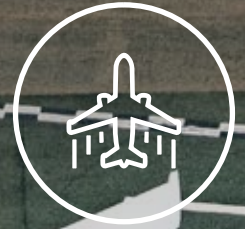




Metro Denver EDC



2023 INDUSTRY CLUSTER STUDY

AVIATION

METRODENVER.ORG

ABOUT



The Metro Denver Economic Development Corporation (Metro Denver EDC) is the nation's first regional economic development entity, bringing together the entire nine-county Metro Denver and Northern Colorado region to promote and support the mutual growth of our region's talent and businesses, while also recruiting new talent and new business to join us living a prosperous and elevated life.

Metro Denver is a region on the rise, fueled by the passion of changemakers and boundary breakers that are in it for the long haul. With a culture that's always moving forward, the companies that call this community home are poised to make a real impact - one that goes beyond their own four walls - as we work together to build the best possible future for our region.

As part of the Metro Denver EDC brain trust, our 250+ investors get unmatched access to the decisions, directions and collaboration opportunities that are transforming the landscape of our economy, region and communities.

Join us to make your voice heard, collaborate with the region's top business executives, and be part of leading the changes you want to see happen.

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2023 INDUSTRY CLUSTER SCAN

AVIATION

By The Numbers

INDUSTRY SNAPSHOT US NUMBERS IN PARENTHESIS



COMPANIES: 1,190
AVERAGE WAGE: \$81,600
EMPLOYMENT CONCENTRATION RANKING: 6

Direct Employment: 24,110

Direct Employment Concentration (2022): 1.2% (0.7%)

5-Year Employment Growth (2017 - 2022): 17.5% (1.8%)

1-Year Employment Growth (2022): 9.7% (7.8%)

INDUSTRY OVERVIEW

Metro Denver is the premier entry-point to national and global markets. The nine-county Metro Denver and Northern Colorado region is a hub for the aviation industry with Denver International Airport (DEN) and eight regional airports generating nearly \$37 billion in economic output annually. These airports provide connectivity to worldwide markets and destinations, a key component to the region's rapidly expanding business community and world-renowned tourist destinations. Over the last year, several of the airports have started or completed new projects to support increased demand. Centennial Airport broke ground on 18 new hangars for New York-based Sky Harbour and has six additional hangars under construction by six different companies. A new research building as well as a new paint facility opened at Rocky Mountain Metropolitan Airport. DEN completed the final phase of its Gate Expansion Program, which increased overall gate capacity at the airport by 30%. DEN also started the Completion phase of the Great Hall Expansion, which is expected to be completed in mid-2028.

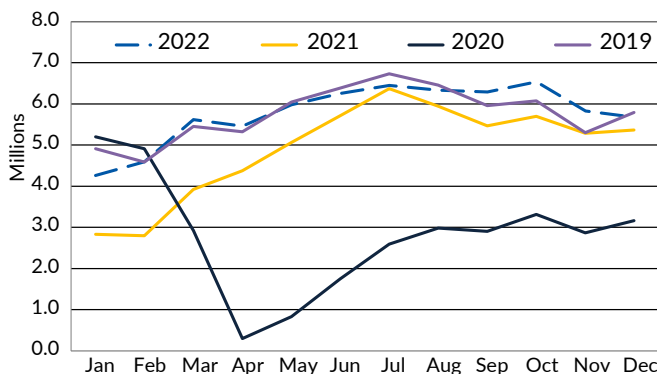
Air travel was significantly impacted by COVID-19, but due to a strong domestic network and connections, DEN has been one of the busiest airports in the nation and the world throughout the recovery period. DEN set a passenger record in 2022, outpacing its previous record set in 2019 by 0.4%. The airport has grown from serving 31 million passengers in 1995 to 69.3 million in 2022. DEN is currently the third-busiest airport in the world, outpacing other major airports due to its strength as both a domestic and international hub for air service. International traffic also set a record, with over 3.3 million international passengers traveling through the airport in 2022, solidifying its position connecting the region to the world and Denver's position as a global city. As part of its Vision 100 plan to reach 100 million annual passengers within the next ten years, DEN is working to establish flights between Denver and Africa as well as other disconnected destinations.

DEN offers nonstop service to over 210 destinations, including more than 25 international destinations. The airport generates \$33 billion in annual economic impact for Colorado and is home to roughly 1,200 companies and 30,000 employees. DEN's two largest airlines, United Airlines and Southwest Airlines, both had their busiest year on record at DEN in 2022. Twenty direct routes were added to DEN's 2022 schedule, including many returning international flights that had been cancelled due to COVID-19. Airlines added nine international and domestic flights from DEN to destinations that were already being served by a competing airline, as well as four domestic destinations that had never before been served by DEN.

Employment in the region's Aviation cluster accelerated in 2022, rising 9.7% after rising 2.5% in 2021. Over the past five years, employment in the Aviation cluster grew 17.5% or by nearly 3,600 jobs, despite a decline of 7.6% in 2020 due to impacts of the COVID-19 pandemic on air travel. Several announcements in 2022 supported the region's growing Aviation cluster. Boom Supersonic announced plans to build a test facility for its Overture plane, a supersonic airliner that will be able to fly passengers at double the speed of conventional airliners. Southwest Airlines opened a new 130,000-square-foot maintenance hangar at DEN and Frontier is expanding at DEN with a new ground-load facility that will include 14 new gates. Amid a push towards sustainability across the industry, Gevo Inc. struck an agreement with Oneworld Alliance, a coalition of 14 airlines, for its members to buy at least 200 million gallons annually of Gevo's low-carbon jet fuel refined from corn.

Industry-wide operational challenges in 2022 included record fuel prices, labor shortages, and the increasing possibility of a global recession. Educational institutions, airlines, and other organizations continued their efforts to address current and future labor shortages across the aviation industry. United Airlines began work on the expansion of its Denver-based Flight Training Center and plans to hire 10,000 pilots by 2030. Aims Community College received a grant to create a mobile aviation lab to promote careers in aviation and aerospace among K-12 students. As part of its Great Hall Expansion, DEN plans to open the Center of Equity and Excellence as a workforce training center for various aviation-related roles.

Total DEN Passengers by Month



Source: Denver International Airport.

¹The 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.

CLUSTER DEFINITION

The Metro Denver and Northern Colorado region is comprised of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, Jefferson, Larimer, and Weld counties. In this report, the Aviation cluster is defined by 42, six-digit North American Industry Classification System (NAICS) codes including aircraft manufacturing and technology, passenger and freight air transportation, airport operations, airlines, air traffic control, and support services. This definition allows for a comparative analysis of the Metro Denver and Northern Colorado region's Aviation cluster relative to other metropolitan regions across the nation. This definition also avoids double counting workers in other adjacent technology clusters such as IT-Software and Aerospace.

CLUSTER JOB TRENDS

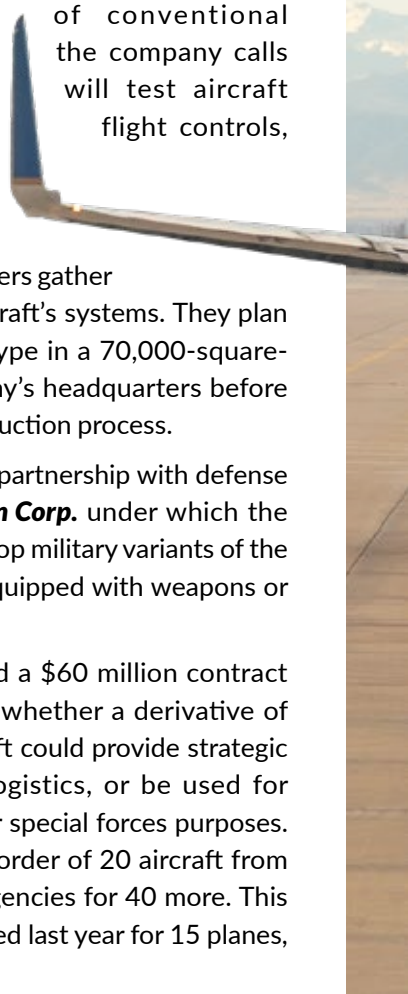
- » Employment in the region's Aviation cluster rose 9.7% between 2021 and 2022, compared with a 7.8% increase nationwide.
- » Between 2017 and 2022, employment in the region's Aviation cluster increased 17.5%, 15.7 percentage points higher than the nation.
- » The Aviation cluster is nearly 1.5 times more concentrated in the region than in the U.S.
- » The number of Aviation cluster companies grew 9.1% over-the-year and over 44.4% over the past five years.
- » Nearly 89% of the state's total employment in the Aviation cluster was located in the Metro Denver region.
- » 89% of the region's cluster companies have 10 or fewer employees, 10.4 percentage points above the national concentration of 78.6%.





MAJOR INDUSTRY INVESTMENTS, EXPANSIONS & MILESTONES

- » **United Airlines** is investing more than \$100 million to expand its Denver-based Flight Training Center. A new four-story building broke ground in May 2022 and is expected to be completed by the end of 2023. The expansion will add 155,000 square feet to United's 23-acre campus that currently houses seven buildings and over 1,000 employees. Along with additional classrooms and offices, United's new building will add 12 flight simulators to bring the world's largest flight training campus to 80 total.
- » **United Airlines** hired 15,000 employees companywide in 2022 and expects to add another 15,000 in 2023. In Denver, the company added 1,800 in 2022 and plans for another 1,800 in 2023. The hiring across the company includes pilots, flight attendants, aircraft mechanics, customer service, and ramp and gate agents. The airline has a goal of employing another 10,000 pilots by 2030.
- » **United Airlines** placed an order for 100 widebody Boeing 747 Dreamliner aircrafts to add to its Denver fleet, with options to purchase another 100. The aircrafts will be delivered between 2024 and 2032 and 100 of the Dreamliners will replace the older, less fuel efficient 767 aircraft. The airline also exercised options to buy 100 Boeing 737 MAX narrowbody jets for delivery between 2024 and 2028.
- » **Southwest Airlines** opened its new \$100 million maintenance hangar at DEN. The 130,000-square-foot hangar has space for three Boeing 737 planes, with space to park eight more outside the hangar. The hangar will allow for maintenance to be done indoors, something critical in a state like Colorado. The hangar includes offices, a training area, warehouse space, and a maintenance shop and serves as the home for more than 100 Southwest technical operations employees.
- » Denver-based **Frontier Airlines** is expanding at DEN, with a new ground-load facility on Concourse A which will include 14 new gates, 18,000-square-feet of support space, and an adjacent 8,000-square-foot maintenance facility. The first phase of the project, which would be an initial four gates, is targeted for completion in fall 2023. Full project completion is slated for mid-2024.
- » **Frontier Airlines** purchased 158 of Connecticut-based Pratt & Whitney's A321neo aircraft, the most fuel-efficient commercial plane in the U.S. The aircrafts will be delivered by 2029.
- » **Icelandair** celebrated its 10th anniversary at DEN. Over the past decade, Icelandair has carried more than 700,000 passengers onboard its Denver to Reykjavik, Iceland flights.
- » Douglas County-based biofuel company **Gevo Inc.** struck an agreement with Oneworld Alliance, a coalition of 14 airlines, for its members to buy at least 200 million gallons annually of Gevo's low-carbon jet fuel refined from corn. One of the members, American Airlines, plans to buy 100 million gallons annually for five years starting in 2026, which will total \$2.75 billion. Separate from that agreement, Delta Airlines has committed to buy 75 million gallons starting in 2026, which is enough to cover about 10% of the airline's flight operations. Gevo aims to have commitments for 1 billion gallons in annual sustainable aviation fuel sales by 2030.
- » Centennial-based startup **Boom Supersonic** announced plans to build a test facility near the company's headquarters for the design of its new supersonic airliner, a 65-80 passenger Overture plane that will be able to fly passengers at double the speed of conventional airliners. At the facility, which the company calls "The Iron Bird," the company will test aircraft electronics and hydraulics, software, and other systems. The center will also house flight simulators in which pilots will practice while engineers gather data and troubleshoot the aircraft's systems. They plan to construct their first prototype in a 70,000-square-foot building near the company's headquarters before beginning the commercial production process.
- » **Boom Supersonic** announced a partnership with defense contractor **Northrop Grumman Corp.** under which the companies plan to jointly develop military variants of the Overture plan that could be equipped with weapons or defensive systems.
- » **Boom Supersonic** was awarded a \$60 million contract from the Air Force to look at whether a derivative of the company's Overture aircraft could provide strategic rapid global transport and logistics, or be used for intelligence, reconnaissance, or special forces purposes. Boom Supersonic secured an order of 20 aircraft from **American Airlines** with contingencies for 40 more. This is following an order from United last year for 15 planes,



and up to 35 more. Flight tests are planned for 2026, and Boom's expansion into commercial flights is expected by 2029. The company currently employs 200 people but is expected to grow much larger.

- » Windsor-based **Water Valley Land Co.** won approval to open a U.S. Customs Office at the Discovery Air campus near the Northern Colorado Regional Airport at Loveland. The building has already been completed, and the developers expect the facility to be open in the first quarter of 2023.



DENVER INTERNATIONAL AIRPORT EXPANSION

Over the last 26 years, DEN has grown from 33.1 million annual passengers to more than 69 million passengers in 2022. While passenger traffic slowed in 2020 and 2021 due to COVID-19, passenger traffic in 2022 outpaced pre-pandemic levels, setting a new annual record. DEN generates \$33 billion a year, employs nearly 30,000 employees, and supports nearly 260,000 jobs.

DEN has outgrown its facilities that were built for 50 million passengers and in response, DEN is expanding its gates, expanding and enhancing its concourses, renovating the Jeppesen Terminal, upgrading its baggage system, and more.

Vision 100

Vision 100 is DEN's strategic plan to prepare for and reach 100 million annual passengers in approximately 10 years. Vision 100 consists of four pillars and four guiding principles. The four pillars are: empowering our people, growing our infrastructure, maintaining what we have, and expanding global connections. The four guiding principles are: sustainability and resiliency; equity, diversity, and inclusion; continuous stakeholder input/feedback; and enhancing customer experience.

Gate Expansion & Concourse Renewal Program

DEN is making many improvements to accommodate the continued growth, including expanding and enhancing Concourse A-West, Concourse B-West and B-East, and Concourse C-East. This work also includes renewal of the existing infrastructure in each concourse.

The Gate Expansion Program, which started in 2018, was completed in 2022. DEN built a total of 39 new concourse

gates and added upgraded seating options, new concessions, and more outdoor patio space, increasing overall capacity at the airport by 30%. The new gates were added on all three concourses to allow DEN's airlines an opportunity to grow and for DEN to accommodate new airlines, including international carriers.

- » Southwest Airlines added 16 new gates on Concourse C. The 530,000-square-foot area on the far east end of the concourse is the largest space commissioned by DEN since the opening of the Westin Hotel and Transit Center in 2015.
- » United added 12 new gates on the A-West Concourse and 10 new gates on the B-East concourse, bringing the airlines total at DEN to 90 gates. United also opened a first-of-its-kind "United Club FlySM" that allows travelers to grab a snack, drink, or coffee on the way to their flight. A new United Club will open in the A Concourse in the summer of 2023.

Great Hall

The \$2.1 billion Great Hall Project is one of DEN's capital improvement projects that will help the airport prepare for the future by enhancing security, improving operational efficiency, and increasing the capacity of the Jeppesen Terminal. The project consists of three phases. The first phase was completed in 2021 and continued progress was made on the final two phases in 2022:

- » Phase Two began in July 2021 and will enhance security by building a new security checkpoint on Level 6 in the northwest corner of the Jeppesen Terminal. The new security checkpoint is slated to open in 2024 and will have improved technology and a new queuing concept that will provide



more effective and efficient security. It will also include the installation of a triple escalator to move passengers directly to the train platform.

- » The \$1.3 billion Great Hall Completion phase began in 2022 and is expected to be complete in mid-2028, with sections opening along the way. The final phase of the project includes the construction of a new security checkpoint on the northeast corner of Level 6, new airline check-in facilities on the south end of Level 6, new meeting/greeting areas for both domestic and international arrivals, and construction of the Center for Equity and Excellence in Aviation.

Baggage System Upgrades

DEN received a \$60 million grant from the FAA under the Airport Terminals Program, which will be used primarily to upgrade the airport's baggage handling system. This was the largest Airport Terminal Program discretionary grant in the country. The new system will improve energy efficiency and help accommodate more passengers.

Additional planned upgrades include replacing 31 existing explosive detection machines with 25 new, more advanced models, as well as the modification of two checked bag inspection system modules to include additional capacity of 3,000 bags, bag routing to explosive detection equipment, and new fail-safe locations.

Train Car Replacement

Train Cars: new cars were ordered in 2018 with delivery initially expected in May 2022. Due to global supply chain issues, the delivery was delayed until February 2023. The

airport currently has 31 train cars and plans to replace 16 of those cars and add an additional 10. All 26 cars are now expected to arrive by October 2023, with four new cars being delivered every 6 weeks.

Peña Project Study

The Peña Boulevard Master Plan will include proposed infrastructure, policy, and operational solutions that will enhance environmental sustainability, quality of life, mobility and connectivity, economic competitiveness, and reduce barriers to opportunity, while incorporating equity considerations.

To develop this plan, DEN is conducting a Transportation Study and Mobility Study while Denver's Department of Transportation & Infrastructure conducts a Travel Study for the Gateway Area. Together the studies will allow DEN to develop multi-modal solutions to improve mobility along Peña Boulevard and within nearby communities.

Alternative Ways to Access Concourses

DEN issued a Request for Information (RFI) to explore alternative ways to move passengers between the terminal and the concourses. Roughly 70% of non-connecting passengers must ride the underground train to get to their gates but do not have an easy backup option if the train is too crowded or breaks down. DEN received proposals from 18 firms and officials are currently exploring design concepts including bridges, gondolas, and underground walkways.



Air Space Redesign

The FAA implemented new Denver-area flight paths as part of the FAA's Metroplex initiative to coordinate airspace around congested metropolitan areas and modernize the National Airspace System through 2025.

- » The Denver Metroplex Project includes 29 new satellite-based routes and modifications to 15 existing routes to move air traffic more safely and efficiently throughout the region. The reconfiguration is also essential for the adoption of NextGen.
- » The effort impacts DEN, Centennial Airport, Greeley-Weld County Airport, Northern Colorado Regional Airport, and Rocky Mountain Metropolitan Airport.

Colorado Air and Space Port

Colorado Air and Space Port (CASP) will serve as the nation's hub for commercial space research, development, and transportation. Following FAA approval of its site operator license in 2018, CASP continues to develop its capability to ultimately serve as a facility for horizontal take offs and landings in Colorado by aircraft capable of suborbital flight.

Three companies are using CASP to develop horizontal launch type vehicles.

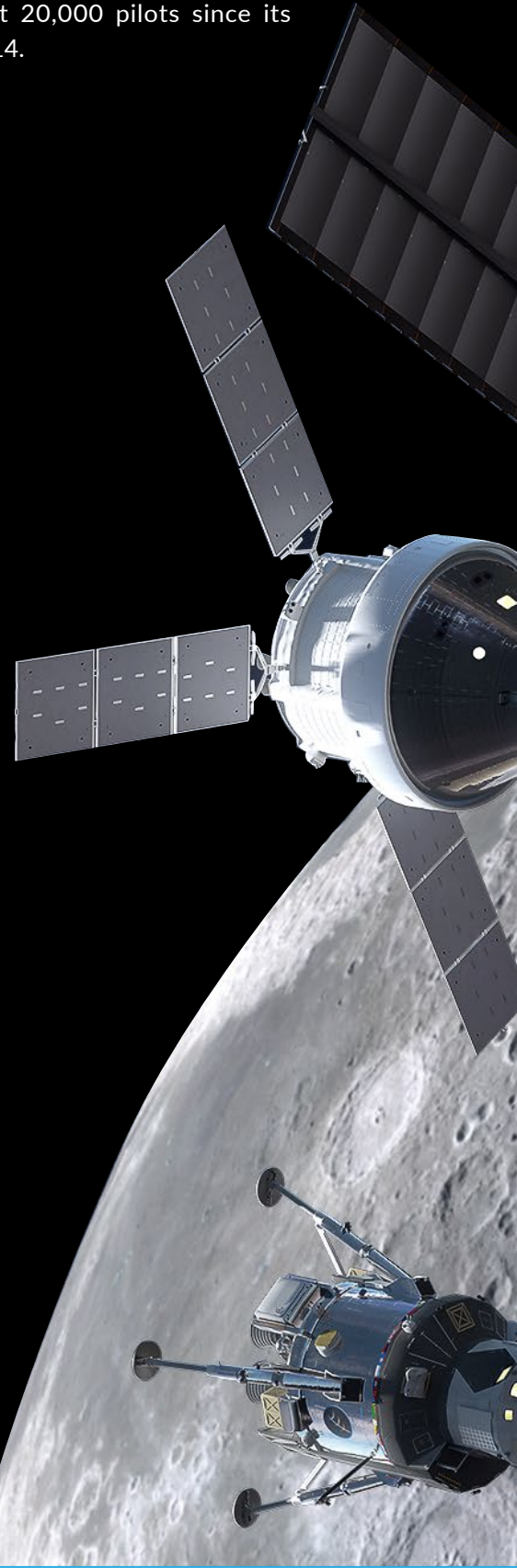
- » Reaction Engines is building a hypersonic engine that can propel a reusable aircraft to a mile per second.
- » PD Aerospace is developing a reusable suborbital spaceplane for micro-gravity testing, space tourism, and eventually point-to-point transportation.
- » Dawn Aerospace is developing a reusable ship to deliver small payloads into space.

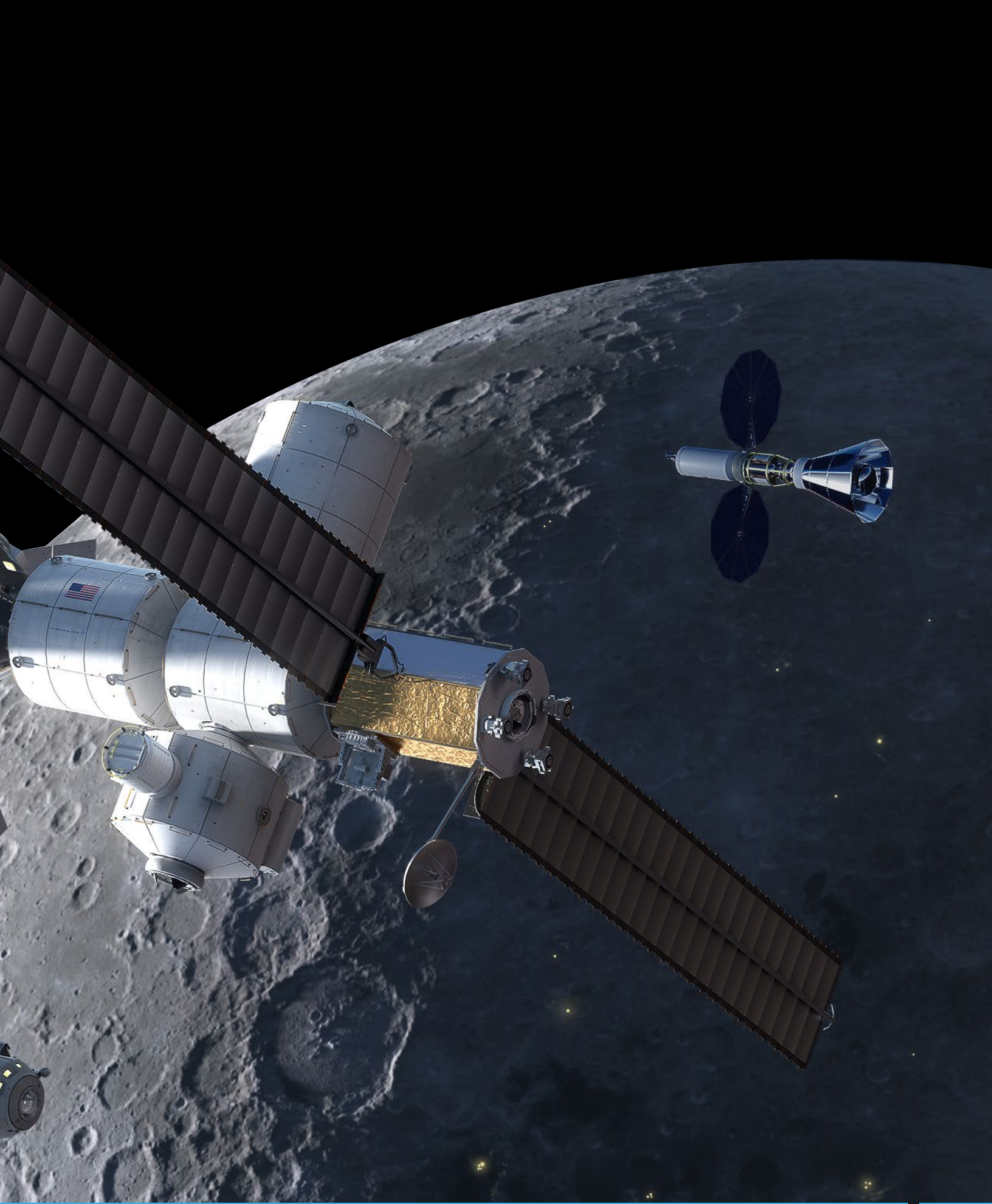
Unmanned Aircraft Systems

The region is a recognized leader for unmanned aircraft systems (UAS) and innovative research to develop the future of unmanned aircraft and autonomous technologies.

- » Colorado has the highest number of UAS operators per capita.
- » Colorado provides an ideal geographic location for federal, state, and private UAS research and operations, including more than 35,000 square miles of FAA-approved UAS operation areas.
- » Colorado has the highest altitude, most geographically diverse UAS test areas in the nation, including the Chaffee County UAS test area, and a nearly 8,100-square-mile air space in the San Luis Valley where testing can be conducted to heights of up to 15,000 feet.

- » Drone U, an online drone training facility, will move its headquarters from Albuquerque, New Mexico to Loveland. The school has trained almost 20,000 pilots since its founding in 2014.





NINE-COUNTY REGION AIRPORT INFORMATION

Denver International Airport

DEN is owned and operated by the City and County of Denver and is the primary airport serving the nine-county region and the state of Colorado.

Rankings & Awards

- » DEN ranked No. 1 in the USA Today's 10 Best Awards as the "Best Large Airport" in 2021.
- » DEN ranked No. 7 among the "Best Airports in North America 2022," ranked No. 2 among the best airports in the 40+ million passenger category and had the fourth-best airport staff in North America, according to SkyTrax.
- » DEN was the No. 1 ranked Mid-Sized Fleet (50-999 assets) in the 2022 Leading Fleet Awards (Government Fleet, 2022).
- » DEN was the 14th-best "Mega Airport" in North America in the J.D. Power 2022 North America Airport Satisfaction Study.
- » In 2022, DEN received the Guinness World Record title for the World's Largest Airport Therapy Animal Program. The animals and their handlers comprise the airport's Canine Airport Therapy Squad (CATS). The program currently consists of 84 animals made of up 33 dog breeds and one cat.

Passenger Traffic

- » DEN is the 3rd-busiest airport in the world by passenger traffic.
- » Passenger traffic rose 17.8% between 2021 and 2022, with nearly 69.3 million passengers traveling through DEN.
- » Passenger traffic in 2022 set a new record, outpacing the previous record set in 2019 by 0.4%.
- » October 2022 was DEN's second busiest month on record, with over 6.5 million passengers traveling through the airport.

- » International passenger traffic was up 74.7% in 2022 compared to 2021, and domestic traffic was up 15.9% over-the-year.

Air Service

- » Denver's strategic location near the geographic center of the U.S. makes DEN a convenient transcontinental connecting point.
- » DEN has room to double in size to 12 runways, another terminal, two additional concourses, and 100 million passengers.
- » DEN is the only major hub airport within a 500-mile radius.
- » 23 airlines provide service to over 210 destinations from DEN, including 25 international destinations in 15 countries.
- » DEN's largest carriers are United, Southwest, and Frontier Airlines.
 - » DEN is United's fastest growing and largest hub with 46.4% market share.
 - » United is the only U.S. airline to offer transatlantic service from Denver.
 - » United offers more destinations than any other carrier at DEN (170 destinations, 17 of which are international).
 - » Southwest Airlines' fastest-growing airport operation and largest hub is DEN.
 - » Southwest's market share has grown from 3% in 2006 to 31% in 2022 and offers 93 nonstop destinations.
 - » Frontier is Denver's third-largest airline by passenger numbers and largest hub in terms of seat capacity.
- » The international travel market was devastated due to COVID-19, but DEN's international travel market has made a strong recovery, with several airlines restarting or adding new international flights to and from DEN.

- » Canadian airline WestJet resumed service at DEN with twice-weekly nonstop service to Calgary in May 2022. The airline first started its Denver to Calgary route in March 2018, but stopped in March 2020 due to travel restrictions associated with the COVID-19 pandemic.
- » Cayman Airways, the only Caribbean-based airline to operate in Denver, restarted its once-weekly nonstop flight to the Cayman Islands from DEN. The direct flight, which launched in March 2019, was last offered in March 2020, and paused for the COVID-19 pandemic.
- » Edelweiss restarted a flight between DEN and Zurich, Switzerland.
- » United restarted service to Toronto Pearson International Airport in Ontario, Canada; Edmonton International Airport in Alberta, Canada; and Heathrow Airport in London, England.
- » Southwest started a new competitive service to Cozumel, Mexico.
- » United started a new competitive service to Munich International Airport with 250 total flights in 2022.
- » In 2022, DEN was served by 12 foreign-flag carriers with 26 international cities scheduled to be served nonstop.

Air Cargo

Robust air cargo demand is a bright spot for DEN as the global transition to e-commerce has benefited the industry for the foreseeable future.

- » DEN's air cargo operations set a record in 2022, with volume totaling nearly 725 million pounds. This was the first year since 2003 that DEN's annual cargo volume exceeded 700 million pounds. Volume was up 7.5% compared to 2021 and up 7.7% compared to 2019.

- » DEN is home to several world-class cargo movers and support facilities, including DHL, UPS, FedEx, and United Airlines cargo.
- » Fifteen cargo airlines and 14 major and national carriers provide cargo service at DEN.
- » There are no operation curfews, making DEN a 24-hour cargo operation. The layout of the airfield and a 39-acre cargo ramp make freight handling efficient.

Facilities & Infrastructure

- » DEN is the largest airport site in North America and the second largest in the world.
- » Six non-intersecting runways, three concourses, and 148 gates with 21 ground load positions serve the airport.
- » One of DEN's runways measures 16,000 feet and is the longest commercial runway in North America.
- » DEN completed its Gate Expansion Program in 2022, adding 39 new gates and increasing gate capacity by 30%. Nearly 50,000 square feet of concession space was added as part of the project.
- » The airport has the space to double its runways and facilities, with an additional 16,000 acres of land available for commercial development.
- » DEN 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 DEN that reduce fuel consumption and noise.
- » Since 2010, DEN has worked closely with the FAA, Jeppesen, the major airlines, and Rocky Mountain and Centennial Airports to implement NextGen and UAS.



Sustainability

DEN has long been at the forefront of developing on-airport renewable energy projects, having installed its first solar array in 2008. Sustainability is one of the guiding principles of DEN's Vision 100 plan to help achieve its goal of becoming one of the greenest airports in the world. DEN has developed a set of sustainability initiatives to help reduce the environmental impacts of airport operations over the next five years, including expanding its solar energy program, implementing deep energy and water retrofits across the airport, designing and building LEED gold facilities, planning for transition to electric vehicles and installing additional charging stations, and improving recycling and composting infrastructure.

- » DEN was recognized for demonstrating leadership in alternative fuel and advanced vehicle technology deployment and received the Leading Airport Fleet Award at the 2022 Advanced Clean Transportation (ACT) Expo.
- » DEN is adding two new on-airport solar arrays that will generate approximately 36 million kilowatt-hours of electricity per year, or enough to power 6,000 Denver residences. This will double DEN's total solar energy generation capacity to 34 megawatts.
- » DEN is working to permanently close 64 oil wells on its property by July 2023. This includes deconstruction, disposal, and reclamation of all above ground oil and gas equipment, as well as proper removal of all underground oil flowlines.
- » The B-West expansion of four new gates earned Gold certification under the Leadership in Energy and Environmental Design (LEED) program. This is the fifth building at DEN with a LEED certification.
- » DEN was the first airport in the nation to receive ISO 14001 Environmental Management System certification in 2004.
- » Alternative vehicles make up 51% of DEN's light duty fleet.
- » DEN's fleet includes 293 alternatively fueled vehicles, including 172 buses, sweepers, and other vehicles using compressed natural gas; and 121 electric and hybrid electric vehicles.
- » DEN's energy-efficient design is projected to use about 20% less energy than a typical building.



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. APA is the second-busiest general aviation airport in the U.S. and the 23rd busiest of all airports in the U.S. APA supports 23 business parks and 6,000-plus businesses in the south metro area. 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's economic contribution nearly doubled in just five years, generating more than \$2 billion for the region annually, the highest among the state's general aviation airports.



Colorado Air and Space Port (CASP) is located seven miles from DEN and is one of the largest general aviation airports in the U.S. with 3,200 acres of land, offering exceptional opportunities for business and hangar development. The facility is the region's only reliever airport without major residential areas nearby and no noise or over-flight impacts. The CASP Air Traffic Control Tower is the tallest general aviation tower in the U.S., 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 the facility. The airport generates more than \$116 million in annual economic impact to the region.



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. 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 over 60 aviation-related companies and flight departments, including the U.S. headquarters of Pilatus Business Aircraft and the U.S. Forest Service tanker base. The airport generates over \$730 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
- » Northern Colorado Regional Airport
- » Erie Municipal Airport
- » Vance Brand Municipal Airport
- » Greeley-Weld County Airport

Notable announcements at the region's general aviation airports included:

- » Centennial Airport won the "2022 Colorado Airport of the Year" award from the Colorado Department of Transportation (CDOT) Division of Aeronautics. The award recognizes a Colorado public-use airport that exhibits outstanding contributions to the Colorado Aviation System.
- » New York-based Sky Harbour broke ground on 18 new hangars at Centennial Airport. The new hangars will be built in two phases of nine hangars each, totaling 200,000 square feet of space. In addition, there are six hangars currently under construction by six different companies.
- » Avelo Airlines, the low-cost startup airline that began serving Northern Colorado Regional Airport in 2021, raised \$42 million in Series B funding, which will be used to accelerate the company's growth trajectory in 2022 and beyond.
- » The National Center for Atmospheric Research and University Corporation for Atmospheric Research completed their redevelopment of the Research Aviation Facility located at the Rocky Mountain Metropolitan Airport. The new 42,921-square-foot, \$25 million building has increased lab and storage space for critical research into weather, water, climate, and air quality.
- » Swiss aircraft manufacturer Pilatus Business Aircraft Ltd opened a new paint facility at their U.S. Completions Centre located at Rocky Mountain Metropolitan Airport. The \$15 million investment is the latest expansion for the center, which has been located at the Broomfield airport for more than 26 years.

AVIATION ECONOMIC PROFILE

2022 Rankings²

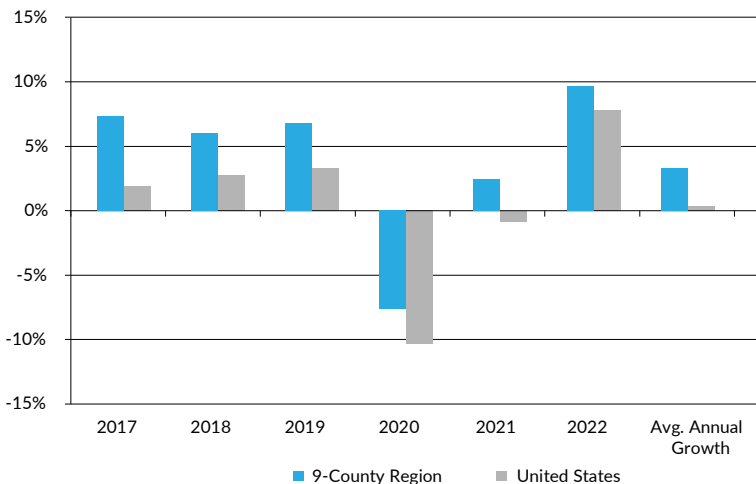
Aviation Summary

Aviation Employment Rank	8th (up one position from 2021)
Aviation Employment Concentration Rank	6th (up six position from 2021)

Aviation Employment & Company Profile, 2022

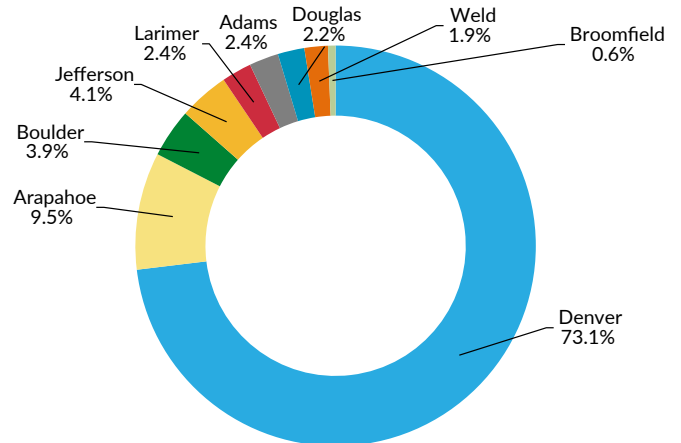
	9-County Region	USA
Direct Employment, 2022	24,110	1,121,540
Number Of Direct Companies, 2022	1,190	42,520
One-Year Direct Employment Growth, 2021-2022	9.7%	7.8%
Five-Year Direct Employment Growth, 2017-2022	17.5%	1.8%
Avg. Annual Direct Employment Growth, 2017-2022	3.3%	0.4%
Direct Employment Concentration	1.2%	0.7%
% Of Companies With <10 Employees	89.0%	78.6%

Number of Employees Growth Rate



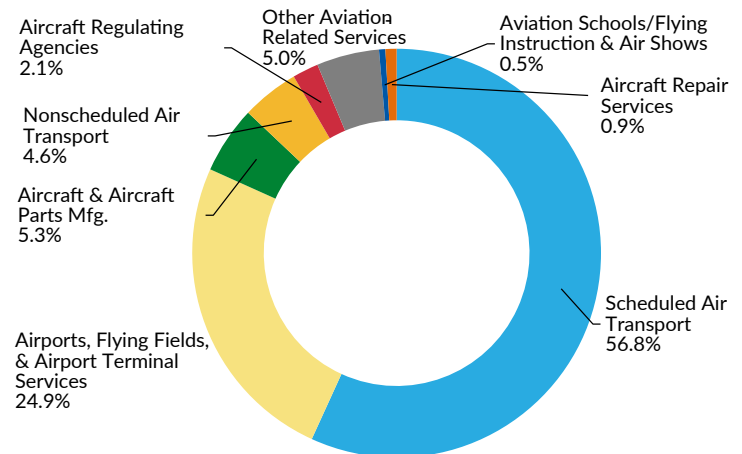
Source: Dun & Bradstreet, Inc., Hoover's Online Database; Market Analysis Profile, 2017-2022.

Employment by County, 2022



Sources: Market Analysis Profile, 2022; Development Research Partners.

Employment by Category



Sources: Market Analysis Profile, 2022; Development Research Partners.

²Direct 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.

AVIATION WORKFORCE PROFILE

- » Metro Denver has the 2nd highest concentration of Airline Pilots, Copilots, and Flight Engineers among MSAs, according to the Bureau of Labor Statistics.
- » Metro Denver ranked in the top 10 MSAs with the highest employment levels for commercial pilots, according to the Bureau of Labor Statistics.
- » Denver and Boulder both ranked among the top 100 highest-paying cities for aircraft mechanics and service technicians, with an average salary in 2021 of \$76,960 in Denver and \$68,750 in Boulder. (USA Wage, 2022).
- » Colorado had the seventh-highest share of active pilots and flight instructors in the U.S. in 2022, according to the FAA.
- » Educational institutions across the region are training the future aviation workforce.
 - » The Colorado Department of Transportation awarded **Aims Community College** a grant to create a mobile aviation lab to promote careers in aviation and aerospace among K-12 students. The grant is intended to help with workforce development in the industry and will be used to reach people who might not have previous exposure to aviation. The labs include virtual reality flight simulators, air traffic control simulation, unmanned aircraft simulators, drones, and STEM-related activities. The lab will be ready for launch by summer of 2023.
 - » The Geospatial Science program at **Front Range Community College** provides an opportunity in GIS, remote sensing, GPS, web mapping, database, and recently UAS operation and data collection.
 - » **Metropolitan State University of Denver (MSU Denver)** offers an Unmanned Aerial Systems (UAS) certificate to help fill positions in the expanding commercial drone pilot industry.
 - » **The Center of Equity and Excellence** is a workforce training center planned at **DEN** that will help reverse the shortage of workers trained in various aviation-related roles. The center will focus on three key programming areas: business development training academy, career pathways, and research and innovation lab.
 - » **DEN Academy** is a program offered to students in 7th through 10th grade. The Academy is an introduction to aviation through interactive learning, critical thinking, and team projects.

- » **MSU Denver's Aviation and Aerospace Science Department** is one of the largest collegiate aviation programs in the nation. Several training and simulation laboratories on campus include Robert K. Mock Flight Simulation Lab, the Air Traffic Control Lab, the Jet Lab, and the UAS/UAV Lab, among others.
- » Several educational institutions throughout the region offer partnerships with private companies including Jeppesen-Boeing, United Airlines, Envoy, and Mesa Airlines to provide internship and job opportunities.
- » **Aims Community College** and **MSU Denver** are among 37 schools in the nation approved under the FAA's Air Traffic Collegiate Training Initiative.



Age Distribution

» The aviation cluster has a larger share of employees that are between the ages of 45 and 64 years old (39.7%), compared with the age distribution across all industries in the region (35.1%).

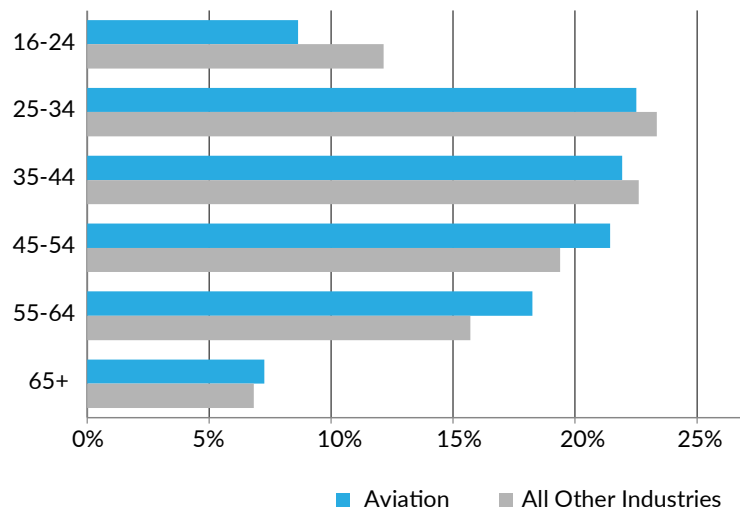
Wages

- » The 2021 average annual salary for workers in the Aviation cluster was \$81,600 in the nine-county region, compared with the national average of \$80,780.
- » The average starting salary for workers in the aviation cluster was \$53,100 in the region, compared with \$43,070 across all industries.
- » Total payroll reached nearly \$1.8 billion in 2021.

Occupation & Salary Profile

The Occupation & Salary Profile below includes the 10 largest cluster occupations. It 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.

Metro Denver & Northern Colorado's Distribution of Employment by Age



Source: QCEW Employees, Non-QCEW Employees, & Self Employed - Lightcast 2022.4 Class of Worker.

METRO DENVER & NORTHERN COLORADO AVIATION OCCUPATION & SALARY PROFILE, 2022

10 Largest Aviation Occupations in Metro Denver and Northern Colorado	Total Working Across All Industries (2022)	Number of Available Applicants (2022)	Number of Graduates (2021)	Median Salary	10th Percentile Salary	25th Percentile Salary	75th Percentile Salary	90th Percentile Salary
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	28,620	410	8	\$31,252	\$27,850	\$29,388	\$37,770	\$46,996
Civil Engineers	9,731	40	627	\$96,044	\$58,999	\$74,065	\$124,845	\$163,014
Flight Attendants	4,552	18	120	\$49,914	\$30,740	\$38,437	\$61,856	\$81,370
Airline Pilots, Copilots, and Flight Engineers	4,655	30	126	\$128,310	\$62,764	\$99,715	\$207,178	\$255,368
Maids and Housekeeping Cleaners	15,880	334	8	\$31,030	\$18,541	\$28,052	\$35,458	\$40,628
Project Management Specialists	22,125	121	12,928	\$96,404	\$58,193	\$73,369	\$125,876	\$155,002
Painters, Construction and Maintenance	5,279	106	11	\$43,574	\$20,049	\$33,421	\$50,403	\$67,429
Reservation and Transportation Ticket Agents and Travel Clerks	2,141	25	126	\$46,532	\$29,056	\$30,157	\$50,193	\$60,074
Laborers and Freight, Stock, and Material Movers, Hand	23,792	232	0	\$37,850	\$29,434	\$32,269	\$45,584	\$49,204
Mechanical Engineers	5,151	98	1,479	\$97,745	\$60,805	\$76,691	\$127,088	\$163,554

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 - Lightcast 2022.4 Class of Worker.

INDUSTRY INFRASTRUCTURE SUPPORT



CDOT's Division of Aeronautics supports Colorado's multi-modal

transportation system by advancing a safe, efficient, and effective statewide aviation system through collaboration, investment, and advocacy.



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 eight regional airports.



The **Colorado Airport Operators Association (CAOA)** represents the interests of owners, operators, and users of the state's 74 public use airports, providing legislative advocacy at state and national levels, promoting exchanges of ideas and information, and encouraging public understanding of the value of aviation and airports to Colorado communities.



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.



UASColorado is a non-profit business league, committed to supporting UAS industry development and the safe integration and use of UAS throughout the state. The group provides organizational structure and support for UAS professionals, advocacy for public policy, promotion of safe, professional operation of UAS sites in Colorado, and campaigns to increase public understanding of the value and importance of UAS.

The **Rocky Mountain Chapter of Association for Uncrewed**



Vehicle Systems International (AUVSI) provides leadership to advance UAS and the robotics community across the Rocky Mountain Region through education, advocacy, and leadership. The Chapter is also dedicated to promoting the safe and legal operation of unmanned vehicles regardless of the medium within which they operate.

The **Colorado Agricultural Aviation Association** serves its



membership in legislative concerns, education of pertinent issues, and promoting technical programs to enhance the betterment of agricultural aviation and its related activities.







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