

DIESEL EQUIPMENT & TRUCK

2024 Supply & Demand Analysis Overview

Published January 2025



MINNESOTA STATE
Transportation Center of Excellence



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

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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

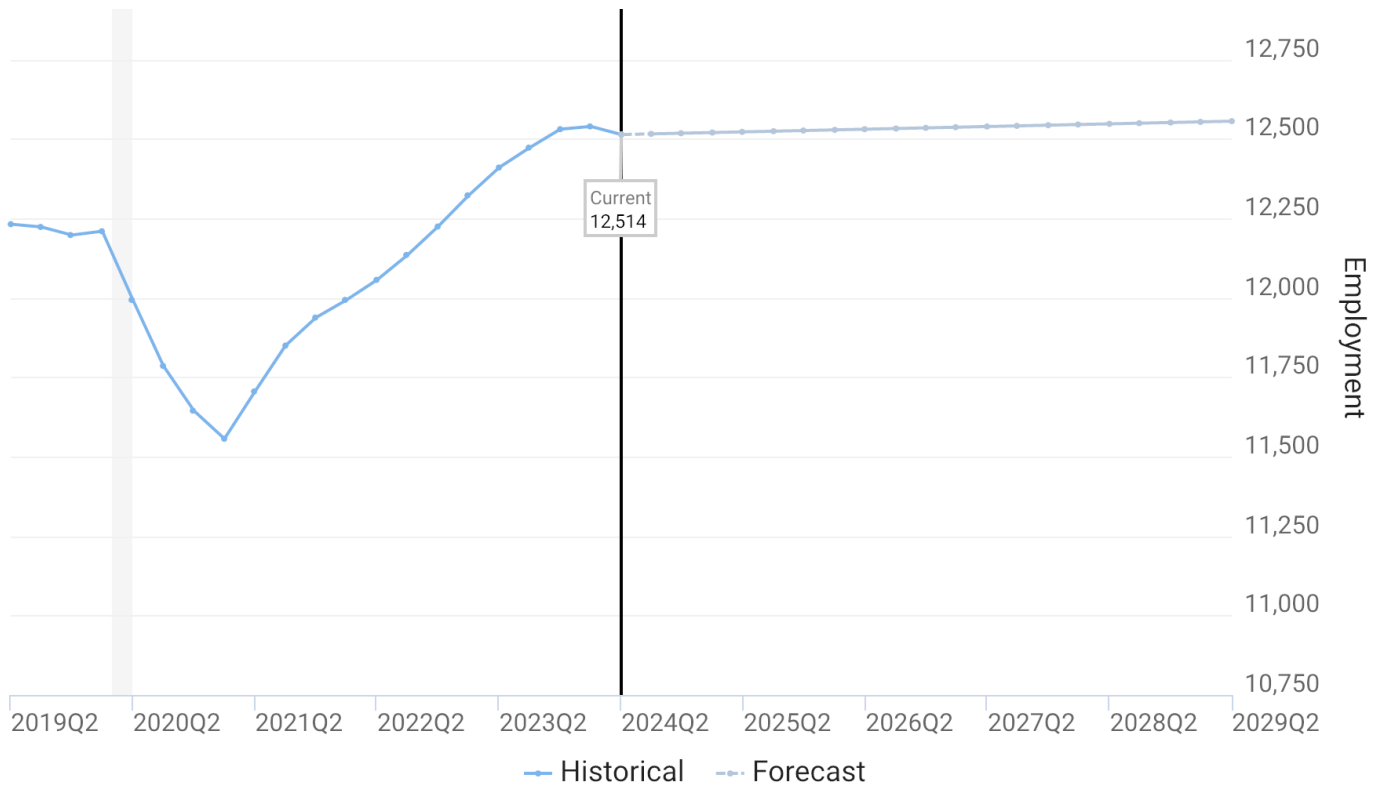
Note: Figures may not sum due to rounding.

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

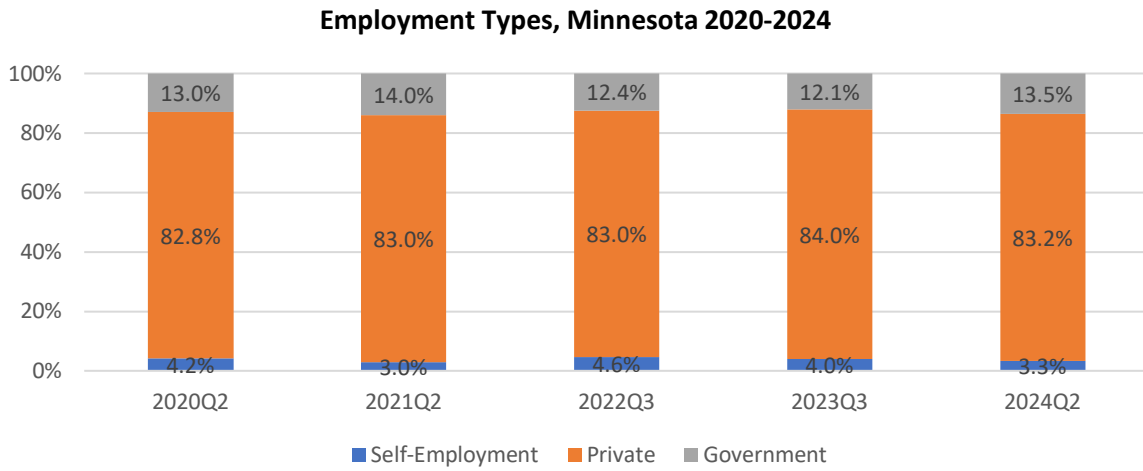
Note: Figures may not sum due to rounding.

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

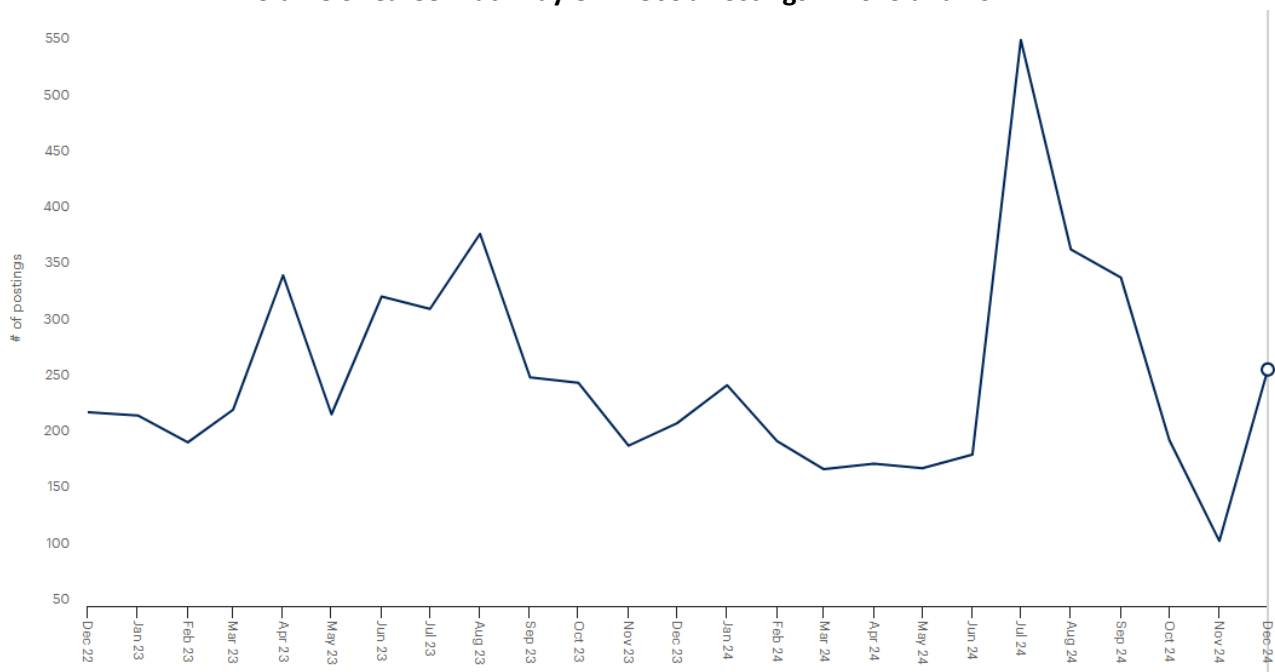
Diesel, Equipment, and Truck Pathway Wages, 2024Q2

| 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

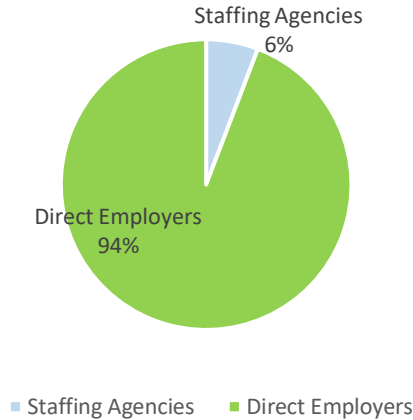


Top Employers by Volume of New Job Postings, With Change from Prior Year

| 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

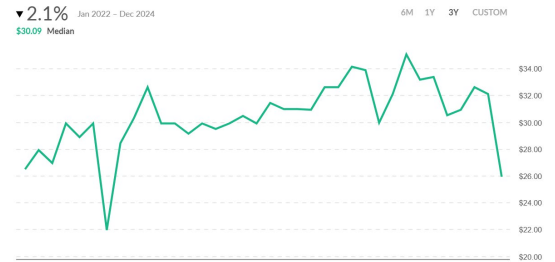
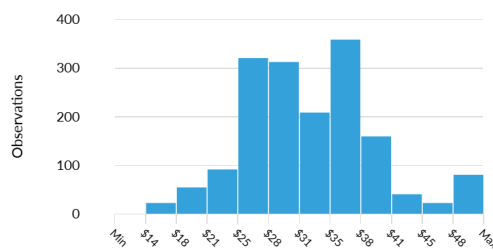


New Job Postings by Industry or Employer Type

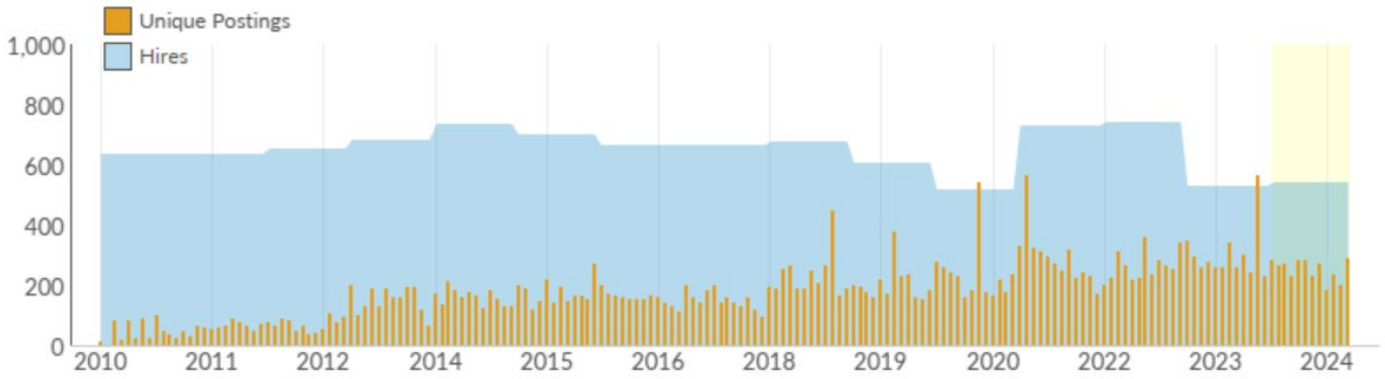
| Industry | Total/Unique (Jan 2024 - Dec 2024) | Posting Intensity | Median Posting Duration |
|---|------------------------------------|-------------------|-------------------------|
| Employment Placement Agencies | 500 / 273 | 2 : 1 | 26 days |
| General Freight Trucking, Long-Distance, Truckload | 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

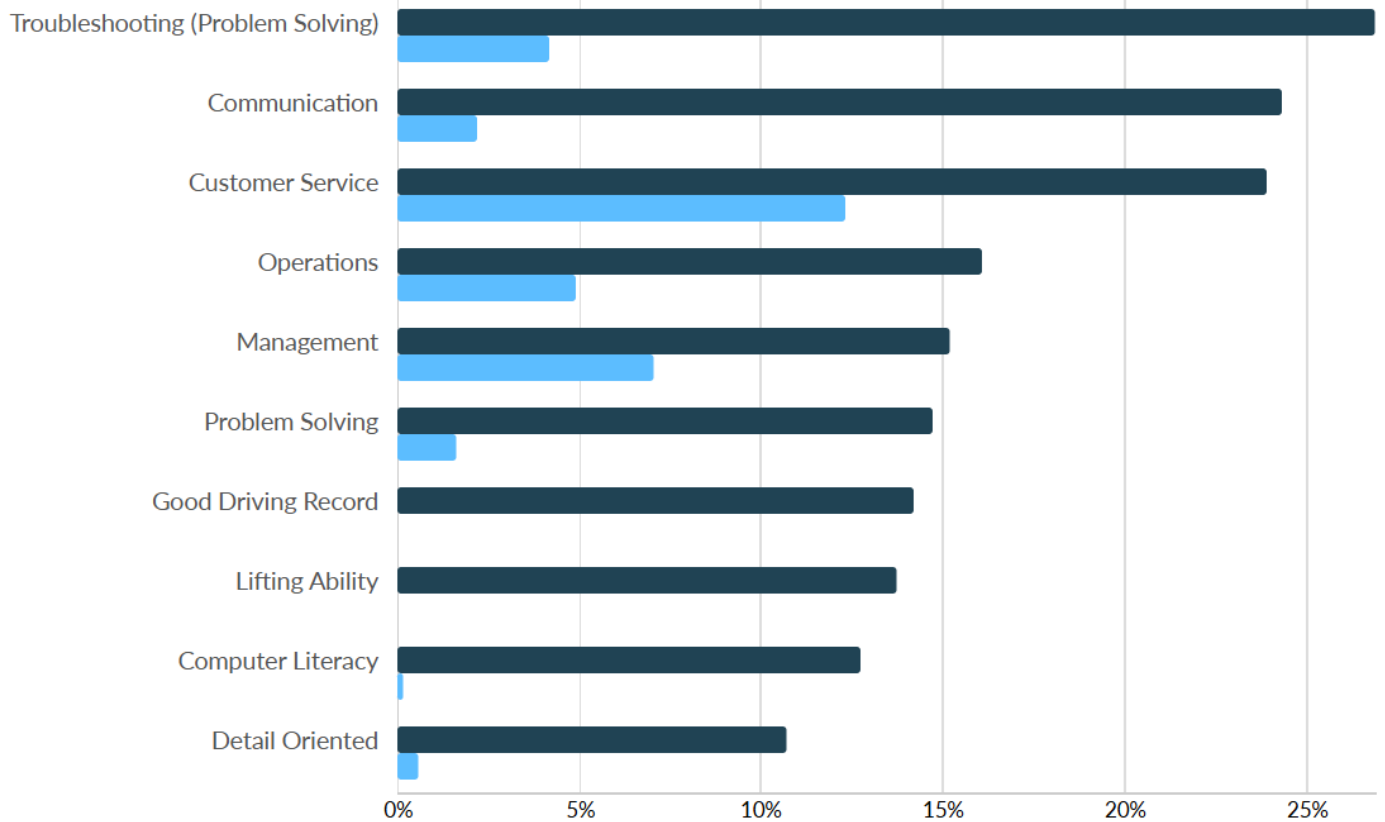


Monthly Ratio of Unique Job Postings to Estimated Hires

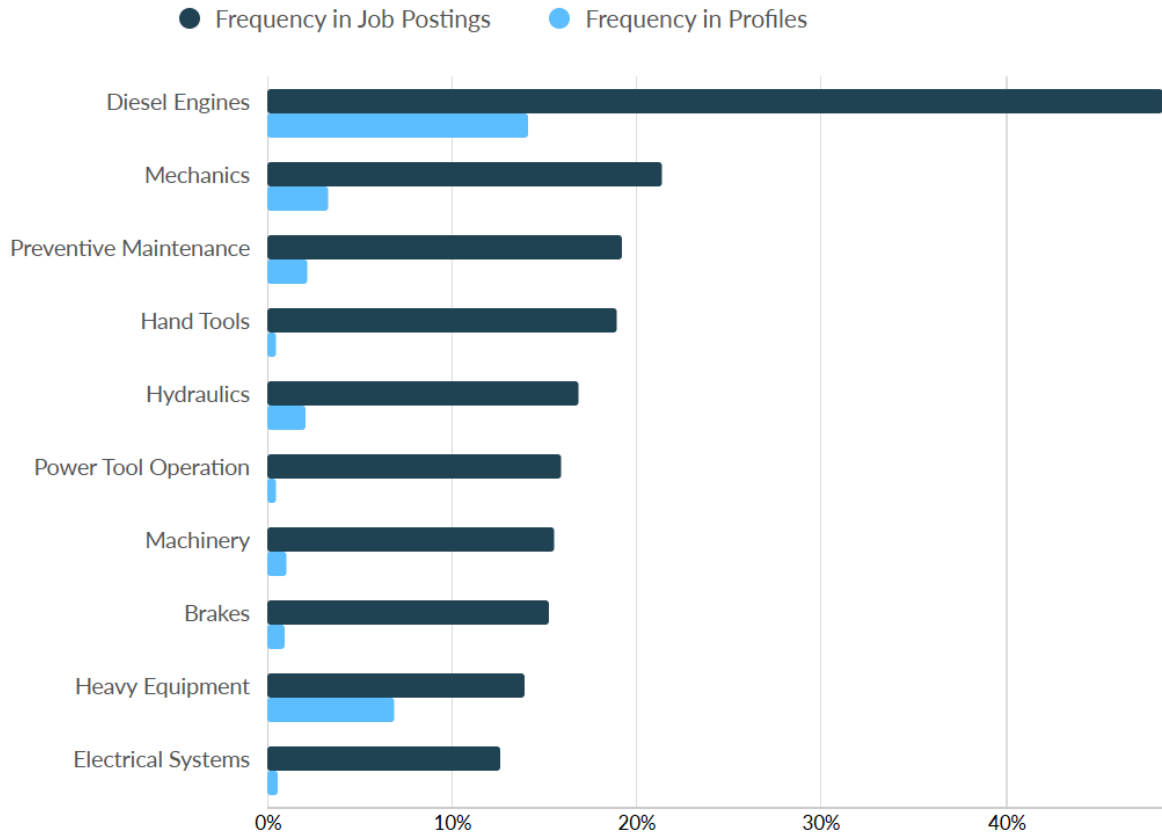


Top Common Skills

● Frequency in Job Postings ● Frequency in Profiles



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.

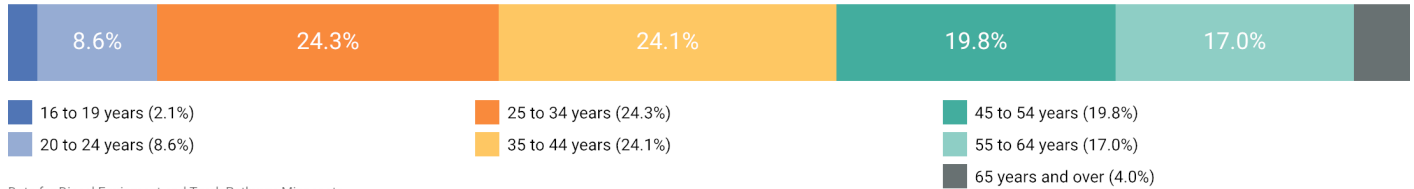
1. "Overall occupation" characteristics refer to attributes across all individuals in those occupations, not just those limited to the demographic categories shown in this table.

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

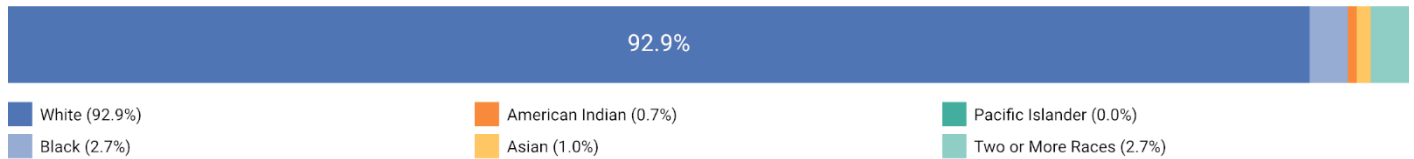
About 10.7% of the Diesel Equipment Truck workforce is under the age of 25, and 4.0% are over 64 years old. The share of the workforce between 25-44 years old has been increasing for the past two years, from 43.5% in 2022 to 48.4% in 2024. The largest demographic group by race are white, representing 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



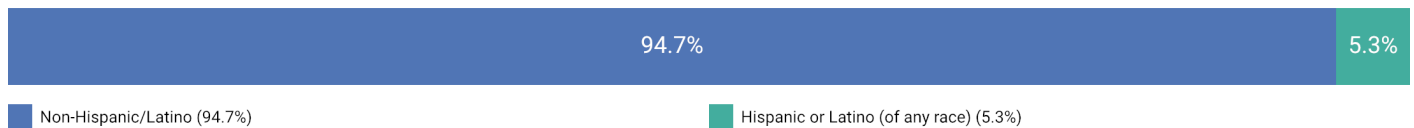
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

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



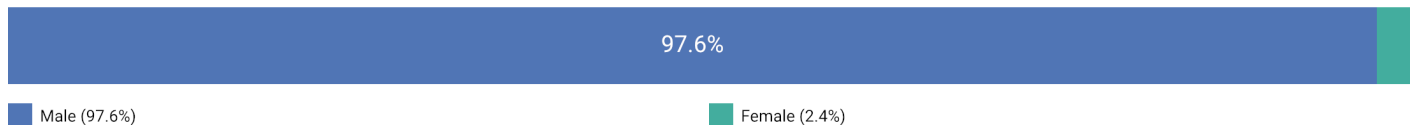
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

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



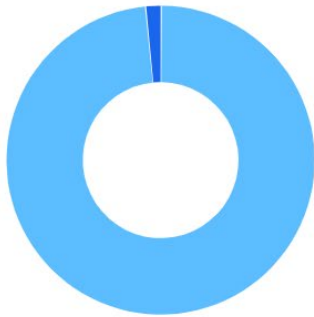
Data for Diesel Equipment and Truck Pathway, Minnesota
Source: JobsEQ®. Data as of 2024Q2.

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

