



MINNESOTA STATE
Transportation Center of Excellence



Demand Analysis

Aviation

2021

Developed for the Transportation Center of Excellence
By RealTime Talent, January 2022

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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, 2021Q2¹

Occupation	Current						5-Year History		5-Year Baseline 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	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.

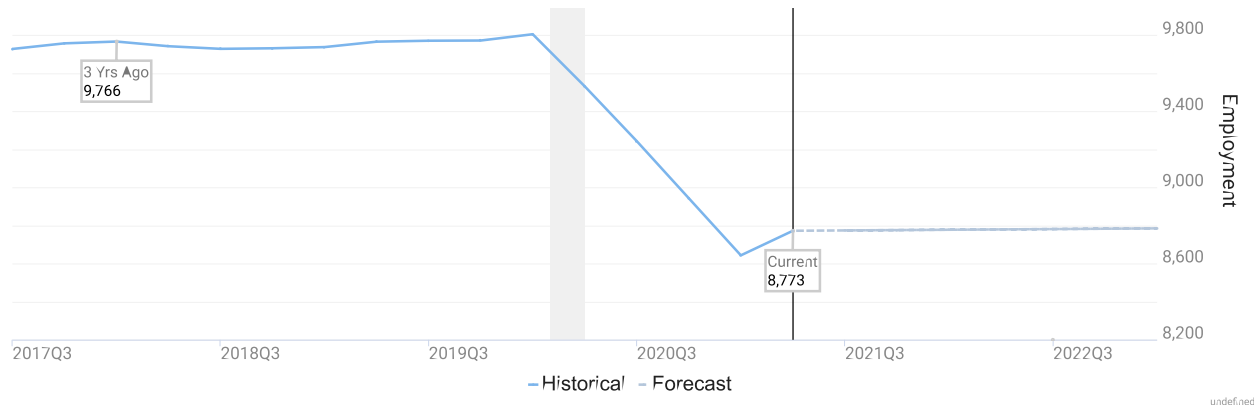
2. Wage data are as of 2020 and represent the average for all Covered Employment

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 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. 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



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

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	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, 2021Q2¹

SOC	Occupation	Current						1-Year History		5-Year Baseline 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
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%

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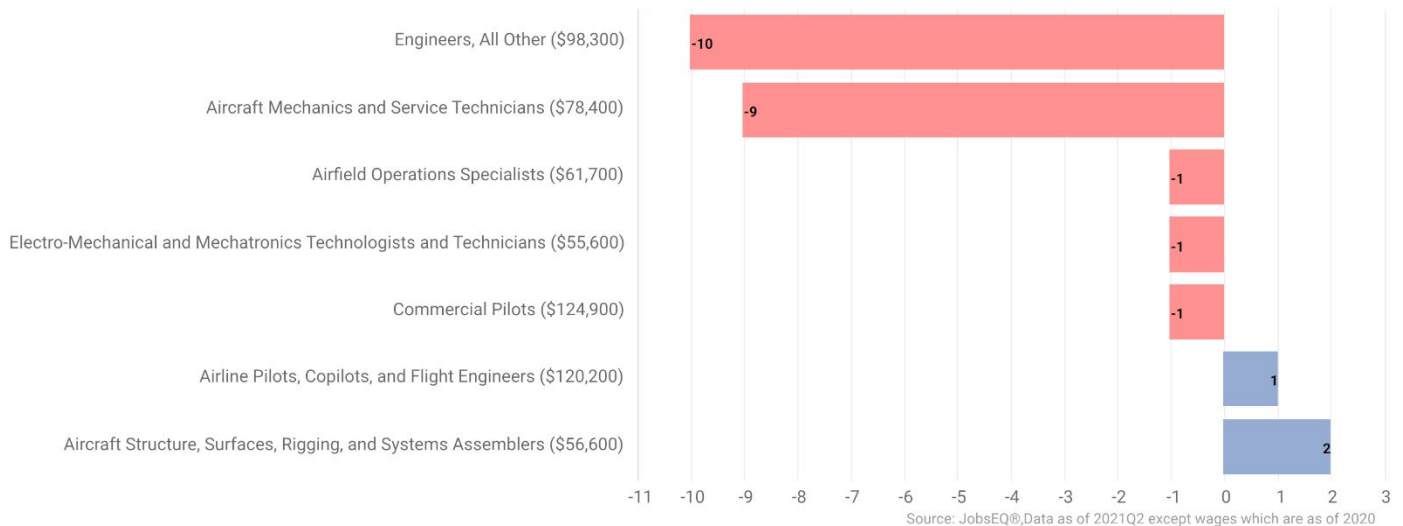
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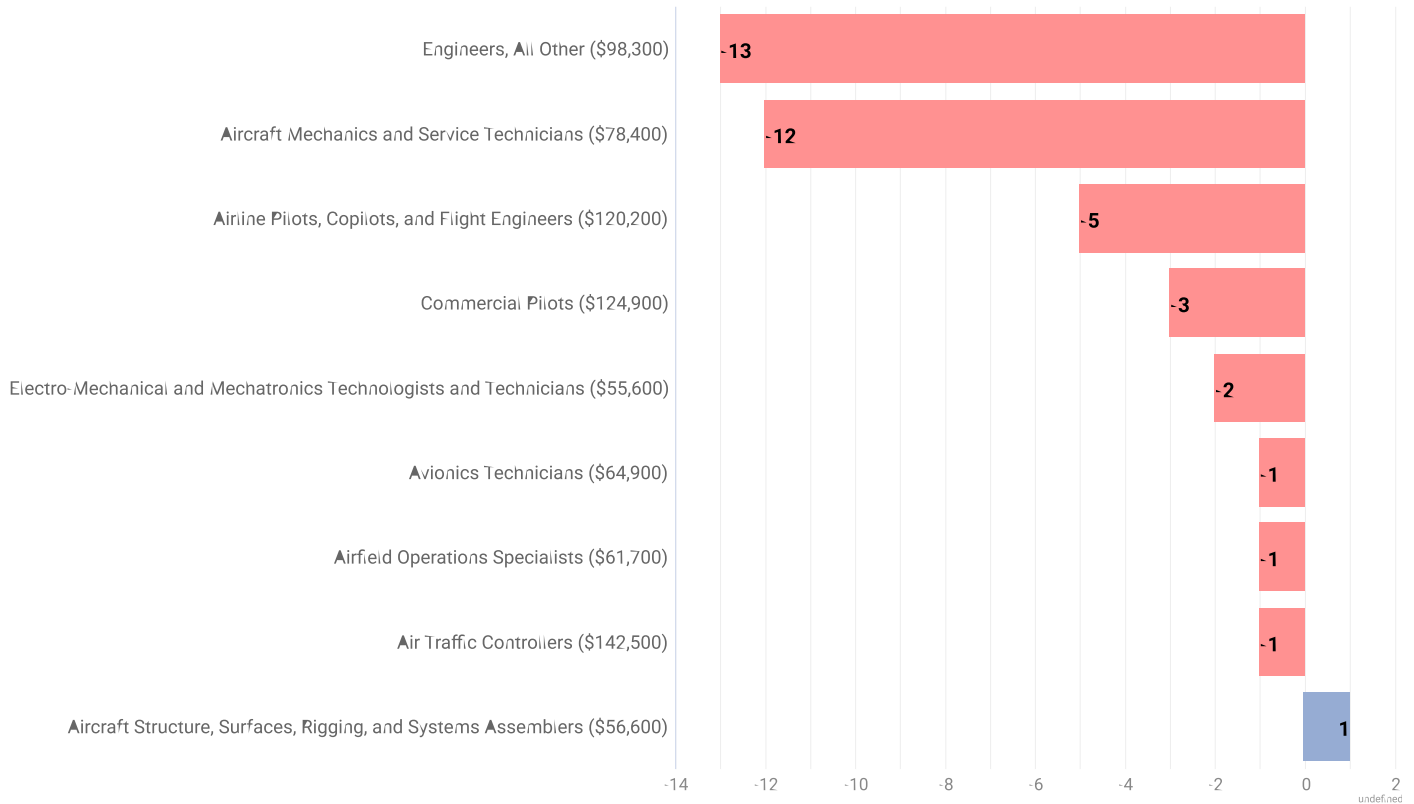
By 2026, it is likely that Minnesota will see a growing shortage of talent in five critical Aviation occupations (shown in red below). The estimated annual shortage of Aircraft Mechanics and Service Technicians has worsened since 2020 estimates, while the other shortages shown below have improved slightly.

Estimated Occupation Gaps over Five Years in Minnesota



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.

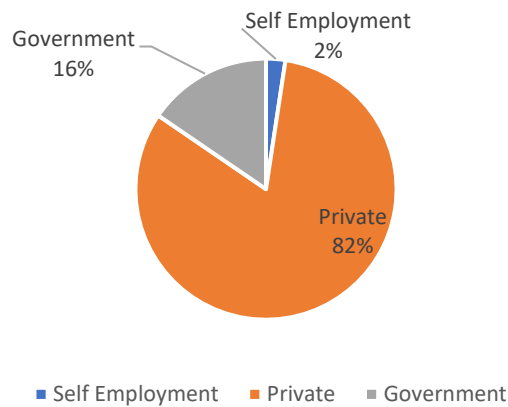
Estimated Occupation Gaps over Ten Years in Minnesota



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).

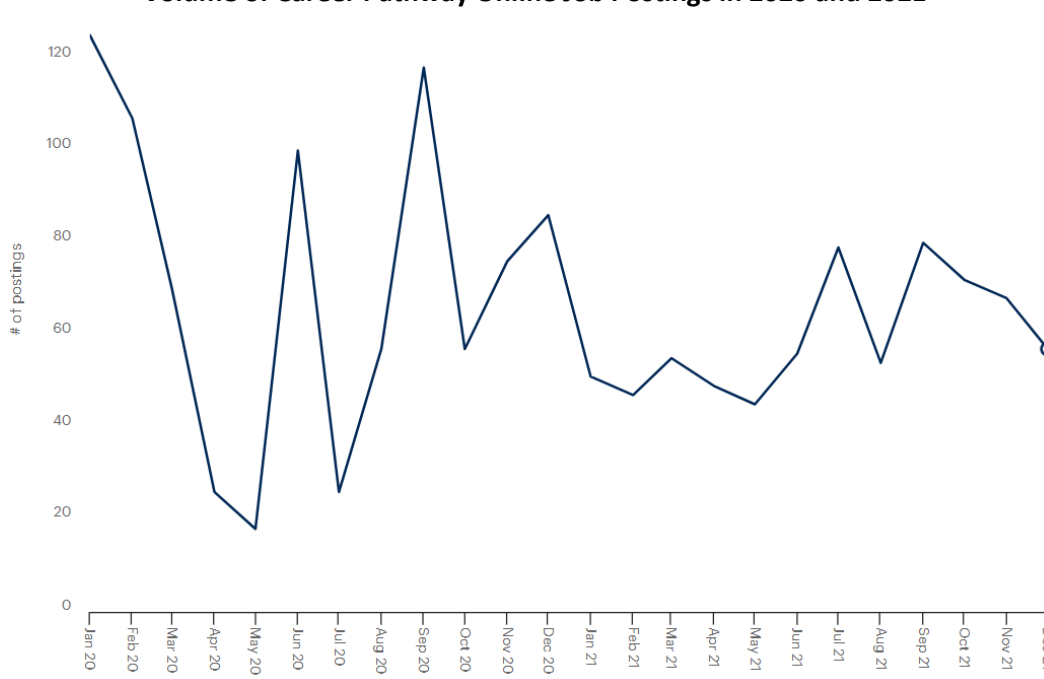
Employment Types, Minnesota 2021Q2



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%).

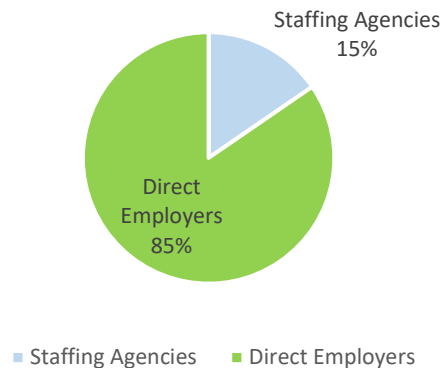
Volume of Career Pathway Online Job Postings in 2020 and 2021



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%

New Job Postings Advertised in Minnesota by Employer Type



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%)

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%)

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 or visit the RealTime Talent website at www.realtimentalent.org