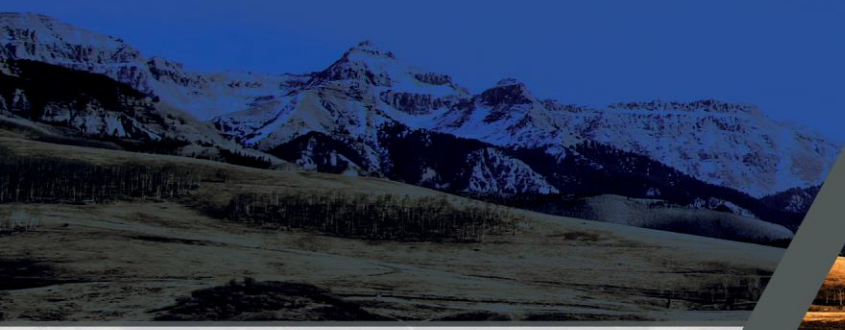
MEETING #3

Project Advisory Committee (PAC)

August 28, 2019



Colorado Aviation System Plan and Economic Impact Study

Introductions

- CDOT Aeronautics
- Kimley-Horn
- EDR Group
- KRAMER aerotek
- PAC Members

Agenda

- PAC Meeting #2 Recap
- Since the Last PAC Meeting
- Current Tasks
  - Activity Forecasts
  - Existing Performance
  - Economic Impact Update
- Next Steps

CASP
CEIS

PAC Meeting #2 Recap

April 11, 2019

Meeting #2 Topics

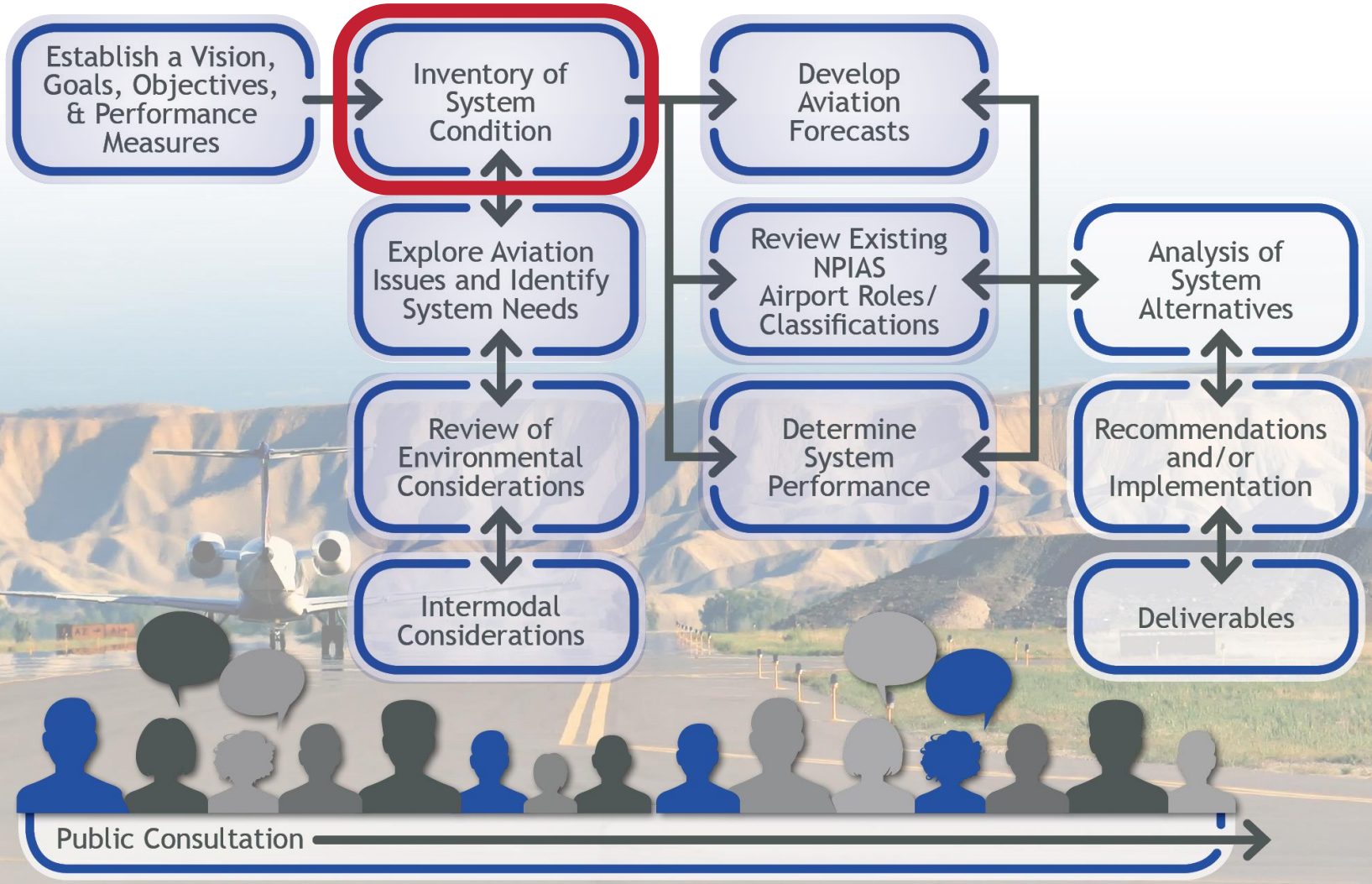
- Inventory
- Airport Roles & Classifications
- Facility & Service Objectives
- CASP Activity Forecasts Introduction
- Economic Impact Study Update

Major Discussion Topics from PAC #2

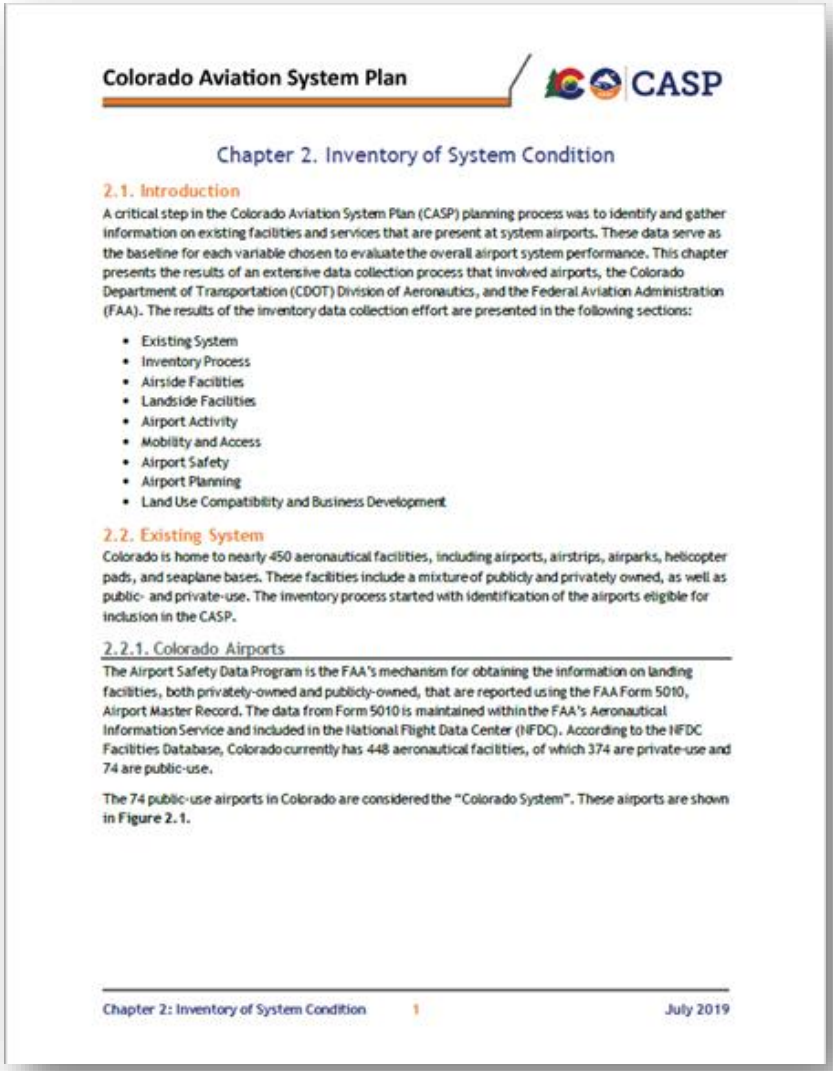
- Airport Roles/Classifications
  - Considered nomenclature “local” and “community” – research yielded no recommended change
- Facility & Service Objectives
  - Had word bank to generate ideas
  - Revised based on feedback
    - Added: ARC, Electric vehicle charging station, Perimeter security, Maintenance/SRE storage building, Courtesy car, Sustainability plan
    - Revised: Runway length, Markings, Terminal (CS & GA), Apron tie-downs, Hangars, Aircraft de-icing
    - Removed: Paint machine, ATCT, GCO, Phone, ARFF, Tractors, Mowers, Electrical Vault

Since the Last PAC Meeting…

CASP Process Progress



Ch. 2. Inventory of System Condition



Colorado Aviation System Plan

CASP

Chapter 2. Inventory of System Condition

2.1. Introduction

A critical step in the Colorado Aviation System Plan (CASP) planning process was to identify and gather information on existing facilities and services that are present at system airports. These data serve as the baseline for each variable chosen to evaluate the overall airport system performance. This chapter presents the results of an extensive data collection process that involved airports, the Colorado Department of Transportation (CDOT) Division of Aeronautics, and the Federal Aviation Administration (FAA). The results of the inventory data collection effort are presented in the following sections:

- Existing System
- Inventory Process
- Airside Facilities
- Landside Facilities
- Airport Activity
- Mobility and Access
- Airport Safety
- Airport Planning
- Land Use Compatibility and Business Development

2.2. Existing System

Colorado is home to nearly 450 aeronautical facilities, including airports, airstrips, airparks, helicopter pads, and seaplane bases. These facilities include a mixture of publicly and privately owned, as well as public- and private-use. The inventory process started with identification of the airports eligible for inclusion in the CASP.

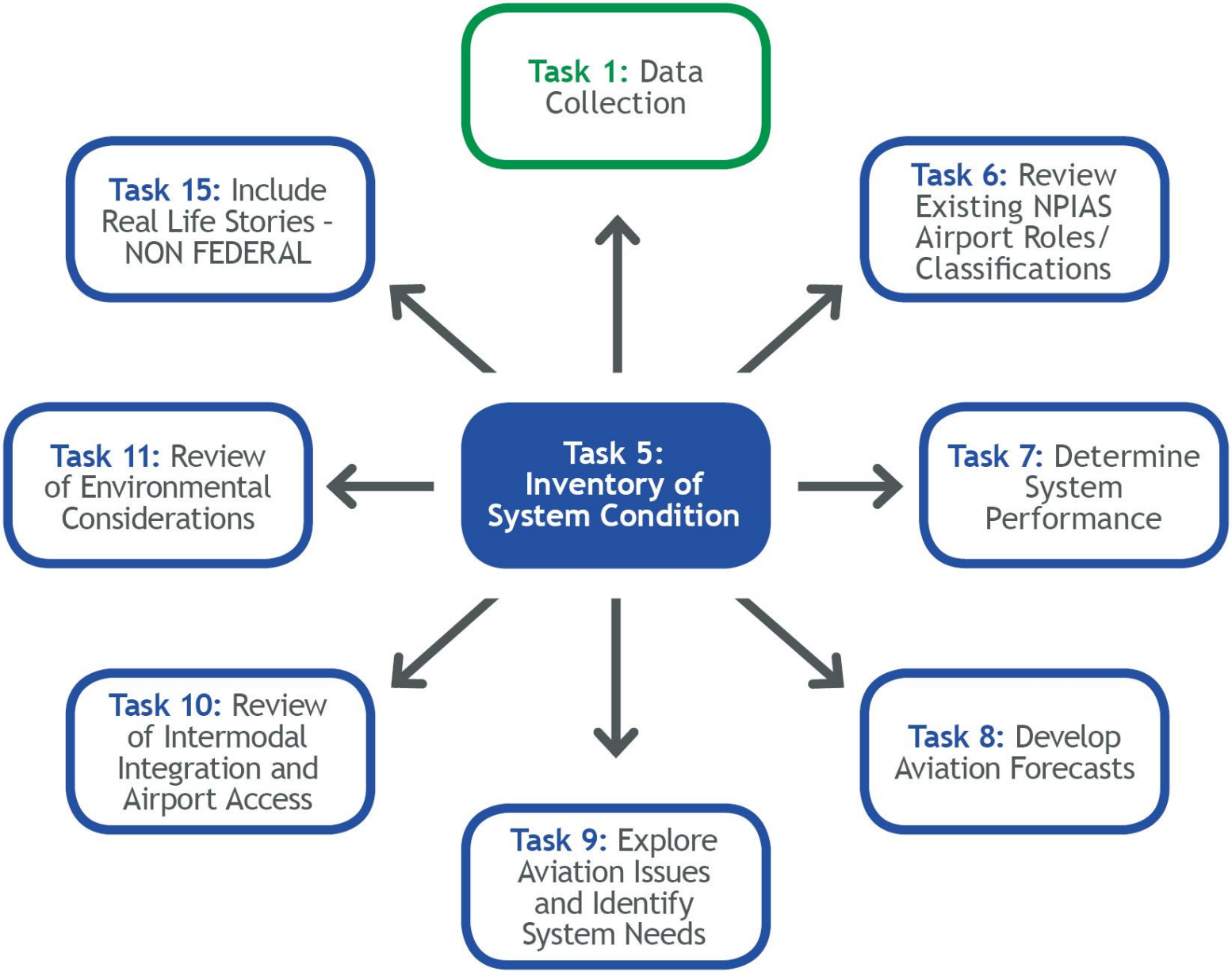
2.2.1. Colorado Airports

The Airport Safety Data Program is the FAA's mechanism for obtaining the information on landing facilities, both privately-owned and publicly-owned, that are reported using the FAA Form 5010, Airport Master Record. The data from Form 5010 is maintained within the FAA's Aeronautical Information Service and included in the National Flight Data Center (NFDC). According to the NFDC Facilities Database, Colorado currently has 448 aeronautical facilities, of which 374 are private-use and 74 are public-use.

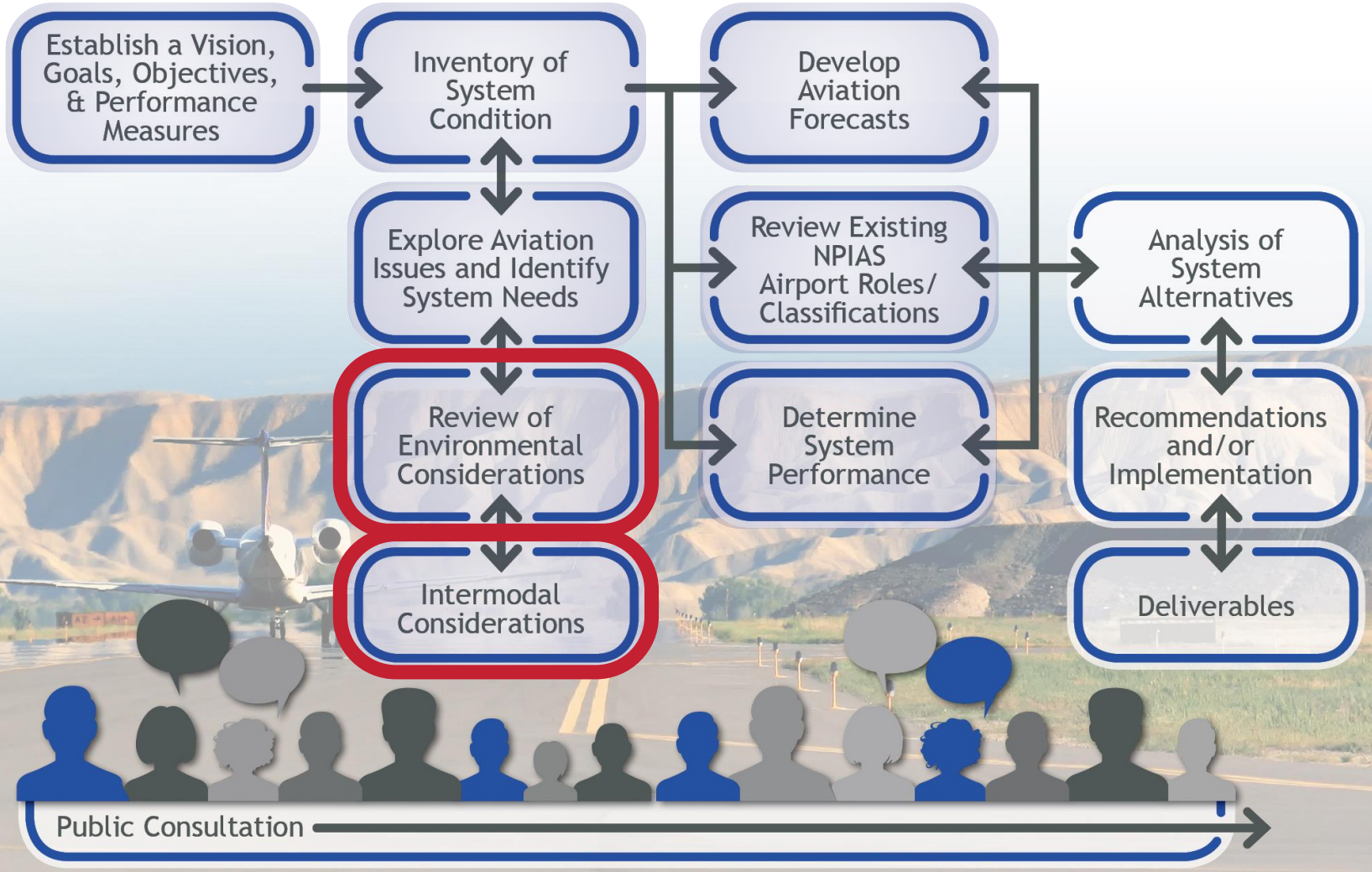
The 74 public-use airports in Colorado are considered the "Colorado System". These airports are shown in Figure 2.1.

Chapter 2: Inventory of System Condition 1 July 2019

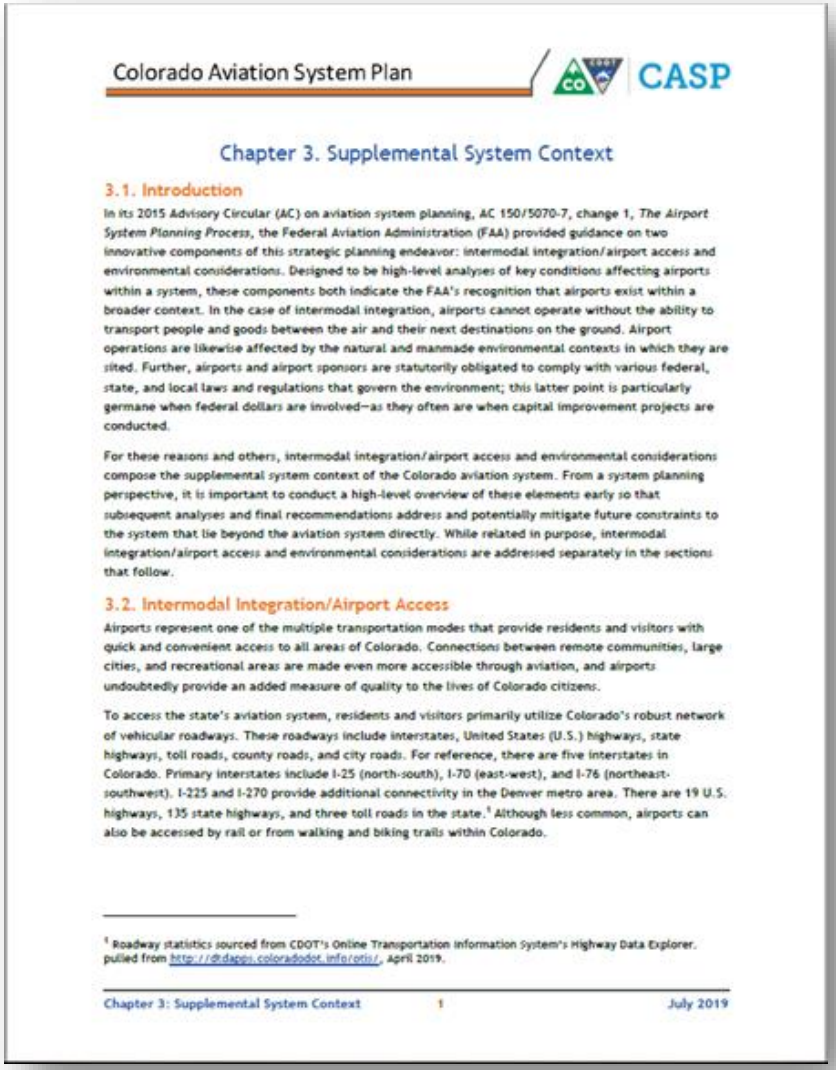
- Provides comprehensive baseline data
- Organized by types of facilities and services
- Sourced from manager survey, site visit, and official sources (FAA, CDOT, master plans, etc.)
- All data to be integrated into WIMS


Task 1: Data Collection
Task 15: Include Real Life Stories - NON FEDERAL
Task 6: Review Existing NPIAS Airport Roles/ Classifications
Task 11: Review of Environmental Considerations
Task 5: Inventory of System Condition
Task 7: Determine System Performance
Task 10: Review of Intermodal Integration and Airport Access
Task 8: Develop Aviation Forecasts
Task 9: Explore Aviation Issues and Identify System Needs

CASP Process Progress



Ch. 3. Supplemental System Context



Colorado Aviation System Plan | CASP

Chapter 3. Supplemental System Context

3.1. Introduction

In its 2015 Advisory Circular (AC) on aviation system planning, AC 150/5070-7, change 1, *The Airport System Planning Process*, the Federal Aviation Administration (FAA) provided guidance on two innovative components of this strategic planning endeavor: intermodal integration/airport access and environmental considerations. Designed to be high-level analyses of key conditions affecting airports within a system, these components both indicate the FAA's recognition that airports exist within a broader context. In the case of intermodal integration, airports cannot operate without the ability to transport people and goods between the air and their next destinations on the ground. Airport operations are likewise affected by the natural and manmade environmental contexts in which they are sited. Further, airports and airport sponsors are statutorily obligated to comply with various federal, state, and local laws and regulations that govern the environment; this latter point is particularly germane when federal dollars are involved—as they often are when capital improvement projects are conducted.

For these reasons and others, intermodal integration/airport access and environmental considerations compose the supplemental system context of the Colorado aviation system. From a system planning perspective, it is important to conduct a high-level overview of these elements early so that subsequent analyses and final recommendations address and potentially mitigate future constraints to the system that lie beyond the aviation system directly. While related in purpose, intermodal integration/airport access and environmental considerations are addressed separately in the sections that follow.

3.2. Intermodal Integration/Airport Access

Airports represent one of the multiple transportation modes that provide residents and visitors with quick and convenient access to all areas of Colorado. Connections between remote communities, large cities, and recreational areas are made even more accessible through aviation, and airports undoubtedly provide an added measure of quality to the lives of Colorado citizens.

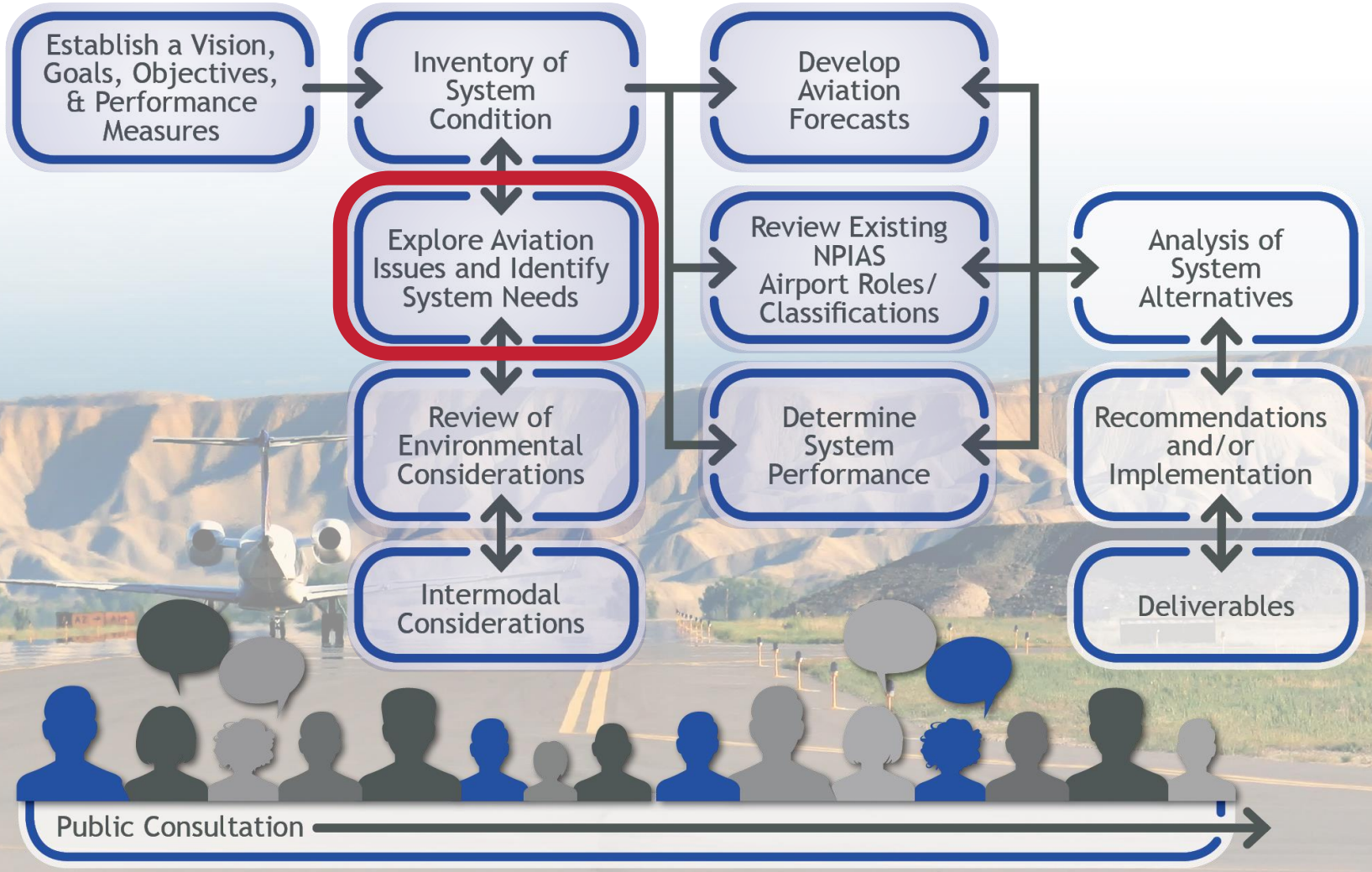
To access the state's aviation system, residents and visitors primarily utilize Colorado's robust network of vehicular roadways. These roadways include interstates, United States (U.S.) highways, state highways, toll roads, county roads, and city roads. For reference, there are five interstates in Colorado. Primary interstates include I-25 (north-south), I-70 (east-west), and I-76 (northeast-southwest). I-225 and I-270 provide additional connectivity in the Denver metro area. There are 19 U.S. highways, 135 state highways, and three toll roads in the state.[1] Although less common, airports can also be accessed by rail or from walking and biking trails within Colorado.

[1] Roadway statistics sourced from CDOT's Online Transportation Information System's Highway Data Explorer, pulled from http://dtdapps.coloradodot.info/otis/, April 2019.

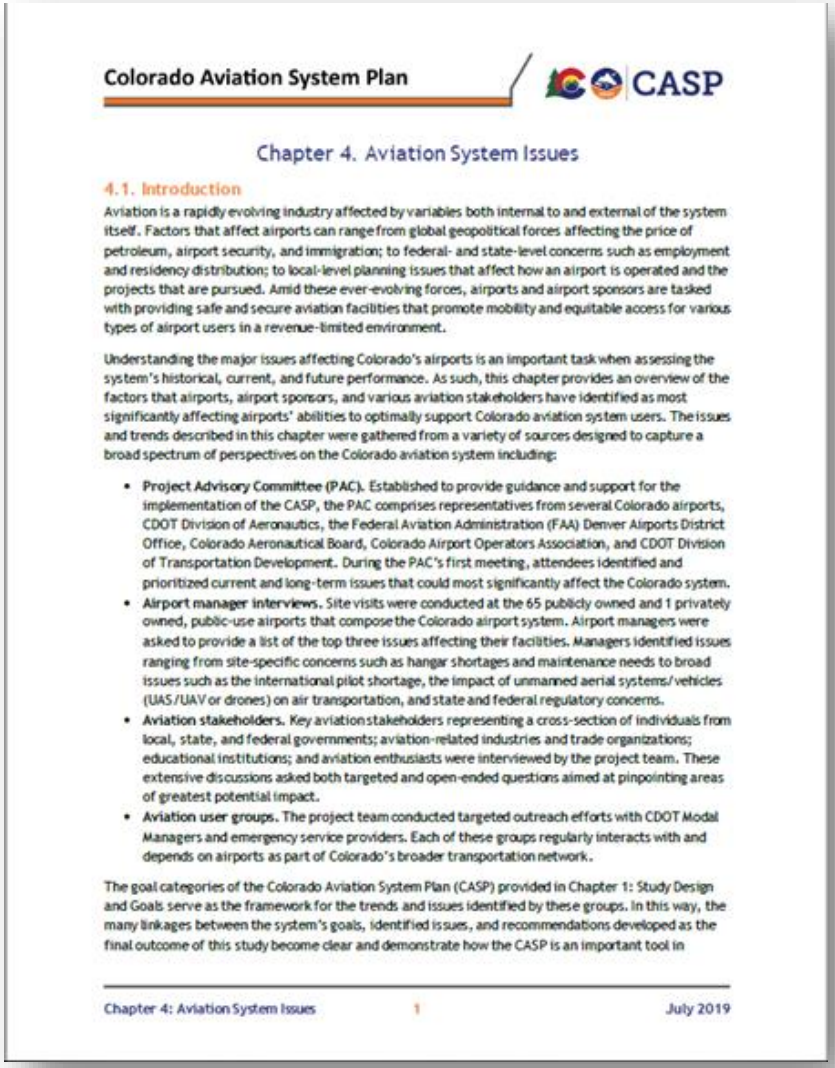
Chapter 3: Supplemental System Context 1 July 2019

- Provides intermodal and airport access considerations
- Documents high-level environmental issues
- Offers additional context to be used in conjunction with inventory data
- CDOT Planning review/input

CASP Process Progress



Ch. 4. Aviation System Issues



Colorado Aviation System Plan

CASP

Chapter 4. Aviation System Issues

4.1. Introduction

Aviation is a rapidly evolving industry affected by variables both internal to and external of the system itself. Factors that affect airports can range from global geopolitical forces affecting the price of petroleum, airport security, and immigration; to federal- and state-level concerns such as employment and residency distribution; to local-level planning issues that affect how an airport is operated and the projects that are pursued. Amid these ever-evolving forces, airports and airport sponsors are tasked with providing safe and secure aviation facilities that promote mobility and equitable access for various types of airport users in a revenue-limited environment.

Understanding the major issues affecting Colorado's airports is an important task when assessing the system's historical, current, and future performance. As such, this chapter provides an overview of the factors that airports, airport sponsors, and various aviation stakeholders have identified as most significantly affecting airports' abilities to optimally support Colorado aviation system users. The issues and trends described in this chapter were gathered from a variety of sources designed to capture a broad spectrum of perspectives on the Colorado aviation system including:

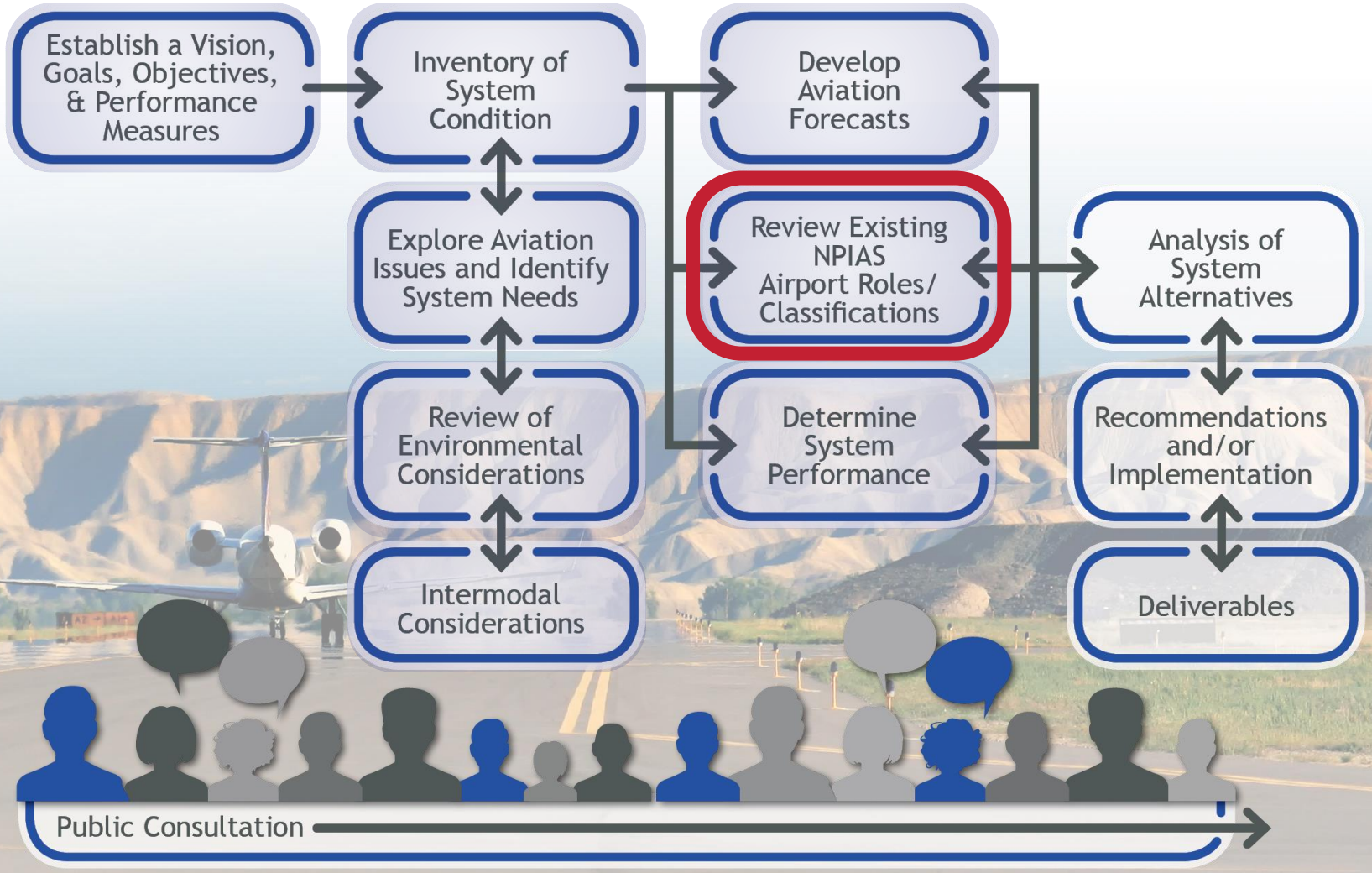
- **Project Advisory Committee (PAC).** Established to provide guidance and support for the implementation of the CASP, the PAC comprises representatives from several Colorado airports, CDOT Division of Aeronautics, the Federal Aviation Administration (FAA) Denver Airports District Office, Colorado Aeronautical Board, Colorado Airport Operators Association, and CDOT Division of Transportation Development. During the PAC's first meeting, attendees identified and prioritized current and long-term issues that could most significantly affect the Colorado system.
- **Airport manager interviews.** Site visits were conducted at the 65 publicly owned and 1 privately owned, public-use airports that compose the Colorado airport system. Airport managers were asked to provide a list of the top three issues affecting their facilities. Managers identified issues ranging from site-specific concerns such as hangar shortages and maintenance needs to broad issues such as the international pilot shortage, the impact of unmanned aerial systems/vehicles (UAS/UAV or drones) on air transportation, and state and federal regulatory concerns.
- **Aviation stakeholders.** Key aviation stakeholders representing a cross-section of individuals from local, state, and federal governments; aviation-related industries and trade organizations; educational institutions; and aviation enthusiasts were interviewed by the project team. These extensive discussions asked both targeted and open-ended questions aimed at pinpointing areas of greatest potential impact.
- **Aviation user groups.** The project team conducted targeted outreach efforts with CDOT Modal Managers and emergency service providers. Each of these groups regularly interacts with and depends on airports as part of Colorado's broader transportation network.

The goal categories of the Colorado Aviation System Plan (CASP) provided in Chapter 1: Study Design and Goals serve as the framework for the trends and issues identified by these groups. In this way, the many linkages between the system's goals, identified issues, and recommendations developed as the final outcome of this study become clear and demonstrate how the CASP is an important tool in

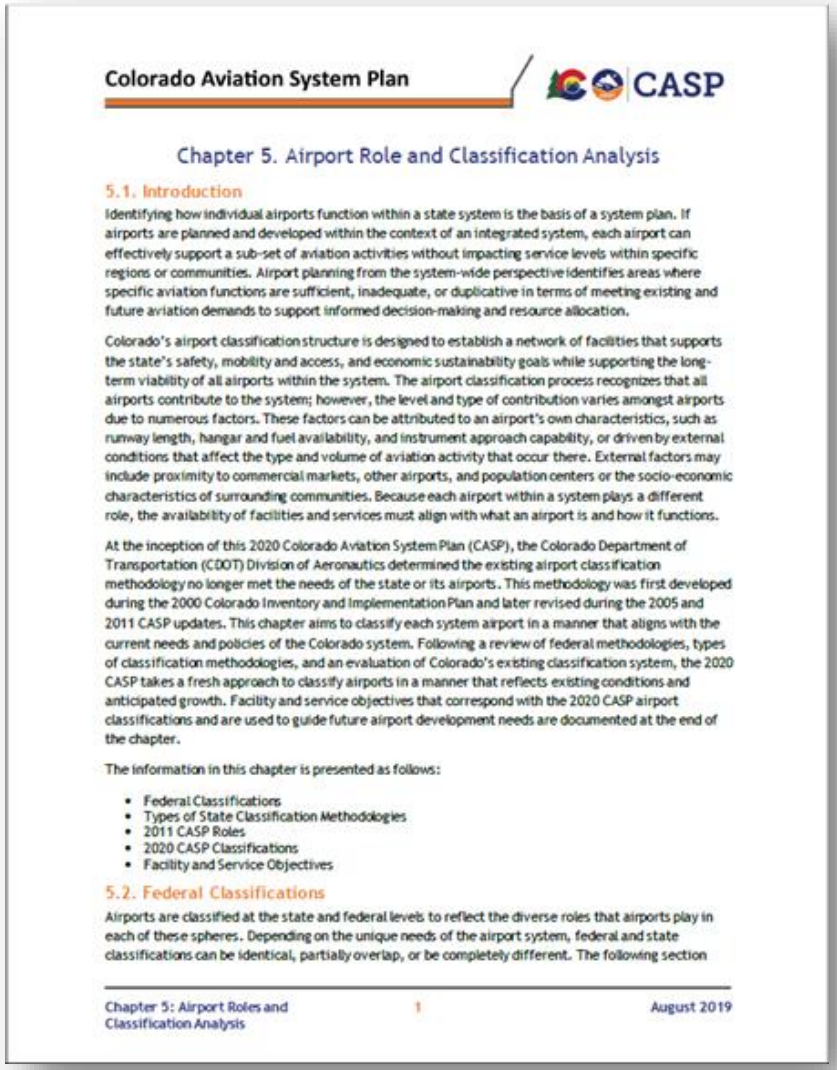
Chapter 4: Aviation System Issues 1 July 2019

- Based on feedback from PAC and knowledge of industry conditions
- Responses to manager survey and site visits
- Findings from stakeholder interviews and aviation user groups (emergency service providers)
- Grouped according to applicable goal

CASP Process Progress



Ch. 5. Airport Role & Classification Analysis



Colorado Aviation System Plan

CASP

Chapter 5. Airport Role and Classification Analysis

5.1. Introduction

Identifying how individual airports function within a state system is the basis of a system plan. If airports are planned and developed within the context of an integrated system, each airport can effectively support a sub-set of aviation activities without impacting service levels within specific regions or communities. Airport planning from the system-wide perspective identifies areas where specific aviation functions are sufficient, inadequate, or duplicative in terms of meeting existing and future aviation demands to support informed decision-making and resource allocation.

Colorado's airport classification structure is designed to establish a network of facilities that supports the state's safety, mobility and access, and economic sustainability goals while supporting the long-term viability of all airports within the system. The airport classification process recognizes that all airports contribute to the system; however, the level and type of contribution varies amongst airports due to numerous factors. These factors can be attributed to an airport's own characteristics, such as runway length, hangar and fuel availability, and instrument approach capability, or driven by external conditions that affect the type and volume of aviation activity that occur there. External factors may include proximity to commercial markets, other airports, and population centers or the socio-economic characteristics of surrounding communities. Because each airport within a system plays a different role, the availability of facilities and services must align with what an airport is and how it functions.

At the inception of this 2020 Colorado Aviation System Plan (CASP), the Colorado Department of Transportation (CDOT) Division of Aeronautics determined the existing airport classification methodology no longer met the needs of the state or its airports. This methodology was first developed during the 2000 Colorado Inventory and Implementation Plan and later revised during the 2005 and 2011 CASP updates. This chapter aims to classify each system airport in a manner that aligns with the current needs and policies of the Colorado system. Following a review of federal methodologies, types of classification methodologies, and an evaluation of Colorado's existing classification system, the 2020 CASP takes a fresh approach to classify airports in a manner that reflects existing conditions and anticipated growth. Facility and service objectives that correspond with the 2020 CASP airport classifications and are used to guide future airport development needs are documented at the end of the chapter.

The information in this chapter is presented as follows:

- Federal Classifications
- Types of State Classification Methodologies
- 2011 CASP Roles
- 2020 CASP Classifications
- Facility and Service Objectives

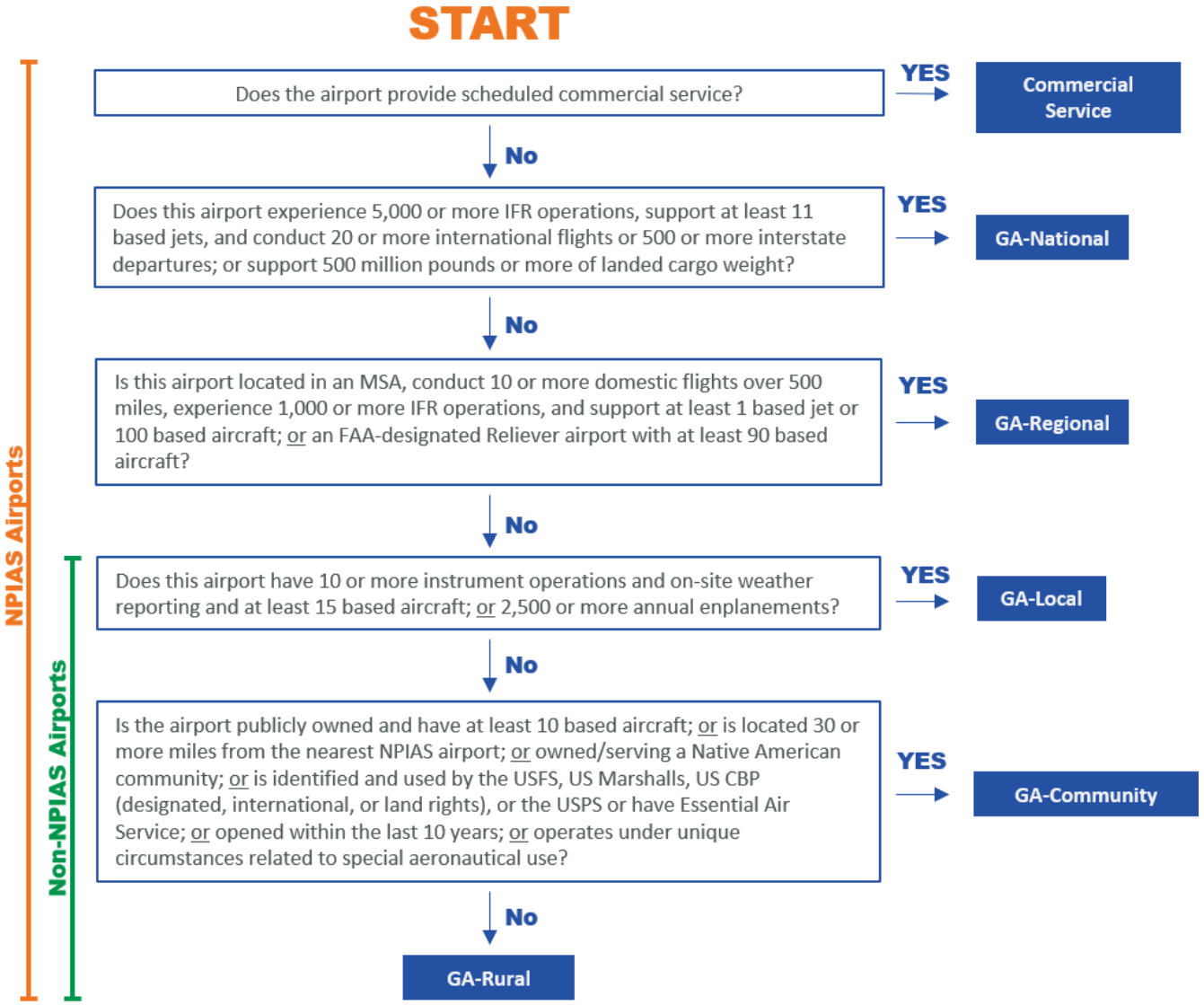
5.2. Federal Classifications

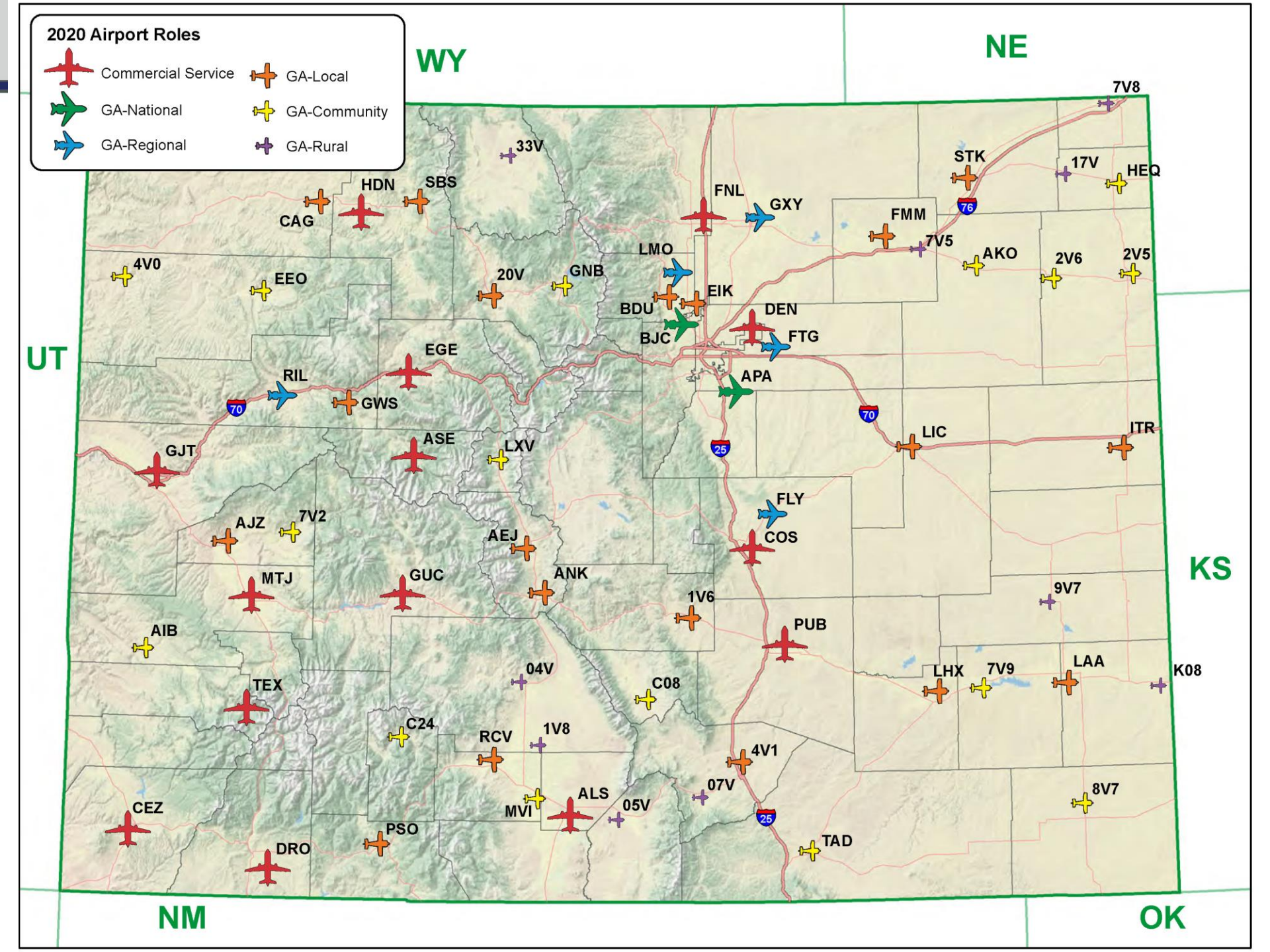
Airports are classified at the state and federal levels to reflect the diverse roles that airports play in each of these spheres. Depending on the unique needs of the airport system, federal and state classifications can be identical, partially overlap, or be completely different. The following section

Chapter 5: Airport Roles and Classification Analysis 1 August 2019

- Reviews FAA classifications
- Documents new classification methodology
- Used to assign facility and service objectives based on airport roles

2020 Airport Roles/Classifications




2020 Airport Roles
Commercial Service
GA-National
GA-Regional
GA-Local
GA-Community
GA-Rural
WY
NE
UT
KS
NM
OK
7V8
33V
STK
17V
HEQ
HDN
SBS
FNL
GXY
CAG
FMM
7V5
AKO
2V6
2V5
4V0
EEO
20V
GNB
LMO
EIK
BDU
DEN
BJC
FTG
EGE
APA
RIL
GWS
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LIC
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GJT
ASE
LXV
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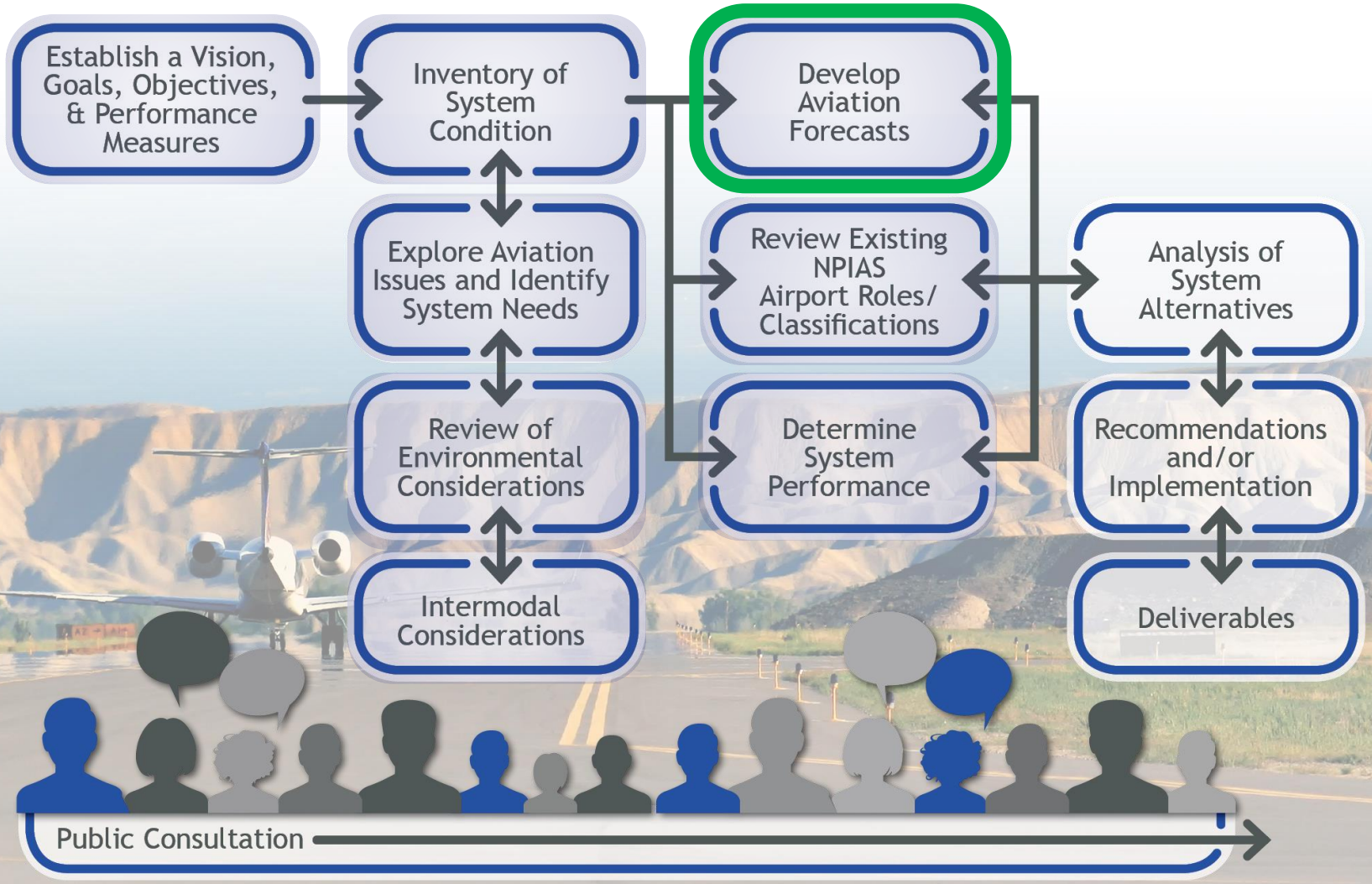
FLY
AJZ
7V2
AEJ
COS
MTJ
GUC
ANK
9V7
1V6
PUB
AIB
04V
C08
LHX
7V9
LAA
K08
TEX
C24
RCV
1V8
4V1
07V
8V7
CEZ
MVI
ALS
05V
PSO
DRO
TAD

Current Tasks

CASP Process Progress

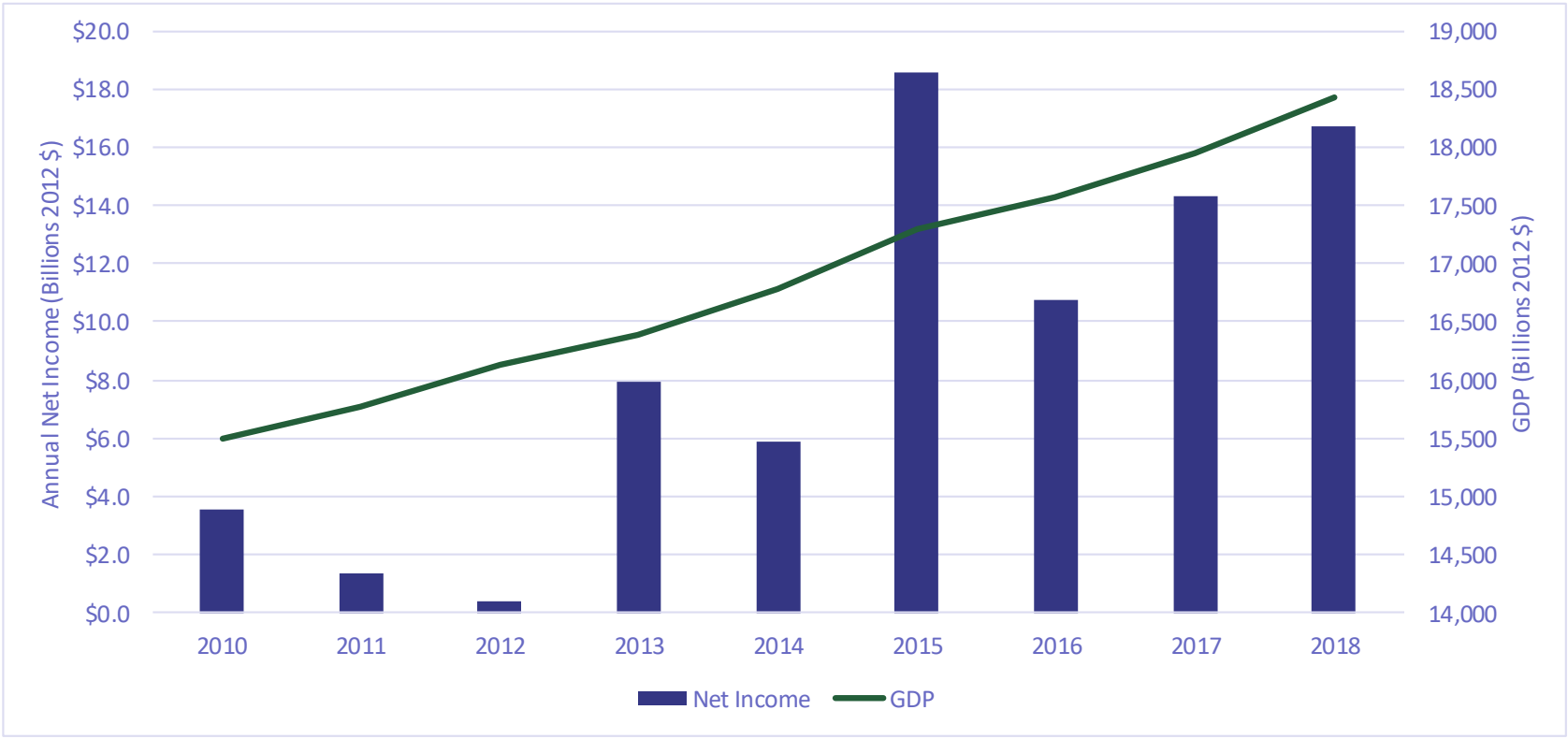


Context for Forecasts

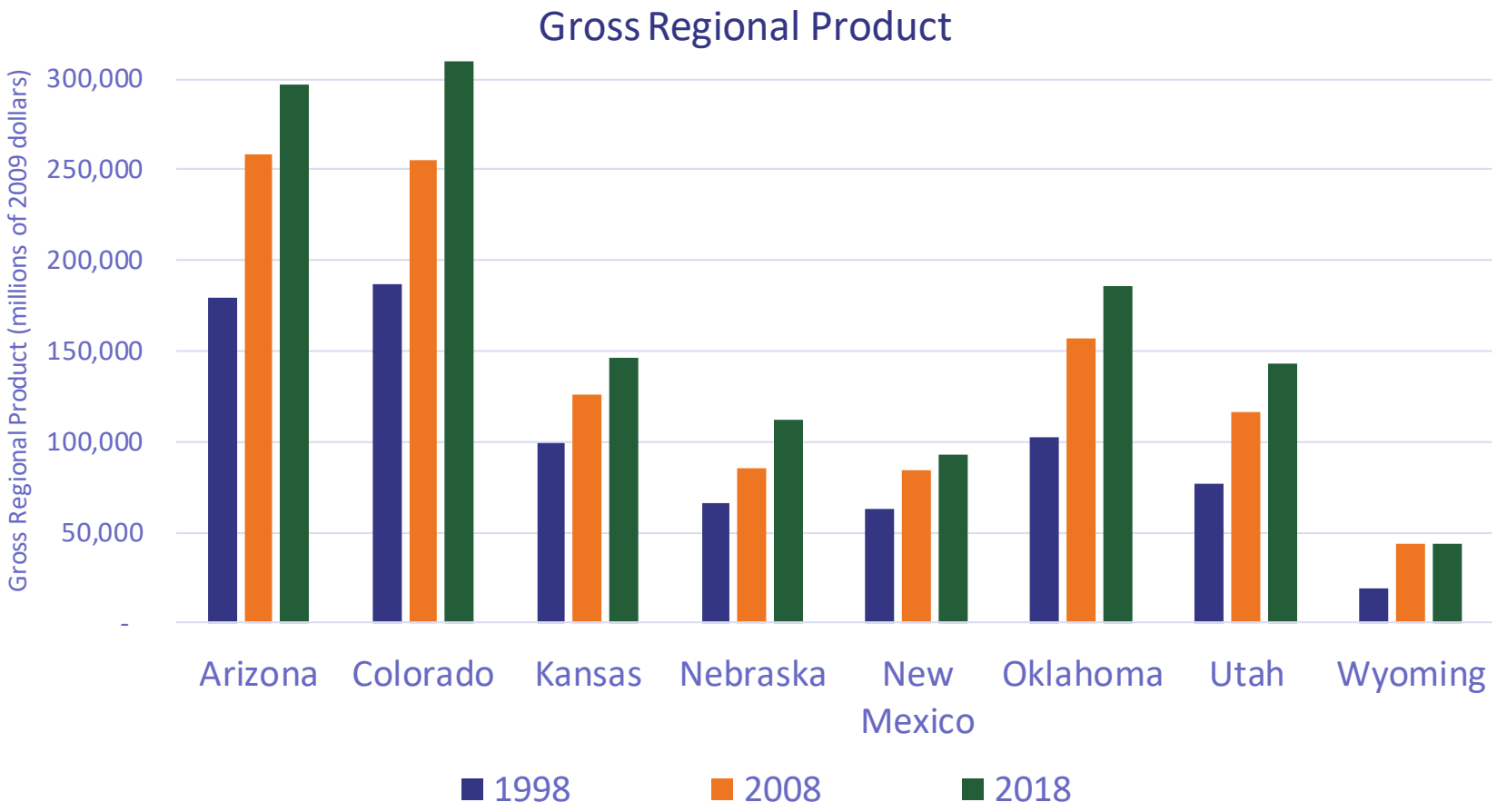
- Socio-Economic Trends
  - National
  - Regional
  - Statewide
  - Local
- Aviation Trends
  - Commercial Service
  - Air Cargo
  - General Aviation

Strong Correlation Between Aviation and the Economy

Domestic U.S. Scheduled Service Passenger Airlines Annual Net Income and GDP
(Billions of 2012 dollars)



Colorado's Economic Leadership in the Region



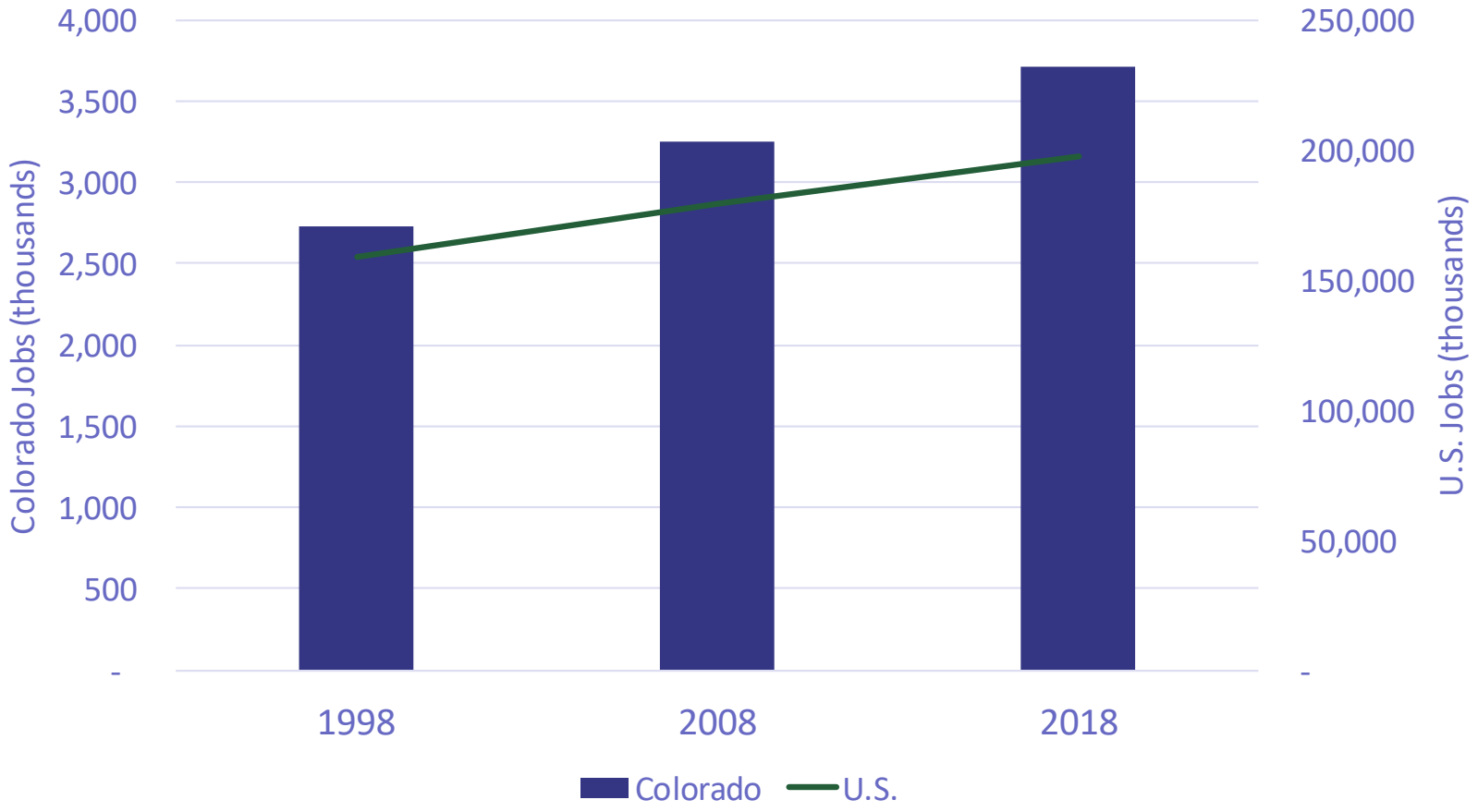
Advanced Industries are Redefining Colorado's Economy

- Aerospace
- Advanced Manufacturing
- Bioscience
- Electronics
- Information Technology
- Craft Beer
- Cannabis

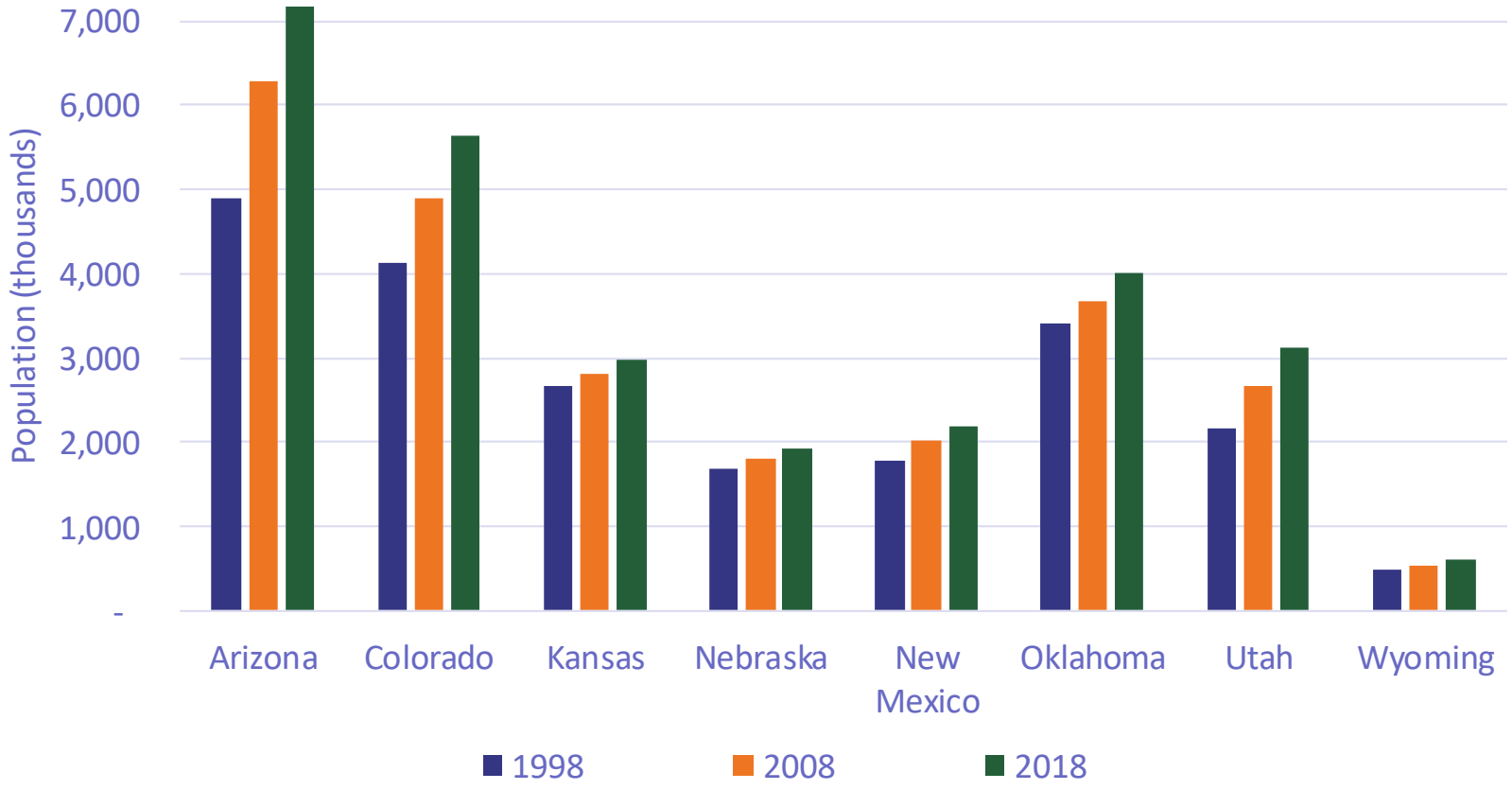
And Colorado Industry Mainstays

- Agriculture & Food
- Defense & Homeland Security
- Energy and Natural Resources
- Tourism

Colorado Job Growth Fuels the State's Economy

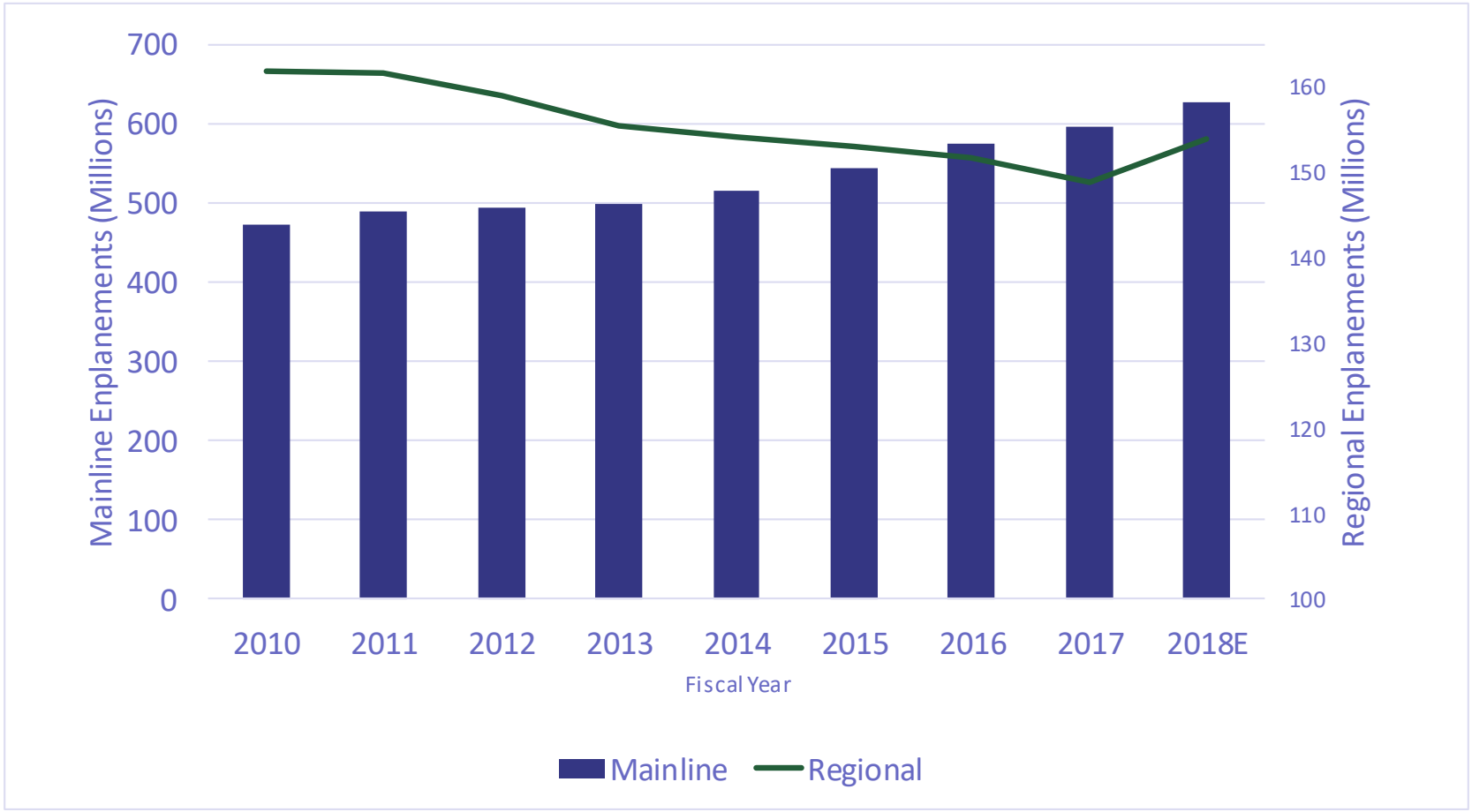


As Does Population Growth



Commercial Aviation

Mainline and Regional U.S. Enplanements – Different Paths



Growth of the Ultra Low-Cost Carriers (ULCC)

Domestic Available Seat Miles (ASMs)

Network Carriers	Value Carriers	Ultra Low-Cost Carriers
• American • Delta • United	• Alaska • Hawaiian • JetBlue • Southwest	• Allegiant • Frontier • Spirit

2017-2018 Capacity Growth

- Network = 3.8%
- Value = 5.1%
- ULCC = 16.2%

Change in Scheduled Departures and Routes Favors the Largest Cities

Changes in Scheduled Departures and Routes, 2009-2018

Hub	Departures	Routes
Large	0.7%	7.0%
Medium	-4.7%	1.3%
Small	-13.9%	-10.3%
Nonhub	-15.1%	-2.8%
Nonprimary	-19.3%	-24.2%

Source: RAA, July Schedules for U.S. Domestic Operations

Air Service in Colorado is Remarkably Stable

Enplanements 2008-2018

Associated City	Airport Name	FAA ID	2008	2018	Annual Growth
Alamosa	San Luis Valley Regional/Bergman Field	ALS	7,161	6,798	-0.5%
Aspen	Aspen-Pitkin County/Sardy Field	ASE	213,381	285,472	3.0%
Colorado Springs	City of Colorado Springs Municipal	COS	997,348	883,776	-1.2%
Cortez	Cortez Municipal	CEZ	8,401	8,089	-0.4%
Denver	Denver International	DEN	24,287,939	30,849,992	2.4%
Durango	Durango-La Plata County	DRO	134,386	189,771	3.5%
Eagle	Eagle County Regional	EGE	212,832	174,369	-2.0%
Grand Junction	Grand Junction Regional	GJT	212,588	239,063	1.2%
Gunnison	Gunnison-Crested Butte Regional	GUC	36,035	38,213	0.6%
Hayden	Yampa Valley	HDN	136,600	103,410	-2.7%
Fort Collins/ Loveland	Northern Colorado Regional	FNL	31,094	3,288	NA
Montrose	Montrose Regional	MTJ	85,868	134,106	4.6%
Pueblo	Pueblo Memorial	PUB	4,345	10,500	9.2%
Telluride	Telluride Regional	TEX	13,325	19,109	3.7%
		All Airports	**26,381,303**	**32,945,956**	**2.2%**
		All Airports (less Denver)	**2,093,364**	**2,095,964**	**0.0%**

Source: FAA

Air Service in Colorado is Remarkably Stable

Available Seat Miles (ASMs) 2008-2018

Associated City	Airport Name	FAA ID	2008	2018	Annual Growth
Alamosa	San Luis Valley Regional/Bergman Field	ALS	3,288	1,712	-6.3%
Aspen	Aspen-Pitkin County/Sardy Field	ASE	81,377	237,254	11.3%
Colorado Springs	City of Colorado Springs Municipal	COS	720,406	691,394	-0.4%
Cortez	Cortez Municipal	CEZ	4,766	2,806	-5.2%
Denver	Denver International	DEN	29,091,617	37,469,762	2.6%
Durango	Durango-La Plata County	DRO	57,582	101,504	5.8%
Eagle	Eagle County Regional	EGE	262,303	229,850	-1.3%
Grand Junction	Grand Junction Regional	GJT	22,156	NA	NA
Gunnison	Gunnison-Crested Butte Regional	GUC	98,370	128,577	2.7%
Hayden	Yampa Valley	HDN	20,377	23,229	1.3%
Fort Collins/ Loveland	Northern Colorado Regional	FNL	119,924	108,103	-1.0%
Montrose	Montrose Regional	MTJ	58,452	116,992	7.2%
Pueblo	Pueblo Memorial	PUB	2,115	6,508	11.9%
Telluride	Telluride Regional	TEX	6,027	898	-17.3%
		All Airports	**30,550,768**	**39,120,607**	**2.5%**
		All Airports (less Denver)	**1,459,151**	**1,650,845**	**1.2%**

Source: FAA

General Aviation

General Aviation and Air Taxi U.S. Fleet Changes

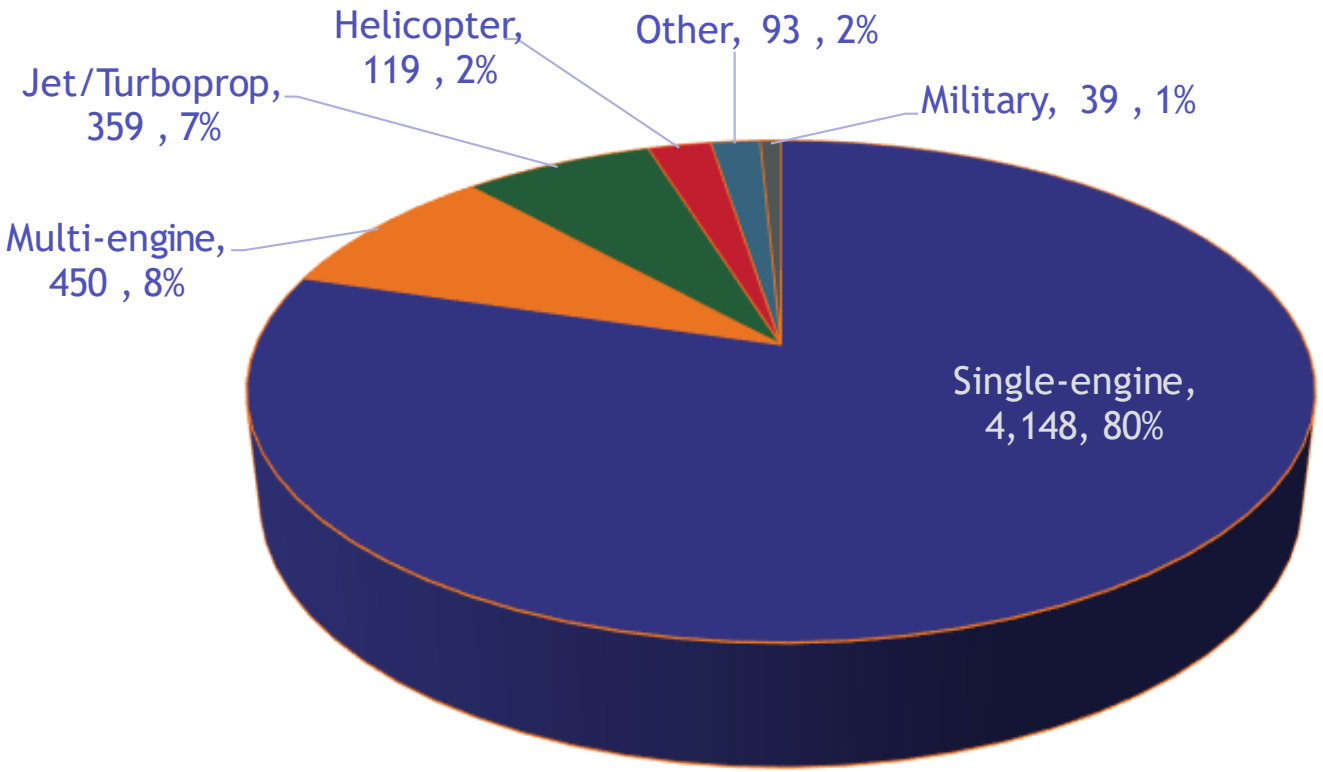
U.S. Active Aircraft Categories	Avg. Annual Growth 2010-18
Single Engine	-0.9%
Multi-Engine	-2.4%
Turboprop	0.7%
Turbojet	3.0%
Piston Rotorcraft	-0.9%
Turbine Rotorcraft	1.6%
Experimental	1.2%
Light Sport Aircraft	-10.6%
Other	-2.3%
All Active GA and Air Taxi Aircraft	-0.6%

Source: FAA Aerospace Forecasts 2019-2039

FAA Forecasts Growth Rates

	Active Aircraft		Hours Flown (000's)		Gallons of Fuel Consumed (000's)		Per Piston Aircraft		Per Turbine Aircraft	
Year	Piston	Turbine	Piston	Turbine	AvGas	Jet Fuel	Hours	Fuel	Hours	Fuel
2010	159,007	27,367	14,773	8,311	220,737	1,434,835	93	1,388	304	52,429
2018E	146,260	31,880	14,404	9,578	208,000	1,613,000	98	1,422	300	50,596
2019	145,700	32,385	14,305	9,929	207,045	1,674,626	98	1,421	307	51,710
2029	133,085	38,580	12,792	12,802	191,000	2,089,000	96	1,435	332	54,147
2039	122,230	46,085	12,265	15,543	184,000	2,335,000	100	1,505	337	50,667
Avg Annual Growth										
2010-18	-1.0%	1.9%	-0.3%	1.8%	-1.5%	1.2%	0.9%	1.0%	1.3%	-0.4%
2019-29	-0.9%	1.8%	-1.1%	2.6%	-2.2%	1.9%	-0.2%	0.1%	0.8%	0.5%
2019-39	-0.9%	1.8%	-0.8%	2.3%	-1.7%	1.5%	0.1%	0.3%	0.5%	-0.1%

Colorado's GA Fleet



Takeaways on the Trends

- Forecast process begins with a national overview followed by a review of state and local trends.
- Colorado's solid and diverse economy will support aviation development in the state.
- Commercial aviation forecasts require special handling because of unique roles for Denver, resort airports, and EAS points.
- Colorado GA fleet is likely to undergo transition during the forecast period as the active fleet is concentrated with single-engine piston aircraft.

Preliminary Forecast Results

Activity Forecasts

What: Enplanements, Based Aircraft, Operations

When: 2018-2038

Where: All System Airports (Commercial and GA)

Why: Understand fluctuations in activity that impact system capacity and the type of activities that need to be accommodated

Activity Forecasts

How:

- Select baseline data source for all indicators (w/FAA approval)
- Develop up to 3 methodologies per indicator such as:
  - Socioeconomic (population and/or employment)
  - FAA forecast growth rates
  - Trendline
- Select preferred forecast methodologies by indicator (w/CDOT and FAA)
- Compare results to TAF and/or master plans

Forecast Baseline Data

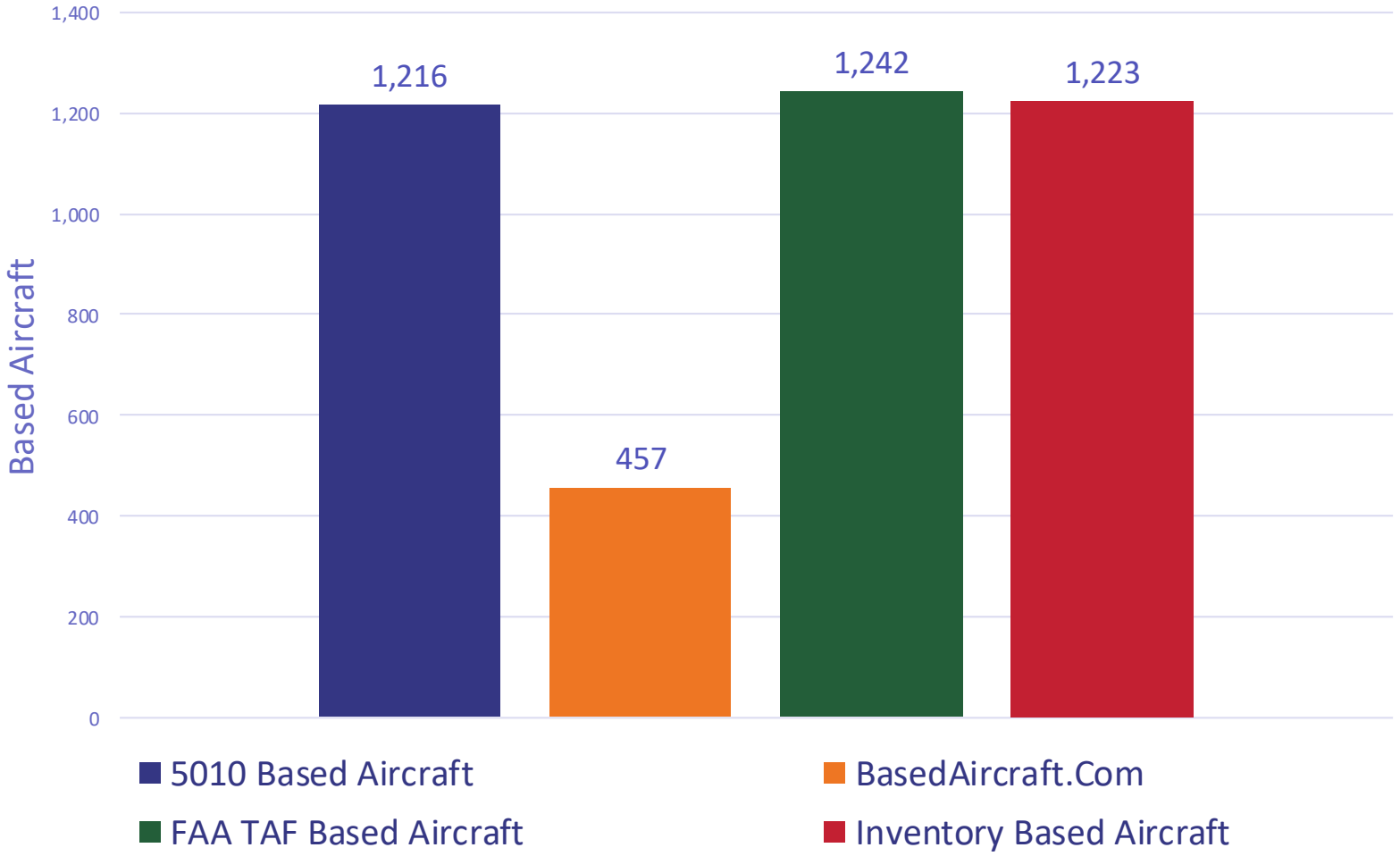
Commercial Service

- Enplanements
  - TAF
- Based Aircraft
  - Inventory Data
- Operations
  - TAF

General Aviation

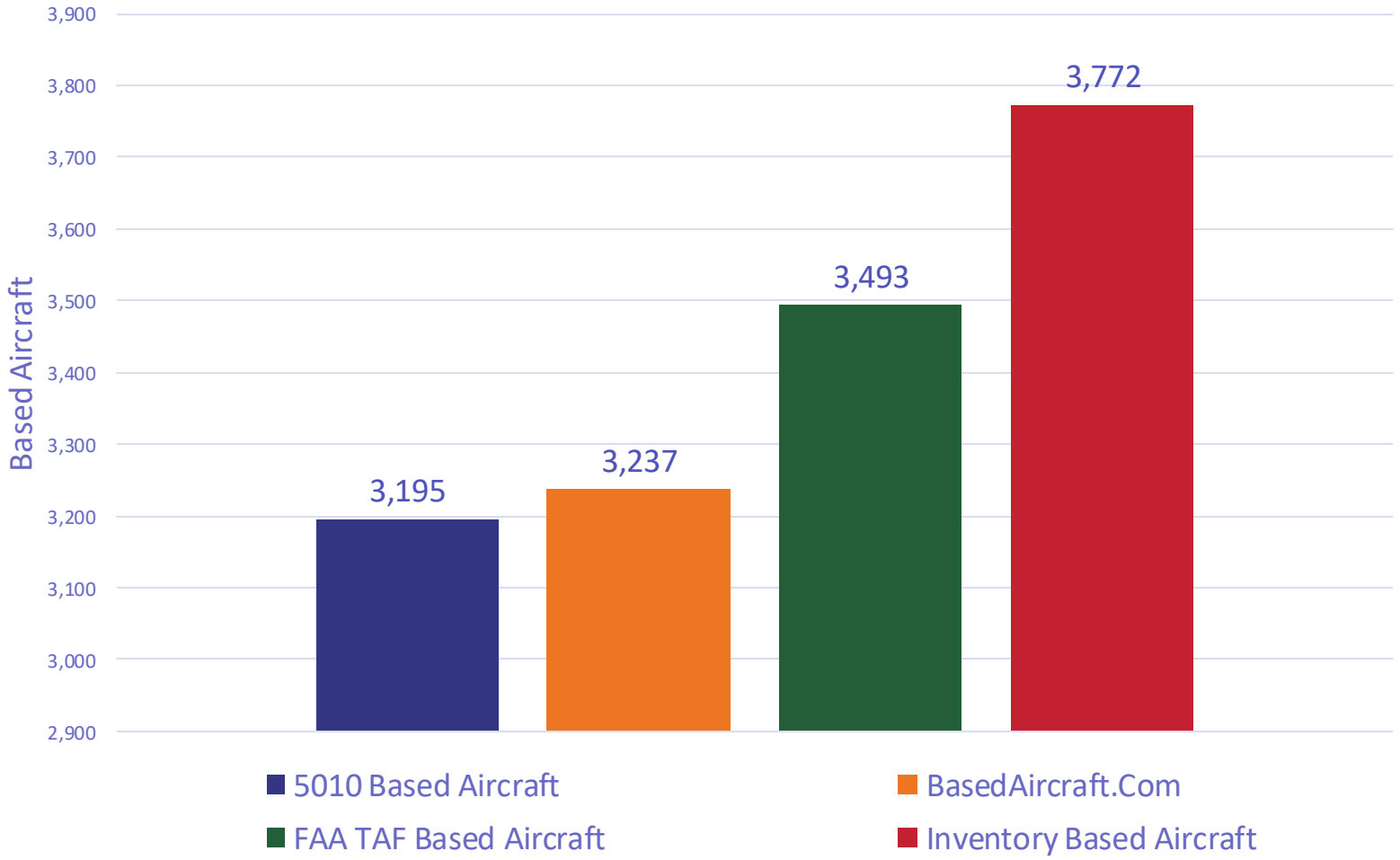
- Based Aircraft
  - Basedaircraft.com (NPIAS)
  - Inventory (non-NPIAS)
- Operations
  - TAF

2018 CS Airports Based Aircraft



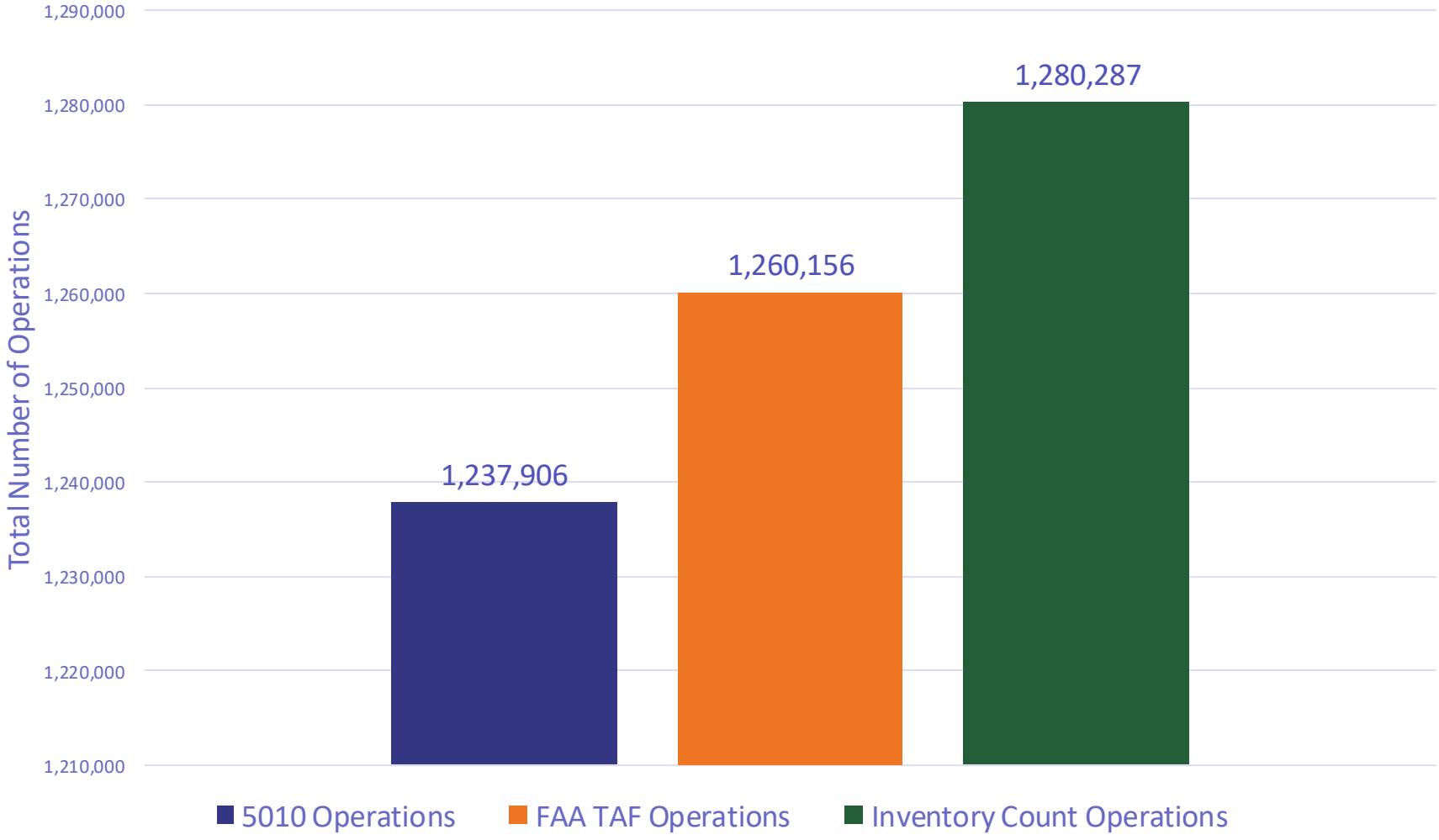
Source: 2018 Airport Inventory Form, FAA 5010 Master Record, FAA Terminal Area Forecast (TAF) 2018, FAA Based Aircraft Registry 2018

2018 GA NPIAS Airports Based Aircraft



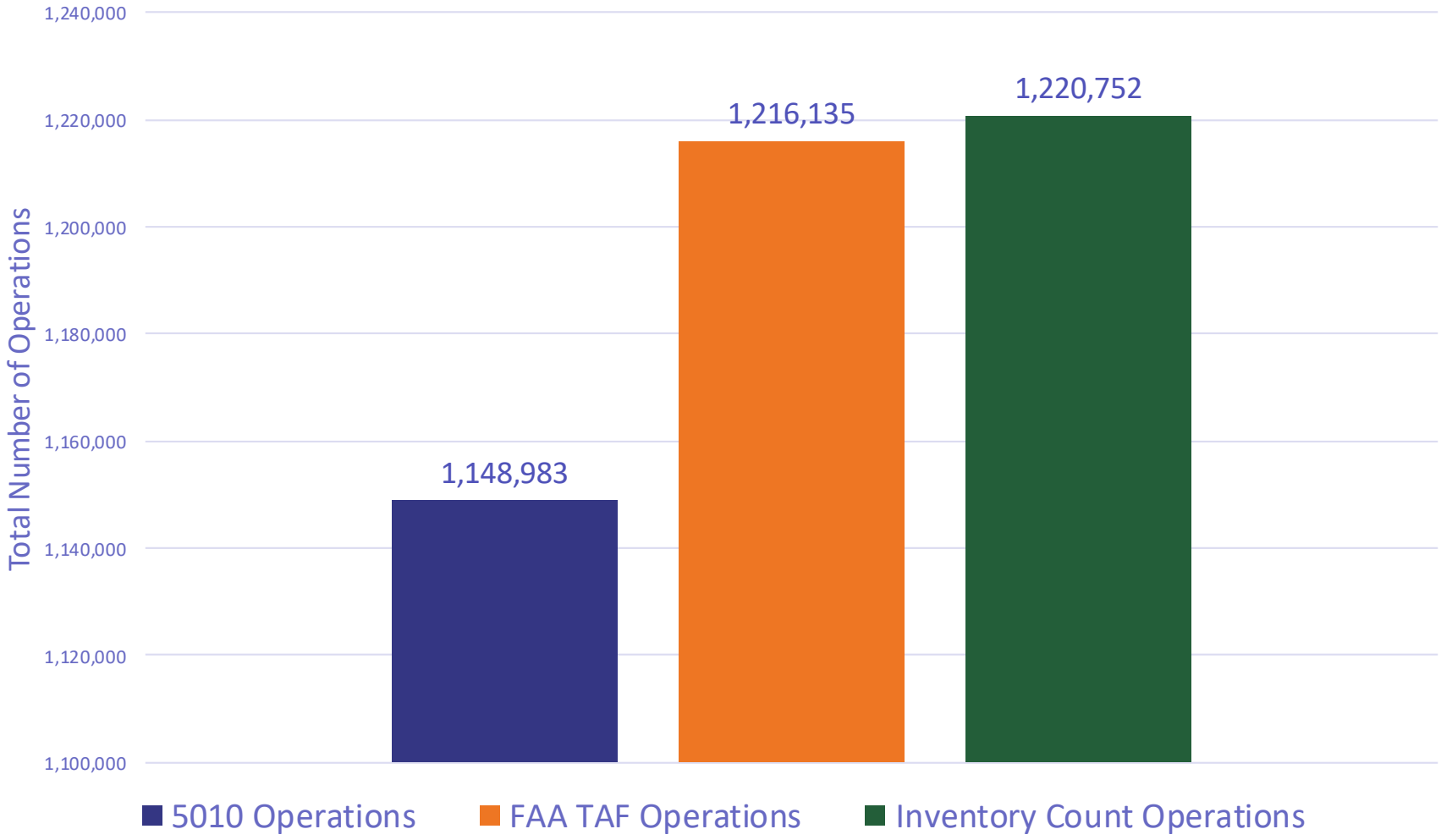
Source: 2018 Airport Inventory Form, FAA 5010 Master Record, FAA Terminal Area Forecast (TAF) 2018, FAA Based Aircraft Registry 2018

2018 CS Airports Total Operations



Source: 2018 Airport Inventory Form, FAA 5010 Master Record, FAA Terminal Area Forecast (TAF) 2018

2018 GA NPIAS Airports Total Operations



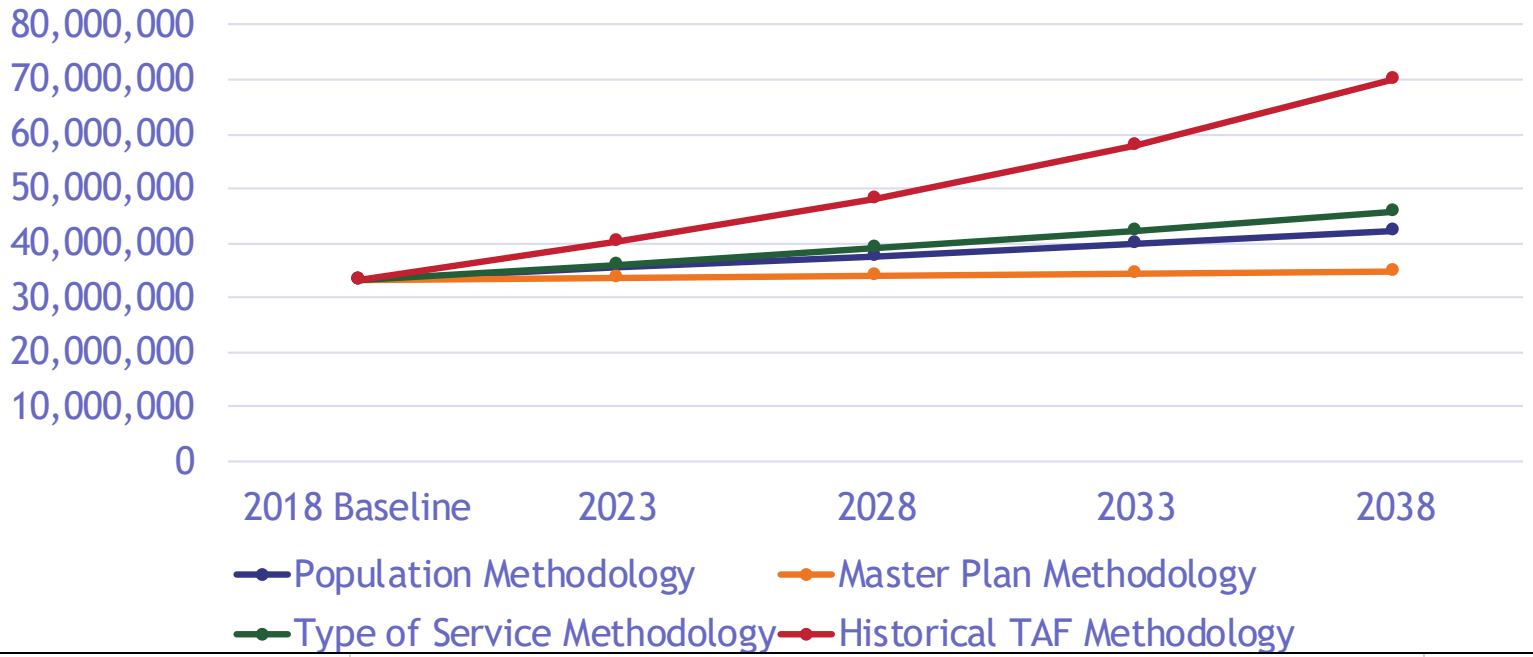
Source: 2018 Airport Inventory Form, FAA 5010 Master Record, FAA Terminal Area Forecast (TAF), 2018

CS Enplanement Forecasts

- Methodologies*
  - Population Growth Rate
    - MSA or county growth rate from Woods & Poole
  - Historical TAF Rate
    - Last 5 years used (10 for FNL & TEX due to changes in commercial service)
  - Airport Master Plans Growth Rate
    - Rates developed in individual airport master plans
  - Growth Rate by Service Type
    - Rates for mainline and regional airline growth from FAA Aerospace Forecasts 2019-2023

*DEN's enplanement projections taken from their latest forecast.

CS Enplanement Forecasts

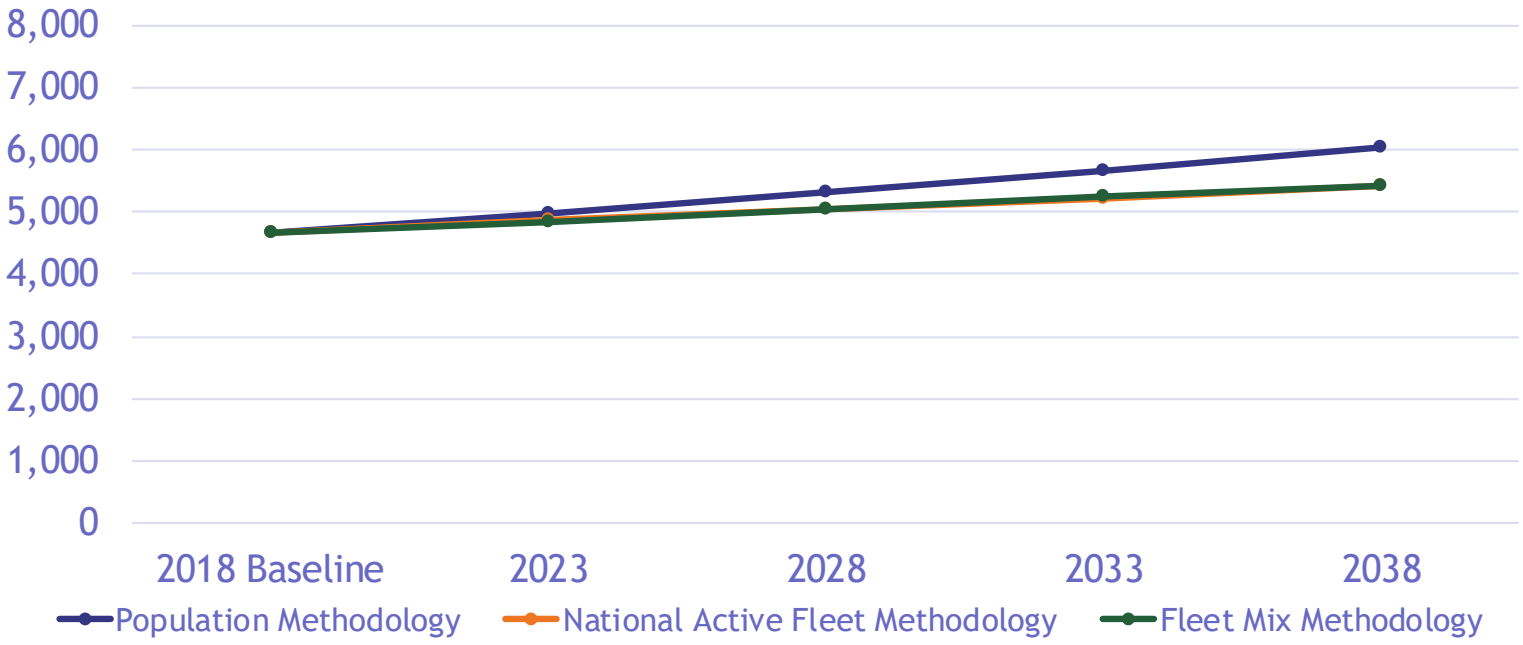


	Statewide Total Enplanements					
	2018 Baseline	2023	2028	2033	2038	CAGR 2018-2038
Population Methodology	33,385,306	35,363,660	37,460,233	39,682,151	42,036,972	1.16%
Master Plan Methodology	33,385,306	33,673,314	34,008,328	34,399,675	34,859,323	0.22%
Type of Service Methodology	33,385,306	36,493,661	39,891,455	43,605,644	47,665,693	1.80%
Historical TAF Methodology	33,385,306	40,072,624	48,167,986	57,977,529	69,884,012	3.76%

Based Aircraft Forecasts

- Methodologies
  - Population Growth Rate
    - County growth rates from Woods & Poole
  - Top-Down Market Share of National Active Fleet
    - CO's share of national active fleet grown and then share of statewide assigned back to each airport
  - Bottom-Up Fleet Mix Growth Rates
    - Assigned growth rates from FAA Aerospace Forecast 2019-2023 based on individual airport based aircraft fleet mix
- Alternative scenario uses airport-reported based aircraft counts

Based Aircraft Forecasts – Baseline

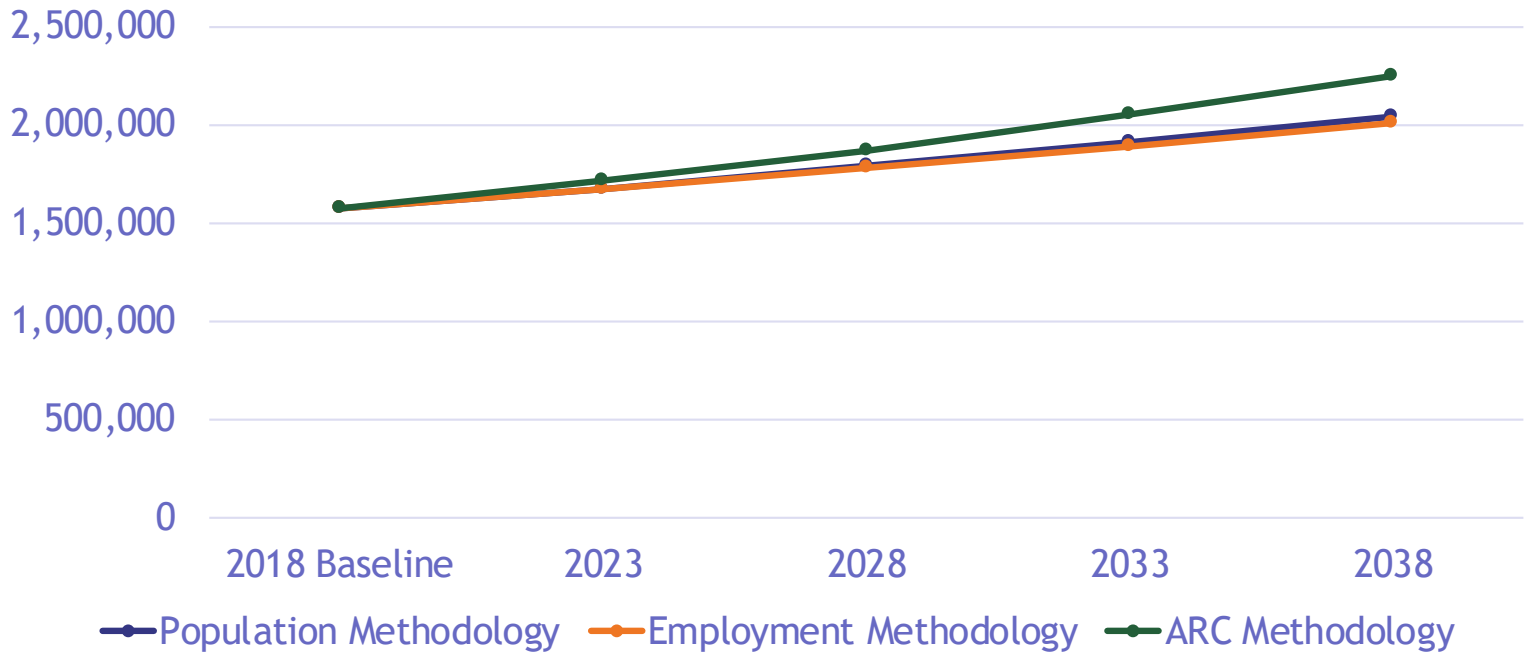


	Statewide Total Based Aircraft (FAA Baseline)					
	2018 Baseline	2023	2028	2033	2038	CAGR 2018-2038
Population Methodology	4,673	4,975	5,302	5,656	6,039	1.29%
National Active Fleet Methodology	4,673	4,872	5,035	5,206	5,408	0.73%
Fleet Mix Methodology	4,673	4,851	5,038	5,233	5,438	0.76%

GA Operations Forecasts

- Methodologies
  - Population Growth Rate
    - County growth rates from Woods & Poole
  - Employment Growth Rate
    - County growth rates from Woods & Poole
  - Growth Rate based on ARC
    - Growth rates from FAA Aerospace Forecast 2019-2023 assigned based on ARC
- Alternative scenario uses airport reported operation counts

GA Operations Forecasts – Baseline

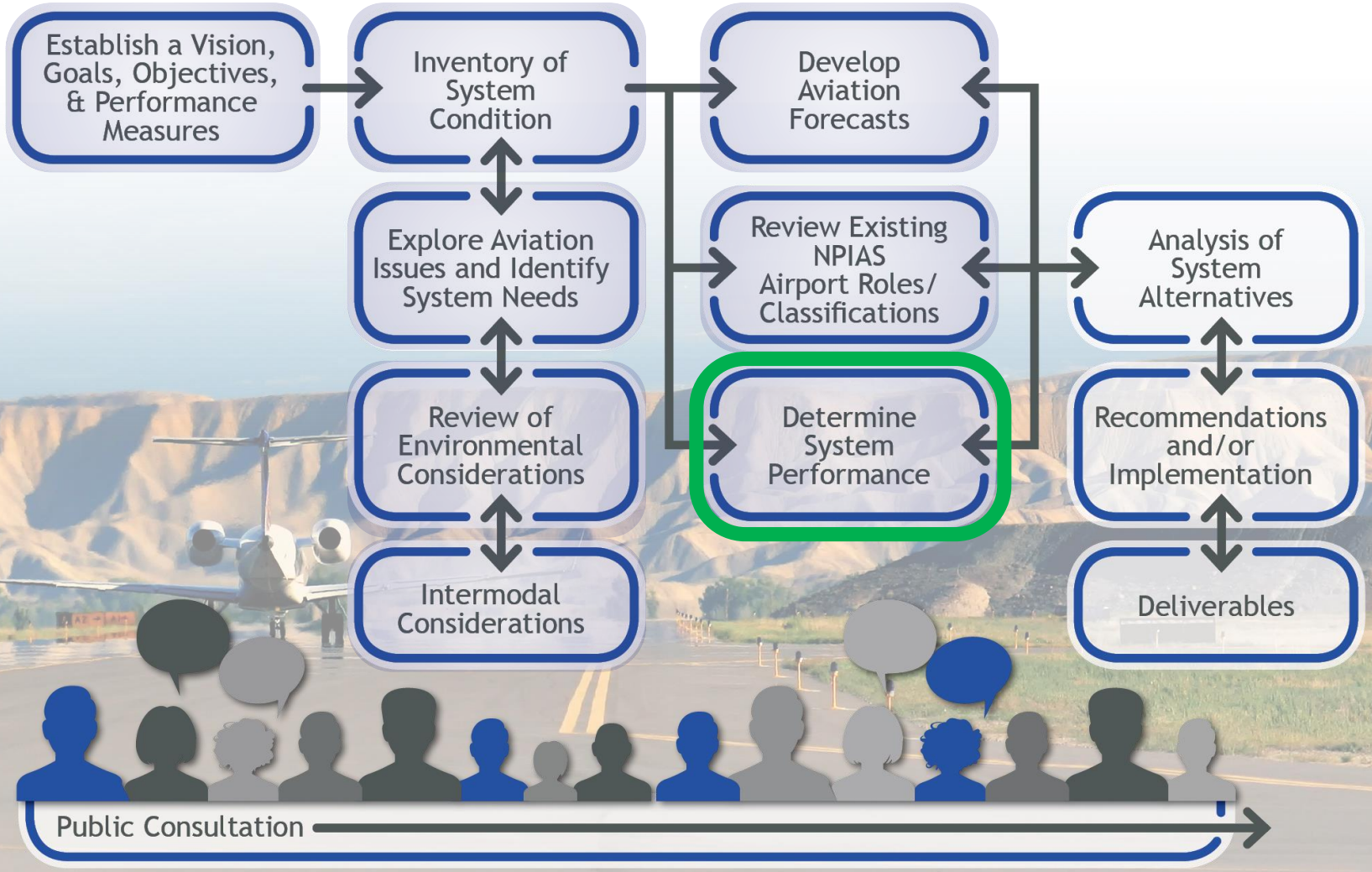


	Total GA Operations (FAA Reported Baseline)					
	2018 Baseline	2023	2028	2033	2038	CAGR 2018-2038
Population Methodology	1,572,153	1,674,680	1,786,454	1,908,479	2,041,884	1.32%
Employment Methodology	1,572,153	1,669,860	1,774,580	1,886,855	2,007,270	1.23%
ARC Methodology	1,572,153	1,712,433	1,869,867	2,046,718	2,245,557	1.80%

Forecast Tasks

- Select preferred methodologies
- Complete chapter with:
  - Trends
  - Baseline data comparison
  - Forecasts of activity by indicator
  - Comparison to TAF
- Evaluation of TFMSC data for ARC
- Sensitivity analysis – airports over 75,000 ops

CASP Process Progress



System Performance

System Goals

Performance Measures and System Indicators

Targets

Recommendations

System Performance

What: Performance Measures (PMs) and System Indicators (SIs) and Facility and Service Objectives (FSOs)

When: Current/Existing

Where: All System Airports (Commercial and GA)

Why: Understand current system's performance to achieve the objectives of the four goals of the CASP

System Performance

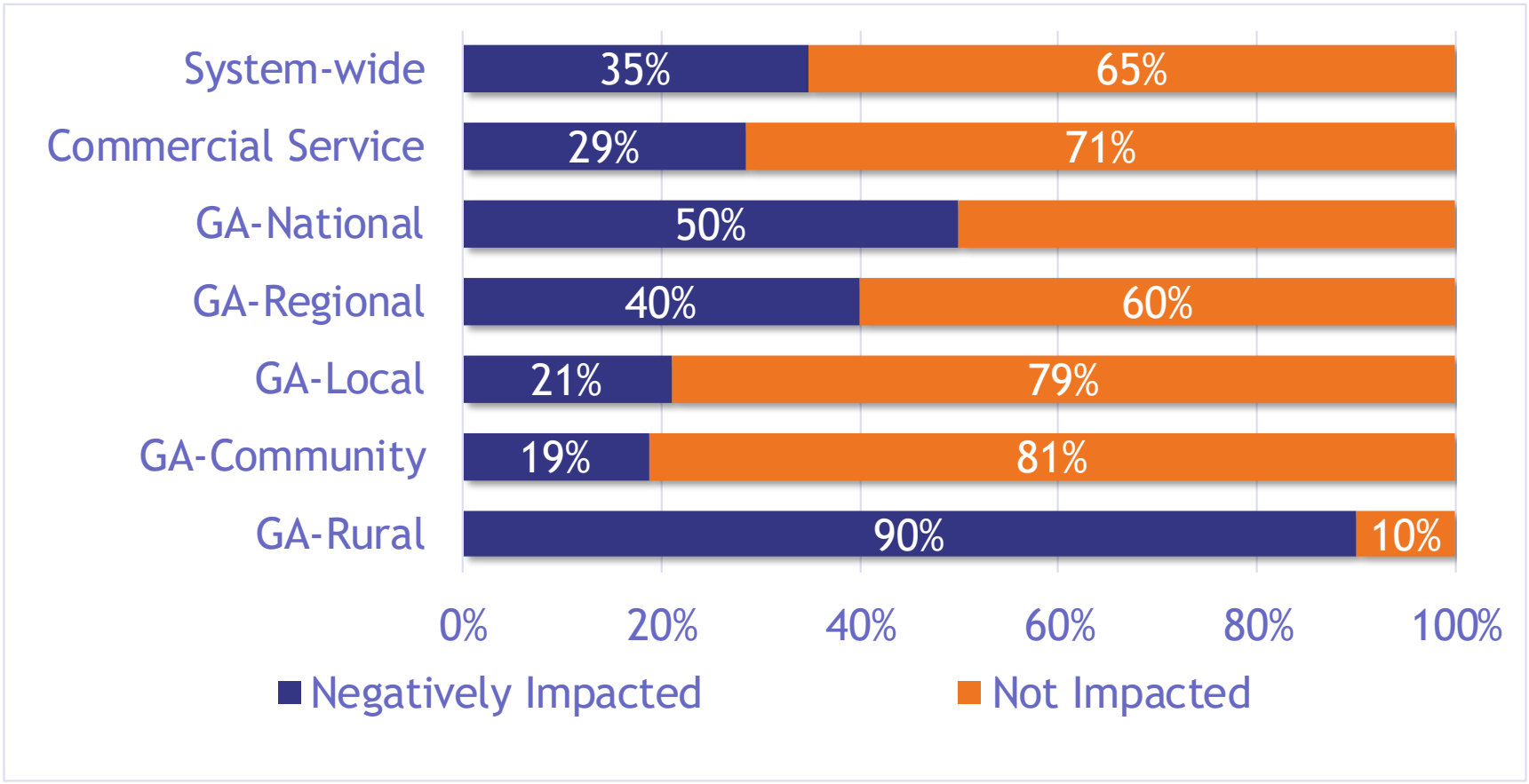
How: Compare inventory data to the PMs, SIs, and FSOs established for the CASP

- Performance Measures (PMs): Directly relate to measuring the system's performance in meeting system goals
- System Indicators (SIs): Informational analyses that inform and indirectly relate to the system's performance
- Facility & Service Objectives (FSOs): Desired minimum levels of development

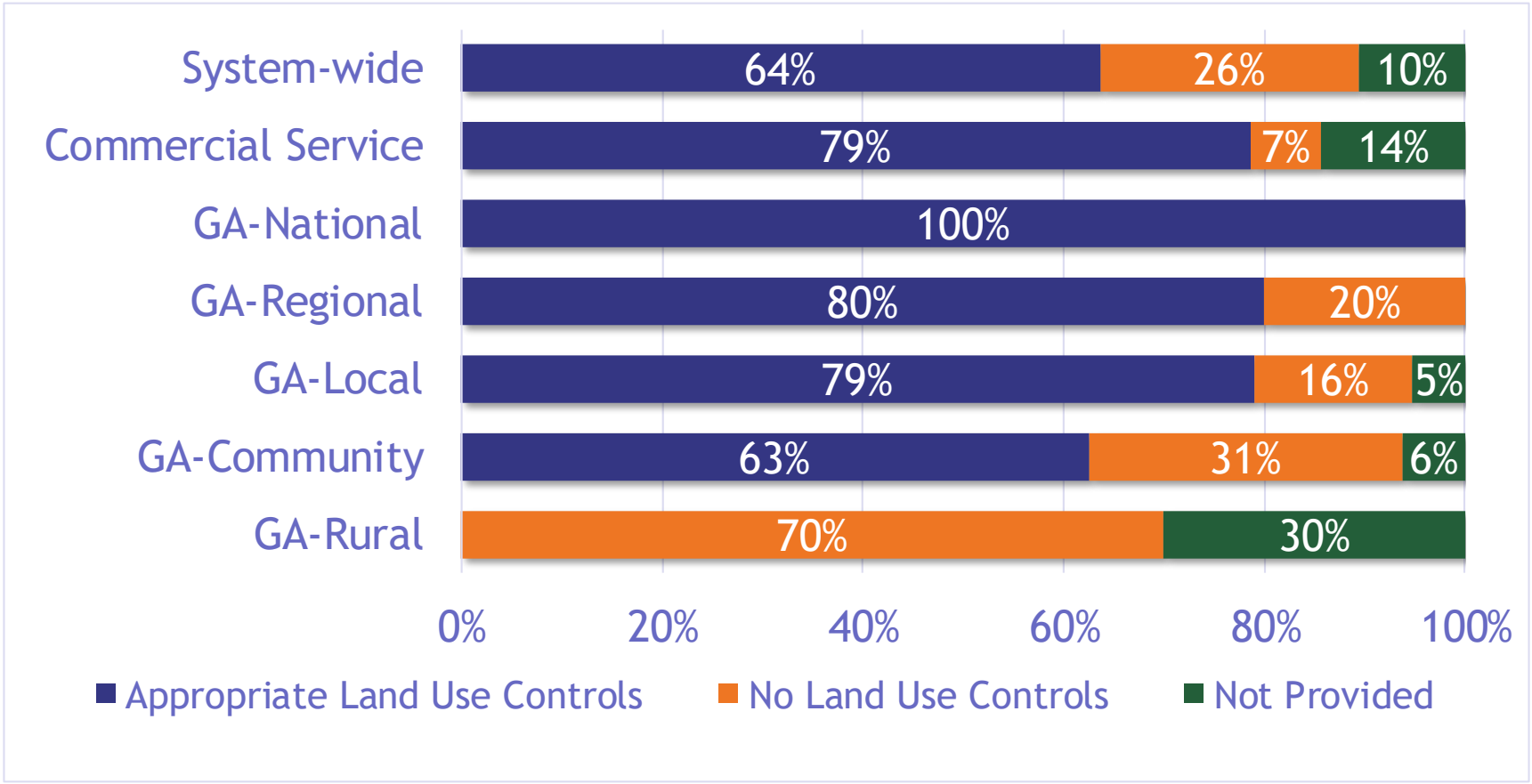
Performance Measures

Performance Measures	
Performance Measures	Percent of airports with approaches negatively impacted by obstructions
	Percent of airports that have full perimeter wildlife fencing
	Percent of airports that have adopted appropriate land use controls
	Percent of NPIAS airports that meet current FAA design standards under AC 150/5300-13A

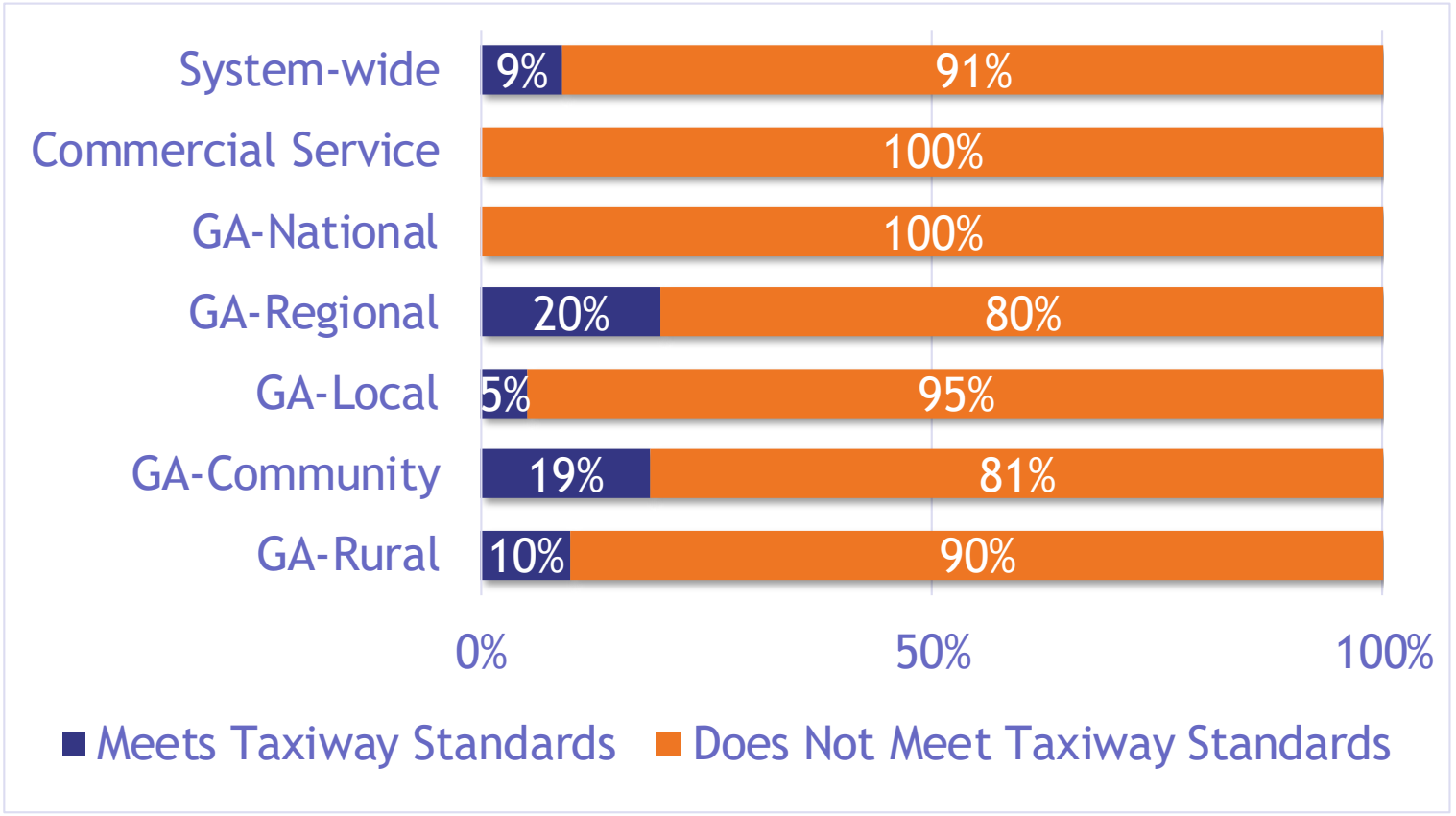
Percent of airports with approaches negatively impacted by obstructions



Percent of airports that have adopted appropriate land use controls



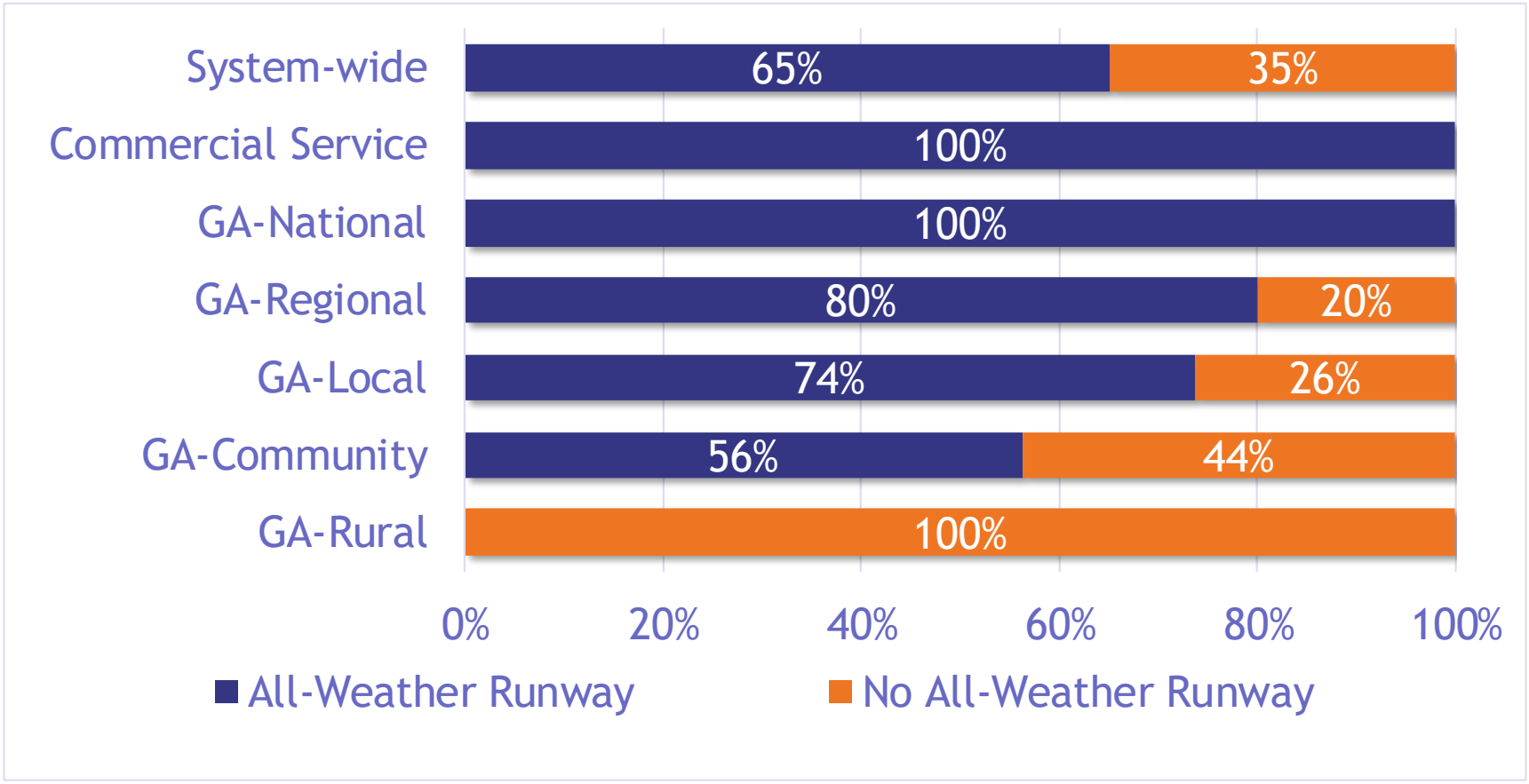
Percent of NPIAS airports that meet current FAA design standards under AC 150/5300-13A (Taxiways)

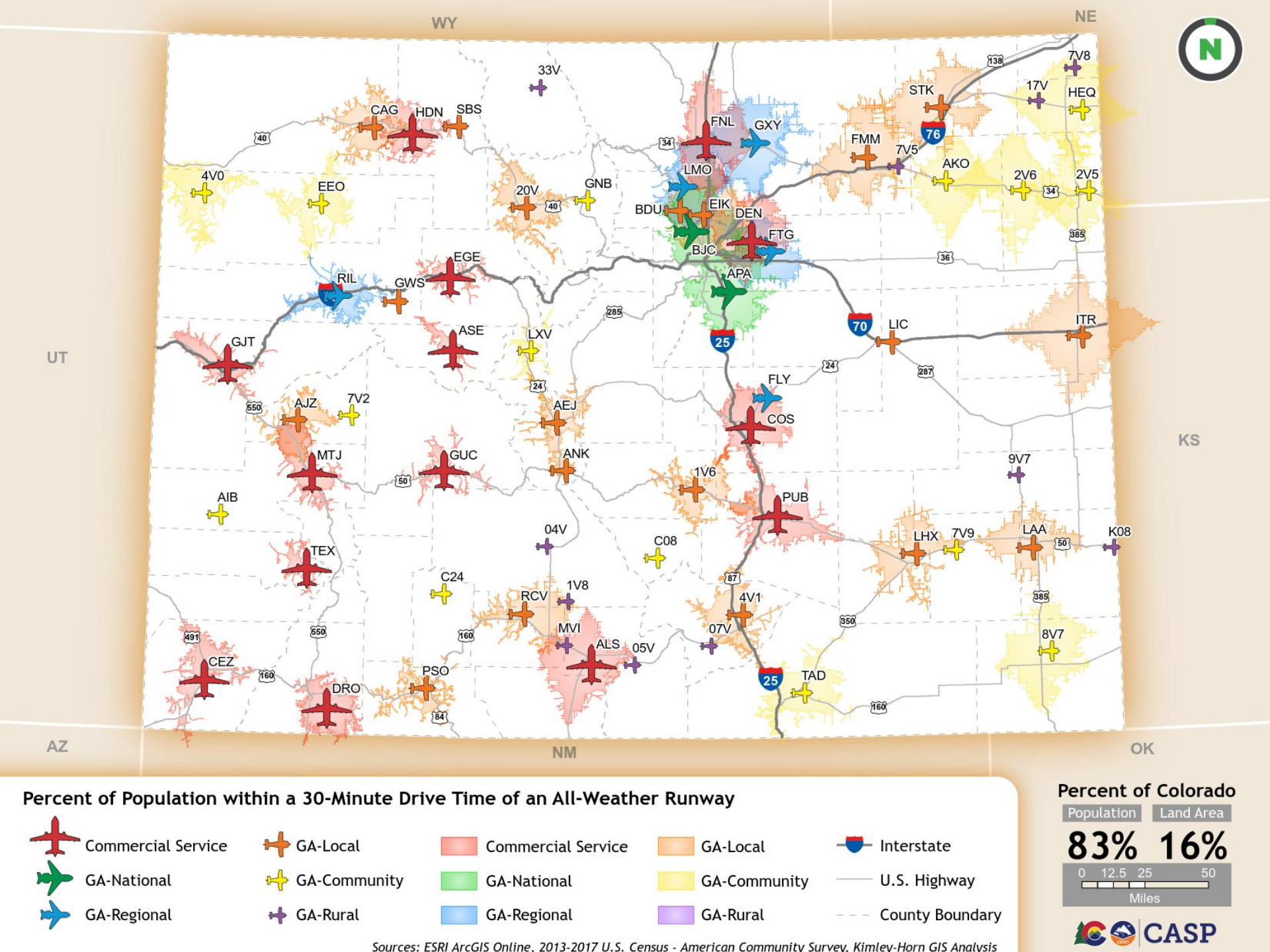


Performance Measures

	Performance Measures
Performance Measures	Percent of airports with a dedicated snow removal equipment (SRE) building
	Percent of population within a 30-minute drive time of an all-weather runway
	Percent of airports with adequate terminal capacity
	Percent of airports with adequate transient hangar spaces

Percent of population within a 30-minute drive time of an all-weather runway





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

Commercial Service	GA-Local	Commercial Service	GA-Local	Interstate
GA-National	GA-Community	GA-National	GA-Community	U.S. Highway
GA-Regional	GA-Rural	GA-Regional	GA-Rural	County Boundary

Sources: ESRI ArcGIS Online, 2013-2017 U.S. Census - American Community Survey, Kimley-Horn GIS Analysis

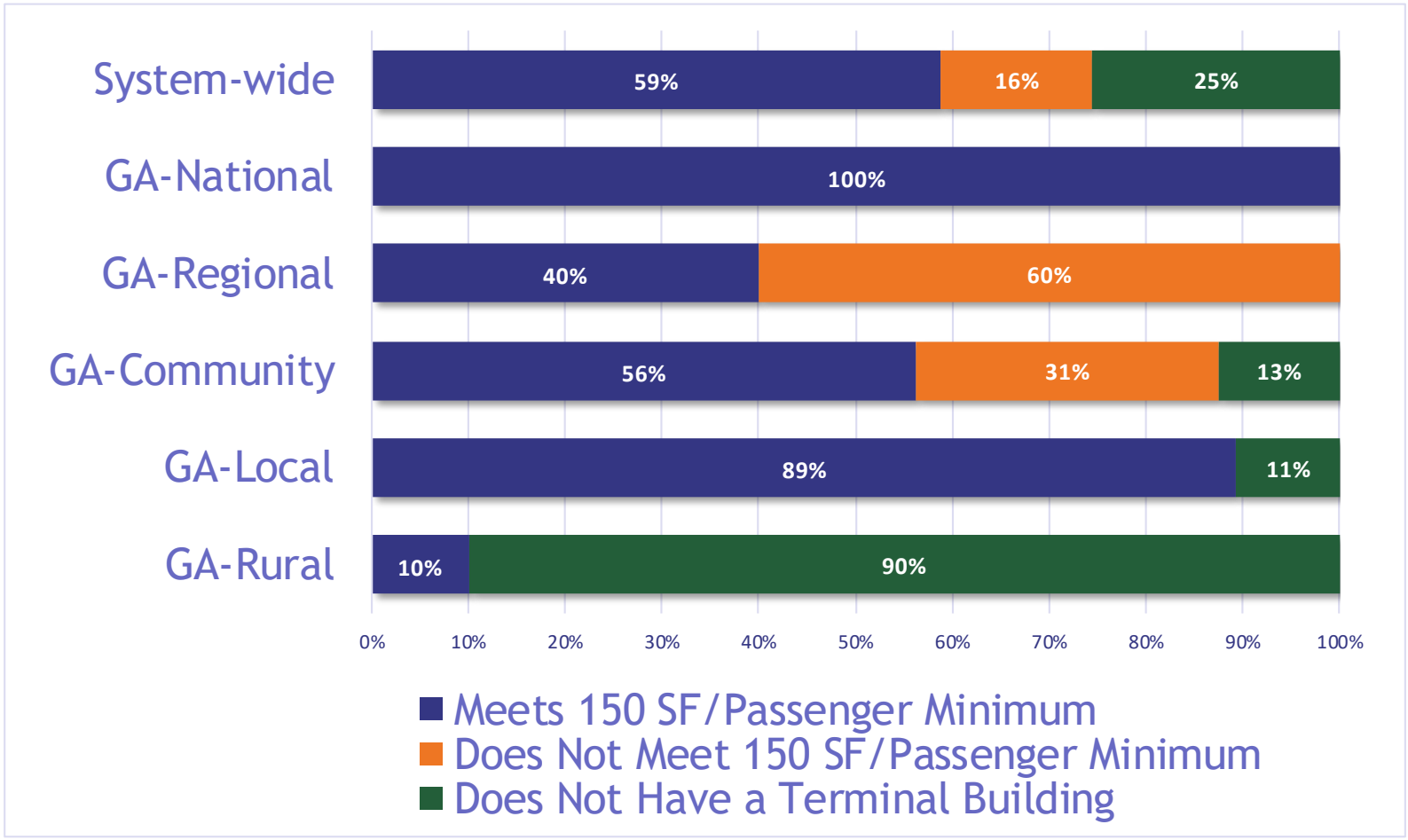
Percent of Colorado

Population	Land Area
83%	16%

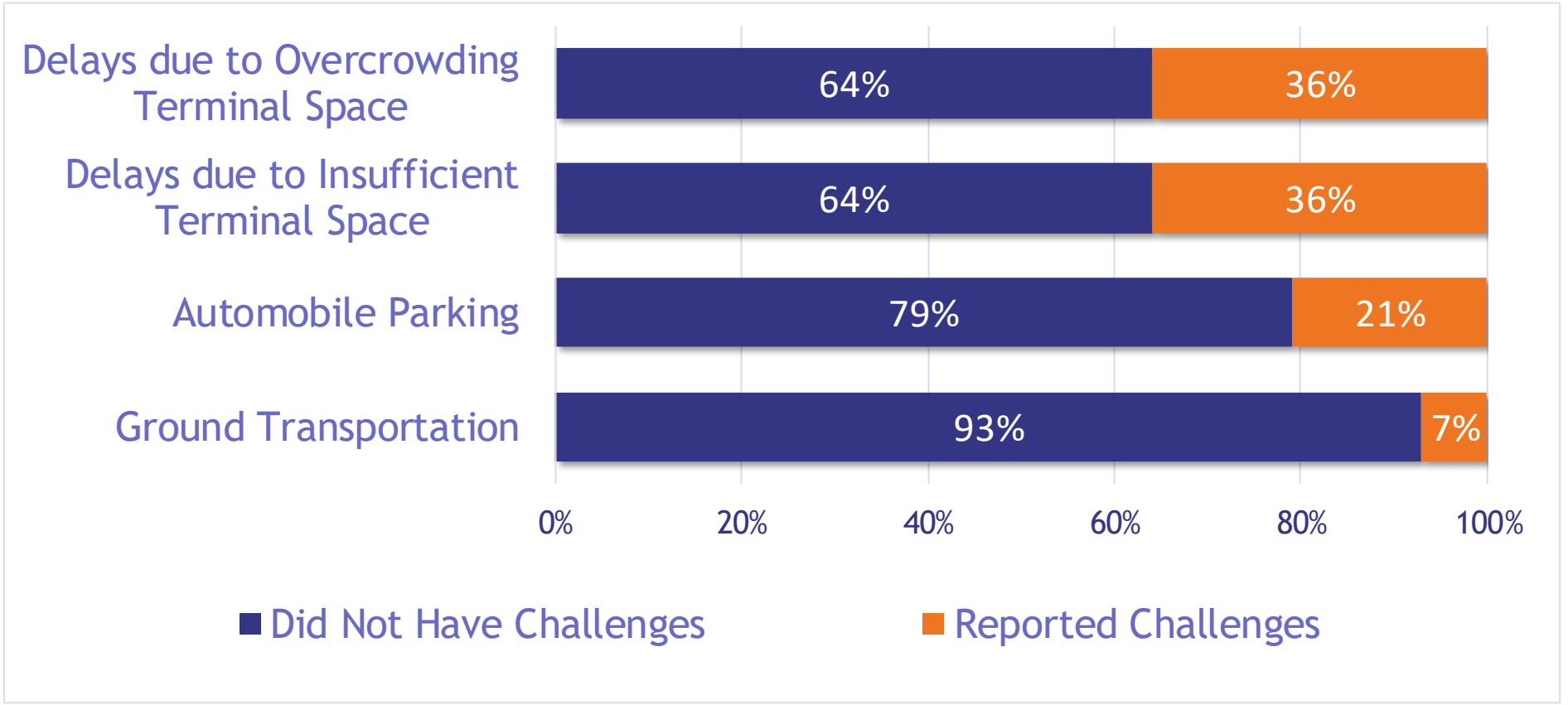
0 12.5 25 50
Miles

CASP

Percent of airports with adequate terminal capacity (GA)



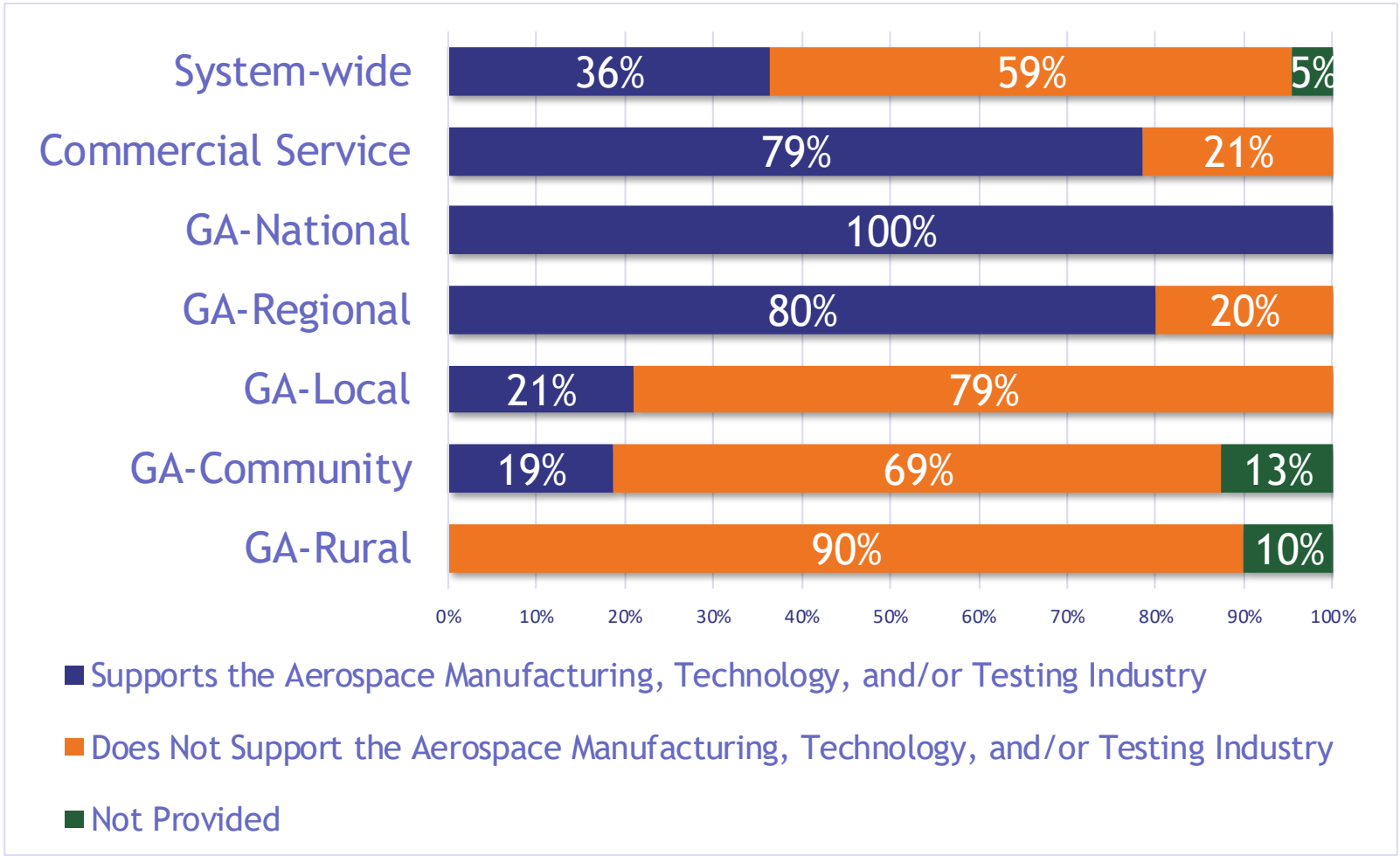
Percent of airports with adequate terminal capacity (CS)



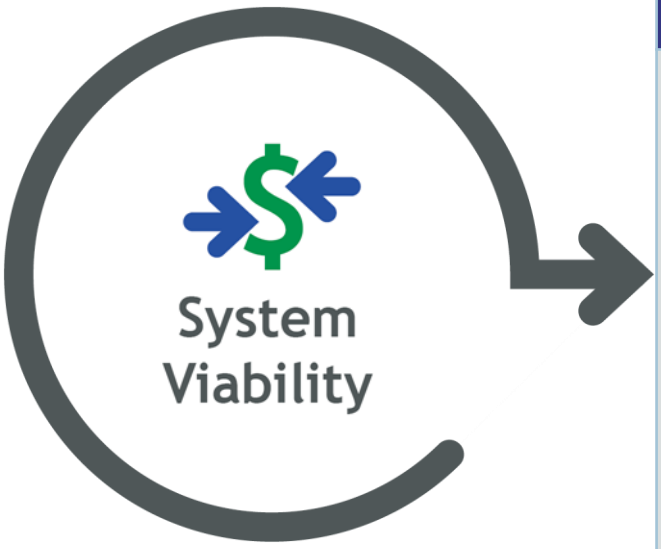
Performance Measures

Performance Measures	
Performance Measures	Percent of airports with necessary fuel type, available 24/7
	Percent of airports that support the aerospace manufacturing, technology, and/or testing industry
	Percent of airports with adequate utilities

Percent of airports that support the aerospace manufacturing, technology, and/or testing industry



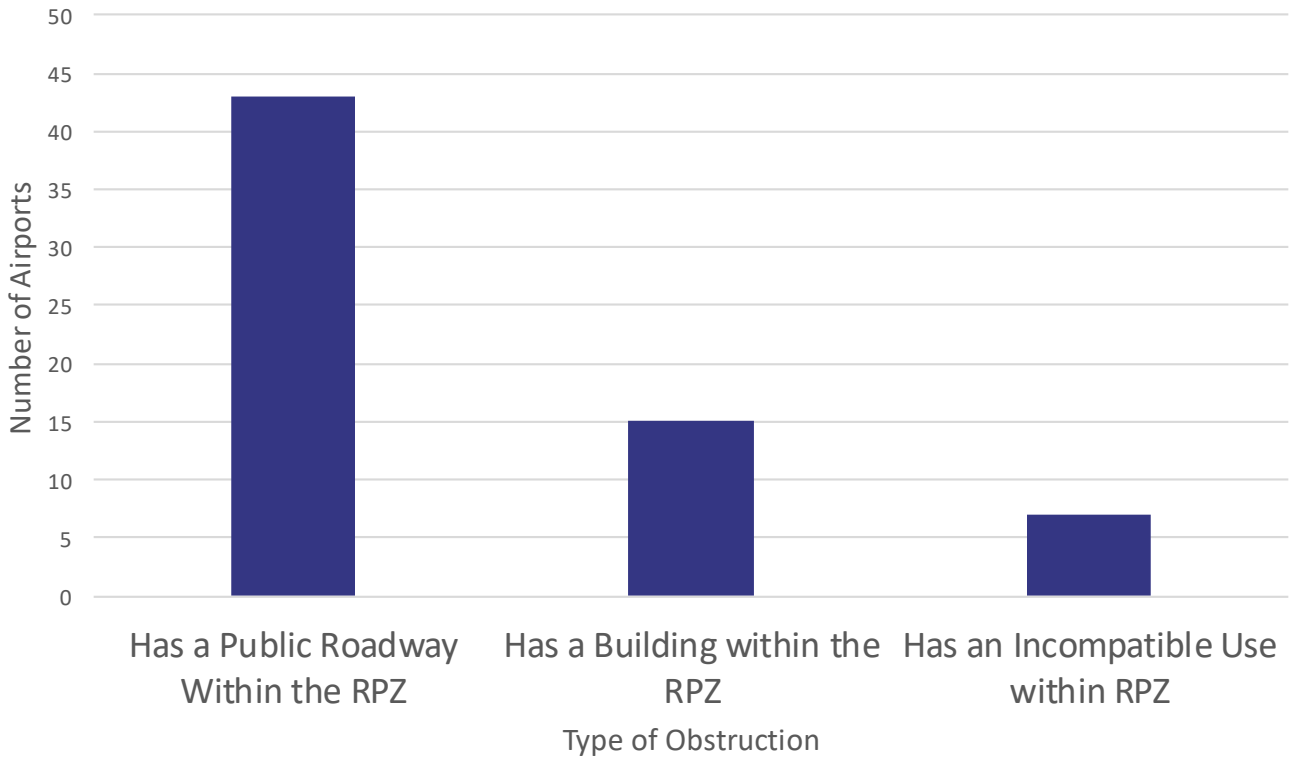
Performance Measures



Performance Measures	
Performance Measures	Percent of airports with certified on-site weather reporting (AWOS or ASOS)
	Percent of airports with pavement maintenance programs
	Percent of airports with an average runway and taxiway Pavement Condition Index (PCI) of 70 or greater

Additional Analysis: Land Use

- RPZ Incompatibility

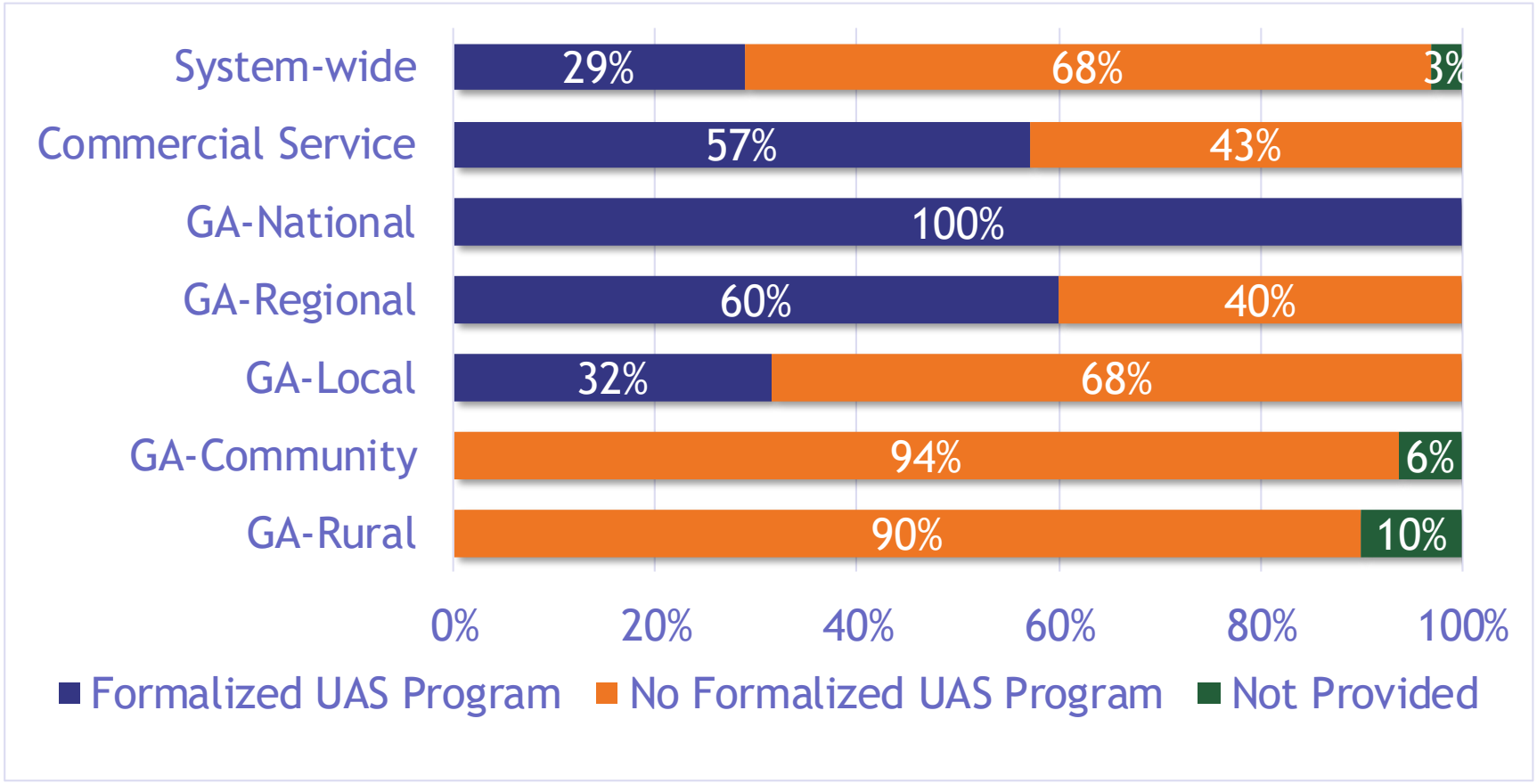


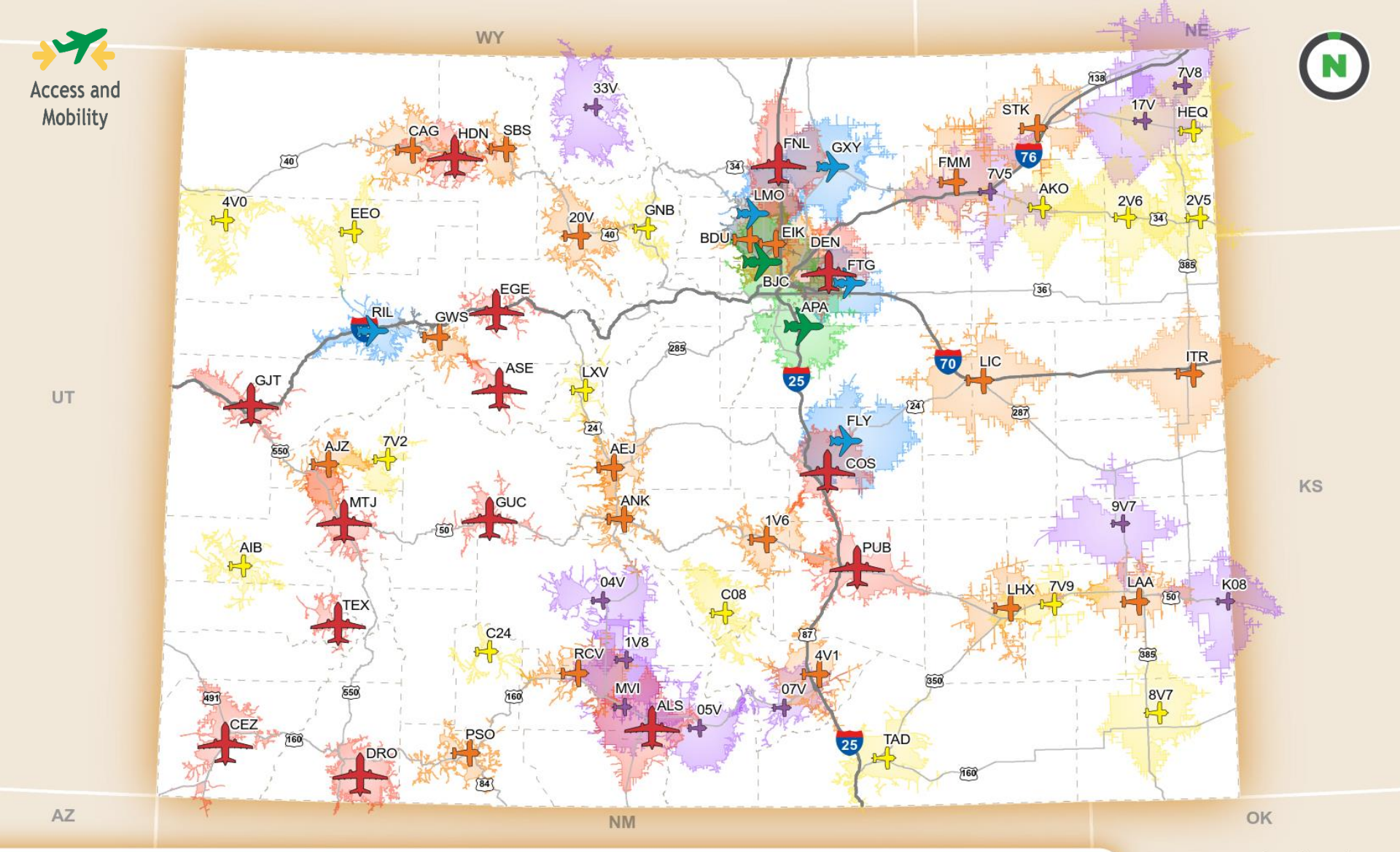
System Indicators

- Percent of airports that have a formal UAS program
- Percent of airports providing ground transportation
- Percent of airports recognized in local and/or regional comprehensive plans
- Percent of airports that have a sustainability plan

Safety and Efficiency

Percent of Airports with a Formalized Process to Manage UAS





Sources: ESRI ArcGIS Online, 2013-2017 U.S. Census - American Community Survey, Kimley-Horn GIS Analysis

Facility & Service Objectives

Minimums for All Airports

Cell Phone Service
Restroom (24-hr accessible)
Wi-Fi Service
Airport Layout Plan (ALP)

Objective	Commercial Service	GA-National	GA-Regional	GA-Local	GA-Community	GA-Rural
			Airfield			
ARC	C-III/C-II	C-II	B-II	B-II	B-I	B-I
Runway Length	Align with Master Plan	Align with Master Plan	Align with Master Plan	Accommodate 100% of small aircraft adjusted for elevation and mean maximum daily temp during hottest month	Accommodate 95% small aircraft adjusted for elevation and mean maximum daily temp during hottest month	Maintain existing
Runway Width	150 feet/100 feet	100 feet	75 feet	75 feet	60 feet	60 feet
Runway Strength	60,000 pounds	60,000 pounds	30,000 pounds	30,000 pounds	12,500 pounds	12,500 pounds
Taxiway	Full parallel	Full parallel	Full parallel	Partial parallel	Turn-arounds	Maintain existing
Markings	Precision RW markings	Precision RW markings	Non-precision RW markings	Non-precision RW markings	Non-precision RW markings	Basic RW markings

Sample Airport Report Card

Blake Field

Airport Name: Blake Field

FAA Identifier: AJZ

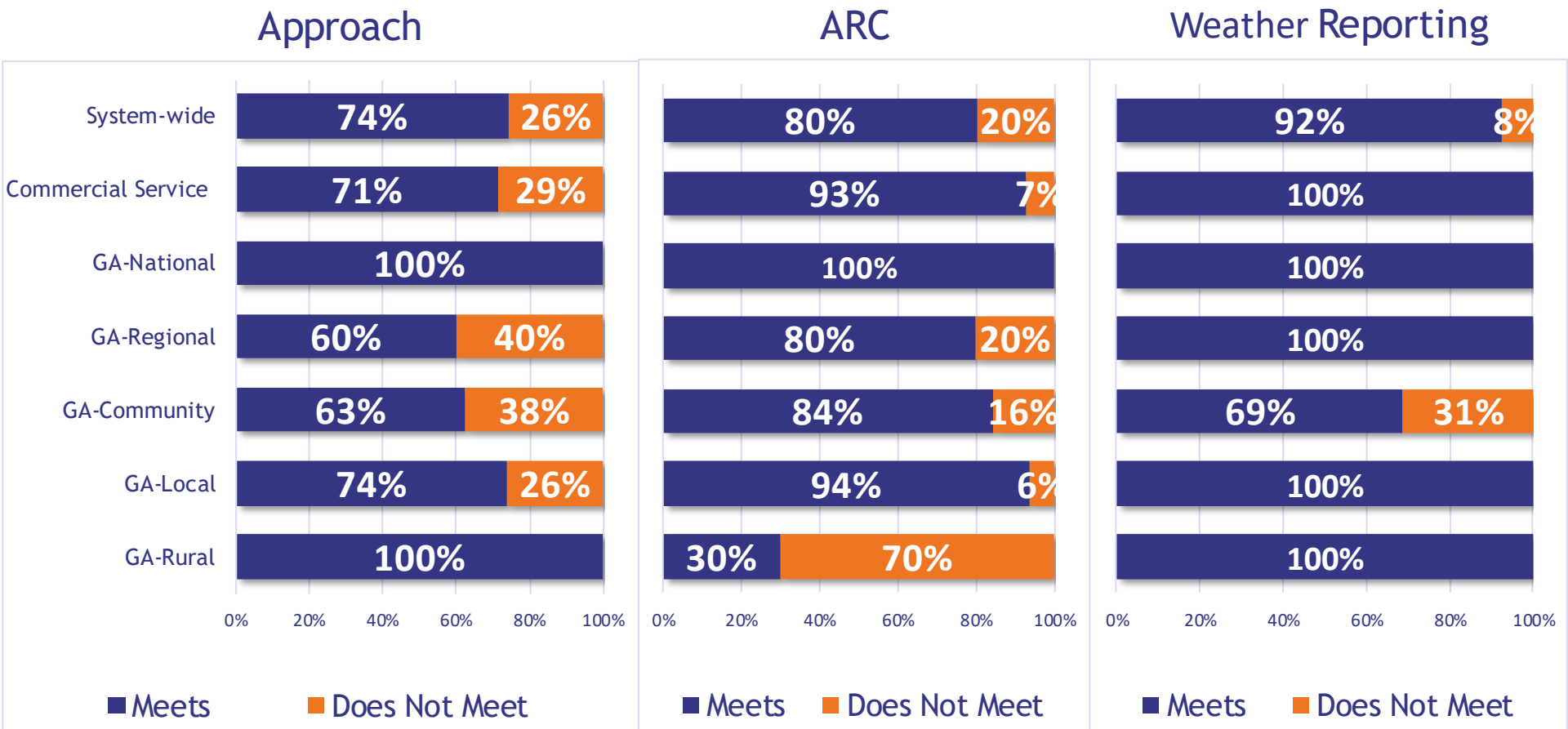
Associated City: Delta

2020 CASP Classification: GA - Local

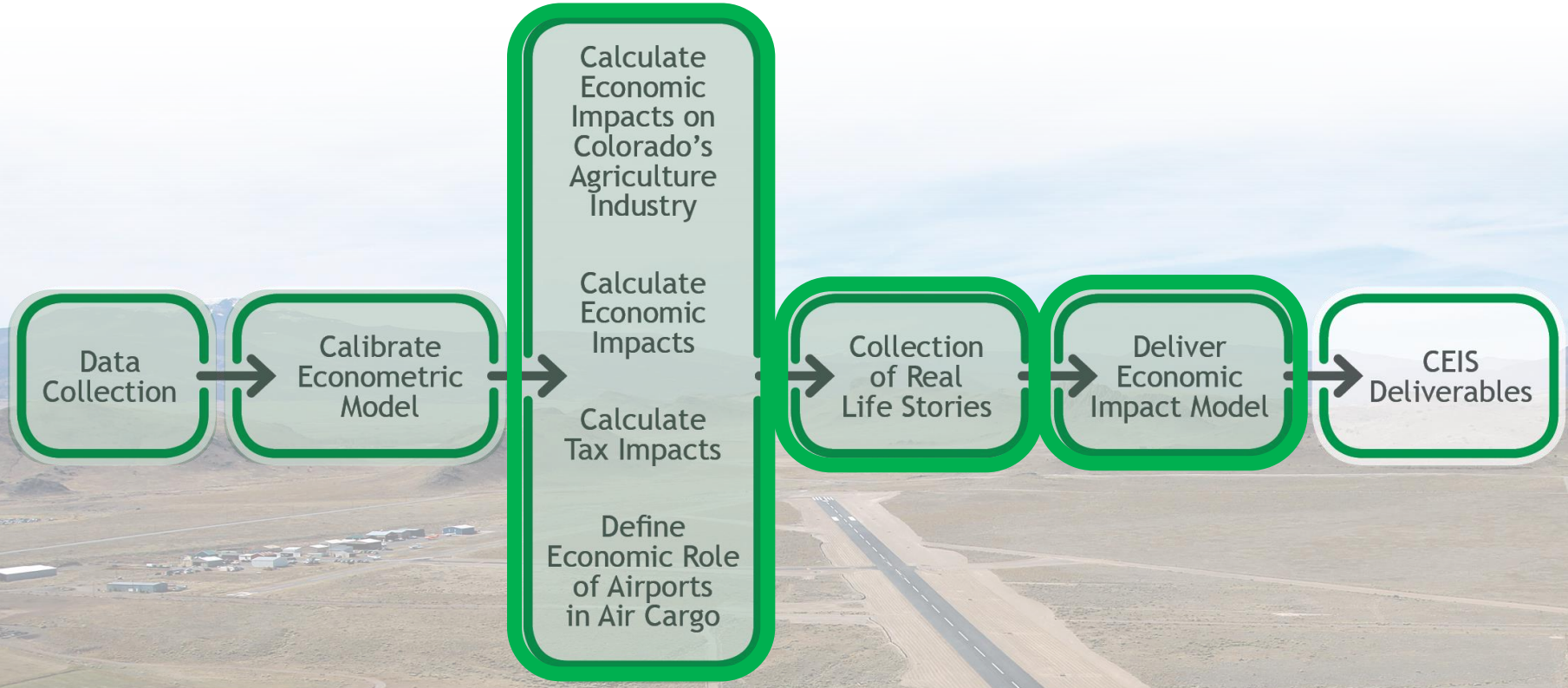
Objective Category[1]	GA - Local Objective	Current Condition	Meets 2020 Objective?
Airfield			
ARC	B-II	B-II	Yes
Runway Length	Accommodate 100% of small aircraft adjusted for elevation and mean maximum daily temp during hottest month	5,598 feet	No
Runway Width	75 feet	75 feet	Yes
Runway Strength	30,000 pounds	30,000 pounds	Yes
Taxiway	Partial parallel	Partial Parallel	Yes
Markings	Non-precision RW markings	Non-precision RW markings	Yes
Lighting/NAVAIDS			
Approach	Non-precision	Non-Precision	Yes
Visual Aids	Rotating beacon, lighted wind cone, REILs, VGSIs	Rotating Beacon, Lighted Wind Cone, VGSIs	No
Runway Lighting	MIRL	MIRL	Yes
Weather Reporting	On-site ASOS, AWOS, or Automated Unicom	AWOS-3	Yes

Objective Category[1]	GA - Local Objective	Current Condition	Meets 2020 Objective?
Landside Facilities			
Terminal (CS and/or GA)	Facility with restrooms, flight planning space, Wi-Fi, and rest area	Facility with restrooms, flight planning space, Wi-Fi, and rest area	Yes
Apron Tie-Downs	Tie-downs for 50% of based aircraft fleet plus 25% of weekly average overnight transient storage during peak season	50% of Based Aircraft Fleet plus 25% Transient Aircraft Fleet: 35 — Total Tie-Down Spaces: 21	No
Hangars	Hangars for 50% of based aircraft fleet plus 25% of weekly average overnight transient storage	50% of Based Aircraft Fleet: 33 — Number of Based Aircraft Hangar Spaces: 64 25% of Transient Aircraft Fleet: 2 — Number of Transient Aircraft Hangar Spaces: 6	Yes
Maintenance/SRE Storage Building	Yes	No	No
Electric Vehicle Charging Stations	Yes	No	No
Perimeter Security	AOA 3-wire fencing with appropriate signage	AOA 3-wire fencing with appropriate signage	Yes
Services/Other			
Jet A Fuel	24/7 (Self-Serve or Call Out)	Full Service	Yes
AvGas Fuel	24/7 (Self-Serve or Call-Out)	24/7 (Self-Serve or Call-Out)	Yes
Aircraft De-icing	Based on community need	No	Yes
Courtesy Car	Yes	Yes	Yes
Sustainability Plan	Based on community need	Yes	Yes
Minimums for All Airports			
Restroom (24-hr accessible)	Cell Phone Service	Airport Layout Plan (ALP)	Wi-Fi Service

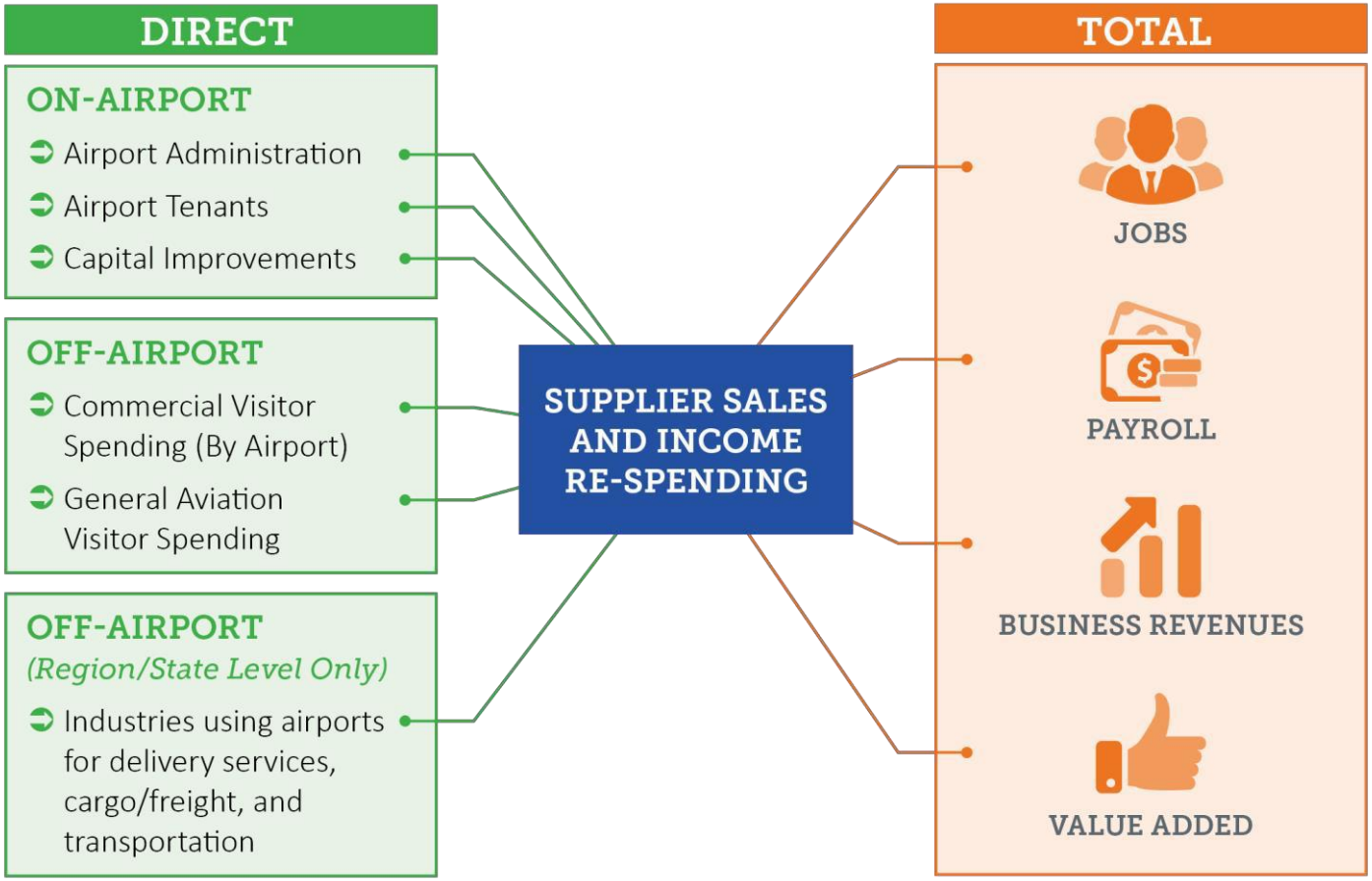
Sample FSO Performance



CEIS Process Progress



Calculating Total Impacts



CEIS Progress

- Preliminary on-airport impacts
  - Airport administration
  - Tenants
  - Capital improvements
- Additional analysis
  - Commercial and GA visitors
  - Comparison of individual airport data
  - Cargo
  - Agricultural
  - Taxes
  - Region and statewide industry reliance

COS/Peterson AFB Change

	Peterson Reports by Fiscal Year			Changes by Counts and Percent			
	2011	2017	2018	2011-2017	2011-2018	2011-2017	2011-2018
Active Duty	3,685	3,729	3,387	44	(298)	1%	-8%
AF Reserve/ National Guard	1,359	1,375	1,236	16	(123)	1%	-9%
Army/Navy/Marine /Coast Guard	587	313	313	(274)	(274)	-47%	-47%
Canadian Forces	142	148	153	6	11	4%	8%
Subtotal Uniformed Military	5,773	5,565	5,089	(208)	(684)	-4%	-12%
Appropriated Funded Civilian	3,902	2,549	2,344	(1,353)	(1,558)	-35%	-40%
Non-appropriated Funded Civilian	2,018	1,757	2,220	(261)	202	-13%	10%
Subtotal Civilian Workers	5,920	4,306	4,564	(1,614)	(1,356)	-27%	-23%
Total Workers Reported	**11,693**	**9,871**	**9,653**	**(1,822)**	**(2,040)**	**-16%**	**-17%**
Construction Budget	$62,210,457	$32,527,264	$145,073,147	(29,683,193)	82,862,690	-48%	133%
Estimated Jobs*	530	246	1099	(284)	569	-54%	107%
* Quick analysis to establish order of magnitude							
Total Jobs Including Construction	**12,223**	**10,117**	**10,752**	**(2,106)**	**(1,471)**	**-17%**	**-12%**

Preliminary 2018 Total Impacts

	Total Impacts		
	Jobs	Payroll	Business Revenues
On-Airport (2018)			
Administration	5,342	$350,871,000	$750,814,000
Capital Improvements	4,714	$279,513,000	$750,450,000
Tenants	113,161	$7,606,363,000	$21,814,718,000
Total	**123,217**	**$8,236,746,000**	**$23,315,981,000**
On-Airport (2012)			
Administration	6,365	$295,163,000	$677,959,000
Capital Improvements	5,191	$286,326,000	$757,903,000
Tenants	99,151	$6,019,500,000	$16,742,813,000
Total	**110,707**	**$6,600,989,000**	**$18,178,675,000**

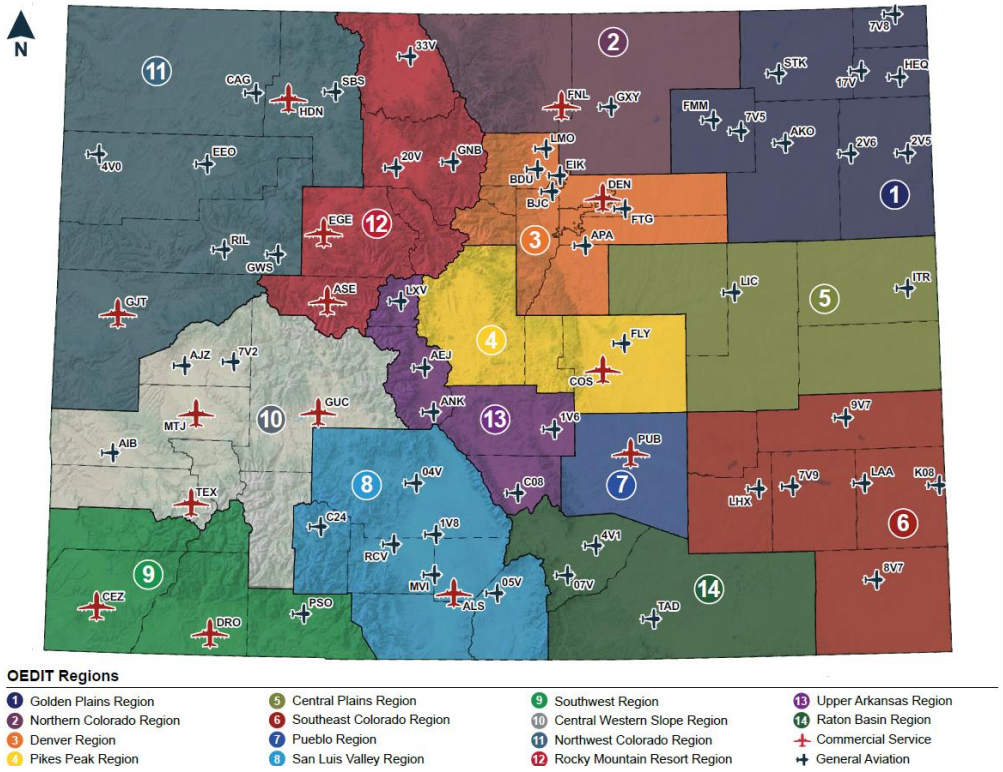
Preliminary 2018 DEN Impacts

	Total Impacts		
	Jobs	Payroll	Business Revenues
On-Airport (2018)			
Administration	4,119	$282,826,000	$582,539,000
Capital Improvements	3,666	$223,446,000	$594,405,000
Tenants	74,099	$5,042,698,000	$14,983,032,000
Total	**81,884**	**$5,548,969,000**	**$16,159,975,000**
On-Airport (2012)			
Administration	5,568	$255,085,000	$539,697,000
Capital Improvements	3,336	$207,204,000	$514,980,000
Tenants	55,141	$3,206,744,000	$9,752,120,000
Total	**64,045**	**$3,669,033,000**	**$10,806,797,000**

Economic Impact Dynamic Model

- Managed by CDOT
- Analyzes economic impacts from potential or realized changes in activity
  - New tenant
  - Increased itinerant ops or enplanements
  - Loss of activity (business, airline service)
- Airport request form developed for CDOT to run scenarios

Dynamic Calculator



- Programming completed
- Formatting completed
- Demonstrated to CDOT

Next Steps

- Load results of 2018 CEIS for every airport
- Develop form for airports to report scenarios to CDOT

Introduction

INPUTS | SCENARIO REPORTS

Montrose Regional

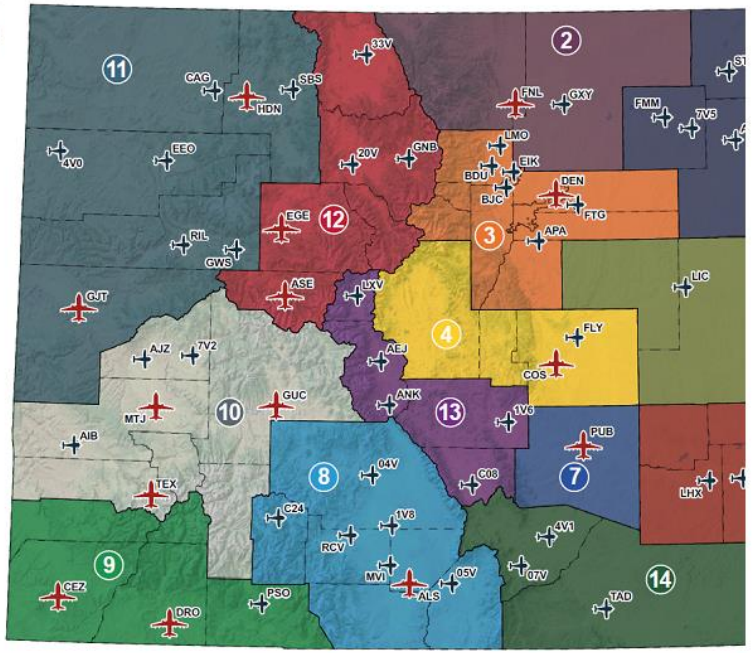
2018 Airport Info | Airport/Visitor Spending | Airport/Tenant Employment

Code
City
County
Region

2013 Baseline Economic Impact Report

2018 Report - Major Inputs (Spending)	
Category	**Baseline**
Airport Capital Annual Budget	5,661,978
Airport Operational Annual Budget	955,785
Commercial Aviation Visitors	86,312
General Aviation Visitors	35,280
Commercial Spending Per Visitor	840
General Aviation Spending Per Visitor	581

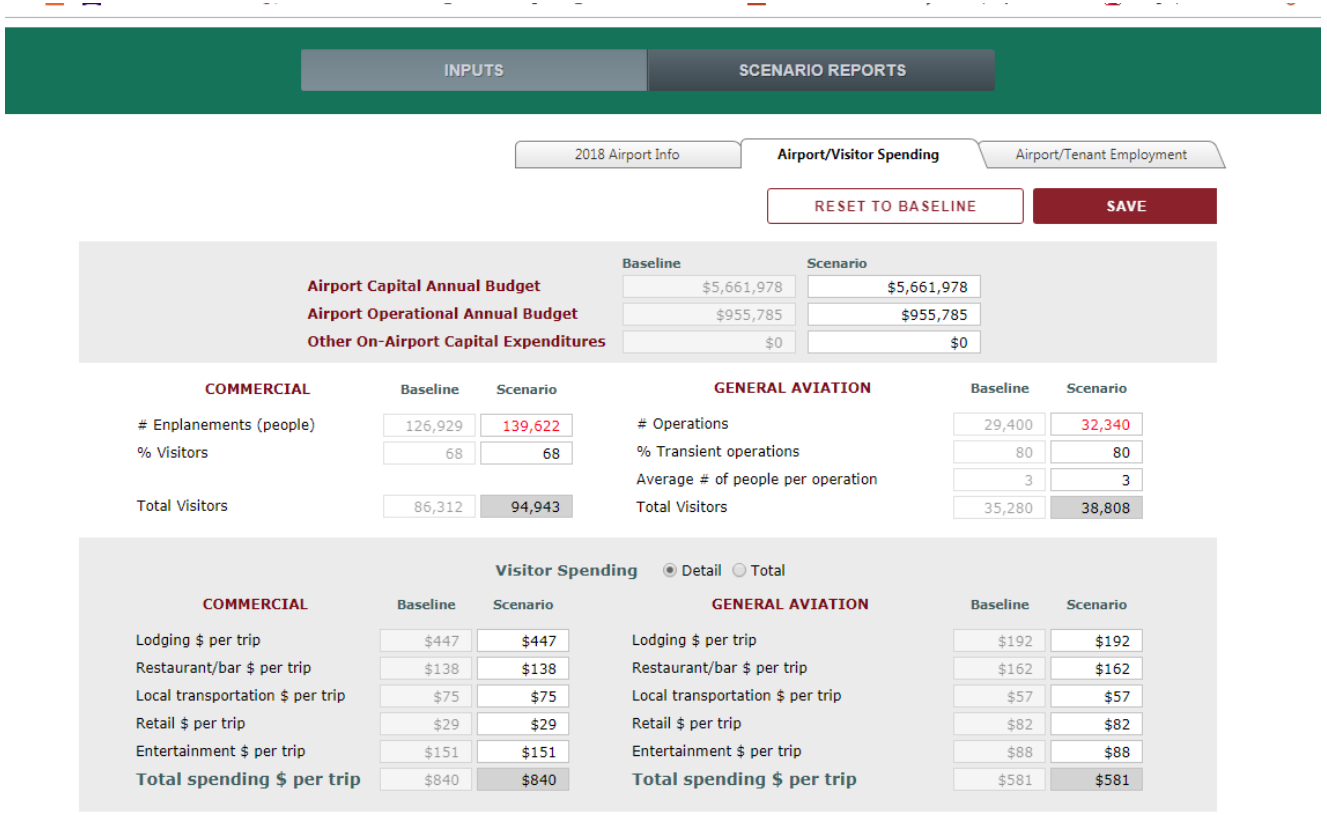
2018 Report - Major Inputs (Employment)	
Category	**Baseline**
Onsite Transportation Activities	103
Onsite Supporting Services	337
Onsite Freight Activities	0
Onsite Passenger Terminal Activities	12
Offsite Aviation Reliant Industries	8
Total	**460**



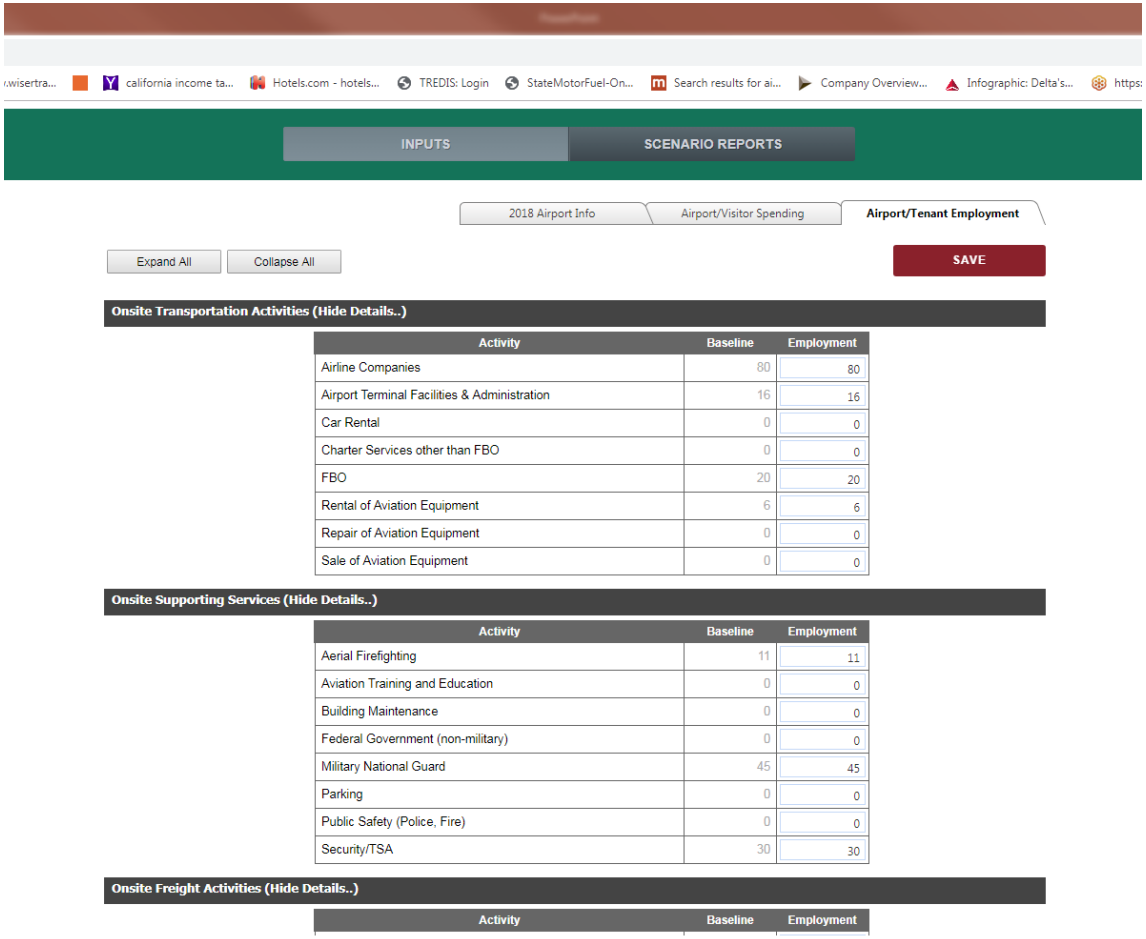
Impact Type	Jobs	Payroll ($)	Value Added ($)	Business Revenues ($)
Direct Effect	1,370	$56.31	$94.51	$155.35
Indirect (Supplier) Effect	345	$24.36	$37.51	$64.39
Induced (Income Respending) Effect	434	$24.01	$43.39	$72.15
Total Effect	2,149	$104.68	$175.41	$291.90

Input: Airport Spending & Visitor Spending

Baseline shows findings of 2018 CEIS. Scenario shows observed/potential changes.



Example of Employment by Detailed Sector



INPUTS | SCENARIO REPORTS

2018 Airport Info | Airport/Visitor Spending | Airport/Tenant Employment

Expand All | Collapse All | SAVE

Onsite Transportation Activities (Hide Details..)

Activity	Baseline	Employment
Airline Companies	80	80
Airport Terminal Facilities & Administration	16	16
Car Rental	0	0
Charter Services other than FBO	0	0
FBO	20	20
Rental of Aviation Equipment	6	6
Repair of Aviation Equipment	0	0
Sale of Aviation Equipment	0	0

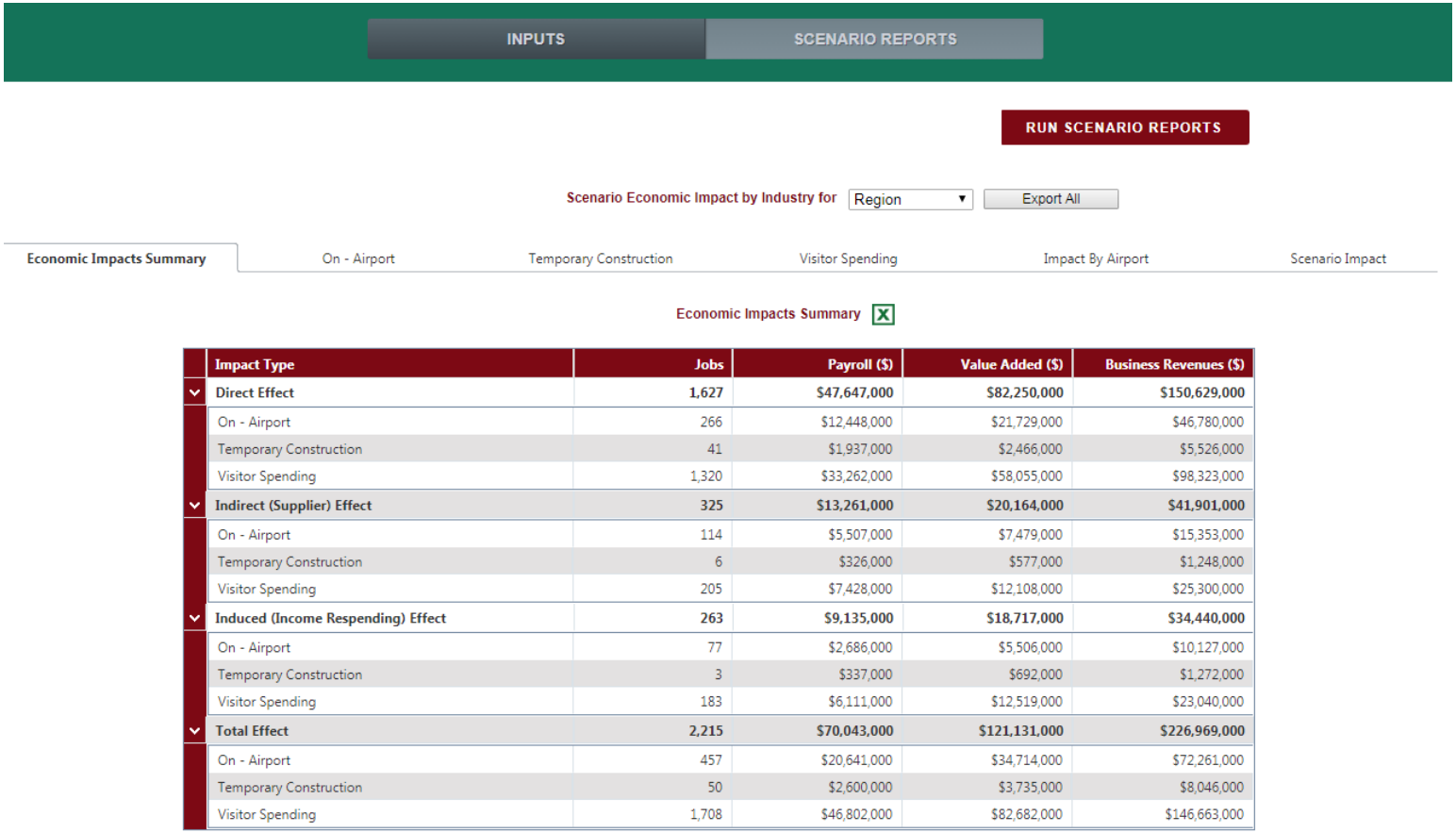
Onsite Supporting Services (Hide Details..)

Activity	Baseline	Employment
Aerial Firefighting	11	11
Aviation Training and Education	0	0
Building Maintenance	0	0
Federal Government (non-military)	0	0
Military National Guard	45	45
Parking	0	0
Public Safety (Police, Fire)	0	0
Security/TSA	30	30

Onsite Freight Activities (Hide Details..)

Activity	Baseline	Employment

Expanded Economic Impact Report



Impact Type	Jobs	Payroll ($)	Value Added ($)	Business Revenues ($)
Direct Effect	**1,627**	**$47,647,000**	**$82,250,000**	**$150,629,000**
On - Airport	266	$12,448,000	$21,729,000	$46,780,000
Temporary Construction	41	$1,937,000	$2,466,000	$5,526,000
Visitor Spending	1,320	$33,262,000	$58,055,000	$98,323,000
Indirect (Supplier) Effect	**325**	**$13,261,000**	**$20,164,000**	**$41,901,000**
On - Airport	114	$5,507,000	$7,479,000	$15,353,000
Temporary Construction	6	$326,000	$577,000	$1,248,000
Visitor Spending	205	$7,428,000	$12,108,000	$25,300,000
Induced (Income Respending) Effect	**263**	**$9,135,000**	**$18,717,000**	**$34,440,000**
On - Airport	77	$2,686,000	$5,506,000	$10,127,000
Temporary Construction	3	$337,000	$692,000	$1,272,000
Visitor Spending	183	$6,111,000	$12,519,000	$23,040,000
Total Effect	**2,215**	**$70,043,000**	**$121,131,000**	**$226,969,000**
On - Airport	457	$20,641,000	$34,714,000	$72,261,000
Temporary Construction	50	$2,600,000	$3,735,000	$8,046,000
Visitor Spending	1,708	$46,802,000	$82,682,000	$146,663,000

Comparison of Scenario to Baseline

RUN SCENARIO REPORTS

Scenario Economic Impact by Industry for Region ▾ Export All

Economic Impacts Summary | On - Airport | Temporary Construction | Visitor Spending | Impact By Airport | **Scenario Impact**

Direct Impacts

	Jobs				Payroll ($M)				Value Added ($M)				Business Revenues ($M)			
	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change
On - Airport	265	266	1	0.4%	$21.76	$12.45	($9.31)	-42.8%	$35.92	$21.73	($14.19)	-39.5%	$60.86	$46.78	($14.08)	-23.1%
Temporary Construction	31	41	10	32.3%	$2.08	$1.94	($0.14)	-6.9%	$2.79	$2.47	($0.32)	-11.5%	$5.06	$5.53	$0.46	9.2%
Visitor Spending	1,074	1,320	246	22.9%	$32.47	$33.26	$0.80	2.5%	$55.81	$58.06	$2.25	4.0%	$89.44	$98.32	$8.89	9.9%
Total	**1,370**	**1,627**	**257**	**15.8%**	**$56.31**	**$47.65**	**($8.66)**	**-18.2%**	**$94.51**	**$82.25**	**($12.26)**	**-14.9%**	**$155.35**	**$150.63**	**($4.72)**	**-3.1%**

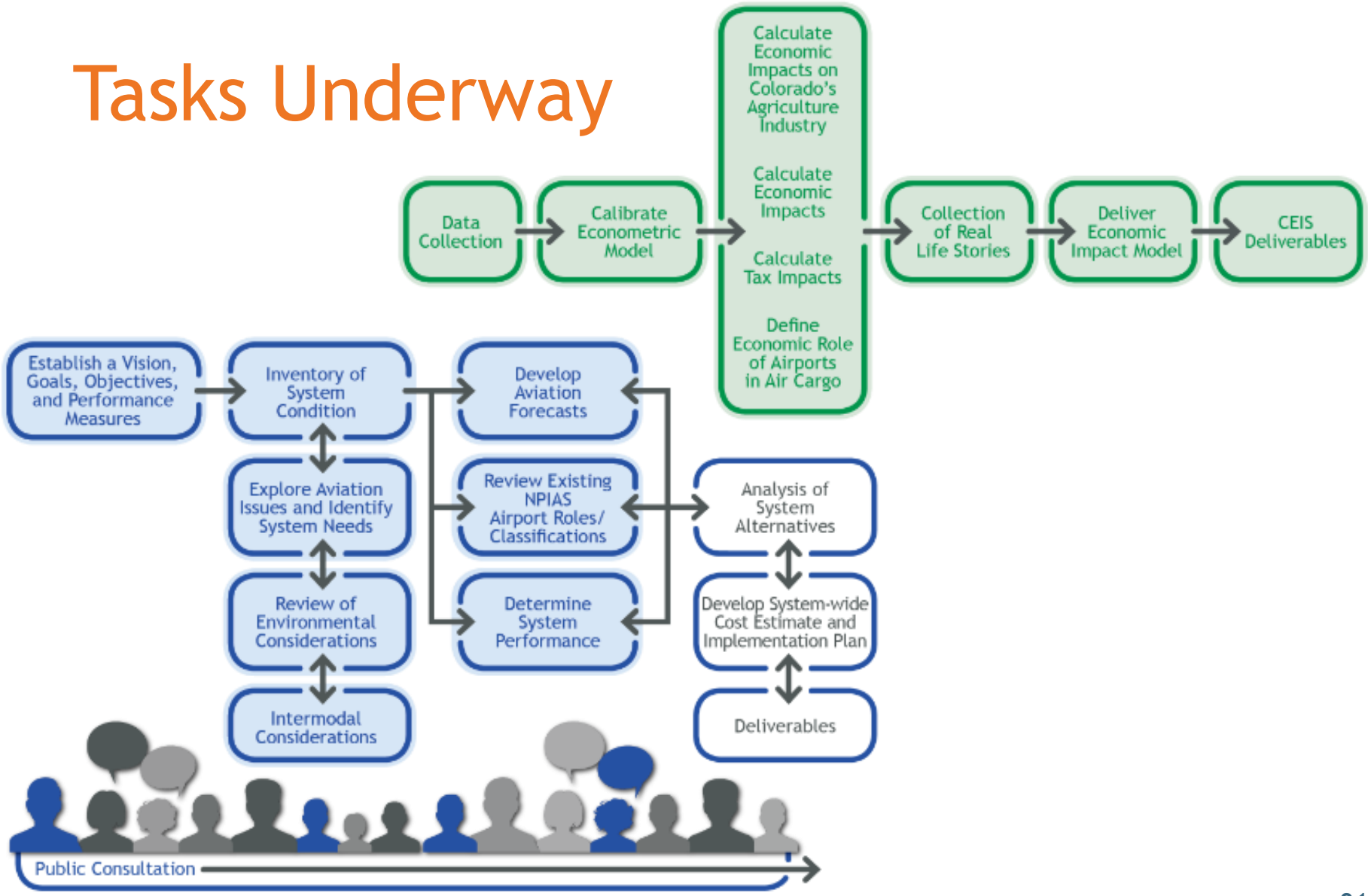
Total Impacts

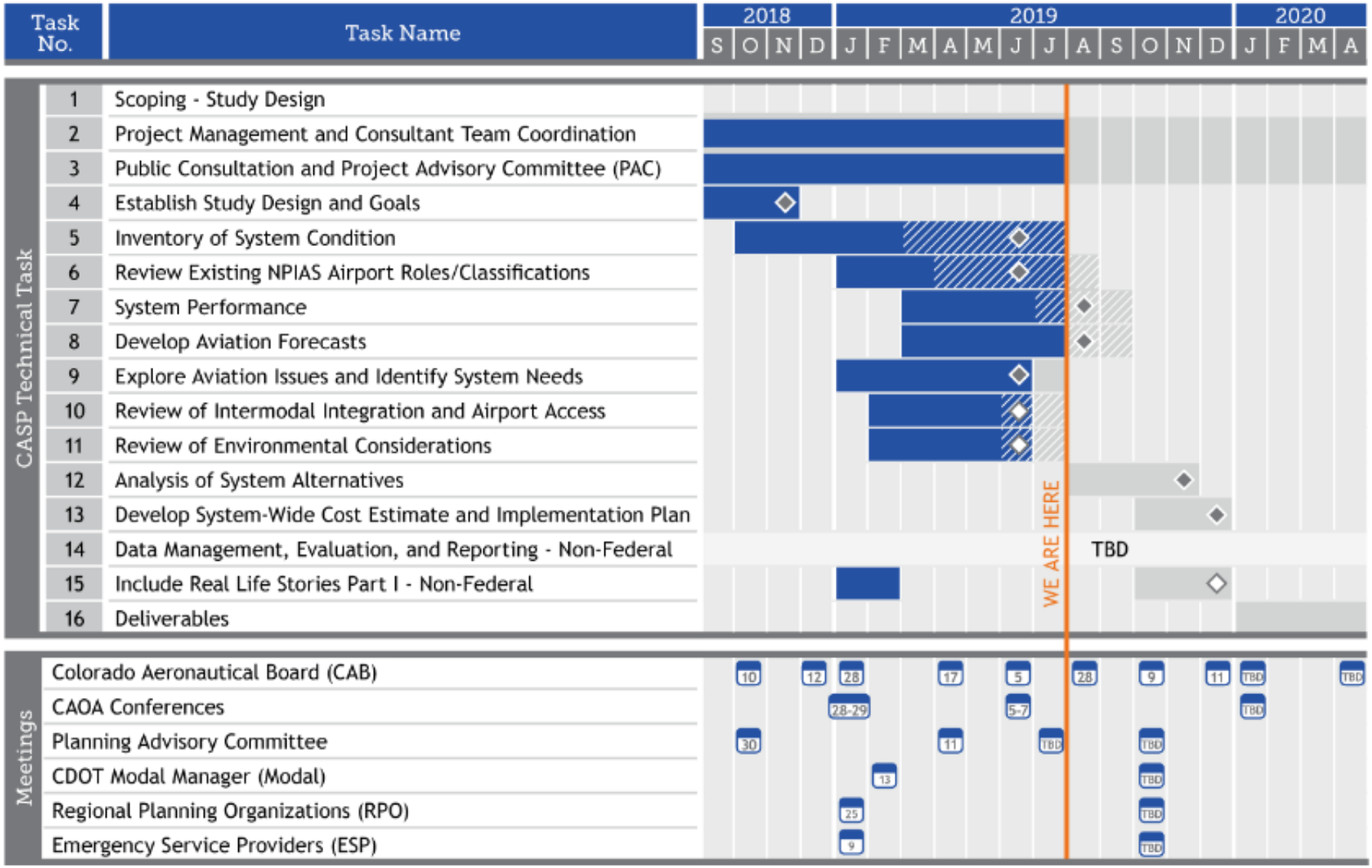
	Jobs				Payroll ($M)				Value Added ($M)				Business Revenues ($M)			
	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change	Baseline	Scenario	Change	% Change
On - Airport	575	457	-118	-20.5%	$40.76	$20.19	($21)M	-50.5%	$68.10	$34.71	($33)M	-49.0%	$115.71	$72.26	($43)M	-37.5%
Temporary Construction	37	50	13	35.1%	$3.48	$2.66	($1)M	-23.5%	$5.31	$3.73	($2)M	-29.7%	$9.36	$8.05	($1)M	-14.0%
Visitor Spending	1,537	1,708	171	11.1%	$58.12	$45.54	($13)M	-21.7%	$101.99	$82.68	($19)M	-18.9%	$166.83	$146.66	($20)M	-12.1%
Total	**2,149**	**2,215**	**66**	**3.0%**	**$102.37**	**$68.40**	**($34)M**	**-49.7%**	**$175.41**	**$121.13**	**($54)M**	**-44.8%**	**$291.90**	**$226.97**	**($65)M**	**-28.6%**

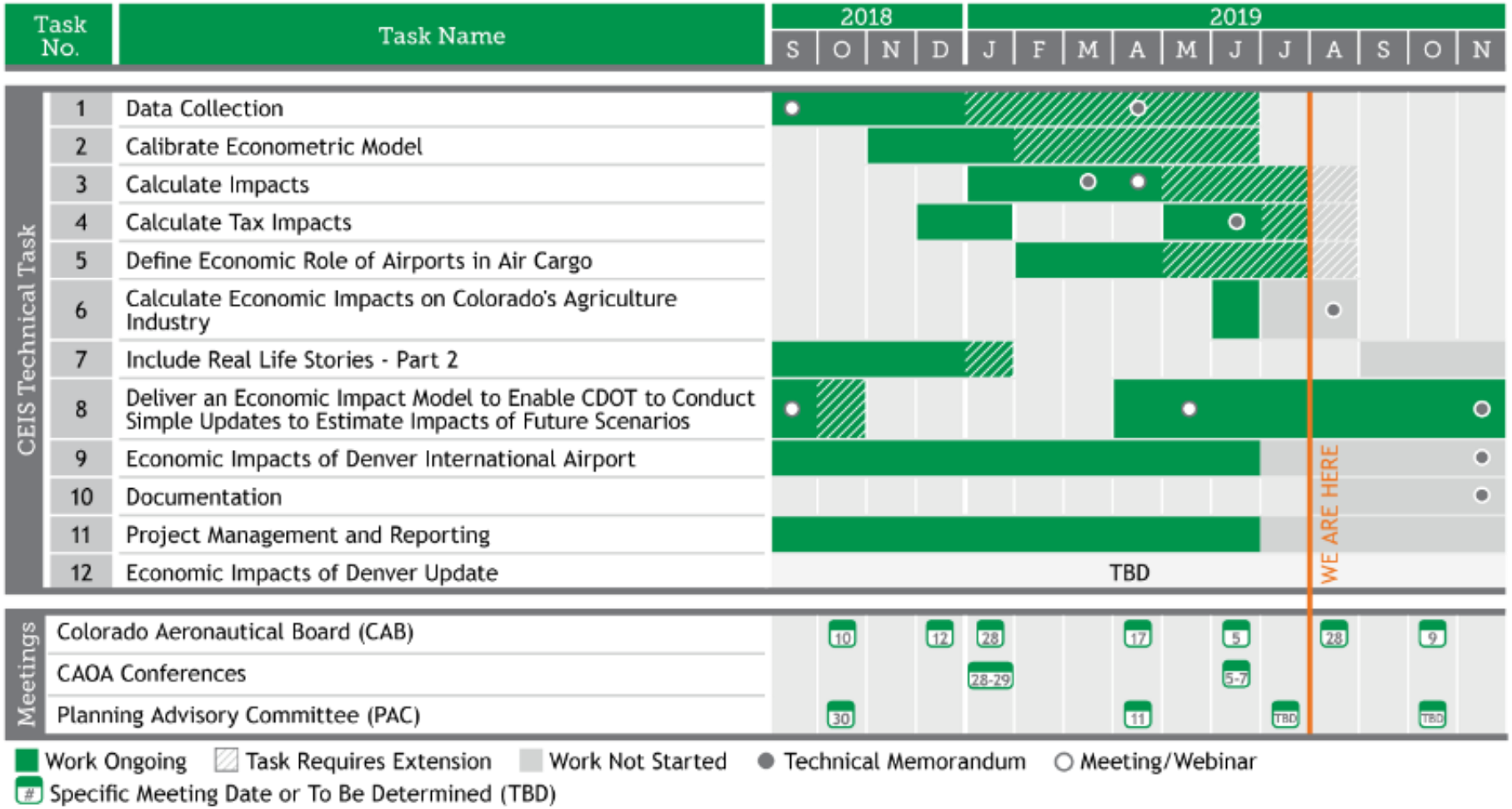
CASP CEIS

Next Steps

Tasks Underway



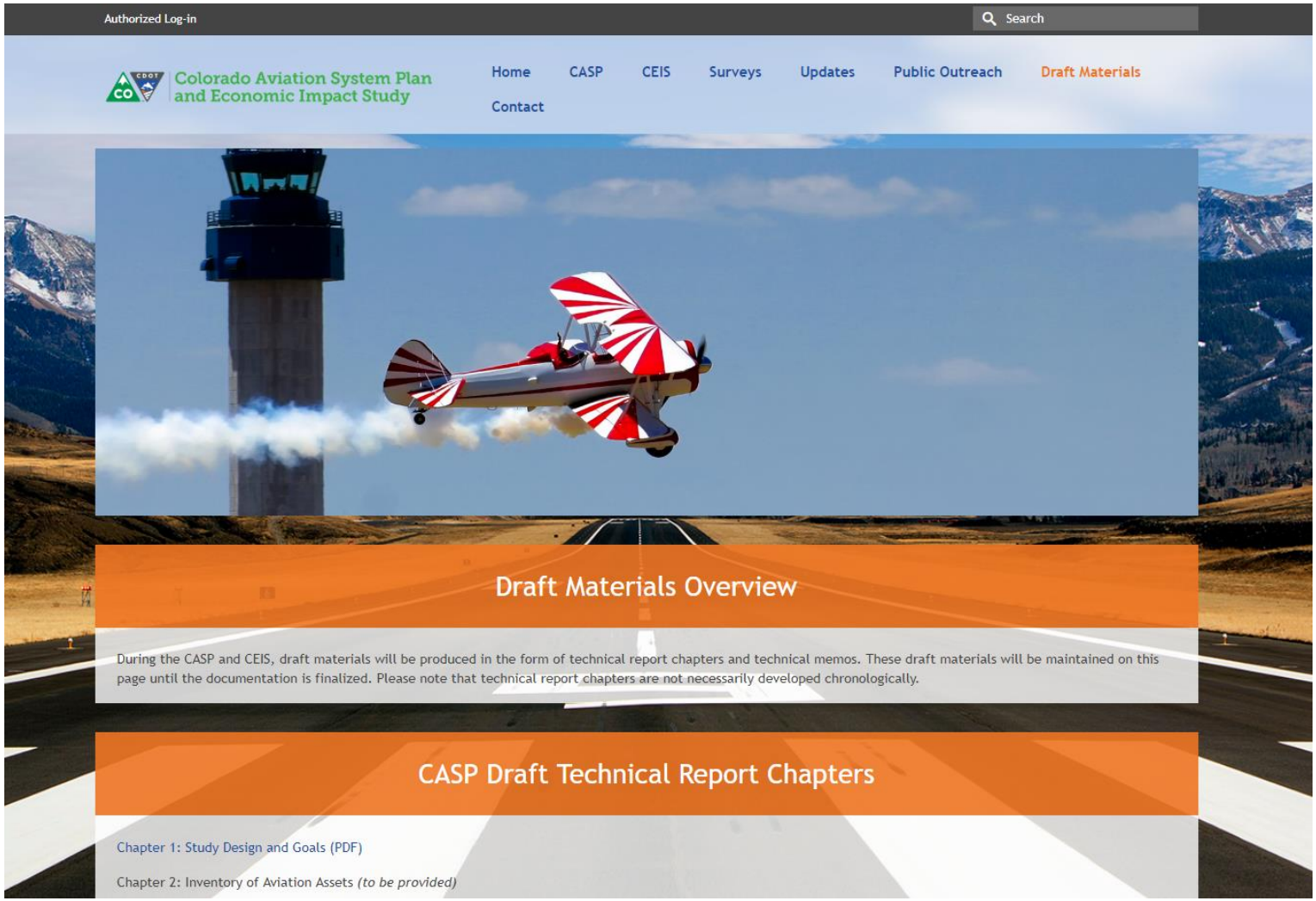

Task No.
Task Name
2018
2019
2020
S O N D J F M A M J J A S O N D J F M A
CASP Technical Task
1 Scoping - Study Design
2 Project Management and Consultant Team Coordination
3 Public Consultation and Project Advisory Committee (PAC)
4 Establish Study Design and Goals
5 Inventory of System Condition
6 Review Existing NPIAS Airport Roles/Classifications
7 System Performance
8 Develop Aviation Forecasts
9 Explore Aviation Issues and Identify System Needs
10 Review of Intermodal Integration and Airport Access
11 Review of Environmental Considerations
12 Analysis of System Alternatives
13 Develop System-Wide Cost Estimate and Implementation Plan
14 Data Management, Evaluation, and Reporting - Non-Federal
15 Include Real Life Stories Part I - Non-Federal
16 Deliverables
WE ARE HERE
TBD
Meetings
Colorado Aeronautical Board (CAB)
CAOA Conferences
Planning Advisory Committee
CDOT Modal Manager (Modal)
Regional Planning Organizations (RPO)
Emergency Service Providers (ESP)
10 12 28 17 5 28 9 11 TBD TBD
28-29 5-7 TBD
30 11 TBD TBD
13 TBD
25 TBD
9 TBD
Work Ongoing
Task Requires Extension
Work Not Started
Chapter
White Paper/Content to be Included in Chapter
Specific Meeting Date or To Be Determined (TBD)


Task No.
Task Name
2018
2019
S O N D J F M A M J J A S O N
CEIS Technical Task
1 Data Collection
2 Calibrate Econometric Model
3 Calculate Impacts
4 Calculate Tax Impacts
5 Define Economic Role of Airports in Air Cargo
6 Calculate Economic Impacts on Colorado's Agriculture Industry
7 Include Real Life Stories - Part 2
8 Deliver an Economic Impact Model to Enable CDOT to Conduct Simple Updates to Estimate Impacts of Future Scenarios
9 Economic Impacts of Denver International Airport
10 Documentation
11 Project Management and Reporting
12 Economic Impacts of Denver Update
TBD
WE ARE HERE
Meetings
Colorado Aeronautical Board (CAB)
10 12 28 17 5 28 9
CAOA Conferences
28-29 5-7
Planning Advisory Committee (PAC)
30 11 TBD TBD
Work Ongoing
Task Requires Extension
Work Not Started
Technical Memorandum
Meeting/Webinar
Specific Meeting Date or To Be Determined (TBD)

Next Steps

- CASP
  - Finalize forecasts chapter
  - Complete system analysis and finalize chapter
  - Assess future system performance
- CEIS
  - Conduct “real life story” interviews
  - Finalize CEIS findings and model
  - Draft individual airport reports

Project Website



Questions?

Thank you for your participation!

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CASP CEIS