DEMAND ANALYSIS

Transportation Pathways

2021

MINNESOTA STATE
Transportation Center of Excellence

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

January 2022

Introduction

This report is the second annual in a series developed by RealTime Talent to highlight the labor market supply and demand in critical career pathways of Transportation. These insights are intended to provide a snapshot of the market demand for talent in these pathways as of the second quarter of 2021 and provide guidance for education and training programs for development of talent with the necessary skills and certifications to meet the needs of Minnesota employers.

The six pathways shown here divide up the critical transportation function occupations in-demand in Minnesota.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

	Current						5-Year History		5-Year Baseline Forecast				
Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
Automotive Technology Pathway	21,614	$61,300	1.03	753	3.4%	1,263	163	0.2%	8,991	2,619	6,697	-324	-0.3%
Aviation Pathway*	8,773	$122,300	0.88	346	3.9%	210	-674	-1.5%	3,844	1,121	2,688	35	0.1%
Collision Repair Pathway	6,864	$46,900	1.14	324	4.6%	376	-307	-0.9%	3,524	1,042	2,480	2	0.0%
Diesel Equipment and Truck Pathway	12,889	$56,000	1.20	344	2.7%	487	-451	-0.7%	6,292	1,919	4,383	-10	0.0%
Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

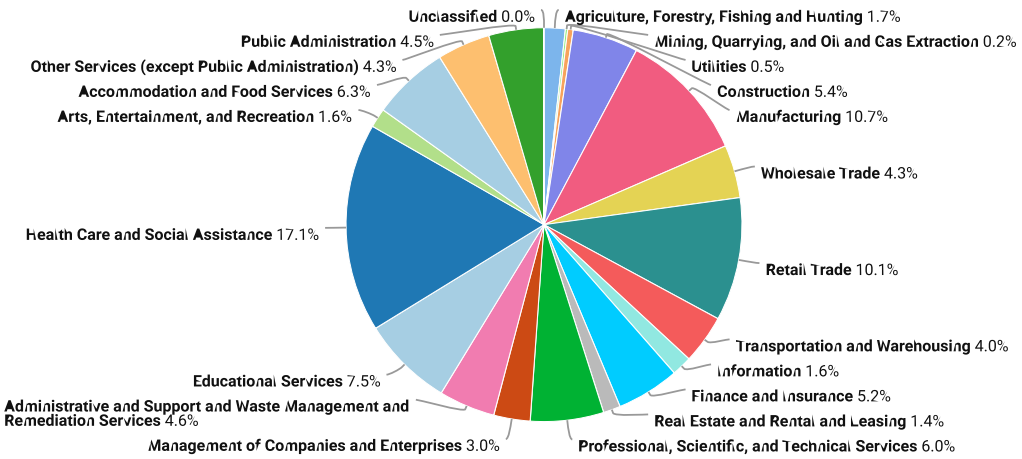
If you have questions about the content provided in this report, please contact Erin Olson, Director of Strategic Research for RealTime Talent at erin@realtimetalentmn.org.

Minnesota's Industries

The largest industry in Minnesota is Health Care and Social Assistance, employing 500,877 workers. The next-largest sectors in the region are Manufacturing (313,617 workers) and Retail Trade (295,879). High location quotients (LQs) indicate industries in which a region has high concentrations of employment compared to the national average. The industries with the largest LQs in the region are Management of Companies and Enterprises (LQ = 1.95), Manufacturing (1.31), and Finance and Insurance (1.23). Minnesota industries with the highest average wages per worker are Management of Companies and Enterprises ($138,792), Utilities ($119,646), and Finance and Insurance ($119,347). Industries with the best job growth (or most moderate job losses) over the last 5 years are Health Care and Social Assistance (+18,816 jobs), Management of Companies and Enterprises (+8,997), and Construction (+8,673).

Over the next 5 years, employment in Minnesota is projected to expand by 31,075 jobs in a baseline, pessimistic forecast. The fastest growing sector in the region is expected to be Health Care and Social Assistance with a +1.1% year-over-year rate of growth. The strongest forecast by number of jobs over this period is expected for Health Care and Social Assistance (+29,001 jobs), Professional, Scientific, and Technical Services (+6,684), and Accommodation and Food Services (+4,233). Transportation and Warehousing, which currently employs about 117,118 people in Minnesota, is forecast to grow by an average of 0.2% annually (the same forecast as estimated in 2020) adding about 1,155 people in a low-growth, tight labor market forecast over the next five years.

Total Workers for Minnesota by Industry



Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2021Q1 with preliminary estimates updated to 2021Q2.

Minnesota, 2021Q2[1]

		Current			5-Year History		5-Year Forecast				
NAICS	Industry	Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
62	Health Care and Social Assistance	500,877	$56,775	1.16	18,816	0.8%	270,888	118,937	122,950	29,001	1.1%
31	Manufacturing	313,617	$71,227	1.31	-9,676	-0.6%	152,873	59,415	101,737	-8,278	-0.5%
44	Retail Trade	295,879	$34,490	0.97	-13,954	-0.9%	188,588	86,265	108,996	-6,673	-0.5%
61	Educational Services	219,143	$55,484	0.93	-8,573	-0.8%	105,197	49,015	52,888	3,293	0.3%
72	Accommodation and Food Services	183,038	$20,919	0.82	-47,213	-4.5%	153,655	66,131	83,291	4,233	0.5%
54	Professional, Scientific, and Technical Services	174,921	$99,046	0.84	2,910	0.3%	82,630	28,203	47,742	6,684	0.8%
23	Construction	156,424	$69,711	0.90	8,673	1.1%	78,413	27,588	49,360	1,466	0.2%
52	Finance and Insurance	150,503	$119,347	1.23	7,088	1.0%	69,612	26,492	43,491	-371	0.0%
56	Administrative and Support and Waste Management and Remediation Services	134,279	$47,264	0.72	-11,796	-1.7%	80,537	32,999	45,013	2,525	0.4%
92	Public Administration	131,233	$64,881	0.91	3,104	0.5%	59,230	25,385	34,541	-696	-0.1%
42	Wholesale Trade	126,517	$91,479	1.14	-8,346	-1.3%	63,481	24,759	41,033	-2,311	-0.4%
81	Other Services (except Public Administration)	126,495	$35,084	1.00	-10,178	-1.5%	74,619	33,072	39,482	2,065	0.3%
48	**Transportation and Warehousing**	**117,118**	**$55,509**	**0.81**	**4,843**	**0.8%**	**63,725**	**26,589**	**35,981**	**1,155**	**0.2%**
55	Management of Companies and Enterprises	86,686	$138,792	1.95	8,997	2.2%	40,566	14,517	24,777	1,271	0.3%
11	Agriculture, Forestry, Fishing and Hunting	50,519	$52,422	1.23	-2,068	-0.8%	24,180	11,360	15,321	-2,501	-1.0%
51	Information	47,949	$91,234	0.83	-9,120	-3.4%	21,695	8,233	14,599	-1,137	-0.5%
71	Arts, Entertainment, and Recreation	45,907	$42,248	0.98	-12,379	-4.7%	34,230	14,637	18,079	1,514	0.7%
53	Real Estate and Rental and Leasing	40,921	$61,147	0.80	-3,304	-1.5%	19,943	9,336	11,182	-575	-0.3%
22	Utilities	13,328	$119,646	0.86	-837	-1.2%	4,757	2,092	3,686	-1,021	-1.6%
21	Mining, Quarrying, and Oil and Gas Extraction	5,493	$89,314	0.55	-78	-0.3%	2,968	920	1,910	138	0.5%
99	Unclassified	1	$54,290	0.00	1	n/a	1	0	0	0	0.6%
	Total - All Industries	**2,920,850**	**$64,321**	**1.00**	**-83,089**	**-0.6%**	**1,628,547**	**682,768**	**914,704**	**31,075**	**0.2%**

Employment data are derived from the Quarterly Census of Employment and Wages, provided by the Bureau of Labor Statistics and imputed where necessary. Data are updated through 2021Q1 with preliminary estimates updated to 2021Q2. Forecast employment growth uses national projections adapted for regional growth patterns.

Industry/Occupation Mix

Transportation function roles are found among General Freight Trucking companies (10.8% of total transportation function employment), Automotive Repair and Maintenance (6.7%), and School and Employee Bus Transportation (5.1%). The importance in particular of Diesel Engine and Truck Driver talent is evident in this initial look at the top industries of employment for transportation talent. However, all industries rely to some degree on transportation talent in their workforce.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq

Top Industries of Employment for Transportation Occupations in Minnesota, 2021Q2

		CURRENT			10-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4841	General Freight Trucking	10.8%	15,963	$50,600	6,258	11,386	-556	17,088
8111	Automotive Repair and Maintenance	6.7%	9,853	$45,600	2,912	6,970	-103	9,779
4854	School and Employee Bus Transportation	5.1%	7,550	$42,300	5,216	3,937	191	9,345
4411	Automobile Dealers	4.2%	6,187	$46,200	1,937	4,354	-175	6,116
4921	Couriers and Express Delivery Services	3.8%	5,608	$62,700	2,360	4,266	566	7,191
4842	Specialized Freight Trucking	3.5%	5,092	$50,600	2,024	3,688	-24	5,688
7225	Restaurants and Other Eating Places	2.5%	3,748	$27,000	1,553	2,758	62	4,374
4244	Grocery and Related Product Merchant Wholesalers	2.4%	3,486	$42,200	1,395	2,599	75	4,069
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	2.3%	3,450	$52,400	1,074	2,286	-186	3,174
4811	Scheduled Air Transportation	2.3%	3,395	$159,600	946	2,388	9	3,343
6111	Elementary and Secondary Schools	2.2%	3,237	$39,500	2,163	1,673	-51	3,784
4853	Taxi and Limousine Service	2.0%	2,981	$38,200	1,956	1,684	277	3,917
4931	Warehousing and Storage	2.0%	2,958	$49,000	1,046	2,474	338	3,859
5613	Employment Services	1.6%	2,294	$47,100	761	1,732	55	2,547
4851	Urban Transit Systems	1.5%	2,275	$46,500	1,609	1,204	77	2,890
9211	Executive, Legislative, and Other General Government Support	1.5%	2,240	$48,400	1,208	1,335	50	2,593
4413	Automotive Parts, Accessories, and Tire Stores	1.5%	2,150	$35,200	740	1,557	1	2,298
4543	Direct Selling Establishments	1.4%	2,084	$43,900	811	1,453	-189	2,075
4859	Other Transit and Ground Passenger Transportation	1.4%	2,080	$36,900	1,644	1,191	524	3,359
2373	Highway, Street, and Bridge Construction	1.4%	2,033	$54,900	772	1,502	70	2,343
n/a	All Others	39.9%	58,872	n/a	21,323	41,252	1,082	63,657

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.
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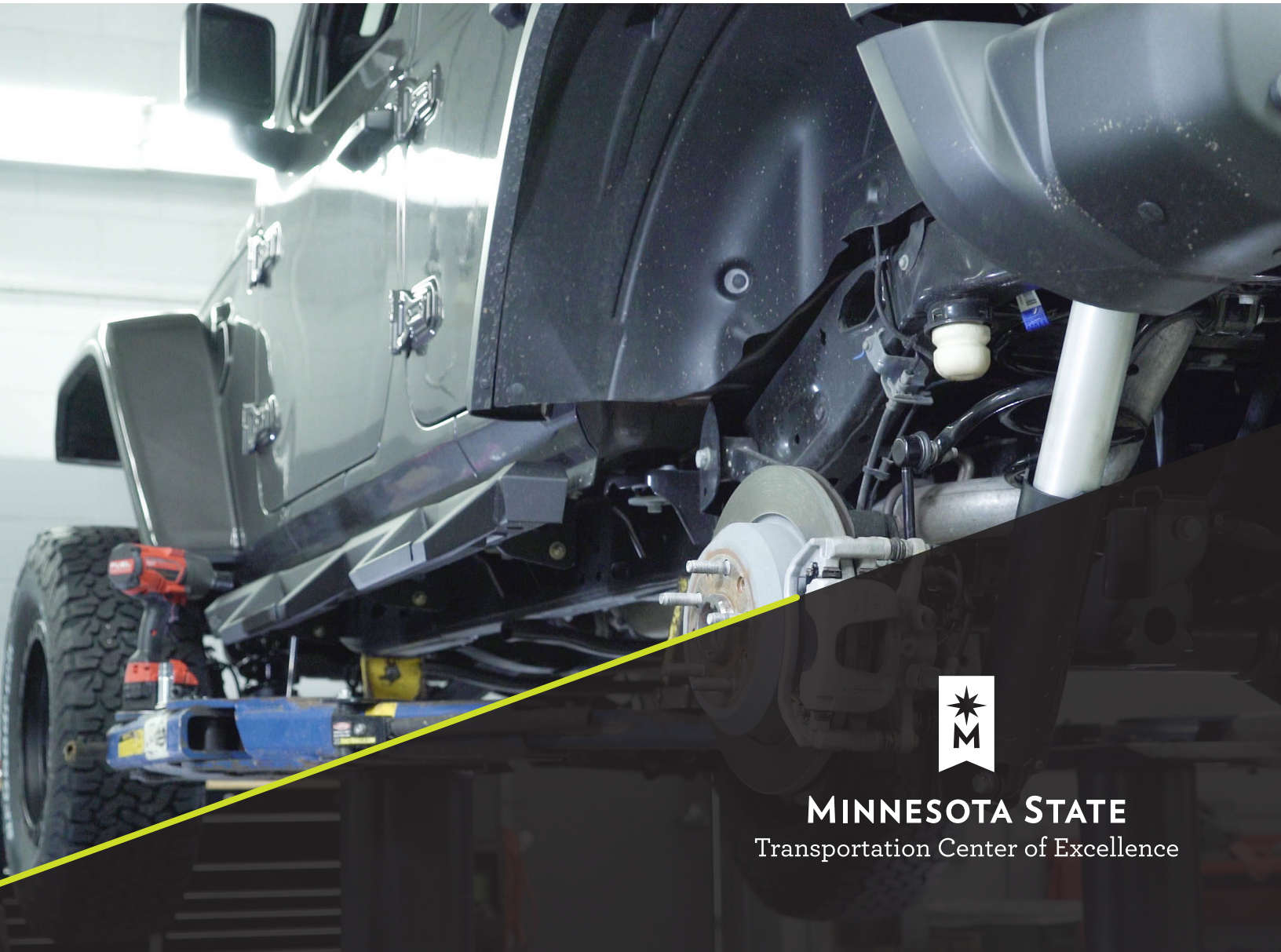
AUTOMOTIVE TECHNOLOGY

Demand Analysis

2021



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Transportation Center of Excellence

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 21,614 people work in Automotive Technology roles in Minnesota as of the second quarter of 2021—a -1.6% decrease (345 workers) from a year prior.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Automotive Technology employment is anticipated to drop moderately in Minnesota by about -324 total jobs (-0.3% annually) due to a tight talent pool, but could grow by about 431 (0.4% annually) in an optimistic forecast model. Total baseline demand for Automotive Technology talent is anticipated to be around 8,991 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

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Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

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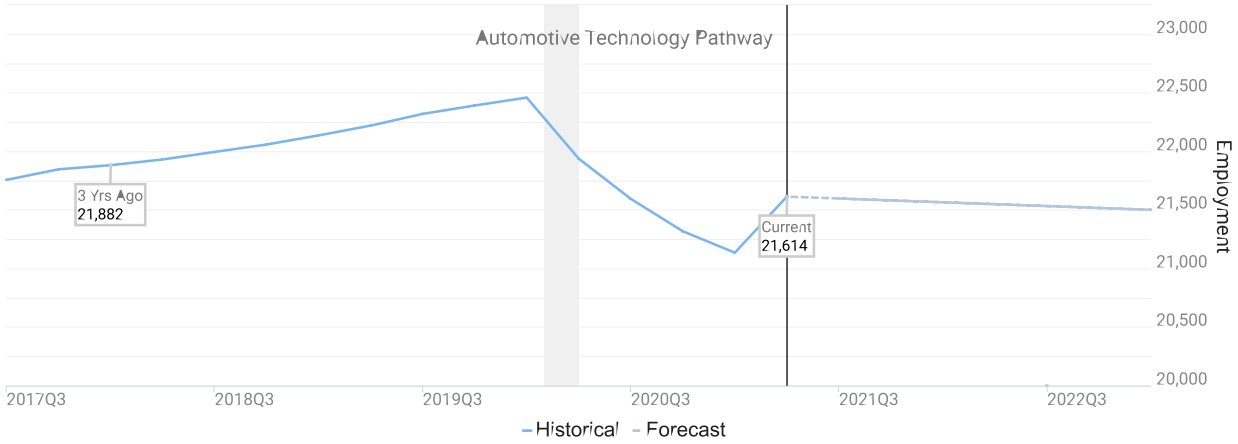
As Minnesota's economy continues to sustain loss of workers due to the pandemic and overall talent shortage, and with unknown ongoing impacts of the COVID-19 pandemic on our economy and public health, employment forecasts are changing rapidly. Supply chain impacts, the drive to automation and technological innovation mean that the transportation industry, in particular, may look very different in five years from what it looks like today. The componding impacts of a tight labor market prior to the start of the pandemic and significant, rapid layoffs of non-essential workers across service industry positions creates a complex landscape of employer demand and an available workforce. 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. The pathway forecast has soured since estimates in late 2020, with a baseline forecast of about -0.3% decline in overall employment by the second quarter of 2026.

Automotive Technology Employment Forecast Under Baseline Scenario, Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Industry/Occupation Mix

Automotive Technology talent is primarily concentrated in the Automotive Repair and Maintenance industry (24.0%), increasing in its concentration from estimates in 2020 by 1.5 percentage points. The next highest industry of employment concentration is Automobile Dealers (20.1%), but are important across a wide range of transportation, manufacturing, and agriculture sub-industries.

Top Industry Distribution for Automotive Technology Pathway Occupations in Minnesota

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
8111	Automotive Repair and Maintenance	24.0%	5,197	$44,000	687	1,785	-113	2,359
4411	Automobile Dealers	20.1%	4,355	$50,000	575	1,492	-99	1,969
5413	Architectural, Engineering, and Related Services	5.9%	1,281	$86,600	134	326	-9	452
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4.5%	981	$90,200	102	252	4	358
4413	Automotive Parts, Accessories, and Tire Stores	4.4%	953	$42,000	128	335	-6	457
4853	Taxi and Limousine Service	2.8%	606	$55,800	72	186	-80	178
5511	Management of Companies and Enterprises	2.6%	573	$86,100	64	155	13	232
3339	Other General Purpose Machinery Manufacturing	2.6%	568	$85,100	60	146	8	214
4471	Gasoline Stations	1.9%	403	$43,400	48	123	-54	117
3331	Agriculture, Construction, and Mining Machinery Manufacturing	1.6%	355	$85,100	37	90	0	128
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.5%	329	$51,900	42	109	-8	143
5613	Employment Services	1.3%	276	$72,000	32	78	3	113
3391	Medical Equipment and Supplies Manufacturing	1.2%	265	$77,400	29	70	3	102
9211	Executive, Legislative, and Other General Government Support	1.1%	237	$53,600	29	75	-14	90
5417	Scientific Research and Development Services	1.0%	209	$93,300	23	55	4	82
3335	Metalworking Machinery Manufacturing	0.9%	205	$70,800	23	57	24	104
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	0.9%	205	$79,000	21	54	-6	70
3332	Industrial Machinery Manufacturing	0.9%	188	$85,100	20	49	3	72
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	0.9%	187	$71,900	19	48	7	75
3344	Semiconductor and Other Electronic Component Manufacturing	0.9%	186	$90,700	19	46	-3	62
n/a	All Others	18.8%	4,056	n/a	457	1,164	-15	1,605

Source: JobsEQ®
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Pathway Detail

Of all occupations found in the Automotive Technology pathway, the specific occupations of Mechanical Engineers and Mechanical Engineering Technicians are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Automotive Technology careers pay about $61,300 per year (up from $60,100 last year)—about $2,600 higher than the average wage statewide across all positions.

Automotive Technology Pathway in Minnesota - COVID, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
49-3023	Automotive Service Technicians and Mechanics	13,151	$46,800	0.94	529	3.9%	817	-206	-1.5%	5,862	1,730	4,486	-354	-0.5%
17-2141	Mechanical Engineers	7,013	$88,300	1.20	174	2.5%	405	-52	-0.7%	2,446	670	1,727	50	0.1%
17-3027	Mechanical Engineering Technologists and Technicians	1,122	$63,400	1.36	35	3.2%	12	-28	-2.4%	544	185	359	0	0.0%
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	178	$43,900	0.95	9	5.1%	12	-19	-9.4%	75	21	73	-19	-2.2%
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	150	$70,100	0.80	6	3.6%	17	-19	-11.3%	63	13	52	-1	-0.2%
	Automotive Technology Pathway	**21,614**	**$61,300**	**1.03**	**753**	**3.4%**	**1,263**	**-324**	**-1.5%**	**8,991**	**2,619**	**6,697**	**-324**	**-0.3%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

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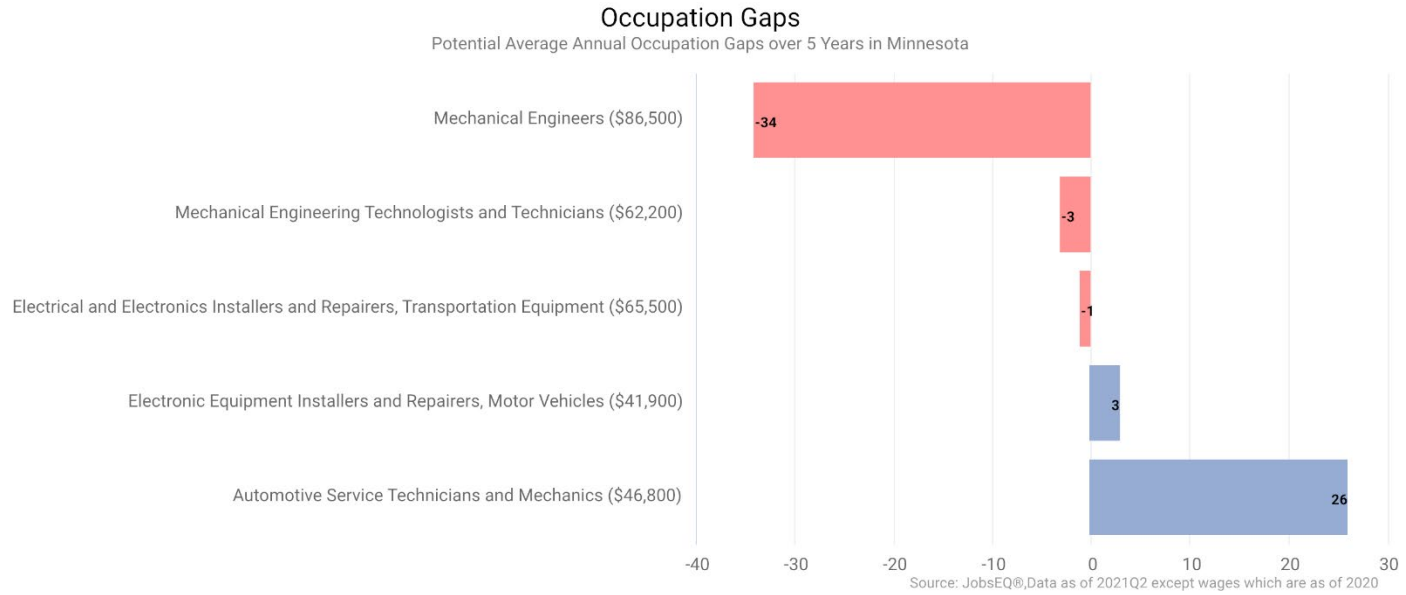
By 2026, it is likely that Minnesota will see a growing shortage of Mechanical Engineers and Mechanical Engineering Technologists and Technicians (shown in red below). The estimated annual shortage of Mechanical Engineers, Mechanical Engineering Techs, and Electrical and Electronics Equipment Installers and Repairers have worsened since 2020 estimates.

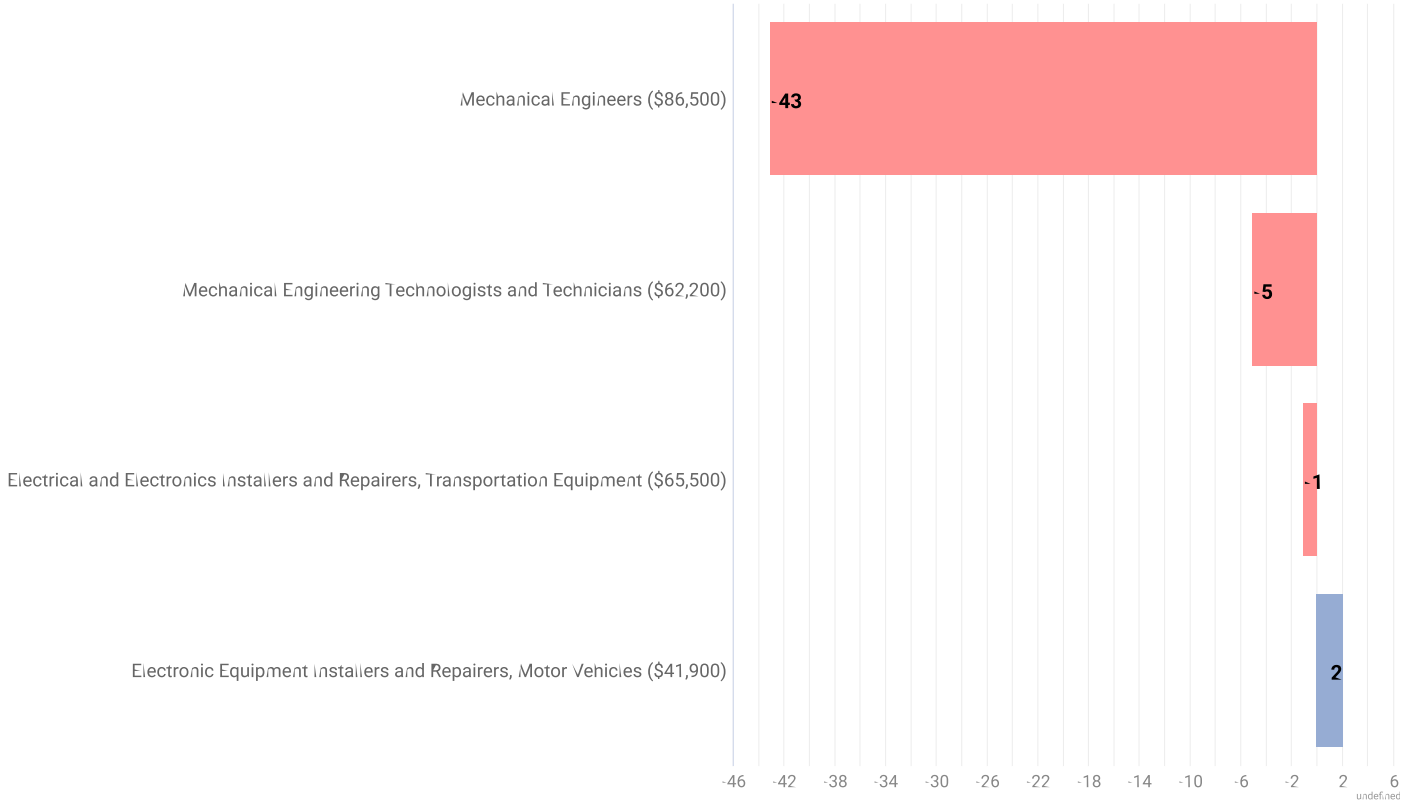
Estimated Occupation Gaps over Five Years in Minnesota



Looking out the next ten years, three occupations in the Automotive Technology pathway are anticipated to experience talent shortages. The shortage of Mechanical Engineers and Mechanical Engineering Techs have

worsened from estimates in 2020, while shortages of Automotive Service Technicians at the statewide level have been reduced to zero.

Estimated Occupation Gaps over Ten Years in Minnesota



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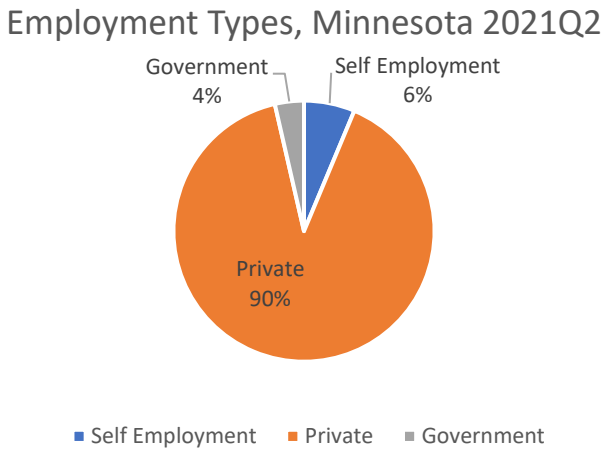
Employment Types

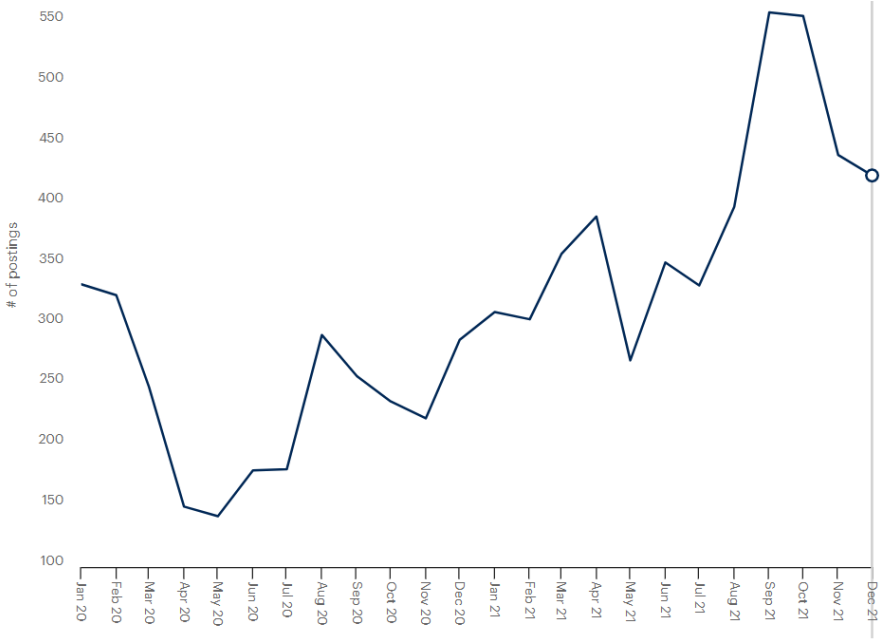
About 90% of people employed in Automotive Technology in Minnesota work for private employers, while an estimated 6% are self-employed (a slight decrease from 2020). The remaining 4% work for state, federal, or local government entities.



Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Automotive Technology roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 4,699 new jobs advertised in Automotive Technology during this time frame, an increase of 64% from the prior 12-month period (2020). Volume of posted positions advertised by staffing and temp agencies in the Automotive Technology pathway increased dramatically in 2021 compared to 2020, implying dramatic increases in challenges finding talent in this career pathway and direct employers resorting to using new strategies to find talent.

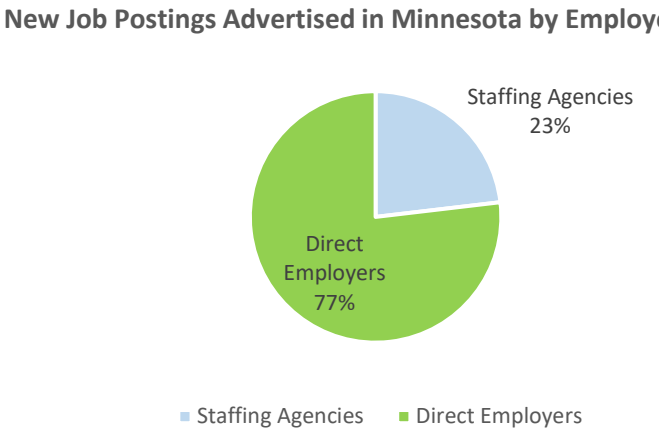
Volume of Career Pathway Online Job Postings in 2020 and 2021



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	Lube-Tech Services, LLC	0%
2.	Honeywell	231%
3.	3M	171%
4.	Aerotek	61%
5.	Medtronic	95%
6.	Actalent	0%
7.	Polaris	67%
8.	TraneTech	406%
9.	Xcel Energy	158%
10.	GPAC	82%



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

1. Communication (+7%)
2. Analysis (+2%)
3. Testing (-4%)
4. Troubleshooting (+14%)
5. Problem Solving (-5%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Mechanical Engineering (+14%)
2. Computer-Aided Design (-13%)
3. Scheduling (+56%)
4. SolidWorks CAD (+12%)
5. Project Management (+47%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

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

1. American Society of Mechanical Engineers – Y14.5 Dimensioning and Tolerancing (+40%)
2. Accreditation Board for Engineering and Technology (+144%)
3. Class D Driver's License (+35%)
4. Engineer-in-Training (+147%)
5. Computer-Aided Engineering (+115%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from the Economic Development and Employer Planning System and has been put together by the Minnesota State Transportation Center of Excellence.

Automotive Program Completers by Degree Level in Minnesota | 2019 - 2020

CIP Code	Program Title	Cert1	Assc	Assc+	Bach	**Total**
15.0803	Automotive Engineering Technology/ Technician	0	0	0	28	**28**
47.0604	Automobile/Automotive Mechanics Technology/Technician	71	112	109	0	**292**
47.0617	High Performance and Custom Engine Technician/Mechanic	0	0	0	0	**0**
	Total	**71**	**112**	**109**	**28**	**320**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
Cert2 = Postsecondary award, certificate, or diploma of (at least 1 but less than 2 academic years)
Assc = Associate's degree
Assc+ = Postsecondary award, certificate, or diploma of (at least 2 but less than 4 academic years)
Bach = Bachelor's degree or equivalent

AVIATION

Demand Analysis

2021

MINNESOTA STATE
Transportation Center of Excellence

Introduction and Sector Overview

This report highlights the importance of the Aviation career pathway for Minnesota's Transportation Industry. Professionals in Aviation work in diverse roles from piloting, air traffic controlling, and aircraft maintenance technician, as well as designing, servicing, or piloting drones.[1] In all, about 8,773 people work in Aviation roles in Minnesota as of the second quarter of 2021—a -8.0% decline (-758 workers) from a year prior.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Aviation employment is anticipated to grow moderately in Minnesota by about 35 total jobs (0.1% annually) due to a tight talent pool, but could grow by about 667 (1.5% annually) in an optimistic forecast model. Total baseline demand for Aviation talent is anticipated to be around 3,844 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

	Current						5-Year History		5-Year Baseline Forecast				
Occupation	**Empl**	**Avg Ann Wages[2]**	**LQ**	**Unempl**	**Unempl Rate**	**Online Job Ads[3]**	**Empl Change**	**Ann %**	**Total Demand**	**Exits**	**Transfers**	**Empl Growth**	**Ann % Growth**
Automotive Technology Pathway	21,614	$61,300	1.03	753	3.4%	1,263	163	0.2%	8,991	2,619	6,697	-324	-0.3%
Aviation Pathway*	8,773	$122,300	0.88	346	3.9%	210	-674	-1.5%	3,844	1,121	2,688	35	0.1%
Collision Repair Pathway	6,864	$46,900	1.14	324	4.6%	376	-307	-0.9%	3,524	1,042	2,480	2	0.0%
Diesel Equipment and Truck Pathway	12,889	$56,000	1.20	344	2.7%	487	-451	-0.7%	6,292	1,919	4,383	-10	0.0%
Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

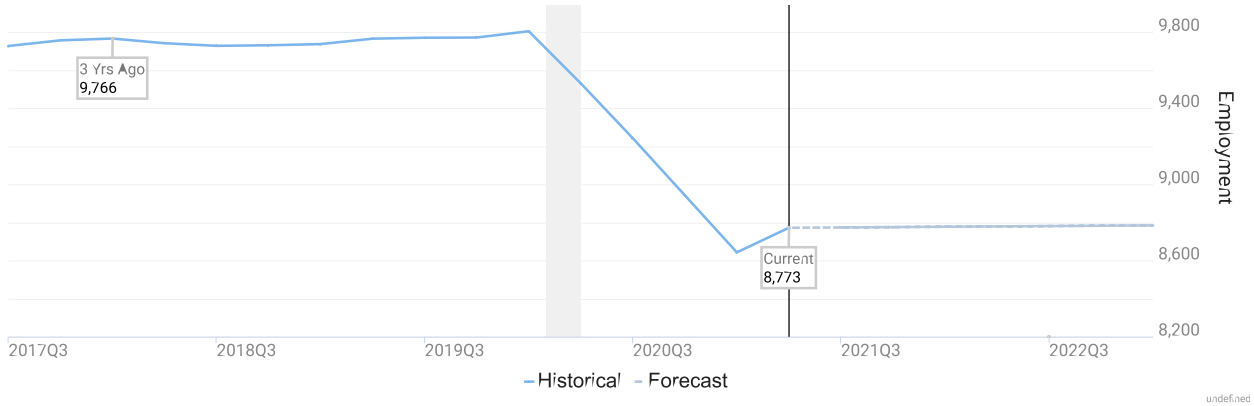
*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

Source: JobsEQ®
Data as of 2021Q2 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
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment in that place for queries in this analytic. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list).

[1] Drone Technology careers were added to the Aviation Pathway in this report, but were not included in the prior 2020 version of this report. Another way that this pathway has been described in other reports is Aviation and Drone Technology Pathway.

As Minnesota's economy continues to sustain loss of workers due to the pandemic and overall talent shortage, and with unknown ongoing impacts of the COVID-19 pandemic on our economy and public health, employment forecasts are changing rapidly. Supply chain impacts, the drive to automation and technological innovation mean that the transportation industry, in particular, may look very different in five years from what it looks like today. The componding impacts of a tight labor market prior to the start of the pandemic and significant, rapid layoffs of non-essential workers across service industry positions creates a complex landscape of employer demand and an available workforce. Forecasting future needs under current conditions with an eye to anticipated talent pipelines into Aviation 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 0.1% growth in overall employment by the second quarter of 2026.

Aviation Employment Forecast Under Baseline Scenario, Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Industry/Occupation Mix

Aviation talent is primarily concentrated in the Scheduled Air Transportation Industry (35.3%) but are critical to a wide range of air transportation and aerospace industries in Minnesota.

Top Industry Distribution for Aviation Pathway Occupations in Minnesota

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4811	Scheduled Air Transportation	35.3%	3,094	$170,600	428	1,073	4	1,506
4881	Support Activities for Air Transportation	8.5%	747	$74,600	102	230	29	361
5413	Architectural, Engineering, and Related Services	5.5%	486	$89,000	53	119	-12	159
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	4.8%	424	$104,300	48	107	1	157
9261	Administration of Economic Program	4.7%	412	$134,400	48	135	-10	173
5511	Management of Companies and Enterprises	4.1%	363	$99,900	42	97	8	147
5613	Employment Services	3.2%	281	$75,100	37	82	-1	118
4812	Nonscheduled Air Transportation	2.5%	221	$96,600	32	79	12	124
4921	Couriers and Express Delivery Services	2.4%	212	$123,900	31	71	9	111
3364	Aerospace Product and Parts Manufacturing	1.8%	159	$72,900	16	44	-13	48
5417	Scientific Research and Development Services	1.6%	141	$110,800	16	35	1	51
9211	Executive, Legislative, and Other General Government Support	1.3%	110	$91,800	13	33	0	46
3391	Medical Equipment and Supplies Manufacturing	1.2%	101	$85,900	12	26	1	40
5416	Management, Scientific, and Technical Consulting Services	1.0%	89	$88,800	12	26	9	46
6113	Colleges, Universities, and Professional Schools	1.0%	89	$102,200	10	23	0	32
6219	Other Ambulatory Health Care Services	1.0%	88	$82,000	12	30	2	45
9231	Administration of Human Resource Programs	1.0%	87	$106,400	10	24	-1	33
3344	Semiconductor and Other Electronic Component Manufacturing	1.0%	86	$108,500	10	21	-1	29
9221	Justice, Public Order, and Safety Activities	0.9%	82	$105,400	10	23	-2	31
9281	National Security and International Affairs	0.9%	81	$118,200	9	24	-3	30
n/a	All Others	16.2%	1,419	n/a	170	383	-4	549

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.

Pathway Detail

Of all occupations found in the Aviation pathway, the specific occupations of Airline Pilots, Air Traffic Controllers, and Electro-Mechanical and Mechatronics Techs are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Aviation careers pay about $122,300 per year—about $63,400 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 $199,600 compared to Aircraft Cargo Handling Supervisors at $55,100 annually.

Aviation Pathway in Minnesota – Baseline Forecast, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
17-2199	Engineers, All Other	2,583	$102,100	0.82	46	1.8%	52	-78	-2.9%	883	270	618	-5	0.0%
53-2011	Airline Pilots, Copilots, and Flight Engineers	2,399	$199,600	1.61	129	5.2%	3	-446	-15.7%	1,235	337	889	9	0.1%
49-3011	Aircraft Mechanics and Service Technicians	1,802	$79,100	0.74	67	3.7%	31	-174	-8.8%	777	247	502	29	0.3%
53-2021	Air Traffic Controllers	567	$141,400	1.45	21	3.6%	2	-20	-3.4%	259	67	197	-5	-0.2%
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	466	$57,000	1.39	14	3.1%	64	-5	-1.0%	226	77	149	0	0.0%
53-2012	Commercial Pilots	447	$111,700	0.58	25	5.6%	15	-4	-1.0%	249	64	170	15	0.7%
53-2022	Airfield Operations Specialists	178	$62,300	0.99	6	3.3%	3	-15	-7.6%	88	22	63	3	0.4%
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	161	$58,800	0.26	23	12.3%	18	-8	-4.9%	50	15	50	-15	-1.9%
49-2091	Avionics Technicians	117	$66,400	0.28	14	10.9%	18	-6	-4.9%	45	14	29	2	0.4%
53-1041	Aircraft Cargo Handling Supervisors	54	$55,100	0.29	1	2.5%	4	-2	-3.8%	30	9	21	1	0.4%
	Aviation and Drone Technology Pathway	**8,773**	**$122,300**	**0.88**	**346**	**3.9%**	**210**	**-758**	**-8.0%**	**3,844**	**1,121**	**2,688**	**35**	**0.1%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

Source: JobsEQ®
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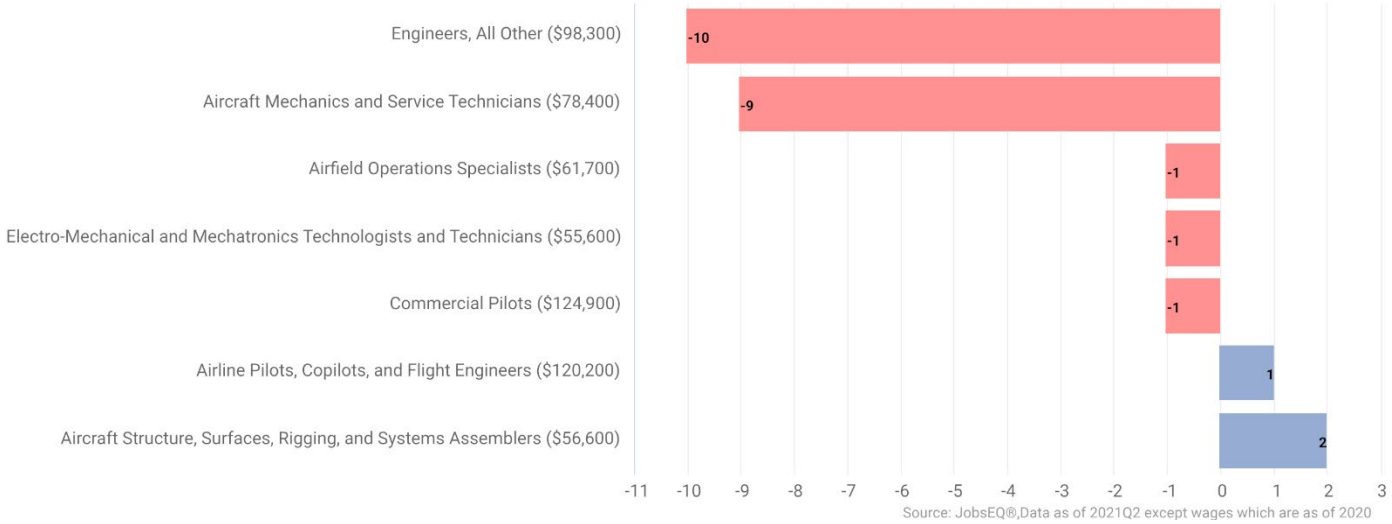
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment in that place for queries in this analytic. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list).

By 2026, it is likely that Minnesota will see a growing shortage of talent in five critical Aviation occupations (shown in red below). The estimated annual shortage of Aircraft Mechanics and Service Technicians has worsened since 2020 estimates, while the other shortages shown below have improved slightly.

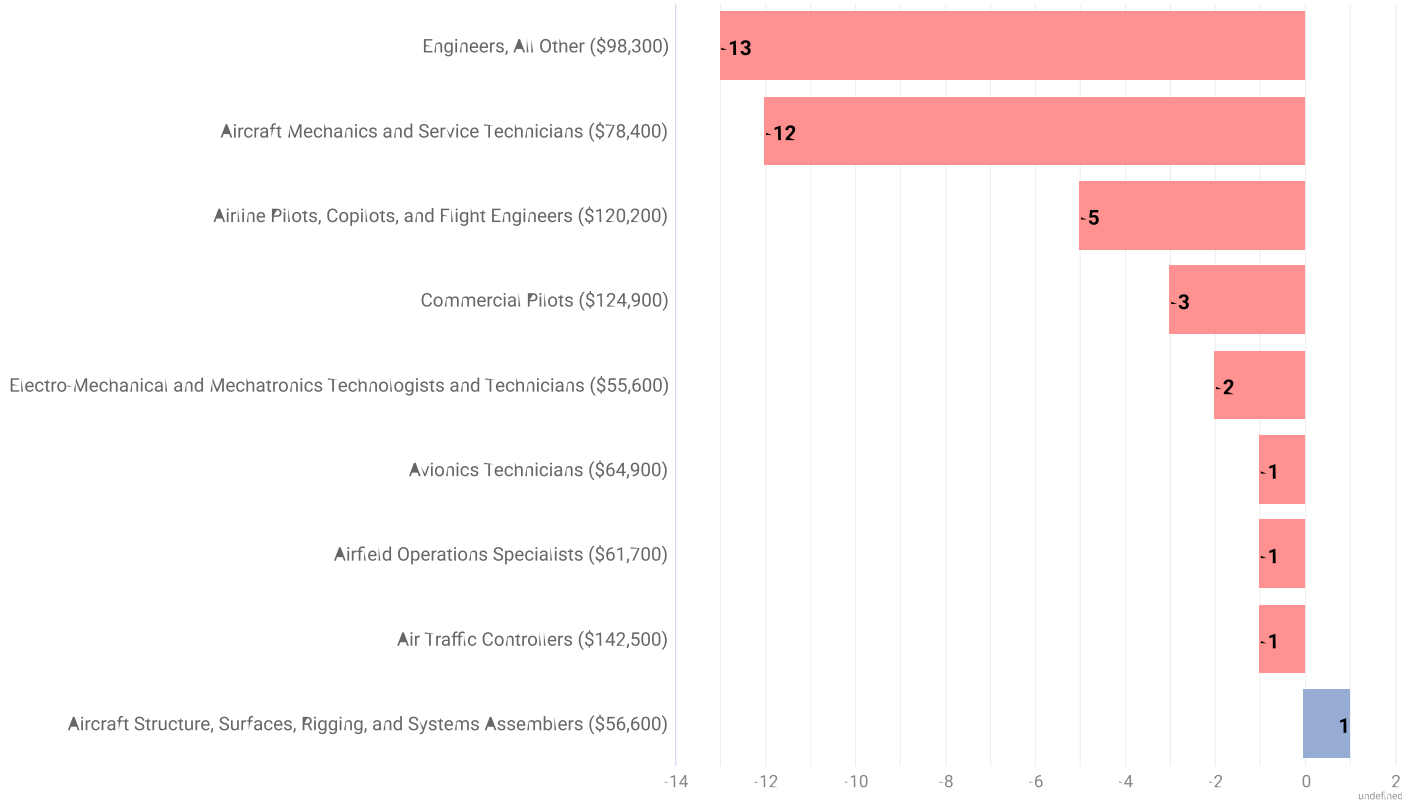
Estimated Occupation Gaps over Five Years in Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Looking out the next ten years, all but one occupation (Aircraft Structure, Surfaces, Rigging, and Systems Assemblers) in the Aviation pathway are anticipated to experience talent shortages.

Estimated Occupation Gaps over Ten Years in Minnesota



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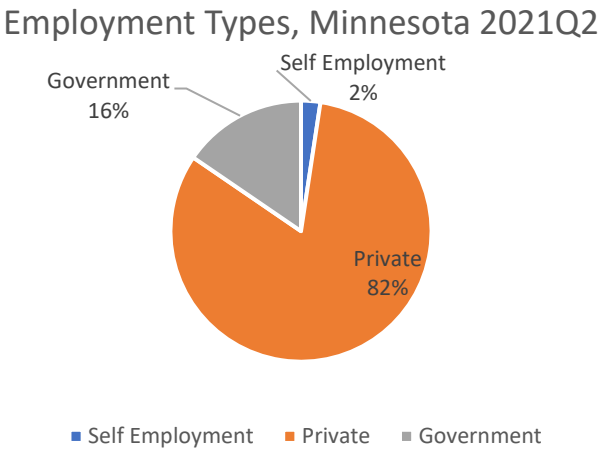
Employment Types

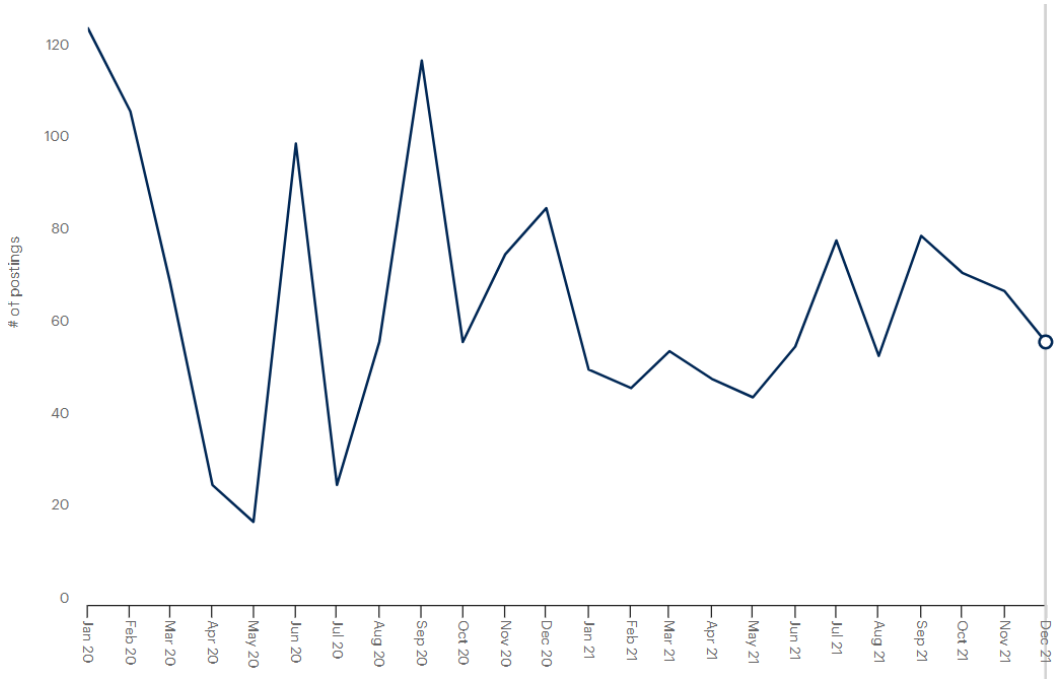
About 82% of people employed in Aviation in Minnesota work for private employers, while only about 2% are self-employed (a slight increase from 2020). The remaining 16% work for state, federal, or local government entities (mostly federal).



Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Aviation roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 713 new jobs advertised in Aviation careers during this time frame, a decrease of 18% from the prior 12-month period (2020). Volume of posted positions advertised by staffing and temp agencies in the Aviation pathway dropped moderately in 2021 compared to 2020, as did posts by direct employers (down -13%).

Volume of Career Pathway Online Job Postings in 2020 and 2021



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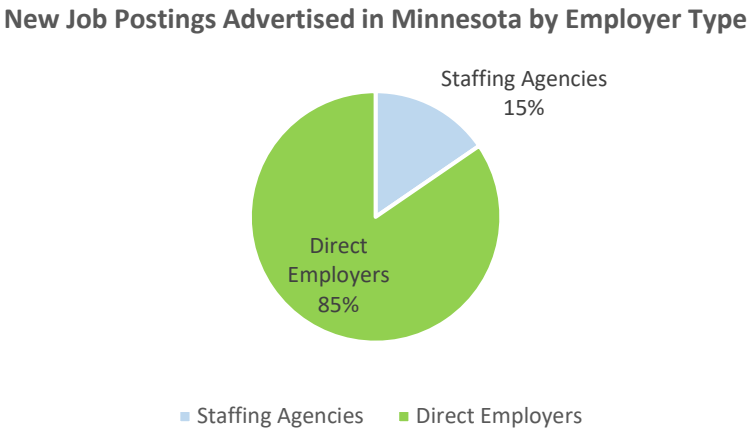
Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	Army	-31%
2.	Aerotek	-10%
3.	Delta Air Lines	85%
4.	SAIC	325%
5.	Signature Flight Support	64%
6.	Cirrus Aircraft Corporation	163%
7.	CommScope	0%
8.	Mayo Clinic	850%
9.	Sun Country Airlines	6%
10.	Department of the Air Force	60%



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

1. Communication (-13%)
2. Troubleshooting (-24%)
3. Installing (-4%)
4. Testing (-19%)
5. Aviation Maintenance (-3%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Operations (-22%)
2. Avionics (+11%)
3. Mechanics (-48%)
4. Scheduling (-6%)
5. Supervision (-8%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

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

1. Class D Driver's License (+27%)
2. Security Clearance (-33%)
3. OSHA (+67%)
4. HAZMAT (-36%)
5. Airline Transport Pilot (-39%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from the Economic Development and Employer Planning System and has been put together by the Minnesota State Transportation Center of Excellence.

Aviation Program Completers by Degree Level in Minnesota | 2019 - 2020

CIP Code	Program Title	Cert2	Assc	Assc+	Bach	**Total**
49.0102	Airline/Commercial/Professional Pilot and Flight Crew	0	4	0	7	**11**
47.0607	Airframe Mechanics and Aircraft Maintenance Technology/Technician	0	31	12	0	**43**
47.0608	Aircraft Powerplant Technology/Technician	0	4	0	0	**4**
47.0609	Avionics Maintenance Technology/Technician	5	0	0	0	**5**
	Total	**5**	**39**	**12**	**7**	**63**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
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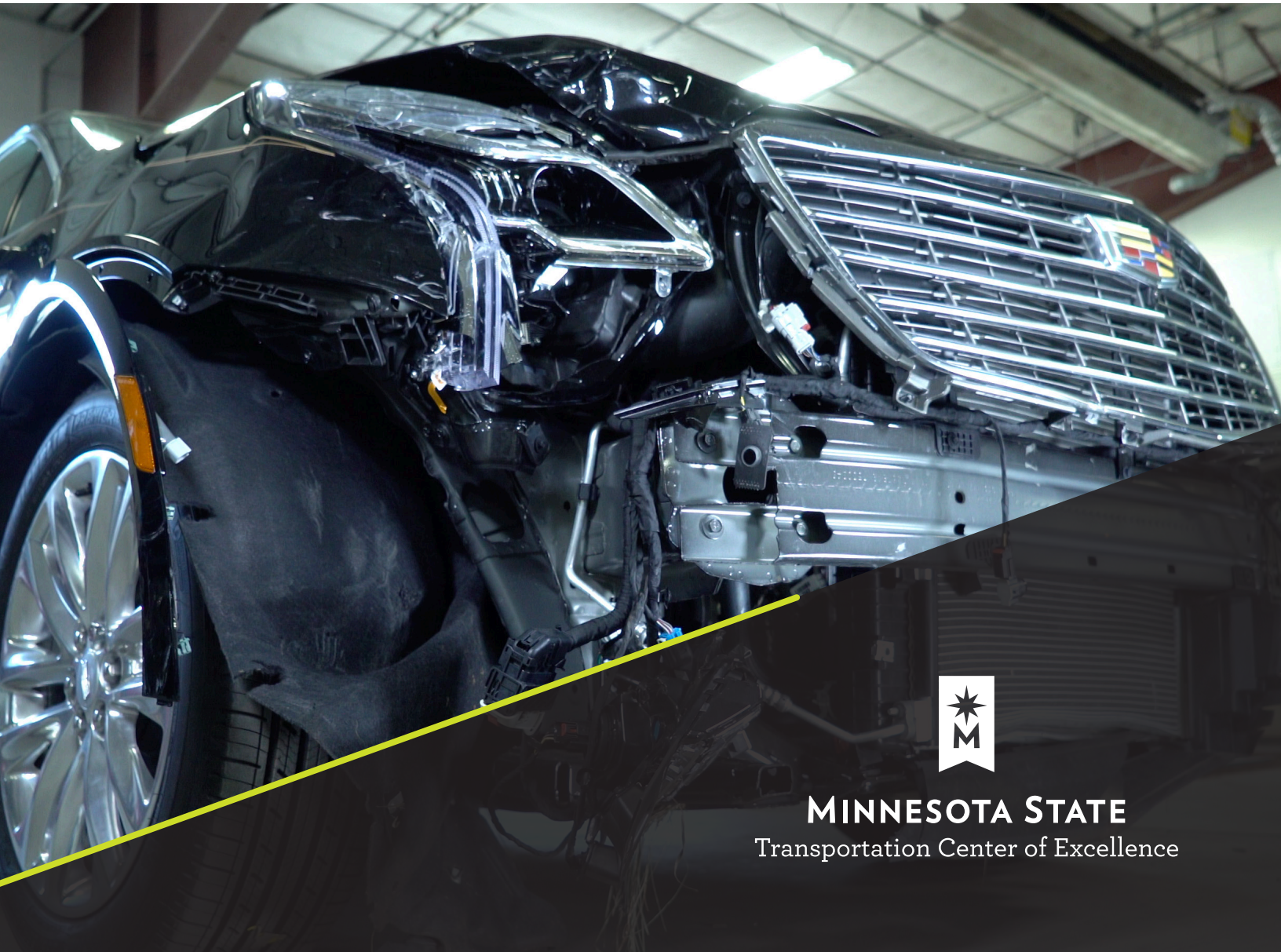
COLLISION REPAIR

Demand Analysis

2021



MINNESOTA STATE
Transportation Center of Excellence

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, serving industries as diverse as Navigational Manufacturing and Automobile Dealerships. In all, about 6,864 people work in Collision Repair roles in Minnesota as of the second quarter of 2021—remaining flat (-16 workers) from a year prior.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Collision Repair employment is anticipated to continue to remain stable in Minnesota, rising by just 2 total jobs (0.0% annually) due to a tight talent pool, but could grow by about 341 (1.0% annually) in an optimistic forecast model. Total baseline demand for Collision Repair talent is anticipated to be around 3,524 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

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Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

Source: JobsEQ®
Data as of 2021Q2 unless noted otherwise
Note: Figures may not sum due to rounding.
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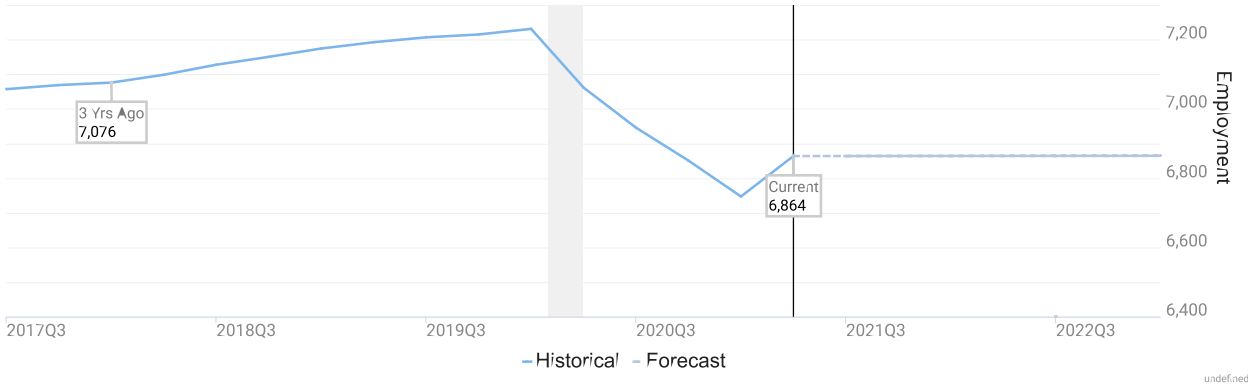
Collision Repair Employment Forecast Under Baseline Scenario, Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Industry/Occupation Mix

Collision Repair talent is primarily concentrated in the Automotive Repair and Maintenance industry (46.4%), increasing in its concentration from estimates in 2020 by 0.5 percentage points. The next highest industry of employment concentration is Automobile Dealers (7.5%), followed by general Coating, Engraving, Heat Treating, and Allied Activities as well as Architectural and Structural Metals Manufacturing employers.

Top Industry Distribution for Collision Repair Pathway Occupations in Minnesota

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
8111	Automotive Repair and Maintenance	46.4%	3,184	$50,600	487	1,086	13	1,586
4411	Automobile Dealers	7.5%	512	$49,600	81	169	2	252
3328	Coating, Engraving, Heat Treating, and Allied Activities	5.9%	406	$37,100	61	160	0	220
3323	Architectural and Structural Metals Manufacturing	3.1%	215	$43,700	33	87	5	125
3339	Other General Purpose Machinery Manufacturing	2.6%	178	$43,700	27	70	0	97
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.8%	124	$43,700	18	48	-2	65
5613	Employment Services	1.7%	114	$37,600	17	44	1	63
3331	Agriculture, Construction, and Mining Machinery Manufacturing	1.6%	111	$43,700	17	44	-1	59
3222	Converted Paper Product Manufacturing	1.6%	109	$47,500	16	41	-5	51
3362	Motor Vehicle Body and Trailer Manufacturing	1.5%	105	$41,200	16	41	-1	55
3399	Other Miscellaneous Manufacturing	1.5%	102	$43,700	16	41	3	59
3219	Other Wood Product Manufacturing	1.4%	95	$37,700	14	36	-3	47
3391	Medical Equipment and Supplies Manufacturing	1.3%	90	$42,300	14	36	1	51
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	1.3%	89	$48,400	13	29	-2	40
3261	Plastics Product Manufacturing	1.1%	72	$39,600	11	28	-1	37
3329	Other Fabricated Metal Product Manufacturing	1.0%	68	$43,700	10	26	-2	34
3324	Boiler, Tank, and Shipping Container Manufacturing	0.9%	64	$43,700	10	26	1	37
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	0.9%	60	$38,400	9	25	3	37
3332	Industrial Machinery Manufacturing	0.8%	58	$43,700	9	23	0	32
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	0.8%	57	$43,700	9	23	0	31
n/a	All Others	15.3%	1,052	n/a	157	396	-16	538

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.

Pathway Detail

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. On average, Collision Repair careers pay about $46,900 per year (up from $46,200 last year)—about $12,000 below than the average wage statewide across all positions.

Collision Repair Pathway in Minnesota – Baseline Forecast, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
51-9124	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	3,557	$43,700	1.30	162	4.4%	216	-126	-3.4%	1,921	532	1,400	-10	-0.1%
49-3021	Automotive Body and Related Repairers	2,816	$51,400	0.99	131	4.5%	127	-74	-2.6%	1,374	452	905	17	0.1%
49-3022	Automotive Glass Installers and Repairers	490	$44,400	1.08	31	5.9%	33	2	0.4%	229	58	175	-4	-0.2%
	Collision Repair Pathway	**6,864**	**$46,900**	**1.14**	**324**	**4.6%**	**376**	**-198**	**-2.8%**	**3,524**	**1,042**	**2,480**	**2**	**0.0%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

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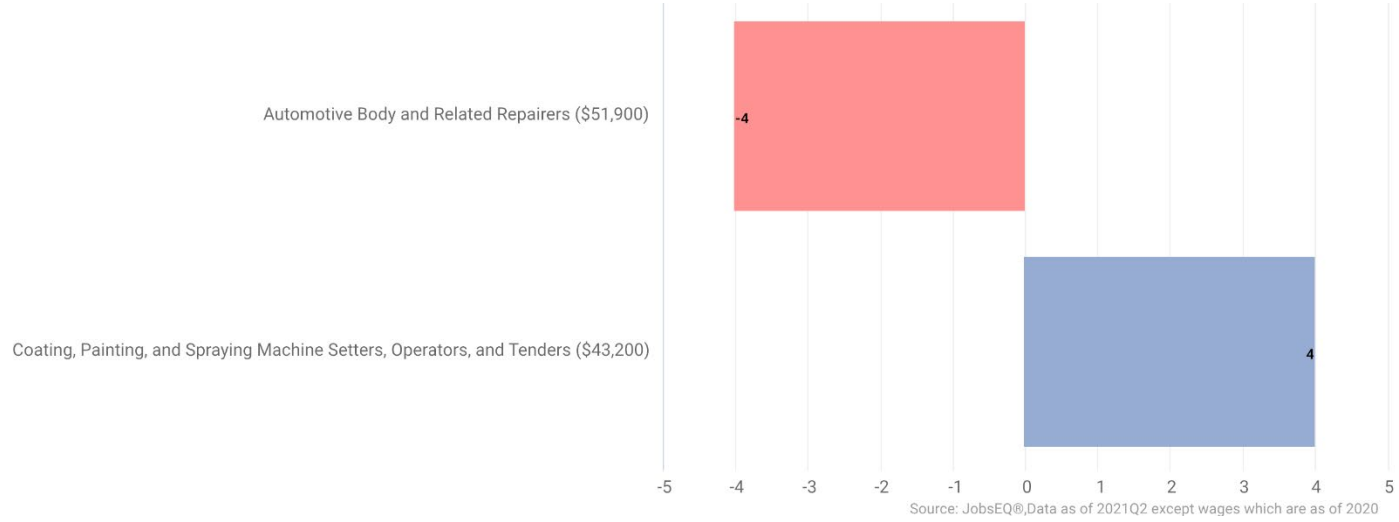
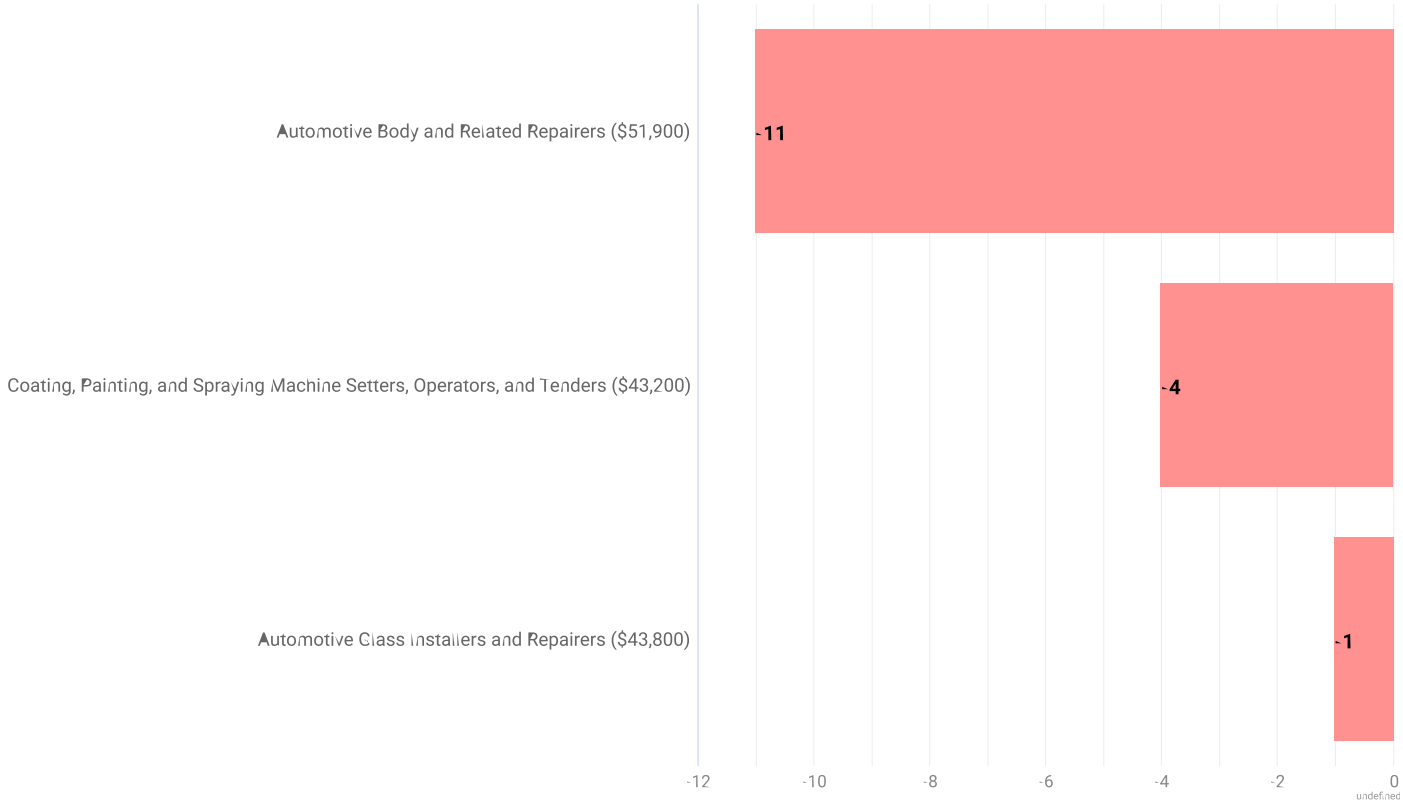
By 2026, it is likely that Minnesota will see a growing shortage of Auto Body Repairers (shown in red below). The estimated annual shortage of Auto Body Repairers have worsened since 2020 estimates.

Estimated Occupation Gaps over Five Years in Minnesota



Looking out the next ten years, all three occupations in the Collision Repair pathway are anticipated to experience talent shortages. The long-term shortage of Auto Body Repairers and Auto Glass Installers and Repairers have remained the same as estimated shortages as of 2020, but the shortage of Coating, Painting, and Spraying Machine Setters, Operators, and Tenders has worsened.

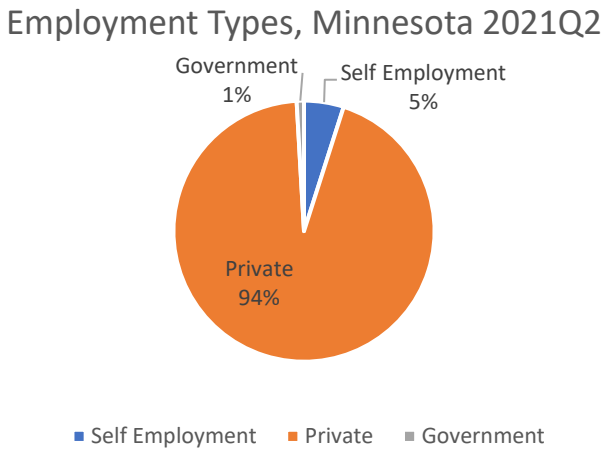
Estimated Occupation Gaps over Ten Years in Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Employment Types

About 94% of people employed in Collision Repair careers in Minnesota work for private employers, while an estimated 5% are self-employed (a slight increase from 2020). The remaining 1% work for state, federal, or local government entities.

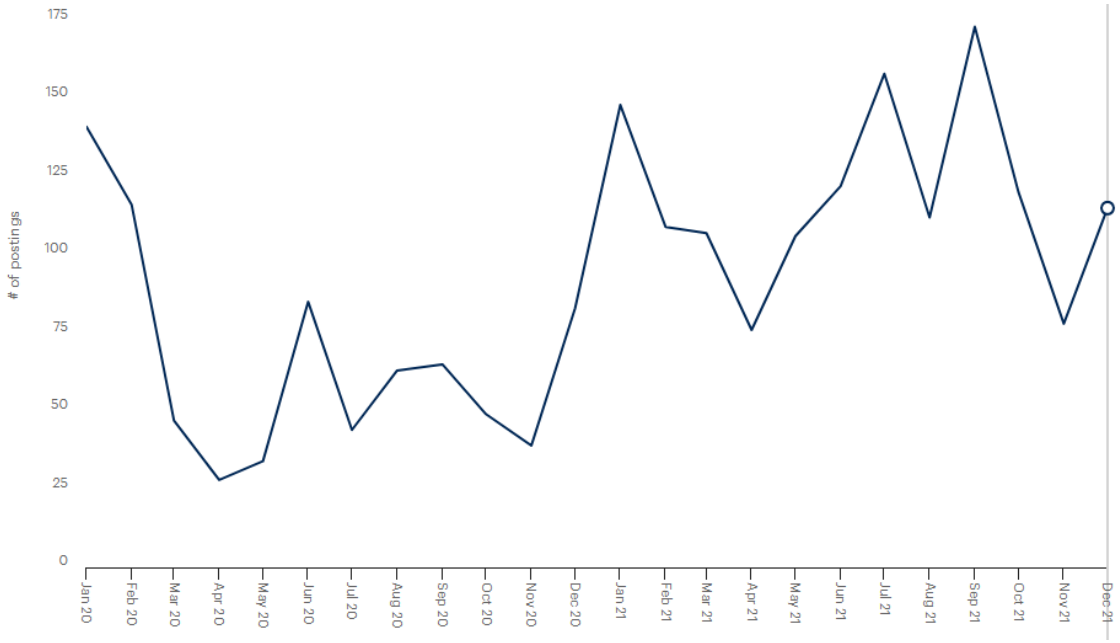


Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Collision Repair roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 1,424 new jobs advertised in Collision Repair during this time frame, an increase of 79% from the prior 12-month period (2020). Posts by direct employers alone were up by 94% between the two years. The share of posted positions advertised by staffing and temp agencies in the Collision Repair pathway increased in 2021 compared to 2020, implying dramatic increases in challenges finding talent in this career pathway and direct employers resorting to using new strategies to find talent.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Volume of Career Pathway Online Job Postings in 2020 and 2021



Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	Caliber Collision Centers	154%
2.	Safelite Autoglass	259%
3.	J.N. Phillips Glass	373%
4.	Caliber Auto Glass	0%
5.	People Ready	2150%
6.	GPAC	0%
7.	Express Employment Professionals	-3%
8.	Aerotek	-30%
9.	Carvana	50%
10.	Walser Collision And Glass	62%

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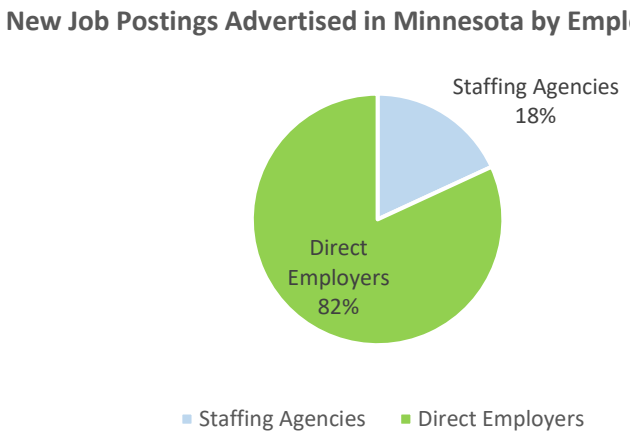

Top Skills by Volume of New Job Postings, With Change from Prior Year

1. Communication (-30%)
2. Glass Installation (+116%)
3. Auto Body Repair (-53%)
4. Friendliness (-55%)
5. Welding (-52%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Customer Service (+12%)
2. Personal Protective Equipment (+106%)
3. Work Orders (-27%)
4. Resource Management (+13%)
5. Fleet Vehicles (+1%)

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

1. Class D Driver's License (+160%)
2. I-CAR Certified (+620%)
3. Automotive Service Excellence (+5%)
4. OSHA (+6%)
5. HAZMAT (+77%)

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Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from the Economic Development and Employer Planning System and has been put together by the Minnesota State Transportation Center of Excellence.

Collision Repair Program Completers by Degree Level in Minnesota | 2019 - 2020

CIP Code	Program Title	Cert2	Assc	Assc+	**Total**
47.0603	Autobody/Collision and Repair Technology/Technician	32	32	23	**87**
	Total	**32**	**32**	**23**	**87**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
Cert2 = Postsecondary award, certificate, or diploma of (at least 1 but less than 2 academic years)
Assc = Associate's degree
Assc+ = Postsecondary award, certificate, or diploma of (at least 2 but less than 4 academic years)
Bach = Bachelor's degree or equivalent

DIESEL EQUIPMENT & TRUCK

Demand Analysis

2021

MINNESOTA STATE
Transportation Center of Excellence

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 12,889 people work in Collision Repair roles in Minnesota as of the second quarter of 2021—down about 360 workers from the second quarter of 2020.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Diesel, Equipment, and Truck pathway employment is anticipated to continue to remain stable in Minnesota, declining by about ten workers (0.0% annually) due to a tight talent pool, but could grow by about 620 (0.9% annually) in an optimistic forecast model. Total baseline demand for Diesel, Equipment, and Truck talent is anticipated to be around 6,292 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

	Current						5-Year History		5-Year Baseline Forecast				
Occupation	**Empl**	**Avg Ann Wages[2]**	**LQ**	**Unempl**	**Unempl Rate**	**Online Job Ads[3]**	**Empl Change**	**Ann %**	**Total Demand**	**Exits**	**Transfers**	**Empl Growth**	**Ann % Growth**
Automotive Technology Pathway	21,614	$61,300	1.03	753	3.4%	1,263	163	0.2%	8,991	2,619	6,697	-324	-0.3%
Aviation Pathway*	8,773	$122,300	0.88	346	3.9%	210	-674	-1.5%	3,844	1,121	2,688	35	0.1%
Collision Repair Pathway	6,864	$46,900	1.14	324	4.6%	376	-307	-0.9%	3,524	1,042	2,480	2	0.0%
Diesel Equipment and Truck Pathway	12,889	$56,000	1.20	344	2.7%	487	-451	-0.7%	6,292	1,919	4,383	-10	0.0%
Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

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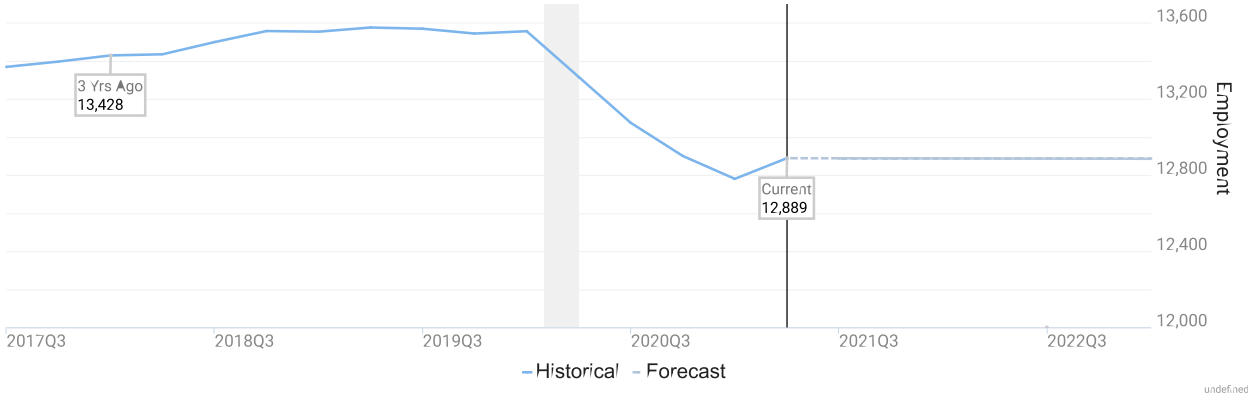
Diesel, Equipment, and Truck Employment Forecast Under Baseline Scenario, Minnesota



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Industry/Occupation Mix

Diesel, Equipment, and Truck talent is primarily concentrated in the machinery, Equipment, and Supplies Merchant Wholesalers Industry (18.4%). The next highest industry of employment concentration is General Freight Trucking (7.8%), followed by Other Specialty Trade Contractors (5.2%).

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

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	18.5%	2,386	$52,800	357	787	-66	1,078
4841	General Freight Trucking	7.8%	1,009	$53,800	140	326	-12	454
2389	Other Specialty Trade Contractors	5.2%	667	$60,500	108	256	10	374
2373	Highway, Street, and Bridge Construction	5.1%	655	$61,000	105	238	11	354
8111	Automotive Repair and Maintenance	4.5%	582	$50,800	83	193	12	289
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	4.4%	562	$54,700	80	187	13	280
4854	School and Employee Bus Transportation	3.9%	501	$53,600	70	162	-1	231
9211	Executive, Legislative, and Other General Government Support	3.5%	452	$56,400	67	153	12	233
4882	Support Activities for Rail Transportation	3.3%	424	$61,800	62	136	-26	172
2122	Metal Ore Mining	3.2%	407	$66,800	66	148	13	227
4842	Specialized Freight Trucking	2.5%	327	$53,800	46	107	0	152
4821	Rail Transportation	2.4%	310	$73,800	46	102	-11	137
4851	Urban Transit Systems	2.2%	277	$57,100	40	92	5	136
5621	Waste Collection	1.9%	241	$54,000	36	84	17	138
2371	Utility System Construction	1.8%	234	$61,000	39	88	7	133
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	1.5%	197	$57,000	31	69	8	107
6111	Elementary and Secondary Schools	1.4%	175	$53,700	25	57	1	83
2123	Nonmetallic Mineral Mining and Quarrying	1.3%	171	$55,400	29	67	4	100
5321	Automotive Equipment Rental and Leasing	1.1%	142	$52,900	20	47	1	68
5511	Management of Companies and Enterprises	1.0%	125	$59,300	19	42	3	64
n/a	All Others	23.6%	3,044	n/a	450	1,043	-20	1,472

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.

Pathway Detail

Of the occupations found in the Diesel, Equipment, and Truck pathway, Heavy Vehicle and Mobile Equipment Service Technicians and Mechanics such as Farm Equipment Mechanics and Rail Car Repairers are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, careers in this pathway pay about $56,000 per year (up by about $1,400 from a year prior)—about $2,900 below than the average wage statewide across all positions.

Diesel, Equipment, and Truck Pathway in Minnesota – Baseline Forecast, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	6,065	$53,700	1.18	146	2.4%	389	-302	-4.7%	2,878	853	1,981	44	0.1%
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3,094	$61,700	1.09	88	2.9%	3	-35	-1.1%	1,519	478	1,048	-7	0.0%
49-3041	Farm Equipment Mechanics and Service Technicians	1,587	$49,300	2.03	45	2.8%	66	16	1.0%	733	240	527	-35	-0.4%
49-3043	Rail Car Repairers	818	$63,200	2.07	22	2.7%	6	-53	-6.1%	363	122	269	-28	-0.7%
47-5022	Excavating and Loading Machine and Dragline Operators, Surface Mining	690	$56,400	0.87	13	1.9%	3	-37	-5.1%	423	126	286	11	0.3%
53-7021	Crane and Tower Operators	635	$57,400	0.75	30	4.6%	17	-15	-2.3%	376	99	271	5	0.2%
	Diesel Equipment and Truck Pathway	**12,889**	**$56,000**	**1.20**	**344**	**2.7%**	**487**	**-427**	**-3.2%**	**6,292**	**1,919**	**4,383**	**-10**	**0.0%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

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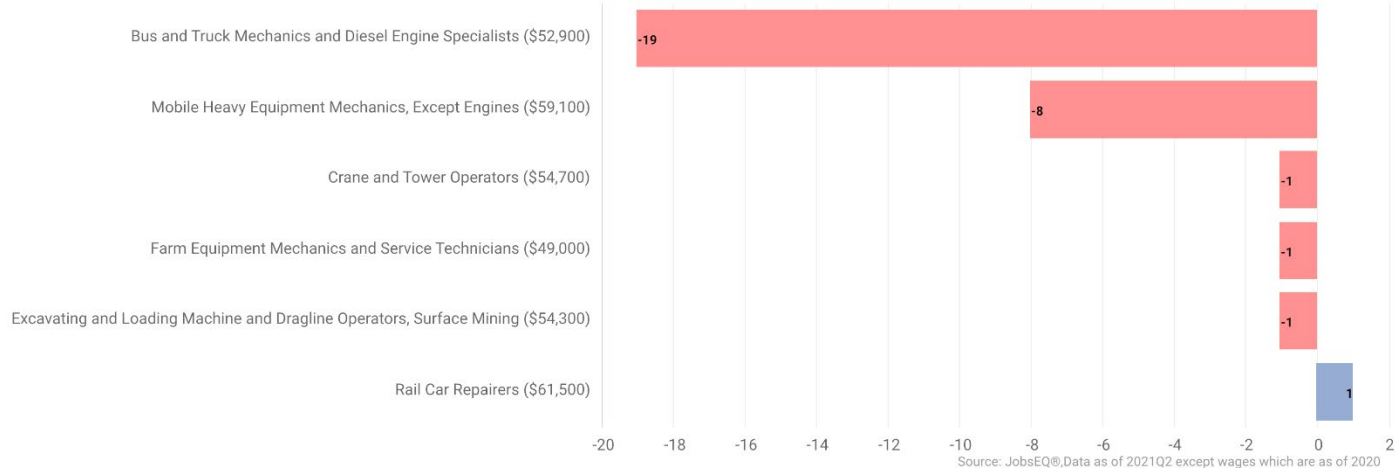
By 2026, it is likely that Minnesota will see a growing shortage of Bus and Truck Mechanics, Diesel Engine Specialists, and Mobile Heavy Equipment Mechanics and more (shown in red below). The estimated annual shortage of Bus and Truck Mechanics in particular has worsened since 2020 estimates.

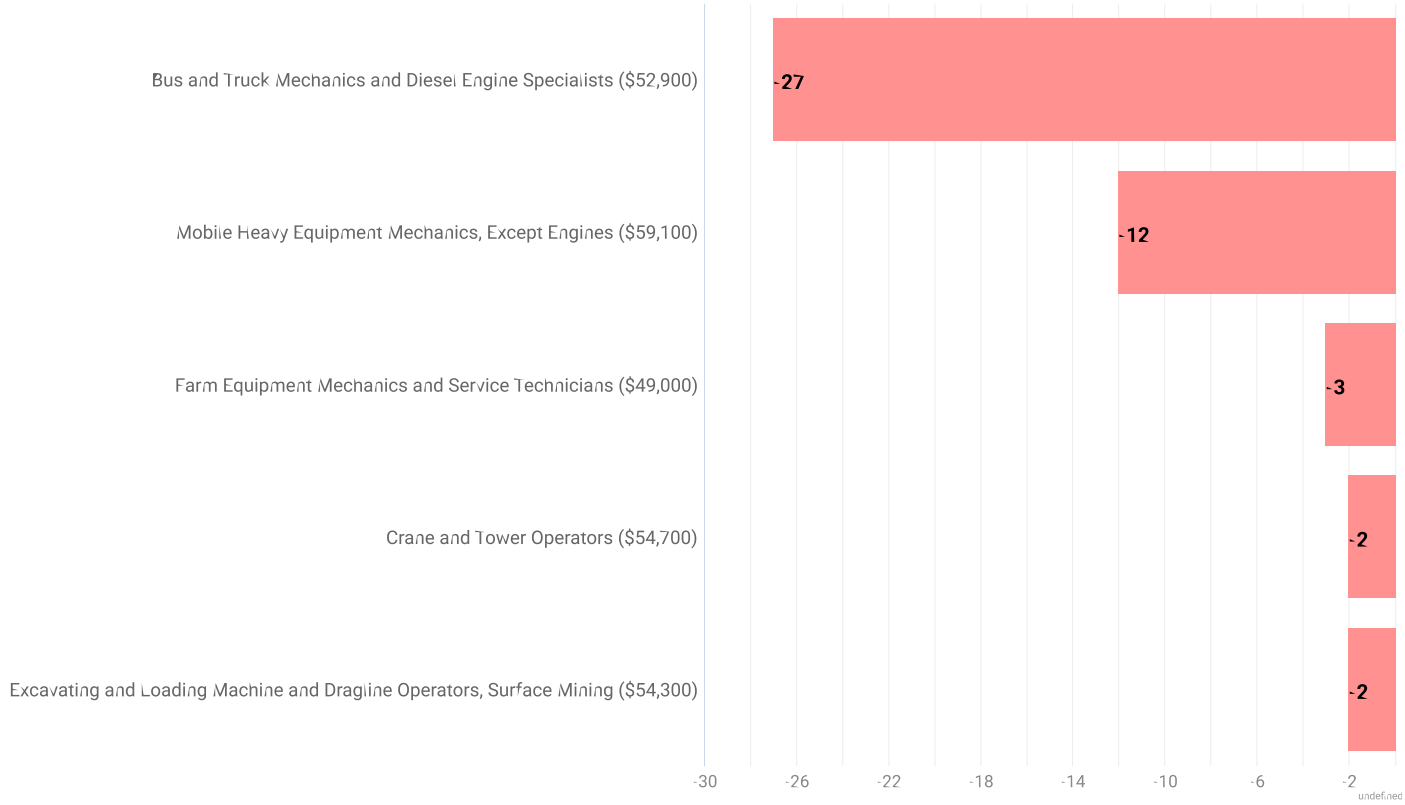
Estimated Occupation Gaps over Five Years in Minnesota



Looking out the next ten years, all of these shortages are forecast to grow, though with smaller occupation gaps than estimated in 2020 due to a tighter talent market impacting potential employer growth in the mid- to long-term.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Estimated Occupation Gaps over Ten Years in Minnesota



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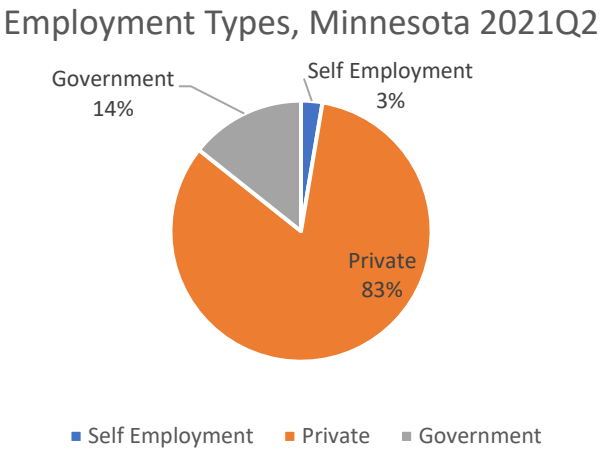
Employment Types

About 83% of people employed in Diesel, Equipment, and Truck careers in Minnesota work for private employers, while an estimated 3% are self-employed (a slight decrease from 2020). The remaining 14% work for state, federal, or local government entities.

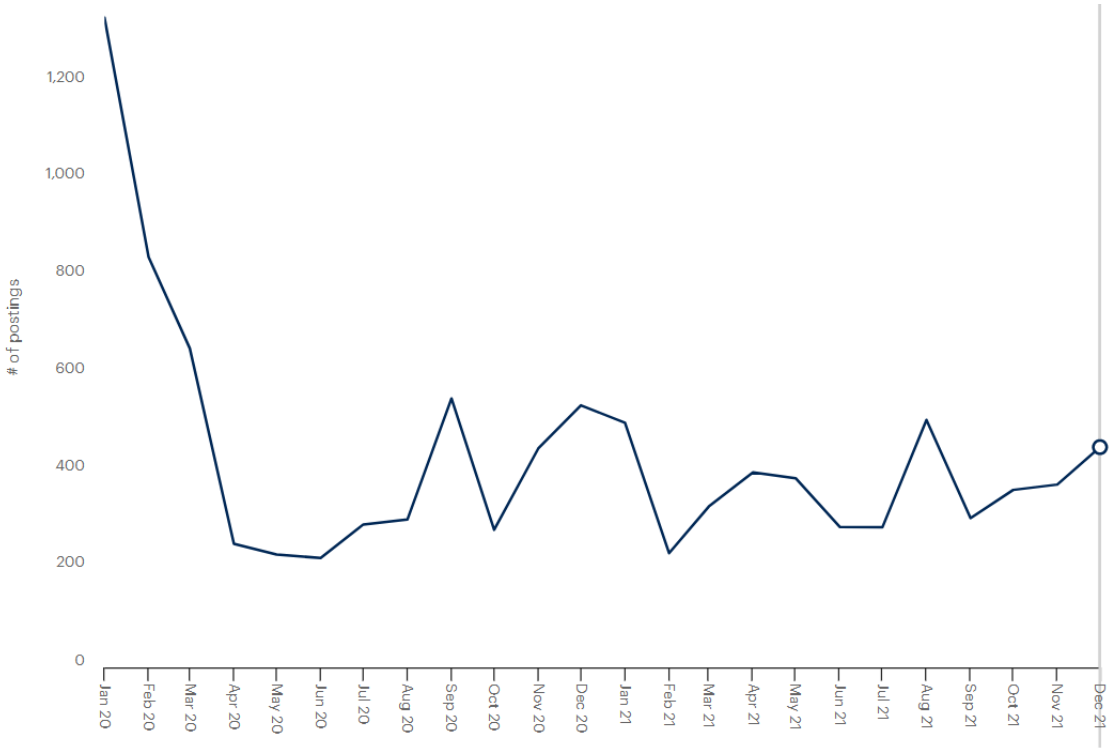


Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Diesel, Equipment, and Truck roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 4,446 new jobs advertised in Diesel, Equipment, and Truck pathway careers during this time frame, a decrease of -26% from the prior 12-month period (2020). The share of posted positions advertised by staffing and temp agencies in the Diesel, Equipment, and Truck pathway increased to 10% in 2021 compared to just 6% in 2020, implying dramatic increases in challenges finding talent in this career pathway and direct employers resorting to using new strategies to find talent.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

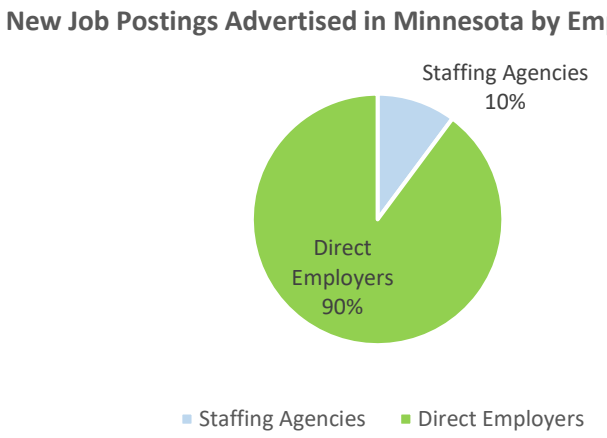
Volume of Career Pathway Online Job Postings in 2020 and 2021



Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	Sysco	123%
2.	Waste Management	67%
3.	FirstGroup America	296%
4.	Trudell Holdings, Inc.	80%
5.	Waste Connections	729%
6.	Nuss Truck Group	538%
7.	Titan Machinery	-90%
8.	FedEx	2417%
9.	ESTES EXPRESS LINES	629%
10.	XPO Logistics, Inc	432%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com



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

1. Preventive Maintenance (+63%)
2. Diagnosing (-40%)
3. Troubleshooting (+59%)
4. Communication (+27%)
5. Welding (+80%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Suspensions (+121%)
2. Electrical Systems (+92%)
3. Computer Usage – Basic (27%)
4. Hand Tools (+93%)
5. Hydraulics (+50%)

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

1. Class D Driver's License (+73%)
2. Automotive Service Excellence (+54%)
3. OSHA (+71%)
4. Class A Commercial Driver's License (+29%)
5. HAZMAT (+351%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from the Economic Development and Employer Planning System and has been put together by the Minnesota State Transportation Center of Excellence.

Diesel Program Completers by Degree Level in Minnesota | 2019 - 2020

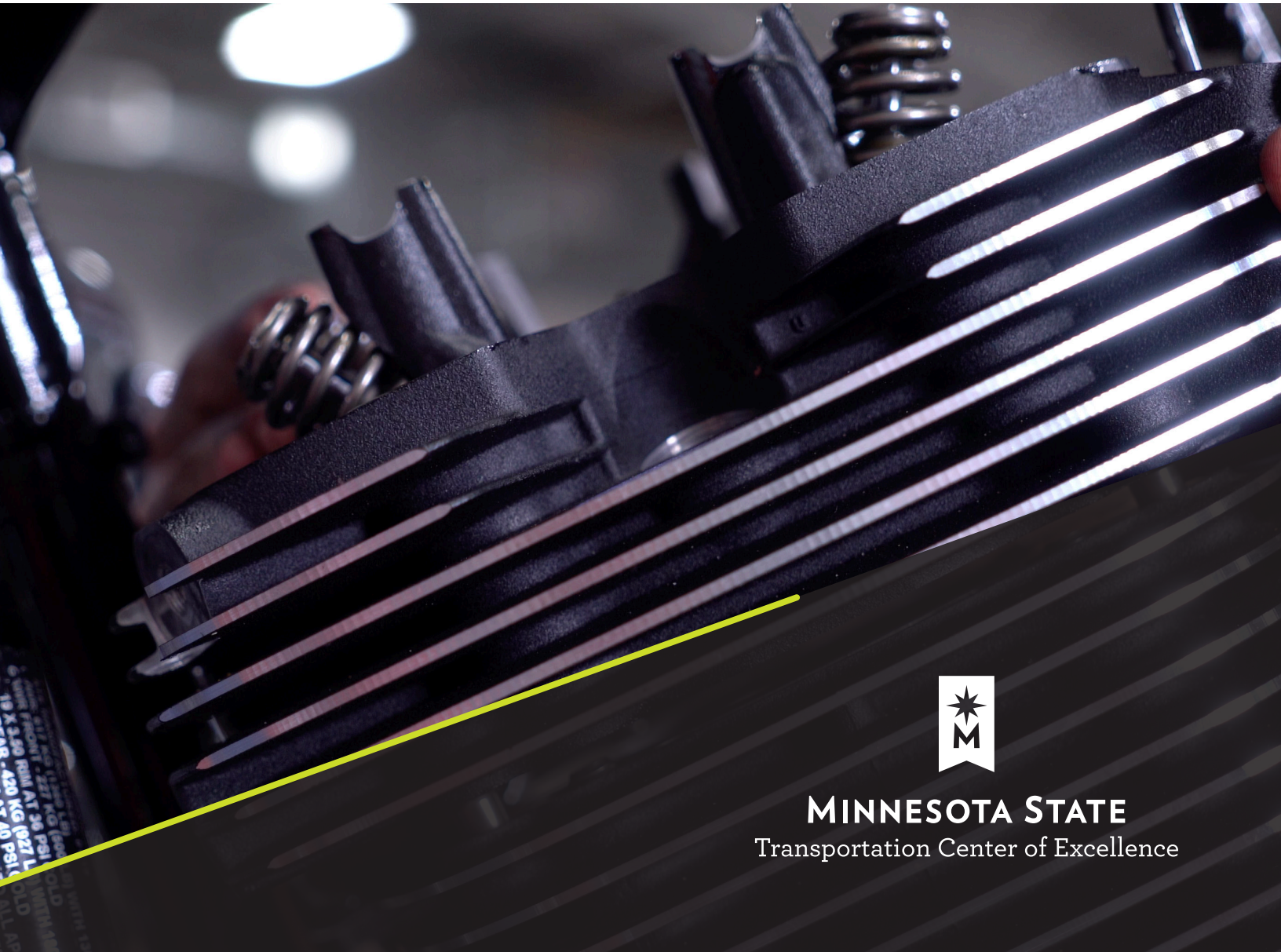
CIP Code	Program Title	Cert2	Assc	Assc+	**Total**
49.0202	Construction/Heavy Equipment/Earthmoving Equipment Operation	0	0	17	**17**
47.0605	Diesel Mechanics Technology/Technician	47	50	15	**112**
47.0613	Medium/Heavy Vehicle and Truck Technology/Technician	7	36	22	**65**
1.0201	Agricultural Mechanization, General	0	0	0	**3**
1.0204	Agricultural Power Machinery Operation	0	0	0	**0**
1.0205	Agricultural Mechanics and Equipment/Machine Technology/ Technician	0	6	11	**17**
47.0302	Heavy Equipment Maintenance Technology/Technician	0	20	15	**35**
	Total	**54**	**86**	**54**	**194**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
Cert2 = Postsecondary award, certificate, or diploma of (at least 1 but less than 2 academic years)
Assc = Associate's degree
Assc+ = Postsecondary award, certificate, or diploma of (at least 2 but less than 4 academic years)
Bach = Bachelor's degree or equivalent

MARINE & POWERSPORTS

Demand Analysis

2021



MINNESOTA STATE
Transportation Center of Excellence

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 from industrial equipment maintenance, outdoor power equipment maintenance, and small engine, motorboat, and motorcycle mechanics, serving a variety of industries. In all, about 5,181 people work in Marine and Power Sports roles in Minnesota as of the second quarter of 2021—a -3.2% decrease (173 workers) from a year prior.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Marine and Power Sports employment is anticipated to remain relatively stable in Minnesota, rising by about 15 total jobs (0.1% annually) due to a tight talent pool, but could grow by about 211 (0.48% annually) in an optimistic forecast model. Total baseline demand for Marine and Power Sports talent is anticipated to be around 3,109 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

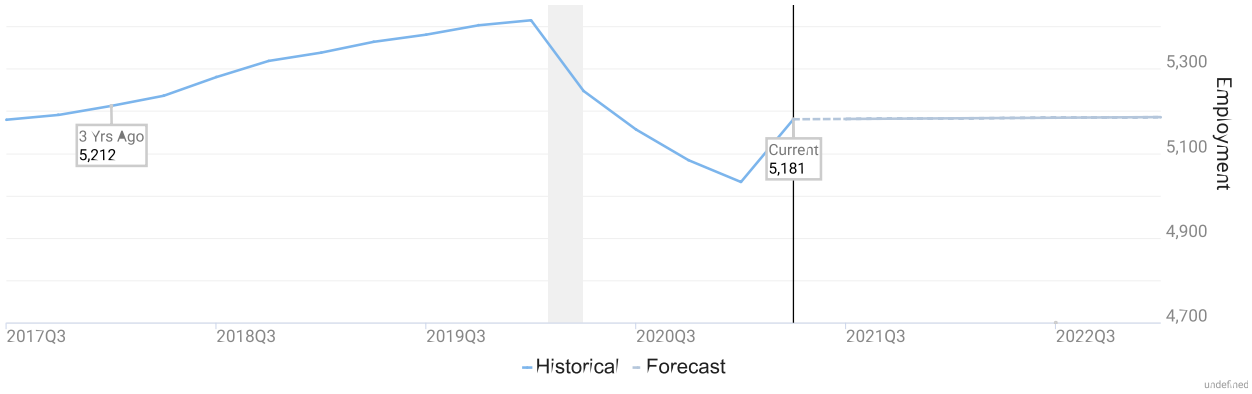
	Current						5-Year History		5-Year Baseline Forecast				
Occupation	**Empl**	**Avg Ann Wages[2]**	**LQ**	**Unempl**	**Unempl Rate**	**Online Job Ads[3]**	**Empl Change**	**Ann %**	**Total Demand**	**Exits**	**Transfers**	**Empl Growth**	**Ann % Growth**
Automotive Technology Pathway	21,614	$61,300	1.03	753	3.4%	1,263	163	0.2%	8,991	2,619	6,697	-324	-0.3%
Aviation Pathway*	8,773	$122,300	0.88	346	3.9%	210	-674	-1.5%	3,844	1,121	2,688	35	0.1%
Collision Repair Pathway	6,864	$46,900	1.14	324	4.6%	376	-307	-0.9%	3,524	1,042	2,480	2	0.0%
Diesel Equipment and Truck Pathway	12,889	$56,000	1.20	344	2.7%	487	-451	-0.7%	6,292	1,919	4,383	-10	0.0%
Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

Source: JobsEQ®
Data as of 2021Q2 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
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment in that place for queries in this analytic. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list).

As Minnesota's economy continues to sustain loss of workers due to the pandemic and overall talent shortage, and with unknown ongoing impacts of the COVID-19 pandemic on our economy and public health, employment forecasts are changing rapidly. Supply chain impacts, the drive to automation and technological innovation mean that the transportation industry, in particular, may look very different in five years from what it looks like today. The componding impacts of a tight labor market prior to the start of the pandemic and significant, rapid layoffs of non-essential workers across service industry positions creates a complex landscape of employer demand and an available workforce. 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 several specific occupations in this career pathway unless more talent decides to enter the field. Employment counts rebounded in the first two quarters of 2021, but are forecast to flatten in the years ahead. One year ago, employment had been forecast to rebound by the close of 2021 with an overall five-year forecast of 0.2% average annual employment growth; however this forecast estimate has soured, now with a baseline forecast of just 0.1% annual average growth in overall employment through the second quarter of 2026.

Marine and Power Sport Employment Forecast Under Baseline Scenario, Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Industry/Occupation Mix

The industry mix of pathway employment has shifted from 2020 to 2021, with Other Motor Vehicle Dealers rising in prominence from employing 12.2% of talent in this pathway in 2020 to being the number one employer of Marine and Power Sports talent in 2021 (13.4%). Gasoline Stations (12.2%), Automotive Repair and Maintenance (11.2%), and Automobile Dealers (8.2%) are the next-highest employers of talent in this pathway, also forecasting the highest total demand for talent over the next five years.

Top Industry Distribution for Automotive Technology Pathway Occupations in Minnesota

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4412	Other Motor Vehicle Dealers	13.4%	693	$44,100	141	215	16	373
4471	Gasoline Stations	12.2%	632	$28,200	134	313	-24	423
8111	Automotive Repair and Maintenance	11.2%	580	$29,400	131	305	15	451
4411	Automobile Dealers	8.2%	426	$32,300	94	220	2	316
4523	General Merchandise Stores, including Warehouse Clubs and Supercenters	5.4%	279	$30,100	60	141	-4	197
4442	Lawn and Garden Equipment and Supplies Stores	4.6%	240	$43,500	49	75	7	132
7139	Other Amusement and Recreation Industries	4.3%	221	$38,200	47	83	12	143
8114	Personal and Household Goods Repair and Maintenance	4.1%	215	$43,500	41	62	-10	93
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3.3%	172	$67,900	15	60	1	76
4522	Department Stores	2.5%	129	$30,100	28	65	-2	91
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	2.2%	113	$47,700	20	34	-3	51
4451	Grocery Stores	2.1%	107	$30,000	23	55	0	78
5617	Services to Buildings and Dwellings	1.6%	81	$42,000	17	25	3	44
3344	Semiconductor and Other Electronic Component Manufacturing	1.5%	78	$68,400	7	28	1	36
9211	Executive, Legislative, and Other General Government Support	1.2%	60	$52,900	9	23	1	32
4413	Automotive Parts, Accessories, and Tire Stores	1.2%	60	$31,800	13	29	0	43
2382	Building Equipment Contractors	1.1%	59	$63,400	5	21	0	26
4441	Building Material and Supplies Dealers	1.1%	57	$39,700	11	17	0	28
8112	Electronic and Precision Equipment Repair and Maintenance	0.8%	40	$59,400	4	15	3	22
3221	Pulp, Paper, and Paperboard Mills	0.8%	39	$70,600	3	13	-3	13
n/a	All Others	17.4%	899	n/a	111	331	-6	437

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.

Pathway Detail

Of all occupations found in the Marine and Power Sports pathway, Motorcycle Mechanics are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall (Outdoor Power Equipment and Small Engine

Mechanics to a lesser degree). On average, Marine and Power Sports careers pay about $41,900 per year (up from $40,900 last year)—well below the average wage statewide across all positions.

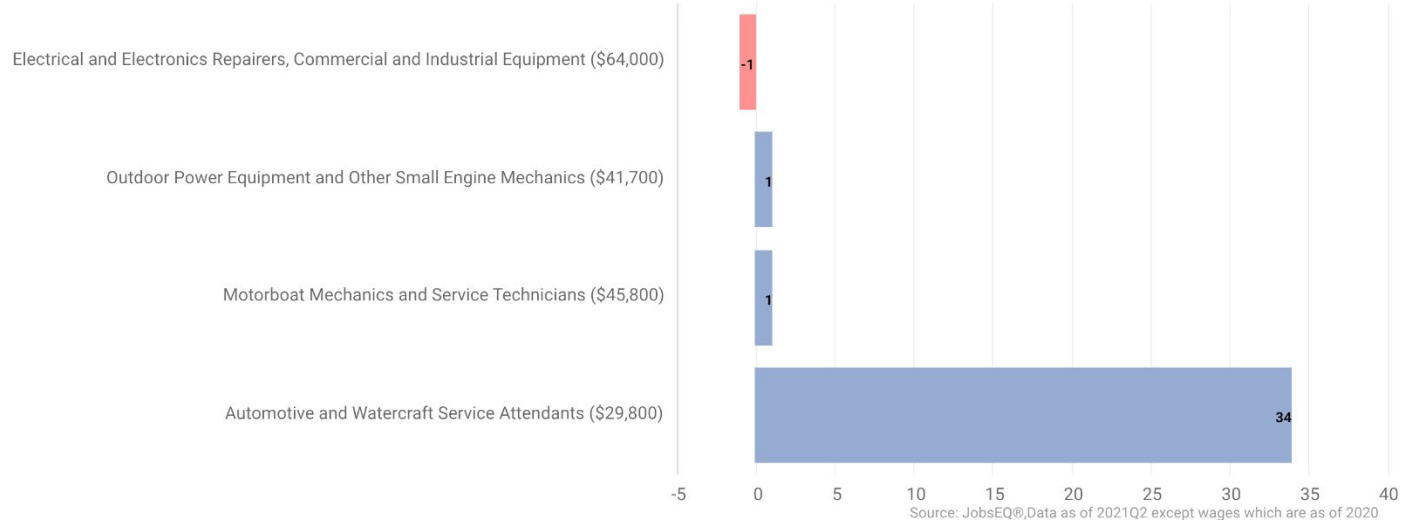
Marine and Power Sports Pathway in Minnesota – Baseline Forecast, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
53-6031	Automotive and Watercraft Service Attendants	2,441	$30,000	1.07	155	6.1%	2	7	0.3%	1,780	535	1,252	-6	-0.1%
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	1,054	$66,800	1.02	61	5.7%	40	-65	-5.8%	455	89	368	-2	0.0%
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	781	$42,000	1.13	75	8.9%	11	-14	-1.8%	405	158	237	10	0.3%
49-3051	Motorboat Mechanics and Service Technicians	501	$44,000	1.06	46	8.4%	5	-4	-0.9%	258	101	152	6	0.2%
49-3052	Motorcycle Mechanics	381	$45,300	1.23	35	8.5%	n/a	13	3.7%	200	77	116	7	0.3%
53-5022	Motorboat Operators	23	$57,100	0.47	2	7.2%	n/a	-3	-12.7%	11	3	8	0	0.0%
	Marine and Power Sports Pathway	**5,181**	**$41,900**	**1.07**	**373**	**6.8%**	**58**	**-67**	**-1.3%**	**3,109**	**963**	**2,131**	**15**	**0.1%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

Source: JobsEQ®
Data as of 2021Q2 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
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment in that place for queries in this analytic. Due to alternative county-assignment algorithms, ad counts in this analytic may not match that shown in RTI (nor in the popup window ad list).

By 2026, Minnesota may see a growing shortage of Electrical and Electronics Repairers (shown in red below). The estimated annual shortage of Motorboat Mechanics and Service Technicians and Motorcycle Mechanics have improved slightly since 2020 estimates.

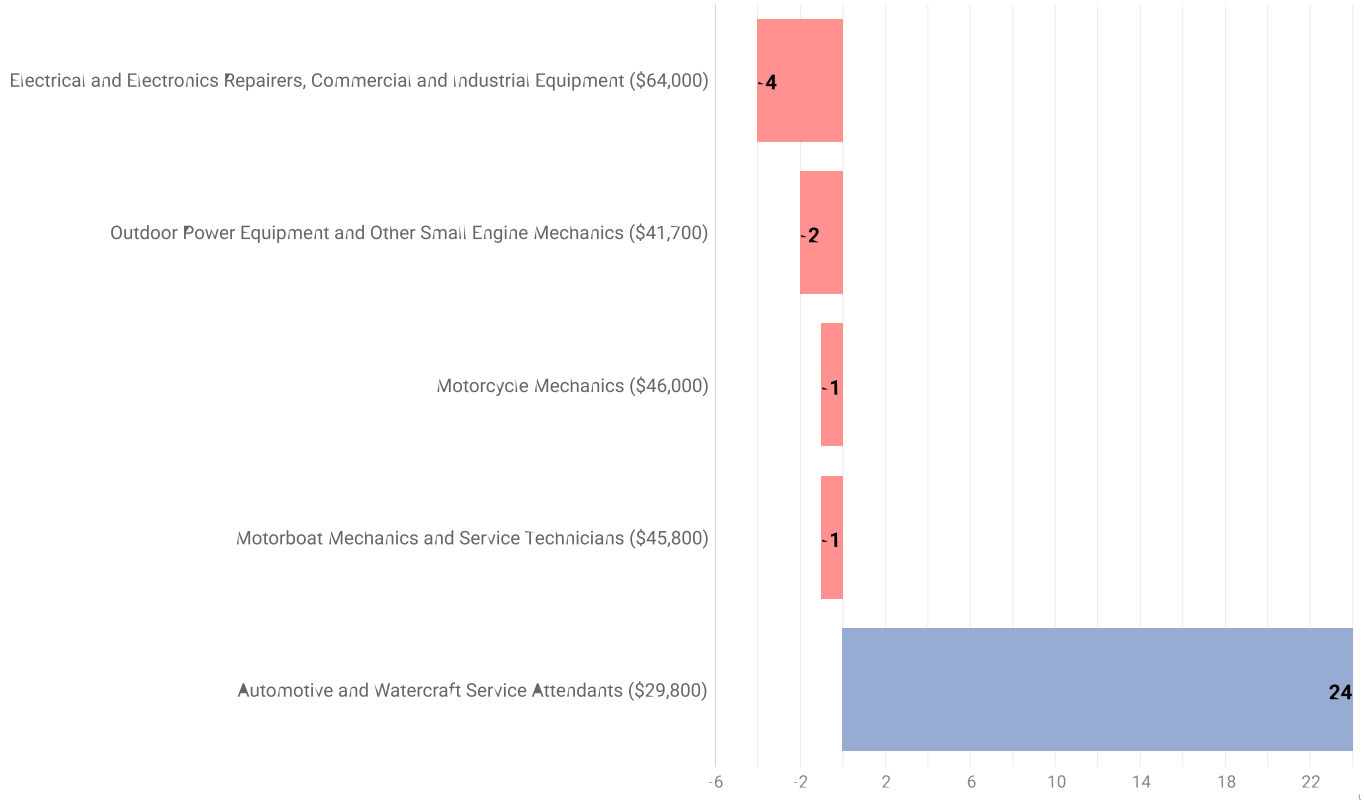
Estimated Occupation Gaps over Five Years in Minnesota



Looking out the next ten years, four occupations in the Marine and Power Sports pathway are anticipated to experience talent shortages. The long-term shortage of Electrical and Electronics Repairers has worsened from estimates in 2020.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Estimated Occupation Gaps over Ten Years in Minnesota



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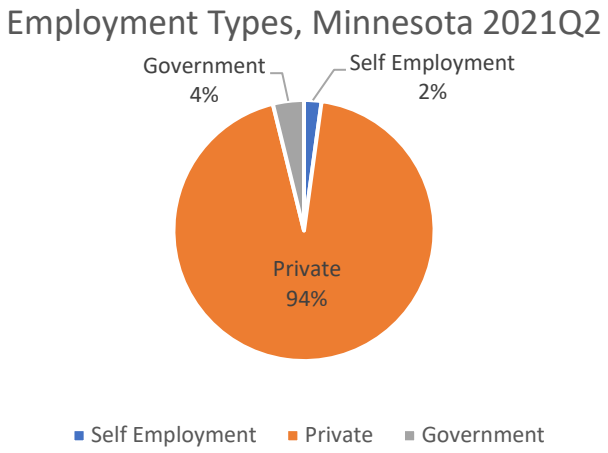
Employment Types

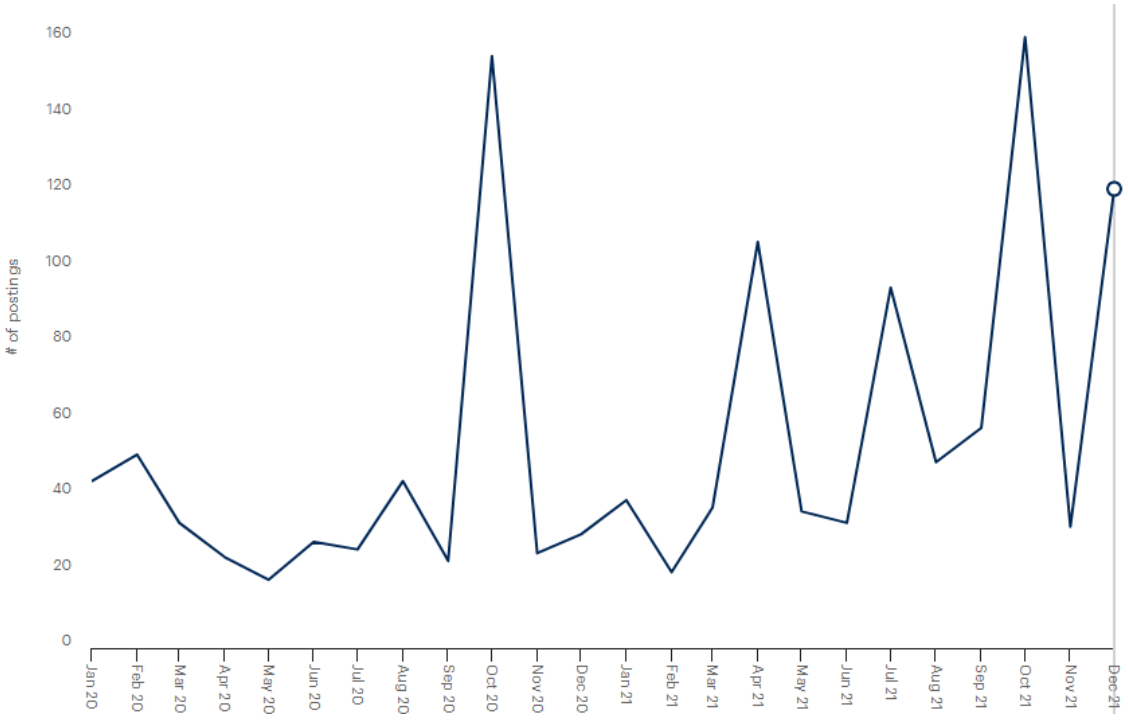
About 94% of people employed in Marine and Power Sports careers in Minnesota work for private employers, while an estimated 2% are self-employed. The remaining 4% work for state, federal, or local government entities.



Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Marine and Power Sports roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 788 new jobs advertised in Marine and Power Sports during this time frame, an increase of 57% from the prior 12-month period (2020). The total share of posted positions advertised by staffing and temp agencies in the Marine and Power Sports pathway decreased to 5% in 2021 compared to 11% of postings in 2020.

Volume of Career Pathway Online Job Postings in 2020 and 2021



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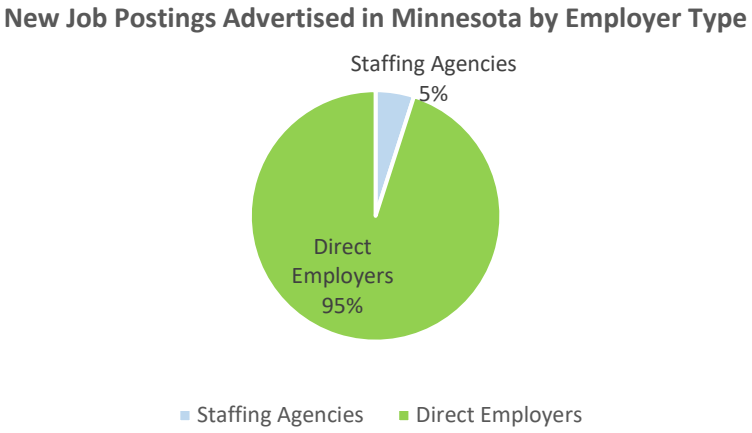
Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	Walmart	49%
2.	Lube-Tech Services, LLC	0%
3.	Xcel Energy	583%
4.	Army	31%
5.	Signature Flight Support	0%
6.	PENSKE	-25%
7.	Neighbor Storage	0%
8.	Park Industries	0%
9.	Trudell Trailers	0%
10.	John Deere	0%



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

1. Troubleshooting (+50%)
2. Communication (+42%)
3. Relationships (+294%)
4. Programming (+230%)
5. Testing (+3%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Operations (-3%)
2. Instrumentation (+163%)
3. Microsoft Office Suite (+300%)
4. Scheduling (+927%)
5. Automation (+193%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

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

1. Class D Driver's License (+58%)
2. NICET Certification (+767%)
3. Class A Commercial Driver's License (-44%)
4. Army Training – Radar Repairer (+300%)
5. Security Clearance (-50%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from the Economic Development and Employer Planning System and has been put together by the Minnesota State Transportation Center of Excellence.

Marine and Powersports Program Completers by Degree Level in Minnesota | 2019 - 2020

CIP Code	Program Title	Cert2	Assc	Assc+	**Total**
47.0606	Small Engine Mechanics and Repair Technology/Technician	10	0	6	**16**
47.0616	Marine Maintenance/Fitter and Ship Repair Technology/Technician	0	11	9	**20**
47.0611	Motorcycle Maintenance and Repair Technology/Technician	0	0	0	**0**
	Total	**10**	**11**	**15**	**36**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
Cert2 = Postsecondary award, certificate, or diploma of (at least 1 but less than 2 academic years)
Assc = Associate's degree
Assc+ = Postsecondary award, certificate, or diploma of (at least 2 but less than 4 academic years)
Bach = Bachelor's degree or equivalent

TRUCK DRIVING

Demand Analysis

2021

MINNESOTA STATE
Transportation Center of Excellence

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. In all, about 95,261 people work in Truck Driving roles in Minnesota as of the second quarter of 2021—a -4.0% decrease (-3,961 workers) from a year prior.

Overall employment in Minnesota has declined by nearly -92,000 workers (-3.1%) between the second quarter of 2020 and 2021, and the five-year forecast dropped from 49,053 expansion of employment over five years to just 31,051 from 2021 through 2026 as of the most current baseline forecasts, or about 0.2% average annual growth. An optimistic forecast assuming reduction in labor force exits, economic conditions improving, and lessening impacts of COVID-19 on key industries forecasts up to 1.2% average annual growth over the next five years, or a total of 172,340 people newly employed by 2026. During this time frame, Truck Driving employment is anticipated to rise respectably in Minnesota by about 1,293 total jobs (0.3% annually) due to a tight talent pool, but could grow by about 6,179 (1.3% on average annually) in an optimistic forecast model. Total baseline demand for Truck Driving talent is anticipated to be around 57,082 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota – Baseline Forecast, 2021Q2[1]

	Current						5-Year History		5-Year Baseline Forecast				
Occupation	**Empl**	**Avg Ann Wages[2]**	**LQ**	**Unempl**	**Unempl Rate**	**Online Job Ads[3]**	**Empl Change**	**Ann %**	**Total Demand**	**Exits**	**Transfers**	**Empl Growth**	**Ann % Growth**
Automotive Technology Pathway	21,614	$61,300	1.03	753	3.4%	1,263	163	0.2%	8,991	2,619	6,697	-324	-0.3%
Aviation Pathway*	8,773	$122,300	0.88	346	3.9%	210	-674	-1.5%	3,844	1,121	2,688	35	0.1%
Collision Repair Pathway	6,864	$46,900	1.14	324	4.6%	376	-307	-0.9%	3,524	1,042	2,480	2	0.0%
Diesel Equipment and Truck Pathway	12,889	$56,000	1.20	344	2.7%	487	-451	-0.7%	6,292	1,919	4,383	-10	0.0%
Marine and Power Sports Pathway	5,181	$41,900	1.07	373	6.8%	58	80	0.3%	3,109	963	2,131	15	0.1%
Truck Driving Pathway	95,261	$44,600	0.96	6,493	6.60%	8,796	-843	-0.2%	57,082	22,543	33,247	1,293	0.3%
Transportation Occupations	**147,533**	**$51,600**	**0.99**	**8,573**	**5.6%**	**11,284**	**-1,891**	**-0.3%**	**81,732**	**29,859**	**50,858**	**1,015**	**0.1%**
Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-83,089**	**-0.6%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

*This pathway includes Drone Technology careers as of 2021, which were not included in the 2020 estimates of career pathway employment or demand.

Source: JobsEQ®
Data as of 2021Q2 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
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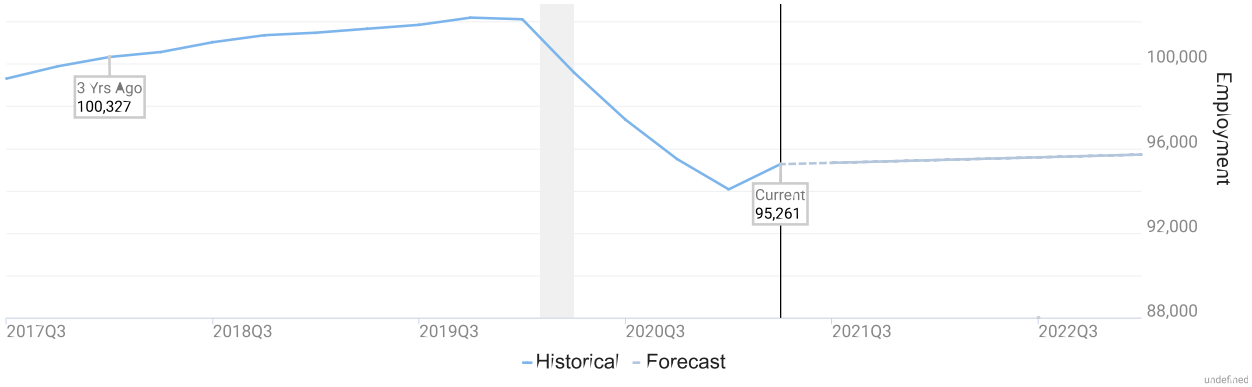
As Minnesota's economy continues to sustain loss of workers due to the pandemic and overall talent shortage, and with unknown ongoing impacts of the COVID-19 pandemic on our economy and public health, employment forecasts are changing rapidly. Supply chain impacts, the drive to automation and technological innovation mean that the transportation industry, in particular, may look very different in five years from what it looks like today. The componding impacts of a tight labor market prior to the start of the pandemic and significant, rapid layoffs of non-essential workers across service industry positions creates a complex landscape of employer demand and an available workforce. 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. The pathway forecast has soured since estimates in late 2020, with a baseline forecast of only 0.3% average annual growth in employment by the second quarter of 2026 as compared to 0.6% estimated one year ago.

Truck Driving Employment Forecast Under Baseline Scenario, Minnesota



Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Industry/Occupation Mix

Truck Driving talent is primarily concentrated in the General Freight Trucking industry (15.7%, up 0.8 percentage points) and School and Employee Bus Transportation (7.4%, down 1.6 percentage points). 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

		CURRENT			5-YEAR DEMAND			
NAICS Code	Industry Title	% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4841	General Freight Trucking	15.7%	14,916	$50,400	2,979	5,347	-295	8,032
4854	School and Employee Bus Transportation	7.4%	7,040	$41,500	2,535	1,802	93	4,430
4921	Couriers and Express Delivery Services	5.6%	5,311	$60,100	1,133	2,025	251	3,409
4842	Specialized Freight Trucking	5.0%	4,751	$50,300	963	1,731	-16	2,679
7225	Restaurants and Other Eating Places	3.9%	3,746	$27,000	776	1,378	31	2,185
4244	Grocery and Related Product Merchant Wholesalers	3.6%	3,404	$41,900	685	1,271	36	1,992
6111	Elementary and Secondary Schools	3.2%	3,037	$38,600	1,053	771	-29	1,795
4931	Warehousing and Storage	3.0%	2,903	$48,800	514	1,215	158	1,887
4853	Taxi and Limousine Service	2.5%	2,372	$33,800	906	658	213	1,777
4543	Direct Selling Establishments	2.1%	2,048	$43,800	401	716	-93	1,024
4922	Local Messengers and Local Delivery	2.1%	2,026	$43,700	504	898	446	1,849
4859	Other Transit and Ground Passenger Transportation	2.1%	2,015	$36,400	810	570	241	1,620
4851	Urban Transit Systems	2.0%	1,946	$44,800	756	489	32	1,277
5613	Employment Services	1.8%	1,727	$42,000	307	685	24	1,016
9211	Executive, Legislative, and Other General Government Support	1.5%	1,413	$42,900	489	389	25	904
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	1.5%	1,403	$47,100	272	498	-54	715
2373	Highway, Street, and Bridge Construction	1.4%	1,330	$52,200	274	495	23	792
5621	Waste Collection	1.3%	1,243	$49,900	269	487	90	846
4413	Automotive Parts, Accessories, and Tire Stores	1.1%	1,069	$28,300	219	392	5	616
2389	Other Specialty Trade Contractors	1.1%	1,050	$50,700	217	391	21	630
n/a	All Others	32.0%	30,513	n/a	6,454	11,001	-91	17,364

Source: JobsEQ®
Data as of 2021Q2 except wages which are as of 2020. 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.

Pathway Detail

Of all occupations found in the Truck Driving pathway, Passenger Vehicle Drivers are uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Automotive Technology careers pay about $44,600 per year (up from $43,000 last year)—about $14,300 below the average wage statewide across all positions.

Truck Driving Pathway in Minnesota – Baseline Forecast, 2021Q2[1]

		Current						1-Year History		5-Year Baseline Forecast				
SOC	Occupation	Empl	Avg Ann Wages[2]	LQ	Unempl	Unempl Rate	Online Job Ads[3]	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
53-3032	Heavy and Tractor-Trailer Truck Drivers	37,222	$51,000	0.98	1,579	4.2%	3,946	-358	-1.0%	21,000	7,592	13,518	-111	-0.1%
53-3033	Light Truck Drivers	17,922	$42,800	0.87	743	4.1%	1,373	-291	-1.6%	11,036	3,773	6,718	545	0.6%
53-3058	Passenger Vehicle Drivers, Except Bus Drivers, Transit and Intercity	16,650	$38,500	1.17	2,826	14.8%	1,111	-2,598	-13.5%	11,094	6,102	4,363	629	0.7%
53-7051	Industrial Truck and Tractor Operators	10,231	$46,000	0.78	609	5.8%	324	-223	-2.1%	5,876	1,542	4,265	70	0.1%
53-3031	Driver/Sales Workers	8,930	$31,300	1.00	385	4.3%	2,210	-333	-3.6%	5,155	1,840	3,276	39	0.1%
53-3052	Bus Drivers, Transit and Intercity	4,119	$44,100	1.02	345	7.9%	34	-531	-11.4%	2,813	1,650	1,036	127	0.6%
53-7121	Tank Car, Truck, and Ship Loaders	188	$45,100	0.72	6	3.0%	10	-1	-0.7%	109	44	71	-6	-0.6%
	Truck Driving Pathway	**95,261**	**$44,600**	**0.96**	**6,493**	**6.6%**	**8,796**	**-4,335**	**-4.4%**	**57,082**	**22,543**	**33,247**	**1,293**	**0.3%**
	Total - All Occupations	**2,920,850**	**$58,900**	**1.00**	**145,886**	**4.9%**	**181,745**	**-91,909**	**-3.1%**	**1,672,986**	**625,772**	**1,016,164**	**31,051**	**0.2%**

Source: JobsEQ®
Data as of 2021Q2 unless noted otherwise
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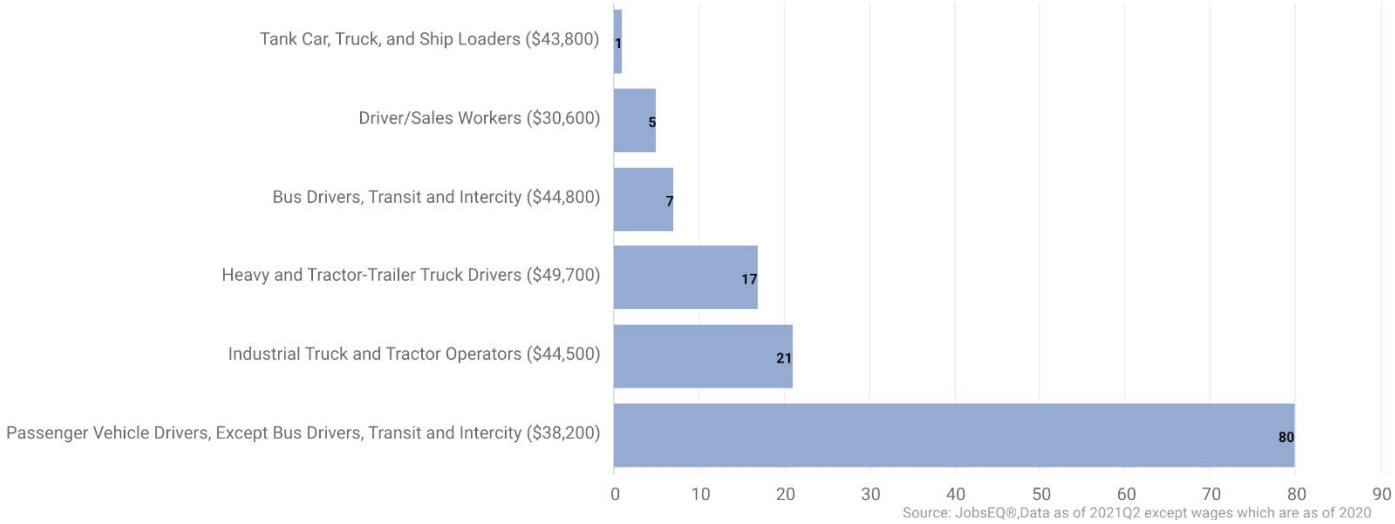
By 2026, no occupations in the Truck Driving pathway are forecast to have critical talent shortages in the short-term, with all occupations having an estimated statewide talent supply that is sufficient or slightly greater than the employer demand for these roles. However, the location of talent in relation to opportunities available may not be fully aligned.

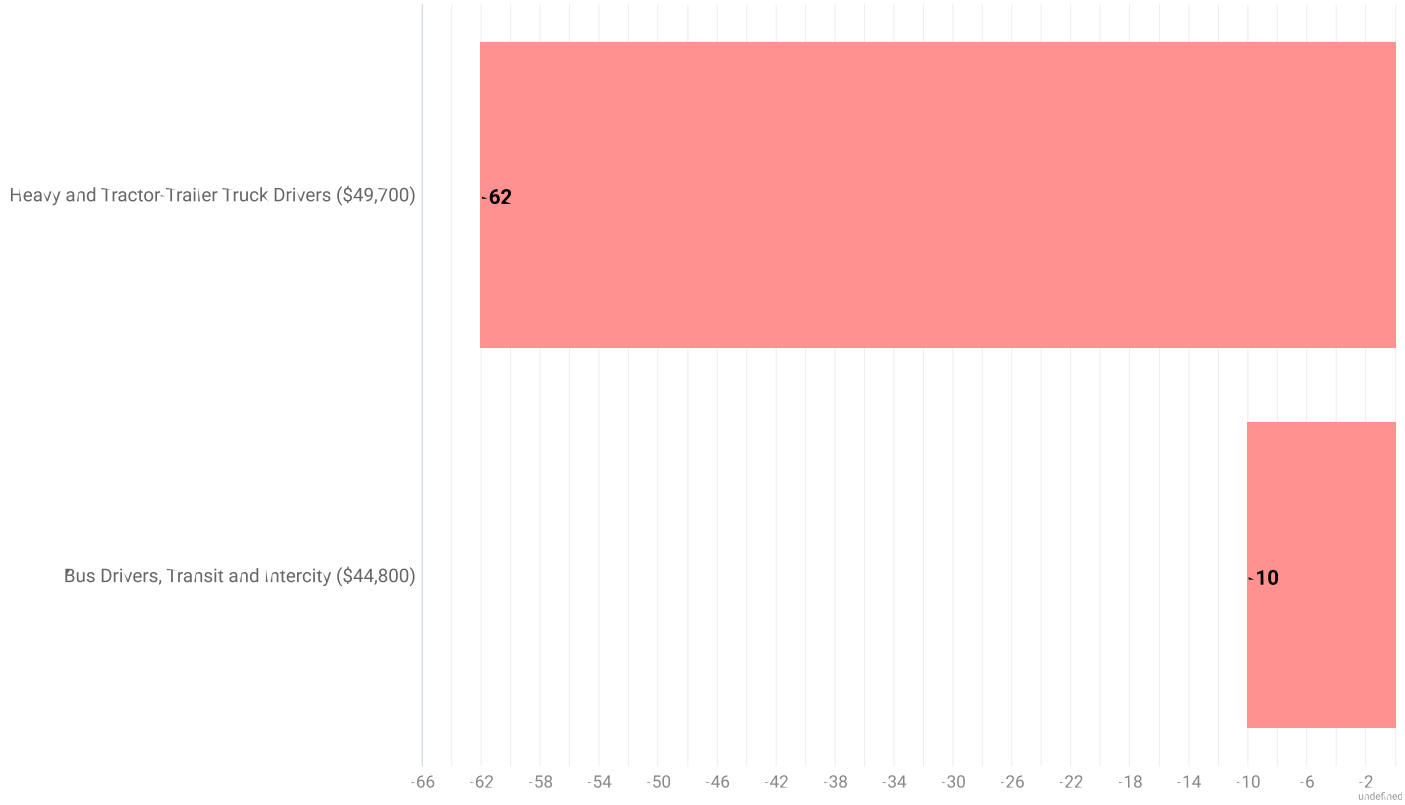
Estimated Occupation Gaps over Five Years in Minnesota (blue indicates talent surplus)



Looking out the next ten years, two occupations in the Truck Driving pathway are anticipated to experience talent shortages. The shortage of Heavy and Tractor-Trailer Truck Drives has improved moderately from estimates in 2020, while shortages of Transit and Inter-City Bus Drivers has increased moderately.

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Estimated Occupation Gaps over Ten Years in Minnesota (red indicates talent shortage)



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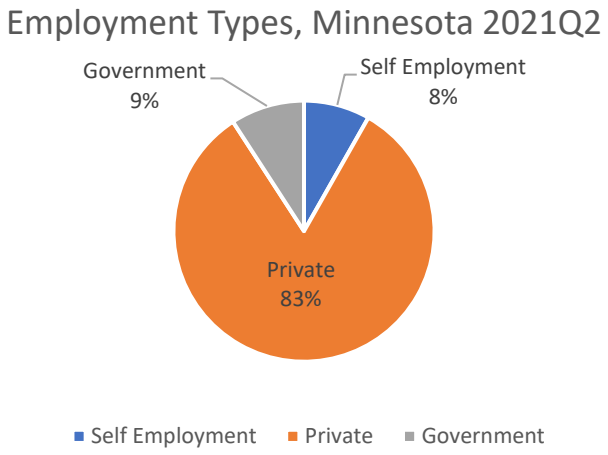
Employment Types

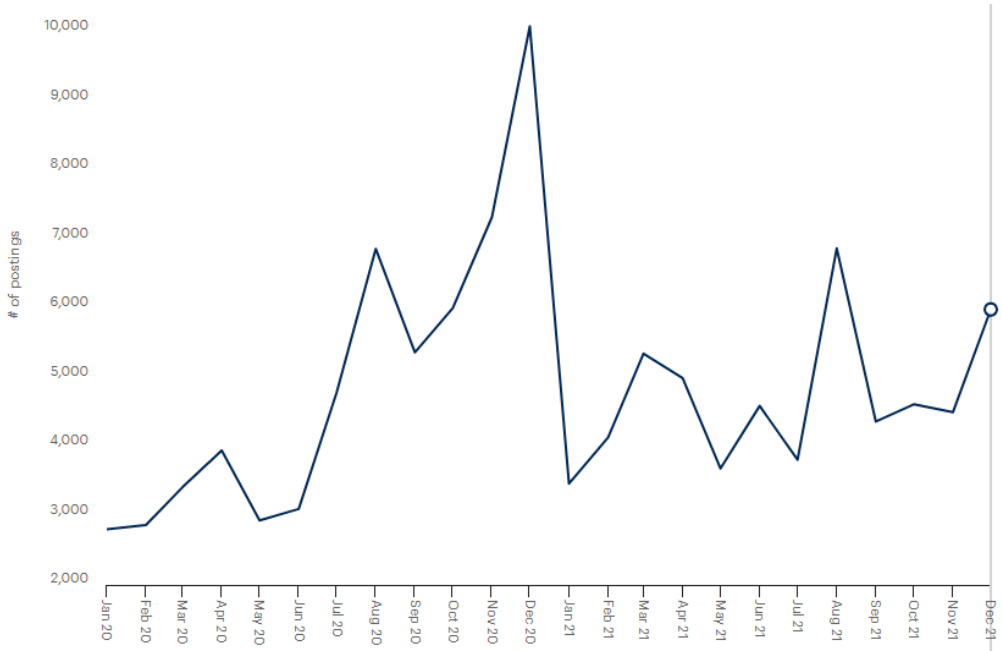
About 83% of people employed in Truck Driving roles in Minnesota work for private employers, while an estimated 8% are self-employed (a slight increase from 6% in 2020). The remaining 9% work for state, federal, or local government entities.



Job Posting Trends

Data in this section focuses on jobs newly advertised between January 1 and December 31, 2021 in Truck Driving roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 56,395 new jobs advertised in Truck Driving roles during this time frame, a decrease of -5% from the prior 12-month period (2020). Volume of posted positions advertised by staffing and temp agencies in the Truck Driving pathway has remained consistent to trends in 2019 and 2020.

Volume of Career Pathway Online Job Postings in 2020 and 2021



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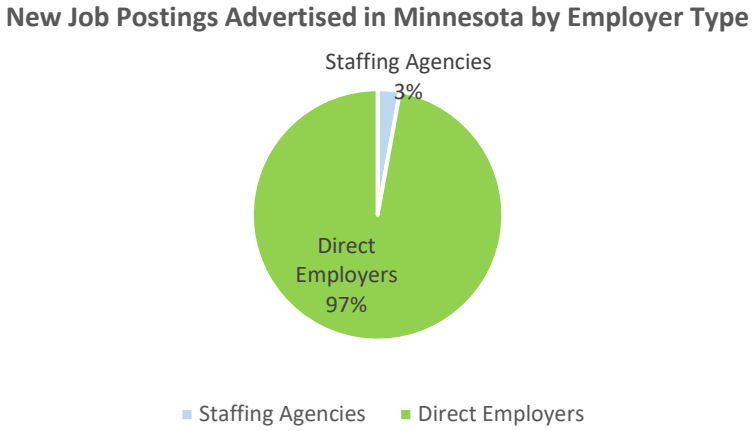
Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year

	Employer	Percent Change between 2020 and 2021
1.	YRC Worldwide Inc.	313%
2.	C.R. England. Inc.	11%
3.	Hogan Transports	82%
4.	U.S. Xpress	-65%
5.	goPuff	296%
6.	Koch Trucking	-14%
7.	Shipt	-67%
8.	Amazon	28%
9.	Carvana	7,680%
10.	Dart Transit	-7%



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

1. Dedication (+9%)
2. Lifting (+7%)
3. Communication (+5%)
4. Courtesy (+4%)
5. Relationship-Building (+4%)

Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year

1. Tractor-Trailers (+18%)
2. Scooters (+13%)
3. Customer Service (+10%)
4. Straight Trucks (+6%)
5. Forklifts (+5%)

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

1. Class A Commercial Driver's License (+58%)
2. Class D Driver's License (+42%)
3. HAZMAT (+12%)
4. DOT Medical Card (+8%)
5. Class B Commercial Driver's License (+6%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, http://www.chmuraecon.com/jobseq/. Job Posting Trends section uses data from Gartner TalentNeuron Plan, accessed 1/10/2022 at talentneuronplan.gartner.com

Supply

This supply section is a new addition to the 2021 Demand Analysis. This data provides insight on the number of graduates Minnesota is training to fill the workforce. The data below is from CAREERwise and has been put together by the Minnesota State Transportation Center of Excellence.

Truck Driving Program Completers by Degree Level in Minnesota | 2019

CIP Code	Program Title	Cert1	**Total**
49.0205	Truck and Bus Driver/Commercial Vehicle Operator and Instructor	131	**131**
	Total	**131**	**131**

Cert1 = Postsecondary award, certificate, or diploma of (less than 1 academic year)
Cert2 = Postsecondary award, certificate, or diploma of (at least 1 but less than 2 academic years)
Assc = Associate's degree
Assc+ = Postsecondary award, certificate, or diploma of (at least 2 but less than 4 academic years)
Bach = Bachelor's degree or equivalent

FAQ

What is a location quotient?

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

What is a cluster?

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

What is 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 Director of Strategic Research Erin Olson at erin@realtimetalentmn.org or visit the RealTime Talent website at www.realtimetalent.org

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