

# ***AUTOMOTIVE TECHNOLOGY***

**Demand Analysis**  
**2021**



**MINNESOTA STATE**  
Transportation Center of Excellence



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

---

**January 2022**

Introduction and Sector Overview.....2

Industry/Occupation Mix .....4

Pathway Detail .....4

Employment Types .....7

Job Posting Trends .....7

    Top Employers by Volume of New Job Postings in 2021, With Change from Prior Year ..... 8

    Top Skills by Volume of New Job Postings, With Change from Prior Year ..... 8

    Top Knowledge Areas, Tools, and Tech by Volume of New Job Postings, With Change from Prior Year..... 8

    Top Certifications by Volume of New Job Postings, With Change from Prior Year ..... 9

FAQ ..... 10

# 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<sup>1</sup>**

Occupation	Current						5-Year History		5-Year Baseline Forecast				
	Empl	Avg Ann Wages <sup>2</sup>	LQ	Unempl	Unempl Rate	Online Job Ads <sup>3</sup>	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%
<b>Transportation Occupations</b>	<b>147,533</b>	<b>\$51,600</b>	<b>0.99</b>	<b>8,573</b>	<b>5.6%</b>	<b>11,284</b>	<b>-1,891</b>	<b>-0.3%</b>	<b>81,732</b>	<b>29,859</b>	<b>50,858</b>	<b>1,015</b>	<b>0.1%</b>
<b>Total - All Occupations</b>	<b>2,920,850</b>	<b>\$58,900</b>	<b>1.00</b>	<b>145,886</b>	<b>4.9%</b>	<b>181,745</b>	<b>-83,089</b>	<b>-0.6%</b>	<b>1,672,986</b>	<b>625,772</b>	<b>1,016,164</b>	<b>31,051</b>	<b>0.2%</b>

\*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.

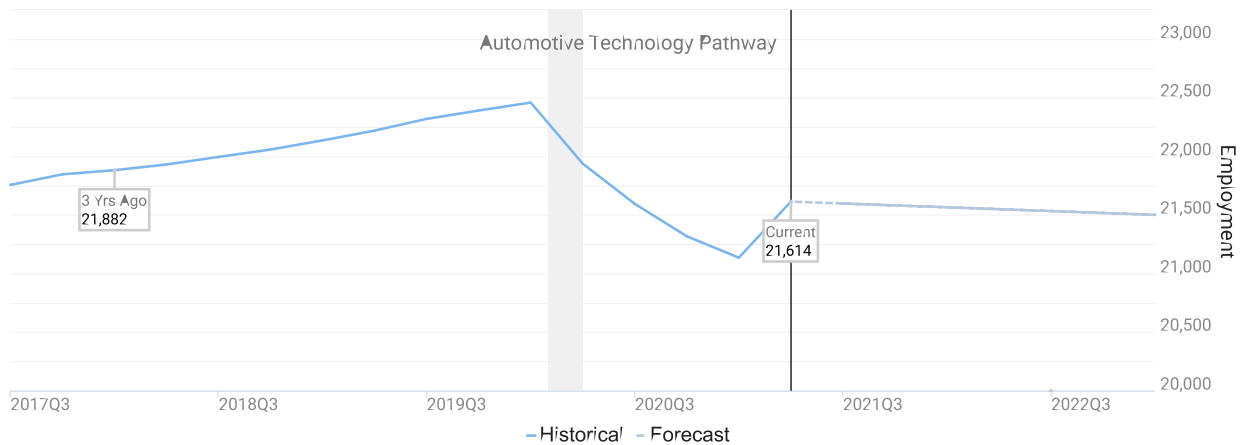
1. Data based on a four-quarter moving average unless noted otherwise.

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 compounding 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



# 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**

NAICS Code	Industry Title	CURRENT			5-YEAR DEMAND			
		% 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®  
 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 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<sup>1</sup>

SOC	Occupation	Current						1-Year History		5-Year Baseline Forecast				
		Empl	Avg Ann Wages <sup>2</sup>	LQ	Unempl	Unempl Rate	Online Job Ads <sup>3</sup>	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%
<b>Automotive Technology Pathway</b>		<b>21,614</b>	<b>\$61,300</b>	<b>1.03</b>	<b>753</b>	<b>3.4%</b>	<b>1,263</b>	<b>-324</b>	<b>-1.5%</b>	<b>8,991</b>	<b>2,619</b>	<b>6,697</b>	<b>-324</b>	<b>-0.3%</b>
<b>Total - All Occupations</b>		<b>2,920,850</b>	<b>\$58,900</b>	<b>1.00</b>	<b>145,886</b>	<b>4.9%</b>	<b>181,745</b>	<b>-91,909</b>	<b>-3.1%</b>	<b>1,672,986</b>	<b>625,772</b>	<b>1,016,164</b>	<b>31,051</b>	<b>0.2%</b>

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 2010 and represent the average for all Covered Employment

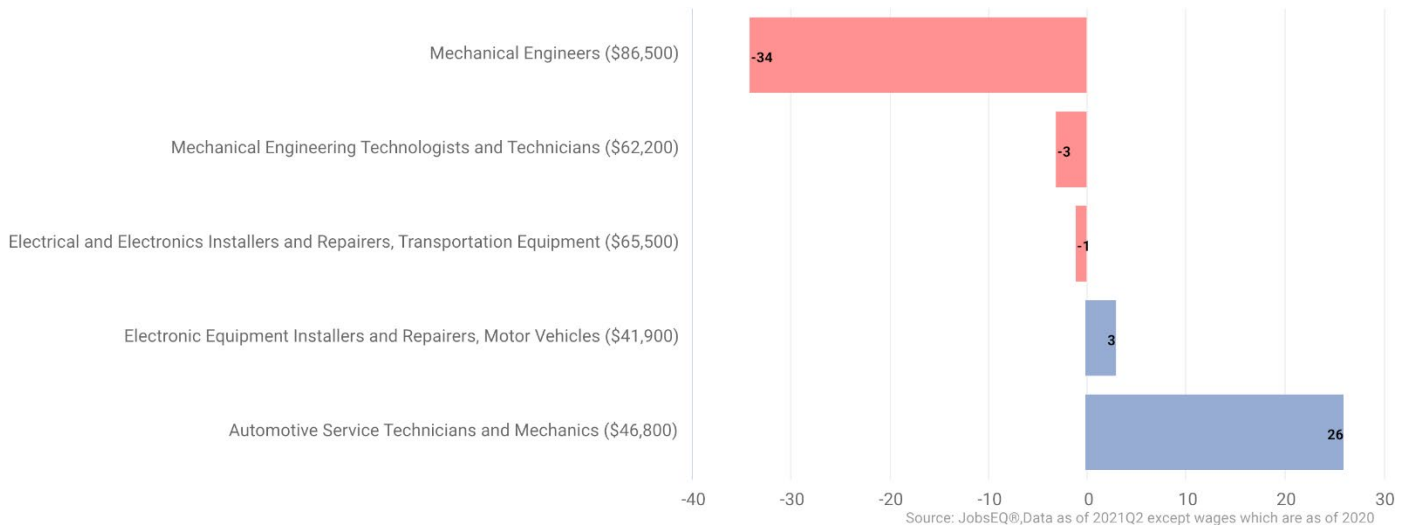
3. Data represent found online ads active within the last thirty days in the selected region; data represents a sampling rather than the complete universe of postings. Ads lacking zip code information but designating a place (city, town, etc.) may be assigned to the zip code with greatest employment 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, 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

#### Occupation Gaps

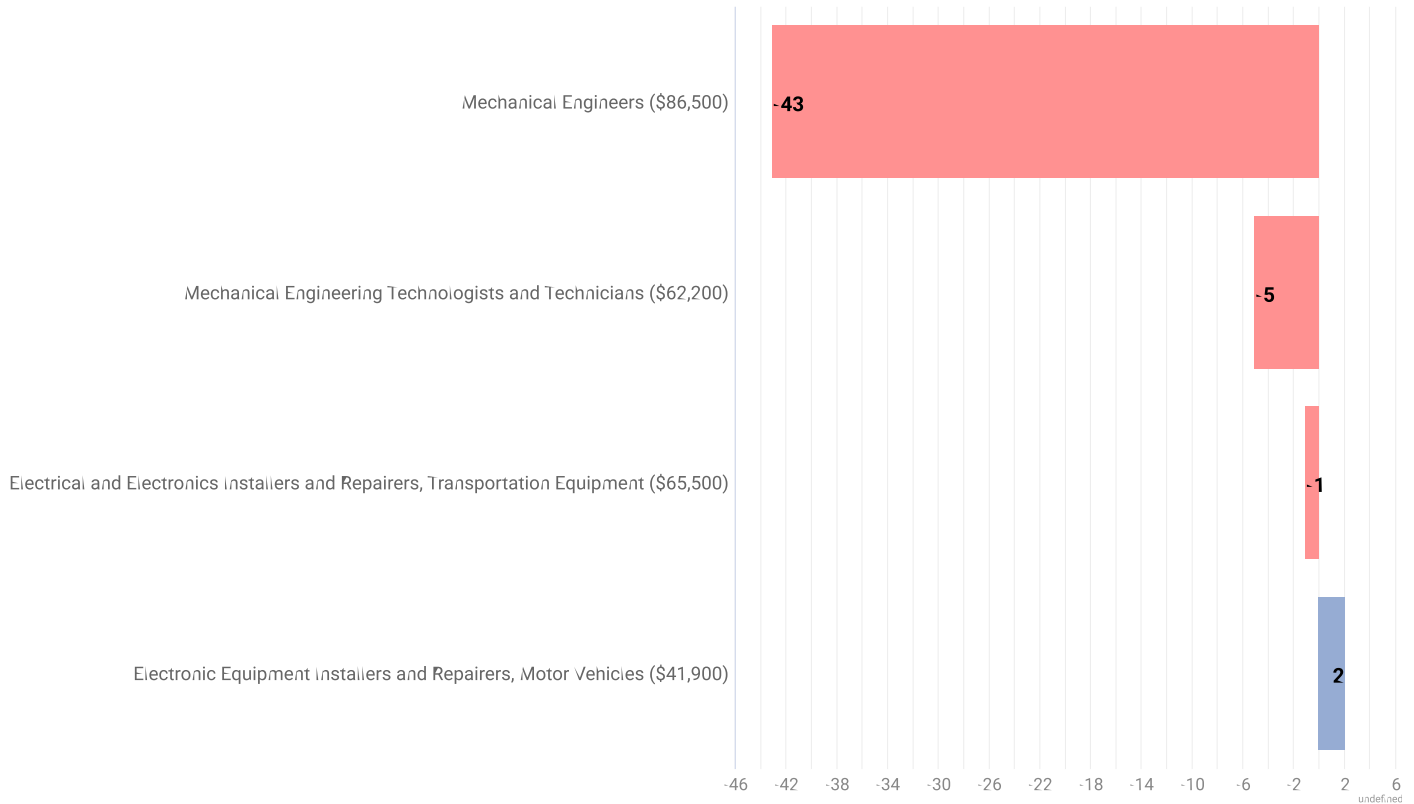
Potential Average Annual Occupation Gaps over 5 Years in Minnesota



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

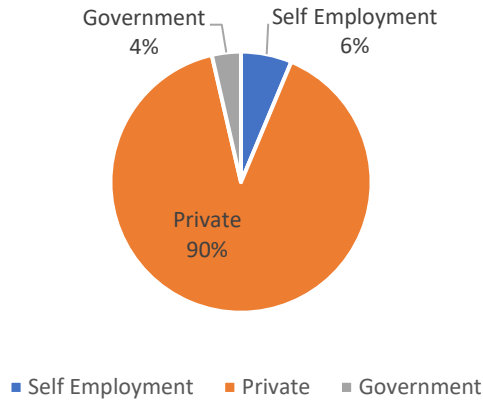




# Employment Types

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.

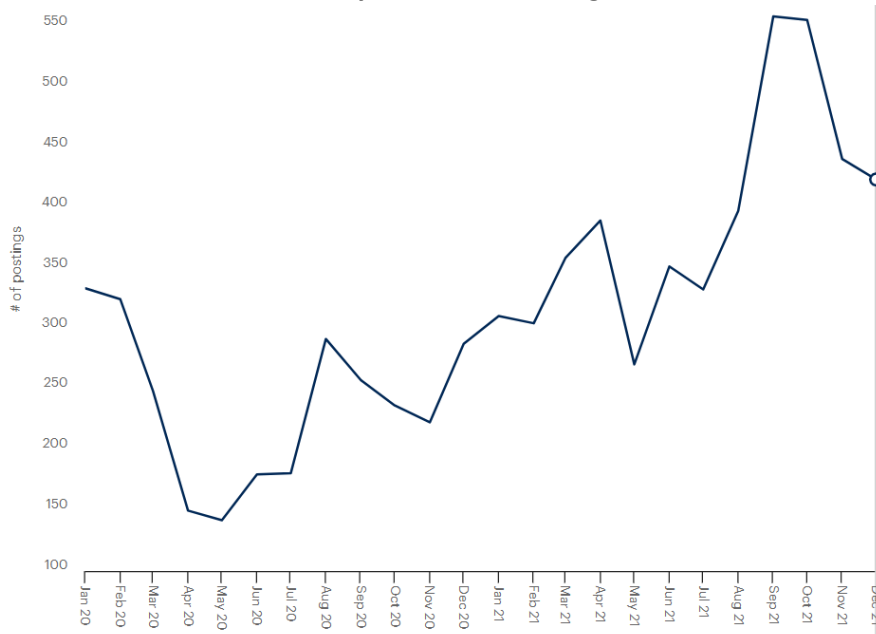
Employment Types, Minnesota 2021Q2



# 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.

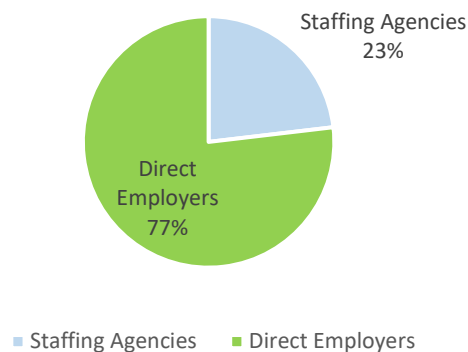
Volume of Career Pathway Online Job Postings in 2020 and 2021



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

	<b>Employer</b>	<b>Percent Change between 2020 and 2021</b>
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%

## New Job Postings Advertised in Minnesota by Employer Type



## 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%)

## 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%)

# 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
	<b>Total</b>	<b>71</b>	<b>112</b>	<b>109</b>	<b>28</b>	<b>320</b>

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@realtimentalentmn.org](mailto:erin@realtimentalentmn.org) or visit the RealTime Talent website at [www.realtimentalent.org](http://www.realtimentalent.org)