

AVIATION

Demand Analysis 2020



MINNESOTA STATE
Transportation Center of Excellence



RealTime Talent
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Introduction and Sector Overview

This report highlights the importance of the Automotive Technology career pathway for Minnesota's Transportation Industry. Professionals in Aviation work in diverse roles from piloting, air traffic controlling, and aircraft maintenance technician. In all, about 6,377 people work in Aviation roles in Minnesota as of the second quarter of 2020.

Over the next 5 years, total employment in Minnesota is projected to expand by about 49,053 jobs under official baseline forecasts to model growth beyond the initial impacts of COVID-19, or up to 89,792 in an optimistic outlook that estimates moderate economic recovery by late 2023. During this time frame, growth in Aviation jobs is anticipated to rise moderately in Minnesota by about 64 to 228 total jobs. Total demand for Aviation talent is anticipated to be around 3,250 professionals needed to fill positions due to job exits and transfers, such as retirements and job changes.

Transportation Pathways in Minnesota - COVID, 2020Q2¹

Occupation	Current						5-Year History		5-Year Forecast				
	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	45,919	\$65,800	1.03	1,713	3.7%	2,577	1,718	0.8%	21,150	6,021	14,876	253	0.1%
Collision Repair Pathway	6,880	\$46,200	1.11	371	5.2%	280	-165	-0.5%	3,732	1,061	2,519	153	0.4%
Aviation Pathway	6,377	\$94,000	0.92	157	2.5%	55	211	0.7%	3,253	868	2,158	228	0.7%
Marine and Power Sports Pathway	5,354	\$40,900	1.10	367	6.6%	47	319	1.2%	3,274	997	2,215	62	0.2%
Diesel Equipment and Truck Pathway	13,249	\$54,600	1.15	559	4.2%	396	-71	-0.1%	6,861	1,996	4,558	307	0.5%
Truck Driving Pathway	99,222	\$43,000	1.00	4,799	4.8%	6,250	5,015	1.0%	61,110	23,917	34,411	2,783	0.6%
Total - All Occupations	3,012,855	\$56,600	1.00	140,926	4.6%	125,738	48,618	0.3%	1,819,042	661,016	1,068,234	89,792	0.6%

Source: [JobsEQ®](#)

Data as of 2020Q2 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 2019 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). *NOTE: Aviation excludes Flight Attendants.

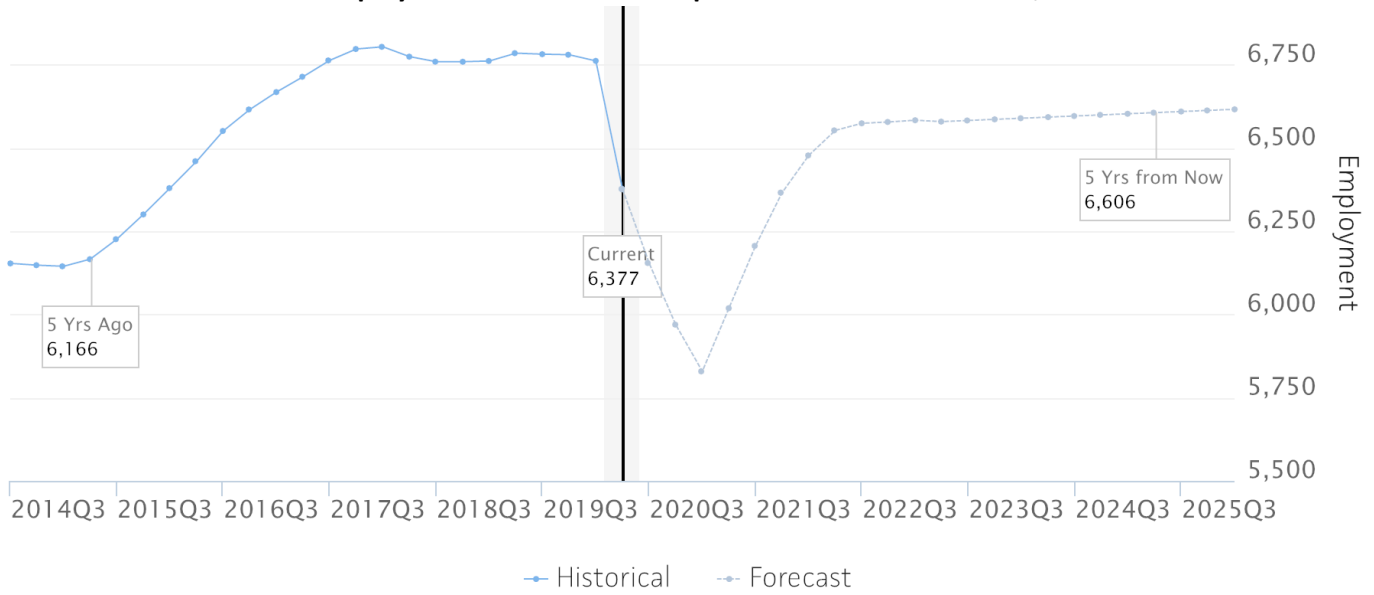
As Minnesota looks to the future recovery from the pandemic's heavy blow to our economy and public health, forecasts made today may look very different from realities seen in years to come. Supply chain impacts, the drive to automation and technological innovation mean that the transportation industry, 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 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.

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

Job Posting data from Gartner TalentNeuron, 11/1/2019 – 10/31/2020.

https://www.wantedanalytics.com/wa/counts?country=US&exclude=anonymous%2Cduplicates%2Cbulk%2Cexpired&jloc=state-24&jocc=532021%2C493011%2C532011%2C492091%2C532012%2C532022%2C512011%2C531011&methodology=new&require=&restrict=&saved_search_id=61748&t%5Btimeframe%5D=f2019-11-01-2020-10-31&timeframe=f2019-11-01-2020-10-31

Aviation Employment Forecast Under Optimistic COVID-19 Scenario, Minnesota

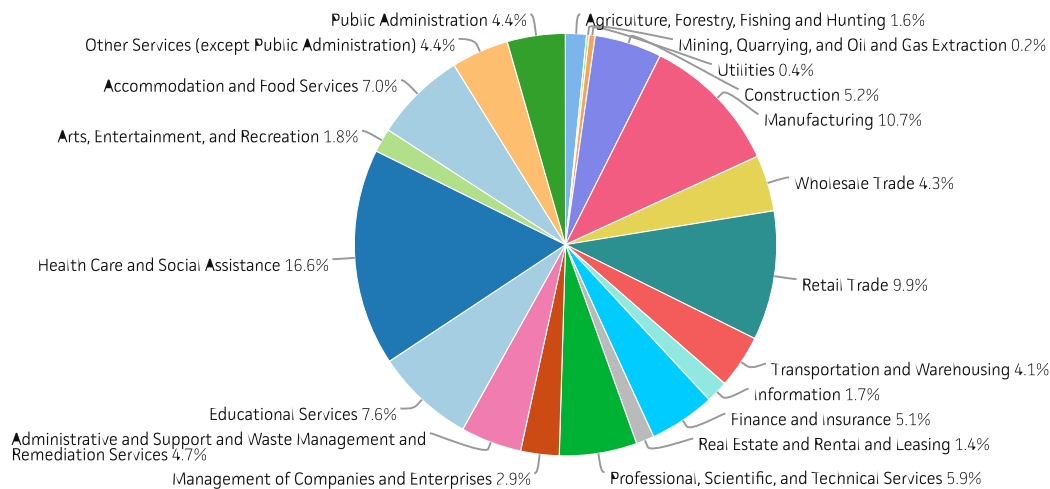


Source: JobsEQ®, Data as of 2020Q2, The shaded areas of the graph represent national recessions.

Industry/Occupation Mix

The largest industry in Minnesota is Health Care and Social Assistance, employing 500,608 workers. The next-largest industries in the region are Manufacturing (323,587 workers) and Retail Trade (298,251). Industries in Minnesota with the highest average wages per worker are Management of Companies and Enterprises (\$127,764), Utilities (\$113,213), and Finance and Insurance (\$108,049). Regional industries with the best job growth (or most moderate job losses) over the last 5 years are Health Care and Social Assistance (+28,897 jobs), Professional, Scientific, and Technical Services (+15,102), and Transportation and Warehousing (+13,687).

Total Workers for Minnesota by Industry



NAICS	Industry	Current			5-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
62	Health Care and Social Assistance	500,608	\$55,109	1.14	28,897	1.2%	274,539	119,208	123,230	32,101	1.3%
31	Manufacturing	323,587	\$68,280	1.30	2,136	0.1%	153,273	60,975	104,408	-12,109	-0.8%
44	Retail Trade	298,251	\$31,708	0.97	-6,491	-0.4%	194,732	87,450	110,495	-3,213	-0.2%
61	Educational Services	229,169	\$51,171	0.93	4,567	0.4%	109,648	51,226	55,274	3,147	0.3%
72	Accommodation and Food Services	211,482	\$21,617	0.84	-13,014	-1.2%	181,949	76,946	96,911	8,092	0.8%
54	Professional, Scientific, and Technical Services	178,834	\$94,855	0.86	15,102	1.8%	87,704	29,033	49,147	9,524	1.0%
23	Construction	155,232	\$66,499	0.89	11,053	1.5%	84,336	27,816	49,767	6,753	0.9%
52	Finance and Insurance	152,296	\$108,049	1.24	10,280	1.4%	72,480	26,947	44,238	1,294	0.2%
56	Administrative and Support and Waste Management and Remediation Services	140,485	\$42,665	0.74	-5,819	-0.8%	84,945	34,586	47,177	3,182	0.4%
92	Public Administration	133,826	\$60,783	0.92	6,357	1.0%	60,075	25,862	35,190	-978	-0.1%
81	Other Services (except Public Administration)	132,398	\$31,779	1.00	-3,589	-0.5%	75,430	34,356	41,016	58	0.0%
42	Wholesale Trade	129,293	\$85,494	1.12	-5,695	-0.9%	65,121	25,321	41,964	-2,164	-0.3%
48	Transportation and Warehousing	123,264	\$55,195	0.87	13,687	2.4%	66,808	27,963	37,839	1,006	0.2%

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq>
Job Posting data from Gartner TalentNeuron, 11/1/2019 – 10/31/2020.

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NAICS	Industry	Current			5-Year History		5-Year Forecast				
		Empl	Avg Ann Wages	LQ	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
55	Management of Companies and Enterprises	88,576	\$127,764	1.90	9,653	2.3%	41,604	14,844	25,335	1,426	0.3%
71	Arts, Entertainment, and Recreation	55,324	\$35,821	0.99	-2,550	-0.9%	40,504	17,557	21,685	1,262	0.5%
51	Information	50,849	\$81,466	0.85	-7,182	-2.6%	23,453	8,762	15,536	-845	-0.3%
11	Agriculture, Forestry, Fishing and Hunting	48,479	\$49,439	1.19	-2,442	-1.0%	24,433	11,010	14,848	-1,425	-0.6%
53	Real Estate and Rental and Leasing	41,580	\$57,134	0.79	-4,646	-2.1%	21,988	9,638	11,543	807	0.4%
22	Utilities	13,528	\$113,213	0.86	-975	-1.4%	5,585	2,173	3,828	-415	-0.6%
21	Mining, Quarrying, and Oil and Gas Extraction	5,794	\$91,766	0.46	-711	-2.3%	2,900	956	1,984	-40	-0.1%
Total - All Industries		3,012,855	\$59,182	1.00	48,618	0.3%	1,701,217	706,144	946,020	49,053	0.3%

Source: [JobsEQ®](#)

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 2019Q4 with preliminary estimates updated to 2020Q2. Forecast employment growth uses national projections adapted for regional growth patterns.

Aviation talent is primarily concentrated in the Scheduled Air Transportation Industry (56.3%), but are critical to a wide range of air transportation and aerospace industries in Minnesota.

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

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Top Industry Distribution for Aviation Pathway in Minnesota - COVID

NAICS Code	Industry Title	CURRENT			5-YEAR DEMAND			
		% of Occ Empl	Empl	Avg Ann Wages	Exits	Transfers	Empl Growth	Total Demand
4811	Scheduled Air Transportation	56.3%	3,588	\$100,500	505	1,268	184	1,957
4881	Support Activities for Air Transportation	12.1%	773	\$67,300	107	240	52	400
9261	Administration of Economic Program	6.3%	402	\$128,900	48	137	-6	178
4812	Nonscheduled Air Transportation	3.1%	197	\$88,500	28	68	9	105
3364	Aerospace Product and Parts Manufacturing	2.5%	162	\$65,100	16	45	-18	43
4921	Couriers and Express Delivery Services	2.4%	154	\$82,400	21	49	-6	65
5613	Employment Services	2.1%	134	\$60,900	17	42	7	65
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	1.8%	116	\$67,900	14	29	-5	38
5511	Management of Companies and Enterprises	1.6%	104	\$98,600	14	36	2	53
6219	Other Ambulatory Health Care Services	1.2%	79	\$82,800	11	27	1	38
9211	Executive, Legislative, and Other General Government Support	1.2%	76	\$84,200	10	25	0	35
6115	Technical and Trade Schools	0.9%	58	\$101,500	8	20	1	28
9281	National Security and International Affairs	0.9%	57	\$112,500	7	18	-1	24
9221	Justice, Public Order, and Safety Activities	0.8%	51	\$100,000	6	16	0	22
9231	Administration of Human Resource Programs	0.8%	49	\$100,700	6	16	0	22
5413	Architectural, Engineering, and Related Services	0.6%	37	\$81,500	5	12	1	17
9241	Administration of Environmental Quality Programs	0.5%	32	\$103,000	4	10	-1	13
n/a	All Others	4.8%	307	n/a	42	98	8	147

Source: JobsEQ®
 Data as of 2020Q2 except wages which are as of 2019. Note that occupation-by-industry wages represent adjusted national data and may not be consistent with regional, all-industry occupation wages shown elsewhere in JobsEQ.
 Note: Figures may not sum due to rounding.

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

Of all occupations found in the Aviation pathway, the specific occupations of Airline Pilots, Copilots, Flight Engineers, and Air Traffic Controllers are all uniquely concentrated in Minnesota to a higher degree than seen in the nation overall. On average, Aviation careers pay about \$94,000 per year—nearly \$40,000 higher than the average wage statewide across all positions.

Aviation Pathway in Minnesota - COVID, 2020Q2¹

SOC	Occupation	Current						5-Year History		5-Year Forecast				
		Empl	Avg Ann Wages ²	LQ	Unempl	Unempl Rate	Online Job Ads ³	Empl Change	Ann %	Total Demand	Exits	Transfers	Empl Growth	Ann % Growth
53-2011	Airline Pilots, Copilots, and Flight Engineers	2,705	\$104,000	1.68	64	2.4%	1	-49	-0.4%	1,578	388	1,026	164	1.2%
49-3011	Aircraft Mechanics and Service Technicians	1,888	\$75,900	0.74	39	2.1%	21	102	1.1%	827	256	522	49	0.5%
53-2021	Air Traffic Controllers	603	\$132,100	1.44	8	1.4%	2	3	0.1%	282	72	210	0	0.0%
53-2012	Commercial Pilots	454	\$113,900	0.60	12	2.7%	9	44	2.0%	253	65	171	17	0.7%
49-2091	Avionics Technicians	220	\$58,000	0.51	6	2.8%	10	20	1.9%	81	25	54	2	0.2%
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	188	\$59,100	0.23	18	9.0%	8	51	6.6%	59	17	58	-16	-1.8%
53-2022	Airfield Operations Specialists	188	\$60,400	0.98	4	2.0%	2	14	1.6%	99	23	67	8	0.9%
53-1041	Aircraft Cargo Handling Supervisors	131	\$60,300	0.72	6	4.2%	2	27	4.7%	75	21	50	4	0.6%
	Aviation Pathway	6,377	\$94,000	0.92	157	2.5%	55	211	0.7%	3,253	868	2,158	228	0.7%
	Total - All Occupations	3,012,855	\$56,600	1.00	140,926	4.6%	126,481	48,618	0.3%	1,819,042	661,016	1,068,234	89,792	0.6%

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By 2025, it is likely that Minnesota will see a growing shortage several core occupations, including Aircraft Mechanics and Service Technicians, as well as Pilots (shown in red below).

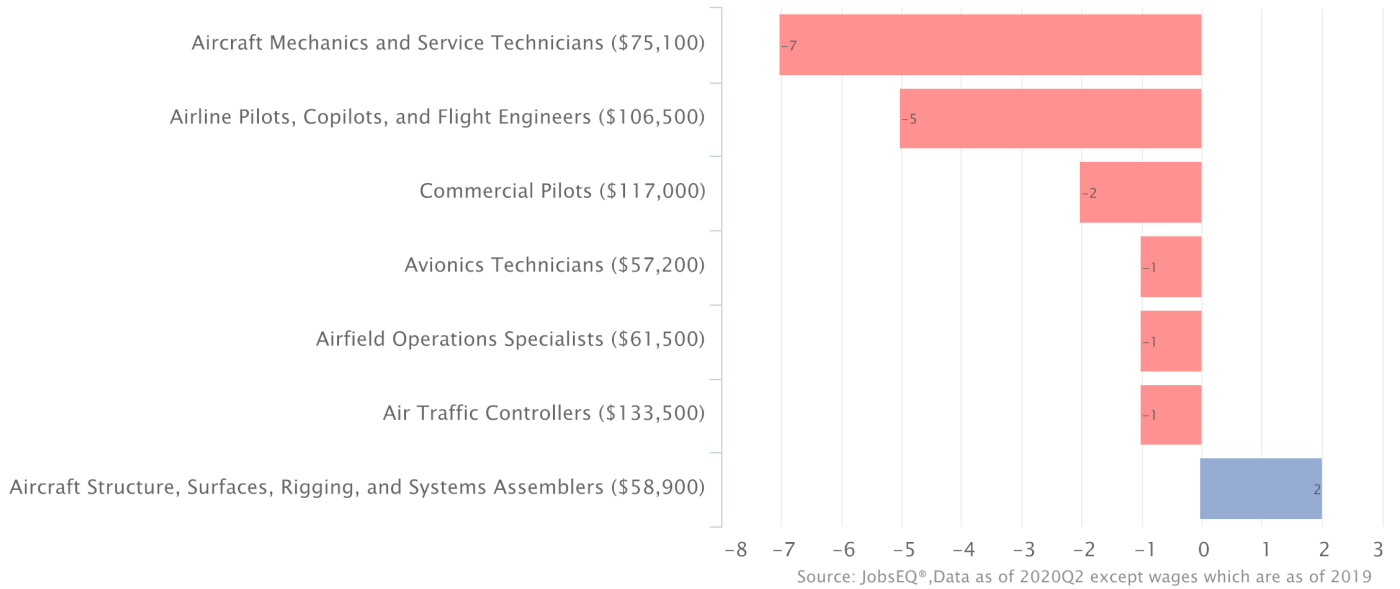
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Occupation Gaps

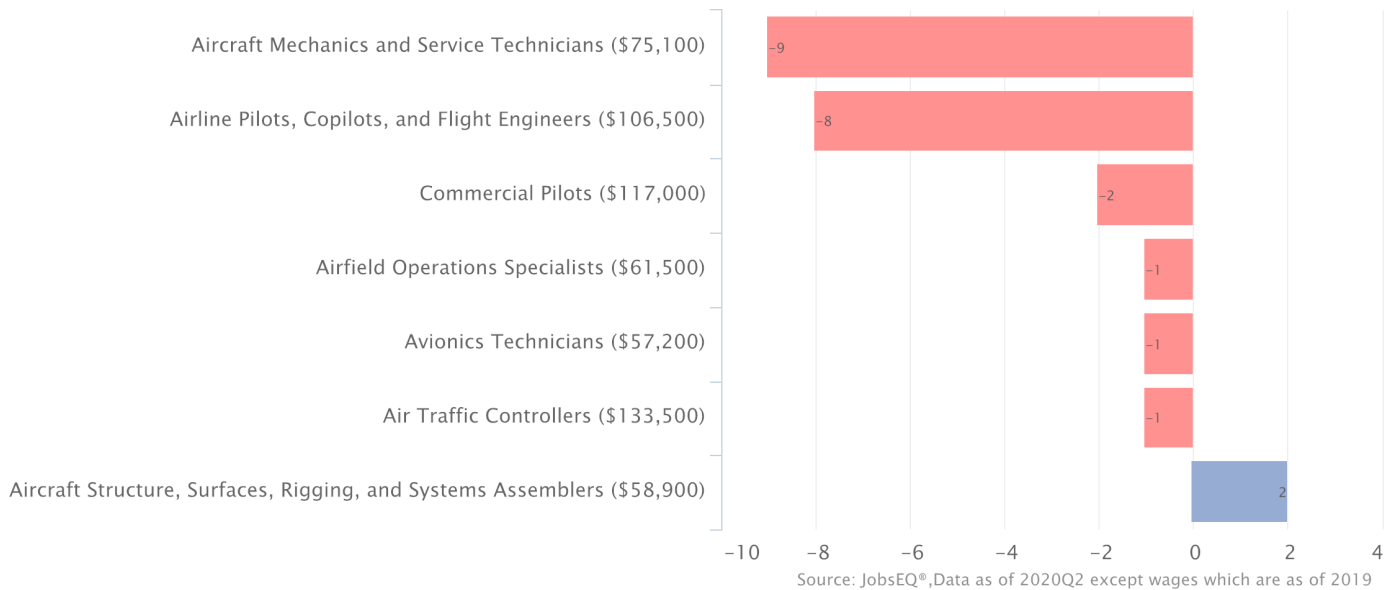
Potential Average Annual Occupation Gaps over 5 Years in Minnesota



Looking out the next ten years, these same occupations are forecast to experience even greater shortages.

Occupation Gaps

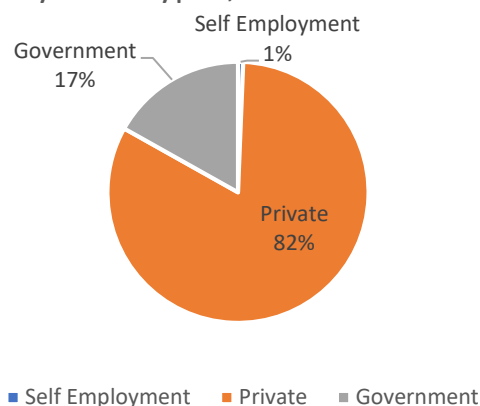
Potential Average Annual Occupation Gaps over 10 Years in Minnesota



Employment Types

About 82% of people employed in Automotive Technology in Minnesota work for private employers, while only about 1% are self-employed. The remaining 17% work for state, federal, or local government entities (mostly federal).

Employment Types, Minnesota 2020Q2



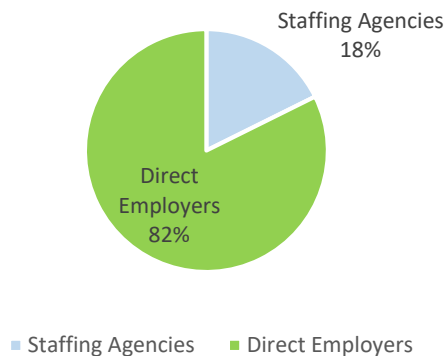
Job Posting Trends

Data in this section focuses on jobs newly advertised between November 1, 2019 and October 31, 2020 in Aviation roles across Minnesota. All data in this section comes from Gartner TalentNeuron. Overall, there were 634 new jobs advertised in Aviation during this time frame, a decline of 6% from the prior 12-month period.

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

1. Army: 148 (+6%)
2. DAL Global Services: 41 (+46%)
3. Delta Airlines: 32 (+68%)
4. Navy: 30 (0%)
5. North Memorial Health Care: 64 (+155%)
6. Aerotek: 18 (+6%)
7. Air National Guard: 16 (-20%)
8. Reliance Aerotech: 16 (0%)
9. GPAC: 15 (-42%)
10. Sun County Airlines: 14 (+600%)

New Job Postings Advertised in Minnesota by Employer Type



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

1. Operations (+1%)
2. Troubleshooting (+27%)
3. Security (+26%)
4. Supervision (-7%)
5. Mechanics (+22%)
6. Responsibility (-43%)
7. Scheduling (+2%)
8. Testing (+29%)
9. Installing (+19%)
10. Aviation Maintenance (+17%)

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

1. Class D Driver's License (+31%)
2. Security Clearance (+13%)
3. HAZMAT (+90%)
4. Aircraft Maintenance Technician (+173%)
5. Airline Transport Pilot (-3%)

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

1. JobsInLogistics (+127%)
2. The Job Network (+16%)
3. JobsHQ (+205%)
4. CareerBuilder (-27%)
5. Corporate Site (-4%)

Source: RealTime Talent analysis of Chmura Economics JobsEQ®, <http://www.chmuraecon.com/jobseq>
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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 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 a cluster?

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

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