Chapter 8. Future System Performance

As a natural progression from the results of **Chapter 6. Existing System Performance** and building upon the findings of **Chapter 7. Aviation Demand Forecasts**, this chapter introduces the desired performance targets for the future system in terms of performance measures (PMs) as established in **Chapter 1. Study Design and Goals**. Of note, system indicators (SIs) are not analyzed in this chapter as these provide supplementary information and are not used to infer direct system performance. The future performance targets reflect both the percent of airports by classification that should be achieving each measure, as well as statewide performance in order for Colorado's system to achieve the goals established at the inception of this study.

This chapter also evaluates the implications of future aviation demand on certain elements of the system's needs that are most affected by changes in based aircraft and operations. Evaluating both future performance targets and the implications of increased demand provides valuable information for planning and funding of future developments aimed at improving the overall performance of the system. Focused improvements to meet future performance targets strengthens the system's resiliency against market changes, enforces its position as a major economic generator, and continues to support a robust aviation industry.

8.1. Future System Performance

The following sections examine the existing system's performance and include future performance targets for each PM under each goal category established in **Chapter 1. Study Design and Goals**. Future performance targets are defined as the percent of airports by classification that *should* be achieving each PM to meet the overarching goals of the system plan. Future performance targets were established in concert with CDOT Division of Aeronautics and the Project Advisory Committee (PAC) after reviewing the performance of the aviation system in **Chapter 6. Existing System Performance**.

The PMs and future performance targets are arranged by goal category and include a brief explanation of the PM followed by the future performance targets. Targets have been established for most airport classifications, however, some are listed as "no target established." It should be noted that not establishing a target for specific airport classifications does not preclude an airport from seeking a project for their airport that relates to the PM. Tables in the following sections only show airports that do not meet the PM. Airports in which the future performance target for the PM does not apply, are "based on community need", or have a "no target established" are excluded from the tables.

8.1.1. Safety and Efficiency Goal

Safety remains at the forefront of the aviation industry and will continue to be the most important component in the future. This section analyzes the 2018 performance of the system and establishes the future performance targets for the four PMs relating to the safety and efficiency goal. The PMs under the safety and efficiency goal are listed below:

1. Percent of Airports with Approaches Negatively Impacted by Obstructions
2. Percent of Airports that Have Full Perimeter Wildlife Fencing
3. Percent of Airports that Have Adopted Appropriate Land Use Controls

4. Percent of NPIAS Airports that Meet Current FAA Design Standards Under AC/150/5300-13A

8.1.1.1. Percent of Airports with Approaches Negatively Impacted by Obstructions

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. They may take the form of man-made or naturally existing obstructions and coordination to either remove or take extra precautions to avoid aircraft collisions are imperative to overall safety. **Table 8.1** presents the 2018 performance and future performance targets.

Table 8.1. Percent of Airports by Classification with Approaches Negatively Impacted by Obstructions – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	29%	0%
GA-National (2)	50%	0%
GA-Regional (5)	40%	0%
GA-Local (19)	21%	0%
GA-Community (16)	19%	0%
GA-Rural (10)	90%	0%
System-wide (66)	**35%**	**0%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

System-wide, 35 percent of airports have approaches negatively impacted by obstructions per the 2018 performance analysis documented in **Chapter 6**.[1] Regardless of airport classification, airport ownership, or NPIAS classification, each airport in the system should strive to eliminate obstructions within the approach surface of each runway end. Due to the importance of maintaining safe approaches, zero CASP airports system-wide should have approaches negatively impacted by obstructions. It should be noted that this analysis is based on each airport's primary runway ends only. Airport sponsors with multiple runways should work to clear approaches to all runway ends. It should also be noted that this analysis only documents the obstruction penetrating the approach surface. Some obstacles may or may not already be lighted.

Airports that are negatively impacted by an obstruction on at least one end of their primary runway are shown in **Table 8.2**. The table shows the primary runway ends, obstruction by runway end, and the action needed to meet the target.

[1] It was determined that the 40-foot obstruction shown on the FAA's 5010 Master Record for TEX was a record error after the 2020 CASP obstruction analysis was complete. Therefore, the 2018 percentage for the system and for commercial service airports is actually lower based on this change.

Table 8.2. Airports by Classification That Have an Approach Negatively Impacted by Obstructions

Associated City	Airport Name	FAA ID	Primary Runway	Obstruction	Action to Meet Future Performance Target
Commercial Service					
Alamosa	San Luis Valley Regional	ALS	02/20	Tree	Remove Obstruction
Cortez	Cortez Municipal	CEZ	03/21	Trees/Road	Remove Obstruction
Eagle	Eagle County Regional	EGE	07/25	Tree	Remove Obstruction
Telluride	Telluride Regional	TEX	09/27	Hill/Hill	Light Obstruction**
GA-National					
Denver	Centennial	APA	17L/35R	Powerline	Light Obstruction*
GA-Regional					
Colorado Springs	Meadow Lake	FLY	15/33	Road	Remove Obstruction
Longmont	Vance Brand	LMO	11/29	Tree/Road	Remove Obstruction
GA-Local					
Boulder	Boulder Municipal	BDU	08/26	Trees	Remove Obstruction
Craig	Craig-Moffat	CAG	07/25	Powerline/Trees	Light/Remove Obstructions*
Fort Morgan	Fort Morgan Municipal	FMM	14/32	Road	Remove Obstruction
Glenwood Springs	Glenwood Springs Municipal	GWS	14/32	Trees/Road	Remove Obstruction
GA-Community					
Granby	Granby-Grand County	GNB	09/27	Fence	Remove Obstruction
Holyoke	Holyoke	HEQ	14/32	Tree	Remove Obstruction
Westcliffe	Silver West	C08	13/31	Ground or Rising Terrain	Light Obstruction*
GA-Rural					
Blanca	Blanca	05V	03/21	Road/Road	Remove Obstruction
Brush	Brush Municipal	7V5	07/25	Tree/Fence	Remove Obstruction
Center	Leach	1V8	12/30	Building/Powerline	Light Obstructions*
Eads	Eads Municipal	9V7	17/35	Road/Road	Remove Obstruction
Haxtun	Haxtun Municipal	17V	0826	Road/Road	Remove Obstruction

Associated City	Airport Name	FAA ID	Primary Runway	Obstruction	Action to Meet Future Performance Target
Holly	Holly	K08	17/35	Tree/Fence	Remove Obstruction
Julesburg	Julesburg Municipal	7V8	13/31	Tank/Powerline	Light Obstructions*
La Veta	Cuchara Valley	07V	06/24	Road	Remove Obstruction
Saguache	Saguache Municipal	04V	11/29	Road	Remove Obstruction

**Note: In some cases, removing an obstacle isn't feasible and therefor the best action is to light the obstruction. However, lighting and obstruction does not satisfy the performance target.*

***Note: TEX noted that the 40-foot obstructions shown on the FAA's 5010 Master Record for TEX was a record error after the 2020 CASP obstruction analysis was complete. Therefore, lighting is not needed for these obstructions.*

Sources: FAA Form 5010, Kimley-Horn 2020

Airports should work with local municipalities and other stakeholders to mitigate obstructions within the approach to reduce the risk of aircraft accidents. In cases where it is not feasible to remove an obstruction, airports should coordinate with the applicable stakeholders to properly install lights on the obstruction to improve visibility and alert pilots of the obstruction. In cases where this may be the only course of action, it should be noted that lighting the obstruction does not constitute the airport as meeting the target.

8.1.1.2. Percent of Airports that have Full Perimeter Wildlife Fencing

Full perimeter wildlife fencing is installed to mitigate wildlife collisions or strikes on airport property. **Table 8.3** summarizes the 2018 performance and future performance target for each airport classification and the system in its entirety.

Table 8.3. Percent of Airports by Classification with Full Perimeter Wildlife Fencing - 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	79%	100%
GA-National (2)	100%	100%
GA-Regional (5)	40%	100%
GA-Local (19)	58%	100%
GA-Community (16)	37%	100%
GA-Rural (10)	0%	No Target Established
System-wide (66)	**49%**	**85%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

The 2018 performance shows that 49 percent of system-wide airports have full perimeter wildlife fencing. The future performance target is for wildlife fencing to be installed at all Commercial Service through GA-Community airports (85 percent of the system). All GA-Rural airports are non-NPIAS and have the lowest activity levels in the state. Wildlife fencing is FAA Airport Improvement Program (AIP) eligible, and given the high levels of wildlife activity in the state, full perimeter wildlife fencing is recommended for all NPIAS airports. For the higher activity non-NPIAS airports classified as GA-Local and GA-Community, wildlife fencing could also enhance safety. Airports with full perimeter wildlife fencing needs are shown in **Table 8.4** by classification.

Table 8.4. Airports by Classification with Full Perimeter Wildlife Fencing Needs

Associated City	Airport Name	FAA ID
Commercial Service		
Durango	Durango-La Plata County	DRO
Grand Junction	Grand Junction Regional	GJT
Pueblo	Pueblo Memorial	PUB
GA-Regional		
Colorado Springs	Meadow Lake	FLY
Denver	Colorado Air and Space Port	CFO
Longmont	Vance Brand	LMO

Associated City	Airport Name	FAA ID
GA-Local		
Burlington	Kit Carson County	ITR
Canon City	Fremont County	1V6
Del Norte	Astronaut Kent Rominger	RCV
Delta	Blake Field	AJZ
Erie	Erie Municipal	EIK
Fort Morgan	Fort Morgan Municipal	FMM
Glenwood Springs	Glenwood Springs Municipal	GWS
Limon	Limon Municipal	LIC
GA-Community		
Akron	Colorado Plains Regional	AKO
Creede	Mineral County Memorial	C24
Holyoke	Holyoke	HEQ
Las Animas	Las Animas-Bent County	7V9
Monte Vista	Monte Vista Municipal	MVI
Nucla	Hopkins Field	AIB
Springfield	Springfield Municipal	8V7
Westcliffe	Silver West	C08
Wray	Wray Municipal	2V5
Yuma	Yuma Municipal	2V6

Source: 2018 Inventory & Data Form

Due to the high costs associated with installing full perimeter wildlife fencing with security gates and signage, airports should coordinate with FAA or CDOT Division of Aeronautics to perform a more informational analysis to discern the feasibility of projects related to fencing for their airport. Airports that already have partial perimeter wildlife fencing should also initiate coordination with FAA or CDOT Division of Aeronautics to review cost feasibility for installing wildlife fencing around remaining facilities.

8.1.1.3. Percent of Airports that have Adopted Appropriate Land Use Controls

The adoption of appropriate land use controls by the airport's local zoning authority increases the airport's ability to adequately expand operations in response to changing aviation demand or regulations. In addition, land use controls aid the surrounding communities by mitigating noise incompatibility and reducing negative externalities of being too closely located near airport operations. **Table 8.5a** summarizes the 2018 performance and future performance targets related to land use controls.

Table 8.5a. Percent of Airports by Classification that have Adopted Appropriate Land Use Controls – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	71%	100%
GA-National (2)	100%	100%
GA-Regional (5)	100%	100%
GA-Local (19)	74%	100%
GA-Community (16)	50%	100%
GA-Rural (10)	20%	100%
System-wide (66)	**62%**	**100%**

Source; 2018 Inventory & Data Form, Kimley-Horn, 2020

Sixty-two percent of airports system-wide have local zoning authorities that have adopted appropriate land use controls per the 2018 performance. The preservation of compatible land uses surrounding airports is integral to safe and efficient airport operations. Setting future performance targets at 100 percent for the system conveys CDOT Division of Aeronautics emphasis on the importance of mitigating risks to people and persons on aircraft, on airport, and in the surrounding communities.

In addition to land use controls, adopting appropriate height controls reduces development conflicts that could negatively impact the airspace around airports. **Table 8.5b** shows the 2018 performance and the targets set for future performance.

Table 8.5b. Percent of Airports by Classification that have Adopted Appropriate Height Controls – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	64%	100%
GA-National (2)	100%	100%
GA-Regional (5)	100%	100%
GA-Local (19)	68%	100%
GA-Community (16)	50%	100%
GA-Rural (10)	10%	100%
System-wide (66)	**58%**	**100%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

More than half of the airports system-wide have local zoning authorities that have adopted appropriate height controls. The adoption of height controls, as well as land use controls, is inexpensive and serves as a significant mechanism for promoting safety in the airport environs. To further protect against risks relating to incompatible developments, all system airports' targets are set at 100 percent.

Airports whose local zoning authority has not adopted land use controls and/or height controls are presented by classification in **Table 8.6**.

Table 8.6. Airports by Classification That Do Not Have Land Use Controls and/or Height Controls

Associated City	Airport Name	FAA ID	Actions to Meet Future Performance Target	
			Adopt Land Use Controls	Adopt Height Controls
Commercial Service				
Alamosa	San Luis Valley Regional	ALS	✓	✓
Cortez	Cortez Municipal	CEZ	✓	✓
Grand Junction	Grand Junction Regional	GJT		✓
Gunnison	Gunnison-Crested Butte Regional	GUC	✓	✓
Pueblo	Pueblo Memorial	PUB	✓	✓
GA-Local				
Burlington	Kit Carson County	ITR	✓	✓
Craig	Craig-Moffat	CAG	✓	✓
Delta	Blake Field	AJZ	✓	✓
Glenwood Springs	Glenwood Springs Municipal	GWS	✓	✓
Salida	Harriet Alexander Field	ANK		✓
Steamboat Springs	Steamboat Springs	SBS	✓	✓
GA-Community				
Las Animas	Las Animas-Bent County	7V9	✓	✓
Meeker	Meeker/Coulter Field	EEO	✓	✓
Monte Vista	Monte Vista Municipal	MVI	✓	✓
Nucla	Hopkins Field	AIB	✓	✓
Paonia	North Fork Valley	7V2	✓	✓
Rangely	Rangely	4V0	✓	
Springfield	Springfield Municipal	8V7	✓	✓
Wray	Wray Municipal	2V5	✓	✓
Yuma	Yuma Municipal	2V6		✓
GA-Rural				
Blanca	Blanca	05V	✓	✓
Brush	Brush Municipal	7V5	✓	✓
Center	Leach	1V8	✓	✓
Eads	Eads Municipal	9V7	✓	✓
Haxtun	Haxtun Municipal	17V		✓
Holly	Holly	K08	✓	✓
Julesburg	Julesburg Municipal	7V8	✓	✓
La Veta	Cuchara Valley	07V	✓	✓
Saguache	Saguache Municipal	04V	✓	✓

Source: 2018 Inventory & Data Form

Airports who have not adopted land use and/or height controls should initiate conversations with their local zoning authority or authorities. Adoption of such regulations may call for coordination with other local decision-makers, planning authorities, and other stakeholders that may be impacted by regulatory planning changes. A number of resources are available to airports and local zoning authorities to develop and adopt land use, height controls, or other zoning related regulations specifically geared towards airport compatibility, specifically ACRP Report 27*: Enhancing Airport Land Use Compatibility*, and FAA AC 150/5020-1, *Noise Control and Compatibility Planning for Airports*.

States across the U.S. can support compatible land use planning efforts at their airports in many ways. The level of involvement varies significantly from state to state based on state laws, municipal authority, community perception, and more. On the stricter side of the spectrum, states have enacted legislation requiring municipalities with public-use airports to adopt and enforce local-level airport zoning that controls both land use and height near airport environs. Most commonly, state law is modeled after the Code of Federal Regulation (CFR) Part 77 which establishes allowable heights of manmade structures and natural features near an airport based on the type of runway approach(es) they have. This aligns federal regulations with state requirements and allows states and local municipalities to enforce prohibition of development that could negatively impact an airport or its local community.

On the other end of the spectrum, states have developed land use compatibility guidebooks that are intended to educate airport sponsors, local communities, and other stakeholders on the importance of planning for compatible land uses near airport environs. These guidebooks are educational tools that often include a collection of resources for airport sponsors and communities to use to enhance the level of compatibility near their facility. Examples of these resources include model zoning ordinances, sample real estate disclosures and deed restrictions, right-of-first-refusal agreements, and more. Airports can then choose to use the information in the guidebook and provided resources in a way that meets their needs.

While there is no one-size-fits-all approach to achieving or promoting compatibility at the state level, several states offer examples of solutions that work toward this common goal. Florida state law requires all municipalities with an "airport hazard area" to adopt and enforce airport zoning. States like Indiana and Ohio have laws regulating the height of structures near airports. California law requires the establishment of Airport Land Use Compatibility Plans by each county's Airport Land Use Commission. States like Iowa and Washington provide land use compatibility guidebooks for their airports and stakeholders – some are provided as standalone resources while others serve as a companion to state law. Recently, the state of South Carolina developed a Compatible Land Use Evaluation (CLUE) Tool – an interactive online program to submit development proposals to local planners and the state for evaluation of airport compatibility. Whatever the solution, state support of compatibility measures can increase the likelihood for airport- and community-compatible development. It is understood that significant challenges would arise from enacting airport land use into state law. However, developing a land use compatibility guide book similar to Iowa and Washington, or developing a CLUE tool similar to South Carolina, could be an option for CDOT Division of Aeronautics to promote and improve land use compatibility around airports.

8.1.1.4. Percent of NPIAS Airports that Meet Current FAA Design Standards under AC 150/5300-13A

In 2014 the FAA made changes to its guidance related to how airfields are designed. These changes were adopted to reduce "hot spots" and increase pilots' situational awareness while operating aircraft in movement areas. Multiple FAA design methods were revised; however, three specific changes were analyzed as part of the 2020 CASP based on FAA AC 150/5300-13A, Change 1, *Airport Design*:

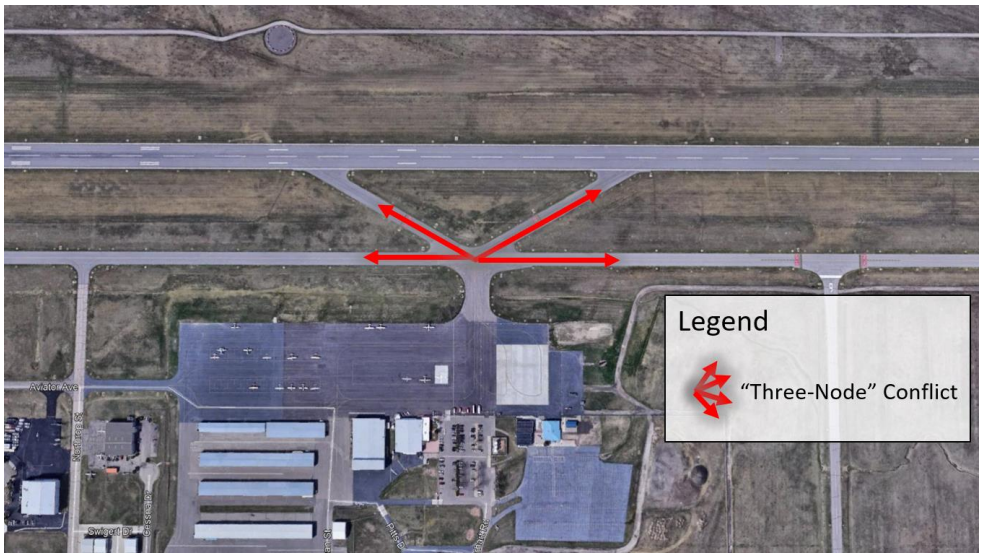
- **Direct Access.** Do not design taxiways to lead directly from an apron to a runway without making a turn. Such configurations can lead to confusion when a pilot typically expects to encounter a parallel taxiway but instead accidentally enters a runway (see **Figure 8.1**).

Figure 8.1. Direct Access Taxiway

Sources: Google Earth, Kimley-Horn

- **Three-Node Concept.** Good airport design practices keep taxiway intersections simple by reducing the number of taxiways intersecting at a single location and allows for proper placement of airfield markings, signage, and lighting. Complex intersections increase the possibility of pilot error. The "three-node concept" means that a pilot is presented with ***no more*** than three choices at an intersection – ideally, left, right, and straight ahead. **Figure 8.2** shows an example of where there are more than three nodes and is therefore a conflict with this concept.

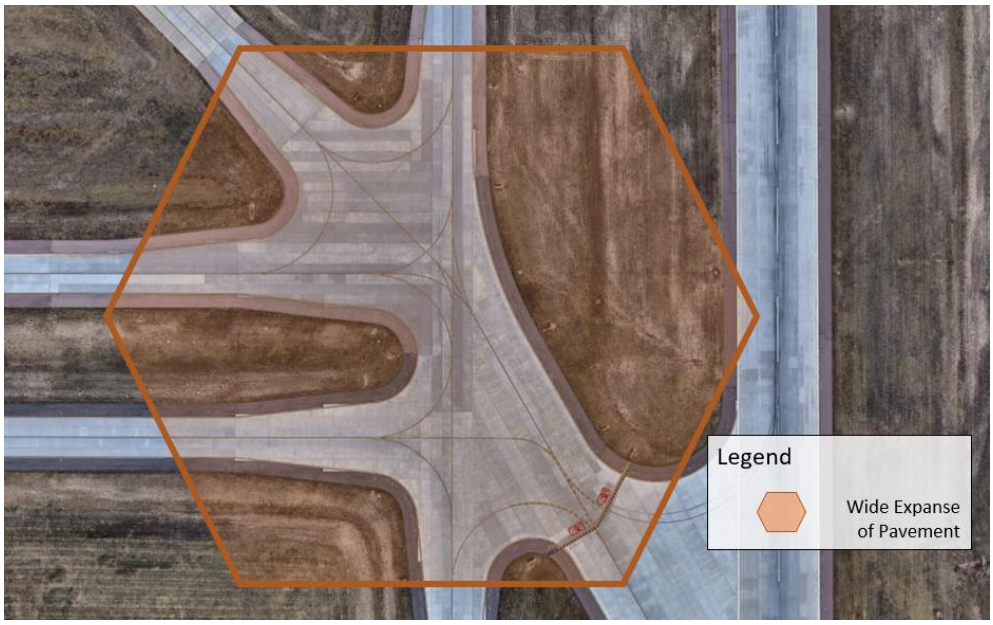
Figure 8.2. Three-Node Concept Conflict



Sources: Google Earth, Kimley-Horn

- **Wide Expanse of Pavement.** Taxiway to runway interface encompassing wide expanses of pavement is not recommended. Wide pavements require placement of signs far from the pilot's eye and reduce the conspicuity of other visual cues. Under low visibility conditions or due to pilot focus on the centerline, signs can be missed (see **Figure 8.3**).

Figure 8.3. Wide Expanse of Pavement



Sources: Google Earth, Kimley-Horn

Table 8.7a shows the 2018 performance and future performance targets set for NPIAS airports related to taxiway geometry standards. It should be noted that this PM is specific to NPIAS airports only (49 total CASP airports are included in the latest NPIAS).

Table 8.7a. Percent of NPIAS Airports that Meet Current Taxiway Geometry Standards – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	0%	100%
GA-National (2)	0%	100%
GA-Regional (5)	20%	100%
GA-Local (17)	6%	100%
GA-Community (11)	27%	100%
System-wide (49)	**10%**	**100%**

Sources: Individual Airport ALPs; Google Earth, Kimley-Horn, 2020

Due to the recent timing of these changes outlined in AC 150/5300-13A (2014), only 10 percent of NPIAS airports system-wide meet the current FAA design standards related to taxiway geometry standards. It is important to note that many of the 2018 performance issues are a direct result of these recent changes in FAA design criteria compared to the criteria that were in place when the infrastructure was originally planned and constructed. Future performance targets for taxiway geometry are established at 100 percent for all NPIAS airports since all NPIAS airports should follow FAA taxiway design standards, however, FAA and CDOT Division of Aeronautics plan to address the geometry issues as part of other projects and are not planning to implement projects that are only to meet these newer standards unless the airport is identified by FAA on the list of airports with "runway incursion mitigation" or RIM needs.

Runway Safety Areas (RSAs) were analyzed in addition to taxiway geometries. As noted in **Chapter 6**, RSAs provide a buffer area around the runway to protect aircraft that may veer from the runway. The 2018 performance and future performance targets for NPIAS airports that meet current RSA standards are shown in **Table 8.7b**.

Table 8.7b. Percent of NPIAS Airport that Meet Current RSA Standards – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	71%	100%
GA-National (2)	100%	100%
GA-Regional (5)	80%	100%
GA-Local (17)	71%	100%
GA-Community (11)	91%	100%
System-wide (49)	**78%**	**100%**

Sources: Individual Airport ALPs; Google Earth, Kimley-Horn, 2020

Similar to the taxiway design standards targets, future performance targets for RSA standards were established at 100 percent for the 49 NPIAS CASP airports. Airports with taxiway geometry deficiencies (direct access, three-node intersections, and wide expanses of pavement) and/or RSA design standard deficiencies per FAA AC 150/5300-13A, Change 1, are shown in **Table 8.8** and arranged by airport classification. As previously stated, airports that were found to not meet updated taxiway design geometries per recent changes may have complied with previous design standards. Airports are not

required to address these issues immediately but should consider addressing them as other airfield projects are conducted.

Table 8.8. Airports by Classification with FAA Design Standard Needs

Associated City	Airport Name	FAA ID	Actions to Meet Future Performance Targets			
			Address Taxiway Direct Access Conflict(s)	Address Taxiway Three-Node Conflict(s)	Address Taxiway Wide Expanse of Pavement(s)	Address RSA Design Standards
Commercial Service						
Alamosa	San Luis Valley Regional	ALS	✓			
Aspen	Aspen-Pitkin County	ASE	✓		✓	✓
Colorado Springs	Colorado Springs Municipal	COS	✓	✓	✓	
Cortez	Cortez Municipal	CEZ	✓		✓	
Denver	Denver International	DEN	✓	✓	✓	
Durango	Durango-La Plata County	DRO	✓		✓	
Eagle	Eagle County Regional	EGE	✓			
Grand Junction	Grand Junction Regional	GJT	✓		✓	
Gunnison	Gunnison-Crested Butte Regional	GUC	✓			✓
Hayden	Yampa Valley	HDN	✓			
Fort Collins/Loveland	Northern Colorado Regional	FNL		✓	✓	✓
Montrose	Montrose Regional	MTJ	✓			
Pueblo	Pueblo Memorial	PUB	✓			
Telluride	Telluride Regional	TEX	✓			✓
GA-National						
Denver	Centennial	APA	✓		✓	
Denver	Rocky Mountain Metropolitan	BJC	✓	✓	✓	
GA-Regional						
Colorado Springs	Meadow Lake	FLY	✓			
Denver	Colorado Air and Space Port	CFO	✓		✓	
Greeley	Greeley-Weld County	GXY	✓		✓	
Longmont	Vance Brand	LMO	✓			

Associated City	Airport Name	FAA ID	Actions to Meet Future Performance Targets			
			Address Taxiway Direct Access Conflict(s)	Address Taxiway Three-Node Conflict(s)	Address Taxiway Wide Expanse of Pavement(s)	Address RSA Design Standards
Rifle	Rifle Garfield County	RIL				✓
GA-Local						
Boulder	Boulder Municipal	BDU	✓			✓
Buena Vista	Central Colorado Regional	AEJ	✓			
Burlington	Kit Carson County	ITR	✓			
Canon City	Fremont County	1V6	✓			
Craig	Craig-Moffat	CAG	✓			✓
Delta	Blake Field	AJZ	✓			
Erie	Erie Municipal	EIK	✓			✓
Fort Morgan	Fort Morgan Municipal	FMM				✓
Kremmling	Mc Elroy Airfield	20V	✓			
La Junta	La Junta Municipal	LHX	✓		✓	
Lamar	Lamar Municipal	LAA	✓			
Limon	Limon Municipal	LIC	✓			
Pagosa Springs	Stevens Field	PSO	✓			✓
Salida	Harriet Alexander Field	ANK	✓		✓	
Steamboat Springs	Steamboat Springs	SBS	✓			
Sterling	Sterling Municipal	STK	✓			
Walsenburg	Spanish Peaks Airfield	4V1	✓		✓	
GA-Community						
Akron	Colorado Plains Regional	AKO	✓			
Granby	Granby-Grand County	GNB	✓			
Leadville	Lake County	LXV	✓			
Nucla	Hopkins Field	AIB	✓		✓	✓
Rangely	Rangely	4V0	✓			

Associated City	Airport Name	FAA ID	Actions to Meet Future Performance Targets			
			Address Taxiway Direct Access Conflict(s)	Address Taxiway Three-Node Conflict(s)	Address Taxiway Wide Expanse of Pavement(s)	Address RSA Design Standards
Trinidad	Perry Stokes	TAD	✓			
Wray	Wray Municipal	2V5	✓			
Yuma	Yuma Municipal	2V6	✓			

Note: GA-Rural airports were not included in the table as there are no NPIAS airports in this classification.

Sources: Individual airport ALPs; Google Earth; Kimley-Horn. 2019

8.1.2. Access and Mobility

Access and mobility PMs in this section focus on providing adequate infrastructure to meet the needs of Colorado's diverse airport users. The goal promotes the mobility of pilots across the state and increases the number of airports they are able to utilize, as well as the general population. The PMs under the access and mobility goal are listed below:

1. Percent of Airports with a Dedicated Snow Removal Equipment (SRE) Building
2. Percent of Population Within a 30-Minute Drive Time of an All-Weather Runway
3. Percent of Airports with Adequate Terminal Capacity
4. Percent of Airports with Adequate Transient Hangar Spaces

8.1.2.1. Percent of Airports with a Dedicated Snow Removal Equipment (SRE) Building

The existence and utilization of a dedicated snow removal equipment (SRE) building extends the useful life of this equipment and protects the airport's (as well as potentially FAA and CDOT Division of Aeronautics) investment in the long-term. Properly maintained SRE allows airports to remain operational during less-than-ideal snow, slush, or ice conditions. To note, performance targets for the dedicated SRE building PM are based on airports meeting their facility and service objectives. The facility and service objectives for dedicated SRE buildings are as follows:

- **Commercial Service**: Have dedicated SRE building
- **GA-National**: Have dedicated SRE building
- **GA-Regional**: Have dedicated SRE building
- **GA-Local**: Have dedicated SRE building
- **GA-Community**: Based on community need
- **GA-Rural**: Based on community need

Using this method, the dedicated SRE building 2018 performance and future performance targets are shown in **Table 8.9.**

Table 8.9. Percent of Airports by Classification that have a Dedicated SRE Building – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	64%	100%
GA-National (2)	50%	100%
GA-Regional (5)	60%	100%
GA-Local (19)	53%	100%
GA-Community (16)	38%	No Target Established
GA-Rural (10)	0%	No Target Established
System-wide (66)	**44%**	**61%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

Dedicated SRE building targets for Commercial Service through GA-Local airports is 100 percent. Since GA-Community and GA-Rural airports' facility and service objective is "based on community need," no

target has been established. Due to this, the system-wide future performance target is established at 61 percent.

Airports that are deficient in meeting the PM because they do not have a dedicated SRE building are organized by airport classification in **Table 8.10**.

Table 8.10. Airports by Classification with Dedicated SRE Building Needs

Associated City	Airport Name	FAA ID	Action to Meet Future Performance: Needs a Dedicated SRE Building
Commercial Service			
Alamosa	San Luis Valley Regional	ALS	✓
Grand Junction	Grand Junction Regional	GJT	✓
Montrose	Montrose Regional	MTJ	✓
Pueblo	Pueblo Memorial	PUB	✓
Telluride	Telluride Regional	TEX	✓
GA-National			
Denver	Rocky Mountain Metropolitan	BJC	✓
GA-Regional			
Colorado Springs	Meadow Lake	FLY	✓
Longmont	Vance Brand	LMO	✓
GA-Local			
Boulder	Boulder Municipal	BDU	✓
Craig	Craig-Moffat	CAG	✓
Del Norte	Astronaut Kent Rominger	RCV	✓
Delta	Blake Field	AJZ	✓
Erie	Erie Municipal	EIK	✓
Fort Morgan	Fort Morgan Municipal	FMM	✓
Glenwood Springs	Glenwood Springs Municipal	GWS	✓
La Junta	La Junta Municipal	LHX	✓
Sterling	Sterling Municipal	STK	✓

Source: 2018 Inventory & Data Form

To improve overall system performance and meet future performance targets, airports may need to identify existing facilities to convert into a dedicated SRE building or construct a completely new building for these purposes.

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

Colorado's winter environments can cause less than ideal weather conditions for flying and getting to and from the airports by ground. The presence of an all-weather runway is integral to emergency landings or traveling to areas with limited access due to snow or icy conditions by ground transportation. To set a target for percent of population within a 30-minute drive time of an all-

weather runway, the analysis first needs to identify the number of airports in 2018 with an all-weather runway. To have an all-weather runway, the airport must have a paved runway, have instrument approach capability, and have weather reporting.

Facility and service objectives were established for approach and weather reporting capability; however, no objective was established related to a paved runway. To note, GA-Rural airport facility and service objectives do not align with the criteria for an all-weather runway. The facility and service objectives for an all-weather runway are as follows:

- **Commercial Service**: Precision approach; on-site ASOS or AWOS
- **GA-National**: Precision approach; on-site ASOS or AWOS
- **GA-Regional**: Non-precision with vertical guidance approach; on-site ASOS or AWOS
- **GA-Local**: Non-precision approach; on-site ASOS, AWOS, or Automated Unicom
- **GA-Community**: Non-precision approach; on-site ASOS, AWOS, or Automated Unicom
- **GA-Rural**: Maintain existing approach; non-certified weather reporting

Table 8.11 displays the 2018 performance and future performance target for percent of Colorado population within a 30-minute drive time of an airport with an all-weather runway.

Table 8.11. Percent of Population within a 30-Minute Drive Time of an All-Weather Runway – 2018 Performance/Future Performance Target

Airport Classification	2018 Performance	Future Performance Target
System-wide (56)	**83%**	**85%**

Sources: 2018 Inventory & Data Form, Form 5010 Master Record, FAA 5010 Master Record; Kimley-Horn, 2020

The 2018 performance for percent of population within a 30-minute drive time of an airport with an all-weather runway is 83 percent. If all 56 CASP airports met their facility and service objectives for approach and weather reporting capability, population coverage would increase by two percent. **Table 8.12** shows the 13 airports that need approach and/or weather reporting capability improvements to meet all-weather runway criteria.

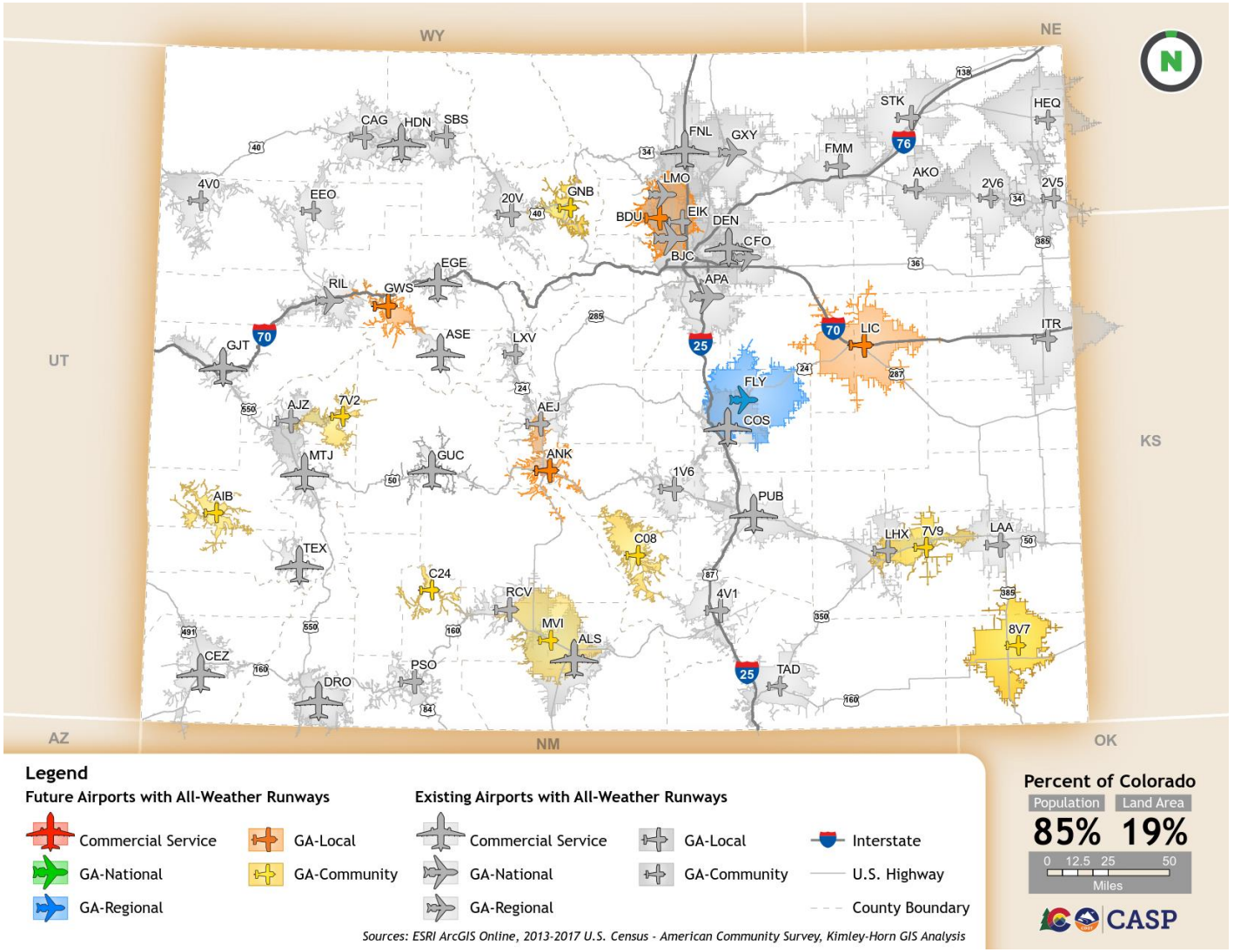
Table 8.12 Airports by Classification That Do Not Meet All-Weather Runway Criteria

Associated City	Airport Name	FAA ID	Actions to Meet Future Performance Targets	
			Needs Instrument Approach	Weather Reporting
GA-Regional				
Colorado Springs	Meadow Lake	FLY	✓	
GA- Local				
Boulder	Boulder Municipal	BDU	✓	
Glenwood Springs	Glenwood Springs Municipal	GWS	✓	
Limon	Limon Municipal	LIC	✓	
Salida	Harriet Alexander Field	ANK	✓	
GA-Community				
Creede	Mineral County Memorial	C24	✓	✓
Granby	Granby-Grand County	GNB	✓	
Las Animas	Las Animas-Bent County	7V9	✓	✓
Monte Vista	Monte Vista Municipal	MVI		✓
Nucla	Hopkins Field	AIB	✓	
Paonia	North Fork Valley	7V2	✓	✓
Springfield	Springfield Municipal	8V7		✓
Westcliffe	Silver West	C08	✓	✓

Source: 2018 Inventory and Data Form

Seventy-five to 90 percent population coverage is a typical goal in a state system plan for population coverage related to an all-weather runway. **Figure 8.4** illustrates the additional population coverage that would be gained if the airports listed in **Table 8.12** met their approach and/or weather reporting facility and service objectives.

Figure 8.4. Percent of Population within a 30-Minute Drive Time of an Airport Meeting Future Performance Targets for an All-Weather Runway



8.1.2.3. Percent of Airports with Adequate Terminal Capacity

Terminal capacity at CASP airports was measured individually for Commercial Service and GA airports. Terminal capacity future performance targets for Commercial Service and GA airports are presented in the following sections.

Commercial Service Terminal Capacity Needs

Future performance targets for Commercial Service airports are set at 100 percent as all Commercial Service airports should have adequate terminal capacity to accommodate passenger demand. 2018 performance and future performance targets for commercial service terminals are shown in **Table 8.13**.

Table 8.13. Percent of Commercial Service Airports by Classification with Adequate Terminal Capacity – 2018 Performance/Future Performance Target

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	**29%**	**100%**

Sources: ACRP Report 113, ACRP Report 79, 2018 Inventory & Data Form, Kimley-Horn, 2020

Airports which are deficient in meeting terminal capacity recommendations should work with FAA or CDOT Division of Aeronautics to facilitate more in-depth analyses to identify terminal projects appropriate to their needs and feasibility. **Table 8.14** documents the Commercial Service airports with terminal expansion needs to meet the future performance target.

Table 8.14. Commercial Service Terminal Size Needs

Associated City	Airport Name	FAA ID	Terminal Expansion Needs
Commercial Service			
Alamosa	San Luis Valley Regional	ALS	✓
Aspen	Aspen-Pitkin County	ASE	✓
Cortez	Cortez Municipal	CEZ	✓
Durango	Durango-La Plata County	DRO	✓
Grand Junction	Grand Junction Regional	GJT	✓
Gunnison	Gunnison-Crested Butte Regional	GUC	✓
Hayden	Yampa Valley	HDN	✓
Fort Collins/Loveland	Northern Colorado Regional	FNL	✓
Montrose	Montrose Regional	MTJ	✓
Pueblo	Pueblo Memorial	PUB	✓

Sources: 2018 Inventory and Data Form; ACRP Report 25, 2010; Kimley-Horn, 2020

GA Terminal Capacity Needs

All GA terminals, regardless of airport classification, should be large enough to accommodate demand and therefore performance targets were set at 100 percent system-wide. **Table 8.15** displays the 2018 performance and future performance targets for GA terminal buildings.

Table 8.15. Percent of Airports by Classification with Adequate GA Terminal Capacity – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	72%	100%
GA-National (2)	100%	100%
GA-Regional (5)	40%	100%
GA-Local (19)	79%	100%
GA-Community (16)	50%	100%
GA-Rural (10)	10%	100%
System-wide (66)	**58%**	**100%**

Note: GA terminal capacity is based on 150 square feet per peak hour passengers.
Source: Google Earth, 2018 Inventory & Data Form, Kimley-Horn, 2020

Beyond meeting the demand for 2018 activity, an analysis of GA terminal capacities in comparison to 2038 projected demand was also completed. Refer to **Section 8.3.4.1** for airport-specific GA terminal needs to meet 2038 demand.

8.1.2.4. Percent of Airports with Adequate Transient Hangar Spaces

Provision of adequate transient hangar spaces supports the mobility of pilots travelling through Colorado. To note, future performance targets for the transient hangar space PM were set so that all airports meet their facility and service objectives and therefore, are set at 100 percent for applicable airport classifications. An analysis of potential transient hangar needs using 2038 operational forecasts was completed and is presented in **Section 8.3.4.2** which outlines the specific facility and service objectives for each classification. **Table 8.16** displays the 2018 performance and future system performance targets for the provision of adequate transient hangar space.

Table 8.16. Percent of Airports by Classification with Adequate Transient Hangar Spaces – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	50%	100%
GA-National (2)	0%	100%
GA-Regional (5)	20%	100%
GA-Local (19)	42%	100%
GA-Community (16)	100%	No Target Established
GA-Rural (10)	0%	No Target Established
System-wide (66)	**44%**	**61%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

The 2018 performance for airports with enough hangar space to accommodate transient hangar space is 44 percent across the system. System-wide, future performance targets have been established at 61 percent of airports to align with the CASP facility and service objectives for adequate transient hangar spaces. For all Commercial Service through GA-Local airports, their future performance targets are set at 100 percent, while GA-Community and GA-Rural airports do not have targets established since their facility and service objectives are based on community need. Per the forecast, system-wide growth in

based aircraft may impact the airport's abilities to meet the future needs. To review which airports are deficient in meeting their 2018 and projected 2038 transient hangar needs, please see **Section 8.2.4.2 Hangar Space Needs** of this chapter.

8.1.3. Economic Sustainability

Identification of opportunities that diversify and strengthen the system's contribution to Colorado's economic health is an important goal to maintain a healthy aviation system. The PMs under the economic sustainability goal are listed below:

1. Percent of Airports with Necessary Fuel Types, Available 24/7
2. Percent of Airports that Support the Aerospace Manufacturing, Technology, and/or Testing Industry
3. Percent of Airports with Adequate Utilities

8.1.3.1. Percent of Airports with Necessary Fuel Type, Available 24/7

Future performance targets for the fuel availability PM were set so that all airports meet their facility and service objectives. Facility and service objectives for fuel are as follows:

- **Commercial Service**: Full service (AvGas & Jet A)
- **GA-National**: Full service (AvGas & Jet A)
- **GA-Regional**: Full service (AvGas & Jet A)
- **GA-Local**: 24/7 self-serve or call out (AvGas & Jet A)
- **GA-Community**: 24/7 self-serve or call out (AvGas); based on community need (Jet A)
- **GA-Rural**: Based on community need (AvGas & Jet A)

For this PM, performance is based on meeting the objectives for both AvGas and Jet A as noted above. 2018 performance and future performance targets for necessary fuel type are shown in **Table 8.17**.

Table 8.17. Percent of Airports by Classification with Necessary Fuel Type, Available 24/7 -2018 Performance/Future Performance Target

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	100%	100%
GA-National (2)	100%	100%
GA-Regional (5)	80%	100%
GA-Local (19)	89%	100%
GA-Community (16)	94%	100%
GA-Rural (10)	100%	No Target Established
System-wide (66)	**94%**	**85%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

System-wide, 94 percent of airports system-wide currently meet the facility and service objectives that match their airport classification. All Commercial Service through GA-Community airports have their future performance targets established at 100 percent which comprises 85 percent of system-wide airports. For future performance targets, 100 percent means the airport should provide the fueling service that corresponds to their facility and service objective. Meeting the necessary fuel types for

their classification is critical for access and mobility during emergency situations, long-distance travel, and increasing mobility of pilots.

Airports that are deficient in meeting necessary fuel types that are available 24/7 are organized by airport classification in **Table 8.18**.

Table 8.18. Airports by Classification That Do Not Have Necessary Fuel Type, Available 24/7

Associated City	Airport Name	FAA ID	Action to Meet Future Performance Target
GA-Regional			
Colorado Springs	Meadow Lake	FLY	Install 24/7 Jet A Fuel
GA-Local			
Del Norte	Astronaut Kent Rominger	RCV	Install 24/7 Jet A Fuel
Limon	Limon Municipal	LIC	Install 24/7 Jet A Fuel
GA-Community			
Las Animas	Las Animas-Bent County	7V9	Install 24/7 AvGas Fuel

Source: 2018 Inventory & Data Form

While some types of existing fueling facilities may be eligible for retrofitting credit card readers allowing them to be accessible 24/7, others may require entirely new facilities to be constructed which may prove costly to the airport. Airports not currently meeting but looking to meet their future performance target will need to coordinate with CDOT Division of Aeronautics to review potential available funding resources to install new fueling facilities that are available to pilots 24/7 as FAA grant monies for these types of projects may not be available given the many other needs at airports.

8.1.3.2. Percent of Airports that Support the Aerospace Manufacturing, Technology, and/or Testing Industry

Colorado's naturally ideal environment has contributed to a booming aerospace industry within the state. Supporting this industry at airports strengthens the system's opportunities for economic sustainability. **Table 8.19** summarizes the 2018 performance and future performance targets for airports that support aerospace industries. As shown, future performance targets system-wide are indicated as "no target established" due to CDOT Division of Aeronautics' limited influence on economics/market conditions to attract these industries. The state would support these industries at any airport and would not necessarily advocate for any one airport.

Table 8.19. Percent of Airports by Classification that Support the Aerospace Manufacturing, Technology, and/or Testing Industry – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	79%	No Target Established
GA-National (2)	100%	No Target Established
GA-Regional (5)	80%	No Target Established
GA-Local (19)	21%	No Target Established
GA-Community (16)	19%	No Target Established
GA-Rural (10)	0%	No Target Established
System-wide (66)	**36%**	**No Target Established**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

Airport deficiencies are not reported for this PM as the future performance targets are set as "No Target Established". Due to the nature of the future performance targets, airports cannot be considered meeting or not meeting their target regardless of if they support the aerospace manufacturing, technology, and/or testing industry.

8.1.3.3. Percent of Airports with Adequate Utilities

The presence of utilities located on undeveloped land allows for expedited development of new facilities. **Table 8.20** summarizes the 2018 performance and future performance targets for this PM.

Table 8.20. Percent of Airports by Classification with Adequate Utilities – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	64%	100%
GA-National (2)	100%	100%
GA-Regional (5)	100%	100%
GA-Local (19)	53%	100%
GA-Community (16)	50%	100%
GA-Rural (10)	10%	No Target Established
System-wide (66)	**53%**	**85%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

Future performance targets for the utilities PM are set at 100 percent for all Commercial Service through GA-Community airports which make up 85 percent of system-wide airports. No targets are established for GA-Rural airports due to many having limited opportunities for future facilities development.

Table 8.21 documents the five Commercial Service airports, nine GA-Local Airports, and eight GA-Community airports with additional utility infrastructure needs to meet the future performance targets.

Table 8.21. Airports by Classification with Utility Needs on Undeveloped Land

Associated City	Airport Name	FAA ID	Utility Needs on Undeveloped Land
Commercial Service			
Aspen	Aspen-Pitkin County	ASE	✓
Eagle	Eagle County Regional	EGE	✓
Gunnison	Gunnison-Crested Butte Regional	GUC	✓
Montrose	Montrose Regional	MTJ	✓
Telluride	Telluride Regional	TEX	✓
GA-Local			
Boulder	Boulder Municipal	BDU	✓
Buena Vista	Central Colorado Regional	AEJ	✓
Craig	Craig-Moffat	CAG	✓
Fort Morgan	Fort Morgan Municipal	FMM	✓
Kremmling	Mc Elroy Airfield	20V	✓
Limon	Limon Municipal	LIC	✓
Pagosa Springs	Stevens Field	PSO	✓
Salida	Harriet Alexander Field	ANK	✓
Steamboat Springs	Steamboat Springs	SBS	✓
GA-Community			
Holyoke	Holyoke	HEQ	✓
Las Animas	Las Animas-Bent County	7V9	✓
Meeker	Meeker/Coulter Field	EEO	✓
Monte Vista	Monte Vista Municipal	MVI	✓
Nucla	Hopkins Field	AIB	✓
Paonia	North Fork Valley	7V2	✓
Westcliffe	Silver West	C08	✓
Yuma	Yuma Municipal	2V6	✓

Source: 2018 Inventory and Data Form; Kimley-Horn, 2020

8.1.4. System Viability Goal

Maintenance and development at airports require substantial investment of resources. Associated PMs focus on protecting investments, increase asset longevity, and promote financial responsibility of airports in the system. The PMs under the system viability goal are listed below:

1. Percent of Airports with Certified On-Site Weather Reporting (AWOS or ASOS)
2. Percent of Airports with Pavement Maintenance Programs
3. Percent of Airports with an Average Runway and Taxiway Pavement Condition Index (PCI) of 70 or Greater

8.1.4.1. Percent of Airports with Certified On-Site Weather Reporting (AWOS or ASOS)

On-site weather reporting systems detect and relay weather elements such as visibility, wind speed and direction, precipitation, fog, etc. to pilots and are critical to safe navigation and touchdown, especially during inclement weather. Future performance targets for the certified on-site weather reporting PM were set so that all airports with ASOS/AWOS weather reporting facility objectives would report to the National Airspace Data Interchange Network (NADIN)[2]. Facility and service objectives for weather reporting are as follows:

- **Commercial Service**: On-site ASOS or AWOS
- **GA-National**: On-site ASOS or AWOS
- **GA-Regional**: On-site ASOS or AWOS
- **GA-Local**: On-site ASOS, AWOS
- **GA-Community**: On-site ASOS, AWOS[3]
- **GA-Rural**: Non-certified weather

Table 8.22 displays the 2018 performance and future performance targets developed for the system to have certified on-site weather reporting to NADIN.

Table 8.22. Percent of Airports by Classification with Certified On-Site Weather Reporting (AWOS or ASOS) – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	100%	100%
GA-National (2)	100%	100%
GA-Regional (5)	100%	100%
GA-Local (19)	95%	100%
GA-Community (16)	63%	100%
GA-Rural (10)	20%	No Target Established
System-wide (66)	**77%**	**85%**

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

Future performance targets are set at 100 percent for all Commercial Service through GA-Community airports which comprise 85 percent of the system-wide airports. The facility and service objective for GA-Rural airports is to have non-certified weather, therefore, no target has been established for this classification. Airports that do not have certified, on-site weather reporting are shown by airport classification in **Table 8.23**.

[2] The NADIN is a private FAA data network accessible to only approved users. A "certified" weather reporting station reports to the NADIN.
[3] Automated Unicom was removed from GA-Local and GA-Community targets, even though it is included as facility and service objective, because Automated Unicom's are unable to report to the NADIN.

Table 8.23. Airports by Classification Certified On-Site Weather Reporting Needs

Associated City	Airport Name	FAA ID	Action to Meet Future Performance Target Needs to Report to NADIN
GA-Local			
Glenwood Springs	Glenwood Springs Municipal	GWS	✓
GA-Community			
Creede	Mineral County Memorial	C24	✓
Las Animas	Las Animas-Bent County	7V9	✓
Monte Vista	Monte Vista Municipal	MVI	✓
Paonia	North Fork Valley	7V2	✓
Springfield	Springfield Municipal	8V7	✓
Westcliffe	Silver West	C08	✓

Source: 2018 Inventory & Data Form

It should be noted that Glenwood Springs (GWS) and Springfield Municipal (8V7) and Silver West (C08) currently have automated UNICOM weather-reporting systems which is adequate based on their facility and service objectives. However, automated UNICOM systems do not report to NADIN. To meet future performance targets, airports should install an ASOS or AWOS with NADIN-reporting capability.

8.1.4.2. Percent of Airports with Pavement Maintenance Programs

Implementation of a pavement maintenance program (PMP) increases the useful life of integral pavement areas such as runways, taxiways, and aprons. **Table 8.24** presents the 2018 performance and future performance targets established for this PM.

Table 8.24. Percent of Airports by Classification with Pavement Maintenance Programs - 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	86%	100%
GA-National (2)	100%	100%
GA-Regional (5)	100%	100%
GA-Local (19)	74%	100%
GA-Community (16)	50%	100%
GA-Rural (10)*	10%	70%
System-wide (66)	**64%**	**95%**

**Note: Three GA-Rural airports (30%) do not have paved runways, therefore, the PM does not apply.*

Source: 2018 Inventory & Data Form, Kimley-Horn, 2020

Future performance targets for the pavement maintenance programs were set so that 100 percent of airports with paved primary runways, regardless of classification, would have a PMP. Three GA-Rural airports do not have paved runways and this is reflected in the future performance target of 95 percent system-wide. **Table 8.25** presents airports by classification with PMP needs to meet the future performance target.

Table 8.25. Airports by Classification That Should Adopt a PMP

Associated City	Airport Name	FAA ID	Action to Meet Future Performance Target: Adopt Pavement Maintenance Program
Commercial Service			
Cortez	Cortez Municipal	CEZ	✓
Pueblo	Pueblo Memorial	PUB	✓
GA-Local			
Boulder	Boulder Municipal	BDU	✓
Canon City	Fremont County	1V6	✓
Craig	Craig-Moffat	CAG	✓
Erie	Erie Municipal	EIK	✓
La Junta	La Junta Municipal	LHX	✓
GA-Community			
Holyoke	Holyoke	HEQ	✓
Las Animas	Las Animas-Bent County	7V9	✓
Monte Vista	Monte Vista Municipal	MVI	✓
Nucla	Hopkins Field	AIB	✓
Paonia	North Fork Valley	7V2	✓
Springfield	Springfield Municipal	8V7	✓
Wray	Wray Municipal	2V5	✓
Yuma	Yuma Municipal	2V6	✓
GA-Rural			
Brush	Brush Municipal	7V5	✓
Center	Leach	1V8	✓
Eads	Eads Municipal	9V7	✓
Julesburg	Julesburg Municipal	7V8	✓
La Veta	Cuchara Valley	07V	✓
Walden	Walden-Jackson County	33V	✓

Source: 2018 Inventory & Data Form; Kimley-Horn, 2020

To meet future performance targets, airports will need to document and adopt their own PMP.

8.1.4.3. Percent of airports with an Average Runway and/or Taxiway Pavement Condition Index (PCI) of 70 or Greater

The pavement condition index (PCI) rates the conditions of paved runways, taxiways, and aprons on a scale of zero (failed) to 100 (perfect/new). A pavement area with a PCI rating of 70 is considered to be in "satisfactory" condition. Per the FAA's AC 150/5380-7B, *Airport Pavement Management Program*, the FAA considers rehabilitating pavement once its PCI drops below 70 is four to five times more expensive than preserving it in "good" condition. **Table 8.26** summarizes the 2018 performance and

future system performance targets for airports with a combined average PCI rating of 70 or greater for primary runways and/or taxiways.

Table 8.26. Percent of Airports by Classification with an Average Runway and/or Taxiway PCI of 70 or Greater – 2018 Performance/Future Performance Targets

Airport Classification	2018 Performance	Future Performance Target
Commercial Service (14)	43%	100%
GA-National (2)	50%	100%
GA-Regional (5)	80%	100%
GA-Local (19)	68%	100%
GA-Community (16)	44%	100%
GA-Rural (10)*	0%	70%
System-wide (66)	**47%**	**95%**

Note: Three GA-Rural airports (30%) do not have paved runways, therefore, the PM does not apply.
Source: CDOT Division of Aeronautics Pavement Evaluation and Management, 2018, Kimley-Horn, 2020

The future performance targets for the runway/taxiway PCI PM were set so that 100 percent of airports with paved primary runways, regardless of classification, would have an average PCI of 70 or greater. **Table 8.27** documents primary runway and/or taxiway needs at CASP airports. Seven airports are denoted with an asterisk which indicates the airport has not implemented a PMP.

Table 8.27. Airports by Classification with Pavement Maintenance Needs

Associated City	Airport Name	FAA ID	Action to Meet Future Performance Target: Improve Average Runway and/or Taxiway PCI to 70 or Greater
Commercial Service			
Alamosa	San Luis Valley Regional	ALS	✓
Aspen	Aspen-Pitkin County	ASE	✓
Durango	Durango-La Plata County	DRO	✓
Eagle	Eagle County Regional	EGE	✓
Grand Junction	Grand Junction Regional	GJT	✓
Fort Collins/Loveland	Northern Colorado Regional	FNL	✓
Montrose	Montrose Regional	MTJ	✓
Pueblo	Pueblo Memorial	PUB	✓
GA-National			
Denver	Rocky Mountain Metropolitan	BJC	✓
GA-Regional			
Colorado Springs	Meadow Lake	FLY	✓
GA-Local			
Boulder	Boulder Municipal	BDU	✓

Associated City	Airport Name	FAA ID	Action to Meet Future Performance Target: Improve Average Runway and/or Taxiway PCI to 70 or Greater
Buena Vista	Central Colorado Regional	AEJ	✓
Craig*	Craig-Moffat	CAG	✓
Glenwood Springs	Glenwood Springs Municipal	GWS	✓
Kremmling	Mc Elroy Airfield	20V	✓
La Junta	La Junta Municipal	LHX	✓
GA-Community			
Akron	Colorado Plains Regional	AKO	✓
Creede	Mineral County Memorial	C24	✓
Holyoke	Holyoke	HEQ	✓
Las Animas*	Las Animas-Bent County	7V9	✓
Leadville	Lake County	LXV	✓
Monte Vista	Monte Vista Municipal	MVI	✓
Paonia	North Fork Valley	7V2	✓
Springfield*	Springfield Municipal	8V7	✓
Westcliffe	Silver West	C08	✓
GA-Rural			
Brush*	Brush Municipal	7V5	✓
Center	Leach	1V8	✓
Eads*	Eads Municipal	9V7	✓
Haxtun	Haxtun Municipal	17V	✓
Julesburg	Julesburg Municipal	7V8	✓
La Veta*	Cuchara Valley	07V	✓
Walden*	Walden-Jackson County	33V	✓

Note: Three GA-Rural airports (30%) do not have paved runways, therefore, the PM does not apply.
Source: CDOT Division of Aeronautics Pavement Evaluation and Management, 2018, Kimley-Horn, 2020

CDOT Division of Aeronautics currently monitors airport pavement surface for runways, taxiways, aprons, and helipads for all system airports across the state through their Pavement Evaluation and Management system. CDOT Division of Aeronautics should continue to monitor these pavement indicators to review airports whose needs are greatest to allocate appropriate funding resources towards pavement improvement projects.

8.1.5. Summary of Future PM Targets

The prior analyses of the existing system's ability to meet future PM targets summarizes the system's needs based on current conditions. To capitalize on the forecast of future demand which may impact certain PMs, additional analysis of future aviation performance was also conducted and is presented in **Section 8.3 Future Aviation Demand Considerations**.

8.2. Facility and Service Objective Needs

As mentioned in previous chapters of the 2020 CASP, facility and service objectives are designed to provide guidance on the minimum level of development that airports should strive to achieve based on their role or function within the system as determined through their classification. The facility and service objectives are not intended to be mandates or requirements, but recommended standards to help guide airports to optimally perform their roles within the system.

Chapter 5. Airport Role and Classification Analysis identified facility and service objectives for each 2020 CASP classification. **Chapter 6. Existing System Performance** and **Appendix B. Airport Report Cards** compared the facilities and services offered at 2020 CASP airports to the objectives established in **Chapter 5.** The deficiencies identified in Chapter 6, and more directly as "No's" in Appendix B, result in future (near-term) system needs and are further discussed in **Chapter 10**.

8.3. Future Aviation Demand Considerations

Utilizing data derived from CASP forecasts, aviation demand is projected to continue to grow at airports throughout the system. As aviation activity grows, it is important to consider the potential impacts this growth may have on the system's future performance. This section assesses how different components of forecasted aviation activity may influence the form and function of future CASP airport needs.

8.3.1. Airport Reference Code (ARC) Analysis

As defined in FAA Advisory Circular 150/5300-13A, *Airport Design*, the FAA classifies airports by an Airport Reference Code (ARC) which subsequently prescribes the overall planning and design criteria for those airports. The ARC is based on the airport's highest Runway Design Code (RDC), minus the visibility component. The RDC is based on the size and operational characteristics of the most demanding aircraft that generally records at least 500 annual operations at the airport. This is referred to as the airport's critical or design aircraft. Critical or design aircraft can refer to either a specific aircraft model or a grouping of aircraft with similar characteristics considered collectively.

The ARC and RDC classification system is based on groupings of aircraft types relative to their operating performance and geometric characteristics. It is comprised of an alpha-numeric identifier representing the Aircraft Approach Category (AAC) and the Aircraft Design Group (ADG). The AAC reflects the approach speed of the aircraft, and the ADG reflects the aircraft's wingspan and tail height. (The third component of RDC is the approach visibility minimums associated with the type of instrument flight visibility in terms of runway visual range [RVR] or by statute mile.) The ARC components are summarized in **Table 8.28**. It should be noted that both airports and aircraft can be referred to by their ARCs.

Aircraft with approach speeds in categories A and B are typically smaller piston-engine aircraft, whereas C, D, and E are normally larger turboprop or turbine-powered aircraft. Similarly, the wingspan and tail height of small, piston-engine aircraft normally correspond to design group I. Typical aircraft in design group II include a Beechcraft King Air, Cessna Citation, or smaller Gulfstream business jets. Design group III includes larger corporate jets such as the Gulfstream G500/550 and air carrier aircraft such as the DeHavilland Dash-8 and Boeing B-737. Design group IV and V represent larger narrow- and

wide- body air carrier aircraft such as the Boeing B-757 and B-747, respectively. Group VI includes the largest aircraft, such as an Airbus A-380 or a C-5 military transport aircraft.

Table 8.28. FAA Aircraft Categories and Design Standards

AAC		ADG		
Category	Approach Speed (knots)	Group	Wingspan (feet)	Tail Height (feet)
A	Less than 91	I	Less than 49	Less than 20
B	91 to 120	II	49 to 78	21 to 29
C	121 to 140	III	79 to 117	30 to 44
D	141 to 165	IV	118 to 170	45 to 59
E	166 or Greater	V	171 to 213	60 to 65
		VI	214 up to but less than 262	66 up to but less than 80

Source: FAA Advisory Circular 150/5300, Change 1, Airport Design

CASP ARCs compiled during the inventory effort were compared to the AACs and ADGs of the most demanding aircraft regularly operating at each airport for the purpose of identifying potential future design standard concerns. Ideally, the airport's ARC should generally match the critical aircraft's AAC and ADG combination.

Operations data for each airport was pulled from the FAA's Traffic Flow Management System Counts (TFMSC) for operations conducted between July 2018 through July 2019. TFMSC data includes information such as operations by aircraft type (turboprop, piston, and jet), AAC, and ADG. The airports' current ARC designations were compared to results of the TFMSC data analysis to determine if current ARCs match the AAC and ADG of the most demanding, regularly-operating aircraft. Aircraft with a maximum takeoff weight (MTOW) of 12,500 pounds (lbs.) or more that performed more than 500 operations at an airport were also identified in the analysis. Aircraft with a MTOW of 12,500 lbs. or greater are considered "large aircraft" and are subject to additional design standard considerations.

Table 8.29 presents each airport's current ARC designation, the most common aircraft ARC experienced at each airport, and the largest aircraft that conducted more than 500 operations with a MTOW of 12,500 lbs. or greater. Airports that did not have TFMSC data available are denoted with "N/A" in the "Most Common ARC" column. Blank entries in the table represent airports that did not meet the criteria established in the column header. For the analysis, airports whose ARCs are lower than the most demanding aircraft's AAC and/or ADG are highlighted in red.

Table 8.29. ARC Analysis for System Airports

Associated City	Airport Name	FAA ID	Current ARC Designation	Most Common Aircraft ARC	Largest Aircraft ARC with Over 500 Operations and MTOW ≥12,500 lbs.
Commercial Service					
Alamosa	San Luis Valley Regional	ALS	C-II	B-I	
Aspen	Aspen-Pitkin County	ASE	D-III	B-II	D-II
Colorado Springs	Colorado Springs Municipal	COS	C-IV	B-II	D-III
Cortez	Cortez Municipal	CEZ	B-II	A-II	
Denver	Denver International	DEN	D-V	C-III	D-V
Durango	Durango-La Plata County	DRO	D-IV	B-II	C-III
Eagle	Eagle County Regional	EGE	D-IV	B-II	C-III
Fort Collins/Loveland	Northern Colorado Regional	FNL	C-III	B-II	C-II
Grand Junction	Grand Junction Regional	GJT	D-III	B-II	C-III
Gunnison	Gunnison-Crested Butte Regional	GUC	C-IV	B-II	C-II
Hayden	Yampa Valley	HDN	C-IV	B-II	C-II
Montrose	Montrose Regional	MTJ	D-IV	B-II	C-III
Pueblo	Pueblo Memorial	PUB	C-III	B-II	C-II
Telluride	Telluride Regional	TEX	C-III	B-II	B-II
GA-National					
Denver	Centennial	APA	D-III	B-II	D-II
Denver	Rocky Mountain Metropolitan	BJC	C-II	B-II	C-II
GA-Regional					
Colorado Springs	Meadow Lake	FLY	B-I	A-I	
Denver	Colorado Air and Space Port	CFO	C-II	A-I	
Greeley	Greeley-Weld County	GXY	C-II	A-I	
Longmont	Vance Brand	LMO	B-II	A-I	
Rifle	Rifle Garfield County	RIL	D-II	B-II	C-II

Associated City	Airport Name	FAA ID	Current ARC Designation	Most Common Aircraft ARC	Largest Aircraft ARC with Over 500 Operations and MTOW ≥12,500 lbs.
GA-Local					
Boulder	Boulder Municipal	BDU	B-II	A-I	
Buena Vista	Central Colorado Regional	AEJ	B-II	A-I	
Burlington	Kit Carson County	ITR	B-II	B-I	
Canon City	Fremont County	1V6	B-II	A-I	
Craig	Craig-Moffat	CAG	B-II	A-II	
Del Norte*	Astronaut Kent Rominger	RCV	B-II	N/A	
Delta*	Blake Field	AJZ	B-II	N/A	
Erie	Erie Municipal	EIK	B-I	A-I	
Fort Morgan*	Fort Morgan Municipal	FMM	B-II	N/A	
Glenwood Springs	Glenwood Springs Municipal	GWS	B-II	A-I	
Kremmling	Mc Elroy Airfield	20V	B-II	B-II	
La Junta	La Junta Municipal	LHX	B-II	A-I	
Lamar	Lamar Municipal	LAA	B-II	B-II	
Limon	Limon Municipal	LIC	B-I	A-I	
Pagosa Springs	Stevens Field	PSO	C-II	B-II	B-II
Salida*	Harriet Alexander Field	ANK	B-II	N/A	
Steamboat Springs	Steamboat Springs	SBS	B-II	A-I	
Sterling	Sterling Municipal	STK	B-II	A-I	
Walsenburg	Spanish Peaks Airfield	4V1	B-I	A-I	
GA-Community					
Akron	Colorado Plains Regional	AKO	B-II	A-I	
Creede	Mineral County Memorial	C24	B-I	B-II	
Granby	Granby-Grand County	GNB	B-II	A-I	
Holyoke	Holyoke	HEQ	B-II	B-II	
Las Animas*	Las Animas-Bent County	7V9	B-I	N/A	

Associated City	Airport Name	FAA ID	Current ARC Designation	Most Common Aircraft ARC	Largest Aircraft ARC with Over 500 Operations and MTOW ≥12,500 lbs.
Leadville	Lake County	LXV	B-II	B-II	
Meeker	Meeker/Coulter Field	EEO	B-II	B-II	
Monte Vista	Monte Vista Municipal	MVI	B-I	A-I	
Nucla*	Hopkins Field	AIB	B-II	N/A	
Paonia	North Fork Valley	7V2	A-I	A-II	
Rangely	Rangely	4V0	B-II	A-I	
Springfield	Springfield Municipal	8V7	B-I	A-I	
Trinidad	Perry Stokes	TAD	B-II	A-I	
Westcliffe	Silver West	C08	B-I	A-I	
Wray	Wray Municipal	2V5	B-II	A-I	
Yuma	Yuma Municipal	2V6	B-II	A-I	
GA-Rural					
Blanca	Blanca	05V	A-I	A-I	
Brush	Brush Municipal	7V5	B-I	B-I	
Center	Leach	1V8	A-I	A-I	
Eads	Eads Municipal	9V7	A-I	A-I	
Holly*	Holly	K08	A-I	N/A	
Haxtun	Haxtun Municipal	17V	A-I	B-II	
Julesburg	Julesburg Municipal	7V8	B-I	A-I	
La Veta	Cuchara Valley	07V	A-I	A-I	
Saguache*	Saguache Municipal	04V	B-II	N/A	
Walden	Walden-Jackson County	33V	B-II	B-II	

**Airport did not have TFMSC data between July 2018 and July 2019*

Sources: TFMSC Reports, retrieved September 6, 2019; 2018 Inventory & Data Form; Kimley-Horn, 2020

Based on this evaluation, Colorado Springs (COS), Mineral County Memorial (C24), Haxtun Municipal (17V), and North Fork Valley (4V0) experience 500 or more operations of aircraft with an AAC and/or ADG that is greater than the current airport ARC.

Eighteen airports had aircraft within a single ARC that conducted more than 500 operations with a MTOW or 12,500 lbs. or more. Of these, two have a current airport ARC designation that matches the aircraft within a single ARC that meet the criteria and 15 that have airport ARC designations considered higher than the aircraft within a single ARC that meet the criteria.

One airport, COS had a current ARC designation (C-IV) considered lower than the most demanding aircraft within a single ARC (D-III) for their airport. COS should evaluate the ARC through a master planning or airport layout plan (ALP) update to determine if the primary runway's RDC should change and ascertain the impact to the airport's geometry to meet design standards.[4]

8.3.2. Airfield Capacity Analysis

Determining the airfield capacity of an airport lends insight to the number of operations an airport can handle based on the design, airside facilities, types of aircraft served, average weather conditions, etc. without incurring substantial delay to the operators. Annual service volume (ASV) is a planning estimate of the maximum number of annual operations that an airport can reasonably accommodate in a year. An ASV analysis is a high-level tool that provides a starting point for determining potential capacity needs that require further study. The ASVs for each airport were calculated in **Chapter 6. Existing System Performance** to identify potential airfield capacity issues in comparison to 2018 FAA-reported operations.

Per FAA Order 5090.5, *Formulation of NPIAS and ACIP*, the FAA recommends that planning for developments to increase capacity should be initiated once annual operations reach 60 percent of an airport's ASV. Airports with annual operations at or above this threshold may begin to experience operational delays and airfield congestion. Airports should initiate capacity improvement construction once the airport's ASV exceeds the 80 percent threshold.

The total operations for 2018 and 2038 from **Chapter 7. Aviation Demand Forecasts** were used in conjunction with the previously developed ASVs to identify current and potential future capacity issues. **Table 8.30** demonstrates the 2018 and 2038 operations for each airport compared to their calculated 2018 ASVs. Airports whose annual operations are between 60 and 79 percent of their ASV are highlighted in orange. Airports whose annual operations are at or above 80 percent of their ASV are highlighted in red.

[4] City of Colorado Springs. *Colorado Springs Airport Master Plan Update*. 2013. Available online at https://coloradosprings.gov/flycos/cos-airport-master-plan-update

Table 8.30. 2020 CASP ASVs Based on 2018 and 2038 Operational Demand

Associated City	Airport Name	FAA ID	Annual Service Volume (ASV)	CASP 2018 Operations	CASP 2018 Operations % of ASV	CASP 2038 Operations	CASP 2038 Operations % of ASV
Commercial Service							
Alamosa	San Luis Valley Regional	ALS	156,400	5,718	3.7%	7,419	4.7%
Aspen	Aspen-Pitkin County	ASE	151,000	42,222	28.0%	62,154	41.2%
Colorado Springs	Colorado Springs Municipal	COS	340,000	137,273	40.4%	193,703	57.0%
Cortez	Cortez Municipal	CEZ	154,000	9,834	6.4%	10,540	6.8%
Denver	Denver International	DEN	730,500	594,522	81.4%	901,772	123.4%
Durango	Durango-La Plata County	DRO	195,000	30,190	15.5%	47,450	24.3%
Eagle	Eagle County Regional	EGE	166,700	40,419	24.2%	60,582	36.3%
Fort Collins/Loveland	Northern Colorado Regional	FNL	170,700	96,008	56.2%	152,004	89.0%
Grand Junction	Grand Junction Regional	GJT	200,000	46,317	23.2%	71,454	35.7%
Gunnison	Gunnison-Crested Butte Regional	GUC	122,000	6,929	5.7%	10,599	8.7%
Hayden	Yampa Valley	HDN	140,300	14,323	10.2%	19,615	14.0%
Montrose	Montrose Regional	MTJ	215,000	30,925	14.4%	50,277	23.4%
Pueblo	Pueblo Memorial	PUB	378,000	196,074	51.9%	210,004	55.6%
Telluride	Telluride Regional	TEX	137,700	9,402	6.8%	15,089	11.0%
GA-National							
Denver	Centennial	APA	525,000	340,721	64.9%	588,093	112.0%
Denver	Rocky Mountain Metropolitan	BJC	285,000	171,262	60.1%	243,039	85.3%
GA-Regional							
Colorado Springs	Meadow Lake	FLY	230,000	65,814	28.6%	66,743	29.0%
Denver	Colorado Air and Space Port	CFO	270,000	79,704	29.5%	112,757	41.8%
Greeley	Greeley-Weld County	GXY	260,000	123,721	47.6%	176,552	67.9%
Longmont	Vance Brand	LMO	230,000	72,939	31.7%	78,966	34.3%

Associated City	Airport Name	FAA ID	Annual Service Volume (ASV)	CASP 2018 Operations	CASP 2018 Operations % of ASV	CASP 2038 Operations	CASP 2038 Operations % of ASV
Rifle	Rifle Garfield County	RIL	210,000	14,561	6.9%	25,274	12.0%
GA-Local							
Boulder	Boulder Municipal	BDU	152,600	51,358	33.7%	55,627	36.5%
Buena Vista	Central Colorado Regional	AEJ	145,100	10,000	6.9%	10,820	7.5%
Burlington	Kit Carson County	ITR	137,200	8,000	5.8%	8,658	6.3%
Canon City	Fremont County	1V6	175,800	13,778	10.0%	14,792	10.7%
Craig	Craig-Moffat	CAG	137,700	12,000	8.7%	12,997	9.4%
Del Norte	Astronaut Kent Rominger	RCV	122,200	5,475	4.5%	19,496	16.0%
Delta	Blake Field	AJZ	139,600	2,910	2.1%	3,152	2.3%
Erie	Erie Municipal Airport	EIK	141,500	52,000	36.7%	53,050	37.5%
Fort Morgan	Fort Morgan Municipal	FMM	118,700	10,000	8.4%	10,815	9.1%
Glenwood Springs	Glenwood Springs Municipal	GWS	87,900	22,020	25.1%	23,850	27.1%
Kremmling	Mc Elroy Airfield	20V	142,900	1,831	1.3%	1,983	1.4%
La Junta	La Junta Municipal	LHX	97,900	9,258	9.5%	10,002	10.2%
Lamar	Lamar Municipal	LAA	116,500	3,399	2.9%	3,664	3.1%
Limon	Limon Municipal	LIC	102,500	6,000	5.9%	6,120	6.0%
Pagosa Springs	Stevens Field	PSO	162,000	17,053	10.5%	24,043	14.8%
Salida	Harriet Alexander Field	ANK	90,900	4,053	4.5%	4,383	4.8%
Steamboat Springs	Steamboat Springs	SBS	75,900	11,112	14.6%	12,035	15.9%
Sterling	Sterling Municipal	STK	138,100	2,176	1.6%	2,354	1.7%
Walsenburg	Spanish Peaks Airfield	4V1	100,500	5,000	5.0%	5,101	5.1%
GA-Community							
Akron	Colorado Plains Regional	AKO	130,100	20,500	15.8%	22,121	17.0%
Creede	Mineral County Memorial	C24	77,100	1,439	1.9%	1,468	1.9%

Associated City	Airport Name	FAA ID	Annual Service Volume (ASV)	CASP 2018 Operations	CASP 2018 Operations % of ASV	CASP 2038 Operations	CASP 2038 Operations % of ASV
Granby	Granby-Grand County	GNB	230,000	2,600	1.1%	2,816	1.2%
Holyoke	Holyoke	HEQ	139,600	8,500	6.1%	9,206	6.6%
Las Animas	Las Animas-Bent County	7V9	89,000	856	1.0%	873	1.0%
Leadville	Lake County	LXV	136,900	5,000	3.7%	5,249	3.8%
Meeker	Meeker/Coulter Field	EEO	143,000	8,070	5.6%	8,739	6.1%
Monte Vista	Monte Vista Municipal	MVI	111,900	6,000	5.4%	6,121	5.5%
Nucla	Hopkins Field	AIB	103,600	4,220	4.1%	4,563	4.4%
Paonia	North Fork Valley	7V2	89,000	2,000	2.2%	2,040	2.3%
Rangely	Rangely	4V0	153,400	47,115	30.7%	51,030	33.3%
Springfield	Springfield Municipal	8V7	136,100	4,575	3.4%	4,667	3.4%
Trinidad	Perry Stokes	TAD	116,500	5,880	5.0%	6,319	5.4%
Westcliffe	Silver West	C08	79,000	930	1.2%	946	1.2%
Wray	Wray Municipal	2V5	139,600	14,600	10.5%	15,813	11.3%
Yuma	Yuma Municipal	2V6	104,900	5,000	4.8%	5,416	5.2%
GA-Rural							
Blanca	Blanca	05V	74,400	1,000	1.3%	1,020	1.4%
Brush	Brush Municipal	7V5	74,400	1,461	2.0%	1,490	2.0%
Center	Leach	1V8	109,800	833	0.0%	850	1.1%
Eads	Eads Municipal	9V7	74,400	728	1.0%	742	1.0%
Haxtun	Haxtun Municipal	17V	117,300	90	0.1%	92	0.1%
Holly	Holly	K08	87,900	1,085	1.2%	1,107	1.3%
Julesburg	Julesburg Municipal	7V8	89,000	312	0.4%	318	0.4%
La Veta	Cuchara Valley	07V	102,500	50	0.0%	50	0.0%
Saguache	Saguache Municipal	04V	74,400	72	0.0%	73	0.0%
Walden	Walden-Jackson County	33V	105,400	1,103	1.0%	1,194	1.1%

Sources: FAA TAF, pulled March 2019; 2018 Inventory & Data Form, Kimley-Horn, 2020

By 2038, Greeley-Weld County (GXY) is projected to exceed the planning threshold for capacity and in the same timeframe, four airports (DEN, FNL, APA, and BJC) are anticipated to exceed the 80 percent capacity improvement construction threshold. Pueblo Memorial (PUB) and COS are anticipated to have annual operations within 10 percent of reaching the 60 percent ASV planning threshold in 2038.

8.3.2.1. Sensitivity Analysis

Aviation activity is anticipated to grow over the next 20 years according to the findings in **Chapter 7. Aviation Demand Forecasts**. Since a large portion of the growth is anticipated at the airports who already experience some of the highest activity levels, a high-level examination of airports with at least 75,000 annual operations was performed to determine the impact on these airports. **Table 8.31** displays the airports with annual operations exceeding 75,000 in 2018 and/or projected to exceed 75,000 operations in 2038.

Table 8.31. Airports with Over 75,000 Annual Operations in 2018 or Projected by 2038

Associated City	Airport Name	FAA ID	Historical	Projected
			CASP 2018 Operations	CASP 2038 Operations
Commercial Service				
Colorado Springs	Colorado Springs Municipal	COS	137,273	193,703
Denver	Denver International	DEN	594,522	901,772
Fort Collins/Loveland	Northern Colorado Regional	FNL	96,008	152,004
Pueblo	Pueblo Memorial	PUB	196,074	210,004
General Aviation				
Denver	Centennial	APA	340,721	588,093
Denver	Colorado Air and Space Port	CFO	79,704	112,757
Denver	Rocky Mountain Metropolitan	BJC	171,262	243,039
Greeley	Greeley-Weld County	GXY	123,721	176,552
Longmont	Vance Brand	LMO	72,939	78,966

Sources: FAA TAF, pulled March 2019; 2018 Inventory & Data Form; Kimley-Horn, 2020

According to the FAA, delays cost airlines and passengers billions of dollars annually. For each hour of delay, the cost to the airline is estimated to be between $1,400 to $4,500 and between $35 to $63 to the passenger[5]. Currently, there are eight airports in Colorado's aviation system that conducted over 75,000 annual operations in 2018. In addition, according to the findings derived from **Chapter 7. Aviation Demand Forecasts**, Vance Brand (LMO) is projected to have annual operations that will exceed 75,000 in 2038.

Five airports (APA, BJC, DEN, FNL, and GXY) were identified as having total annual operations that may exceed the 60 percent threshold for ASV by 2038. With three of these airports in the Denver metropolitan area, it appears that a regional look at operational capacity needs would be helpful in determining more precisely the type of capacity concerns and what options might be available to

[5] FAA "Fact Sheet – Facts about the FAA and Air Traffic Control", August 20, 2019

address capacity constraints within the region. Beyond the regional evaluation, CDOT Division of Aeronautics should consider working with all of the airports with identified potential capacity concerns to undertake a more in-depth study of demand/capacity to determine more closely the steps each airport needs to take for capacity improvements.

8.3.3. Future NPIAS and ASSET Evaluation

This section evaluates potential changes to the National Plan of Integrated Airport Systems (NPIAS) and the general aviation (GA) ASSET classifications for airports in the Colorado aviation system. As previously discussed in **Chapter 5. Airport Role and Classification Analysis**, 49 Colorado system airports have been included in the NPIAS as part of the FAA's latest publication, *The Report to Congress, NPIAS 2019-2023 (2019-2023 NPIAS)*. Although NPIAS airports are assumed to continue to meet eligibility requirements through the planning horizon, this section analyzes potential changes in NPIAS status and ASSET classification for CASP airports based upon the 2038 forecasts established in Chapter 7.

8.3.3.1. Eligibility Criteria for NPIAS Airports

The FAA has established a set of criteria to determine if the facility is eligible for entry into the NPIAS through FAA Order 5090.5, *Formulation of the NPIAS and ACIP*, which cancels FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)* and FAA Order 5100.39A, *Airports Capital Improvement Plan*. FAA Order 5090.5 brings about key updates to eligibility requirements for airports requesting entry into, or withdrawal from, the NPIAS and defines a GA airport as "a public-use airport that is located in a state and that, as determined by the Secretary, does not have scheduled service or has scheduled service with less than 2,500 passenger boardings each year" which was not included in previous Orders. Additionally, FAA Order 5090.5 includes revisions to the National Priority System (NPS) equation, which determines the prioritization of airport development, to include the airport's role in the national airport system[6].

Airports are divided into two separate categories: Commercial Service and GA. Eligibility criteria differs for each category and are presented below:

An **existing Commercial Service** airport must meet the following criteria:

- Publicly-owned, publicly accessible airport that receives scheduled air carrier service and annually enplanes 2,500 or more passengers

An **existing GA** airport must meet the following criteria:

- Operated by a sponsor eligible to receive federal funds and meet [grant] obligations
- Used by 10 or more operational and airworthy aircraft based at the airport. The aircraft tail numbers must be provided and validated against the FAA Aircraft Registry.
- Located at least 30 miles from the nearest NPIAS airport. The 30-mile calculation must consider all existing NPIAS airports within a 30-mile radius, even if it is in an adjacent state.

[6] FAA (September 3, 2019). Order 5090.5, *Formulation of the NPIAS and the ACIP*. Available online at https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.current/documentNumber/5090.5 (accessed December 2019)

- Demonstrates an identifiable role in the national system (such as Basic, Local, Regional, or National)
- Included in a state or territory aviation system plan with a role similar to the federal role, and recommended by the airport's state or territory aviation authority to be part of the NPIAS
- A review by the FAA finds no significant airfield design standard deficiencies, compliance violations, or wetland or wildlife issues

An existing **publicly-owned, public-use heliport** may be considered for inclusion if it is deemed to provide a significant contribution to public transportation and meets the following criteria:

- Operated by a sponsor eligible to receive federal fund and meet obligations
- Used by four or more operational and airworthy rotorcraft based at the heliport for at least two years prior to this request and 400 annual IFR flights
- Included in the state airport system plan (such as the 2020 CASP)

A **proposed Commercial Service or GA airport** must meet the applicable eligibility criteria listed above and meet the following additional requirements:

- Demonstrates how it will meet the operational activity required [for its proposed role] within the first five years of operations through a forecast validated by the FAA (The operational activity cannot be based on attracting demand from other airports, unless there is safety or standard deficiencies at these other airports)
- Provides enhanced facilities that will accommodate the current aviation activity and improve functionality as well as provide room for future development based on imminent justified demand
- Shows a benefit-cost analysis rating of 1.0 or more (Information on when and how to conduct a benefit-cost analysis is in FAA Order 5100.38, *Airport Improvement Program Handbook*, and FAA Airport Benefit-Cost Analysis Guidance)
- Presents a detailed financial plan for the proposed airport to accomplish its construction and ongoing maintenance
- Level of local support/consensus is adequate to achieve the development of the new airport

A proposed GA airport that does not meet all of these criteria may be considered for inclusion using a special justification as listed under the GA airport eligibility requirements above.

In addition to these specific eligibility requirements, FAA Order 5090.5 provides a number of considerations the FAA employs when reviewing NPIAS entry requests. These considerations pertain to the airport's level of financial self-reliance, the airport sponsor's ability and willingness to support the airport, current design standard deficiencies or other potential federal compliance issues (e.g., non-aeronautical activity on airport property), and the airport's role in meeting current and project future aviation demands. Additional details about these factors are available in Table 3.4 of FAA Order 5090.5.

8.3.3.2. NPIAS Evaluation

In reference to **Chapter 5. Airport Role and Classification Analysis**, 49 of the 66 CASP airports met the eligibility requirements for inclusion into the *2019-2023 NPIAS*. These airports were deemed as

important to the national airport system and contributed integral aviation services or facilities to the nation's aviation system. Nine of the 49 airports were designated as Primary airports and were then subcategorized into Large, Medium, Small, and Nonhub dependent upon their share of total U.S. enplanements. The remaining 40 airports were designated as Nonprimary and subcategorized into Commercial Service, Reliever, and General Aviation airports.

Due to historical activity and anticipated changes, 14 Colorado system airports were identified as Commercial Service for the purposes of the 2020 CASP. As noted, nine are Primary Commercial Service and five are Nonprimary airports. Nonprimary airports include Nonprimary Commercial Service (those airports with enplanements between 2,500 and 10,000 per year) and Nonprimary General Aviation airports. The Colorado Nonprimary Commercial Service airports include:

- San Luis Valley Regional (ALS)
- Cortez Municipal (CEZ)
- Northern Colorado Regional (FNL)

Other airports with scheduled commercial service but with less than 2,500 annual enplanements are classified as Nonprimary General Aviation. These include PUB and Telluride Regional (TEX). All Nonprimary airports are included in FAA's ASSET with classifications based on meeting the criteria. More information about airport role and classification for the 2020 CASP can be found in Chapter 5. Analysis of potential changes based on 2018 data are summarized below in Section **8.3.3.3**.

In the first ASSET study released in 2012, Colorado was identified as having 38 GA NPIAS airports. In the 2019-2023 NPIAS, the number of NPIAS GA airports increased to 40 due to PUB and FNL's re-classification from Commercial Service to Nonprimary since the first ASSET study. The classifications from the ASSET study and the current 2019-2023 NPIAS report are reflected in Error! Reference source not found..

Table 8.32. Colorado Airports ASSET Categories

ASSET Category	ASSET CLASSIFICATION		2020 CASP Airport Examples
	A National ASSET (2012) Study	*2019-2023 NPIAS* Report	
National	2	2	Centennial (APA) Rocky Mountain Metropolitan (BJC)
Regional	2	7	Meadow Lake (FLY) Colorado Air and Space Port (CFO)
Local	27	20	Boulder Municipal (BDU) Blake Field (AJZ)
Basic	7	11	Colorado Plains Regional (AKO) Meeker/Coulter Field (EEO)

Sources: FAA 2019-2023 NPIAS, General Aviation Airports: A National ASSET (2012), Kimley-Horn, 2020

Table 8.33 summarizes the remaining 17 publicly-owned, non-NPIAS airports and their ability to meet the NPIAS eligibility criteria based on 2018 aviation activity data. Airports that have checkmarks meet the eligibility requirement in the column. The airports highlighted in **green** represent those that meet all of the criteria.

Table 8.33. CASP Non-NPIAS Publicly Owned Airports – NPIAS Eligibility Criteria & Analysis Results

Associated City	Airport Name	FAA ID	Sponsor-Operated	Has at Least 10 Based Aircraft	30+ Miles from NPIAS Airport	Identifiable Role in the NPIAS	Included in the CASP
Blanca	Blanca	05V	✓			✓	✓
Brush	Brush Municipal	7V5	✓			✓	✓
Center	Leach	1V8	✓			✓	✓
Creede	Mineral County Memorial	C24	✓	✓	✓	✓	✓
Del Norte	Astronaut Kent Rominger	RCV	✓	✓		✓	✓
Eads	Eads Municipal	9V7	✓			✓	✓
Glenwood Springs	Glenwood Springs Municipal	GWS	✓	✓		✓	✓
Haxtun	Haxtun Municipal	17V	✓			✓	✓
Holly	Holly	K08	✓		✓	✓	✓
Julesburg	Julesburg Municipal	7V8	✓			✓	✓
La Veta	Cuchara Valley	07V	✓			✓	✓
Las Animas	Las Animas-Bent County	7V9	✓	✓		✓	✓
Paonia	North Fork Valley	7V2	✓	✓		✓	✓
Saguache	Saguache Municipal	04V	✓		✓	✓	✓
Springfield	Springfield Municipal	8V7	✓	✓	✓	✓	✓
Walden	Walden-Jackson County	33V	✓		✓	✓	✓
Westcliffe	Silver West	C08	✓	✓	✓	✓	✓

Sources: FAA 2019-2023 NPIAS; Kimley-Horn, 2020

Based on 2018 data used in the Chapter 7 forecasts for aviation activity, two airports appear eligible for consideration for inclusion into future NPIAS reports:

- Mineral County Memorial (C24)
- Springfield Municipal (8V7)

Before moving forward with NPIAS consideration, CDOT Division of Aeronautics would need to work closely with each airport for the public sponsor to understand the implications and needs associated with becoming a NPIAS airport, including the pros and cons, as well as with the FAA.

8.3.3.3. ASSET Evaluation

As part of the 2019-2023 NPIAS update, the FAA reviewed 2016 airport data to evaluate if any changes to ASSET classifications were warranted based on more recent information. Given that the data timeframe is dissimilar to the 2020 CASP, evaluation of potential changes in ASSET categories was conducted to determine if any airports would change categories based on updated airport activity data from 2018.

During this review, six airports were found to have enough airport activity to be re-categorized during the next NPIAS update assuming the activity in 2018 continues to hold into 2019. **Table 8.34** summarizes the airports in Colorado that warrant a potential change in NPIAS and/or ASSET classification based on 2018 airport data. It should be noted that the non-NPIAS airports (Astronaut Kent Rominger [RCV], Glenwood Springs [GWS], Las Animas-Bent County [7V9], and North Fork Valley [7V2]) will not be evaluated and assigned an ASSET classification until such time that they are officially adopted in the NPIAS.

Table 8.34. Potential Changes to CASP Airport ASSET Classifications

Associated City	Airport Name	FAA ID	ASSET Classification	
			2016	2018
Del Norte	Astronaut Kent Rominger	RCV	N/A	Local
Glenwood Springs	Glenwood Springs Municipal	GWS	N/A	Local
Las Animas	Las Animas-Bent County	7V9	N/A	Basic
Paonia	North Fork Valley	7V2	N/A	Local
Pueblo	Pueblo Memorial	PUB	Regional	N/A*
Walsenburg	Spanish Peaks Airfield	4V1	Basic	Local

Note: PUB had over 10,000 enplanements in 2018 which should qualify the airport for Primary nonhub status and therefore would not have an associated ASSET classification.*

Sources: FAA 2019-2023 NPIAS, General Aviation Airports: A National ASSET (2012), Kimley-Horn, 2020

Per the NPIAS evaluation using 2018 airport data, four airports may be eligible for inclusion in future NPIAS reports and were not previously given an ASSET classification. These airports were evaluated and assigned an ASSET classification pending possible future NPIAS status (see **Table 8.34**). Spanish Peaks Airfield (4V1), a Nonprimary General Aviation airport, was identified as having increased airport activity to warrant a change in ASSET classification from Basic to Local. PUB was noted to have sufficient enplanements in 2018 to warrant moving to Primary airport status, therefore it would no longer have an ASSET classification. It should be noted that ALS, CEZ, and FNL will also remain

Nonprimary Commercial Service and are likely to maintain their ASSET classifications of Local (ALS and CEZ) and Regional (FNL). TEX is anticipated to remain Nonprimary GA with a classification of Local.

8.3.4. Existing and Future Facility Needs

Future facility requirements continue to build upon the forecasts of aviation demand conducted in Chapter 7. This section explores potential facility needs to improve airports' capacities in adequately accommodating future demand as they relate to a number of different CASP PMs and facility and service objectives. Future performance targets for related PMs are detailed in following sections of this chapter. **Tables 8.8** and **Table 8.9** in this section detail only the airports that are not currently meeting 2018 demand and/or 2038 demand based upon their existing facilities. Airports that meet their current and future needs are not shown in the following tables. Additionally, airports whose facility and service objectives are established as "Based on Community Need" are not shown in these tables as they are not considered to be deficient in their facilities towards meeting their objectives.

8.3.4.1. GA Terminal Capacity Needs

Commercial Service and GA terminal facilities were analyzed in **Chapter 6. Existing System Performance** to evaluate the adequacy of passenger terminal sizes and amenities. Existing terminal capacity was analyzed in the PM "Percent of Airports with Adequate Terminal Capacity" and through the 2020 CASP facility and service objectives for terminal facility needs. The terminal needs analyses in Chapter 6 were three-fold:

- Measured terminal capacity specifically at commercial service terminals using high-level, terminal building minimum square footage calculations based on number of gates available in 2018
- Measured GA-specific terminals at all airports using size calculations based on the peak number of passengers
- Measured terminal amenities based on facility and service objectives for all airport classifications (excluding Commercial Service and GA-National airports)[7]

Future terminal needs specific to GA terminal building sizes were examined in this analysis utilizing 2038 forecast data reported in **Chapter 7. Aviation Demand Forecasts**. It should be noted that future commercial service terminal size needs were not estimated because the needs are based on the number of gates available at each airport and future number of gates over the planning horizon are unknown. Commercial Service airports should evaluate future terminal size needs based on the forecasts identified in their master plans. Future GA terminal size requirements were determined using the same methodology employed in Chapter 6, but using 2038 GA operational forecasts for each airport

Table 8.35 documents 2020 CASP airports with GA terminal size needs in 2018 and/or 2038. A blank cell for 2018 indicates the existing GA terminal building is adequately sized based on 2018 demand. Airports without an existing GA terminal building are denoted with an asterisk.

[7] Commercial Service and GA-National airports facility and service objectives were based on an acceptable level of terminal square footage to passenger enplanements and commercial operations rather types of amenities available to the airport user.

Table 8.35. GA Terminal Buildings Size Needs by Classification Based on Forecasted Demand Through 2038

Associated City	Airport Name	FAA ID	2018 Terminal Size Deficiency (Sq. ft.)	2038 Terminal Size Deficiency (Sq. ft.)
Commercial Service				
Fort Collins/Loveland	Northern Colorado Regional	FNL	-9,000	-16,000
Montrose	Montrose Regional	MTJ		-660
Telluride	Telluride Regional	TEX		-400
GA-National				
Denver	Centennial	APA		-12,800
Denver	Rocky Mountain Metropolitan	BJC		-4,900
GA-Regional				
Denver	Colorado Air and Space Port	CFO	-100	-4,300
Greeley	Greeley-Weld County	GXY	-9,400	-16,000
Longmont	Vance Brand	LMO	-7,100	-7,800
GA-Local				
Craig	Craig-Moffat	CAG		-100
Del Norte	Astronaut Kent Rominger*	RCV	-700	-700
Glenwood Springs	Glenwood Springs Municipal*	GWS	-2,800	-3,000
Limon	Limon Municipal	LIC	-200	-300
Pagosa Springs	Stevens Field	PSO	-500	-1,400
GA-Community				
Akron	Colorado Plains Regional	AKO	-900	-1,100
Creede	Mineral County Memorial	C24	-100	-100
Holyoke	Holyoke	HEQ	-600	-700
Las Animas	Las Animas-Bent County*	7V9	-150	-150
Meeker	Meeker/Coulter Field	EEO		-100
Paonia	North Fork Valley*	7V2	-150	-300
Rangely	Rangely	4V0	-3,600	-4,100

Associated City	Airport Name	FAA ID	2018 Terminal Size Deficiency (Sq. ft.)	2038 Terminal Size Deficiency (Sq. ft.)
Wray	Wray Municipal	2V5	-1,300	-1,500
Yuma	Yuma Municipal	2V6	-400	-500
GA-Rural				
Blanca	Blanca*	05V	-100	-100
Brush	Brush Municipal*	7V5	-200	-200
Eads	Eads Municipal*	9V7	-100	-100
Haxtun	Haxtun Municipal*	17V	-100	-100
Holly	Holly*	K08	-100	-100
Julesburg	Julesburg Municipal*	7V8	-100	-100
La Veta	Cuchara Valley*	07V	-100	-100
Saguache	Saguache Municipal*	04V	-100	-100
Walden	Walden-Jackson County*	33V	-100	-100

Note: Terminal building sizes are rounded to the nearest hundred square feet

Note: Signifies the airport does not have a GA terminal building in 2018*

Sources: FAA TAF, pulled March 2019; 2018 Inventory & Data Form; Kimley-Horn, 2020

8.3.4.2. Hangar Space Needs

Anticipated growth in based aircraft system-wide through 2038 could inherently impact the airports' abilities to provide adequate aircraft storage facilities. Insufficient development of hangars/tie down spaces in response to rising demand could negatively impact multiple system-wide goals and facility and service objectives established in the 2020 CASP. Calculations for 2038 based aircraft and overnight transient hangar space for each airport is based on 2020 CASP facility and service objectives as shown below:

- **Commercial Service:** Hangars for 80% of based aircraft and 50% of weekly average overnight transient storage
- **GA-National:** Hangars for 60% of based aircraft fleet and 50% of weekly overnight transient storage
- **GA-Regional:** Hangars for 60% of based aircraft fleet and 50% of weekly overnight transient storage
- **GA-Local:** Hangars for 50% of based aircraft fleet and 25% of weekly average overnight transient storage
- **GA-Community:** Hangars for 40% of based aircraft fleet
- **GA-Rural:** Based on community need

The healthy projected growth in aviation activity at 2020 CASP airports over the planning period results in the need for additional hangar storage system-wide. Airports should work with CDOT Division of Aeronautics and airports' consultants to preserve land on airport property for additional hangar storage development to keep up with future demand. **Table 8.36** documents 2020 CASP hangar space needs based on 2018 and 2038 demand. A blank cell indicates the number of existing hangar spaces is adequate for 2018 and/or 2038 demand.

Table 8.36 Airports with Adequate Existing Hangar Spaces by Classification for 2018 and 2038 Demand

Associated City	Airport Name	FAA ID	2018 Based Aircraft Hangar Space Deficiency	2018 Transient Hangar Space Deficiency	2038 Based Aircraft Hangar Space Deficiency	2038 Transient Aircraft Hangar Space Deficiency
Commercial Service						
Aspen	Aspen-Pitkin County	ASE	-72	-30	-86	-37
Colorado Springs	Colorado Springs Municipal	COS	-24	-60	-83	-76
Denver	Denver International	DEN		-25		-25
Durango	Durango-La Plata County	DRO		-10		-12
Eagle	Eagle County Regional	EGE			-4	-3
Grand Junction	Grand Junction Regional	GJT			-2	
Gunnison	Gunnison-Crested Butte Regional	GUC	-15	-20	-20	-24
Hayden	Yampa Valley	HDN	-6		-8	
Fort Collins/Loveland	Northern Colorado Regional	FNL		-1	-34	-1
Pueblo	Pueblo Memorial	PUB			-15	
Telluride	Telluride Regional	TEX	-21	-112	-28	-135
GA-National						
Denver	Centennial	APA		-55	-79	-73
Denver	Rocky Mountain Metropolitan	BJC	-56	-138	-109	-166
GA-Regional						
Colorado Springs	Meadow Lake	FLY		-3		-3
Denver	Colorado Air and Space Port	CFO		-8		-9
Greeley	Greeley-Weld County	GXY				
Longmont	Vance Brand	LMO		-4		-5
Rifle	Rifle Garfield County	RIL	-4	-10	-10	-13
GA-Local						
Boulder	Boulder Municipal	BDU		-2		-2
Canon City	Fremont County	1V6		-1		-1
Craig	Craig-Moffat	CAG		-2		-2
Del Norte	Astronaut Kent Rominger	RCV		-1		-1
Erie	Erie Municipal	EIK		-1		-1
Fort Morgan	Fort Morgan Municipal	FMM		-1		-1
Glenwood Springs	Glenwood Springs Municipal	GWS		-1		-1
Kremmling	Mc Elroy Airfield	20V		-1		-1
Pagosa Springs	Stevens Field	PSO		-2		-2
Salida	Harriet Alexander Field	ANK		-1		-1
Steamboat Springs	Steamboat Springs	SBS		-6	-4	-7

Sources: 2018 Inventory & Data Form; Kimley-Horn, 2020

8.3.4.3. Apron Tie-Down Needs

In addition to providing adequate hangar space, apron tie-downs serve as an alternative facility for on-airport aircraft storage. Similar to hangar spaces, the number of apron tie-downs that may be needed in the future would increase as aviation activity increases, specifically growth in based aircraft. Future apron tie-down spaces were determined for each airport using 2038 preferred forecasts for based aircraft. 2038 apron tie-down calculations for each airport are based on CASP facility and service objectives as shown below:

- **Commercial Service:** Tie-downs for 20% of based aircraft fleet and 50% of weekly average overnight transient storage during peak season
- **GA-National:** Tie-downs for 40% of based aircraft fleet plus 50% of weekly average overnight transient storage during peak season
- **GA-Regional:** Tie-downs for 40% of based aircraft fleet plus 50% of weekly average overnight transient storage during peak season
- **GA-Local:** Tie-downs for 50% of based aircraft fleet plus 25% of weekly average overnight transient storage during peak season
- **GA-Community:** Tie-downs for 60% of based aircraft fleet plus 25% of weekly average overnight transient storage during peak season
- **GA-Rural:** Tie-downs for 100% of based aircraft fleet

Similar to hangar storage, additional apron tie-downs may be needed at 2020 CASP airports to keep up with forecast demand. Airports should work with CDOT Division of Aeronautics and airports' consultants to preserve future space for apron expansion to keep up with anticipated growing demand. **Table 8.37** documents 2020 CASP apron tie-down needs based on 2018 and 2038 demand. A blank cell indicates the number of existing apron tie-down spaces is adequate for 2018 demand.

Table 8.37. Airports by Classification with Apron Tie-Downs Needs Based on 2018 and 2038 Demand

Associated City	Airport Name	FAA ID	2018 Apron Tie-Down Deficiency	2038 Apron Tie-Down Deficiency
Commercial Service				
Colorado Springs	Colorado Springs Municipal	COS	-82	-112
Denver	Denver International	DEN		-16
Eagle	Eagle County Regional	EGE	-33	-40
Grand Junction	Grand Junction Regional	GJT		-5
Gunnison	Gunnison-Crested Butte Regional	GUC	-2	-7
Fort Collins/Loveland	Northern Colorado Regional	FNL	-8	-19
Montrose	Montrose Regional	MTJ	-7	-12
Pueblo	Pueblo Memorial	PUB	-12	-18
Telluride	Telluride Regional	TEX	-104	-129
GA-National				
Denver	Centennial	APA	-177	-268
Denver	Rocky Mountain Metropolitan	BJC	-28	-91
GA-Regional				
Colorado Springs	Meadow Lake	FLY	-90	-97
Greeley	Greeley-Weld County	GXY	-44	-62
Longmont	Vance Brand	LMO	-76	-88
Rifle	Rifle Garfield County	RIL	-90	-1
GA-Local				
Canon City	Fremont County	1V6		-1
Del Norte	Astronaut Kent Rominger	RCV	-5	-5
Delta	Blake Field	AJZ	-14	-14
Erie	Erie Municipal	EIK	-28	-32
Fort Morgan	Fort Morgan Municipal	FMM	-4	-4
Glenwood Springs	Glenwood Springs Municipal	GWS	-5	-8
Salida	Harriet Alexander Field	ANK		-4

Associated City	Airport Name	FAA ID	2018 Apron Tie-Down Deficiency	2038 Apron Tie-Down Deficiency
Steamboat Springs	Steamboat Springs	SBS	-33	-42
Sterling	Sterling Municipal	STK	-10	-9
GA- Community				
Holyoke	Holyoke	HEQ	-1	-1
Las Animas	Las Animas-Bent County	7V9	-1	-1
Trinidad	Perry Stokes	TAD	-4	-5
Westcliffe	Silver West	C08	-5	-6
Wray	Wray Municipal	2V5	-12	-11
Yuma	Yuma Municipal	2V6	-7	-7
GA-Rural				
Eads	Eads Municipal	9V7	-6	-6
Julesburg	Julesburg Municipal	7V8	-4	-4

Sources: 2018 Inventory & Data Form; Kimley-Horn, 2020

8.3.5. Summary of Factors Influencing Future System Performance

Projected growth in activity over the next 20 years indicates a robust system that could bring exciting new aviation opportunities to Colorado. Forecasts explored in Chapter 7 indicate that system-wide growth is anticipated in enplanements, based aircraft, and operations through 2038. It is important to note that while increasing aviation demand may generate more economic activity around the state, growing demand could strain existing facilities causing congestion, delays, deterioration of facilities, or less safe conditions on airports. Planning for improvements and developments to accommodate future aviation demand could aid in relieving potential negative impacts driven by undue burden on possibly overstretched resources.

8.4. Summary

Projected system-wide growth in aviation demand may influence the need for airport improvements related to changes in ARC designations and expanding airfield capacities to accommodate increased aviation activity. Additionally, anticipated changes in demand may impact airports eligible for inclusion in the NPIAS, affecting federal funding opportunities for future projects. Furthermore, future performance targets act as guiding measures that aid in the identification of projects which promote improvements to system-wide performance. Conducting comparisons between future performance targets and potential changes signaled by anticipated changes aids in active identifying and prioritizing airport project needs that enhance Colorado's airport system. Improving system-wide performance ultimately promotes maintaining a healthy and robust aviation sector.