812	Nonscheduled Air Transportation	3.8%	392	\$138,200	133	292	19	444
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.6%	371	\$115,200	87	148	-9	226
9261	Administration of Economic Programs	3.2%	331	\$159,500	69	207	-14	263
3364	Aerospace Product and Parts Manufacturing	2.4%	244	\$87,200	71	128	-25	174
4921	Couriers and Express Delivery Services	1.9%	195	\$141,100	60	124	16	199
6219	Other Ambulatory Health Care Services	1.8%	182	\$102,100	60	129	-2	188
5613	Employment Services	1.8%	181	\$92,700	49	90	-6	134
9211	Executive, Legislative, and Other General Government Support	1.7%	170	\$122,600	38	100	-3	136
6115	Technical and Trade Schools	1.4%	140	\$137,300	44	99	-4	139
3344	Semiconductor and Other Electronic Component Manufacturing	1.4%	139	\$120,100	34	57	9	100
9231	Administration of Human Resource Programs	1.2%	120	\$129,700	28	61	1	90
3391	Medical Equipment and Supplies Manufacturing	1.1%	118	\$101,400	26	44	-2	68
5417	Scientific Research and Development Services	1.0%	99	\$131,700	24	41	7	71
9221	Justice, Public Order, and Safety Activities	0.9%	95	\$127,900	21	49	-4	66
5416	Management, Scientific, and Technical Consulting Services	0.9%	94	\$117,900	23	42	8	73
5415	Computer Systems Design and Related Services	0.9%	89	\$127,600	22	39	13	74
-	All Others	14.0%	1,437	-	349	649	4	1,002

Source: JobsEQ®
 Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Talent Demand Detail

Employment and Wage Overview

Of all occupations found in the Aviation and Drone Technology pathway, the specific occupations of Air Traffic Controllers, Airline Pilots, Commercial Pilots, Airfield Operations Specialists, and Electro-Mechanical and Mechatronics Technologists and Technicians are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Aviation careers pay about \$132,400 per year—about \$62,900 higher than the average wage statewide across all positions. There is significant variation in average wages across this field, with Airline Pilots with the highest average wages at \$194,000 compared to Electro-Mechanical and Mechatronics Technologists and Technicians at \$65,900 annually.

SOC	Occupation	Current					5-Year Baseline Forecast				
		Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
53-2011	Airline Pilots, Copilots, and Flight Engineers	2,516	\$194,000	1.42	12	0.5%	1,369	434	967	-33	-0.3%
17-2199	Engineers, All Other	2,302	\$120,800	0.78	32	1.4%	664	243	405	16	0.1%
49-3011	Aircraft Mechanics and Service Technicians	2,097	\$91,800	0.76	11	0.5%	775	282	501	-7	-0.1%
53-2012	Commercial Pilots	1,410	\$144,400	1.29	6	0.5%	798	246	549	2	0.0%
53-2021	Air Traffic Controllers	652	\$167,500	1.55	3	0.5%	279	68	219	-7	-0.2%
53-2022	Airfield Operations Specialists	406	\$71,100	1.28	2	0.5%	175	42	137	-4	-0.2%
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	345	\$65,900	1.18	8	2.2%	131	52	89	-10	-0.6%
49-2091	Avionics Technicians	232	\$70,700	0.52	18	7.2%	87	29	58	0	0.0%
53-1041	Aircraft Cargo Handling Supervisors	171	\$71,400	0.99	3	1.6%	84	26	58	0	0.0%
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	165	\$70,600	0.31	10	5.5%	64	29	51	-16	-2.0%
	Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	4,427	1,450	3,034	-57	-0.1%
	Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

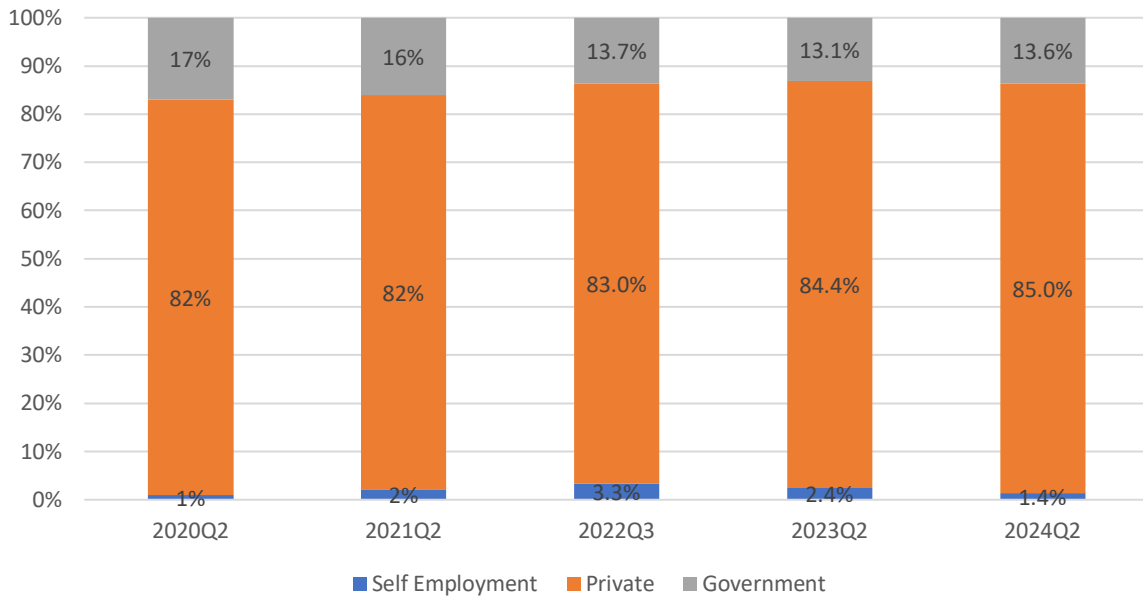
1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

Employment Types

About 85% of people employed in Aviation and Drone Technology careers in Minnesota work for private employers, while only about 1.4% are self-employed (a slight decrease from last year). The remaining 13.6% work for state, federal, or local government entities (mostly federal). The share employed by government agencies has declined slightly over the past few years.

Employment Types, Minnesota 2020-2024



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Wage Analysis

The Aviation and Drone Technology pathway saw wage averages increase from the prior year's estimates across all occupations. Entry-level wages in the pathways far exceed the average entry-level wages observed across all occupations statewide, paying an average of \$87,100 annually for entry-level talent.

Occupation Wages, Average Annual in Minnesota, 2024Q2

SOC	Occupation	Mean	Entry Level	Experienced	Percentiles					Education and Training		
					10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
17-2199	Engineers, All Other	\$120,800	\$84,300	\$139,100	\$79,100	\$95,900	\$117,200	\$139,300	\$165,300	BA	None	None
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	\$65,900	\$47,100	\$75,200	\$45,500	\$51,900	\$63,800	\$80,100	\$90,200	AS	None	None
49-2091	Avionics Technicians	\$70,700	\$45,000	\$83,500	\$41,000	\$53,300	\$71,700	\$78,300	\$97,000	Certificate	None	None
49-3011	Aircraft Mechanics and Service Technicians	\$91,800	\$56,100	\$109,600	\$53,700	\$63,600	\$84,100	\$127,200	\$137,700	Certificate	None	None
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	\$70,600	\$47,900	\$81,900	\$44,500	\$55,300	\$69,200	\$86,400	\$102,200	HS/GED	None	Mod-term OJT
53-1041	Aircraft Cargo Handling Supervisors	\$71,400	\$53,400	\$80,400	\$52,900	\$55,000	\$59,900	\$93,800	\$103,900	HS/GED	< 5 years	None
53-2011	Airline Pilots, Copilots, and Flight Engineers	\$194,000	\$121,500	\$230,200	\$113,300	\$141,700	\$183,500	\$233,800	\$306,700	BA	< 5 years	Mod-term OJT
53-2012	Commercial Pilots	\$144,400	\$101,700	\$165,700	\$98,000	\$111,300	\$132,900	\$190,600	\$222,400	Certificate	None	Mod-term OJT
53-2021	Air Traffic Controllers	\$167,500	\$116,100	\$193,300	\$97,300	\$148,500	\$176,100	\$198,700	\$220,500	AS	None	Long-term OJT
53-2022	Airfield Operations Specialists	\$71,100	\$41,900	\$85,800	\$39,900	\$47,200	\$61,000	\$85,300	\$118,400	HS/GED	None	Long-term OJT
	Aviation and Drone Technology Pathway	\$132,400	\$87,100	\$155,000	\$81,500	\$100,300	\$125,800	\$163,600	\$197,600			
	Total - All Occupations	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Source: [JobsEQ®](#)

Wage data represent the average for all Covered Employment

Wages in the Aviation and Drone Technology pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-County MSP Metro. The MSP Metro region has the highest wages across experience levels and percentiles. While entry-level wages in Rural Greater Minnesota and Urban Greater Minnesota are close, Urban Greater Minnesota generally has higher wages on average and at the median and higher percentiles.

Aviation and Drone Technology Pathway Wages, 2024Q2

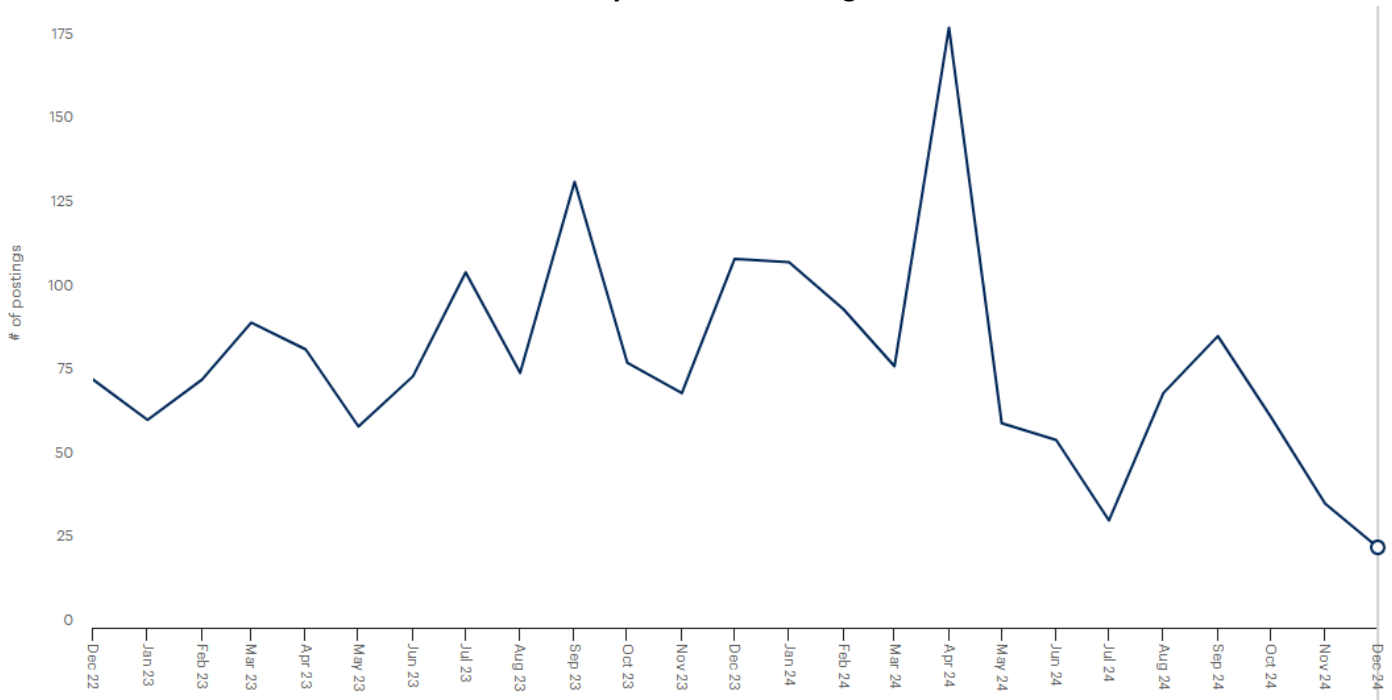
Region	Empl Count	Mean	Entry Level	Experienced	Percentiles				
					10%	25%	50% (Median)	75%	90%
Rural Greater Minnesota	902	\$104,300	\$71,400	\$120,800	\$66,100	\$81,700	\$99,000	\$127,600	\$152,700
Urban Greater Minnesota	851	\$116,300	\$74,800	\$137,100	\$70,100	\$85,800	\$109,500	\$139,200	\$169,000
7-County Metro	8,219	\$137,500	\$91,200	\$160,600	\$85,800	\$104,200	\$130,900	\$170,300	\$203,800
Minnesota	10,297	\$132,400	\$87,100	\$155,000	\$81,500	\$100,300	\$125,800	\$163,600	\$197,600

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Job Posting Trends

Data in this section focuses on newly advertised jobs between January 1 and December 31, 2024 in Aviation and Drone Technology roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset. There were 767 new jobs advertised in Aviation careers across Minnesota during this timeframe, a decrease of -16% from the prior twelve months. The share of positions advertised by staffing and temp agencies in the Aviation and Drone Technology pathway grew to 14%, and Employment Placement Agencies were the top employer type in job postings. Posted wages increased to an average of \$24.43 per hour (compared to \$22.46 per hour in 2023), and there were about 3 hires per every 1 unique job postings advertised based on Lightcast estimates.

Volume of Career Pathway Online Job Postings in 2023 and 2024

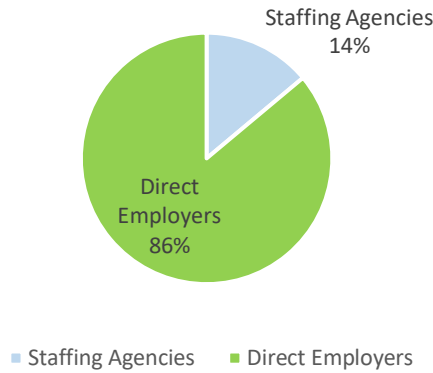


Top Employers by Volume of New Job Postings, With Change from Prior Year

Employer	Percent Change between 2023 and 2024
1. Army	-34%
2. Navy	50%
3. U.S. Air Force	1633%
4. Department of the Air Force	80%
5. SAIC	63%
6. North Memorial Health Care	257%
7. Delta Air Lines	-41%
8. Honeywell	400%
9. SUN COUNTRY AIRLINES	25%
10. Cirrus Aircraft Corporation	-24%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

New Job Postings Advertised in Minnesota by Employer Type

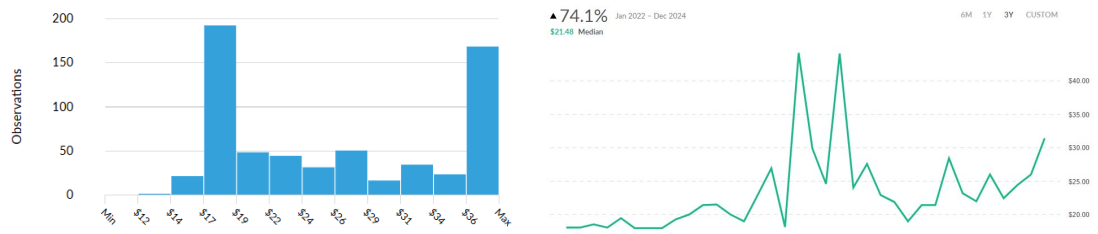


New Job Postings by Industry or Employer Type

Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
Employment Placement Agencies	448 / 212	2 : 1	21 days
Engineering Services	204 / 69	3 : 1	32 days
Other Airport Operations	117 / 61	2 : 1	23 days
Supermarkets and Other Grocery Retailers (except Convenience Retailers)	171 / 40	4 : 1	23 days
Scheduled Passenger Air Transportation	151 / 38	4 : 1	16 days
Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	94 / 35	3 : 1	14 days
Other Support Activities for Air Transportation	75 / 35	2 : 1	24 days
Aircraft Engine and Engine Parts Manufacturing	70 / 33	2 : 1	20 days
General Medical and Surgical Hospitals	74 / 28	3 : 1	37 days
Regulation and Administration of Transportation Programs	38 / 27	1 : 1	18 days

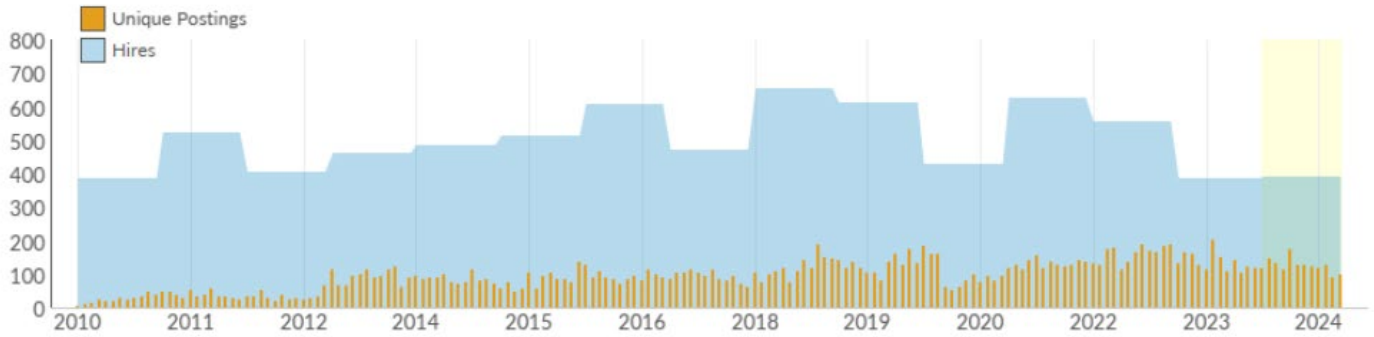
Pathway Advertised Salary Range

\$24.43/hr
Median Advertised Salary

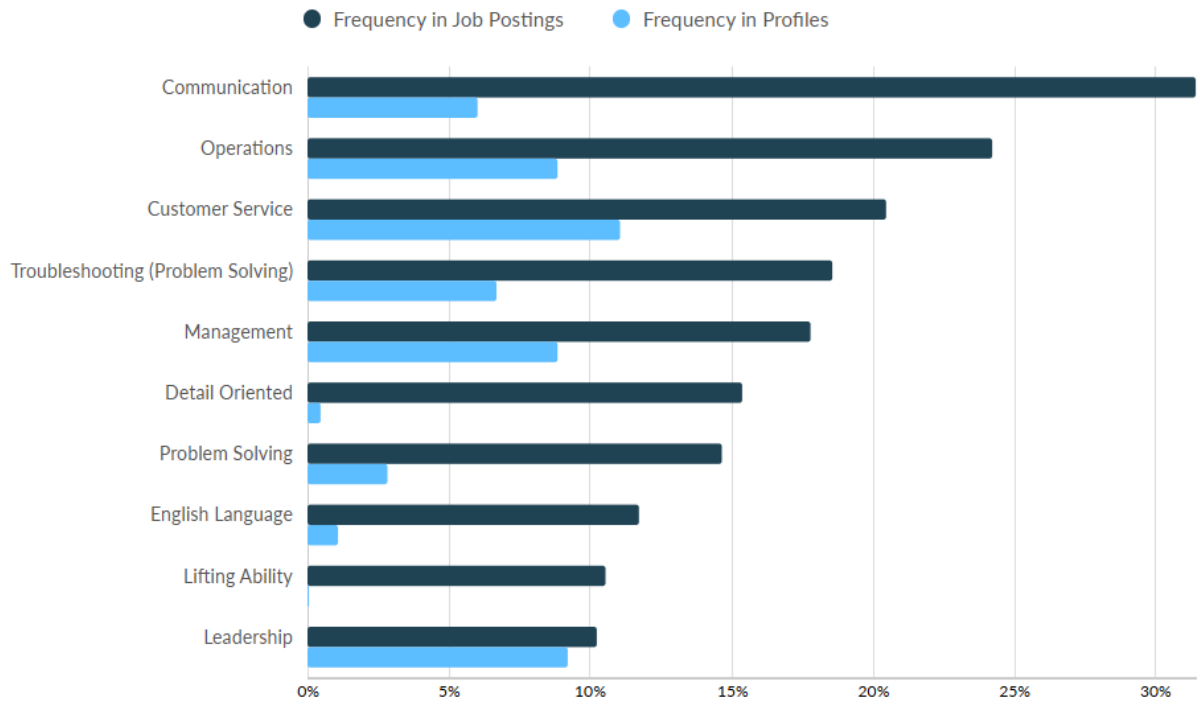


Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Monthly Ratio of Unique Job Postings to Estimated Hires

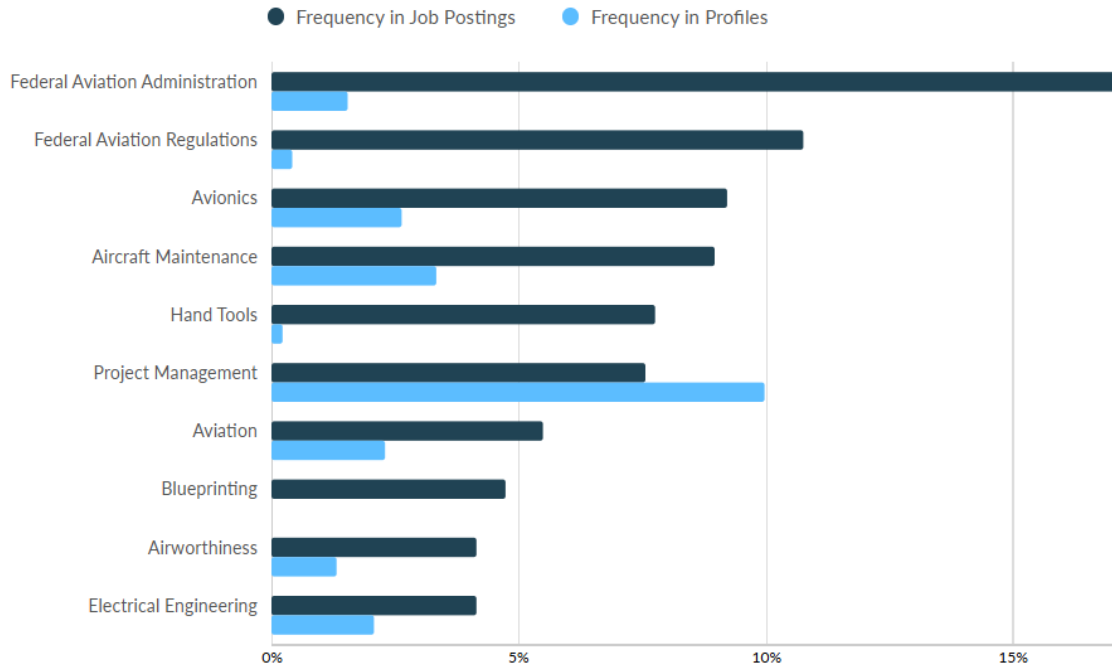


Top Common Skills



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	345
Airframe & Powerplant (A&P) Certificate	143
Drone Pilot Certificate	35
Airline Transport Pilot Licence	35
Professional Engineer (PE) License	33
Security Identification Display Area (SIDA) Badge	26
FAA First Class Medical Certificate	25
Commercial Driver's License (CDL)	23
FAA Multi-Engine Rating	22
FAA Instrument Rating	21

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 1.0% (a slight drop from the prior year), there are about 105 unemployed Aviation and Drone Technology professionals statewide. An additional 1,209 (an increase from the previous year’s 1,136) Aviation professionals are underemployed—meaning they are working in roles for which they are overqualified by education or experience.²

Aviation and Drone Technology Pathway in Minnesota

SOC	Occupation	Empl (Place of Residence)							Overall Occupation ¹			
		< High School	High School	Some College	Two-Year	Four-Year	Master's	PhD	Total Empl	Underemployed	Unemployed	Unempl Rate
17-2199	Engineers, All Other	0.2%	1.6%	3.2%	5.3%	54.1%	27.1%	8.6%	2,307	N/A	32	1.4%
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	1.7%	16.2%	19.3%	27.8%	28.2%	5.4%	1.3%	345	105	8	2.2%
49-2091	Avionics Technicians	1.1%	14.3%	22.6%	46.1%	14.5%	1.4%	0.0%	232	37	18	7.2%
49-3011	Aircraft Mechanics and Service Technicians	1.7%	20.3%	24.3%	34.1%	16.4%	3.0%	0.2%	2,079	411	11	0.5%
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	10.5%	43.6%	19.5%	13.2%	11.4%	1.4%	0.5%	172	20	10	5.5%
53-1041	Aircraft Cargo Handling Supervisors	4.8%	27.3%	20.9%	14.5%	27.5%	4.3%	0.8%	167	57	3	1.6%
53-2011	Airline Pilots, Copilots, and Flight Engineers	0.2%	1.9%	4.5%	5.8%	68.9%	16.1%	2.6%	2,485	N/A	12	0.5%
53-2012	Commercial Pilots	0.2%	2.2%	5.0%	6.8%	68.0%	15.3%	2.5%	1,378	N/A	6	0.5%
53-2021	Air Traffic Controllers	0.4%	4.5%	14.2%	21.5%	50.4%	6.8%	2.2%	628	351	3	0.5%
53-2022	Airfield Operations Specialists	0.4%	4.3%	13.8%	20.5%	51.7%	7.1%	2.3%	411	229	2	0.5%
Aviation and Drone Technology Pathway		0.8%	7.7%	10.7%	15.1%	48.7%	13.7%	3.2%	10,204	1,209	105	1.0%
Total - All Occupations		5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

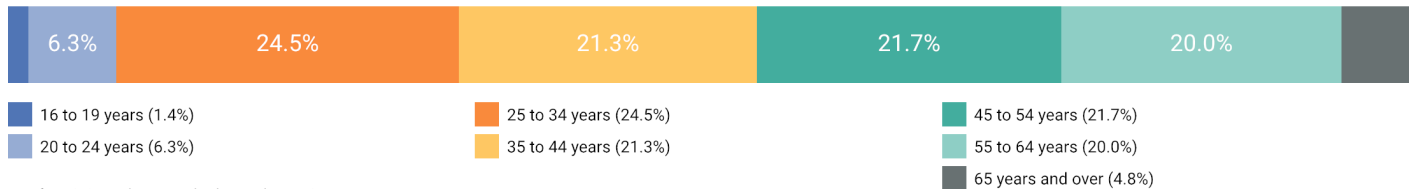
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

² Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

Workforce Demographics

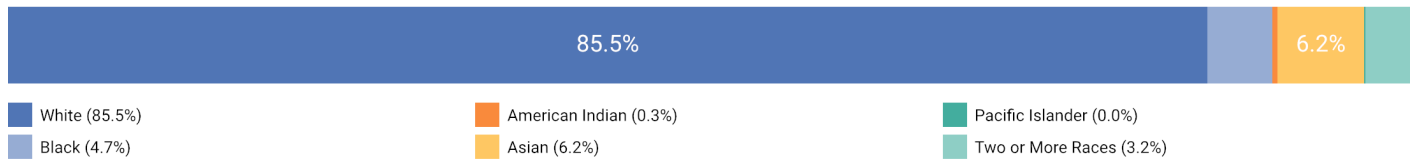
The share of the workforce under the age of 25 has remained steady from the prior year (7.7%) and the share over the age of 64 has increased to 4.8% based on 2024Q2 estimates. The largest demographic group by race are White, representing 85.5% (decreased by 3.0 percentage points from the previous year) of the total pathway’s workforce, with the next largest cohort being Asian talent representing 6.2% of the workforce. About 4.3% of the pathway’s workforce are Hispanic or Latinx, and 10.1% is female (a slight drop from the prior year).

Aviation and Drone Technology Workforce Age Demographics, 2024Q2



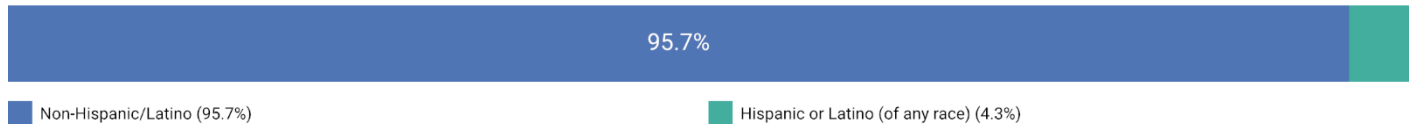
Data for Aviation and Drone Technology Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aviation and Drone Technology Workforce Race Demographics, 2024Q2



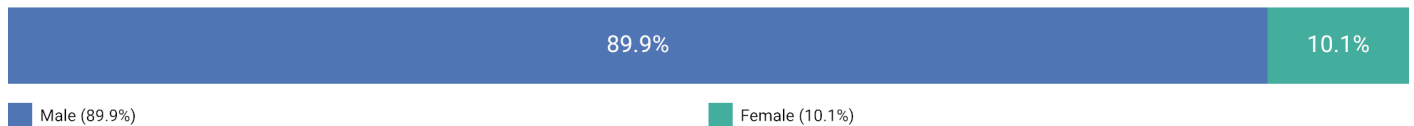
Data for Aviation and Drone Technology Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aviation and Drone Technology Workforce Ethnicity Demographics, 2024Q2



Data for Aviation and Drone Technology Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aviation and Drone Technology Workforce Gender Demographics, 2024Q2



Data for Aviation and Drone Technology Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

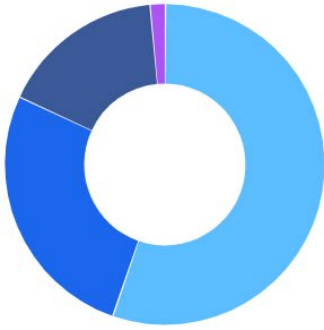
Aligned Postsecondary Programs

There were about 717 awards conferred at 31 different Minnesota postsecondary institutions in programs aligned to Aviation and Drone Technology careers in SY2023. Among these 266 were at the Associate level, and 133 were certificates that could be earned in less than two years. The average school had about 23 completions, but range from one to 91 completions. Five institutions offered programs remotely (16% of institutions), with 74 awards obtained remotely in 2023 (10% of all pathway completions). This is an increase in remote programs and awards compared to the prior year. Programs mapping to this career pathway are diverse and several align to other occupations outside of this career pathway, namely in STEM and Manufacturing clusters.

Postsecondary Program Awards Aligned to Aviation and Drone Technology Careers by Level, SY2023

CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Post-Bacc	Masters	Doctorate	Total Awards
15.0406	Automation Engineer Technology/Technician	21	43	99	10	0	0	0	0	173
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician	14	20	59	5	7	0	0	0	105
14.0101	Engineering, General	0	0	0	0	78	0	0	0	78
15.0405	Robotics Technology/Technician	10	0	34	0	0	0	20	0	64
47.0607	Airframe Mechanics and Aircraft Maintenance Technology/Technician	3	0	25	26	0	0	0	0	54
14.3601	Manufacturing Engineering	0	0	0	0	16	13	10	0	39
52.0203	Logistics, Materials, and Supply Chain Management	3	0	4	0	25	0	0	0	32
15.0404	Instrumentation Technology/Technician	0	0	25	4	0	0	0	0	29
15.0000	Engineering Technologies/Technicians, General	0	0	0	0	27	0	0	0	27
14.9999	Engineering, Other	0	0	0	0	0	0	21	0	21
49.0102	Airline/Commercial/Professional Pilot and Flight Crew	0	0	7	0	6	0	0	0	13
14.1201	Engineering Physics/Applied Physics	0	0	0	0	13	0	0	0	13
01.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician	0	0	4	5	0	0	0	0	9
15.0499	Electromechanical Technologies/Technicians, Other	8	0	0	0	0	0	0	0	8
14.3901	Geological/Geophysical Engineering	0	0	0	0	7	0	1	0	8
14.4201	Mechatronics, Robotics, and Automation Engineering	0	0	0	0	8	0	0	0	8
15.0407	Mechatronics, Robotics, and Automation Engineering Technology/Technician	0	4	3	0	0	0	0	0	7
14.1301	Engineering Science	0	0	0	0	6	0	0	0	6
15.0805	Mechanical/Mechanical Engineering Technology/Technician	0	0	6	0	0	0	0	0	6
47.0609	Avionics Maintenance Technology/Technician	4	0	0	0	0	0	0	0	4
15.1502	Engineering Design	0	0	0	0	0	3	1	0	4
47.0608	Aircraft Powerplant Technology/Technician	3	0	0	0	0	0	0	0	3
15.9999	Engineering/Engineering-Related Technologies/Technicians, Other	0	0	0	0	0	0	3	0	3
14.2701	Systems Engineering	0	0	0	0	0	0	3	0	3
49.0104	Aviation/Airway Management and Operations	0	0	0	0	0	0	0	0	0
15.0403	Electromechanical/Electromechanical Engineering Technology/Technician	0	0	0	0	0	0	0	0	0
15.1601	Nanotechnology	0	0	0	0	0	0	0	0	0
Total		66 (9.2%)	67 (9.3%)	266 (37.1%)	50 (7.0%)	193 (26.9%)	16 (2.2%)	59 (8.2%)	0 (0.0%)	717

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io



Institution Type	Completions (2023)	Market Share
Public, 2-year	392	55.2%
Public, 4-year or above	189	26.6%
Private not-for-profit, 4-year or above	118	16.6%
Private for-profit, 4-year or above	11	1.5%

Just over half (55.2%) of awards were conferred by public two-year institutions, with Hennepin Technical College and Dunwoody College of Technology comprising 22.1% of SY2023 awards conferred. Minnesota State University – Mankato was the institution with the second greatest number of completions.

Aviation and Drone Technology Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023)	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
Hennepin Technical College	91	8.3%	12.8%	\$5,881	
Minnesota State University-Mankato	70	75.0%	9.9%	\$9,490	
Dunwoody College of Technology	66	11.9%	9.3%	\$25,659	
Lake Superior College	50	-5.7%	7.0%	\$5,785	
University of Minnesota-Twin Cities	49	36.1%	6.9%	\$16,488	
South Central College	45	73.1%	6.3%	\$6,146	
Anoka Technical College	35	150.0%	4.9%	\$6,267	
Ridgewater College	34	-5.6%	4.8%	\$6,109	
University of St Thomas	29	-46.3%	4.1%	\$52,284	
Bemidji State University	27	22.7%	3.8%	\$10,114	
Metropolitan State University	22	-21.4%	3.1%	\$9,780	
Minnesota State College Southeast	22	4.8%	3.1%	\$7,820	
St Cloud Technical and Community College	21	5.0%	3.0%	\$4,957	
Minneapolis Community and Technical College	20	-51.2%	2.8%	\$6,128	
Alexandria Technical & Community College	19	-9.5%	2.7%	\$6,213	
Northland Community and Technical College	19	18.8%	2.7%	\$6,262	
Saint Paul College	15	-40.0%	2.1%	\$6,318	
University of Northwestern-St Paul	12	-53.8%	1.7%	\$36,830	
Academy College	11	-47.6%	1.5%	\$18,252	
Central Lakes College-Brainerd	11	-62.1%	1.5%	\$6,209	
Saint Cloud State University	7	-61.1%	1.0%	\$10,117	
Bethany Lutheran College	6	-14.3%	0.8%	\$30,010	
Minnesota State University Moorhead	6	50.0%	0.8%	\$10,336	
University of Minnesota-Duluth	5	150.0%	0.7%	\$14,318	
Minnesota West Community and Technical College	4	-66.7%	0.6%	\$6,484	
Hamline University	3	Insf. Data	0.4%	\$48,311	
Winona State University	3	50.0%	0.4%	\$10,498	
Century College	3	-57.1%	0.4%	\$6,182	
Pine Technical & Community College	2	100.0%	0.3%	\$4,681	
Saint Mary's University of Minnesota	2	100.0%	0.3%	\$43,160	
Rochester Community and Technical College	1	Insf. Data	0.1%	\$6,359	

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Graduate Demographics

Postsecondary program diversity varies by program across the Aviation and Drone Technology pathway. Automation Engineering Technology postsecondary programs continue to have the largest number of Hispanic/Latine students who conferred awards in SY2023, while Logistics, Materials, and Supply Chain Management programs graduated the largest number of Black students. Robotics Technology/Technician programs have the largest number of international students, and nearly all programs have an overrepresentation of male students.³ Overall, the total number of international students increased by three from the previous school year. The total number of female graduates in programs aligned to the Automotive Technology pathway decreased from 117 to 93.

³ [NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
01.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician	9	0	0	0	0	0	9	0	9	0
14.0101	Engineering, General	78	3	3	0	4	4	58	6	58	20
14.1201	Engineering Physics/Applied Physics	13	1	1	0	1	1	9	0	8	5
14.1301	Engineering Science	6	1	0	0	0	0	4	1	4	2
14.2701	Systems Engineering	3	0	1	0	1	0	1	0	3	0
14.3601	Manufacturing Engineering	39	6	2	0	2	1	25	3	31	8
14.3901	Geological/Geophysical Engineering	8	0	0	0	0	0	8	0	3	5
14.4201	Mechatronics, Robotics, and Automation Engineering	8	0	0	0	1	0	7	0	8	0
14.9999	Engineering, Other	21	3	8	0	2	1	6	1	16	5
15.0000	Engineering Technologies/Technicians, General	27	0	0	0	1	2	21	3	25	2
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician	105	0	5	0	15	2	69	14	100	5
15.0403	Electromechanical/Electromechanical Engineering Technology/Technician	0	0	0	0	0	0	0	0	0	0
15.0404	Instrumentation Technology/Technician	29	0	0	0	0	2	25	2	26	3
15.0405	Robotics Technology/Technician	64	10	3	0	6	4	40	1	58	6
15.0406	Automation Engineer Technology/Technician	173	0	10	1	10	20	125	7	158	15
15.0499	Electromechanical Technologies/Technicians, Other	8	0	2	0	4	1	1	0	8	0
15.0805	Mechanical/Mechanical Engineering Technology/Technician	6	0	0	0	2	0	4	0	6	0
15.1502	Engineering Design	4	0	3	0	0	0	0	1	2	2
15.1601	Nanotechnology	0	0	0	0	0	0	0	0	0	0
15.9999	Engineering/Engineering-Related Technologies/Technicians, Other	3	2	0	0	0	0	1	0	2	1
47.0607	Airframe Mechanics and Aircraft Maintenance Technology/Technician	54	2	0	0	5	1	45	1	50	4
47.0608	Aircraft Powerplant Technology/Technician	3	0	0	0	2	1	0	0	3	0
47.0609	Avionics Maintenance Technology/Technician	4	0	0	0	0	0	2	2	4	0
49.0102	Airline/Commercial/Professional Pilot and Flight Crew	13	0	0	0	1	0	11	1	12	1
49.0104	Aviation/Airway Management and Operations	0	0	0	0	0	0	0	0	0	0
52.0203	Logistics, Materials, and Supply Chain Management	32	2	11	1	2	1	14	1	23	9
All Aviation and Drone Technology Postsecondary Programs		710	30	49	2	59	41	485	44	617	93

[NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Postsecondary programs aligned to all Aviation and Drone Technology pathway occupations except for Electro-Mechanical and Mechatronics Technologists and Technicians and Avionics Technicians are underproducing graduates in comparison to national benchmarks. Each occupation in the Aviation and Drone Technology pathway except Aircraft Structure, Surfaces, Rigging, and Systems Assemblers are experiencing talent shortages. The 26 aligned programs for the Aviation and Drone Technology pathway nearly all have a low share of BIPOC graduates, and a low share of female graduates. The share of BIPOC graduates increased by 6.5 percentage points from the 2022 school year and the share of female graduates decreased by 3.0 percentage points from the 2022 school year.

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)**	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Airline Pilots, Copilots, and Flight Engineers	<ul style="list-style-type: none"> Airline/Commercial/Professional Pilot and Flight Crew 	2,516	7.2%	3.5%	7.1%	44.1%	7	Y	15.4%	7.7%
Aircraft Mechanics and Service Technicians	<ul style="list-style-type: none"> Agricultural Mechanics and Equipment/Machine Technology/Technician Airframe Mechanics and Aircraft Maintenance Technology/Technician 	2,097	14.9%	6.3%	4.1%	60.6%	63	Y	11.1%	6.4%
Engineers, All Other	<ul style="list-style-type: none"> Engineering, General Engineering Physics/Applied Physics Engineering Science Systems Engineering Manufacturing Engineering Geological/Geophysical Engineering Mechatronics, Robotics, and Automation Engineering Engineering, Other 	2,302	22.2%	2.5%	13.2%	56.6%	0	Y	25.0%	25.6%
Commercial Pilots*	<ul style="list-style-type: none"> Airline/Commercial/Professional Pilot and Flight Crew 	1,410	5.7%	3.0%	7.0%	42.2%	7	Y	15.4%	7.7%
Air Traffic Controllers	<ul style="list-style-type: none"> Aviation/Airway Management and Operations 	652	20.2%	7.2%	19.1%	69.2%	0	Y	N/A no awards	N/A no awards
Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	<ul style="list-style-type: none"> Aircraft Powerplant Technology/Technician 	165	19.7%	7.1%	31.9%	56.6%	3	Y	100.0%	0.0%
Electro-Mechanical and Mechatronics Technologists and Technicians	<ul style="list-style-type: none"> Engineering Technologies/Technicians, General Electrical, Electronic, and Communications Engineering Technology/Technician Electromechanical/Electromechanical Engineering Technology/Technician Instrumentation Technology/Technician Robotics Technology/Technician Automation Engineer Technology/Technician Mechanical/Mechanical Engineering Technology/Technician Engineering Design Nanotechnology Engineering/Engineering-Related Technicians, Other 	345	18.0%	2.9%	17.2%	50.2%	358	N	28.8%	8.1%
Airfield Operations Specialists*	<ul style="list-style-type: none"> Aviation/Airway Management and Operations 	406	22.3%	7.9%	19.1%	70.0%	0	Y	N/A no awards	N/A no awards
Aircraft Cargo Handling Supervisors	<ul style="list-style-type: none"> Logistics, Materials, and Supply Chain Management 	171	30.9%	6.6%	26.4%	57.0%	7	Y	27.5%	13.1%
Avionics Technicians	<ul style="list-style-type: none"> Avionics Maintenance Technology/Technician 	232	14.0%	5.4%	4.1%	55.2%	4	Y	0.0%	50.0%
Aviation and Drone Technology Pathway	All 26 aligned programs	10,297	14.5%	4.3%	10.1%	53.5%	449	Y	27.5%	13.1%
All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *Related programs may overlap among occupations within the pathway or across other Transportation career pathways. Only those programs most tightly aligned to the occupation in question are listed in this column. **Award gaps are estimated based on a wider alignment of programs than what is illustrated in this table.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Conclusion

Over the next five years, Aviation and Drone Technology employment is anticipated to be relatively flat in Minnesota (-0.1% change annually), with employment forecast to decline by about 57 total jobs. Total baseline demand for Aviation and Drone Technology talent is anticipated to be around 4,429 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Of all occupations found in the Aviation and Drone Technology pathway, the specific occupations of Air Traffic Controllers, Airline Pilots, Commercial Pilots, Airfield Operations Specialists, and Electro-Mechanical and Mechatronics Technologists and Technicians are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Aviation careers pay about \$132,400 per year—about \$62,900 higher than the average wage statewide across all positions. There is significant variation in average wages across this field, with Airline Pilots with the highest average wages at \$194,000 compared to Electro-Mechanical and Mechatronics Technologists and Technicians at \$65,900 annually.

At an overall pathway unemployment rate of 1.0% (a slight drop from the prior year), there are about 105 unemployed Aviation and Drone Technology professionals statewide. The 26 aligned programs for the Aviation and Drone Technology pathway nearly all have a low share of BIPOC graduates, and a low share of female graduates. There is an opportunity to diversify student enrollment into these programs.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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.

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



COLLISION REPAIR

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence

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Introduction and Sector Overview

This report highlights the importance of the Collision Repair career pathway for Minnesota’s Transportation Industry. Professionals in Collision Repair work in diverse roles from autobody repairers and glass installers to autobody painting, primarily concentrated in Car Repair Shops and Automobile Dealerships. In all, about 7,342 people work in Collision Repair roles in Minnesota as of the second quarter of 2024—an increase of 35 workers from a year prior.

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or a 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% average annual growth. During this time frame, Collision Repair employment is anticipated to decline slightly in Minnesota, by 101 total jobs (-0.3% annually) due to a tight talent pool. Total baseline demand for Collision Repair talent is anticipated to be around 3,035 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2¹

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

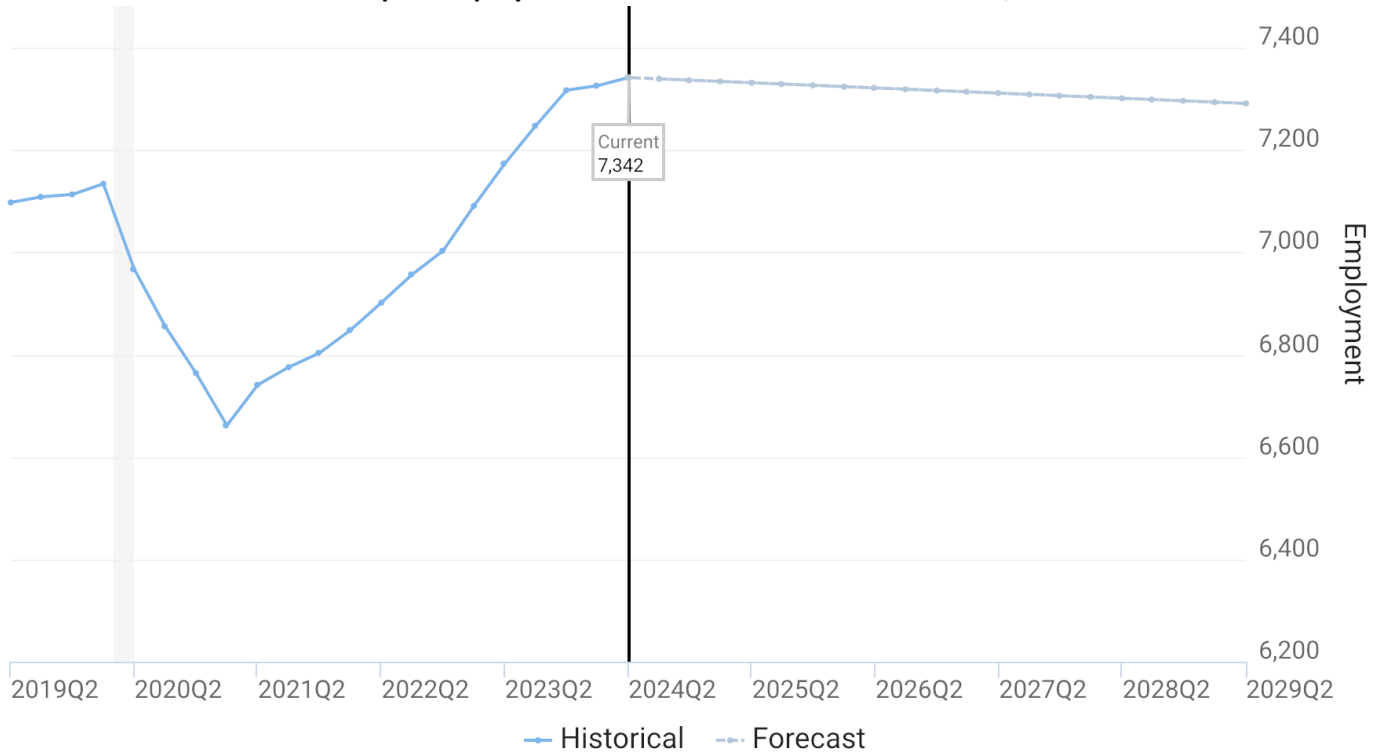
Note: Figures may not sum due to rounding.

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

2. Wage data represent the average for all Covered Employment

Minnesota’s job market continued to cool in 2024 from the strong recovery between 2021 and 2023. Unemployment rates have stabilized around 2.8% as of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Collision Repair suggest that there may be shortages of talent across a large share of occupations in this career pathway unless more talent decides to enter the field. The pathway forecast has soured since estimates in late 2020, with a baseline forecast of about -0.3% average annual decline in overall employment through the second quarter of 2029. Growth in the Collision Repair pathway slowed in the last two quarters after the strong recovery seen in 2021-2023. As of 2024Q2, growth from one prior year was only 0.5%.

Collision Repair Employment Forecast Under Baseline Scenario, Minnesota



Source: JobsEQ® Data as of 2024Q2 The shaded areas of the graph represent national recessions.

Industry/Occupation Mix

Collision Repair talent is primarily concentrated in the Automotive Repair and Maintenance industry (48.5%), increasing in its concentration from estimates in 2023 by 2.9 percentage points. The next highest industry of employment concentration is Automobile Dealers (7.5%), followed by general Coating, Engraving, Heat Treating, and Allied Activities. These top industries account for the most total demand for this talent over the next ten years.

Top Industry Distribution for Collision Repair Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT		10-YEAR DEMAND				Total Demand
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	
8111	Automotive Repair and Maintenance	48.5%	3,560	\$62,500	1,242	1,691	-22	2,912
4411	Automobile Dealers	7.5%	552	\$59,100	188	239	-65	362
3328	Coating, Engraving, Heat Treating, and Allied Activities	6.0%	440	\$44,800	121	267	-43	345
3323	Architectural and Structural Metals Manufacturing	3.0%	218	\$54,600	64	141	7	212
3339	Other General Purpose Machinery Manufacturing	2.4%	174	\$54,600	50	109	-7	152
3399	Other Miscellaneous Manufacturing	2.2%	160	\$54,600	46	102	-1	148
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.6%	121	\$54,600	34	75	-6	103
3331	Agriculture, Construction, and Mining Machinery Manufacturing	1.5%	108	\$54,600	31	68	-5	94
3219	Other Wood Product Manufacturing	1.4%	103	\$44,900	30	66	0	97
3362	Motor Vehicle Body and Trailer Manufacturing	1.4%	101	\$49,700	31	62	1	94
3369	Other Transportation Equipment Manufacturing	1.4%	101	\$53,500	27	59	-17	68
3222	Converted Paper Product Manufacturing	1.3%	95	\$58,400	25	56	-14	68
3261	Plastics Product Manufacturing	1.1%	84	\$46,800	25	55	2	82
5613	Employment Services	1.1%	78	\$41,700	23	49	0	71
3329	Other Fabricated Metal Product Manufacturing	1.0%	77	\$54,600	22	48	-4	65
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.0%	76	\$55,200	27	36	-1	61
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	0.9%	67	\$48,000	19	42	-1	60
3332	Industrial Machinery Manufacturing	0.9%	63	\$54,600	18	40	-2	55
3391	Medical Equipment and Supplies Manufacturing	0.8%	59	\$50,400	17	37	-1	54
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	0.8%	56	\$54,600	16	35	-2	50
-	All Others	14.3%	1,048	-	316	622	-19	918

Source: JobsEQ®
 Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

Talent Demand Detail

Employment and Wage Overview

Of the three occupations found in the Collision Repair pathway, Coating, Painting, and Spraying Machine Setters, Operators, and Tenders are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall with a location quotient of 1.12. On average, Collision Repair careers pay about \$58,400 (an increase from \$52,800 last year)—about \$11,100 below the average wage statewide across all positions. Each of the occupations in the Collision Repair pathway is forecasted to decline over the next five years, due in large part to the local talent shortage.

		Current					5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	3,517	\$54,600	1.12	152	4.1%	1,550	502	1,107	-58	-0.3%
49-3021	Automotive Body and Related Repairers	3,435	\$61,400	1.08	19	0.6%	1,335	628	747	-40	-0.2%
49-3022	Automotive Glass Installers and Repairers	390	\$66,600	0.93	8	2.0%	150	56	97	-2	-0.1%
Collision Repair Pathway		7,342	\$58,400	1.09	179	2.4%	3,035	1,186	1,950	-101	-0.3%
Total - All Occupations		3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

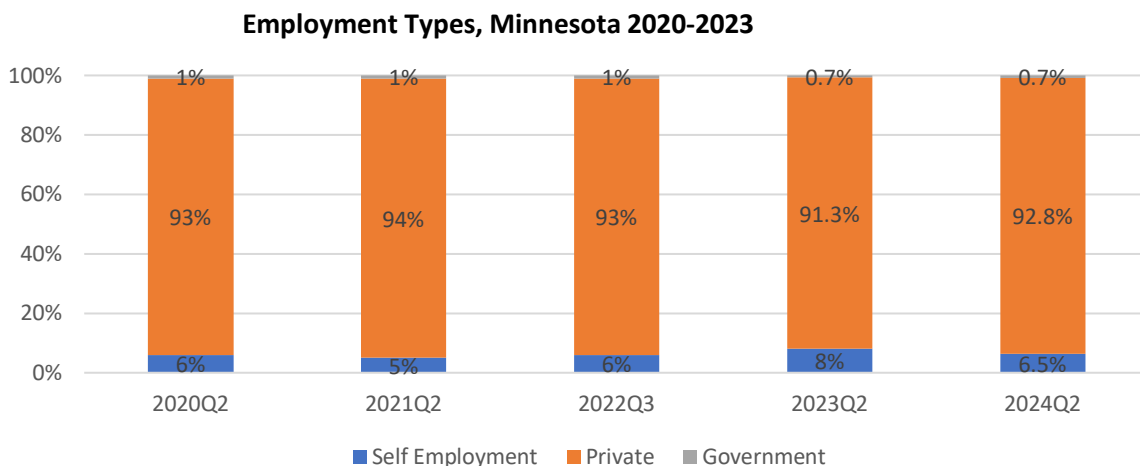
Note: Figures may not sum due to rounding.

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

2. Wage data are the average for all Covered Employment

Employment Types

About 93% (back up from last year's 91%) of people employed in Collision Repair careers in Minnesota work for private employers, while an estimated 7% are self-employed (a slight decrease from 2023). The remaining 0.7% work for state, federal, or local government entities.



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com

Wage Analysis

The Collision Repair pathway overall saw a jump in average wages, with average wages growing by \$5,600 compared to the prior year’s estimates. All three occupations within this pathway saw increases in average wages. Entry-level wages in the pathway exceed the average entry-level wages observed across all occupations statewide by over \$5,000, paying an average of \$40,900 annually for entry-level talent. Education and training requirements are similar across the different occupations in this pathway, with each occupation requiring a High School Diploma or equivalent and either long-term or moderate-term on the job training.

Collision Repair Pathway Wages and Experience Level Requirements, MN, 2024Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	Percentiles					Education and Training		
						10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
49-3021	Automotive Body and Related Repairers	3,435	\$61,400	\$39,600	\$72,300	\$36,300	\$46,100	\$58,800	\$71,500	\$89,200	HS/GED	None	Long-term OJT
49-3022	Automotive Glass Installers and Repairers	390	\$66,600	\$46,600	\$76,600	\$43,400	\$53,200	\$62,200	\$81,700	\$102,300	HS/GED	None	Mod-term OJT training
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	3,517	\$54,600	\$41,500	\$61,100	\$39,600	\$45,500	\$52,300	\$60,900	\$69,300	HS/GED	None	Mod-term OJT
16417	Collision Repair Pathway	7,342	\$58,400	\$40,900	\$67,200	\$38,200	\$46,200	\$55,800	\$67,000	\$80,300			
	Total - All Occupations	3,101,622	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Wages in the Collision pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-county MSP Metro. The MSP Metro region has the highest wages across experience levels and percentiles and contains 55% of the pathway’s total statewide employment. The Rural Greater Minnesota region and the Urban Greater Minnesota region have very close average and median wage rates; Average Collision Repair Pathway wages in the Greater Minnesota regions are now around \$9,000 below the average pathway wages in the MSP Metro.

Collision Repair Pathway Wages, 2024Q2

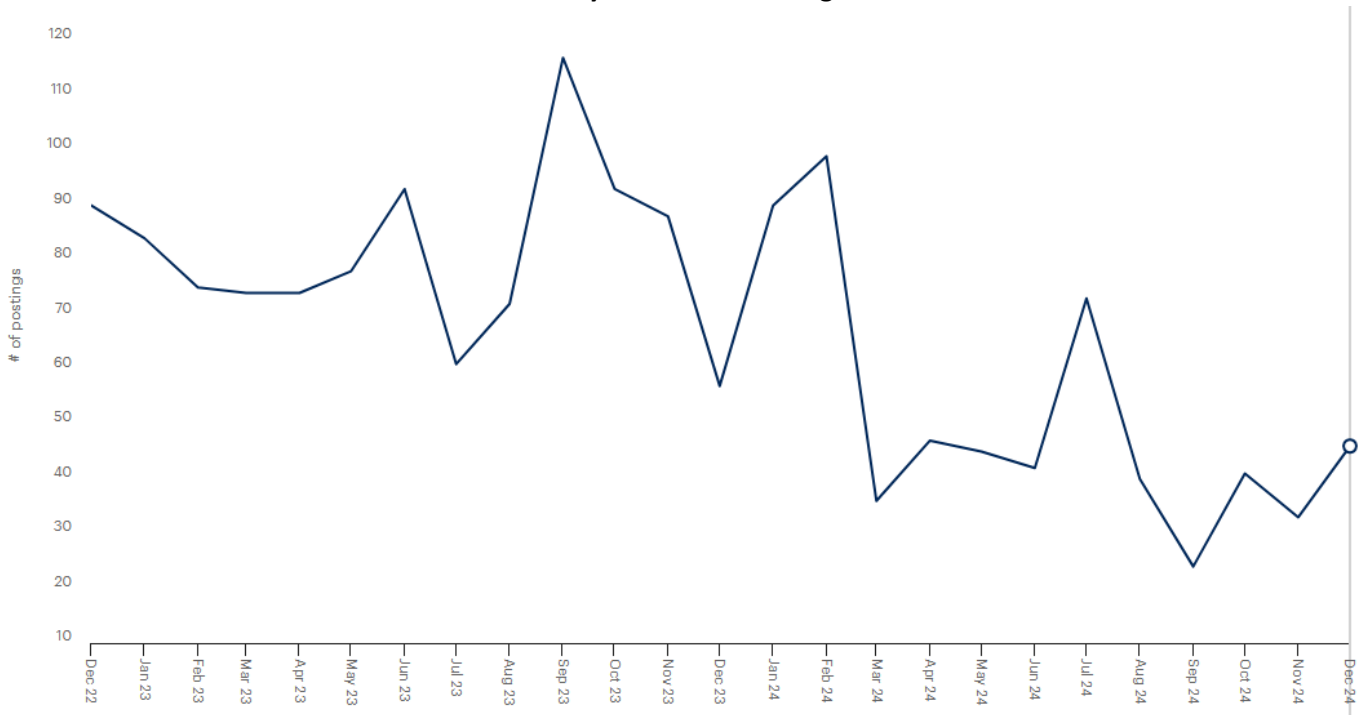
Region	Empl Count	Mean	Entry Level	Experienced	Percentiles				
					10%	25%	50% (Median)	75%	90%
Rural Greater Minnesota	2,194	\$53,600	\$38,500	\$61,200	\$36,300	\$43,000	\$51,900	\$63,000	\$72,200
Urban Greater Minnesota	1,013	\$53,300	\$39,800	\$60,100	\$38,300	\$43,200	\$50,100	\$60,800	\$70,700
MSP Metro	4,045	\$62,300	\$44,400	\$71,300	\$41,000	\$50,500	\$58,400	\$69,900	\$90,200
Minnesota	7,342	\$58,400	\$40,900	\$67,200	\$38,200	\$46,200	\$55,800	\$67,000	\$80,300

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com

Job Posting Trends

Data in this section focuses on newly advertised jobs between January 1 and December 31, 2024 in Collision Repair roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset. Overall, there were 616 new jobs advertised in Collision Repair careers across Minnesota during this timeframe, a decrease of 37% from the prior 12-month period (2023), following what had been a 38% increase between 2022 and 2023. The share of positions advertised by staffing and temp agencies in the Collision Repair pathway decreased in 2023 from 23% to 20%. Posted wages increased from the prior year’s estimates, rising to a median hourly rate \$26.34 as of 2024 and there were four hires per every one unique job posting advertised based on Lightcast estimates.

Volume of Career Pathway Online Job Postings in 2023 and 2024

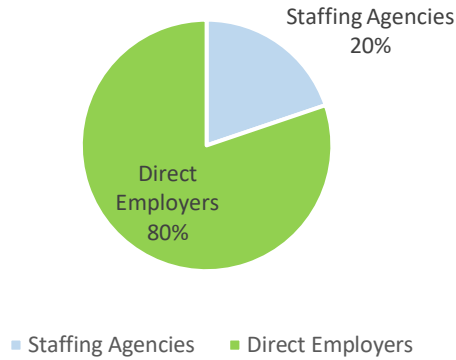


Top Employers by Volume of New Job Postings, With Change from Prior Year

Employer	Percent Change between 2022 and 2023
1. Caliber Collision Centers	-47%
2. Gerber Collision & Glass	79%
3. Momentum Truck Group	1950%
4. DOHERTY	74%
5. John Harris Body Shops	29%
6. Safelite Autoglass	-70%
7. WEC Energy Group	0%
8. Dent Wizard	-48%
9. BOYD GROUP	233%
10. Luther Automotive Group	600%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

New Job Postings Advertised in Minnesota by Employer Type

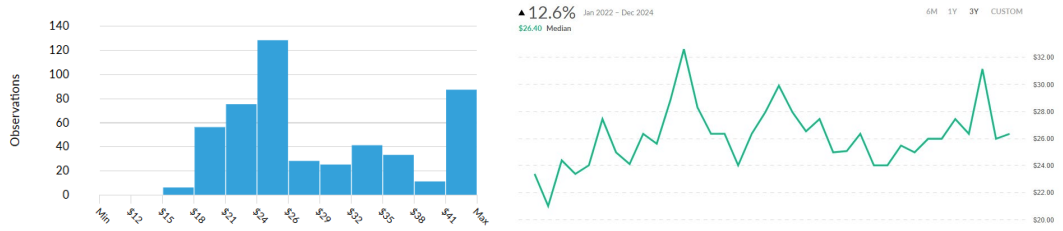


New Job Postings by Industry or Employer Type

Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
Automotive Body, Paint, and Interior Repair and Maintenance	386 / 220	2 : 1	32 days
Employment Placement Agencies	182 / 108	2 : 1	22 days
Automobile and Other Motor Vehicle Merchant Wholesalers	121 / 54	2 : 1	25 days
Automotive Glass Replacement Shops	101 / 39	3 : 1	32 days
New Car Dealers	57 / 35	2 : 1	35 days
Administrative Management and General Management Consulting Services	35 / 31	1 : 1	13 days
Motor Vehicle Body Manufacturing	38 / 26	1 : 1	24 days
General Automotive Repair	40 / 25	2 : 1	29 days
Heavy Duty Truck Manufacturing	25 / 22	1 : 1	17 days
Farm and Garden Machinery and Equipment Merchant Wholesalers	20 / 15	1 : 1	20 days

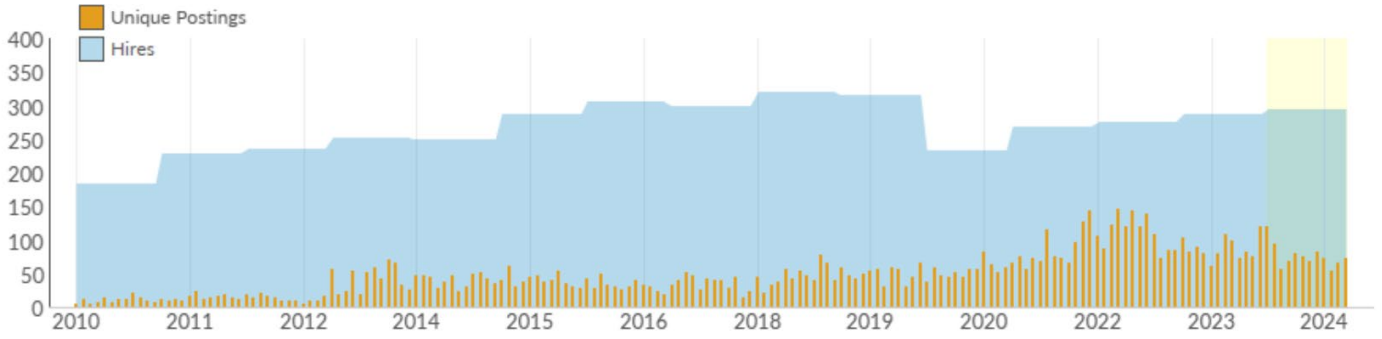
Pathway Advertised Salary Range

\$26.34/hr
Median Advertised Salary

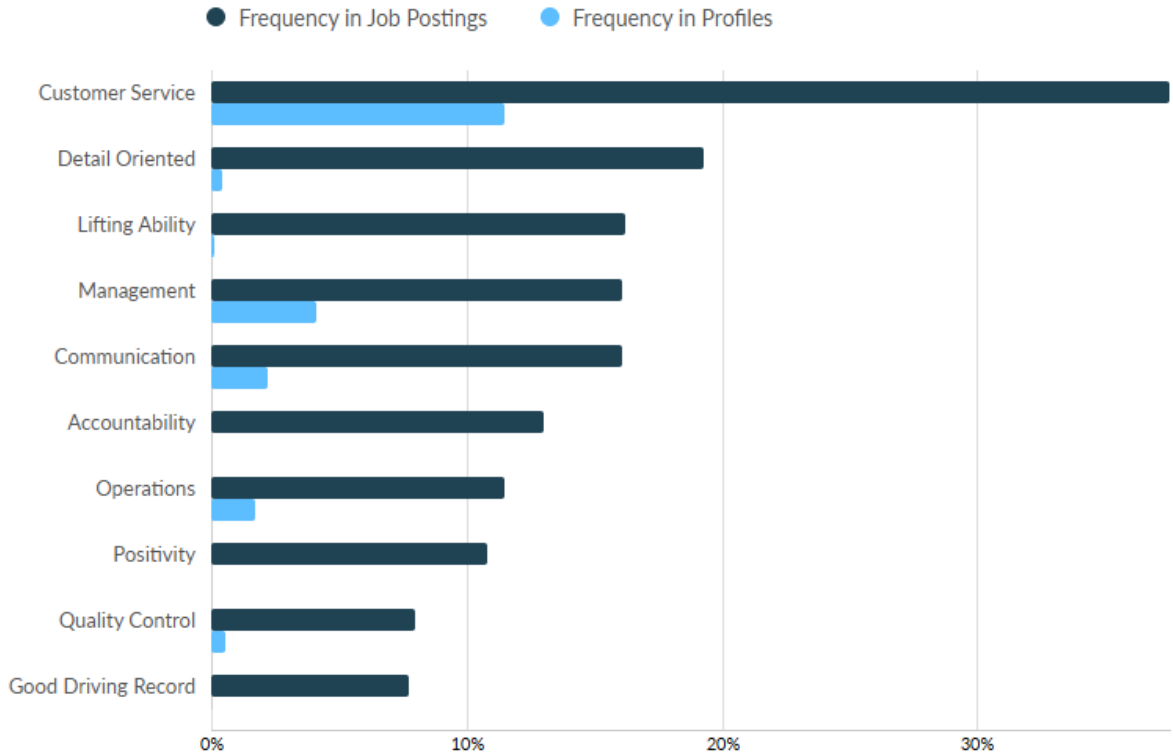


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Monthly Ratio of Unique Job Postings to Estimated Hires

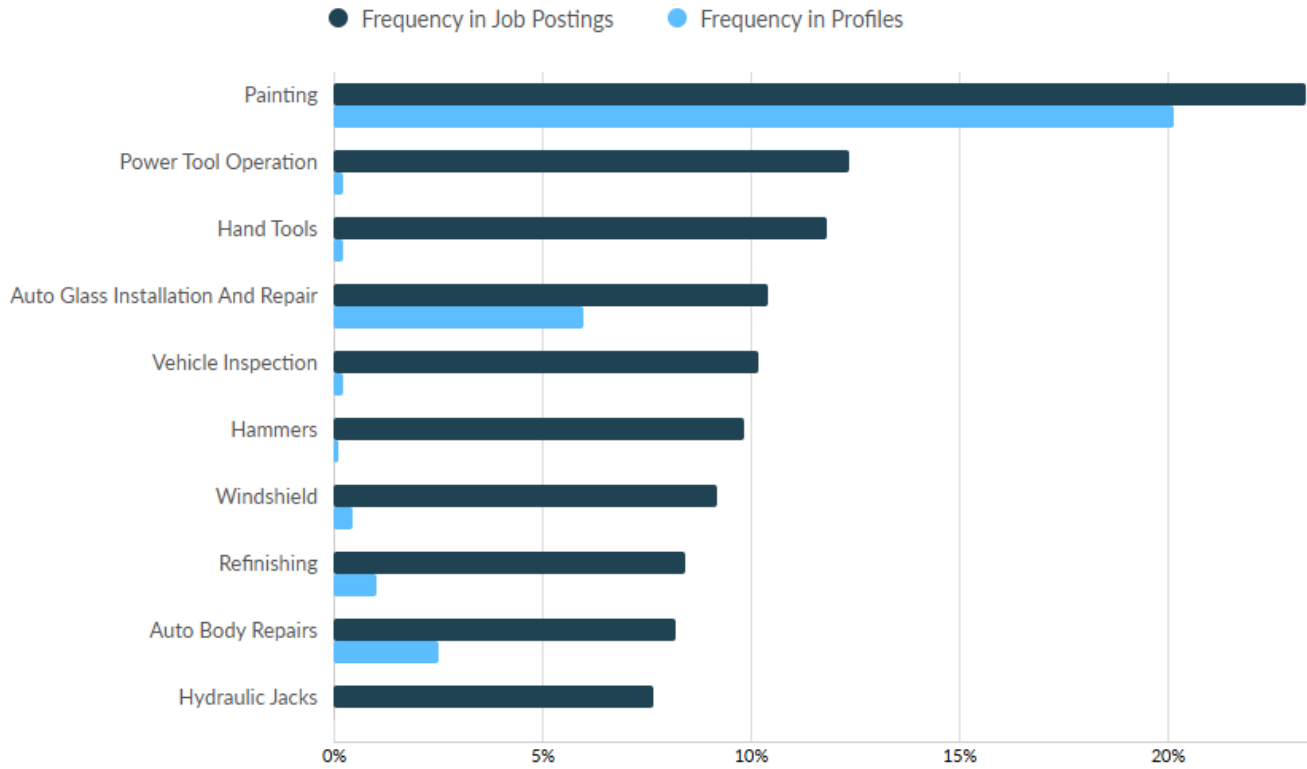


Top Common Skills



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	241
Automotive Service Excellence (ASE) Certification	86
Forklift Certification	12
CDL Class B License	11
System Operator Certification	5
DOT Certification	3
ASE Parts Specialist	2
Security Clearance	2
Commercial Driver's License (CDL)	2
CDL Class A License	1

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 2.4% (an increase from last year's 3.1%), there are about 179 unemployed Collision Repair professionals statewide. An additional 533 Collision Repair professionals are underemployed, meaning they are working in roles for which they are overqualified by education or experience.¹

Collision Repair Pathway in Minnesota

SOC	Occupation	Empl (Place of Residence)								Overall Occupation ¹		
		< High School	High School	Some College	2-Year	4-Year	Master's	PhD	Total Empl	Underemployed	Unemployed	Unempl Rate
49-3021	Automotive Body and Related Repairers	16.4%	47.3%	15.4%	13.5%	6.2%	1.2%	0.0%	3,419	247	19	0.6%
49-3022	Automotive Glass Installers and Repairers	8.6%	41.3%	28.9%	14.2%	6.0%	1.1%	0.0%	386	28	8	2.0%
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	16.1%	45.4%	18.0%	12.4%	7.1%	0.8%	0.2%	3,539	259	152	4.1%
Collision Repair Pathway		15.8%	46.1%	17.4%	13.0%	6.6%	1.0%	0.1%	7,344	533	179	2.4%
Total - All Occupations		5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

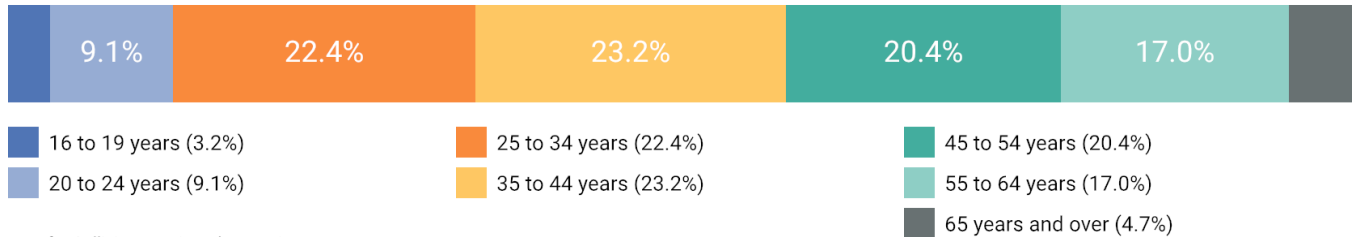
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

¹ Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

Workforce Demographics

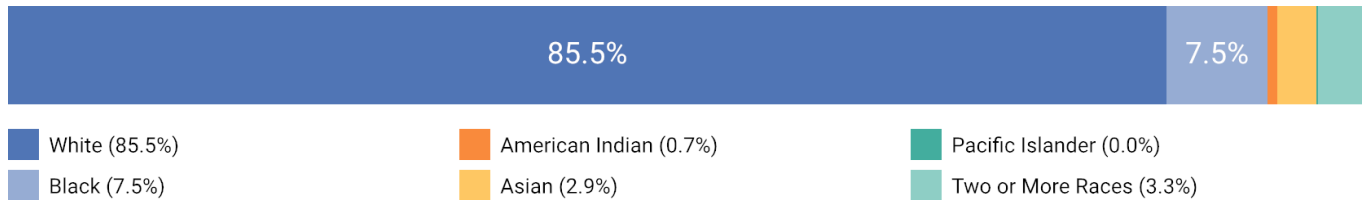
About 12.3% (an increase of 3.6 percentage points from 2023Q2 estimates) of the Collision Repair workforce is under the age of 25, and 4.7% are over 64 years old. The largest demographic group by race are white, representing 85.5% (decreasing by 3.1 percentage points) of the total pathway’s workforce, with the next largest cohort being Black talent, representing 7.5% of the workforce. About 8.5% of the pathway’s workforce are Hispanic or Latinx (decreased by 1.7 percentage points) and 9.9% are female, a decrease of 0.9 percentage points.

Collision Repair Workforce Age Demographics, 2024Q2



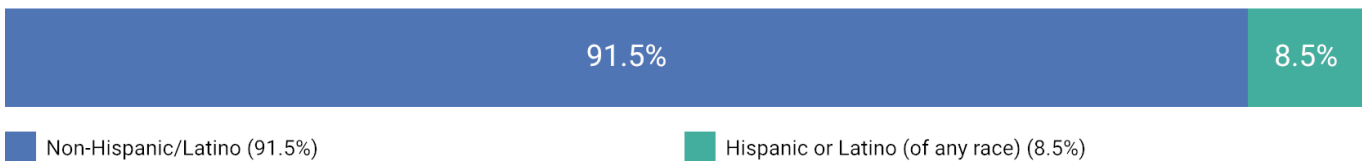
Data for Collision Repair Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Collision Repair Workforce Race Demographics, 2024Q2



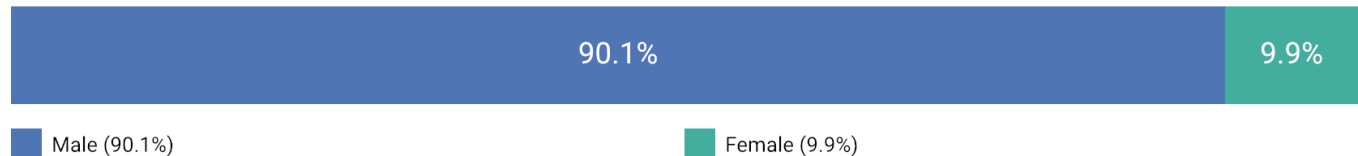
Data for Collision Repair Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Collision Repair Workforce Ethnicity Demographics, 2024Q2



Data for Collision Repair Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Collision Repair Workforce Gender Demographics, 2024Q2



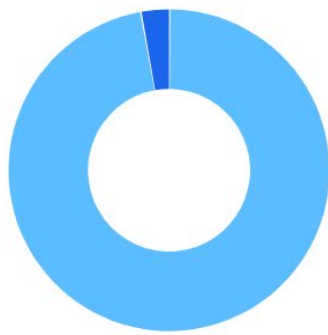
Data for Collision Repair Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aligned Postsecondary Programs

There were about 139 awards conferred at 10 different Minnesota postsecondary institutions in programs aligned to Collision Repair careers in SY2023. Among, these 97 were certificates that could be earned in less than two years, 22 were at the Associate level, and 20 were certificates that could be earned in more than two years, but less than four years. The average school had about 14 completions, but range from four to 47 completions. No programs were delivered remotely.

Postsecondary Program Awards Aligned to Collision Repair Careers by Level, SY2022

CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Master's	Doctorate	Total Awards
47.0603	Autobody/Collision and Repair Technology/Technician	72	25	22	20	0	0	0	139
	Total	72 (52%)	25 (18%)	22 (16%)	20 (14%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	139 (100%)



Institution Type	Completions (2023)	Market Share
Public, 2-year	135	97.1%
Private not-for-profit, 4-year or above	4	2.9%

Nearly all of the SY2023 awards (97.1%) were conferred by public 2-year institutions. Just four awards were conferred by private not-for-profit 4-year or above institutions, despite all completions being for certificate or 2-year awards. Completions are up overall by 16% from 2019.

Collision Repair Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023)	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
⊕ Hennepin Technical College	47	-30.9%	33.8%	\$5,881	
⊕ Dakota County Technical College	24	33.3%	17.3%	\$6,419	
⊕ Lake Superior College	16	100.0%	11.5%	\$5,785	
⊕ Century College	15	66.7%	10.8%	\$6,182	
⊕ St Cloud Technical and Community College	10	66.7%	7.2%	\$4,957	
⊕ Ridgewater College	8	-20.0%	5.8%	\$6,109	
⊕ South Central College	6	-14.3%	4.3%	\$6,146	
⊕ Minnesota State College Southeast	5	0.0%	3.6%	\$7,820	
⊕ Northland Community and Technical College	4	-73.3%	2.9%	\$6,262	
⊕ Dunwoody College of Technology	4	-42.9%	2.9%	\$25,659	

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Graduate Demographics

There is only one postsecondary program directly aligned to the Collision Repair pathway. The Autobody/Collision and Repair Technology/Technician program is more diverse than some of the other transportation programs with 44% (down from 46% in SY2022) of program graduates being BIPOC. Five international students completed Autobody/Collision and Repair Technology/Technician programs in SY 2023.² These programs have an overrepresentation of male students.

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
47.0603	Autobody/Collision and Repair Technology/Technician	139	5	21	0	22	15	75	1	132	7
All Collision Repair Postsecondary Programs		139	5	21	0	22	15	75	1	132	7

IPEDS SY2023 demographics by award conferred. Count of awards may double count individuals who obtained multiple credentials in the same calendar year. *[NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

² [NCES IPEDS](#) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Occupations in the Collision Repair pathway do not typically require a 2-year degree or higher, and Minnesota postsecondary institutions are not underproducing credentials for Collision Repair professionals. Coating, Painting, and Spraying Machine Setters, Operators, and Tenders, Automotive Body and Related Repairers, and Automotive Glass Installers and Repairers are experiencing talent shortages. The aligned program (Autobody/Collision and Repair Technology/Technician) for the Collision Repair pathway has a very high share of BIPOC graduates (44%), but a low share of female graduates.

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)**	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	<ul style="list-style-type: none"> Autobody/Collision and Repair Technology/Technician 	3,517	16.2%	11.2%	12.7%	61.3%	139	N	42.5%	5.0%
Automotive Body and Related Repairers	<ul style="list-style-type: none"> Autobody/Collision and Repair Technology/Technician 	3,435	12.9%	6.2%	7.7%	53.6%	139	N	42.5%	5.0%
Automotive Glass Installers and Repairers	<ul style="list-style-type: none"> Autobody/Collision and Repair Technology/Technician 	390	13.0%	5.2%	4.5%	63.8%	139	N	42.5%	5.0%
Collision Repair Pathway	All aligned programs	7,342	14.5%	8.5%	9.9%	57.9%	139	N	42.5%	5.0%
Total - All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *Related programs may overlap among occupations within the pathway or across other Transportation career pathways. Only those programs most tightly aligned to the occupation in question are listed in this column. **Award gaps are estimated based on a wider alignment of programs than what is illustrated in this table.

Conclusion

Postsecondary programs aligned to the Collision Repair pathway are not underproducing graduates in comparison to national benchmarks. However, all the occupations in the Collision Repair pathway are experiencing talent shortages, a low share of female workers (even with a sizeable increase in the share of female workers since 2022Q3) and very low share of female graduates. Graduates of Collision Repair programs have become more diverse over the past few years, with about 44% of graduates identifying as BIPOC by race and ethnicity.

The unemployment rate for the Collision Repair pathway decreased to 2.4% compared to 3.1% in 2023Q4. The percentage of people who are self-employed in the Collision Repair pathway has dropped slightly and is now at 6.5%.

Addressing lower wages and career advancement potential in this pathway could potentially help with attracting additional talent.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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.

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



DIESEL EQUIPMENT & TRUCK

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence

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Introduction and Sector Overview

This report highlights the importance of the Diesel, Equipment, and Truck career pathway for Minnesota’s Transportation Industry. Professionals in Diesel, Equipment, and Truck careers work as Truck Mechanics, Diesel Specialists, Crane Operators, and Farm Equipment Mechanics serving a variety of industries. In all, about 12,514 people work in Diesel Equipment and Truck roles in Minnesota as of the second quarter of 2024—up close to 350 workers from a year prior and reversing the trend of declining employment in the pathway.

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or a 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% on average annually. During this time frame, Diesel, Equipment, and Truck pathway employment is anticipated to grow slightly by about 84 jobs (+0.1% on average annually). Total baseline demand for Diesel, Equipment, and Truck talent is anticipated to be around 5,328 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2¹

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

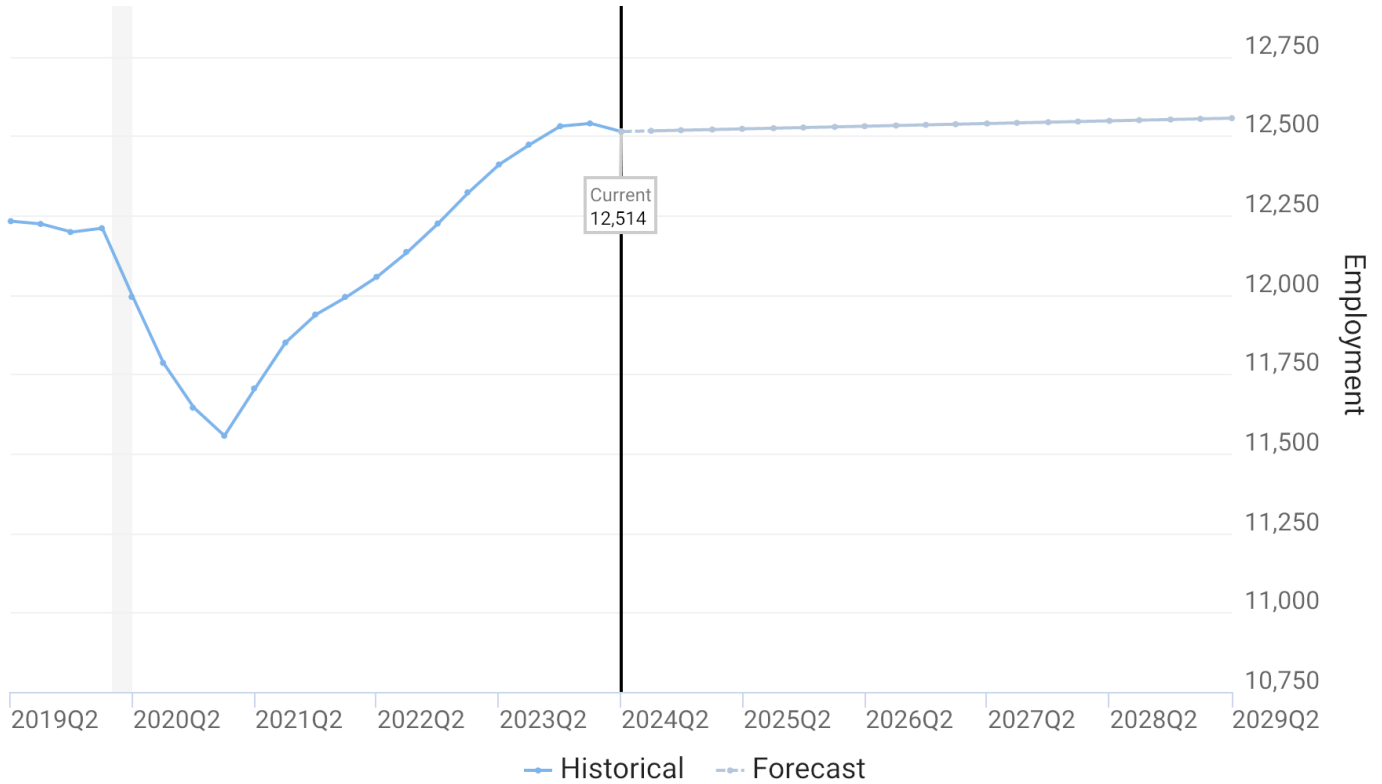
Note: Figures may not sum due to rounding.

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

2. Wage data represent the average for all Covered Employment

Minnesota’s job market continued to cool in 2024 from the strong recovery from 2021 through 2023. Unemployment rates have stabilized around 2.8% as of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Diesel, Equipment, and Truck careers suggest that there may be sufficient talent across a large share of occupations in this career pathway. The pathway forecast now shows a 0.1% annual increase in overall employment by the second quarter of 2029. This is up from last year’s baseline estimates of -0.1% decline.

Diesel, Equipment, and Truck Employment Forecast Under Baseline Scenario, Minnesota



Source: JobsEQ® Data as of 2024Q2 The shaded areas of the graph represent national recessions.

Industry/Occupation Mix

Diesel, Equipment, and Truck talent is primarily concentrated in the Machinery, Equipment, and Supplies Merchant Wholesalers Industry (18.0%), as it was in 2023. The next highest industry of employment concentration is General Freight Trucking (6.7%), followed by Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers (4.9%). These top industries also account for the most total demand for this talent over the next ten years.

Top Industry Distribution for Diesel, Equipment, and Truck Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT		10-YEAR DEMAND				
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	18.0%	2,252	\$65,700	686	1,219	223	2,129
4841	General Freight Trucking	6.7%	843	\$67,200	268	418	-15	671
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	4.9%	618	\$69,000	195	306	-13	488
8111	Automotive Repair and Maintenance	4.8%	599	\$65,200	190	298	-6	483
2389	Other Specialty Trade Contractors	4.7%	585	\$76,300	203	320	12	535
9211	Executive, Legislative, and Other General Government Support	4.2%	529	\$67,900	164	264	-14	414
4854	School and Employee Bus Transportation	4.0%	500	\$63,500	157	246	-16	387
2373	Highway, Street, and Bridge Construction	3.8%	471	\$76,100	152	248	-4	396
2122	Metal Ore Mining	2.7%	343	\$84,000	114	183	2	300
2123	Nonmetallic Mineral Mining and Quarrying	2.6%	325	\$71,200	140	186	3	329
4851	Urban Transit Systems	2.3%	283	\$70,000	87	137	-18	206
2371	Utility System Construction	2.0%	252	\$69,500	100	145	20	265
4842	Specialized Freight Trucking	2.0%	250	\$67,200	79	124	-4	200
5621	Waste Collection	1.8%	226	\$66,700	73	115	7	195
4882	Support Activities for Rail Transportation	1.8%	225	\$62,300	64	113	-13	165
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1.8%	221	\$68,700	69	117	14	200
4821	Rail Transportation	1.7%	208	\$82,000	60	106	-5	162
5321	Automotive Equipment Rental and Leasing	1.6%	203	\$62,100	66	103	7	177
6111	Elementary and Secondary Schools	1.4%	180	\$67,000	55	86	-16	125
4571	Gasoline Stations	1.1%	133	\$57,500	40	62	-17	85
-	All Others	26.1%	3,267	-	1,036	1,691	25	2,752

Source: JobsEQ®
 Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

Talent Demand Detail

Employment and Wage Overview

Of all occupations found in the Diesel, Equipment, and Truck pathway, Farm Equipment Mechanics are particularly concentrated in Minnesota, with 1.8 times the concentration locally than seen in the nation overall. Other occupations highly concentrated in Minnesota include Excavating and Loading Machine Operators, Rail Car Repairers, and Bus and Truck Mechanics. On average, careers in this pathway pay about \$68,400—just \$1,100 below the average wage statewide across all positions. However, average wages in the pathway increased by \$4,200 since 2023. Demand continued to be high over the past year, seeing employment growth of 2.9% since the second quarter of 2023. Employment in the pathway is forecast to remain fairly flat, increasing statewide by about +0.1% annually through the second quarter of 2029.

Diesel, Equipment, and Truck Pathway in Minnesota – Baseline Forecast, 2024Q2¹

SOC	Occupation	Current					5-Year Baseline Forecast				
		Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	6,167	\$67,000	1.10	19	0.3%	2,467	979	1,530	-42	-0.1%
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3,072	\$74,500	0.85	28	0.9%	1,358	456	817	85	0.5%
49-3041	Farm Equipment Mechanics and Service Technicians	1,592	\$59,300	1.84	14	0.8%	693	235	421	37	0.5%
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	713	\$75,500	1.13	2	0.2%	371	161	207	3	0.1%
49-3043	Rail Car Repairers	452	\$62,300	1.17	4	0.8%	177	65	116	-4	-0.2%
47-5023	Earth Drillers, Except Oil and Gas	304	\$65,400	0.86	22	6.8%	163	69	89	4	0.3%
53-7021	Crane and Tower Operators	215	\$85,800	0.27	3	1.0%	100	36	64	1	0.1%
	Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	5,328	2,000	3,244	84	0.1%
	Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

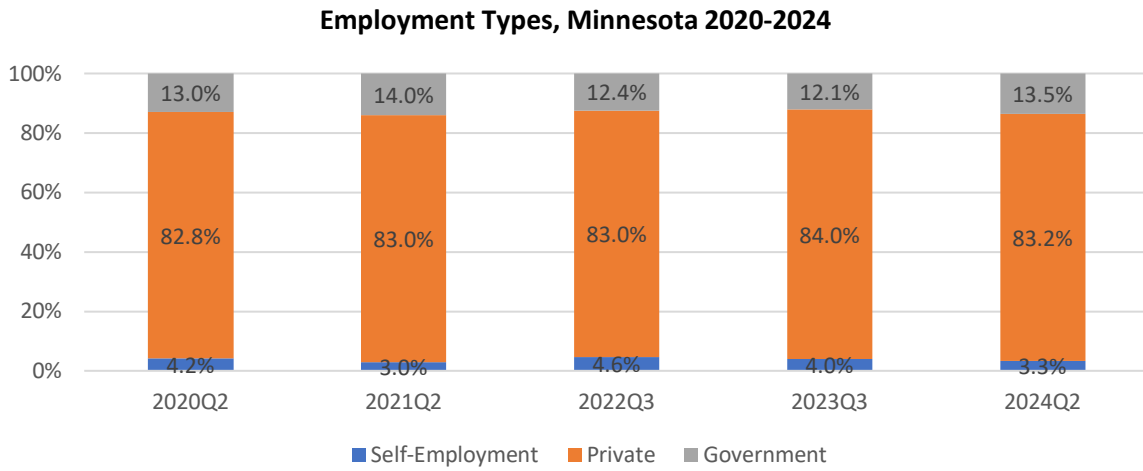
Note: Figures may not sum due to rounding.

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

2. Wage data are as of 2020 and represent the average for all Covered Employment

Employment Types

About 83% of people employed in Diesel, Equipment, and Truck careers in Minnesota work for private employers, while an estimated 3% are self-employed (similar prior years). The remaining 14% work for state, federal, or local government entities.



Wage Analysis

Diesel, Equipment, and Truck careers saw some wage gains across the pathway, with average wages rising by about \$4,200 from prior estimates. Entry-level wages in the pathway exceed the average entry-level wages observed across all occupations statewide, paying an average of \$50,800 annually for entry-level talent.

Education and training requirements vary slightly across the different occupations in this pathway, with all occupations typically requiring only a high school equivalency and zero to five years of work experience. Typical on-the-job training is either moderate or long term for all occupations.

Diesel, Equipment, and Truck Pathway Wages and Experience Level Requirements, MN, 2024Q2

SOC	Occupation	Mean	Entry Level	Experienced	Percentiles					Education and Training		
					10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	\$75,500	\$53,900	\$86,300	\$50,900	\$60,800	\$73,800	\$87,500	\$97,500	HS/GED	Less than 5 years	Mod-term OJT
47-5023	Earth Drillers, Except Oil and Gas	\$65,400	\$53,600	\$71,200	\$51,600	\$57,900	\$64,500	\$75,000	\$85,200	HS/GED	Less than 5 years	Long-term OJT
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	\$67,000	\$48,600	\$76,200	\$45,800	\$54,700	\$65,000	\$78,300	\$90,400	HS/GED	None	Long-term OJT
49-3041	Farm Equipment Mechanics and Service Technicians	\$59,300	\$43,400	\$67,200	\$40,100	\$50,100	\$60,900	\$67,200	\$75,000	HS/GED	None	Long-term OJT
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	\$74,500	\$57,400	\$83,000	\$54,700	\$63,400	\$74,200	\$84,600	\$93,200	HS/GED	None	Long-term OJT
49-3043	Rail Car Repairers	\$62,300	\$49,900	\$68,500	\$48,600	\$52,700	\$57,600	\$73,400	\$84,500	HS/GED	None	Long-term OJT
53-7021	Crane and Tower Operators	\$85,800	\$60,500	\$98,500	\$58,200	\$66,600	\$80,600	\$106,700	\$122,900	HS/GED	Less than 5 years	Mod-term OJT
	Diesel Equipment and Truck Pathway	\$68,400	\$50,800	\$77,300	\$48,000	\$56,800	\$67,200	\$79,200	\$89,700			
	Total - All Occupations	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Source: [JobsEQ®](#). Wage data represent the average for all Covered Employment

Wages in the Diesel, Equipment, and Truck pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-county MSP Metro. The MSP Metro region has the highest wages across experience levels and percentiles and contains 48% of the pathway's total statewide employment. Wages in the Urban Greater Minnesota region, while lower than those in the MSP Metro, are higher than for Rural Greater Minnesota across experience levels and percentiles.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

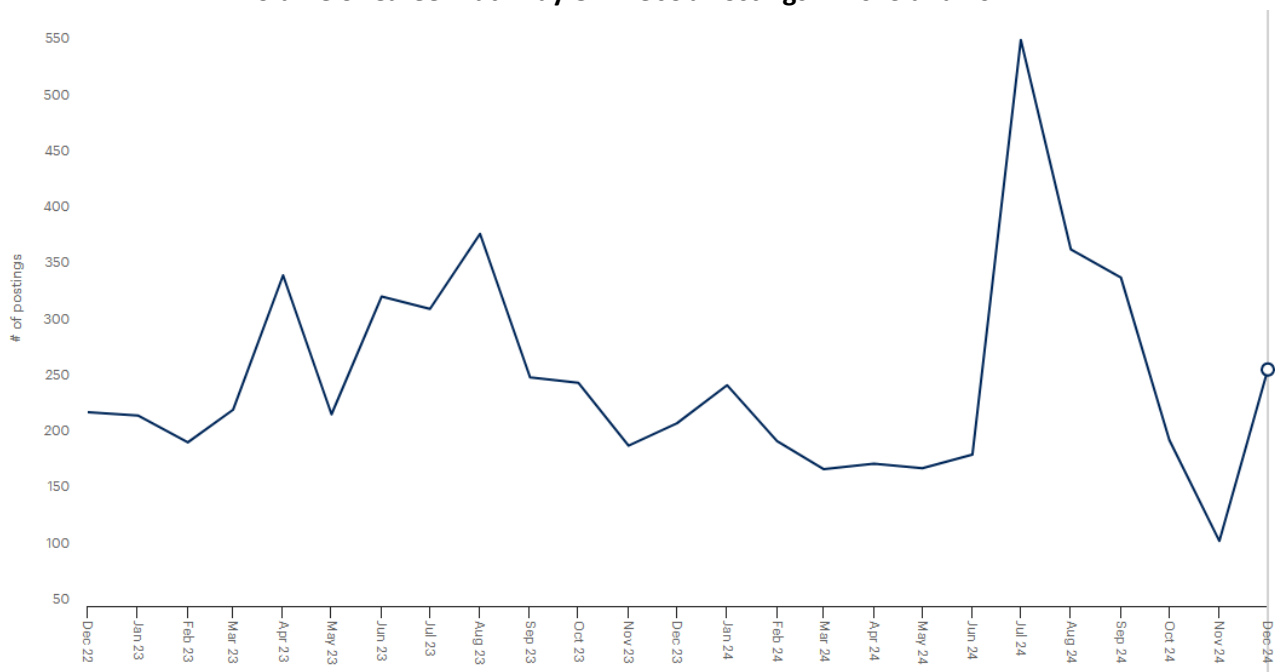
Diesel, Equipment, and Truck Pathway Wages, 2024Q2

Region	Empl Count	Mean	Entry Level		Percentiles				
			Experienced	10%	25%	50% (Median)	75%	90%	
Rural Greater Minnesota	3,863	\$62,400	\$46,500	\$70,400	\$43,400	\$52,700	\$63,000	\$70,800	\$81,000
Urban Greater Minnesota	2,247	\$66,800	\$51,100	\$74,700	\$49,000	\$55,900	\$65,600	\$77,300	\$85,800
MSP Metro	5,999	\$72,900	\$55,200	\$81,700	\$52,800	\$60,800	\$71,400	\$83,900	\$94,100
Minnesota	12,514	\$68,400	\$50,800	\$77,300	\$48,000	\$56,800	\$67,200	\$79,200	\$89,700

Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2024 in Diesel, Equipment, and Truck roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset. Overall, there were 2,984 new jobs advertised in Diesel, Equipment, and Truck pathway careers during this time frame, a decrease of -5% from the prior 12-month period (2023). The share of positions advertised by staffing and temp agencies in the Diesel, Equipment, and Truck pathway decreased further, from 11% in 2023 to 6% in 2024, implying continued easing of the challenges seen in 2022 in finding talent in this career. Posted wages remained steady at an average of \$31.45 per hour as of 2024, and there were only an average of two hires per every one unique job posting advertised based on Lightcast estimates.

Volume of Career Pathway Online Job Postings in 2023 and 2024

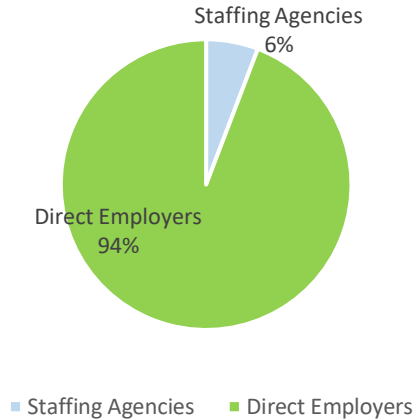


Top Employers by Volume of New Job Postings, With Change from Prior Year

Employer	Percent Change between 2022 and 2023
1. Ryder	3%
2. Premier Truck Group	0%
3. Titan Machinery	550%
4. Army	19%
5. Waste Management	64%
6. Rihm Kenworth	251%
7. Performance Foodservice	1140%
8. CRETE CARRIER CORPORATION	4000%
9. Sysco	87%
10. TranSource Truck & Equipment, Inc.	0%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

New Job Postings Advertised in Minnesota by Employer Type

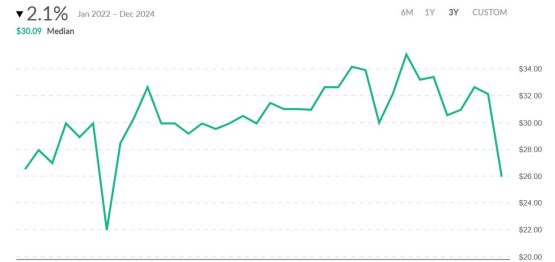
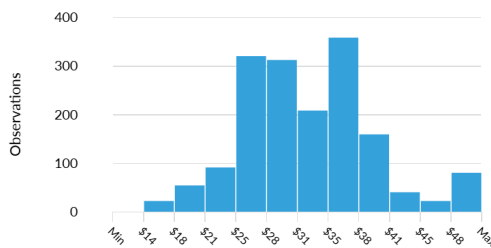


New Job Postings by Industry or Employer Type

Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
Employment Placement Agencies	500 / 273	2 : 1	26 days
General Freight Trucking, Long-Distance, Truckload	629 / 215	3 : 1	30 days
General Line Grocery Merchant Wholesalers	471 / 179	3 : 1	20 days
Solid Waste Collection	329 / 116	3 : 1	31 days
Automobile and Other Motor Vehicle Merchant Wholesalers	229 / 107	2 : 1	25 days
Meat and Meat Product Merchant Wholesalers	128 / 90	1 : 1	18 days
Hardware Retailers	251 / 83	3 : 1	22 days
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	130 / 68	2 : 1	16 days
General Automotive Repair	128 / 65	2 : 1	26 days
Process, Physical Distribution, and Logistics Consulting Services	311 / 61	5 : 1	18 days

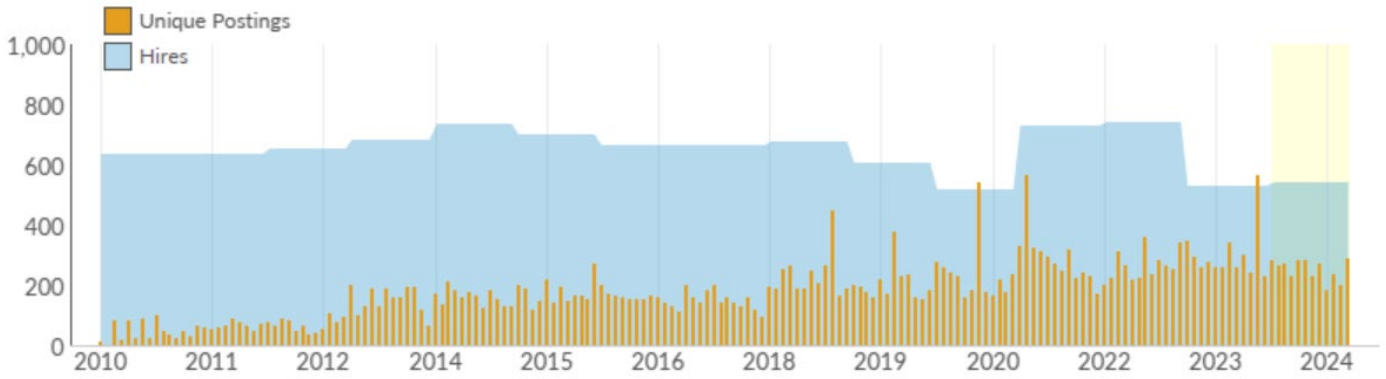
Pathway Advertised Salary Range

\$31.45/hr
Median Advertised Salary



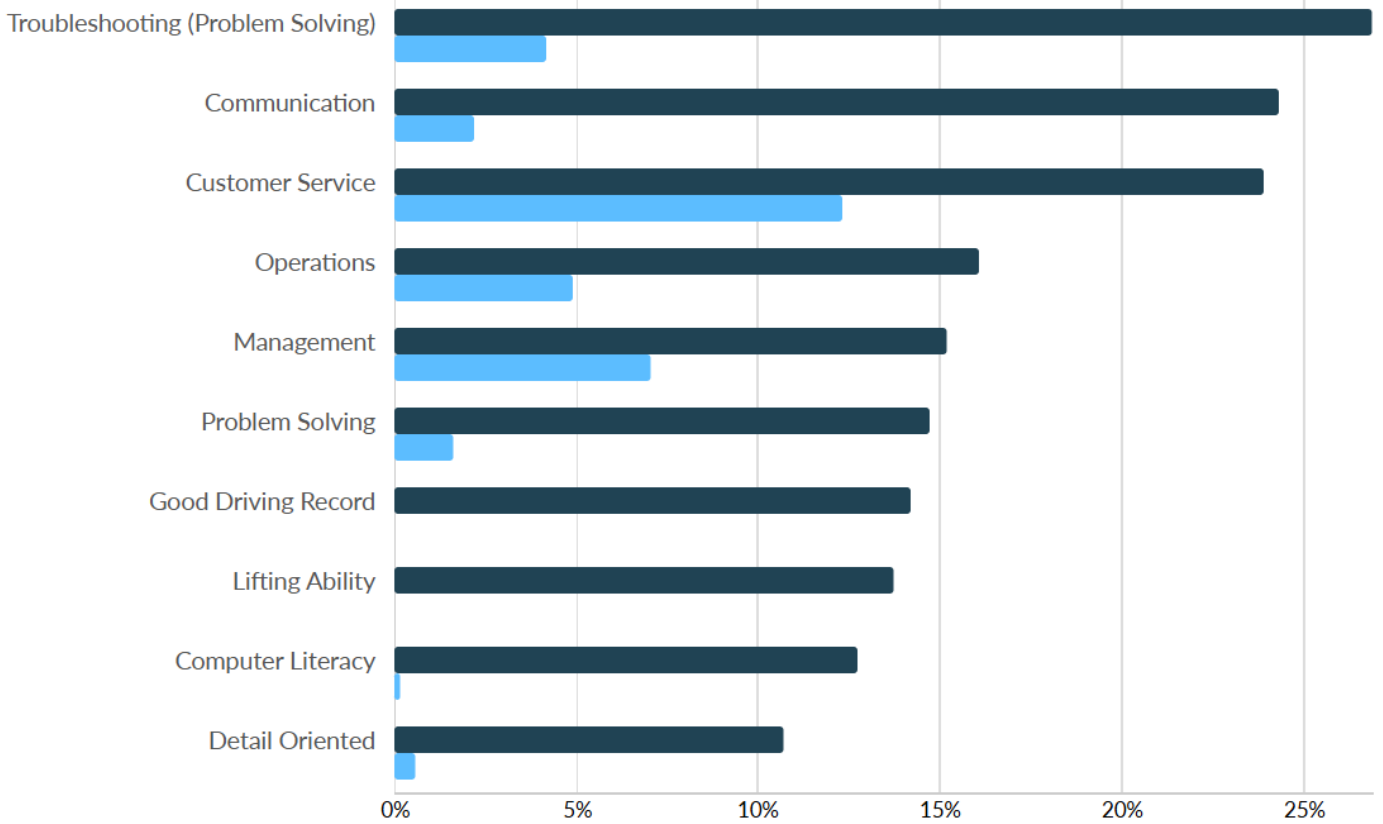
Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Monthly Ratio of Unique Job Postings to Estimated Hires



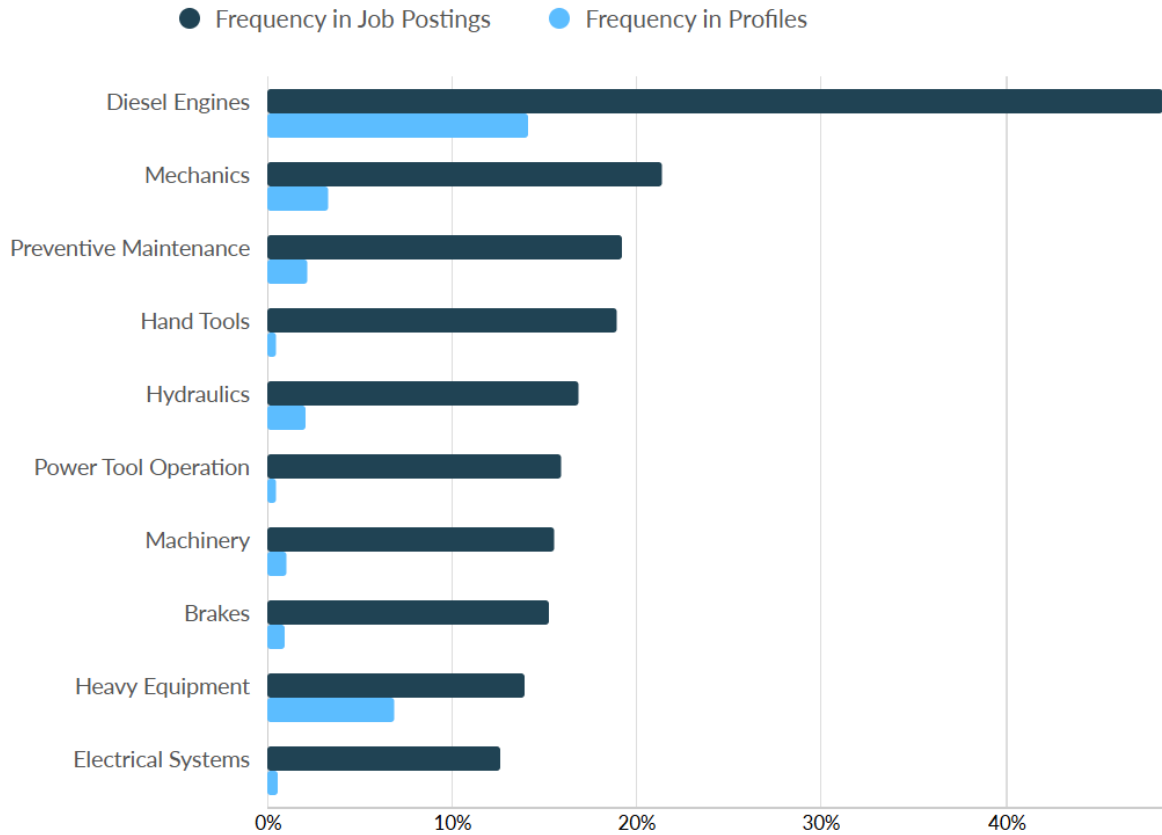
Top Common Skills

● Frequency in Job Postings ● Frequency in Profiles



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	1,028
Commercial Driver's License (CDL)	444
Automotive Service Excellence (ASE) Certification	353
CDL Class A License	222
Tanker Endorsement	75
HVAC Certification	72
CDL Class B License	69
Forklift Certification	54
DOT Certification	39
Certified Crane Operator	35

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 0.7%, there are about 92 unemployed Diesel Equipment Truck professionals statewide. An additional 833 Diesel Equipment Truck professionals are underemployed—meaning they are working in roles for which they are overqualified by education or experience.¹

Diesel, Equipment, and Truck Pathway in Minnesota

SOC	Occupation	Empl (Place of Residence)								Overall Occupation ¹		
		< High School	High School	Some College	2-Year	4-Year	Master's	PhD	Total Empl	Underemployed	Unemployed	Unempl Rate
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	12.7%	54.8%	15.8%	9.9%	6.4%	0.3%	0.0%	708	46	2	0.2%
47-5023	Earth Drillers, Except Oil and Gas	12.9%	54.5%	15.9%	9.9%	6.6%	0.3%	0.0%	305	21	22	6.8%
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	7.2%	41.3%	19.9%	24.7%	6.3%	0.5%	0.2%	6,150	401	19	0.3%
49-3041	Farm Equipment Mechanics and Service Technicians	6.3%	39.8%	20.0%	27.3%	5.7%	0.4%	0.4%	1,615	83	14	0.8%
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	6.7%	38.9%	20.5%	26.0%	6.8%	0.6%	0.6%	3,187	230	28	0.9%
49-3043	Rail Car Repairers	7.0%	38.8%	20.5%	25.2%	7.3%	0.6%	0.6%	451	39	4	0.8%
53-7021	Crane and Tower Operators	7.9%	49.1%	22.1%	15.0%	5.3%	0.6%	0.0%	257	13	3	1.0%
	Diesel Equipment and Truck Pathway	7.4%	41.6%	19.8%	24.0%	6.4%	0.5%	0.3%	12,673	833	92	0.7%
	Total - All Occupations	5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

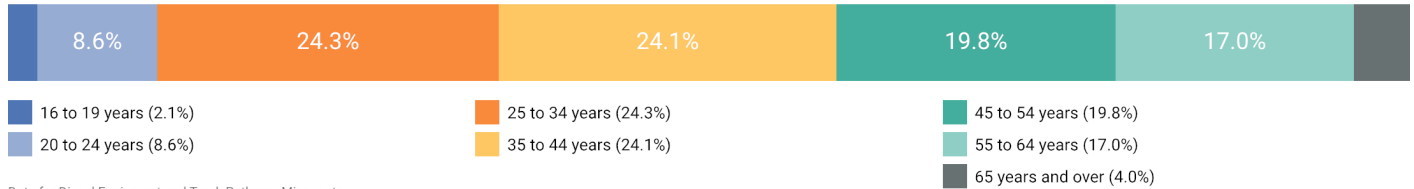
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

¹ Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

Workforce Demographics

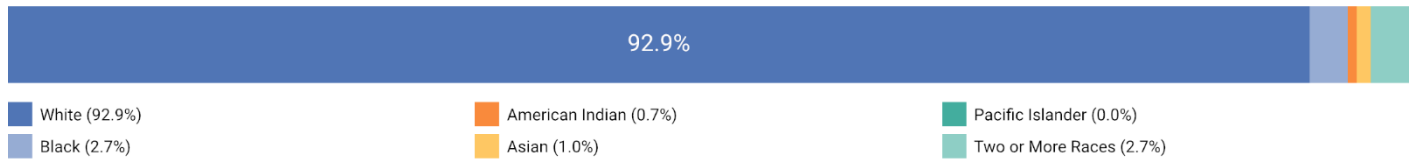
About 10.7% of the Diesel Equipment Truck workforce is under the age of 25, and 4.0% are over 64 years old. The share of the workforce between 25-44 years old has been increasing for the past two years, from 43.5% in 2022 to 48.4% in 2024. The largest demographic group by race are white, representing 92.9% of the total pathway's workforce, with the next largest cohort being talent identifying as two or more races, representing 2.7% of the workforce. Just over 5% of the pathway's workforce are Hispanic or Latinx, and less than 3% are female.

Diesel, Equipment, and Truck Workforce Age Demographics, 2024Q2



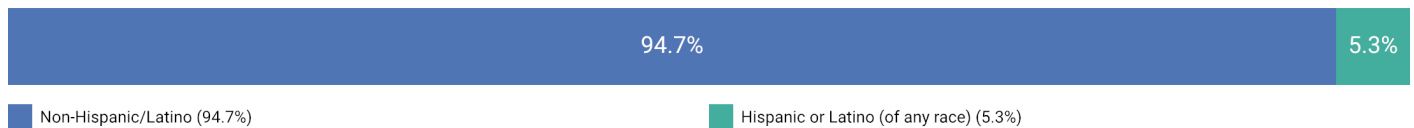
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Diesel, Equipment, and Truck Workforce Race Demographics, 2024Q2



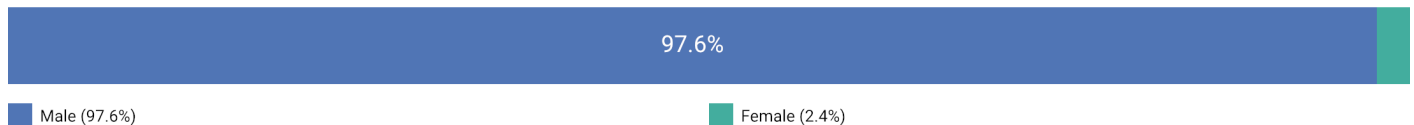
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Diesel, Equipment, and Truck Workforce Ethnicity Demographics, 2024Q2



Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Diesel, Equipment, and Truck Workforce Gender Demographics, 2024Q2



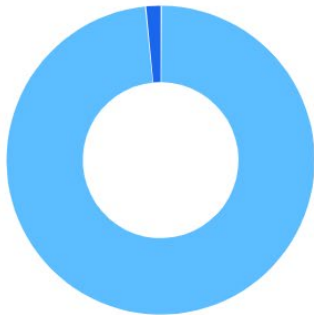
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aligned Postsecondary Programs

There were 245 awards conferred at 15 different Minnesota postsecondary institutions in programs aligned to Diesel, Equipment, and Truck careers in SY2023. Among these, 102 were at the Associate level, while 95 were certificates that could be earned in more than two but less than four years. The average school had about 16 completions, but schools range from one to 70 completions. No programs were delivered remotely.

Diesel, Equipment, and Truck Postsecondary Program Awards by Level, SY2023
































CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Master's	Doctorate	Total Awards
47.0605	Diesel Mechanics Technology/Technician	4	24	42	14	0	0	0	84
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	3	10	36	15	0	0	0	64
49.0202	Construction/Heavy Equipment/Earthmoving Equipment Operation	0	0	0	49	0	0	0	49
47.0302	Heavy Equipment Maintenance Technology/Technician	0	0	20	12	0	0	0	32
01.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician	0	0	4	5	0	0	0	9
01.0201	Agricultural Mechanization, General	0	0	0	0	4	0	0	4
01.0204	Agricultural Power Machinery Operation	0	3	0	0	0	0	0	3
47.0399	Heavy/Industrial Equipment Maintenance Technologies/Technicians, Other	0	0	0	0	0	0	0	0
	Total	7 3%	37 15%	102 42%	95 39%	4 2%	0 0%	0 0%	245



Institution Type	Completions (2023)	Market Share
Public, 2-year	241	98.4%
Public, 4-year or above	4	1.6%

Nearly all (98.4%) SY2023 awards were conferred at public two-year institutions, with the largest number of completions in SY2023 at Central Lakes College-Brainerd, followed by the Dakota County Technical College (28.6% and 17.6% respectively of related awards conferred). Completions are down statewide in this pathway overall by 19% from 2019.

Diesel, Equipment, and Truck Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023) 	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
 Central Lakes College-Brainerd	70	4.5%	28.6%	\$6,209	
 Dakota County Technical College	43	-10.4%	17.6%	\$6,419	
 Alexandria Technical & Community College	32	0.0%	13.1%	\$6,213	
 Hennepin Technical College	21	0.0%	8.6%	\$5,881	
 St Cloud Technical and Community College	18	0.0%	7.3%	\$4,957	
 Minnesota State Community and Technical College	13	18.2%	5.3%	\$5,900	
 Minnesota West Community and Technical College	10	-37.5%	4.1%	\$6,484	
 Minnesota North College	9	0.0%	3.7%	\$6,004	
 South Central College	9	0.0%	3.7%	\$6,146	
 Riverland Community College	8	-20.0%	3.3%	\$6,249	
 University of Minnesota-Crookston	4	0.0%	1.6%	\$13,120	
 Anoka Technical College	3	50.0%	1.2%	\$6,267	
 Ridgewater College	3	-25.0%	1.2%	\$6,109	
 Saint Paul College	1	-80.0%	0.4%	\$6,318	
 Minnesota State College Southeast	1	Insf. Data	0.4%	\$7,820	

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Graduate Demographics

Postsecondary program diversity varies by program across the Diesel, Equipment, and Truck pathway. Medium/Heavy Vehicle and Truck Technology/Technician programs remain the most diverse by race and ethnicity, similar to SY2021 and SY2022. However, all programs continue to have an overrepresentation of male students, with just 8 graduates statewide from all aligned programs this year being female.

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
01.0201	Agricultural Mechanization, General	4	0	0	0	0	0	4	0	3	1
01.0204	Agricultural Power Machinery Operation	3	0	0	0	0	0	3	0	1	2
01.0205	Agricultural Mechanics and Equipment/Machine Technology/Technician	9	0	0	0	0	0	9	0	9	0
47.0302	Heavy Equipment Maintenance Technology/Technician	32	0	1	2	0	1	27	1	31	1
47.0399	Heavy/Industrial Equipment Maintenance Technologies/Technicians, Other	0	0	0	0	0	0	0	0	0	0
47.0605	Diesel Mechanics Technology/Technician	84	0	0	0	1	1	81	1	81	3
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	64	1	9	0	0	4	42	8	64	0
49.0202	Construction/Heavy Equipment/Earthmoving Equipment Operation	49	0	0	1	0	1	46	1	48	1
Total		245	1	10	3	1	7	212	11	237	8

IPEDS SY2023 demographics by award conferred. Count of awards may double count individuals who obtained multiple credentials in the same calendar year. *NCES IPEDS refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Postsecondary programs aligned to Farm Equipment Mechanics and Service Technicians are underproducing graduates in comparison to national benchmarks. The eight aligned programs for the Diesel, Equipment, and Truck pathway all have very low shares of BIPOC graduates and of female graduates. The share of BIPOC graduates in aligned programs shrank by over four percentage points from the 2022 school year, and the share of female graduates shrank by one percentage point, from 4.3% to 3.3%. The Bus and Truck Mechanics and Diesel Engine Specialist occupation has the highest volume of employment and the highest number related graduates; there were 84 graduates specifically from Diesel Mechanics Technology/Technician in Minnesota during the 2023 school year, plus another 64 graduates of Medium/Heavy Vehicle and Truck Technology/Technician programs—both of which are counted in the table below.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)**	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Excavating and Loading Machine and Dragline Operators, Surface Mining	<ul style="list-style-type: none"> Construction/Heavy Equipment/Earthmoving Equipment Operation 	713	9.3%	11.1%	5.2%	64.8%	49	N	6.0%	2.0%
Earth Drillers, Except Oil and Gas	<ul style="list-style-type: none"> Construction/Heavy Equipment/Earthmoving Equipment Operation 	304	9.8%	11.2%	5.4%	54.6%	49	N	6.0%	2.0%
Bus and Truck Mechanics and Diesel Engine Specialists	<ul style="list-style-type: none"> Diesel Mechanics Technology/Technician Medium/Heavy Vehicle and Truck Technology/Technician 	6,167	9.7%	5.2%	1.7%	59.3%	148	N	16.2%	2.0%
Farm Equipment Mechanics and Service Technicians	<ul style="list-style-type: none"> Agricultural Mechanics and Equipment/Machine Technology/Technician Agricultural Mechanization, General Agricultural Power Machinery Operation 	1,592	2.5%	4.5%	2.5%	57.7%	12	Y	0%	18.8%
Mobile Heavy Equipment Mechanics, Except Engines	<ul style="list-style-type: none"> Heavy Equipment Maintenance Technology/Technician Agricultural Mechanics and Equipment/Machine Technology/Technician 	3,072	3.7%	4.2%	2.5%	59.1%	41	N	12.2%	2.4%
Rail Car Repairers	<ul style="list-style-type: none"> Heavy Equipment Maintenance Technology/Technician 	452	5.3%	4.7%	2.6%	60.4%	32	N	15.6%	3.1%
Crane and Tower Operators	<ul style="list-style-type: none"> Construction/Heavy Equipment/Earthmoving Equipment Operation 	215	8.1%	5.2%	3.5%	51.7%	49	N	6.0%	2.0%
Diesel Equipment and Truck Pathway	All nine aligned programs	12,514	7.1%	5.3%	2.4%	59.1%	241	Y	13.1%	3.3%
All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *Related programs may overlap among occupations within the pathway or across other Transportation career pathways. Only those programs most tightly aligned to the occupation in question are listed in this column. **Award gaps are estimated based on a wider alignment of programs than what is illustrated in this table

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Conclusion

The Diesel, Equipment, and Truck pathway employment grew by 2.9% in the past year, and the employment forecast improved slightly in 2024, now forecasting a slight increase of +0.1% average annual employment over the next five years. Of the seven occupations included in the Diesel, Equipment, and Truck pathway, four (Farm Equipment Mechanics and Service Technicians; Rail Car Repairers; Excavating and Loading Machine and Dragline Operators, Surface Mining; and Bus and Truck Mechanics and Diesel Engine Specialists) are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall, with location quotients of 1.84, 1.17, 1.13, and 1.10, respectively. Average wages increased significantly across the pathway statewide as occurred the past three years, rising by nearly \$4,200 from prior year estimates.

Unemployment is very low among Diesel, Equipment and Truck careers, at 0.7% for the pathway—indicating significant demand. However, Earth Drillers have much higher unemployment than other occupations in the pathway, at 6.8%. As in prior years, the institution with the largest number of completions was the Central Lakes College-Brainerd, with 70 completions in SY2023. The following programs are prime for exploration of certificate or two-year program growth or development given local employer demand and underproduction of graduates in the state: Diesel Mechanics Technology/Technician, Medium/Heavy Vehicle and Truck Technology/Technician, Agricultural Mechanics and Equipment/Machine Technology/Technician, General Agricultural Mechanization, and Agricultural Power Machinery Operation. Each of the eight programs aligned with the Diesel, Equipment, and Truck pathway have a low (and shrinking) share of BIPOC graduates and a low share of female graduates, showcasing the opportunity to diversify student enrollment into these programs.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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.

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



MARINE & POWERSPORTS

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence

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Introduction and Sector Overview

This report highlights key opportunities in the Marine and Power Sports career pathway for Minnesota’s Transportation Industry. Professionals in Marine and Power Sports work in diverse roles including industrial equipment maintenance, outdoor power equipment maintenance, and small engine, motorboat, and motorcycle mechanics, serving a variety of industries. In all, about 4,149 people work in Marine and Power Sports roles in Minnesota as of the second quarter of 2024—a 3.2% decrease (135 workers) from a year prior (2023Q2).

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or a 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% average annual growth. During this time frame, Marine and Power Sports employment is anticipated to decline slightly, declining by about 27 jobs (-0.1% annually). Total baseline demand for Marine and Power Sports talent is anticipated to be around 2,413 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2¹

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

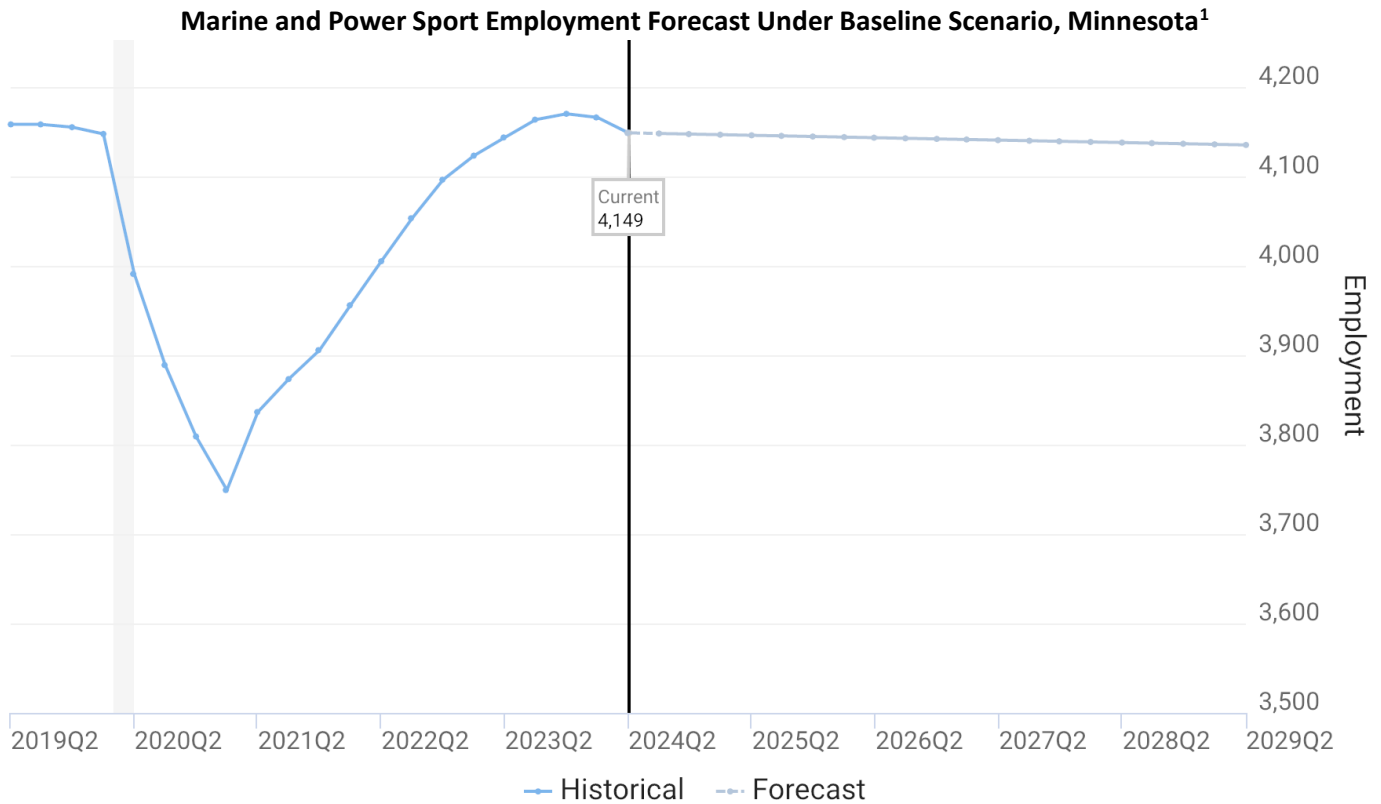
Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

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

2. Wage data represent the average for all Covered Employment

Minnesota’s job market continued to cool in 2024 from the strong recoveries between 2021 and 2023. Unemployment rates have stabilized around 2.8% as of 2024. Marine and Power Sports employment rose rapidly beginning in 2021Q2, leveling off near pre-pandemic employment figures in 2023 and beginning a downturn in the first two quarters of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Marine and Power Sports suggest that there may be shortages of talent across a large share of occupations that will stifle ongoing growth in this career pathway unless more talent decides to enter the field. Growth has remained flat since 2023Q2, and the pathway continues to forecast a decline of -0.1% by the second quarter of 2029.



Source: JobsEQ® Data as of 2024Q2 The shaded areas of the graph represent national recessions.

¹ Historical employment numbers have been updated from the prior year’s report. Data shown here are the most accurate available employment figures based on JobsEQ modeling.

Industry/Occupation Mix

Marine and Power Sports talent is primarily concentrated in the Other Motor Vehicle Dealers industry (16.2%), returning down to 2022 estimates. The next highest industry of employment concentration is now Support Activities for Air Transportation (9.8%). These same top two industries are forecast to have the greatest amount of total demand over the next ten years.

Top Industry Distribution for Marine and Power Sports Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT			10-YEAR DEMAND			
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4412	Other Motor Vehicle Dealers	16.2%	671	\$51,300	366	330	19	715
4881	Support Activities for Air Transportation	9.8%	405	\$41,500	210	398	0	607
8111	Automotive Repair and Maintenance	8.8%	366	\$38,500	187	351	-14	523
4571	Gasoline Stations	6.9%	286	\$36,900	139	264	-37	366
8114	Personal and Household Goods Repair and Maintenance	6.4%	264	\$52,700	142	128	4	275
7139	Other Amusement and Recreation Industries	5.5%	229	\$54,500	125	124	13	261
4411	Automobile Dealers	5.3%	222	\$41,700	116	220	4	341
4442	Lawn and Garden Equipment and Supplies Retailers	3.3%	139	\$47,400	73	64	-9	128
4811	Scheduled Air Transportation	3.3%	138	\$42,600	70	134	-4	200
4441	Building Material and Supplies Dealers	2.4%	98	\$46,600	53	47	1	101
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	2.1%	88	\$53,200	45	42	-5	81
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1.9%	78	\$74,800	27	35	-3	59
5617	Services to Buildings and Dwellings	1.9%	77	\$55,800	42	37	2	82
9211	Executive, Legislative, and Other General Government Support	1.5%	64	\$60,000	29	41	-1	69
4451	Grocery and Convenience Retailers	0.9%	35	\$38,300	18	34	-3	49
4552	Warehouse Clubs, Supercenters, and Other General Merchandise Retailers	0.8%	34	\$40,200	17	30	-2	45
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	0.7%	31	\$65,700	13	15	1	30
4931	Warehousing and Storage	0.7%	30	\$76,500	12	16	6	34
2211	Electric Power Generation, Transmission and Distribution	0.7%	28	\$128,200	8	11	-8	12
3353	Electrical Equipment Manufacturing	0.6%	25	\$69,900	9	11	-1	20
-	All Others	20.3%	842	-	353	491	-17	828

Source: JobsEQ®
 Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

Talent Demand Detail

Employment and Wage Overview

Of all occupations found in the Marine and Power Sports pathway, Aircraft Service Attendants, Motorcycle Mechanics and Motorboat Mechanics and Service Technicians are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Marine and Power Sports careers pay about \$52,000 per year (up from \$48,700 last year)—well below the average wage statewide across all positions. Demand was relatively flat over the past year, seeing employment growth of 0.1% since the second quarter of 2023.

Marine and Power Sports Pathway in Minnesota - Baseline, 2024Q2¹

SOC	Occupation	Current					5-Year Forecast				
		Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
53-6031	Automotive and Watercraft Service Attendants	1,068	\$38,300	0.59	43	3.8%	762	271	517	-26	-0.5%
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	774	\$50,500	1.06	6	0.7%	390	208	185	-3	-0.1%
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	702	\$82,100	0.64	41	5.3%	268	121	159	-11	-0.3%
53-6032	Aircraft Service Attendants	639	\$41,700	1.23	25	3.9%	480	166	315	-1	0.0%
49-3051	Motorboat Mechanics and Service Technicians	580	\$55,500	1.19	4	0.8%	315	160	142	13	0.5%
49-3052	Motorcycle Mechanics	347	\$49,400	1.20	3	0.8%	177	94	83	0	0.0%
53-5022	Motorboat Operators	38	\$58,300	0.63	2	5.0%	20	8	12	0	0.0%
16420	Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	2,413	1,027	1,413	-27	-0.1%
00-0000	Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

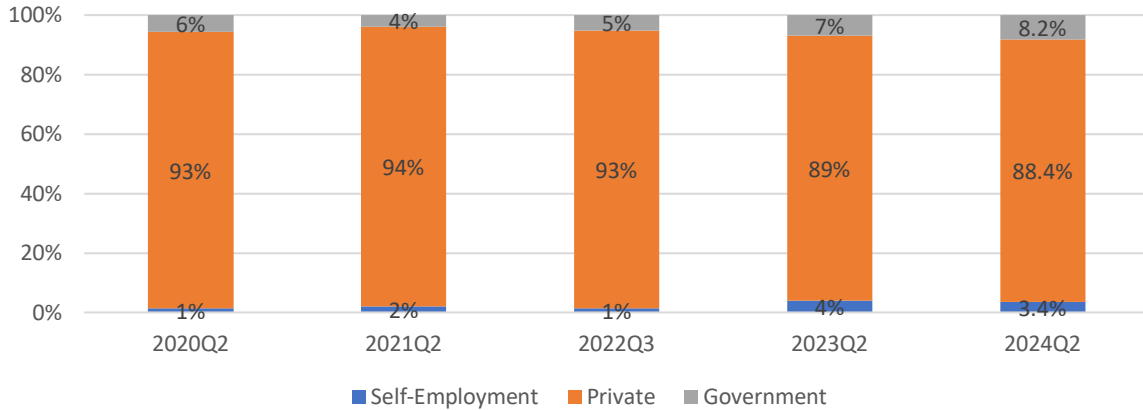
1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data are the average for all Covered Employment

Employment Types

About 88% of people employed in Marine and Power Sports careers in Minnesota work for private employers (nearly the same as 2023), while an estimated 3.4% are self-employed (an increase from past years). The remaining 8% work for state, federal, or local government entities – a share that has grown moderately over the past three years.

Employment Types, Minnesota 2020-2024



Wage Analysis

Marine and Power Sports saw some significant wage gains across the pathway, with average wages rising by \$3,300 from prior estimates. Entry-level wages in the pathways exceed the average entry-level wages observed across all occupations statewide by nearly \$7,000, paying an average of \$41,500 annually for entry-level talent. Education and training requirements vary slightly across the different occupations in this pathway, with most occupations requiring either a certificate or high school diploma or equivalent. Only one of these occupations require previous work experience (Motorboat Operators) and every occupation except Motorboat Operators require some level of on-the-job training.

Marine and Power Sports Pathway Wages and Experience Level Requirements, MN, 2024Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	Percentiles					Education and Training		
						10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	702	\$82,100	\$65,400	\$90,400	\$63,400	\$70,300	\$80,600	\$87,900	\$99,200	Certificate	None	Long-term OJT
49-3051	Motorboat Mechanics and Service Technicians	580	\$55,500	\$42,800	\$61,900	\$40,600	\$47,400	\$54,400	\$61,600	\$67,600	HS/GED	None	Long-term OJT
49-3052	Motorcycle Mechanics	347	\$49,400	\$32,100	\$58,000	\$26,600	\$38,500	\$49,800	\$58,200	\$63,700	Certificate	None	Short-term OJT
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	774	\$50,500	\$41,100	\$55,300	\$39,100	\$45,000	\$50,300	\$55,700	\$60,100	HS/GED	None	Moderate-term OJT
53-5022	Motorboat Operators	38	\$58,300	\$35,900	\$69,500	\$33,000	\$41,300	\$53,700	\$71,900	\$89,000	Certificate	<5 years	None
53-6031	Automotive and Watercraft Service Attendants	1,068	\$38,300	\$33,100	\$40,900	\$32,100	\$35,300	\$38,300	\$41,400	\$44,300	None	None	Short-term OJT
53-6032	Aircraft Service Attendants	639	\$41,700	\$34,000	\$45,500	\$32,100	\$37,500	\$42,200	\$47,200	\$49,500	HS/GED	None	Short-term OJT
	Marine and Power Sports Pathway	4,149	\$52,000	\$41,500	\$57,300	\$39,400	\$45,400	\$51,700	\$57,300	\$62,600			
	Total - All Occupations	3,101,622	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Wages in the Marine and Power Sports pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-county MSP Metro. The MSP Metro region has the highest average and median wages across experience levels and percentiles and contains 57% of the pathway's total statewide employment. The Rural Greater Minnesota region and the Urban Greater Minnesota region have close average and very close median wage rates. Average Marine and Power Sports Pathway wages in the Greater Minnesota regions are about \$5,000 below the average pathway wages in the MSP Metro.

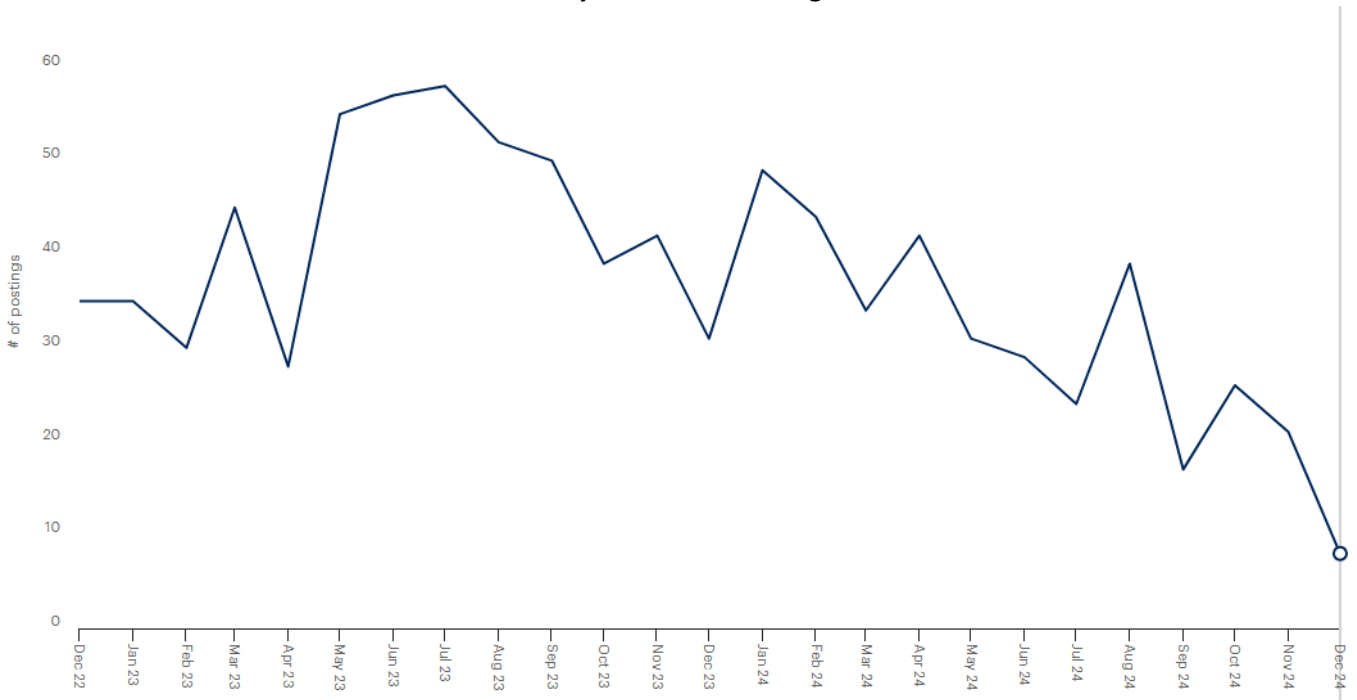
Marine and Power Sports Pathway Wages, 2024Q2

Region	Empl Count	Mean	Entry Level	Experienced	Percentiles				
					10%	25%	50% (Median)	75%	90%
Rural Greater Minnesota	1,114	\$47,900	\$38,900	\$52,500	\$37,000	\$42,200	\$48,200	\$52,700	\$57,500
Urban Greater Minnesota	603	\$49,700	\$40,900	\$54,000	\$39,200	\$44,000	\$49,300	\$54,100	\$60,600
MSP Metro	2,345	\$54,200	\$44,300	\$59,200	\$42,500	\$47,700	\$54,300	\$58,700	\$65,900
Minnesota	4,149	\$52,000	\$41,500	\$57,300	\$39,400	\$45,400	\$51,700	\$57,300	\$62,600

Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2024 in Marine and Power Sports roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset. Overall, there were 364 new jobs advertised in Marine and Power Sports during this time frame, a decrease of 30% from the prior 12-month period (2023). The total share of posted positions advertised by staffing and temp agencies in the Marine and Power Sports pathway decreased to 7% in 2024, similar to the levels seen in 2021 (5%). Posted wages remained nearly the same from 2022 and 2023 with an average of \$20.49 per hour, and there were an average of four hires per every one unique job posting advertised based on Lightcast estimates.

Volume of Career Pathway Online Job Postings in 2023 and 2024



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Employers by Volume of New Job Postings, With Change from Prior Year

	Employer	Percent Change between 2022 and 2023
1.	Army	-12%
2.	Signature Aviation	33%
3.	PENSKE	-32%
4.	Michael Foods, Inc.	-59%
5.	Walser Automotive Group	500%
6.	Garlock Equipment Company	0%
7.	Xcel Energy	25%
8.	ERMC Aviation	400%
9.	Luther Automotive Group	0%
10.	TC Energy	0%

New Job Postings Advertised in Minnesota by Employer Type

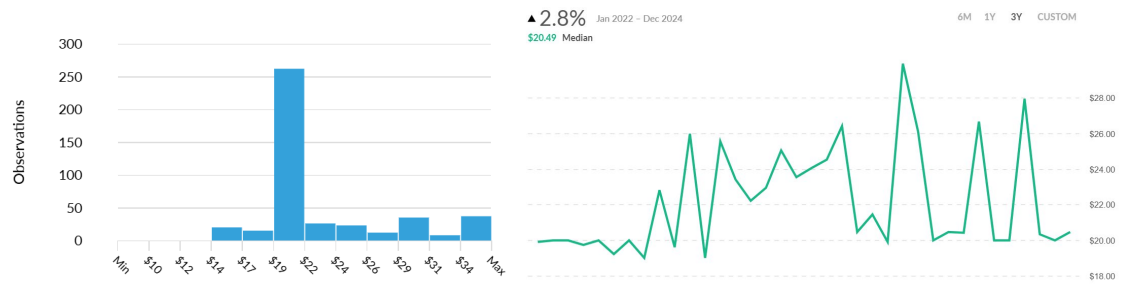


New Job Postings by Industry or Employer Type

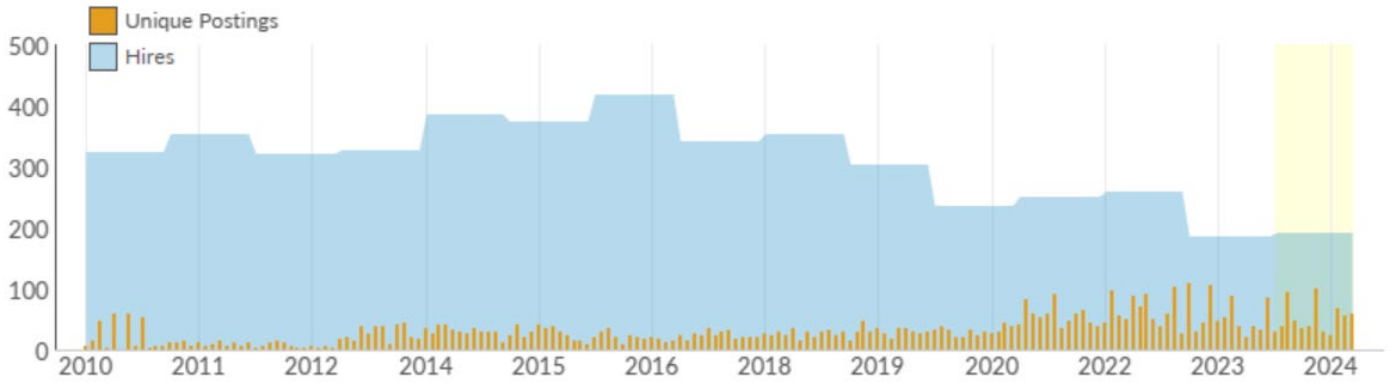
Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
Warehouse Clubs and Supercenters	450 / 224	2 : 1	35 days
Employment Placement Agencies	59 / 33	2 : 1	33 days
Other Miscellaneous Durable Goods Merchant Wholesalers	67 / 19	4 : 1	33 days
Boat Dealers	57 / 18	3 : 1	41 days
Motorcycle, Bicycle, and Parts Manufacturing	15 / 12	1 : 1	28 days
Hardware Retailers	15 / 9	2 : 1	13 days
Electrical Contractors and Other Wiring Installation Contractors	11 / 8	1 : 1	22 days
General Freight Trucking, Local	24 / 8	3 : 1	47 days
Janitorial Services	46 / 8	6 : 1	n/a
Farm and Garden Machinery and Equipment Merchant Wholesalers	9 / 7	1 : 1	32 days

Pathway Advertised Salary Range

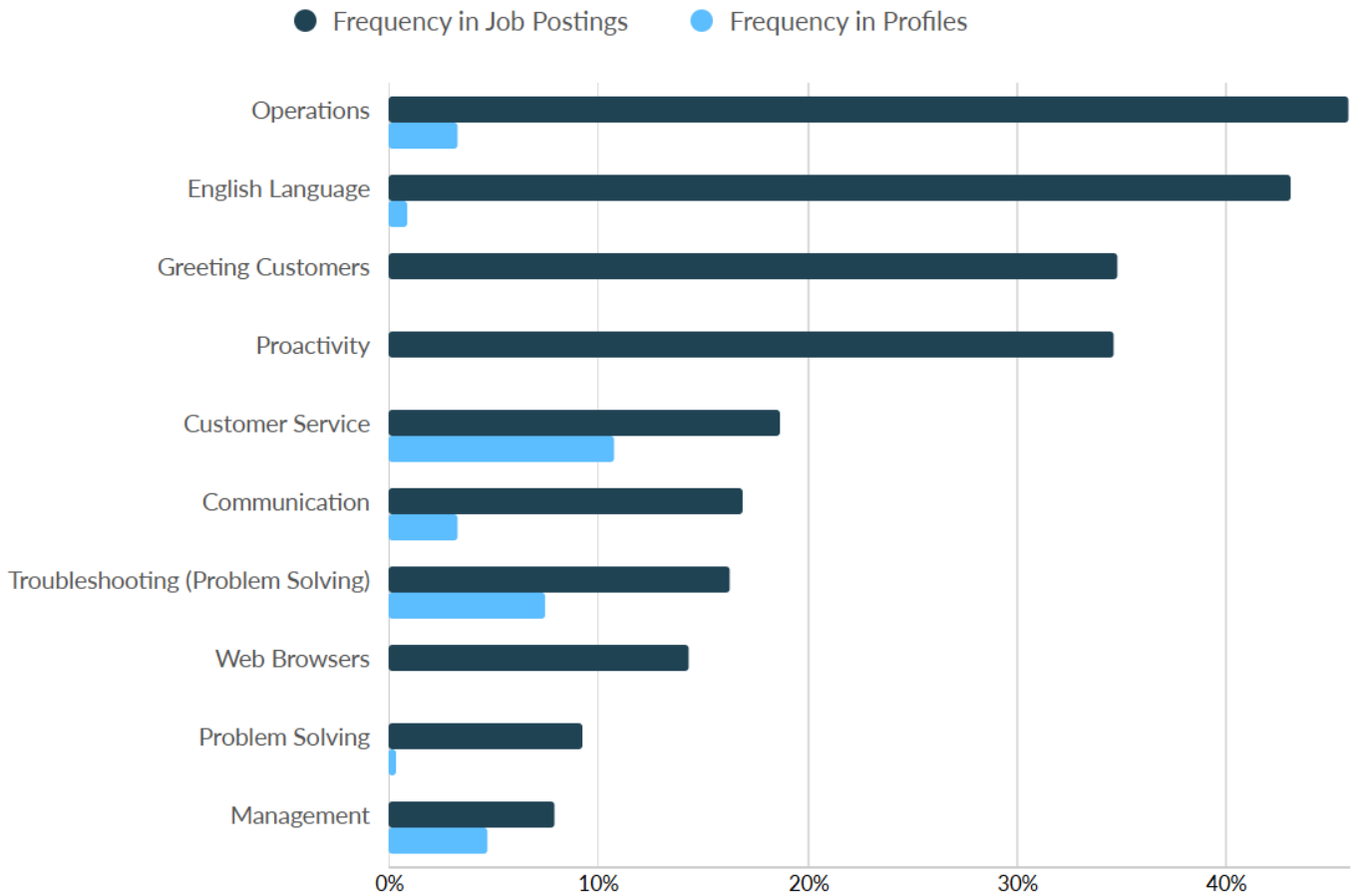
\$20.49/hr
Median Advertised Salary



Monthly Ratio of Unique Job Postings to Estimated Hires

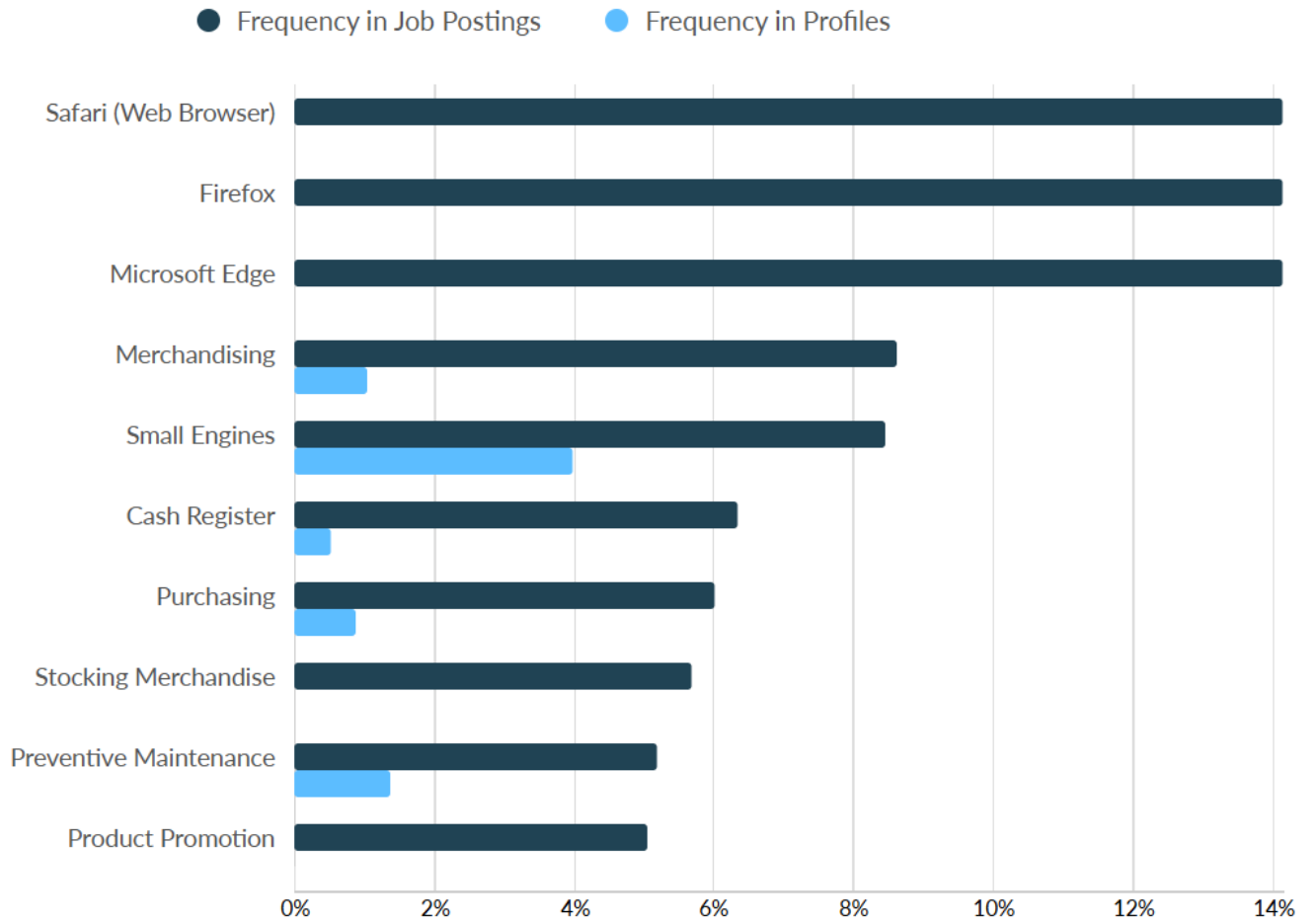


Top Common Skills



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	81
USCG Master Captain's License	3
EPA 608 Technician Certification	3
Commercial Driver's License (CDL)	3
National Center For Construction Education & Research (NCCER) Certification	2
Boating License	2
DOT Certification	2
Medical Certificate	2
30-Hour OSHA General Industry Card	1
NATE Certification (North American Technician Excellence)	1

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 2.9% (down from 3.7% in 2023Q2), there are about 125 unemployed Marine and Power Sports professionals statewide. While unemployment rates for Automotive and Watercraft Service Attendants and Aircraft Service Attendants declined substantially from very high figures in 2023Q2 (7.3% and 7.5% respectively, now 3.8% and 3.9%), unemployment for Electrical and Electronics Repairers rose to 5.3% and the rate for Motorboat Operators grew to 5.0%. An additional 594 (up from 485 in 2023Q3) Marine and Power Sports professionals are underemployed—meaning they are working in roles for which they are overqualified by education or experience.²

Marine and Power Sports Pathway in Minnesota

SOC	Occupation	Empl (Place of Residence)							Total Empl	Overall Occupation ¹		
		< High School	High School	Some College	2-Year	4-Year	Master's	PhD		Underemployed	Unemployed	Unempl Rate
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	2.5%	23.9%	21.8%	34.1%	15.1%	1.3%	1.3%	733	126	41	5.3%
49-3051	Motorboat Mechanics and Service Technicians	8.2%	42.0%	17.7%	21.4%	9.5%	1.1%	0.0%	579	55	4	0.8%
49-3052	Motorcycle Mechanics	8.0%	42.5%	17.7%	21.7%	9.0%	1.0%	0.0%	353	29	3	0.8%
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	8.3%	41.8%	17.6%	21.4%	9.7%	1.2%	0.0%	773	79	6	0.7%
53-5022	Motorboat Operators	2.7%	32.3%	16.1%	11.2%	29.7%	7.6%	0.5%	37	13	2	5.0%
53-6031	Automotive and Watercraft Service Attendants	9.0%	39.4%	19.5%	14.5%	15.9%	1.3%	0.5%	1,096	155	43	3.8%
53-6032	Aircraft Service Attendants	9.6%	35.7%	19.3%	13.1%	20.0%	1.7%	0.6%	626	137	25	3.9%
Marine and Power Sports Pathway		7.6%	37.1%	19.1%	20.5%	13.9%	1.3%	0.5%	4,198	594	125	2.9%
Total - All Occupations		5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

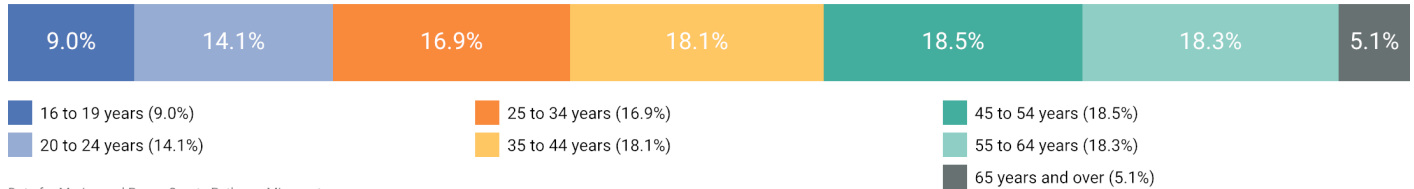
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

² Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

Workforce Demographics

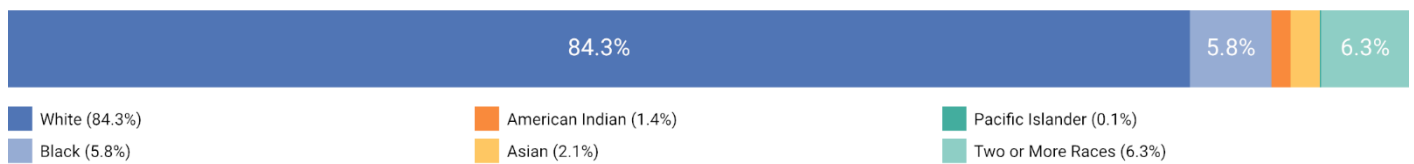
Talent currently employed in this career pathway in Minnesota are relatively young overall, consistent with observations over the past three years. About 23.1% of the Marine and Power Sports workforce is under the age of 25, and this share has increased over the past two years. Workers over 64 years old now account for 5.1% of the workforce. The largest demographic group by race are white, representing 84.5% of the total pathway’s workforce, with the next largest cohort being talent of two or more races, representing 6.3% of the workforce. Just over 5% of the pathway’s workforce are Hispanic or Latinx, and 13.3% are female.

Marine and Power Sports Workforce Age Demographics, 2024Q2



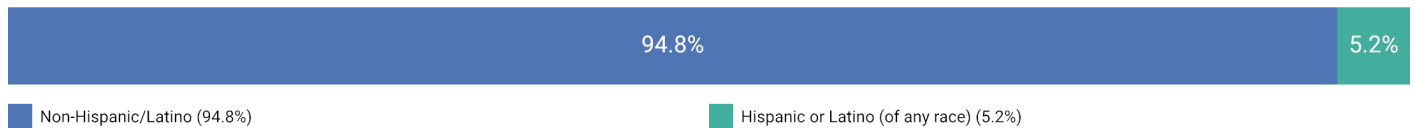
Data for Marine and Power Sports Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Marine and Power Sports Workforce Race Demographics, 2024Q2



Data for Marine and Power Sports Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Marine and Power Sports Workforce Ethnicity Demographics, 2024Q2



Data for Marine and Power Sports Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Marine and Power Sports Workforce Gender Demographics, 2024Q2



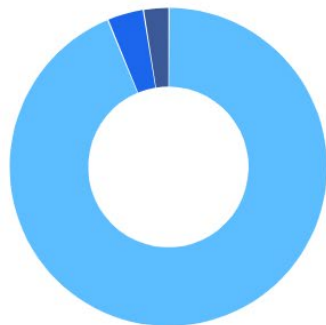
Data for Marine and Power Sports Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Aligned Postsecondary Programs

There were about 270 awards conferred at 11 different Minnesota postsecondary institutions in programs aligned to Marine and Power Sports careers in SY2023. In SY2023, there were 54 more completions compared to SY2022. Among these, 108 were at the Associate level, and 124 were certificates that could be earned in less than two years. The average school had about 24 completions but total completions by institution range from seven to 59 completions. One institution delivered a program remotely in SY2023, up from zero the prior year. The most closely-aligned programs fall in the center of this table, including Marine Maintenance, Small Engine Mechanics, and Motorcycle Maintenance programs which in total conferred 91 certificate and Associate degree awards statewide in SY2023.

Marine and Power Sports Postsecondary Program Awards by Level, SY2023

CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Master's	Doctorate	Total Awards
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician	14	20	59	5	7	0	0	105
47.0605	Diesel Mechanics Technology/Technician	4	24	42	14	0	0	0	84
47.0616	Marine Maintenance/Fitter and Ship Repair Technology/Technician	0	38	7	20	0	0	0	65
47.0606	Small Engine Mechanics and Repair Technology/Technician	0	12	0	3	0	0	0	15
47.0611	Motorcycle Maintenance and Repair Technology/Technician	0	11	0	0	0	0	0	11
47.0104	Computer Installation and Repair Technology/Technician	1	0	0	0	0	0	0	1
47.0103	Communications Systems Installation and Repair Technology/Technician	0	0	0	0	0	0	0	0
	Total	19 6.8%	105 37.4%	108 38.4%	42 14.9%	7 2.5%	0 0%	0 0%	281


























Institution Type	Completions (2023)	Market Share
Public, 2-year	253	93.7%
Private not-for-profit, 4-year or above	10	3.7%
Public, 4-year or above	7	2.6%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/10/2025 at talentneuron.com. Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

About 94% of related pathway awards were conferred by public 2-year institutions, with Hennepin Technical College and Alexandria Technical and Community College awarding largest number of completions in SY2023 (21.9% and 18.1% of awards conferred, respectively). Completions have grown 15% since SY2019.

Marine and Power Sports Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023) 	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
 Hennepin Technical College	59	43.9%	21.9%	\$5,881	
 Alexandria Technical & Community College	49	4.3%	18.1%	\$6,213	
 Central Lakes College-Brainerd	40	0.0%	14.8%	\$6,209	
 Anoka Technical College	35	150.0%	13.0%	\$6,267	
 Lake Superior College	23	91.7%	8.5%	\$5,785	
 Minnesota State Community and Technical College	19	11.8%	7.0%	\$5,900	
 Minnesota West Community and Technical College	11	-35.3%	4.1%	\$6,484	
 Dunwoody College of Technology	10	42.9%	3.7%	\$25,659	
 Minnesota State College Southeast	9	350.0%	3.3%	\$7,820	
 Riverland Community College	8	-20.0%	3.0%	\$6,249	
 Minnesota State University-Mankato	7	133.3%	2.6%	\$9,490	

Graduate Demographics

Postsecondary program graduate diversity varies by program across the Marine and Power Sports pathway. There were no international student completions in SY2023, but in SY2022, there were two completions by international students. All programs continue to have an overrepresentation of male students. Electrical, Electronic, and Communication Engineering Technology/Technician continues to have the most diverse graduates.³

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician	105	0	5	0	15	2	69	14	100	5
47.0103	Communications Systems Installation and Repair Technology/Technician	0	0	0	0	0	0	0	0	0	0
47.0104	Computer Installation and Repair Technology/Technician	1	0	0	0	0	0	1	0	1	0
47.0605	Diesel Mechanics Technology/Technician	84	0	0	0	1	1	81	1	81	3
47.0606	Small Engine Mechanics and Repair Technology/Technician	15	0	0	1	0	1	13	0	13	2
47.0611	Motorcycle Maintenance and Repair Technology/Technician	11	0	0	0	0	10	4	0	11	0
47.0616	Marine Maintenance/Fitter and Ship Repair Technology/Technician	65	0	0	0	0	4	61	0	60	5
All Marine and Power Sports Postsecondary Programs		270	0	5	1	16	8	225	15	255	15

IPEDS SY2023 demographics by award conferred. Count of awards may double count individuals who obtained multiple credentials in the same calendar year. *[NCES IPEDS](https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Only one of the postsecondary programs aligned to all Marine and Power Sport pathway occupations (Electrical and Electronics Repairers) is now underproducing graduates in comparison to national benchmarks, shown in pink in the table below. The seven aligned programs for the Marine and Power Sport pathway all have a low share of BIPOC graduates, and a low share of female graduates. The share of BIPOC graduates decreased by nearly ten percentage points from the 2022 school year and the share of female graduates decreased by four percentage points from the 2022 school year.

³ [NCES IPEDS](https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions) refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)**	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Automotive and Watercraft Service Attendants	<ul style="list-style-type: none"> Personal Watercraft/Boating Education (not offered in Minnesota) 	1,068	19.8%	5.0%	25.8%	71.9%	N/A	N	N/A	N/A
Electrical and Electronics Repairers, Commercial and Industrial Equipment	<ul style="list-style-type: none"> Electrical, Electronic, and Communications Engineering Technology/Technician Computer Installation and Repair Technology/Technician Communications Systems Installation and Repair Technology/Technician 	702	11.2%	4.8%	4.3%	54.0%	99	Y	29.2%	4.7%
Outdoor Power Equipment and Other Small Engine Mechanics	<ul style="list-style-type: none"> Small Engine Mechanics and Repair Technology/Technician 	774	11.8%	5.4%	4.8%	46.0%	15	N	13.3%	13.3%
Motorboat Mechanics and Service Technicians	<ul style="list-style-type: none"> Diesel Mechanics Technology/Technician Marine Maintenance/Fitter and Ship Repair Technology/Technician Small Engine Mechanics and Repair Technology/Technician 	580	11.0%	4.9%	4.8%	45.8%	164	N	5.5%	6.1%
Motorcycle Mechanics	<ul style="list-style-type: none"> Small Engine Mechanics and Repair Technology/Technician Motorcycle Maintenance and Repair Technology/Technician 	347	9.5%	4.4%	4.9%	45.2%	26	N	11.5%	7.7%
Aircraft Service Attendants	N/A	639	26.2%	6.5%	24.4%	73.5%	N/A	N	N/A	N/A
Motorboat Operators	<ul style="list-style-type: none"> Personal Watercraft/Boating Education (not offered in Minnesota) 	38	14.7%	5.7%	23.7%	44.7%	N/A	N	N/A	N/A
Marine and Power Sports Pathway	All seven aligned programs	4,149	15.7%	5.2%	13.3%	58.2%	274	Y	14.6%	5.3%
Total - All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *Related programs may overlap among occupations within the pathway or across other Transportation career pathways. Only those programs most tightly aligned to the occupation in question are listed in this column. **Award gaps are estimated based on a wider alignment of programs than what is illustrated in this table.

Conclusion

Despite a rapid recovery in 2021 and 2022, employment in the Marine and Power Sports pathway leveled off near pre-pandemic employment figures in 2023 and began a downturn in early 2024. Over the next five years, Marine and Power Sports employment is anticipated to decline slightly, declining by about 27 jobs (-0.1% annually). Total baseline demand for Marine and Power Sports talent is anticipated to be around 2,413 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Of the seven occupations included within this pathway, Aircraft Service Attendants, Motorcycle Mechanics and Motorboat Mechanics and Service Technicians are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Marine and Power Sports careers pay about \$52,000 per year (up from \$48,700 last year)—well below the average wage statewide across all positions.

At an overall pathway unemployment rate of 2.9% (down from 3.7% in 2023Q2), there are about 125 unemployed Marine and Power Sports professionals statewide. While unemployment rates for Automotive and Watercraft Service Attendants and Aircraft Service Attendants declined substantially from very high figures in 2023Q2 (7.3% and 7.5% respectively, now 3.8% and 3.9%), unemployment for Electrical and Electronics Repairers rose to 5.3% and the rate for Motorboat Operators grew to 5.0%. Each of the seven programs aligned with the Marine and Power Sports pathway have a low share of BIPOC graduates and a low share of female graduates, showcasing the opportunity to diversify student enrollment into these programs.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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.

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



TRUCK DRIVING

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence

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Introduction and Sector Overview

This report highlights the importance of the Truck Driving career pathway for Minnesota’s Transportation Industry. Professionals in these careers work as heavy truck drivers, tractor drivers, bus drivers, sales truck drivers, and tank car drivers serving a variety of industries.¹ In all, about 96,100 people work in Truck Driving roles in Minnesota as of the second quarter of 2024—a 1.5% decrease from a year prior.

Overall employment in Minnesota grew by nearly 25,855 workers (0.8%) between the second quarter of 2023 and the second quarter of 2024, a cooling of the growth seen in the prior year. Over the past five years (since the second quarter of 2019), employment grew by about 8,807 workers, or a 0.1% average annual growth in total statewide employment. Over the next five years, overall employment is forecast to remain flat (0.0% average annual growth), while all Transportation Occupations together forecast moderate growth of 0.1% average annual growth. During this time frame, Truck Driving employment is anticipated to rise slightly in Minnesota by about 862 total jobs (0.2% annually) due to a tight talent pool (a slight decrease from the 0.3% growth forecasted in 2023Q2). Total baseline demand for Truck Driving talent is anticipated to be around 53,460 professionals needed to fill positions in this pathway due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2024Q2¹

Occupation	Current					5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Empl Change	Ann % Change	Total Demand	Exits	Transfers	Empl Change	Ann % Change
Automotive Technology Pathway	20,796	\$70,800	0.97	323	1.5%	-806	-0.8%	7,773	2,869	4,826	78	0.1%
Aviation and Drone Technology Pathway	10,297	\$132,400	0.96	105	1.0%	308	0.6%	4,427	1,450	3,034	-57	-0.1%
Collision Repair Pathway	7,342	\$58,400	1.09	179	2.4%	244	0.7%	3,035	1,186	1,950	-101	-0.3%
Diesel Equipment and Truck Pathway	12,514	\$68,400	1.02	92	0.7%	282	0.5%	5,328	2,000	3,244	84	0.1%
Marine and Power Sports Pathway	4,149	\$52,000	0.83	125	2.9%	-10	0.0%	2,413	1,027	1,413	-27	-0.1%
Truck Driving Pathway*	96,100	\$55,400	0.95	3,351	3.4%	857	0.2%	53,460	24,107	28,491	862	0.2%
Transportation Occupations	141,847	\$64,100	0.95	3,852	2.6%	616	0.1%	71,066	29,736	40,624	706	0.1%
Total - All Occupations	3,101,622	\$69,500	1.00	90,732	2.8%	8,807	0.1%	1,656,897	685,274	973,094	-1,471	0.0%

*This pathway includes School Bus Driver careers as of 2022, which were not included in the 2020 or 2021 estimates of career pathway employment or demand.

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

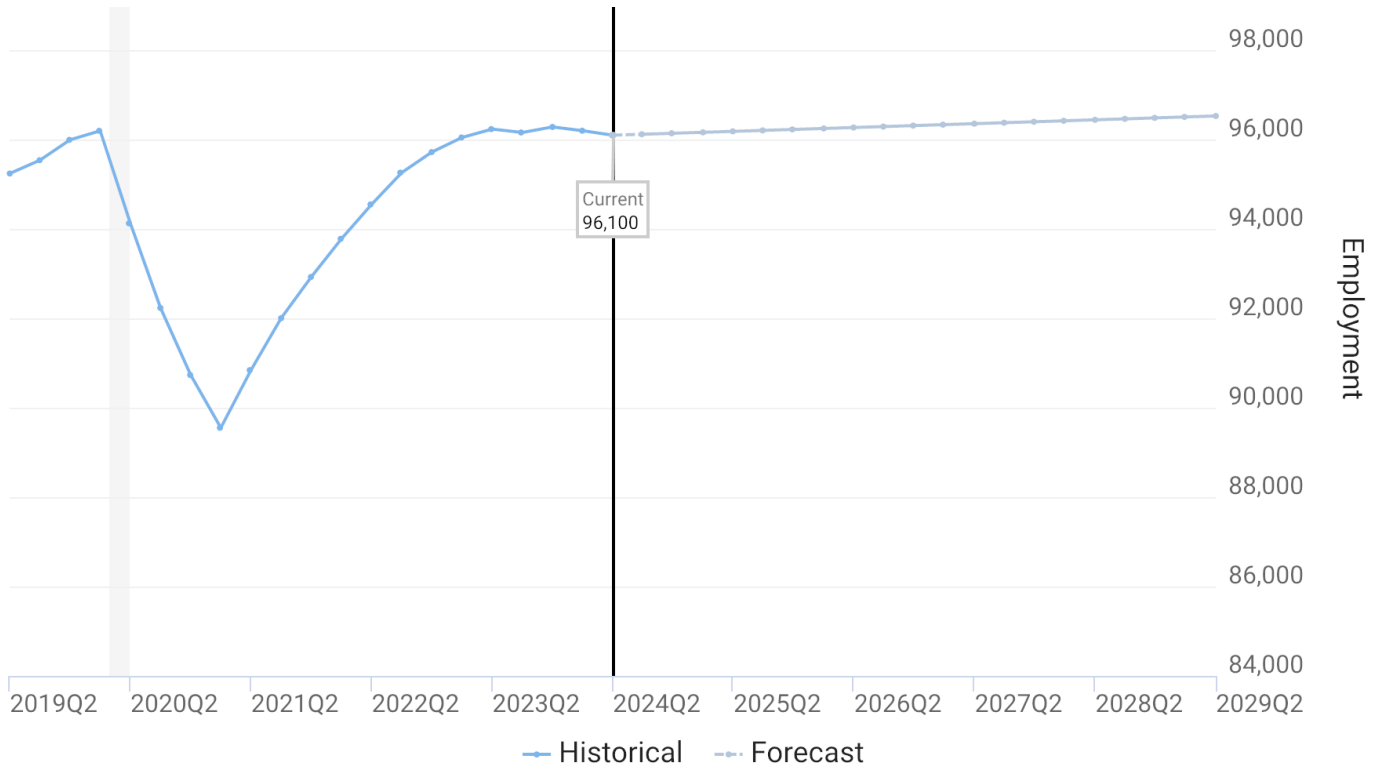
1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

¹ The occupation for School Bus Drivers was added to this pathway analysis as of 2022.

Minnesota’s job market continued to cool in 2024 from the strong recovery between 2021 and 2023. Unemployment rates have stabilized around 2.8% as of 2024. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Truck Driving roles suggest that there may be long-term shortages of talent in several critical occupations in this career pathway unless more talent decides to enter the field. This pathway had a steady recovery through 2021 and 2022, reaching pre-pandemic levels of employment by early 2023 and leveling off since. Truck Driving pathway employment still forecasts growth as of 2024, although a more modest 0.2% annual growth forecasted through 2029.

Truck Driving Employment Forecast Under Baseline Scenario, Minnesota



Source: JobsEQ® Data as of 2024Q2 The shaded areas of the graph represent national recessions.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Industry/Occupation Mix

Truck Driving talent is primarily concentrated in the General Freight Trucking industry (16.4%) and School and Employee Bus Transportation (8.5%). The industry demand for Truck Driving talent is diverse, from warehousing to restaurant and grocery industry needs.

Top Industry Distribution for Automotive Technology Pathway Occupations in Minnesota

NAICS Code	Industry Title	CURRENT		10-YEAR DEMAND				
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4841	General Freight Trucking	16.4%	15,730	\$62,500	6,393	9,538	-162	15,769
4854	School and Employee Bus Transportation	8.5%	8,215	\$50,400	8,118	3,991	161	12,271
4921	Couriers and Express Delivery Services	6.6%	6,312	\$71,400	2,690	4,007	570	7,268
4842	Specialized Freight Trucking	4.6%	4,389	\$62,400	1,785	2,664	-38	4,410
7225	Restaurants and Other Eating Places	3.7%	3,521	\$35,100	1,498	2,228	301	4,028
4244	Grocery and Related Product Merchant Wholesalers	3.7%	3,517	\$52,800	1,431	2,176	78	3,686
4931	Warehousing and Storage	3.0%	2,907	\$60,000	1,055	1,972	323	3,351
6111	Elementary and Secondary Schools	2.5%	2,404	\$50,800	2,322	1,140	-101	3,361
4922	Local Messengers and Local Delivery	2.2%	2,123	\$50,400	909	1,354	213	2,475
4859	Other Transit and Ground Passenger Transportation	2.2%	2,077	\$40,300	1,684	1,065	150	2,899
4851	Urban Transit Systems	2.0%	1,963	\$57,200	1,358	952	-30	2,280
9211	Executive, Legislative, and Other General Government Support	1.7%	1,666	\$55,000	1,162	837	-14	1,985
4413	Automotive Parts, Accessories, and Tire Retailers	1.5%	1,456	\$34,700	587	872	-44	1,415
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	1.4%	1,380	\$59,100	559	848	10	1,417
5613	Employment Services	1.2%	1,199	\$47,900	435	765	1	1,202
2373	Highway, Street, and Bridge Construction	1.2%	1,193	\$68,600	496	741	46	1,283
2389	Other Specialty Trade Contractors	1.2%	1,146	\$64,100	483	722	80	1,286
5621	Waste Collection	1.2%	1,140	\$64,100	482	722	91	1,294
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.1%	1,073	\$43,900	429	650	-22	1,057
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	1.0%	951	\$58,200	370	588	-3	955
-	All Others	33.0%	31,739	-	13,982	19,169	129	33,281

Source: JobsEQ®
Data as of 2024Q2. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
Note: Figures may not sum due to rounding.

Talent Demand Detail

Employment and Wage Overview

Of all occupations found in the Truck Driving pathway, School Bus Drivers and Shuttle Drivers and Chauffeurs are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall with location quotients of 1.43 and 1.35 respectively. On average, Truck Driving careers pay about \$55,400 per year—about \$14,100 below the average wage statewide across all positions. The Truck Driving Pathway declined in total employment over the past year by 1.5%.

SOC	Occupation	Current					5-Year Baseline Forecast				
		Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Total Demand	Exits	Transfers	Empl Change	Ann % Change
53-3032	Heavy and Tractor-Trailer Truck Drivers	40,896	\$63,800	0.99	1,409	3.3%	21,088	8,402	12,501	186	0.1%
53-3033	Light Truck Drivers	18,555	\$52,400	0.92	626	3.3%	9,942	3,858	5,739	345	0.4%
53-3051	Bus Drivers, School	10,071	\$50,900	1.43	226	2.2%	7,520	5,088	2,418	13	0.0%
53-3031	Driver/Sales Workers	8,780	\$38,400	0.93	300	3.3%	4,733	1,829	2,721	183	0.4%
53-7051	Industrial Truck and Tractor Operators	8,112	\$54,700	0.56	398	4.6%	3,949	1,217	2,718	14	0.0%
53-3053	Shuttle Drivers and Chauffeurs	5,761	\$39,000	1.35	235	4.0%	3,933	2,373	1,436	124	0.4%
53-3052	Bus Drivers, Transit and Intercity	3,731	\$56,800	0.94	155	4.1%	2,197	1,303	894	0	0.0%
53-7121	Tank Car, Truck, and Ship Loaders	194	\$68,200	0.82	2	0.8%	98	36	64	-2	-0.2%
Truck Driving Pathway		96,100	\$55,400	0.95	3,351	3.4%	53,460	24,107	28,491	862	0.2%
Total - All Occupations		3,101,622	\$69,500	1.00	90,732	2.8%	1,656,897	685,274	973,094	-1,471	0.0%

Source: [JobsEQ®](#)

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

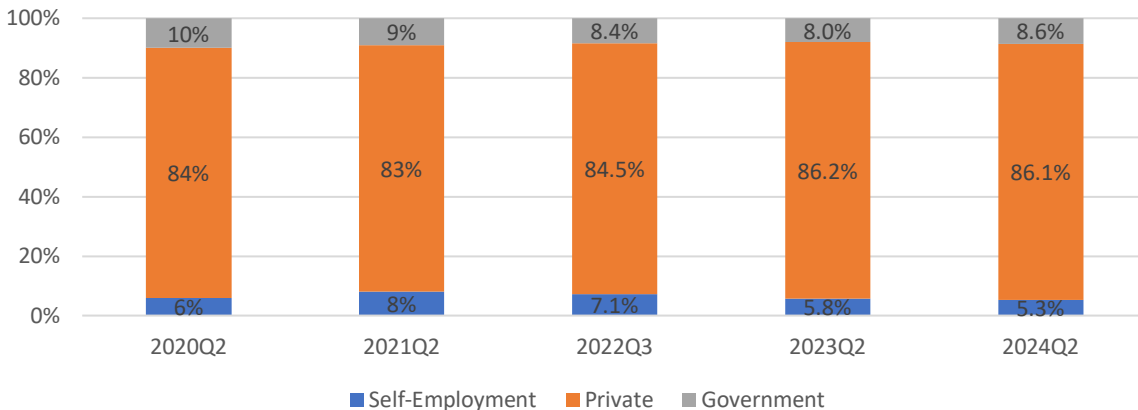
1. Data based on a four-quarter moving average unless noted otherwise.

2. Wage data represent the average for all Covered Employment

Employment Types

About 86% of people employed in Truck Driving roles in Minnesota work for private employers (steady since 2023), while an estimated 5.3% are self-employed. The remaining 8.6% work for state, federal, or local government entities.

Employment Types, Minnesota 2020-2024



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Wage Analysis

The Truck Driving pathway saw wage gains across the pathway, with average annual wages rising by \$3,600 from prior estimates. Entry-level wages in the pathway exceed the average entry-level wages observed across all occupations statewide by \$6,500, paying an average of \$41,400 annually for entry-level talent. Education and training requirements vary across the different occupations in this pathway, with Heavy and Tractor-Trailer Truck Drivers requiring a certificate whereas other occupations in the pathway require either a high school diploma or equivalent or no education requirement. While none of these occupations require previous work experience, all require some level of on-the-job training.

Truck Driving Pathway Wages and Experience Level Requirements, MN, 2024Q2

SOC	Occupation	Empl Count	Mean	Entry Level	Experienced	Percentiles					Education and Training		
						10%	25%	50% (Median)	75%	90%	Typical Entry-Level Education	Previous Work Experience	Typical On-the-Job Training
53-3031	Driver/Sales Workers	8,780	\$38,400	\$25,300	\$44,900	\$23,900	\$26,900	\$32,600	\$49,800	\$62,100	HS/GED	None	Short-term OJT
53-3032	Heavy and Tractor-Trailer Truck Drivers	40,896	\$63,800	\$48,300	\$71,500	\$46,400	\$52,900	\$62,300	\$72,600	\$83,300	Certificate	None	Short-term OJT
53-3033	Light Truck Drivers	18,555	\$52,400	\$36,800	\$60,200	\$33,400	\$42,600	\$49,700	\$59,900	\$76,300	HS/GED	None	Short-term OJT
53-3051	Bus Drivers, School	10,071	\$50,900	\$40,400	\$56,200	\$37,200	\$46,100	\$51,600	\$55,800	\$61,100	HS/GED	None	Short-term OJT
53-3052	Bus Drivers, Transit and Intercity	3,731	\$56,800	\$40,400	\$65,000	\$38,900	\$44,200	\$53,100	\$67,500	\$76,500	HS/GED	None	Mod-term OJT
53-3053	Shuttle Drivers and Chauffeurs	5,761	\$39,000	\$30,600	\$43,300	\$29,300	\$33,200	\$38,400	\$44,400	\$49,100	None	None	Short-term OJT
53-7051	Industrial Truck and Tractor Operators	8,112	\$54,700	\$40,300	\$61,800	\$38,900	\$43,700	\$50,800	\$62,700	\$76,200	None	None	Short-term OJT
53-7121	Tank Car, Truck, and Ship Loaders	194	\$68,200	\$46,500	\$79,000	\$43,800	\$52,900	\$66,300	\$81,200	\$97,200	None	None	Short-term OJT
	Truck Driving Pathway	96,100	\$55,400	\$41,100	\$62,500	\$38,900	\$45,500	\$53,300	\$63,600	\$74,800			
	Total - All Occupations	3,101,622	\$69,500	\$34,600	\$87,000	\$32,000	\$39,600	\$54,500	\$81,600	\$119,000			

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Wages in the Truck Driving pathway vary across the three regions of Rural Greater Minnesota, Urban Greater Minnesota, and the 7-county MSP Metro. The MSP Metro region has the highest wages across experience levels and percentiles and contains 56% of the pathway’s total statewide employment. The Rural Greater Minnesota region and the Urban Greater Minnesota region have very close average and median wage rates; average Automotive Technology Pathway wages in the Greater Minnesota regions are around \$4,500 below the average pathway wages in the MSP Metro.

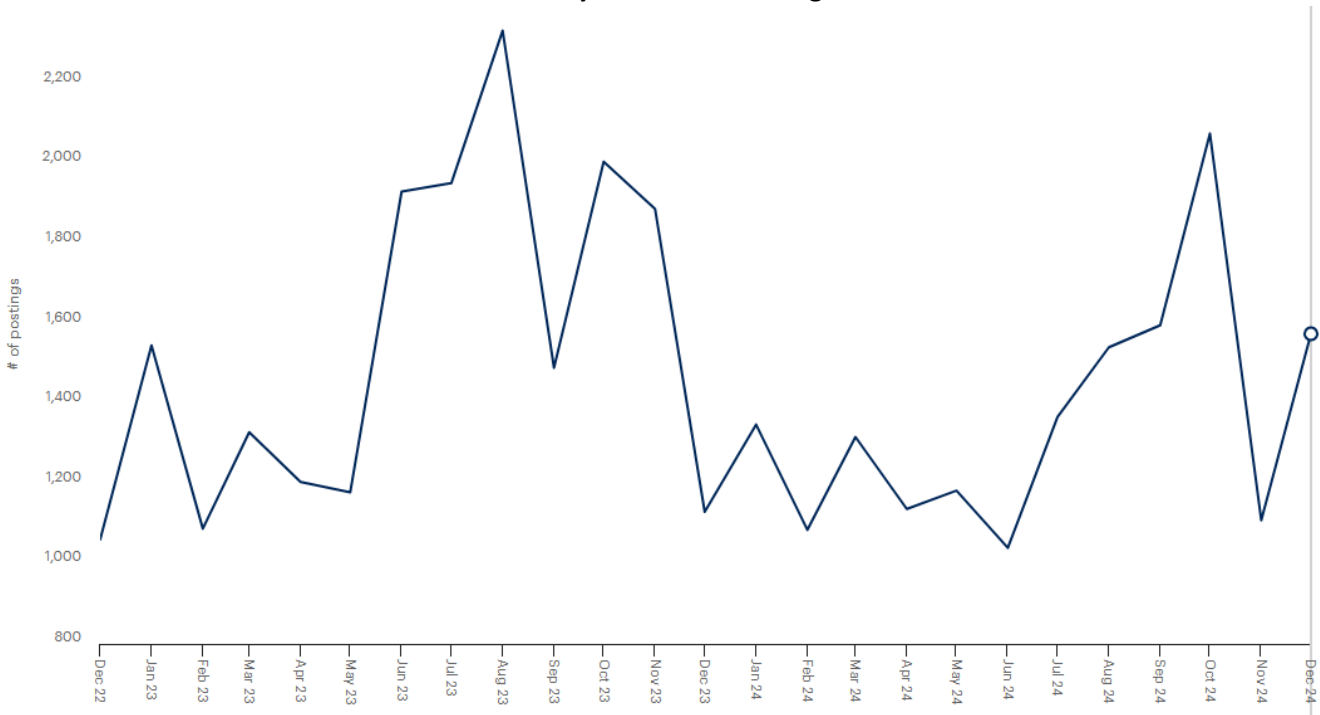
Truck Driving Pathway Wages, 2024Q2

Region	Empl Count	Mean	Entry Level	Experienced	Percentiles				
					10%	25%	50% (Median)	75%	90%
Rural Greater Minnesota	25,060	\$52,500	\$39,400	\$59,000	\$37,700	\$43,100	\$50,500	\$59,300	\$71,300
Urban Greater Minnesota	14,340	\$53,500	\$39,700	\$60,500	\$38,100	\$43,300	\$52,000	\$61,200	\$72,500
MSP Metro	53,844	\$57,100	\$43,300	\$64,000	\$41,300	\$47,500	\$55,000	\$65,400	\$76,300
Minnesota	96,100	\$55,400	\$41,100	\$62,500	\$38,900	\$45,500	\$53,300	\$63,600	\$74,800

Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2024 in Truck Driving roles across Minnesota. Volume of total job postings, employer types (direct versus staffing), and top employers by unique job posting volumes comes from TalentNeuron; industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset. Overall, there were 16,373 new jobs advertised in Truck Driving roles during 2024, a decrease of -14% from the prior 12-month period (2023). Volume of positions advertised by staffing and temp agencies in the Truck Driving pathway decreased slightly from 2023, from 8% to 6%. Posted wages increased to an average \$27.20 per hour as of 2024, and there were an average of three hires per every one unique job posting advertised based on Lightcast estimates.

Volume of Career Pathway Online Job Postings in 2023 and 2024



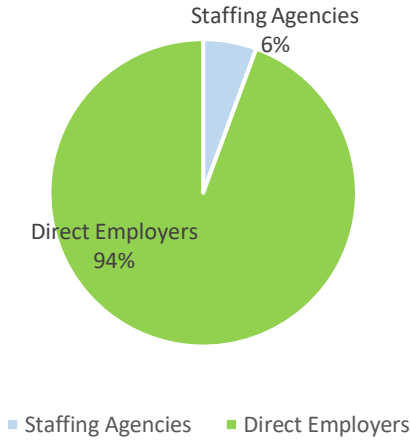
Top Employers by Volume of New Job Postings, With Change from Prior Year

Employer	Percent Change between 2023 and 2024
1. UPS	154%
2. Schneider National	2%
3. US Foods	27%
4. Performance Foodservice	172%
5. Marten Transport	19%
6. Cargill	2546%
7. PENSKE	32%
8. Ryder	212%
9. Amazon	-85%
10. DoorDash	95%

Note: Employer posting table does not include gig economy careers, such as UberEATS, goPuff, or Instacart

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

New Job Postings Advertised in Minnesota by Employer Type

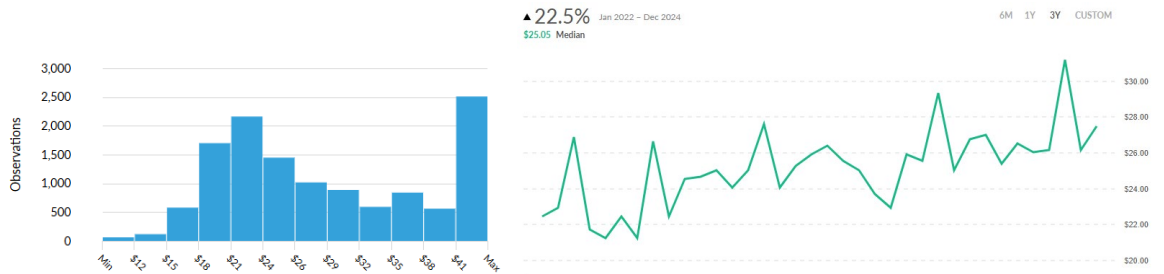


New Job Postings by Industry or Employer Type

Industry	Total/Unique (Jan 2024 - Dec 2024)	Posting Intensity	Median Posting Duration
General Freight Trucking, Long-Distance, Truckload	6,541 / 2,573	3 : 1	31 days
Couriers and Express Delivery Services	2,779 / 1,201	2 : 1	21 days
Employment Placement Agencies	2,996 / 1,042	3 : 1	20 days
Limited-Service Restaurants	1,771 / 675	3 : 1	27 days
General Freight Trucking, Local	1,621 / 550	3 : 1	31 days
Automotive Parts and Accessories Retailers	983 / 440	2 : 1	21 days
Meat and Meat Product Merchant Wholesalers	879 / 435	2 : 1	17 days
General Line Grocery Merchant Wholesalers	1,576 / 428	4 : 1	29 days
Specialized Freight (except Used Goods) Trucking, Long-Distance	972 / 350	3 : 1	30 days
Solid Waste Collection	1,101 / 331	3 : 1	30 days

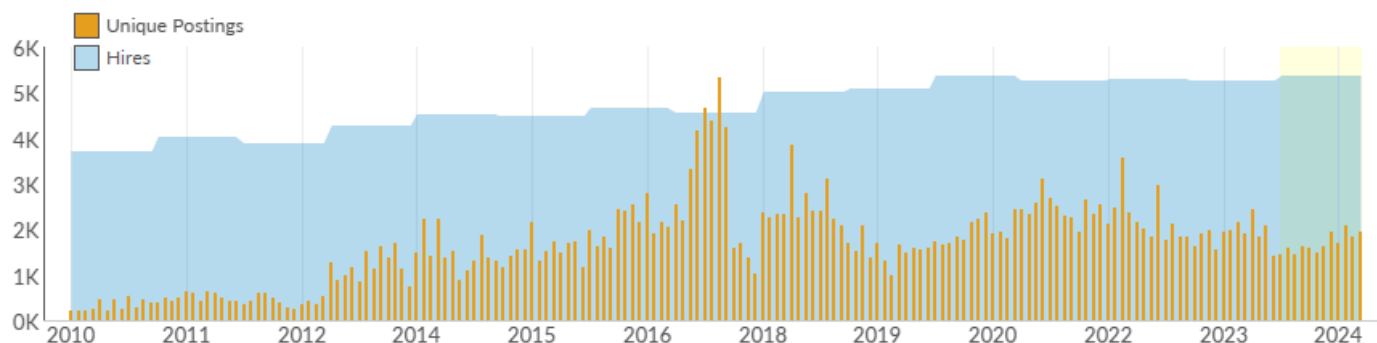
Pathway Advertised Salary Range

\$27.02/hr
Median Advertised Salary



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Monthly Ratio of Unique Job Postings to Estimated Hires



A look at all job postings that required a Commercial Drivers' License (CDL) upon hire resulted in a total of 14,023 unique job postings in Minnesota in 2024, representing 3% of all postings (similar to 2023 demand). In addition to the Truck Driving pathway careers analyzed in this report, 63 other occupations often require a CDL in Minnesota, including the following:

- Maintenance and Repair Workers
- Highway Maintenance Workers
- Laborers and Freight, Stock, or Material Movers
- Supervisors of Mechanics, Installers, or Repairers
- Construction Laborers
- Supervisors of Construction Trades and Extraction Workers
- Electrical Power-Line Installers and Repairers
- Operating Engineers and Other Construction Equipment Operators
- Telecommunications Equipment Installers and Repairers
- Rotary Drill Operators, Oil and Gas

Some employers are beginning to reference a need for expertise in autonomous vehicle operation in online job posting descriptions, though references are not widespread in Minnesota at this time among Truck Driving careers specifically. One hundred and twenty Truck Driving pathway job postings mentioned Autonomous fleet management or another related keyword in 2024, a decline of -49% from 2023's mentions in online job postings. Terms most frequently used in postings include:

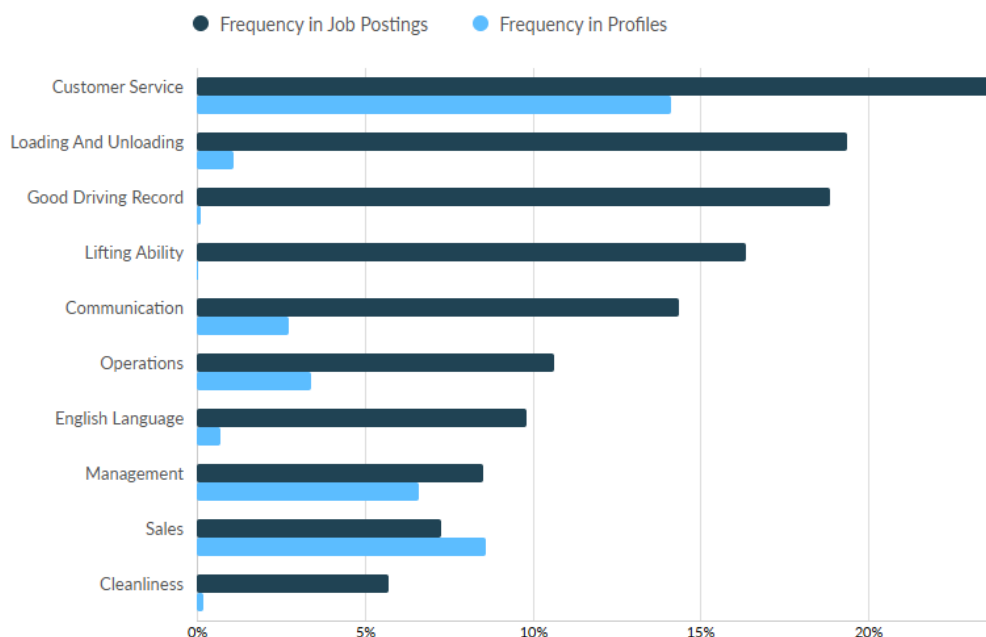
- | | |
|--|--|
| 1. Autonomous Vehicle Operation | 11. Semi-Autonomous Trucking |
| 2. Self-Driving Technology | 12. Automated Freight Transport |
| 3. Autonomous Trucking | 13. AI-Powered Vehicle Systems |
| 4. Autonomous Systems Monitoring | 14. Teleoperation |
| 5. Advanced Driver Assistance Systems (ADAS) | 15. Remote Vehicle Control |
| 6. Vehicle Automation | 16. Autonomous Vehicle Supervision |
| 7. Driver-Assisted Systems | 17. ADAS Training/Experience |
| 8. Telematics Systems | 18. Autonomous Fleet Management |
| 9. Connected Vehicle Technology | 19. Vehicle Automation Interface |
| 10. Fleet Automation | 20. Safety Monitoring in Autonomous Vehicles |

Job postings that use these terms may be looking for candidates who have knowledge of or experience with technologies that support or interact with self-driving vehicles, even if the truck itself is not fully autonomous. Given industry shifts underway, truck driving education and training programs should consider incorporating self-driving vehicle training as the industry increasingly moves toward automation. While full self-driving technology is not yet widespread, it's a growing trend, and being prepared for its future integration can provide benefits to both employees and employers:

1. **Employment Shifts:** As automation changes the trucking landscape, some jobs may shift or evolve rather than disappear. Drivers might need skills in overseeing autonomous systems or managing fleets that include both human-driven and self-driving vehicles. Developing skillsets and expertise in self-driving vehicle oversight, management, or logistics can provide a degree of job security and even competitive advantage in the job market.
2. **Industry Readiness:** Truck drivers will need to understand how autonomous systems work, how to interact with them, and what their roles will be as technology evolves. This will help drivers transition smoothly as more autonomous vehicles are deployed.
3. **Safety:** Understanding the limits and capabilities of autonomous systems can help drivers recognize when they need to intervene, ensuring that safety is maintained.
4. **Technological Proficiency:** Familiarity with autonomous technologies will enhance truck drivers' overall tech proficiency, helping them adapt to other advancements in the industry, such as automated dispatch systems or advanced route planning software.

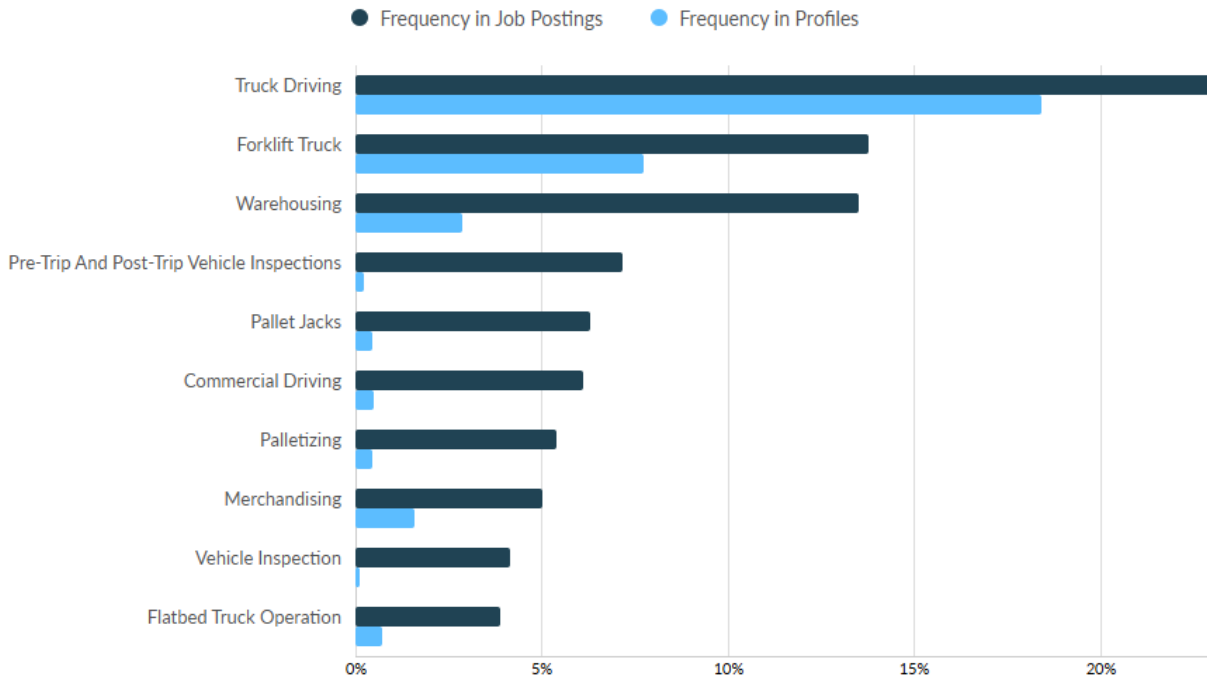
Jobs most likely to mention these skillsets include Transportation Specialists and Fleet Supervisors as well as Software Developers and other information technology careers employed in Transportation Equipment Manufacturing industries. Among Truck Driving pathway careers indicating these skillsets, typical common skills and specialized skills also continue to appear across postings.

Top Common Skills



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Top Specialized Skills



Top Certifications and Qualifications

Qualification	Postings with Qualification
Valid Driver's License	4,800
CDL Class A License	4,046
Commercial Driver's License (CDL)	3,879
CDL Class B License	1,110
Tanker Endorsement	481
Forklift Certification	386
Tanker And Hazmat Combo X Endorsement	370
Hazmat Endorsement	353
Doubles Endorsement	238
Triples Endorsement	201

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Talent Supply Detail

Talent Unemployment, Underemployment, and Educational Attainment

At an overall pathway unemployment rate of 3.4% (fairly steady since 2023Q2), there are about 3,351 unemployed Truck Driving professionals statewide. An additional 13,231 Truck Driving professionals are underemployed, meaning they are working in roles for which they are overqualified by education or experience.²

Truck Driving Pathway in Minnesota

		Empl (Place of Residence)								Overall Occupation ¹		
SOC	Occupation	< High School	High School	Some College	2-Year	4-Year	Master's	PhD	Total Empl	Underemployed	Unemployed	Unempl Rate
53-3031	Driver/Sales Workers	9.7%	43.1%	20.0%	12.6%	11.9%	2.0%	0.5%	8,737	1,167	300	3.3%
53-3032	Heavy and Tractor-Trailer Truck Drivers	9.6%	43.0%	20.1%	12.9%	11.9%	2.0%	0.5%	41,211	4,891	1,409	3.3%
53-3033	Light Truck Drivers	9.8%	42.2%	20.1%	12.5%	12.6%	2.2%	0.6%	18,483	2,577	626	3.3%
53-3051	Bus Drivers, School	4.5%	36.1%	21.0%	17.6%	16.2%	3.8%	0.8%	9,937	1,758	226	2.2%
53-3052	Bus Drivers, Transit and Intercity	5.6%	34.6%	23.0%	18.1%	15.6%	2.4%	0.7%	3,664	609	155	4.1%
53-3053	Shuttle Drivers and Chauffeurs	10.0%	26.5%	20.9%	12.5%	25.5%	3.3%	1.4%	5,717	1,489	235	4.0%
53-7051	Industrial Truck and Tractor Operators	13.1%	50.7%	17.1%	10.4%	7.2%	1.1%	0.4%	8,325	717	398	4.6%
53-7121	Tank Car, Truck, and Ship Loaders	8.9%	48.4%	17.2%	12.0%	11.5%	1.4%	0.6%	209	24	2	0.8%
Truck Driving Pathway		9.3%	41.5%	20.1%	13.2%	13.0%	2.2%	0.6%	96,284	13,231	3,351	3.4%
Total - All Occupations		5.2%	20.6%	14.8%	13.9%	31.0%	10.7%	3.9%	3,094,991	533,165	90,732	2.8%

Source: JobsEQ®

Data as of 2024Q2 unless noted otherwise

Note: Figures may not sum due to rounding.

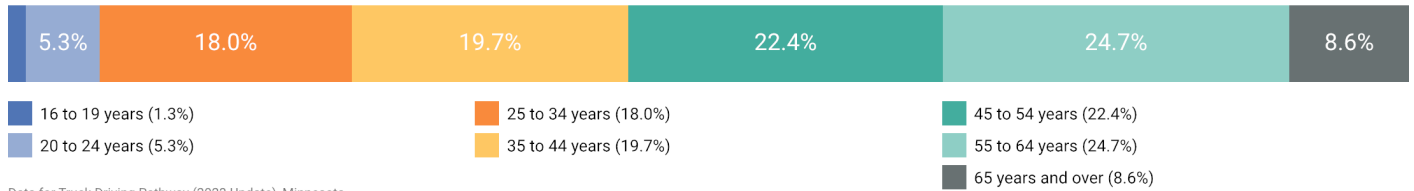
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

² Chmura adopts the New York Fed methodology of counting as underemployed only those who have acquired at least a Bachelor's degree and yet are working in an occupation that does not typically require a Bachelor's degree. In Occupation Diversity, the only occupations shown in the Underemployment table are "non-college jobs", as designated by the New York Fed. Per the New York Fed, "a job is classified as a college job if 50 percent or more of the people working in that job indicate that at least a bachelor's degree is necessary; otherwise, the job is classified as a non-college job."

Workforce Demographics

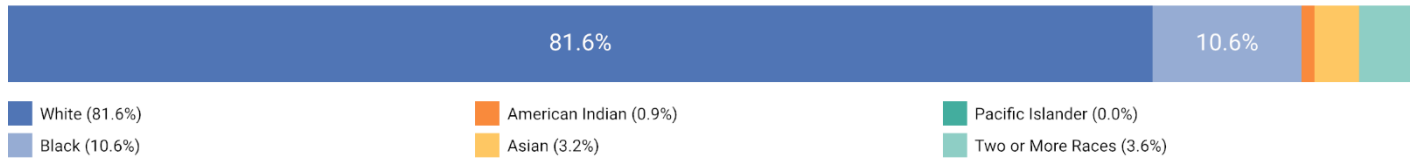
The Truck Driving workforce is older on average than the workforce as a whole in Minnesota. About 6.8% of the Truck Driving workforce is under the age of 25, and 8.6% are over 64 years old. The largest demographic group by race are white, representing 81.6% of the total pathway's workforce, with the next largest cohort being Black talent representing 10.6% of the workforce. About 6.4% of the pathway's workforce are Hispanic or Latinx, and 13.7% are female.

Truck Driving Workforce Age Demographics, 2024Q2



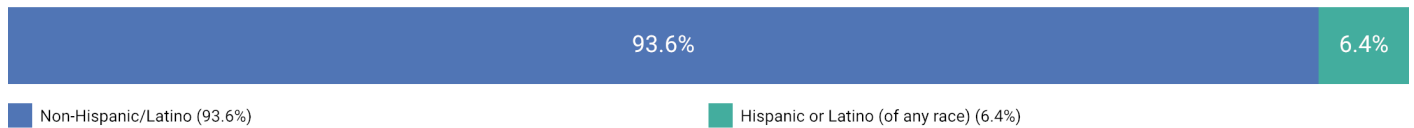
Data for Truck Driving Pathway (2023 Update), Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Truck Driving Workforce Race Demographics, 2024Q2



Data for Truck Driving Pathway (2023 Update), Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Truck Driving Workforce Ethnicity Demographics, 2024Q2



Data for Truck Driving Pathway (2023 Update), Minnesota
Source: JobsEQ®. Data as of 2024Q2.

Truck Driving Workforce Gender Demographics, 2024Q2



Data for Truck Driving Pathway (2023 Update), Minnesota
Source: JobsEQ®. Data as of 2024Q2.

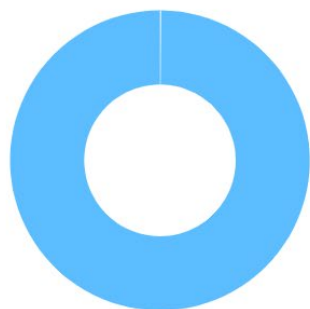
Aligned Postsecondary Programs

There were a total of 103 awards conferred at three different Minnesota postsecondary institutions in programs aligned to Truck Driving careers in SY2023 (up from 61 awards in SY2022). All of these awards were short-term certificates. The average school had about 34 completions, ranging from 29 to 40 completions. No programs were delivered remotely. All awards were conferred by public two-year institutions in SY2023. Completions are down overall by 21% from 2019.

According to a list published by the Minnesota Department of Public Safety in 2023, there are 15 driving training schools (three new training schools as of August 2023) in Minnesota that train in CDL Class A, B, or C and offer preparation for knowledge tests and road tests. Although this list is no longer available directly on the Minnesota Department of Public Safety’s website as of the writing of this report, no more current list of driving training schools could be identified. The original list can be found in the Frequently Asked Questions section at the end of this report.³

Truck Driving Postsecondary Program Awards by Level, SY2023

CIP Code	Title	Certificate < 1 Yr	Certificate 1+ but < 2 Yr	Associate's	Certificate 2+ but < 4 Yr	Bachelor's	Master's	Doctorate	Total Awards
49.0205	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	103	0	0	0	0	0	0	103
	Total	103 (100%)	0	0	0	0	0	0	103



Institution Type	Completions (2023)	Market Share
Public, 2-year	103	100.0%

Truck Driving Postsecondary Program Awards by Institution, SY2023

Institution	Completions (2023)	Growth % YOY (2023)	Market Share (2023)	IPEDS Tuition & Fees (2023)	Completions Trend (2019-2023)
Alexandria Technical & Community College	40	21.2%	38.8%	\$6,213	
Riverland Community College	34	142.9%	33.0%	\$6,249	
Minnesota State College Southeast	29	107.1%	28.2%	\$7,820	

³ Minnesota Department of Public Safety. Licensed Truck Driver Training. August 2023. Accessed January 2024 at <https://dps.mn.gov/divisions/dvs/forms-documents/Documents/LicensedTruckDriverTrainingList.pdf>

A current list of CDL training schools associated with postsecondary institutions⁴ in Minnesota include:

- [Interstate Truck Driving School](#)
- [Alexandria Technical & Community College](#)
- [Century College](#)
- [Dakota County Technical College](#)
- [Minnesota State College – Southeast Technical](#)
- [Riverland Community College](#)
- [St. Cloud Technical & Community College](#)
- [Transportation Center for Excellence](#)
- [Lake Superior College](#)
- [Central Lakes College](#)

⁴ CDL Training Today. <https://cdltrainingtoday.com/schools/mn/>

Graduate Demographics

Nearly nine in ten students (87.4%) who obtained a truck driving or trucking instructor certificate from an accredited program reporting to NCES IPEDS in SY2023 were male (a decrease of about 3 percentage points from prior school year), and 77.7% were non-Hispanic white students (a decrease of 7.5 percentage points), aligning closely to the overall workforce demographics of the pathway.⁵ In addition, there are many truck driving schools and academies in Minnesota which culminate in preparation for the knowledge test and road test. Of the 15 published on the Minnesota Department of Public Safety’s website, six are in the 7-county MSP metro area.⁶ There are over three million people in Minnesota with drivers’ licenses, but an estimate of commercial licenses was unavailable at the time of the writing of this report. Other resources available online publish comprehensive lists of CDL schools in Minnesota.⁷

Race and Gender of Graduates Receiving Postsecondary Awards in SY2023, Minnesota

CIP Code	Description	All 2023 Graduates	International Student*	Black or African American, non-Hispanic	American Indian or Alaska Native	Asian, Native Hawaiian or Other Pacific Islander	Hispanic or Latino	White, non-Hispanic	Multiple or unknown race/ethnicity	Gender - Males	Gender - Females
49.0205	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	103	0	7	0	2	10	80	4	90	13
	Truck Driving Postsecondary Programs, Percent	100%	0.0%	6.8%	0.0%	1.9%	9.7%	77.7%	3.9%	87.4%	12.6%

IPEDS SY2023 demographics by award conferred. Count of awards may double count individuals who obtained multiple credentials in the same calendar year. *NCES IPEDS refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

Minnesota colleges and universities do not offer postsecondary programs that are well aligned to most occupations in this pathway, despite programs existing in other states. The one program offered locally is for driver instructors. This program also has a low share of BIPOC graduates and a low share of female graduates, although shares of both groups have increased substantially since the 2022 school year, returning close to SY2021 figures (BIPOC graduates increased by 7.7 percentage points, and female graduates by 2.8 percentage points). Heavy and Tractor-Trailer Truck Drivers, School Bus

⁵ NCES IPEDS refers to international students that do not have resident status in the United States as “nonresident aliens.” This title aligns to Federal tax definitions and according to NCES IPEDS refers to “a person who is not a citizen or national of the United States and who is in this country on a visa or temporary basis and does not have the right to remain indefinitely. Note: Nonresident aliens are reported separately, rather than in any of the racial/ethnic categories.” They are not included in calculations of BIPOC talent in this report as race and ethnicity information is not provided for these international students. The terminology of “international student” has been used in this report as it is more familiar to a common audience. <https://nces.ed.gov/ipeds/report-your-data/race-ethnicity-definitions>. For more information, view this article from Berkeley on tax filing status of international students. <https://internationaloffice.berkeley.edu/taxes/tax-filing-status>

⁶ Minnesota Department of Public Safety. Licensed Truck Driver Training. August 2023. <https://dps.mn.gov/divisions/dvs/forms-documents/Documents/LicensedTruckDriverTrainingList.pdf>

⁷ CDL Training Today. <https://cdltrainingtoday.com/schools/mn/>

Drivers, and Tank Car, Truck and Ship Loaders all have a low share of BIPOC workforce by race and all occupations except for School Bus Drivers have a low share of female workforce.

Postsecondary Strategy Summary Table, Minnesota 2024

Occupation	Related Programs*	2024Q2 Empl	Workforce BIPOC by Race	Workforce Hispanic/Latinx	Workforce Female	Workforce Under 45	SY2023 Graduates (Certificate and AA/AS only)	Award Gap (All Award Levels)	Graduates BIPOC by Race or Ethnicity (All Award Levels)	Graduates Female (All Award Levels)
Heavy and Tractor-Trailer Truck Drivers	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	40,896	15.8%	6.5%	6.9%	46.4%	103	N	22.3%	12.6%
Light Truck Drivers	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	18,555	18.7%	6.9%	6.9%	47.4%	103	N	22.3%	12.6%
Bus Drivers, School	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	10,071	13.0%	3.5%	55.7%	26.8%	103	N	22.3%	12.6%
Industrial Truck and Tractor Operators	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	8,112	22.5%	9.8%	10.3%	56.8%	103	N	22.3%	12.6%
Drivers/Sales Workers		8,780	19.2%	6.9%	7.3%	47.3%	N/A	N/A	N/A	N/A
Shuttle Drivers and Chauffeurs	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	5,761	33.8%	4.2%	10.7%	35.1%	103	N	22.3%	12.6%
Bus Drivers, Transit and Intercity	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	3,731	25.7%	5.4%	37.2%	29.6%	103	N	22.3%	12.6%
Tank Car, Truck, and Ship Loaders		194	16.5%	6.5%	24.4%	52.1%	NA	N/A	N/A	N/A
Truck Driving Pathway	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	96,100	18.4%	6.4%	13.7%	44.2%	103	N	22.3%	12.6%
All Occupations		3,101,622	17.1%	5.6%	47.8%	57.2%	28,275		36.7%	66.3%

NOTE: Red highlighting indicates lower than overall share of workforce or graduate pool, or existence of occupation or award gap. *There is only one program associated with occupations in this career pathway. For this reason, the Graduate and Demographics columns have identical information.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq/>. Job Posting Trends section uses data from TalentNeuron, accessed 1/8/2025 at talentneuron.com Industry detail, skill and certification analysis, wage trends, and posting to hire analysis are from the Lightcast 2024Q4 dataset accessed at analyst.lightcast.io

Conclusion

The Truck Driving pathway had a steady recovery through 2021 and 2022, reaching pre-pandemic levels of employment by early 2023, then remaining relatively flat through 2024Q2. Truck Driving pathway employment still forecasts growth as of 2024, although a more modest 0.2% annual growth forecasted through 2029. Unemployment across the pathway is higher than the overall rate at 3.4%. Of all occupations found in the Truck Driving pathway, School Bus Drivers and Shuttle Drivers and Chauffeurs are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall with location quotients of 1.43 and 1.35 respectively. On average, Truck Driving careers pay about \$55,400 per year—about \$14,100 below the average wage statewide across all positions.

A variety of strategies may improve the outlook for transportation talent in need. In the Truck Driving pathway, all occupations, except for Bus Drivers, School have low talent diversity by gender. Many also have a higher than average share of the workforce that is over 45 years of age. Minnesota colleges and universities do not offer postsecondary programs that are specifically aligned to most occupations in this pathway, despite a variety of programs existing in other states. The one program offered locally aligned to careers in this pathway is for driver instructors. Similar to the workforce, graduate diversity by race, ethnicity and gender are lagging. Drivers are most severely needed in the Heavy Truck Driving space, though shortages exist across the spectrum of commercial driver and bus driver opportunities. All local institutions offering truck driving programs may consider growth given local employer demand, yet considerations for innovations in self-driving technologies should be incorporated into both program design and employer workforce planning efforts to ensure job stability for the workforce.

FAQ

How is employment forecast determined?

Forecast employment growth uses national projections from the Bureau of Labor Statistics, forecasts for 2024-2034, adapted for regional growth patterns by Chmura. Employment data are based on [occupation forecasts](#) and event-based forecasts if applicable. Forecasts are developed at the county level; therefore, for detailed (6-digit NAICS) ownership-specific industries, the forecast employment growth for a zip code or place (city, town, etc.) is taken from the forecast of the county to which it belongs.

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 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 has been updated since the 2021 report?

Several occupation codes were updated recently by the Bureau of Labor Statistics, giving new SOC codes and descriptors to several occupations within the Transportation sector. The only pathway that had a SOC code that was split into multiple new codes was the Truck Driving Pathway. The table below indicates what old SOC codes have been replaced with. School Bus Drivers was added to the search in 2022, but was excluded in prior versions of this report in 2020 and 2021.

SOC (OLD)	Occupation (OLD)	SOC (OLD)	Occupation (NEW)
53-3032	Heavy and Tractor-Trailer Truck Drivers	53-3032	Heavy and Tractor-Trailer Truck Drivers
53-3033	Light Truck Drivers	53-3033	Light Truck Drivers
53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	53-3053	Shuttle Drivers and Chauffeurs
53-7051	Industrial Truck and Tractor Operators	53-7051	Industrial Truck and Tractor Operators
53-3031	Driver/Sales Workers	53-3031	Driver/Sales Workers
53-3052	Bus Drivers, Transit and Intercity	53-3052	Bus Drivers, Transit and Intercity
53-7121	Tank Car, Truck, and Ship Loaders	53-7121	Tank Car, Truck, and Ship Loaders
		53-3051	Bus Drivers, School
Truck Driving Pathway			

Who created this report?

This report was developed by RealTime Talent for the Transportation Center of Excellence. If you have questions about the data found in this report, or are interested in learning more, please contact Catherine Jett, Research Strategist for RealTime Talent at catherine@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org



Licensed Truck Driver Training Schools

School Name & Address	Phone	Signer	Type of Training
160 Driving Academy 3410 Federal Drive, Suite 109 Eagan, MN 55122	(651) 461-3555	Steve Gold	CDL Class A
160 Driving Academy 1215 15th Street N St. Cloud, MN 56303	(309) 431-9272	Steve Gold	CDL Class A
160 Driving Academy 3755 25th Street SE Rochester, MN 55904	(507) 242-8160	Steve Gold	CDL Class A
Ancora Corporate Training 1111 West 5th Street Northfield, MN 55057	(612) 868-3341	Keith R. Franklin	CDL Class A
CES Minnesota LLC 2400 Trott Avenue SW Willmar, MN 56201	(701) 260-7057	Merle Bobbitt	CDL Class A
HabHab Trucking School LLC 2021 E Hennepin Avenue, Suite 420 Minneapolis, MN 55413	(615) 578-0636	Abdul M. Abdillahi	CDL Class A
Interstate Truck Driving School of Minnesota, LLC 499 Villaume Avenue South St. Paul, MN 55075	(651) 735-9250	William Collins	CDL Class A, B, C
Kings Trucking School 1821 University Avenue W, Ste. 461-11 St. Paul, MN 55104	(763) 204-3652	Bashir Omar	CDL Class A
Mayle Trans LLC 211 E 7th Street, Suite 525 St. Paul, MN 55101	(952) 417-6593	Abdiwahab M Nur	CDL Class A
Minnesota Truck and Trailer School, Inc. 8899 Hastings Street NE Blaine, MN 55449	(612) 618-1812	Eric Odegard	CDL Class A, B
Nova Lines Driving LLC 540 Apollo Avenue NE St. Cloud, MN 56304	(612) 845-1096	Noor Yussuf	CDL Class A
The CMV Tutor LLC 4121 US 14 Rochester, MN 55901	(507) 358-3143	Thomas F. Gilliam Jr.	CDL Class A, B

Accessed January 27, 2023 at the Minnesota Department of Public Safety

<https://dps.mn.gov/divisions/dvs/forms-documents/Documents/LicensedTruckDriverTrainingList.pdf>