2020 Colorado Aviation System Plan

EXECUTIVE SUMMARY

COLORADO
Department of Transportation
Division of Aeronautics

CASP

Acknowledgements

The 2020 Colorado Aviation System Plan (CASP) and Colorado Aviation Economic Impact Study (CEIS) would not have been possible without meaningful collaboration and dedication from representatives of Colorado's aviation community. The participants' time, efforts, and input will undoubtedly shape the future of the Centennial State's aviation system.

Special Thanks To:

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- Kathleen Collins, CDOT Statewide Planning
- Jeannette Hilaire, Denver International Airport
- Jason Licon, Colorado Airport Operators Association, Northern Colorado Regional Airport
- Kenneth Maenpa, Colorado Aeronautical Board, Telluride Regional Airport
- Chic Myers, Colorado Aeronautical Board
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Colorado's Aviation System

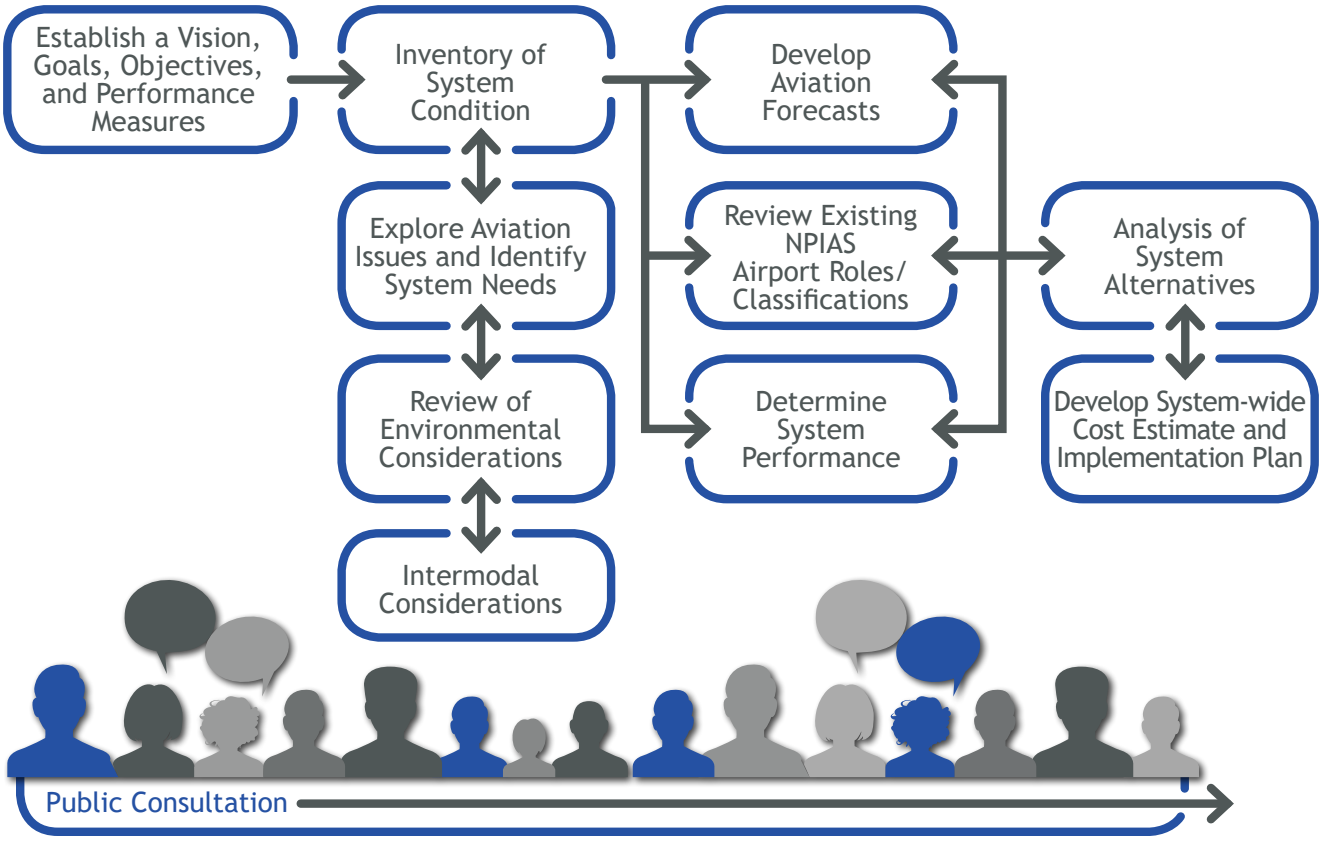
Colorado's thriving economy, world-class winter sports, and pristine outdoors serve as a magnet for residents, visitors, and businesses alike. The unique composition of industries and activities found in the Centennial State are supported by public-use airports that serve everything from tourism to shipping, emergency response, manufacturing, and many other purposes. The Colorado Department of Transportation (CDOT) Division of Aeronautics recognizes the importance of planning, maintaining, and developing an aviation system to adequately serve these critical elements of the state's economy and infrastructure. At the core of their mission, CDOT Division of Aeronautics is dedicated to providing a safe, efficient, and effective statewide aviation system.

While there are over 400 airport facilities in Colorado, only the 74 public-use facilities were considered for inclusion in the 2020 CASP. Eight of the privately-owned, public-use airports were not included as they do not meet funding eligibility requirements. As such, the 2020 CASP consists of 66 public-use airports, with all but one airport being publicly-owned.

Study Process

The 2020 CASP study process utilized 10 critical tasks to establish goals, take stock of existing conditions, and develop recommendations that drive the system's ability to meet current and future needs in an ever-changing aviation environment. The findings of these tasks are culminated into a series of deliverables that communicate the results of the CASP to airports, aviation stakeholders, and the general public.

The Project Advisory Committee (PAC) helped guide the system plan by contributing industry and region-specific insight into the future of Colorado aviation. The PAC was composed of stakeholders from across the state with a broad range of knowledge and experience in airports, aviation, and other statewide issues that impact the airport system.



System Goals

CDOT Division of Aeronautics and the PAC worked in collaboration to develop the four study goals that serve as the long-term foundation for the system's future. These goals are used throughout the CASP to evaluate and measure the system's performance and ultimately the recommendations which lead to determining the system's future development.

Safety and Efficiency

Advance Colorado's airport system by promoting and preserving safe and efficient facilities, on and off airports.

Access and Mobility

Provide Colorado's airports with infrastructure and sufficient capacity enabling the public adequate access and mobility utilizing the aviation system.

Economic Sustainability

Support sustainable economic growth and development and continue Colorado's existing status as a leader in technology, testing, and the aerospace industry.

System Viability

Preserve airport system assets to promote fiscal responsibility and sustainable, cost-effective investments to ensure the system's long-term viability.

COLORADO'S AVIATION SYSTEM

Colorado's aviation system serves as a vital component of the state's economy and transportation network. Colorado's aviation system has:

66 Airports included in the 2020 CASP

14 Commercial Service Airports

52 General Aviation (GA) Airports

49 Airports included in the National Plan of Integrated Airport Systems (NPIAS)

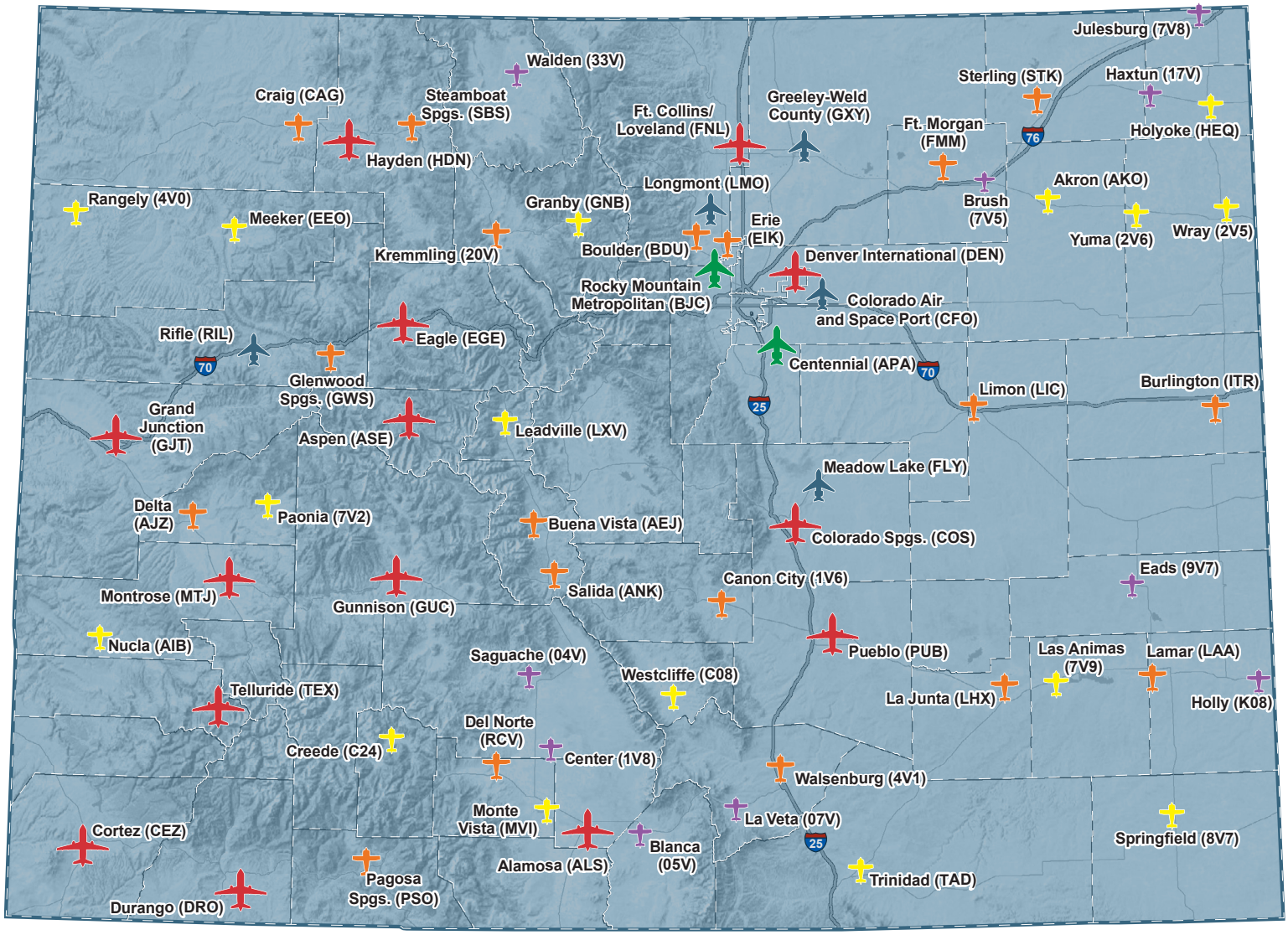
53 Airports with on-site weather reporting

57 Airports offering fuel

9 Airports with air traffic control towers (ATCTs)

Airport Classifications

Each of the 66 system airports provides unique facilities and services that accommodate different aspects of users and aviation activities in the state. The 2020 CASP adopted a systematic, data-driven methodology to categorize the airports into six classifications. The new 2020 classifications provide insight into how each airport operates in its local, regional, statewide, and national contexts with some Commercial Service and GA-National airports providing access to international destinations.



Commercial Service | GA-National | GA-Regional | GA-Local | GA-Community | GA-Rural

Top 10 Colorado Aviation System Issues

The PAC, airport managers, aviation stakeholders, and other users identified the top concerns impacting Colorado's aviation system:

1. Airspace/Air Traffic Congestion
2. Aviation Demand
3. Fuel Types and Availability
4. Hangar Availability
5. Infrastructure Needs
6. Land Use Planning and Encroachment
7. Pilot/Aviation Workforce Shortage
8. Public Engagement/Government Support
9. Revenue Generation and Funding
10. Technology

Aviation Trends and Issues

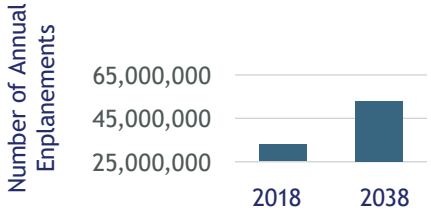
Understanding the major issues and trends affecting Colorado's airports is an important task when assessing the system's historical, current, and future performance. Colorado's strong, diversified economy and world-renowned recreational areas are magnets for an increasing number of out-of-state visitors and catalysts for an unprecedented growth in population and new industry establishment. These unique factors influence the trends and issues that affect the current system and will impact the strategies for future system development going forward.

Socio-Economic Trends	• Colorado's population is relatively young with a median age of 36 • Projected to be one of the fastest growing states over the next 20 years at an annual growth rate of 1.8%
Economic Trends	• Economic leader in Gross Regional Product (GRP) • Employment is growing faster than the U.S. as a whole
Commercial Service Trends	• Population growth and increased demand spur expansion of air service to Western Slope airports • Essential Air Service (EAS) subsidies have grown, but continuation of EAS in Colorado is uncertain
General Aviation Trends	• Resort airports and those on the Front Range account for 80% of total based single-engine aircraft in the state • The state demand for this type of aircraft is higher than national averages, as national trends suggest a decline in single-engine aircraft

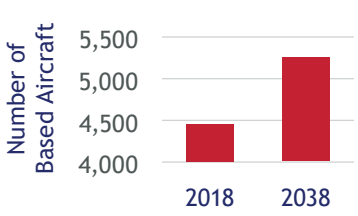
Aviation Demand Forecasts

Forecasts of aviation activity lend insight about how future demand may impact current system infrastructure and services. National, industry-wide, and Colorado-specific trends were used to tailor forecasts specifically tied to the unique factors in the state. Colorado's high quality of life and robust economy are anticipated to produce population booms in urban areas alongside growing employment rates in most counties. These types of state-level trends were used to identify future changes to aviation demand in Colorado. Per the findings of the 2020 CASP, Colorado is anticipated to see substantial growth across all three demand indicators: enplanements, based aircraft, and operations.

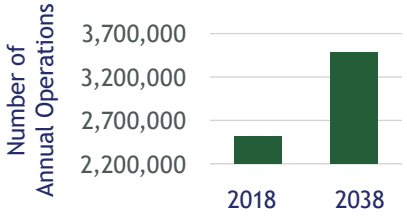
Enplanements Forecast
(2.39% CAGR)



Based Aircraft Forecast
(0.76% CAGR)



Operations Forecast
(1.80% CAGR)



CAGR = Compound Annual Growth Rate. CAGR calculates a constant rate of change over a given time period. It dampens the effect of volatility during periods that experience significant change and provides a "smoothed" annual growth rate.

Supplemental System Context

Intermodal and environmental needs at Colorado airports were considered extensively in the 2020 CASP to help guide future policy recommendations. Identifying these needs provided insight to CDOT Division of Aeronautics for evaluating future projects and determining how to prioritize investments in the system.

Environmental Considerations

The environmental context of an airport can significantly impact the course of development. A particular environmental issue such as land use constraints or protected biological resources that affect one or multiple airports in a region can drive the nature and volume of resulting activity, as well as the type of improvement projects that could be implemented to address the needs. For example, several airports in Colorado are surrounded by habitats that attract a variety of wildlife, including state- and federally-recognized endangered species. Given this, airports and funding agencies should give special consideration to prioritize improvement projects that mitigate the impacts of airport operations on wildlife and vice versa including wildlife hazard management plans and airfield wildlife fencing.

Intermodal Connectivity

Colorado has a robust roadway network and multiple transit options that extend outwards to link more rural parts of the state. However, in some distant corners of the state, several airports are located a considerable distance from the nearest interstate. Much of these distances are due to the topographical nature of the state and increased distances are required to traverse or circumnavigate the Rocky Mountains. It should be noted that many of these distant airports are well-connected with U.S. highways and state highways. 62 of Colorado's 66 airports are interconnected with the state's greater transportation network. Coordinated planning efforts between airports and communities will help to ensure that necessary improvements to the existing transportation systems will also further enhance airport access and multimodal integration.

Environmental Consideration	Total No. Airports with Impacts
Air quality	16
Biological resources	31
DOT Section 4(f)*	5
Farmlands	15
Hazardous materials, solid waste, and pollution prevention	16
Historical, architectural, archaeological, and cultural resources	21
Land use	59
Water resources	23

** Section 4(f) states that a transportation project that requires the use of publicly-owned land from a park, recreation area, wildlife and waterfowl refuge, or land from an historic site of national, state, or local significance will not be approved unless there is no feasible alternative or the DOT determines the impact on the property will be minimal.*

Sources: Colorado airports' master plans (various dates), 2018 Inventory & Data Form

Photo courtesy of Denver International Airport

Colorado's Emphasis on Environmental Sustainability

Many airports in the state have taken a holistic approach to environmental sustainability, ensuring they operate safely and efficiently while also carefully managing use of land assets and natural resources of the airport. Denver International Airport (DEN) is a leader in environmental sustainability. DEN created and participates in numerous sustainability programs in the terminal and around the airfield. The airport is also working to support natural pollination by maintaining a honeybee apiary at Fire Station 35 on the south side of the airfield. The airport has partnered with Xcel Energy to install solar arrays that provide power to the airport and reduce DEN's impact on the power grid. DEN also has an extensive recycling program including two pavement recycling plants that process more than 194,000 tons of asphalt and concrete each year. The processed pavement is then used as fill dirt or aggregate for other on-site construction projects, decreasing DEN's need for new materials to be used on airfield improvement projects.

System Performance

System performance analyses provide insight regarding airports' current capabilities in meeting the goals established for the 2020 CASP. Under each goal category are performance measures (PMs) and/or system indicators (SIs) which inform different aspects of the system's performance in meeting the related goal. PMs are "actionable" and directly relate to measuring the system's performance toward achieving the goals. SIs are informational analyses that inform and indirectly relate to the system's performance.

Once the system's existing performance was determined, future performance targets were established for each PM. Input on CASP PM targets was obtained from CDOT Division of Aeronautics and the PAC, recognizing that achieving 100 percent for all targets was unlikely. When examined collectively, the future performance targets and the associated projects to achieve the targets can be viewed as an indication of how well the 2020 CASP goals are being met. The Division of Aeronautics plans to continue monitoring performance over time to show progress and the effectiveness of the state's funding in achieving the goals.

Safety and Efficiency

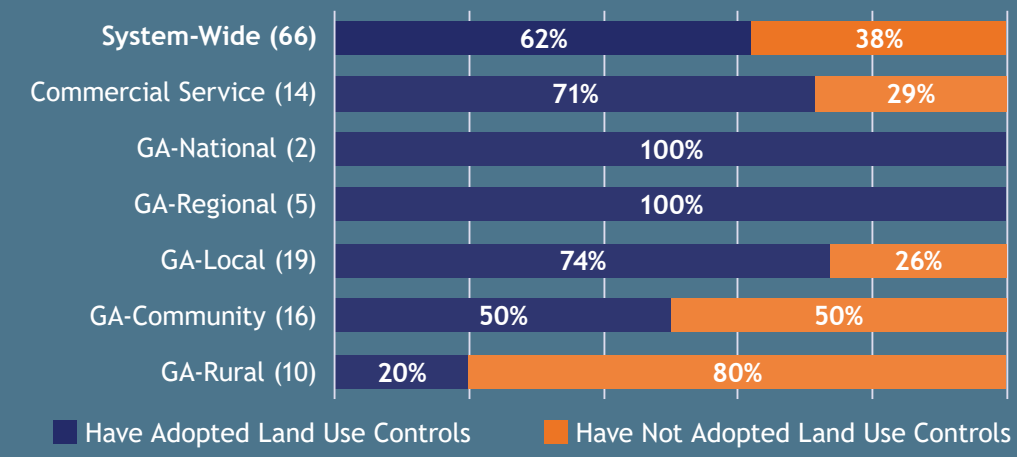
Safety and efficiency are critical to advance Colorado's airport system by promoting and preserving safe and efficient facilities, on and off airports. It is essential that the safety of pilots and passengers in the sky, as well as individuals and property on the ground, remain at the forefront of all policies, projects, procedures, and other decisions. This goal is paramount to the CASP.

Performance Measures (PM)		2018 System Performance	Future Performance Target
Percent of NPIAS Airports that Meet Current Federal Aviation Administration (FAA) Design Standards Under AC 150/5300-13A	Meets Runway Safety Area Design Standards	78%	100%
	Meets Taxiway Design Standards	10%	100%
Percent of Airports that have Adopted Appropriate Land Use Controls	Adopted Appropriate Land Use Controls	62%	100%
	Adopted Appropriate Height Controls	58%	100%
Percent of Airports That Have Full Perimeter Wildlife Fencing		49%	85%
Percent of Airports with Approaches Negatively Impacted by Obstructions		33%	0%

System Indicators (SI)	2018 System Performance
Percent of Airports that Support Medical Emergency/Evacuation Aircraft	76%
Percent of Airports with Adequate Crosswind Coverage	67%
Percent of Airports that Support Aerial Firefighting	64%
Percent of Airports that Meet Runway Length Requirements for Existing Critical Aircraft	44%
Percent of Communities with Emergency Responders that Have Basic Training in Aircraft Rescue and Fire Fighting (ARFF)	30%
Percent of Airports that have a Formalized Process for Receiving, Managing, and Responding to On-/Near-Airport Unmanned Aircraft Systems (UAS) Use Requests	29%

The adoption of land use controls is essential to the safety and efficiency of the Colorado airport system. Land use controls provide protection for both pilots and passengers in the air, and people on the ground. Land use controls also provide an opportunity for maximizing the investments made by the FAA, state, and local communities.

PM: Percent of Airports that Have Adopted Appropriate Land Use Controls

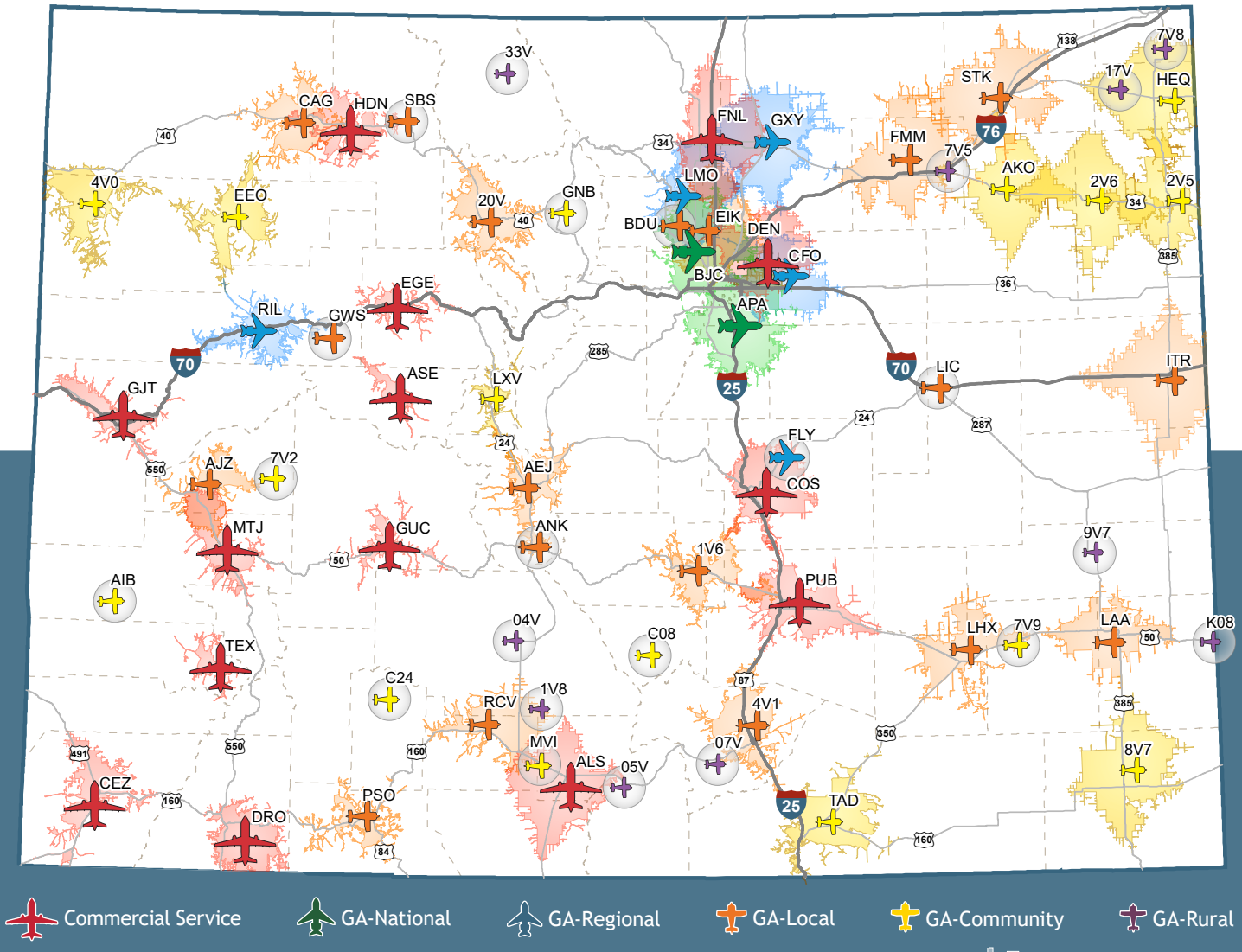


Access and Mobility

The access and mobility goal is aimed at ensuring Colorado's airport users are able to adequately access the vast range of facilities and services that are provided for emergency response, business needs, recreation, and more. Access is especially important during inclement weather which could result in emergency landings or in situations requiring emergency response. Mobility dictates the level of ease in which people can travel to all areas of the state. Airports strengthen Colorado's multimodal transportation system by acting as points of integration between different transportation modes.

Performance Measures (PM)		2018 System Performance	Future Performance Target
Percent of Population Within a 30-Minute Drive Time of an All-Weather Runway		83%	85%
Percent of Airports with Adequate Terminal Capacity	General Aviation Terminal Capacity	58%	100%
	Commercial Service Terminal Capacity	29%	100%
Percent of Airports with a Dedicated Snow Removal Equipment (SRE) Building		35%	61%
Percent of Airports with Adequate Transient Hangar Spaces		24%	61%

System Indicators (SI)	2018 System Performance
Percent of Airports that Provide Ground Transportation (Courtesy Car or Other)	91%
Percent of Population Within a 30-Minute Drive Time of a System Airport	85%
Percent of Airports Providing Access to Remote and Rural Communities	61%



Commercial Service | GA-National | GA-Regional | GA-Local | GA-Community | GA-Rural

Percent of Population Within a 30-Minute Drive Time of an All-Weather Runway

83% Population

16% Land Area

30-Minute Drive Times

Does Not Have an All-Weather Runway

Economic Sustainability

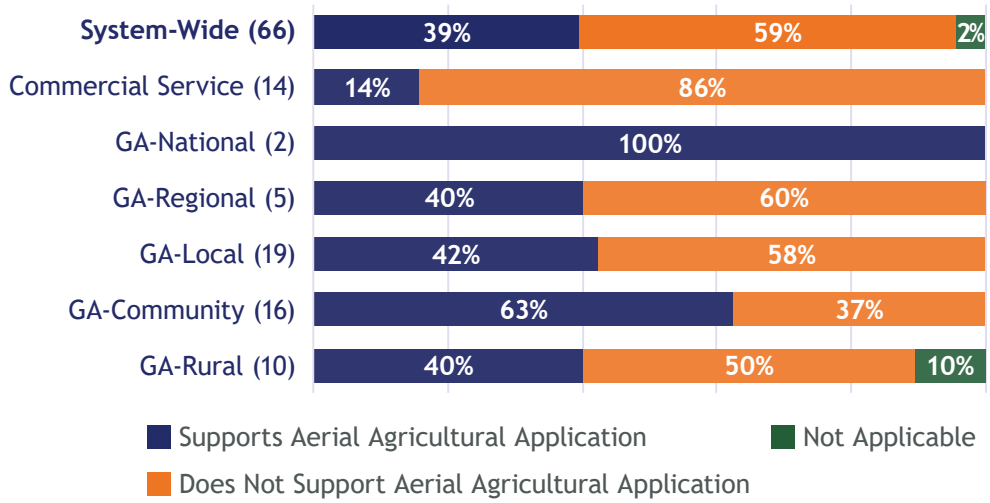
Airports often serve as catalysts for economic activity as they directly link people, businesses, goods, and services. To ensure Colorado airports sustain their importance as economic anchors, it is important to leverage and diversify their facilities and services to meet current and anticipated needs of their users.

Performance Measures (PM)	2018 System Performance	Future Performance Target
Percent of Airports with the Necessary Fuel Type, Available 24/7	94%	100%
Percent of Airports with Adequate Utilities	53%	85%
Percent of Airports that Support the Aerospace Manufacturing, Technology, and/or Testing Industry	36%	No Target Established

System Indicators (SI)	2018 System Performance
Percent of Airports Recognized in Local and/or Regional Comprehensive Plans	67%
Percent of Airports with Active Development Partnerships with Chambers of Commerce, Tourism Bureaus, Organizations, Industries, Governments, and Recreational User Groups	52%
Percent of Airports That Support Aerial Agricultural Application	39%
Percent of Airports with Business Parks or Landside Real Estate Development	23%

Photo courtesy of CDOT Division of Aeronautics

SI: Percent of Airports That Support Aerial Agricultural Application



Advanced industries are redefining Colorado's economy as private investment grows in aerospace, advanced manufacturing, bioscience, and more. As a regional leader in agricultural and food exports, many of Colorado's system airports serve a supporting function in the industry. Aerial agricultural application operations are conducted at some system airports to grow healthy produce or other agricultural products.

Growing Colorado's Aerospace and Technology Sector

Colorado Air and Space Port (CFO) became the first and only licensed spaceport in the FAA Northwest Mountain Region when the facility earned its spaceport certification in 2018. Although most of the airport's current traffic is general aviation aircraft, CFO plans to serve as the state and regional hub for commercial space transportation, research, and technological development. Colorado already boasts one of the largest aerospace industries in the country and the development of CFO will continue to boost the industry and the state's overall economy. CFO is ideally located on 3,200 acres of land eight miles southeast of Denver International Airport and has access to more than 180 aerospace companies based on the front range. Reaction Engines, a British aerospace manufacturer, has built a rocket engine testing facility at CFO and is conducting advanced research into hypersonic propulsion solutions.

System Viability

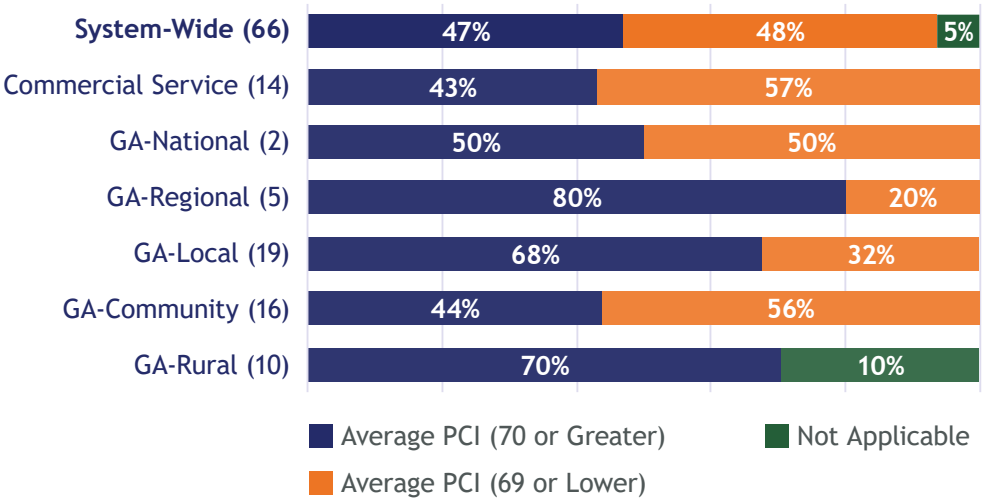
System viability pertains to the promotion of financial responsibility, protection of investments, and the pursuit of decisions which will improve airport sustainability. Airport infrastructure and maintenance requires large sums of capital investment to ensure that they remain in operational condition.

Performance Measures (PM)	2018 System Performance	Future Performance Target
Percent of Airports with Certified On-Site Weather Reporting (AWOS or ASOS)	77%	85%
Percent of Airports with Pavement Maintenance Programs	64%	95%
Percent of Airports with an Average Runway and Taxiway Pavement Condition Index (PCI) of 70 or Greater	47%	95%

System Indicators (SI)	2018 System Performance
Percent of Airports that Support Aviation Educational Programs	45%
Percent of Airports with a Sustainability Plan	14%
Number of Colorado Pilots Per Capita	0.004

Automated Surface Observing System (ASOS); Automated Weather Observing System (AWOS)

PM: Percent of Airports with an Average Runway and Taxiway Pavement Condition Index (PCI) of 70 or Greater



PMs and SIs under System Viability are focused on adequately safeguarding the substantial investments required to maintain a robust aviation system. The implementation of sustained practices such as pavement maintenance programs, educational programs, and sustainability plans can improve airports' resiliency through market disruptions.

Pavement maintenance costs are some of the most significant costs to an airport and implementing proper management techniques protects these capital investments and increases the usable life of paved areas. CDOT Division of Aeronautics maintains their own pavement data for system airports. Under their pavement management system, system runways, taxiways, aprons, and helipads are evaluated to understand the health of paved areas in the system.

Colorado's Aviation Education Contributions

Colorado has more than 40 aviation education programs, including six accredited collegiate programs that are providing for the next generation of aviation professionals. The Metropolitan State University of Denver (MSU Denver) Department of Aviation and Aerospace Science is working hard to prepare these aviation professionals in Colorado and around the country for a bright future in a growing industry. This program is one of many in Colorado that are contributing to the growth and viability of global aviation activity. With approximately 650 enrolled students who can choose from eight unique degrees, MSU Denver offers the largest and most diverse aviation and aerospace education program in the state. MSU Denver has partnerships with seven airlines, three international aerospace contractors, multiple professional organizations, and Denver International Airport, ensuring that students transition smoothly from school into the workforce. This and other aviation education programs are essential to meeting the future aviation demand that requires a well-trained workforce.

Types of Projects

Projects identified in the 2020 CASP reflect the difference between each airport's 2018 condition and the need to meet the PM targets as well as facility and service objectives associated with each airport's classification. Projects and associated costs were categorized based on performance metrics and fall into one of five distinct areas:

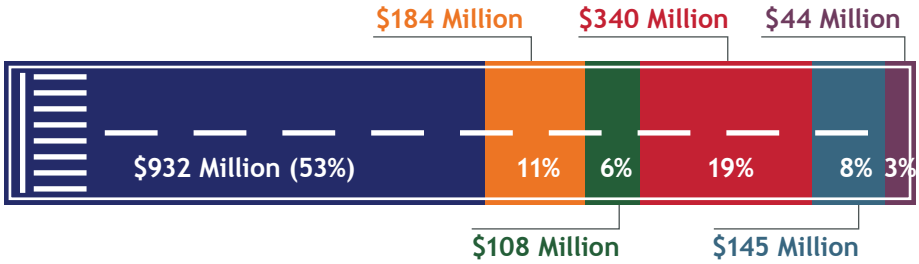
- 2020 CASP
  - PMs
  - Facility and Service Objectives (F&SOs)
  - Future Facility Needs
- CDOT Airport Capital Improvement Programs (CIPs)
- DEN CIP

DEN maintains its own CIP, however, the list is near term and does not reflect 20-year needs. DEN's average capital spending was used to estimate future CIP needs. DEN's typical capital spending far outweighs other needs identified in the system and is presented separately.

System Financial Needs

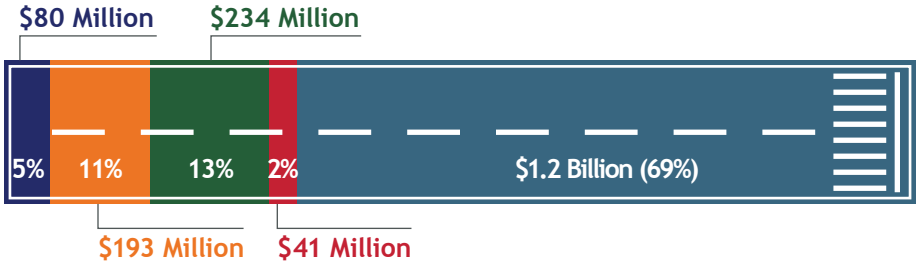
Projects and their associated costs identified in the 2020 CASP are an important outcome as they provide a complete picture of the financial resources needed to maintain and improve the system. Over the next 20 years, system needs are estimated at $1.8 billion excluding DEN. Once DEN's high-level project needs are included, the total Colorado aviation system needs over the 20-year planning horizon exceed $9.1 billion.

Total Recommended System Project Costs by Airport Classification Excluding DEN CIP Costs



- Commercial Service
- GA-National
- GA-Regional
- GA-Local
- GA-Community
- GA-Rural

Total Recommended System Project Costs Excluding DEN CIP Costs*



- Performance Measure Project Costs
- Facility and Service Project Costs
- Overlapping PM and F&SO Project Costs
- Future Facility Needs Project Costs
- CDOT CIP Project Costs

**Projects that are identified as meeting a PM and an F&SO were separated into a unique category and not duplicated in their individual project cost categories.*

Economic Impact and Funding Gap

Completed in conjunction with the 2020 Colorado Aviation System Plan (CASP) the 2020 Colorado Aviation Economic Impact Study (CEIS) serves as a tool to communicate the economic importance of Colorado's Aviation System to the Centennial State. Airports are a catalyst of economic activity as they provide linkages between businesses, customers, suppliers, and goods. The system supports a wide range of users and businesses who rely on airports to provide services to surrounding communities such as winter sports and other tourism, aerospace manufacturing, medical evacuations, aerial agricultural application, and many others. The benefits derived from the Colorado aviation system on an annual basis far exceed the investment needed to maintain and expand the system to meet existing and future demand. The CEIS demonstrated that in 2018, Colorado's airports provided a total annual economic impact of $48.6 billion.

JOBS
345,661

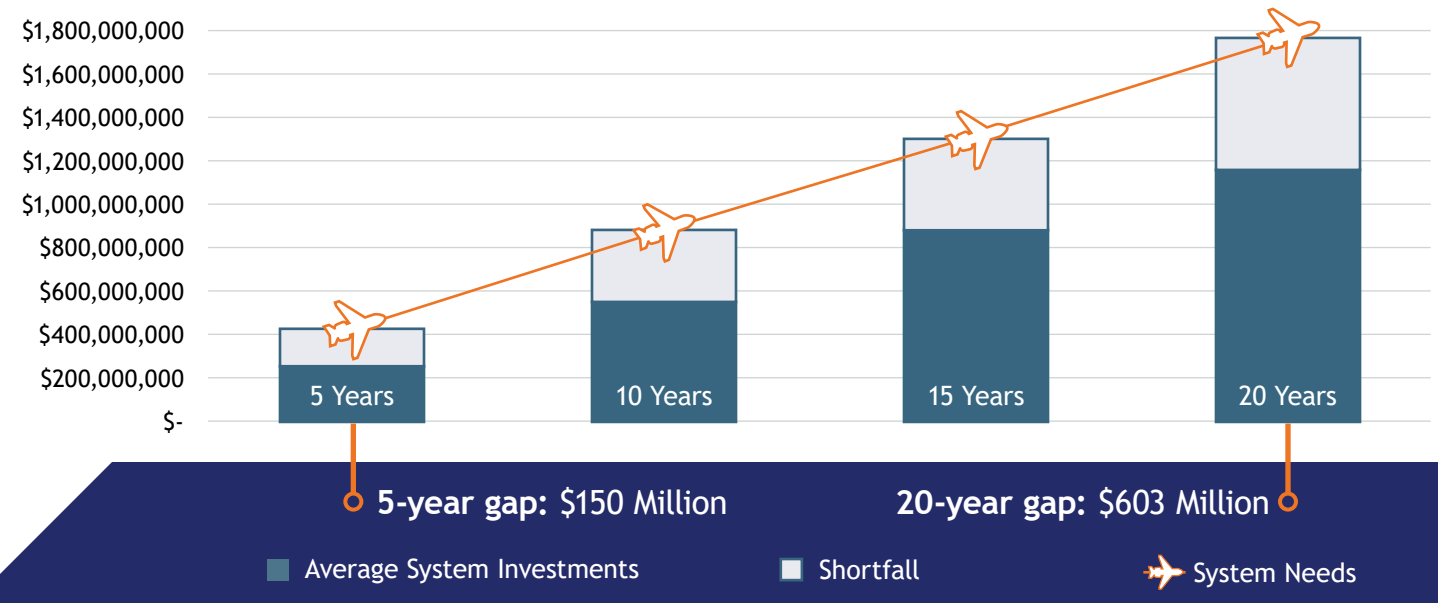
PAYROLL
$16.2 BILLION

VALUE ADDED
$27.0 BILLION

BUSINESS REVENUES
$48.6 BILLION

When compared to the identified 20-year need and the average investment that has been made and is anticipated to continue, the aviation system generates more impact per year than is expended. The 2020 CASP revealed that Colorado's total system investment needs (excluding DEN) are estimated at $1.8 billion which amounts to an annual need of $87.5 million. Based on historical data, Colorado's average available investment dollars amount to $76 million a year. There is a considerable shortfall, or "funding gap," between system needs and available investment.

Total Investments, Needs, and Shortfalls



Recommendations

In addition to the needs and associated project costs, recommendations were developed as a result of a multi-year collaborative effort between CDOT Division of Aeronautics, the FAA, and various stakeholders represented on the PAC for continuous system monitoring and improvement. The recommendations support CDOT's on-going programs and initiatives and also encourage additional follow-on studies as well as provide action items for airports and CDOT Division of Aeronautics to meet future performance targets. An example of recommendations under each goal is provided.

Safety and Efficiency

CDOT Division of Aeronautics could work with local municipalities and stakeholders to mitigate approach obstructions and initiate conversations with local zoning authorities to adopt appropriate land use and height controls around airports.

Access and Mobility

CDOT Division of Aeronautics could coordinate with airports related to terminal and hangar needs as well as monitor aviation demand increases that could affect those needs.

Economic Sustainability

CDOT Division of Aeronautics could continue to work in collaboration with airports to identify potential funding sources for the installation of 24/7 fueling facilities.

System Viability

CDOT Division of Aeronautics could continue efforts to fund and prioritize pavement maintenance and rehabilitation projects. Additionally, the Division could consider assisting airports without weather reporting or that have non-certified weather reporting to obtain certified weather reporting equipment.

Recommended Programs and Initiatives

CDOT Division of Aeronautics recognizes the critical importance of continuous planning to the success of the entire aviation system with their commitment to completing the 2020 CASP and CEIS. Continuous planning processes are of critical importance to evaluating the efficacy of existing programs in meeting their objectives. Monitoring system performance could continue through the airport pavement management system (APMS) study, updates to the CASP, and updates to the CEIS. Based on the findings of the 2020 CASP, CDOT Division of Aeronautics could consider the following additional programs and studies to supplement initiatives funded to date, as well as the recommendations derived from PMs.

Snow Removal Equipment (SRE) Building Program

Many of the 2020 CASP airports experience a wide range of weather conditions including heavy snowfall during the winter months. Numerous Colorado airports accommodate access to world-renowned ski resorts and winter sports attractions making SRE a vital component to uninterrupted operations during the winter season, especially to continue bringing the many tourists that increase the state's economic impact. However, SRE buildings are typically lower on the FAA project priority list, and with limited funding available to some airports, SRE buildings may not be feasible. CDOT Division of Aeronautics could consider a statewide action or program that sets aside specific funding each year for the design and construction of dedicated SRE buildings at 2020 CASP airports. A standard design for an SRE building could be developed by the Division for implementation at airports needing this facility.

GA Terminal Building Program

Similar to dedicated SRE buildings, GA terminals are typically lower on the FAA project priority list, making them challenging to fund. As such, CDOT Division of Aeronautics could set aside specific funding each year for the design and construction of GA Terminal Buildings. The Division could also develop a standard GA terminal building template based on 2020 airport classifications as GA terminal sizes and needs at higher traffic airports would be more significant than at rural airports with less demand.

Denver Regional Demand/Capacity Study

By 2038, four airports in the Denver metropolitan area are anticipated to exceed the 80 percent capacity threshold and one airport will exceed the 60 percent capacity threshold, indicating the need for more detailed analysis. CDOT Division of Aeronautics could conduct a Denver region airport demand/capacity study that focuses on the feasibility of shifting capacity or developing new facilities to increase overall capacity in the Denver area.

Approach Surface Obstruction Study

Obstructions within the approach surface of a runway increase the risk of damage to property and potential injury or death to persons both in the plane and/or on the ground. Therefore, it is imperative that airports take precautions or remove obstructions from approach surfaces. As such, CDOT Division of Aeronautics could consider conducting a detailed statewide approach surface obstruction study to identify the issues affecting airports, including identifying each obstruction, and making actionable recommendations to mitigate these hazards.

Real-Life Stories

Aviation activities extend far beyond airline flights, business operations, and recreational flying. Airports and aviation in Colorado serve many critical missions and provide benefits to thousands of residents around the state. The 2020 CASP and CEIS identified more than 20 real-life examples of how unique aviation programs, organizations, and activities support residents of Colorado and aviation stakeholders around the globe.

Photo courtesy of Denver Air Connection

Supporting Commercial Air Service on Colorado's Western Slope

Commercial airline service is essential to Colorado's economy, including support for the many visitors that create jobs and opportunity in many communities along the Western Slope. The Colorado Flights Alliance formed in 2004 to increase air service to Telluride Regional Airport (TEX) and Montrose Regional Airport (MTJ) and to attract winter and summer tourists to southwestern Colorado. The Alliance is supported by the towns of Telluride, Mountain Village, Ouray, and Montrose as well as several private companies, including Telluride Ski Resort. The Alliance acts as an air service catalyst, partnering with United, Delta, American, and Allegiant airlines to provide non-stop air service from MTJ and TEX to more than a dozen airline hubs around the country. The Alliance conducts marketing campaigns to attract visitors and coordinates with the airlines to advertise to generate demand during periods with less passenger traffic. The Alliance also provides minimum revenue guarantees (MRG) to airlines to ensure that the air carrier does not lose money on routes served from the airports. Due to successful marketing campaigns that yielded increased passenger traffic, four routes have become profitable enough that the Alliance discontinued MRG programs and is focused on developing new service.

High Altitude Testing - Bringing Aerospace Research and Testing to Colorado's High Country

Colorado has 78 of the 100 highest peaks in the Rocky Mountains, making mountain airports ideally situated to host high altitude testing of aircraft and engines as well as the training of pilots and crew to operate these aircraft under extreme and difficult conditions. Two of the most prominent testing facilities in the state are Leadville-Lake County Airport (LXV) and Eagle County Regional Airport (EGE). LXV is the highest paved public-use airport in North America and has an 11,000-square-foot hangar that can accommodate testing companies and aircraft. Aircraft testing has transformed LXV from a quiet GA airport to an economic engine for Lake County. EGE, meanwhile, is home to the Colorado Army National Guard High-Altitude Aviation Training Site (HAATS). This unique training program offers rigorous training to experienced helicopter pilots flying heavy equipment in mountainous terrain and other challenging environments. HAATS rotates utilization of one million acres of U.S. Forest Service and Bureau of Land Management (BLM) land for training at over 100 different landing zones. HAATS is also a strong participant in the community as it partners with local entities to conduct search and rescue operations in the surrounding area.

Photo courtesy of Leadville-Lake County Airport

Photo courtesy of The Center of Excellence for Advanced Technology Aerial Firefighting

Supporting Critical Aerial Firefighting Missions

In recent years, Colorado has experienced a growing number of wildland fires that require specialized training to successfully fight the fires. The Center of Excellence for Advanced Technology Aerial Firefighting (CoE), located at Rifle-Garfield County Airport (RIL), was authorized and funded in 2014 by the Colorado Legislature as a quasi-independent research center dedicated to testing and evaluating new technologies and tactics that firefighters can use when fighting wildfires. Research projects being conducted at the CoE include analysis of the effectiveness of water-enhancers, integration strategies of unmanned aerial and ground systems into firefighting and public safety programs, and the use of safe and effective nighttime firefighting tactics. RIL, state and federal government agencies, higher education institutions, and business partners around the state are strong supporters of CoE and its research contributions to effective firefighting in Colorado and across the western United States.

Photo courtesy of Denver International Airport

Agriculture at Denver International Airport

DEN has a 53-square mile footprint that sits on land that was originally the farms of several families. Today, the airport maintains four agricultural leases with three families that span across various parcels around the airfield and have a total acreage of 15,325 acres. DEN's farmland consists of only dryland farms, meaning that no irrigation or wells are needed, eliminating any need for large farming infrastructure. Farmers raise wheat, corn, millet, and sunflowers. At one time, DEN had a revenue-sharing arrangement with the farmers, but has since transferred to a flat-rate system for agricultural leases, which made it easier for the tenants to plan for crops and revenues. The cost of weed control is shared by farming tenants and the airport, who pays one-third of the cost.

Photo courtesy of Angel Flight West

Bringing Critical Medical Care to Rural Communities

Americans living in rural communities rely on the local hospital as their principal source of medical care. However, there is a shortage of qualified physicians in rural areas across the country. Rural Partners in Medicine (RPM), based at Rocky Mountain Metropolitan Airport (BJC), has sought to address these shortages by sending specialty surgeons to rural hospitals in Colorado, Nebraska, Wyoming, Missouri, Kansas, Arizona, Nevada, and South Dakota. This makes it possible to obtain elective surgeries in the community without having to travel to a major city. These services help to support the local economy and improve the viability of small hospitals and medical clinics. RPM has partnered with 30 hospitals in the Mountain Region. In Colorado, they serve hospitals in Cortez, Holyoke, Hugo, Lamar, and Yuma on a weekly basis, using local airports to transport physicians in and out. Doctors are transported on regularly chartered aircraft out of BJC, Centennial (APA), Colorado Air and Space Port (CFO), Northern Colorado Regional (FNL), and Yampa Valley Regional (HDN) airports. RPM charters approximately 55 flights and 145 hours of flight time per month and is supported by numerous charter companies and FBOs throughout the state. Colorado's general aviation airports are indispensable partners in RPM's mission to provide quality medical care to many rural communities.

Colorado's Contribution to Advanced Flight Training

Aims Community College Aviation Department (Aims Aviation) is one of the largest aviation education programs in Colorado. Students can pursue their education and training to become a general aviation pilot, professional pilot, unmanned aerial systems (UAS) operator, or an air traffic controller. Aims Aviation has approximately 120 students enrolled comprising 80 student pilots and 40 air traffic control students. Aims is one of two collegiate programs in Colorado that offer FAA-approved structured flight training (Part 141) and is the only one that offers multi-engine flight training. In 2019, the college opened the Aims Flight Training Center at Northern Colorado Regional Airport (FNL), which provides students the ability to receive one-on-one flight training in a fleet of 10 aircraft. Ground instruction at Aims occurs on the school's campus in Greeley. Aims Aviation leads the way for collegiate programs in Colorado in terms of training technology available for students. Aims has five highly-advanced flight simulators that are available for training in a controlled environment at a fraction of the cost of actual flight time. Additionally, Aims is one of only 30 schools in the country and one of two in Colorado that are designated by the FAA as an Air Traffic-Collegiate Training Initiative (AT-CTI) program. The Aviation Department at Aims also operates a panoramic air traffic control tower simulator on campus, the only one of its kind in Colorado. The new simulator is similar to those used by the FAA Training Academy, allowing students to practice in real-world scenarios. The growth and modernization of Aims Aviation allows its students to succeed by training in first-class relevant technology. With the construction of the new Aims Flight Training Center, an increased aircraft fleet, and new state-of-the-art simulation, Aims Aviation has the capability to expand, enabling the school to continue to meet the needs of Colorado's aviation industry for years to come.

Photo courtesy of Pilatus Business Aircraft LTD.

Aircraft Manufacturing – Exporting Aircraft Around the Globe

Pilatus Aircraft, Ltd is a Swiss aircraft manufacturer known for producing versatile business aircraft that has its U.S. headquarters at Rocky Mountain Metropolitan Airport (BJC). Pilatus has operated its U.S. Sales headquarters at BJC since 1996 and opened a 118,000-square-foot state-of-the-art fabrication facility in 2018. The company has 120 employees that install custom interiors and exteriors for their PC-12 NGX and PC-24 aircraft that range from luxurious executive aircraft to utilitarian air ambulances. More than 1,800 PC-12 and PC-24 aircraft have been produced, many of which were completed at Rocky Mountain Metropolitan before being exported to customers around the world. Pilatus not only takes pride in supporting their customers, but their employees as well, who are branded as the "Pilatus Family". The company has an apprenticeship program at BJC to train their workforce to meet their rigorous quality standards. The paid apprenticeship provides hands-on training in skilled trades and offers candidates the ability to earn an associate's degree in various disciplines. The new facility at the airport and the up-and-coming workforce will allow Pilatus to continue to serve its customers and employees for many years to come.

Did you Know?

32,946,058 Passengers enplaned at **14** commercial service airports in 2018

750,493 Commercial Service operations in 2018

1,520,407 General Aviation operations at **66** public-use airports across Colorado in 2018

5th Busiest airport in the U.S.

DEN is the 5th busiest airport in the U.S. in terms of passenger enplanements[1]

1. Source: FAA (2019) CY 2018 Passenger Boarding Data

1st Remote air traffic control tower with radar/track-based input overlay in the U.S.

Northern Colorado Regional (FNL) is the home to the Colorado Remote Tower Project, the first remote tower of its kind that is currently undergoing testing and should be fully operational by 2022.

19,956

active pilots and flight instructors in Colorado, including **1,945 women pilots** in 2019[2]

2. Source: FAA (2019), CY 2019 U.S. Civil Airman Statistics

6 accredited colleges or universities that provide aviation education

5,208

based aircraft in 2018

13 Mountain Automated Weather Observation Systems (AWOS)

will be integrated with real-time camera data in Summer 2020. These AWOS stations are the first to include cameras in the lower 48 and provide vital weather information for pilots flying over the Rocky Mountains.

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To read the complete technical report please visit the 2020 Colorado Aviation System Plan project website:

coloradoaviationsystem.com