

Industry Overview

The nine-county Metro Denver and Northern Colorado region's¹ airport system is a strong economic engine, with a regional impact of nearly \$28 billion and supporting more than 195,750 jobs in all industries. Denver International Airport (DEN) is one of the world's busiest hubs and is responsible for \$26



billion of the \$28 billion impact in the region. In addition to DEN, three reliever airports and five general aviation airports facilitate commerce, create employment opportunities, and help maintain the state's outstanding quality of life. The aviation cluster includes companies that manufacture aircraft and provide air transportation services. More specifically, the cluster includes airlines, airports, aircraft manufacturing and technology companies, and support services.

Aviation was the nine-county region's fastest growing cluster in 2017, posting 5.7 percent employment growth between 2016 and 2017, compared with a 0.1 percent increase nationwide. Employment in the region's aviation cluster grew for the sixth-consecutive year in 2017. The nine-county region is home to 20,140 aviation employees in close to 680 companies. Between 2012 and 2017, aviation employment rose 23.1 percent, compared with 4.1 percent nationally. Aviation companies employed 0.9 percent of the region's total employment base, compared with a 0.6 percent employment concentration nationwide.

Aviation Economic Profile

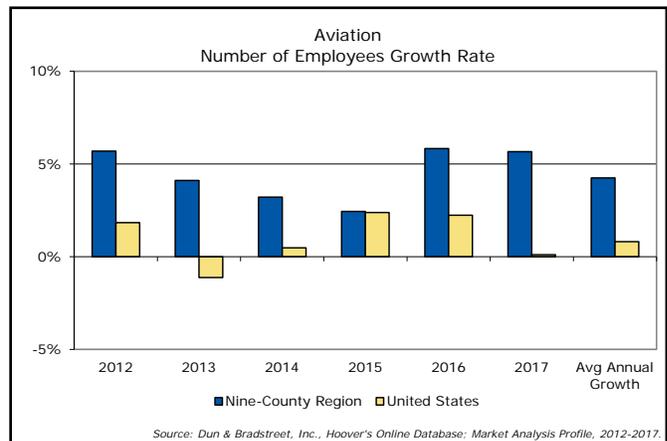
The aviation cluster consists of 42, six-digit North American Industry Classification System (NAICS) codes including aircraft manufacturing, passenger and freight air transportation, airport operations, and air traffic control.

Nine-County Rankings²

Aviation employment concentration rank	11th
Direct aviation employment rank	13th

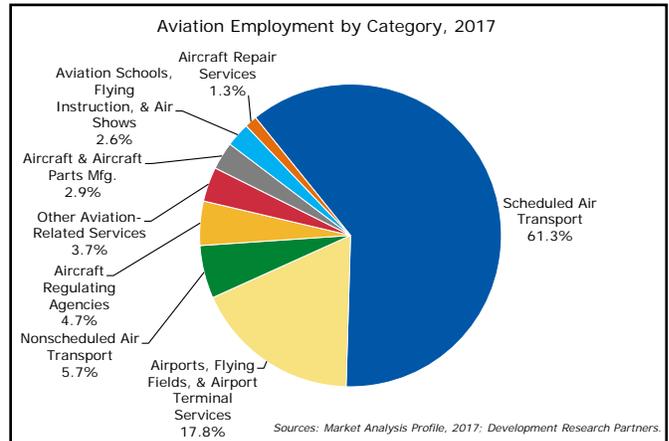
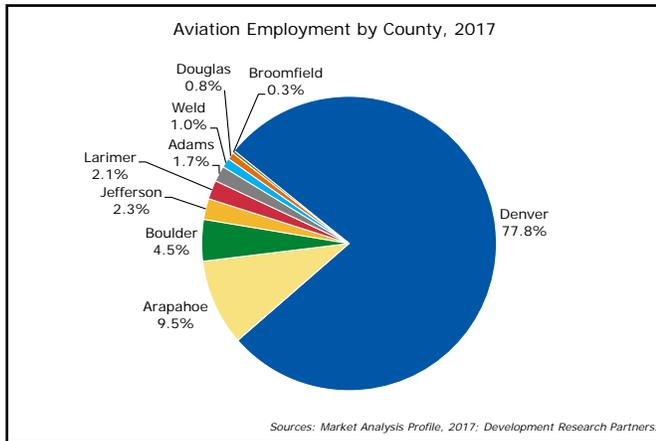
Aviation Employment and Company Profile, 2017		
	Nine-County Region	United States
Direct employment, 2017	20,140	1,075,800
Number of direct companies, 2017	680	42,430
One-year direct employment growth, 2016-2017	5.7%	0.1%
Five-year direct employment growth, 2012-2017	23.1%	4.1%
Avg. annual direct employment growth, 2012-2017	4.2%	0.8%
Direct employment concentration	0.9%	0.6%

Sources: Dun & Bradstreet, Inc., Hoover's Online Database; Market Analysis Profile, 2012-2017; Development Research Partners.



¹ The nine-county region is comprised of two principal areas, Metro Denver and Northern Colorado. Metro Denver consists of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties. Northern Colorado consists of Larimer and Weld counties.

² Direct employment rank based on the number of employees in the industry cluster in a region. Employment concentration rank based on the direct cluster employment in a region expressed as a percent of total employment in all industries in the same region. Rankings are for the 50 largest metropolitan statistical areas (MSAs). No multiplier effects are included. 1st = highest for both rankings.



Major Aviation Companies

Air Transportation

- Air Methods Corp. www.airmethods.com
- American Airlines, Inc. www.americanairlines.com
- Delta Air Lines, Inc. www.delta.com

- Frontier Airlines www.flyfrontier.com
- Southwest Airlines www.southwest.com
- United Airlines www.united.com

Aircraft Manufacturing

- Jeppesen www.jeppesen.com

- Pilatus Aircraft www.pilatus-aircraft.com

Aircraft Regulating Agencies

- Federal Aviation Administration www.faa.gov

Aviation Training

- FlightSafety International Inc. www.flightsafety.com
- Front Range Flight School www.frontrangeflightsschool.com

- Independence Aviation www.ia-kapa.com
- United Airlines Flight Training Center www.united.com

Cargo & Logistics

- DHL www.dhl.com
- FedEx www.fedex.com

- United Airlines Cargo www.unitedcargo.com
- United Parcel Service Inc. www.ups.com

Terminal Services

- ABM/Air Serv Corp. www.abm.com
- Menzies Aviation/Simplicity Ground Services www.menziesaviation.com

- Signature Flight Support www.signatureflight.com
- Swissport www.swissport.com

Nine-County Region Airport Information

Denver International Airport (DEN)

DEN is a state-of-the-art facility owned and operated by the City and County of Denver. Occupying 53 square miles and located approximately 24 miles northeast of downtown Denver, DEN is the primary airport serving the nine-county region and the state of Colorado. DEN is one of the few major U.S. airports with room to expand to accommodate future growth. DEN is twice the size of Manhattan Island and is larger than the city boundaries of Boston, Miami, or San Francisco. Approximately 35,000 people work at the airport, of which about 1,100 people are employed by the City and County of Denver.

Passenger Traffic

Since opening on Feb. 28, 1995, DEN has become the world's 18th-busiest airport and the sixth-busiest airport in the U.S. With nearly 61.4 million passengers in 2017, DEN is one of the world's busiest aviation hubs. 2017 was another record-setting year for DEN, with passenger traffic increasing by 5.3 percent over-the-year. More than 4.9 million passengers traveled through DEN in December 2017. July 2017 was the busiest month in DEN history, with more than 5.8 million passengers traveling through during the month.

Fueled by strong demand and increased carrier capacity, international passenger traffic has grown significantly over the past several years. Between 2016 and 2017, international passenger traffic increased nearly 13 percent from over 2.3 million passengers to nearly 2.6 million passengers, roughly double the pace of the airport's overall passenger traffic growth. December 2017 was a standout month for international passenger traffic with an increase of 16.9 percent, compared with December 2016. Additionally, international traffic accounted for approximately 4 percent of the airport's total passenger traffic.

Air Service

Located near the geographic center of the United States, DEN is the only major hub airport within a 500-mile radius. DEN provides nonstop service to nearly 190 destinations worldwide, including 26 international destinations in 11 countries. About 160 of these destinations are in the United States, making DEN the fourth-largest domestic network in the U.S. DEN is served by 25 airlines, including major hubs for United, Southwest, and Frontier Airlines. DEN serves 20 Federally-subsidized Essential Air Service (EAS) routes across the Western and Midwest U.S., making DEN the only air service option for these rural markets. DEN serves as the gateway into Colorado and the Rocky Mountain West and has direct flights to 12 destinations in Colorado, including popular ski resorts, vacation, and business destinations.

DEN is a leading air cargo center and a key distribution hub. Ten cargo airlines and 10 major and national carriers currently provide cargo service at DEN, handling nearly 585 million pounds of cargo in 2017. With 24-hour operations, the airfield and a 39-acre cargo ramp make freight handling efficient, with no curfews. DEN is home to several world-class cargo companies and support facilities, including FedEx, UPS, Southern Air, DHL, Alpine Air Express, and United Airlines cargo. The U.S. Postal Service facility is located nearby, providing a wide array of competitive shipping and receiving options.

Facilities & Infrastructure

DEN serves its ever-expanding travel market with six runways, three concourses, and 111 gates with 32 ground load positions. DEN has capacity for six additional runways, another terminal, and two additional concourses. The Jeppesen Terminal at DEN features 1.5 million square feet of space, and includes passenger ticketing, baggage claim, ground transportation, international arrivals, shops and restaurants, office areas, and Transportation Security Administration (TSA) security checkpoints. Located adjacent to the Jeppesen Terminal is the Westin Denver International Airport, which opened in 2015. The Westin offers 519 guest rooms, 37,500 square feet of conference space, 15 meeting rooms, and an open-air plaza for arts and entertainment.

Over the last several years, DEN has invested significantly in its technology infrastructure and services. In 2017, independent testing by Internet speed company Ookla found that DEN's free WiFi is the fastest among any airport in the world. Since 2014, DEN has invested more than \$3 million in new WiFi infrastructure throughout the terminal, concourses, and other areas of the airport with speeds up to 150 megabits per second. DEN also deploys the state-of-the-art Saab Sensis Aerobahn Surface Management System that provides airport operations managers with real-time information regarding aircraft deicing operations. Since 2010, DEN has worked closely with the Federal Aviation Administration (FAA), Jeppesen, the major airlines, and Rocky Mountain and Centennial Airports to implement NextGen and Unmanned Aircraft Systems (UAS) programs. DEN is at the forefront of developing, testing, and implementing NextGen flight procedures

and was the first commercial airport to design a truly comprehensive plan of Area Navigation (RNAV) that allows aircraft to fly more predictable and smoother approaches into Denver that reduce fuel consumption and noise. In 2017, DEN surpassed 50,000 aircraft approaches using NextGen technology. DEN continues to work with airport stakeholders toward even more advanced procedures that are expected to save equipped aircraft up to 30 nautical miles per approach during inclement weather, resulting in even greater cost savings to the airlines due to reduced fuel consumption.

Sustainability

DEN was the first airport in the nation to receive ISO 14001 Environmental Management System certification in 2004. DEN also received the Outstanding Sustainability Infrastructure Development award in 2017 for the Hotel and Transit Center project and once again received the international Airport Carbon Accreditation in 2017. Additionally, DEN is a Gold Member of the Colorado Department of Public Health and Environment's Environmental Leadership Program. The airport continually works to reduce its carbon footprint through a variety of energy-efficient technologies. DEN currently recycles or reuses 21 different types of materials, including approximately 75 percent of collected aircraft deicing fluids.

Since 2008, DEN has been committed to investing in on-site renewable energy technology. DEN has one of the largest airport solar installations in the world and is home to five photovoltaic solar arrays, including one solar array used as covered parking at 61st Avenue and Peña Boulevard. The airport also has one of the largest compressed natural gas fleets in the country including buses, sweepers, and other alternatively fueled vehicles, and over 120 electric and hybrid electric vehicles. In 2017, DEN ranked No.3 among 50 winners of the Government Green Fleet Award. DEN's fleet uses 73 percent compressed natural gas fuel for lower emissions, and the airport recently established a lean fleet program and upgraded its emissions testing programs. Alternative vehicles make up 51 percent of the airport's light duty fleet. DEN is undergoing several energy conservation upgrades including replacing older lighting with newer, more efficient lighting and upgrading its heating and air conditioning systems.

Reliever Airports

Three reliever airports—those designated by the FAA to relieve traffic at commercial airports and general aviation airports, and provide other aviation services—are strategically located throughout the nine-county region.

- **Centennial Airport (APA)** is the premier international reliever and business airport in the U.S. connecting people, places and product. Supporting 23 business parks and 6,000-plus businesses in the south metro area, the airport provides all services necessary to compete in the global economy. Located on 1,400 acres, APA has four award-winning fixed-based operators with premium hangar space providing all concierge services, a fully staffed 24/7 FAA Air Traffic Control Tower, and 24/7 on-demand U.S. Customs clearances. APA has top-ranked caterers, three runways including a 10,000-foot CAT 1 ILS runway, gateway service to Ronald Reagan Washington National Airport, comprehensive security, and some of the most competitive fuel prices in the country. Services such as air ambulance, law enforcement, charter, fractional, flight schools, and full 24/7 aircraft and powerplant maintenance are based at the airport. APA generates more than \$1.3 billion for the region annually, the highest among the state's general aviation airports.
- **Front Range Airport (FTG)**, located six miles southeast of DEN, is one of the largest general aviation airports in the U.S. with 3,200 acres of land. FTG is the region's only reliever airport without major residential areas nearby and no noise or over-flight impacts, and is convenient to DEN and the entire Metro Denver area with room for significant growth and development. Combined, the land mass of DEN and FTG provide a unique airport complex unlike any other location in the nation. FTG has 1,000 acres for aviation and aerospace development and is adjacent to the 6,500-acre Western Transport business park planned for development to support airport-related commercial and business activities. The airport has the nation's tallest general aviation tower, which controls two 8,000-foot/CAT 1 ILS full-precision runways and associated taxiway and ramp system. CDOT's Division of Aeronautics offices, outstanding fixed-based operator and concierge services, exceptional restaurant and full service catering services, aircraft maintenance, flight training, and aircraft hangaring and storage are all available at FTG, supporting military, law enforcement, medical, corporate, and private aircraft operations. Spaceport Colorado will create an aerospace technology park on the airport campus for research and commercial development and the FAA is expected to issue a spaceport operator license in 2018. FTG has an annual economic impact of more than \$75 million, supporting 489 jobs with an annual payroll of \$32 million.

- **Rocky Mountain Metropolitan Airport (BJC)**, located between downtown Denver and Boulder, is the most convenient reliever airport to downtown Denver, and the fourth-busiest airport in Colorado. Averaging nearly 144,000 operations each year, BJC has three runways, including a 9,000-foot CAT 1 ILS runway, and offers a user-fee U.S. Customs Office open 24 hours a day. BJC is an FAA Part 139 Certified Airport with regional air service and large, on-demand aircraft charter. BJC is home to more than 50 aviation-related companies and flight departments, including the U.S. headquarters of Pilatus Business Aircraft, the U.S. Forest Service tanker base, and the National Center for Atmospheric Research. Located on 1,700 acres, BJC is adjacent to the Interlocken Business Park, the Verve Innovation Park, and the Westmoor Technology Park. A new, state-of-the-art FAA control tower opened in 2012. The airport generates more than \$460 million in annual economic impact to the region.

General Aviation Airports

Five general aviation airports are located in the nine-county region:

- Boulder Municipal Airport
- Erie Municipal Airport
- Greeley-Weld County Airport
- Northern Colorado Regional Airport
- Vance Brand Municipal Airport

In 2017, the FAA contracted with Canada-based Searidge Technologies to build a virtual air-traffic control tower at Northern Colorado Regional Airport. The project will use cameras and radar that will be monitored and controlled at the airport to improve safety and help attract commercial airlines.

Industry Infrastructure Support



Metro Denver's airports receive significant support from the region, especially from CDOT's Division of Aeronautics and the Metro Denver Aviation Coalition (MDAC). Established in 1991, CDOT's Division of Aeronautics supports Colorado's general aviation and regional commercial aviation community through aviation fuel tax revenues, a discretionary aviation grant program, and long-range system planning in partnership with Colorado's general aviation airports. MDAC is an industry affiliate of the Metro Denver Economic Development Corporation that serves as a private-sector advocate dedicated to the continued growth and development of the region's aviation industry, including the long-term growth and vision of DEN and Metro Denver's three reliever and five general aviation airports.



The Colorado Aviation Business Association (CABA) is a grass-roots organization focused on communicating the value of business and general aviation to state and local communities, better integrating business and general aviation into Colorado's broader transportation system, and improving access to rural communities throughout the state.

2017 Industry Highlights

Denver International Airport Project Updates

- DEN plans to overhaul its Great Hall area in the main terminal. The \$1.8 billion project will move the Transportation Security Administration's (TSA) security screening areas to level 6 as part of a 4-year renovation that will bring shops and restaurants to the existing space. DEN also plans to consolidate TSA's existing checked baggage resolution areas.
- DEN began construction on a new baggage platform between levels 5 and 6 of the Jeppesen Terminal. The Baggage Handling System project will be completed in 2019 and will enable airlines to intake bags from any point on level 6 and allow the bags to move into the appropriate area under the terminal where final bag screening and loading takes place.
- DEN plans to add 39 gates to its concourses by 2021 as a result of increased passenger demand. The \$1.5 billion plan, which is part of DEN's \$3.5 billion, five-year capital improvement plan, includes 12 new gates in Concourse A, 11 in Concourse B, and 16 in Concourse C.
- Bombardier Transportation Holdings will provide \$162 million in maintenance and operations for DEN's underground train system. DEN also plans to expand the system's capacity by 2020, with the net addition of 10 train cars to the transportation system that will link the concourses to the terminal and boost reliability.

- DEN opened a new parking lot at 61st and Peña Station, which features 800 parking spaces. Of the total spaces, 609 are covered by a solar canopy that is part of the larger smart-city development around the commuter rail station.
- The TSA began using biometric fingerprint technology testing for passengers at DEN. Passengers enrolled in TSA's pre-check programs, who have supplied fingerprints to the TSA, will have their fingerprints scanned, with that information then connected to the passenger's boarding information.
- DEN completed a \$29.5 million overhaul of one of its six most-used runways. Crews replaced 72,000 square yards of pavement, improved lighting and runway sensors, and upgraded taxiway safety-areas.
- DEN completed concrete repairs and replacement along six miles of Peña Boulevard, between E-470 and the Jeppesen Terminal. The \$2.6 million project is part of DEN's annual pavement rehabilitation program, which replaces deteriorating concrete on a regular basis.

Key Company Announcements

- **Frontier Airlines** relocated its Denver headquarters to the former occupied Prologis building at 4545 Airport Way.
- **Global SuperTanker Services LLC** signed the first-of-its kind contract with **Douglas County**. The \$200,000 deal gives the County exclusive access to the world's largest firefighting aircraft—a Boeing 747-400—that can drop roughly 20,000 gallons of water or retardant.
- Centennial-based **Air Methods Corp.** will bring more than 1,000 pilots from across the country into Denver in the next year for state-of-the-art flight simulator training. The company has roughly 1,300 pilots and is in the process of moving its headquarters from Centennial Airport to a new, 62,124-square-foot space in Greenwood Village.

Several companies unveiled plans for highly innovative aircraft.

- **Boom Technology** received \$33 million in Series A funding, bringing their total funding to \$41 million. The funding will allow the company to begin production on their supersonic airplane that can travel between London and New York in as little as 3.4 hours, which could fly in early 2018. The company also received 76 plane orders from five airlines after the company unveiled its newly completed airplane design.
- Two Centennial Airport-based company's—**XTI Aircraft Company** and **Bye Aerospace Inc.**—formed an alliance to develop a new hybrid/electric vertical takeoff airplane. The new airplane's reduced weight and efficient propulsion system will improve operability.
- XTI Aircraft received a U.S. Patent and Trademark Office utility patent for its TriFan 600 vertical take-off airplane. The six-seat helicopter-like airplane is designed to fly at 300 mph for more than 1,000 miles, which could launch in 2019.

Airline Service Additions

Europe

- Swiss airline **Edelweiss** will fly directly from DEN to Zurich beginning June 4, 2018. The route is expected to generate a \$21 million annual economic impact with its potential to bring as many as 7,500 visitors to Denver in 2018.
- **Norwegian Air** will begin offering nonstop service from DEN to Paris beginning April 9, 2018. The new service to Charles de Gaulle will operate twice weekly and is expected to generate a \$40 million annual economic impact.
- Two airlines began service between DEN and London. Norwegian Air began service to Gatwick Airport in September 2017 three days per week and **United Airlines** will launch a daily seasonal nonstop flight to London-Heathrow in March 2018. The carriers will join British Airways offering direct service to the major European city.

North and Central America

- **Southwest Airlines** began nonstop service to Belize City, Belize in March 2017. Belize is DEN's fourth-largest market in Central America.
- **Air Canada** launched a new nonstop flight from DEN to Vancouver, Canada in May 2017. Vancouver is Denver's second-largest market in Canada, and seventh-largest international market overall. Nearly 200 people per day travel between Denver and Vancouver, and the market has grown by 20 percent over the past three years.

- **Copa Airlines** began nonstop service four times a week in December 2017 between DEN and Tocumen International Airport in Panama City, Panama. Denver is Copa Airlines' 13th U.S. destination and its 74th overall.
- United Airlines began seasonal nonstop service to Cozumel, Mexico once-a-week in December 2017. Cozumel was Denver's largest unserved destination in Mexico.
- **Sun Country Airlines** will launch seasonal nonstop service from DEN to Mazatlán, Mexico once-a-week between Jan. 24, 2018 to March 7, 2018. Mazatlán was DEN's second-largest unserved market in Mexico, with 6,000 annual passengers.
- Canadian carrier **WestJet** will add a daily direct flight from DEN to Calgary, Canada beginning March 2018. The new route is expected to increase passenger traffic between the two cities by 40 to 50 percent.
- **Frontier Airlines** will also begin service to Calgary, Canada beginning May 2018.
- **Southwest Airlines** grew the number of daily flights it offers out of DEN to 209, exceeding 200 daily flights at DEN for the first time. The second-largest carrier at DEN will increase the frequency of heavily traveled routes, and provide daily expansions of formerly weekend-only routes.
- **Frontier Airlines** will launch nonstop service to 21 new cities within the next year. The expansion is part of a nationwide growth plan for the Denver-headquartered airline to nearly double the number of nonstop routes it flies across the U.S. Of the 21 destinations added, 16 were markets previously served from Denver that were discontinued at some point.

Service Milestones

- **United Airlines** celebrated 80 years of service at DEN and is the only airline to continuously operate in the city since 1937. United has operated 6.5 million flights serving more than 580 million customers over its history at DEN.
- **Spirit Airlines**, **Icelandair** and **Volaris** celebrated five years of DEN service in 2017. **Alaska Airlines** celebrated 15 years of service. **Delta** celebrated 40 years of service.

Spaceport Colorado

In 2017, Front Range Airport continued the application process for certification from the FAA to operate as a horizontal-launch spaceport facility. The subsequent designation for Spaceport Colorado, which may be granted in 2018, fulfills a 2011 declaration by Gov. John Hickenlooper of Colorado's intent to become a spaceport state. The effort will increase Colorado's competitiveness in the aerospace industry and support new opportunities in the future growth of commercial space research and transportation. Plans for Spaceport Colorado include the development of an aerospace and technology park to support a broad range of activities and commercial opportunities, including research and development, testing and evaluation, manufacturing, crew training, scientific research, suborbital flight, and point-to-point travel. Spaceport Colorado has an abundance of surrounding land and convenient access to Denver International Airport and the state's sizeable aerospace industry, research universities, and talented aerospace workforce.

Unmanned Aircraft Systems (UAS)

The nine-county region is a thriving international hub in the unmanned aircraft systems (UAS) community. The region is home to a unique concentration of UAS business and technical capabilities, including industry-leading remote sensing and data analytics products, innovative airframes, and exceptional service provider and ground control systems expertise. Extensive state supported and FAA-approved UAS test, training, and research facilities provide a world-class business environment and have contributed to the state's leading position for the number of UAS operators per capita. Colorado is one of the few global locations offering unique features vital to UAS development including more than 35,000 square miles of FAA-approved UAS operation areas.

In addition to the wealth of academic expertise, the region also has a vibrant base of commercial and military UAS activities and receives strong support from its aerospace industry. The region's unique variety of airspace, environmental conditions, and terrain provide the ideal geographic and business environment for UAS development, testing, and operations including the Chaffee County UAS test area, and an 8,000-square-mile air space in the San Luis Valley where testing can be conducted to heights of up to 15,000 feet. The region offers the highest altitude, most geographically diverse UAS test area in the nation, covering 5.1 million acres with operations up to 15,000 feet.

The region is actively working to further expand its UAS assembly, launch, and operational test areas. In 2017 Colorado passed legislation to study drone use by public agencies relating to certain public safety functions such as firefighting and other emergency-response operations. The study is intended to help make Colorado the nation's center of expertise for the integration of UAS into firefighting and other emergency operations, and support growth and training opportunities for Colorado's UAS workforce.

UAS Assets

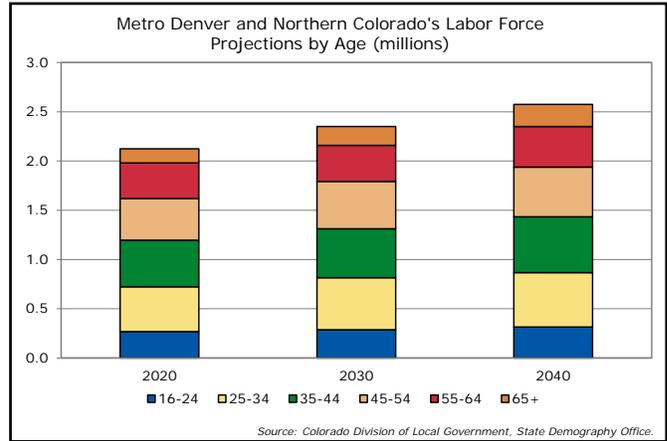
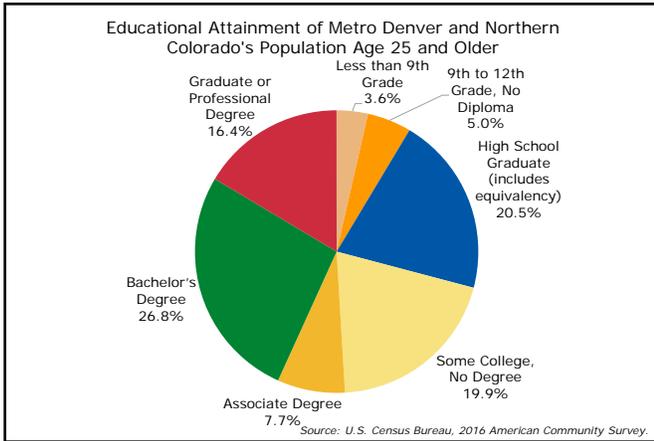
- The Research and Engineering Center for Unmanned Vehicles (RECUV) at CU Boulder is a university, government, and industry partnership dedicated to developing and integrating unmanned vehicle systems. RECUV is a pioneer in the nomadic use of unmanned aircraft and deploys systems in full compliance with FAA regulations. With over 28 FAA Certificates of Authorization (COAs), RECUV has more COAs than any other U.S. university, for 12 different UAS with access to over 100,000 square miles of airspace. RECUV is a founding site of the National Science Foundation-supported Center for UAS, the only Industry/University Cooperative Research Center devoted to providing innovative solutions to key technical challenges and superb training for future leaders in the UAS industry. The Indoor Flying Robot Lab and the mobile Ground Control Station are housed at RECUV, while the Unmanned Vehicle Systems Integration Lab and the Unmanned Systems Fabrication Lab are located in CU Boulder's College of Engineering and Applied Science.
- The University of Denver's Unmanned Systems Research Institute (DU²SRI) promotes knowledge, education, research, and development in unmanned systems, and is pushing forward the frontiers of unmanned systems to develop the next generation of fully autonomous UAS. The DU²SRI infrastructure includes five unmanned ground vehicles, one all-terrain mobile robot, more than 17 (electric and non-electric) unmanned helicopters and quadrotors, FAA-approved simulators, electronics design and fabrication capabilities, and complete UAS design and testing.
- The U.S. Geological Survey's (USGS) National Unmanned Aircraft Systems Project Office, located in Denver, leads and coordinates USGS efforts to promote and develop UAS technology for civil and domestic applications. These efforts will directly benefit the U.S. Department of the Interior and USGS missions, including access to an increased level of persistent monitoring of earth surface processes (e.g. forest health conditions, monitoring wildfires, earthquake zones, and invasive species) in previously difficult to access areas.
- Metropolitan State University of Denver is one of the first U.S. colleges to offer classes focused specifically on piloting drones and their uses. Skills taught include management, leadership, sensors, data processing, and the legal environment. Students also get hands-on experience flying drones and are prepared for the Part 107 pilot license exam.
- UAS Colorado is a nonprofit business league committed to promoting and improving the aerospace industry in Colorado, particularly supporting the safe integration and use of UAS throughout the state for the benefit of the public. The group provides organizational structure and support for UAS professionals, advocates for public policy that supports UAS industry development in Colorado, promotes the safe, professional operation of UAS sites in Colorado, and conducts public awareness and public relations campaigns to help the general public understand the use and importance of UAS in Colorado.
- The Rocky Mountain Chapter of Association for Unmanned Vehicle Systems International (AUVSI) provides leadership to promote the growth of UAS across the Rocky Mountain Region through advocacy, education, and networking. The Chapter is also dedicated to promoting the safe and legal operation of unmanned vehicles regardless of the medium within which they operate. The Chapter and UAS Colorado host the Annual Rocky Mountain Unmanned Symposium, a two-day event intended to bring together industry professionals, government, and educational institutions to provide seminars, panel discussions, drone demonstrations, networking events, and industry vendor exhibits.

Key Project Announcements

- Boulder-based Black Swift Technologies was selected by the National Oceanic and Atmospheric Administration (NOAA) to use its small unmanned aircraft system to collect wildfire measurements. Black Swift will provide an airframe, avionics, and multiple sensors that will collect data on carbon dioxide, aerosol, wildfire plumes, and other measurements. The SuperSwift technology is ideal for scientific atmospheric measurements because of its ability to fly more than two hours, the payload capacity to hold up to five pounds, and its ability to hold its payload forward-facing making it easy to swap out instruments.
- The National Aeronautics and Space Administration (NASA) awarded Black Swift a contract to build the SuperSwift XT drones that will explore volcanoes to improve air traffic management systems and the accuracy of ashfall measurements. The technology will be designed to collect data in harsh environments and will enhance the performance and utility of NASA's Airborne Science fleet.

Nine-County Region Workforce

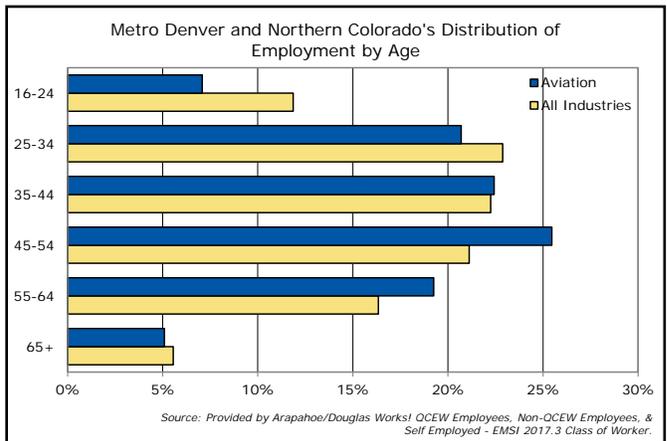
- Nearly half of the nine-county region's 3.8 million residents under the age of 35, employers can draw from a large, young, highly educated, and productive workforce.
- Of the region's adult population, 43.2 percent are college graduates and 91.4 percent have graduated from high school.
- The region's population is expected to grow 32.2 percent from 2020 to 2040, driving a 21.2 percent increase in the region's labor force over the same period.



Aviation Workforce Profile

The cluster has a larger share of employees that are between the ages of 45 and 64 years old (44.7 percent), compared with the age distribution across all industries in the region (37.5 percent).

The Occupation & Salary Profile below includes the 10 largest aviation occupations in the region. For these 10 largest occupations, the chart details the total number of workers employed in that occupation across all industries, the number of available applicants that would like to be working in that occupation, the number of recent graduates that are qualified for that occupation, and the median and sample percentile annual salaries.



Wages

- 2016 average annual salary was \$66,880, compared with \$72,430 nationwide.
- Total payroll reached nearly \$1.3 billion in 2016.

AVIATION: Metro Denver and Northern Colorado Industry Cluster Profile

Metro Denver and Northern Colorado Aviation Occupation & Salary Profile, 2017

10 Largest Aviation Occupations in Metro Denver and Northern Colorado	Total Working Across All Industries (2017)	Number of Available Applicants (2017)	Number of Graduates (2016)	Median Salary	10th Percentile Salary	25th Percentile Salary	75th Percentile Salary	90th Percentile Salary
1. Business operations specialists, all other	32,514	791	17	\$74,757	\$43,128	\$55,758	\$98,542	\$126,087
2. Civil engineers	7,425	181	407	\$88,975	\$53,110	\$63,929	\$104,165	\$129,647
3. Flight attendants	3,338	81	0	\$46,224	\$27,716	\$38,741	\$53,319	\$64,591
4. Airline pilots, copilots, & flight engineers	3,082	75	76	\$213,513	\$129,479	\$150,195	\$250,214	\$320,154
5. Painters, construction & maintenance	5,132	125	4	\$34,265	\$25,876	\$28,049	\$39,059	\$47,879
6. Information & record clerks, all other	6,840	166	0	\$43,574	\$27,932	\$33,963	\$50,140	\$60,227
7. Computer occupations, all other	10,150	247	1,273	\$96,284	\$54,575	\$72,758	\$117,803	\$139,140
8. Mechanical engineers	4,931	120	809	\$100,281	\$58,328	\$69,960	\$116,657	\$153,900
9. General & operations managers	31,749	772	5,578	\$115,241	\$47,968	\$72,558	\$179,035	\$261,240
10. Transportation workers, all others	1,866	45	20	\$43,249	\$21,118	\$26,440	\$55,343	\$62,272

Notes: The number of available applicants is a point-in-time measurement of the number of people who have registered in Colorado's workforce development system's statewide database, Connecting Colorado, as being able and available to work in a particular occupation. Results should be interpreted with caution since registration in Connecting Colorado is self-reported. In addition, the skills rubric may assign up to four occupation codes for each registrant. Therefore, the number of available applicants could be inflated. *Source: Provided by Arapahoe/Douglas Works!; QCEW Employees, Non-QCEW Employees, & Self Employed - EMSI 2017.3 Class of Worker.*

Education & Training

Colorado's higher education system provides an excellent support system for businesses in the region. There are 28 public higher education institutions in Colorado, of which seven four-year and six two-year public institutions offering comprehensive curricula are located in the nine-county region. There are more than 100 private and religious accredited institutions and more than 350 private occupational and technical schools offering courses in dozens of program areas throughout the state. The state higher education system served about 255,510 students in FY 2015-16, while 86,070 students received a degree, diploma, certificate, or other formal award over the same period of time. Although not exhaustive, a list of the major, accredited educational institutions with the greatest number of graduates for each of the 10 largest aviation occupations in the nine-county region are included below. A directory of all higher education institutions with corresponding websites may be accessed via <http://higher.ed.colorado.gov>.

- Colorado State University www.colostate.edu
- Colorado State University Global Campus www.colostate.edu
- Colorado School of Mines www.mines.edu
- Front Range Community College www.frontrange.edu
- Metropolitan State University of Denver www.msudenver.edu
- Red Rocks Community College www.rrcc.edu
- Regis University www.regis.edu
- Spartan College of Aeronautics and Technology - Denver Campus www.spartan.edu
- University of Colorado Boulder www.colorado.edu
- University of Colorado Denver www.ucdenver.edu
- University of Denver www.du.edu

Key Reasons for Aviation Companies to Locate in the Nine-County Region

The region is a top aviation location offering:

1. A prime air transportation location

- Denver International Airport (DEN) was the sixth-busiest airport in the nation and 18th-busiest worldwide in terms of passenger traffic in 2016. (U.S. Bureau of Transportation Statistics, 2017; Airports Council International 2017; and Denver International Airport, 2017)
- Located on the 105th meridian, Metro Denver's central location at the exact midpoint between Tokyo and Frankfurt positions the region favorably to serve growing world markets.
- Encompassing 53 square miles, DEN is the largest airport in North America and the second largest airport in the world. At full buildout, DEN could accommodate more than 100 million annual passengers. (Denver International Airport, 2017)
- DEN has one of the most efficient runway layouts in the U.S., with six, non-intersecting runways and six additional runways approved to meet future global demand. DEN is home to the longest commercial runway in the nation, one of the reasons it is certified to handle Airbus 380 operations. (Denver International Airport, 2017)
- DEN ranked fifth for customer satisfaction among the nation's largest airports with over 32 million annual passengers in 2017. (J.D. Power and Associates, 2017)
- Denver ranked No. 5 among the 20 "Best U.S. Cities for Business Travel." (On Call International, 2017)
- DEN ranked as the second-best airport in the nation and the 28th-best airport in the world. DEN also ranked among the top five for the world's best regional airports and ranked fourth for the best airport staff in North America. (Skytrax, 2017)
- The University of Colorado A Line to DEN ranked No. 4 in the nation for the best U.S. airport transportation option. (Milecards.com, 2017)

DEN was the sixth-busiest airport in the nation and 18th-busiest worldwide in terms of passenger traffic in 2016.

—U.S. Bureau of Transportation Statistics, 2017;
Airports Council International, 2017

Denver ranked No. 5 among the 20 "Best U.S. Cities for Business Travel."

—On Call International, 2017

- Three general purpose Foreign Trade Zones in Metro Denver and Northern Colorado allow manufacturers using imported parts and materials to expedite customs and reduce or eliminate fees and tariffs. The three zones are located near the former Stapleton Airport, one at the former WorldPort at DEN, and one at the Great Western Industrial Park in Windsor. (City and County of Denver)

2. Lower overall costs of doing business

- Colorado ranks as one of the nation's most favorable corporate income tax structures. The state's corporate income tax rate of 4.63 percent is one of the lowest in the nation and is based on single-factor apportionment, which allows companies to pay taxes based solely on their sales in the state. (State of Colorado; The Tax Foundation)
- Aircraft manufacturers or companies that are involved in the maintenance and repair, completion, or modification of aircraft located in aviation development zones can qualify for a state income tax credit of \$1,200 per new full-time employee. (Colorado Department of Revenue)
- Colorado provides sales and use tax exemptions for on-demand air carriers and eligible aircraft that on-demand air carriers utilize only for the purpose of final assembly, maintenance, modification, or completion of the aircraft manufacturing process. (Exemption clarified in Colorado House Bill 14-1374)
- The City and County of Denver supports a business-friendly climate for aviation companies. The city provides sales and use tax exemptions on aviation parts. (The City and County of Denver, 2017)
- Colorado's fly-away sales tax exemption on planes manufactured in Colorado, a valuable incentive for aircraft manufactures, applies to aircraft built in Colorado but housed in another state. (State of Colorado, Office of the Governor)
- Metro Denver ranked fourth among *Forbes'* 2017 "Best Places for Business and Careers." The Fort Collins metro area ranked 17th, Colorado Springs ranked 18th, Boulder ranked 45th, and Greeley ranked 51st. (*Forbes*, 2017)

Metro Denver ranked fourth among the "Best Places for Business and Careers" in 2017.

—*Forbes*, 2017

3. Access to aviation-related training programs

- The Aviation and Aerospace Science Department at Metropolitan State University of Denver (MSU Denver) is one of the largest and most advanced collegiate aviation programs in the country. The Robert K. Mock World Indoor Airport, located on campus, is one of the world's premier collegiate aviation and aerospace computer and flight simulation training laboratories.
- The nine-county region offers more than 20 flight training schools at Boulder Municipal Airport, Centennial Airport, Erie Municipal Airport, Northern Colorado Regional Airport, Front Range Airport, and Rocky Mountain Metropolitan Airport. These schools provide pilot training, aviation instruction, and certification programs. (Metropolitan State University of Denver, 2017)
- Aims Community College and MSU Denver are among 36 schools in the nation approved under the FAA's Air Traffic Collegiate Training Initiative. (Federal Aviation Administration, 2017)
- Spartan College of Aeronautics and Technology, located near Rocky Mountain Metropolitan Airport, offers programs in airframe and power plants (A&P) and aviation electronics technology. (Spartan College, 2017)

4. An overall better quality of life

- Metro Denver ranked as the nation's seventh-fittest metropolitan area in 2017. Low obesity, increased physical activity, and low prevalence of diabetes and heart disease contributed to its high rank. (American College of Sports Medicine, 2017)
- Denver was named as the second-best place to live in the U.S. in 2017. The city's desirability, prominent research institutions, and growing job market contributed to its notable rank. (*U.S. News & World Report*, 2017)

Metro Denver ranked as the nation's seventh-fittest metro area in 2017.

—American College of Sports Medicine, 2017

- The city of Lone Tree ranked seventh in the "Best Places to Live" list. Superior (49th) and Louisville (50th) were named to the list's top-50 locations. (*MONEY Magazine*, 2017)
- FasTracks is a multibillion dollar comprehensive transit expansion plan to build 122 miles of new commuter rail and light rail, extend existing routes, and expand the regional bus network across the eight-county district.
- Metro Denver has a semi-arid, four-season climate with mild temperatures and nearly 300 days of annual sunshine. (U. S. National Oceanic and Atmospheric Administration, National Climatic Data Center, 2017)

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