

Chapter 3. Supplemental System Context

3.1. Introduction

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

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

3.2. Intermodal Integration/Airport Access

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

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

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

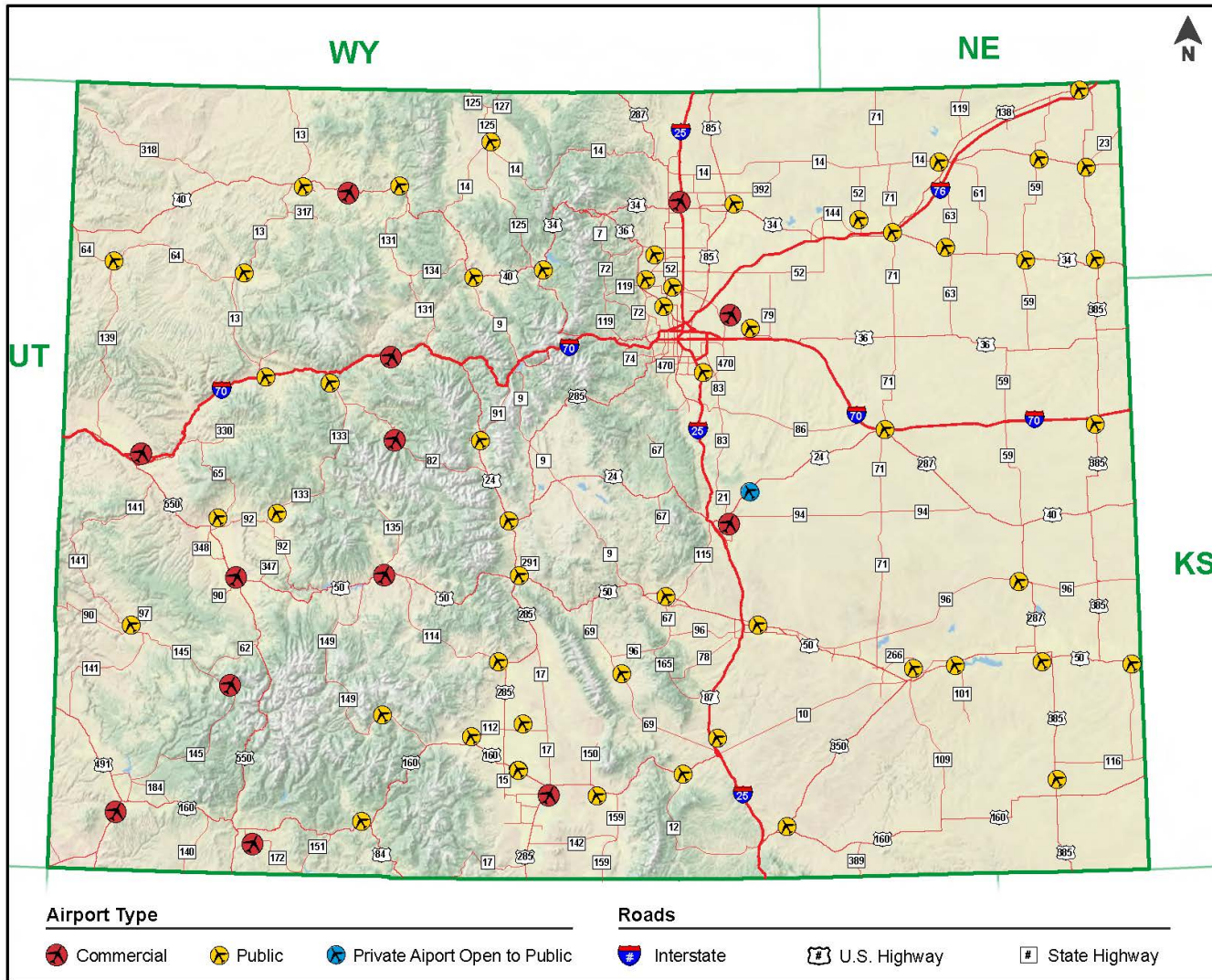
3.2.1. Airport Roadway Connections

Airport accessibility was studied first from a roadway perspective. Each airport was analyzed to determine its roadway connectivity with regards to interstates, U.S. highways, state highways, and toll roads. The analysis showed that each airport typically has access to at least one major roadway within reasonable distances. However, in some of the more distant corners of the state, several airports are located far from the nearest interstate. In fact, 20 of the 66 airports in the system are at least 100 miles away from their nearest interstate. Another 10 airports are at least 50 miles from their nearest interstate. Much of these distances are due to the topographical nature of the state and increased distances are required to traverse or circumnavigate the Rocky Mountains. It should also be mentioned that most of these distant airports are well connected with U.S. highways and state highways. Most airports not directly connected with a major roadway are connected by short distances over county or city roads.

Colorado's largest tollway, E-470, provides additional connectivity to all the Denver-area airports (Denver International, Centennial, Rocky Mountain Metropolitan, Colorado Air and Space Port, and Erie Municipal). Stretching 47 miles through Denver's suburbs, E-470 begins on the southeast side of the Denver metro area beginning in Centennial at the intersection of State Highway 470 and I-25 and makes its way north and west through Aurora, Brighton, Commerce City, and Thornton. The northwestern end of E-470 terminates just south of the I-25 and State Highway 7 intersection in north Thornton. From there, the roadway converts into the Northwest Parkway toll road which continues west before ending in Broomfield prior to reaching U.S. Highway 36.

Airport connectivity to adjacent roadway linkages were determined through online web-based resources including Google Earth and Google Maps. **Figure 3.1** depicts Colorado's major roadway network. Immediately following, a breakdown of the roadway connectivity analysis for the airports is provided in **Table 3.1**.

Figure 3.1. Colorado's Major Roadway Networks



Source: CDOT, 2018

Table 3.1. CASP Airport Roadway Connectivity

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
<i>Commercial Service</i>								
Alamosa	San Luis Valley Regional	ALS				I-25 (4 L) (75 Mi)	US-160 (2 L) (2 Mi)	CO-17 (2 L) (2 Mi)
							US-285 (2 L) (1 Mi)	
Aspen	Aspen-Pitkin County	ASE			CO-82 (4 L)	I-70 (4 L) (38 Mi)		
Colorado Springs	Colorado Springs Municipal	COS			CO-21 (4 L)	I-25 (4 L) (5 Mi)	US-24 (4 L) (4 Mi)	CO-115 (4 L) (7 Mi)
							US-87 (4 L) (5 Mi)	CO-94 (2 L) (4 Mi)
Cortez	Cortez Municipal	CEZ				I-40 (4 L) (133 Mi)	US-160 (2 L) (2 Mi)	CO-145 (2 L) (6 Mi)
						I-70 (4 L) (150 Mi)	US-491 (2 L) (2 Mi)	
Denver	Denver International	DEN	Direct access provided by Peña Boulevard (6 L)			I-25 (10 L) (22 Mi)	US-6 (4 L) (18 Mi)	Toll E-470 (4L) (5 Mi)
						I-70 (4 L) (13 Mi)	US-36 (4 L) (12 Mi)	
						I-76 (4 L) (13 Mi)		
						I-225 (8 L) (14 Mi)		
Durango	Durango-La Plata County	DRO				I-40 (4 L) (158 Mi)	US-160 (2 L) (6 Mi)	CO-172 (2 L) (1 Mi)
						I-70 (4 L) (181 Mi)	US-550 (2 L) (8 Mi)	
Eagle	Eagle County Regional	EGE		US-6 (2 L)		I-70 (4 L) (3 Mi)		

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Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Fort Collins/ Loveland	Northern Colorado Regional	FNL	I-25 (4 L)	US-87 (2 L)			US-34 (4 L) (3 Mi)	CO-14 (4 L) (10 Mi)
							US-287 (4 L) (8 Mi)	CO-392 (2 L) (2 Mi)
Grand Junction	Grand Junction Regional	GJT				I-70 (4 L) (1 Mi)	US-50 (4 L) (8 Mi)	CO-139 (2 L) (18 Mi)
								CO-141 (2 L) (16 Mi)
Gunnison	Gunnison-Crested Butte Regional	GUC		US-50 (2 L)		I-25 (4 L) (158 Mi)		CO-114 (2 L) (9 Mi)
						I-70 (4 L) (123 Mi)		CO-135 (2 L) (1 Mi)
								CO-149 (2 L) (8 Mi)
Hayden	Yampa Valley	HDN				I-70 (4 L) (80 Mi)	US-40 (2 L) (1 Mi)	CO-13 (2 L) (19 Mi)
Montrose	Montrose Regional	MTJ		US-50 (4 L)		I-70 (4 L) (58 Mi)	US-550 (2 L) (2 Mi)	
Pueblo	Pueblo Memorial	PUB		US-50 (4 L)		I-25 (4 L) (8 Mi)		CO-78 (2 L) (12 Mi)
								CO-96 (4 L) (2 Mi)
Telluride	Telluride Regional	TEX				I-70 (4 L) (124 Mi)		CO-145 (2 L) (2 Mi)
								CO-62 (2 L) (15 Mi)
<i>General Aviation</i>								
Akron	Colorado Plains Regional	AKO			CO-63 (2 L)	I-76 (4 L) (25 Mi)	US-34 (2 L) (1 Mi)	
Blanca	Blanca	05V				I-25 (4 L) (56 Mi)	US-160 (2 L) (2 Mi)	CO-159 (2 L) (6 Mi)

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Boulder	Boulder Municipal	BDU				I-25 (6 L) (16 Mi)	US-36 (2 L) (2 Mi)	CO-7 (4 L) (2 Mi)
								CO-119 (4 L) (2 Mi)
								CO-157 (4 L) (1 Mi)
Brush	Brush Municipal	7V5		US-34 (2 L)		I-76 (4 L) (2 Mi)	US-6 (4 L) (2 Mi)	CO-71 (2 L) (1 Mi)
Buena Vista	Central Colorado Regional	AEJ		US-24 (2 L)		I-25 (6 L) (92 Mi)		CO-306 (2 L) (2 Mi)
						I-70 (4 L) (60 Mi)	US-285 (2 L) (<1 Mi)	
Burlington	Kit Carson County	ITR		US-385 (2 L)		I-70 (4 L) (3 Mi)		
Canon City	Fremont County	1V6		US-50 (4 L)	CO-67 (2 L)	I-25 (4 L) (29 Mi)		CO-9 (4 L) (17 Mi)
								CO-115 (4 L) (4 Mi)
Center	Leach	1V8				I-25 (4 L) (103 Mi)		CO-112 (2 L) (2 Mi)
Colorado Springs	Meadow Lake	FLY				I-25 (6 L) (19 Mi)	US-24 (2 L) (< 1 Mi)	CO-94 (2 L) (8 Mi)
Craig	Craig-Moffat	CAG			CO-394 (2 L)	I-70 (6 L) (91 Mi)	US-40 (2 L) (3 Mi)	CO-13 (2 L) (4 Mi)
Creede	Mineral County Memorial	C24				I-25 (4 L) (142 Mi)		CO-149 (2 L) (< 1 Mi)
Del Norte	Astronaut Kent Rominger	RCV				I-25 (4 L) (110 Mi)	US-160 (2 L) (4 Mi)	CO-112 (2 L) (2 Mi)
							US-285 (2 L) (17 Mi)	

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Delta	Blake Field	AJZ				I-70 (4 L) (40 Mi)	US-50 (4 L) (2 Mi)	CO-65 (2 L) (6 Mi)
								CO-92 (4 L) (3 Mi)
								CO-348 (2 L) (4 Mi)
Denver	Centennial	APA				I-25 (6 L) (3 Mi)		CO-83 (6 L) (3 Mi)
						I-225 (8 L) (8 Mi)		CO-88 (6 L) (2 Mi)
								Toll E-470 (6 L) (2 Mi)
Denver	Rocky Mountain Metropolitan	BJC			CO-128 (2 L)	I-25 (6 L) (7 Mi)	US-36 (6 L) (1 Mi)	CO-121 (4 L) (1 Mi)
						I-70 (6 L) (9 Mi)	US-287 (4 Mi) (1 Mi)	Toll E-470 (4 L) (5 Mi)
						I-76 (4 L) (10 Mi)		
Denver	Colorado Air and Space Port	CFO				I-70 (4 L) (5 Mi)	US-36 (4 L) (5 Mi)	CO-36 (2 L) (3 Mi)
							US-40 (4 L) (5 Mi)	CO-79 (2 L) (8 Mi)
								Toll E-470 (4 L) (12 Mi)
Eads	Eads Municipal	9V7			CO-96 (2 L)	I-70 (4 L) (63 Mi)	US-287 (2 L) (2 Mi)	
Erie	Erie Municipal	EIK				I-25 (8 L) (4 Mi)	US-287 (4 L) (3 Mi)	CO-7 (2 L) (<1 Mi)
								Toll E-470 (4 L) (5 Mi)
Fort Morgan	Fort Morgan Municipal	FMM			CO-52 (2 L)	I-76 (4 L) (5 Mi)		

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Glenwood Springs	Glenwood Springs Municipal	GWS				I-70 (4 L) (4 Mi)		CO-82 (4 L) (3 Mi)
Granby	Granby-Grand County	GNB				I-70 (4 L) (47 Mi)	US-34 (2 L) (3 Mi)	CO-125 (2 L) (5 Mi)
							US-40 (4 L) (2 Mi)	
Greeley	Greeley-Weld County	GXY			CO-263 (2 L)	I-25 (4 L) (20 Mi)	US-34 (4 L) (4 Mi)	CO-392 (2 L) (4 Mi)
							US-85 (4 L) (3 Mi)	
Haxtun	Haxtun Municipal	17V				I-76 (4 L) (22 Mi)	US-6 (2 L) (<1 Mi)	CO-59 (2 L) (1 Mi)
Holly	Holly	K08			CO-89 (2 L)	I-25 (4 L) (148 Mi)	US-50 (2 L) (1 Mi)	
						I-70 (4 L) (104 Mi)	US-385 (2 L) (12 Mi)	
Holyoke	Holyoke	HEQ				I-76 (4 L) (33 Mi)	US-6 (2 L) (< 1 Mi)	CO-23 (2 L) (2 Mi)
						I-80 (4 L) (39 Mi)	US-385 (2 L) (1 Mi)	
Julesburg	Julesburg Municipal	7V8		US-138 (2 L)		I-76 (4 L) (6 Mi)		CO-59 (2 L) (11 Mi)
				US-385 (2 L)		I-80 (4 L) (6 Mi)		
Kremmling	Mc Elroy Airfield	20V		US-40 (2 L)		I-70 (6 L) (38 Mi)		CO-9 (2 L) (1 Mi)
								CO-134 (2 L) (8 Mi)

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
La Junta	La Junta Municipal	LHX				I-25 (4 L) (70 Mi)	US-50 (4 L) (5 Mi)	CO-10 (2 L) (7 Mi)
							US-350 (2 L) (7 Mi)	CO-71 (2 L) (18 Mi)
								CO-109 (2 L) (1 Mi)
							CO-194 (2 L) (4 Mi)	
La Veta	Cuchara Valley	07V			CO-12 (2 L)	I-25 (4 L) (16 Mi)	US-160 (2 L) (3 Mi)	
Lamar	Lamar Municipal	LAA				I-25 (4 L) (116 Mi)	US-50 (4 L) (6 Mi)	
						I-70 (4 L) (100 Mi)	US-287 (2 L) (11 Mi)	
							US-385 (4 L) (4 Mi)	
Las Animas	Las Animas-Bent County	7V9				I-25 (4 L) (83 Mi)	US-50 (2 L) (1 Mi)	CO-101 (2 L) (1 Mi)
Leadville	Lake County	LXV				I-70 (4 L) (27 Mi)	US-24 (2 L) (1 Mi)	CO-82 (2 L) (14 Mi)
								CO-91 (2 L) (5 Mi)
Limon	Limon Municipal	LIC	I-70 (4 L)	US-24 (2 L)				CO-71 (2 L) (1 Mi)
				US-40 (2 L)				CO-86 (2 L) (10 Mi)
				US-287 (2 L)				

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Longmont	Vance Brand	LMO				I-25 (6 L) (11 Mi)	US-36 (2 L) (7 Mi)	CO-7 (2 L) (7 Mi)
							US-287 (4 L) (3 Mi)	CO-52 (2 L) (7 Mi)
								CO-66 (2 L) (5 Mi)
Meeker	Meeker/Coulter Field	EEO				I-70 (4 L) (47 Mi)		CO-119 (4 L) (4 Mi)
								CO-13 (2 L) (< 1 Mi)
								CO-64 (2 L) (5 Mi)
Monte Vista	Monte Vista Municipal	MVI		US-160 (4 L)		I-25 (4 L) (84 Mi)		CO-132 (2 L) (1 Mi)
				US-285 (4 L)				
Nucla	Hopkins Field	AIB				I-70 (4 L) (111 Mi)		CO-90 (2 L) (7 Mi)
								CO-141 (2 L) (4 Mi)
								CO-145 (2 L) (8 Mi)
Pagosa Springs	Stevens Field	PSO				I-25 (4 L) (168 Mi)	US-84 (2 L) (4 Mi)	CO-151 (2 L) (16 Mi)
								CO-160 (2 L) (< 1 Mi)

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Paonia	North Fork Valley	7V2				I-70 (4 L) (65 Mi)		CO-65 (2 L) (21 Mi)
								CO-92 (2 L) (8 Mi)
								CO-133 (2 L) (5 Mi)
Rangely	Rangely	4V0			CO-64 (2 L)	I-70 (4 L) (72 Mi)		CO-139 (2 L) (1 Mi)
Rifle	Rifle Garfield County	RIL				I-70 (4 L) (2 Mi)	US-6 (2 L) (4 Mi)	CO-13 (2 L) (4 Mi)
								CO-325 (2 L) (7 Mi)
Saguache	Saguache Municipal	04V			CO-114 (2 L)	I-25 (4 L) (129 Mi)	US-285 (2 L) (2 Mi)	
						I-70 (4 L) (132 Mi)		
Salida	Harriet Alexander Field	ANK				I-25 (4 L) (96 Mi)	US-50 (2 L) (3 Mi)	
						I-70 (4 L) (90 Mi)	US-285 (2 L) (2 Mi)	
Springfield	Springfield Municipal	8V7		US-287 (2 L)		I-25 (4 L) (125 Mi)	US-160 (2 L) (6 Mi)	
				US-385 (2 L)				
Steamboat Springs	Steamboat Springs	SBS				I-70 (4 L) (86 Mi)	US-40 (2 L) (2 Mi)	CO-131 (2 L) (8 Mi)
Sterling	Sterling Municipal	STK			CO-14 (2 L)	I-76 (4 L) (5 Mi)	US-6 (2 L) (5 Mi)	CO-61 (2 L) (6 Mi)
							US-138 (2 L) (3 Mi)	CO-71 (2 L) (19 Mi)
								CO-113 (2 L) (13 Mi)

Associated City	Airport Name	FAA ID	Direct Access Roadways (No. of Lanes)			Indirect Access Roadways (No. of Lanes) (Miles from Airport)		
			Interstate	U.S. Hwy	State Road/ Highway	Interstate	U.S. Hwy	State Road/ Highway
Trinidad	Perry Stokes	TAD				I-25 (4 L) (12 Mi)	US-160 (2 L) (5 Mi)	
							US-350 (2 L) (1 Mi)	
Walden	Walden-Jackson County	33V				I-70 (4 L) (100 Mi)		CO-14 (2 L) (2 Mi)
								CO-125 (2 L) (< 1 Mi)
Walsenburg	Spanish Peaks Airfield	4V1				I-25 (4 L) (1 Mi)	US-160 (2 L) (6 Mi)	CO-10 (2 L) (6 Mi)
								CO-69 (2 L) (5 Mi)
Westcliffe	Silver West	C08				I-25 (4 L) (47 Mi)	US-50 (2 L) (34 Mi)	CO-69 (2 L) (< 1 Mi)
								CO-96 (2 L) (10 Mi)
Wray	Wray Municipal	2V5				I-70 (4 L) (57 Mi)	US-385 (2 L) (< 1 Mi)	
						I-76 (4 L) (65 Mi)	US-34 (2 L) (2 Mi)	
Yuma	Yuma Municipal	2V6			CO-59 (2 L)	I-76 (4 L) (51 Mi)	US-34 (2 L) (1 Mi)	
						I-70 (4 L) (65 Mi)		

Sources: CDOT; Google Earth; Google Maps, 2019

3.2.2. Intermodal Integration

Using existing roadway, railway, or pedestrian trail connections, various modes of transportation are required to transport people and goods to and from each airport. Airport integration and community interconnectivity of various modes of transportation is an essential aspect of the aviation system's overall accessibility. Robust modal integration with airports and community interconnectivity encourages the free flow of people and overall economic activity between communities and the rest of the world, whereas poor integration and interconnectivity ultimately limits a community's ability to leverage aviation to its highest potential.

Integration, availability, and connectivity of rental cars, transit, passenger rail, rideshare, courtesy cars, and other applicable modes of transportation was analyzed as part of the CASP to help determine the overall integration and interconnectivity of transportation modes between airports and their local communities. The following subsections summarize this analysis.

3.2.2.1. Rental Car Availability

Rental cars allow airport users additional freedom and mobility when they land and help reduce their reliance on local pickups, courtesy car availability (discussed later in the chapter), or on transit systems (if available). Of equal importance, the availability of rental cars at airports greatly increases the airport's overall ability to facilitate economic activity within the community and region.

Data on the availability of rental car service was collected from airports through Inventory and Data Forms and during on-site visits of system airports. Of the 66 airports analyzed in the CASP, 42 reported having access to rental car services. This includes all 14 commercial service airports and 28 of the 52 general aviation airports.

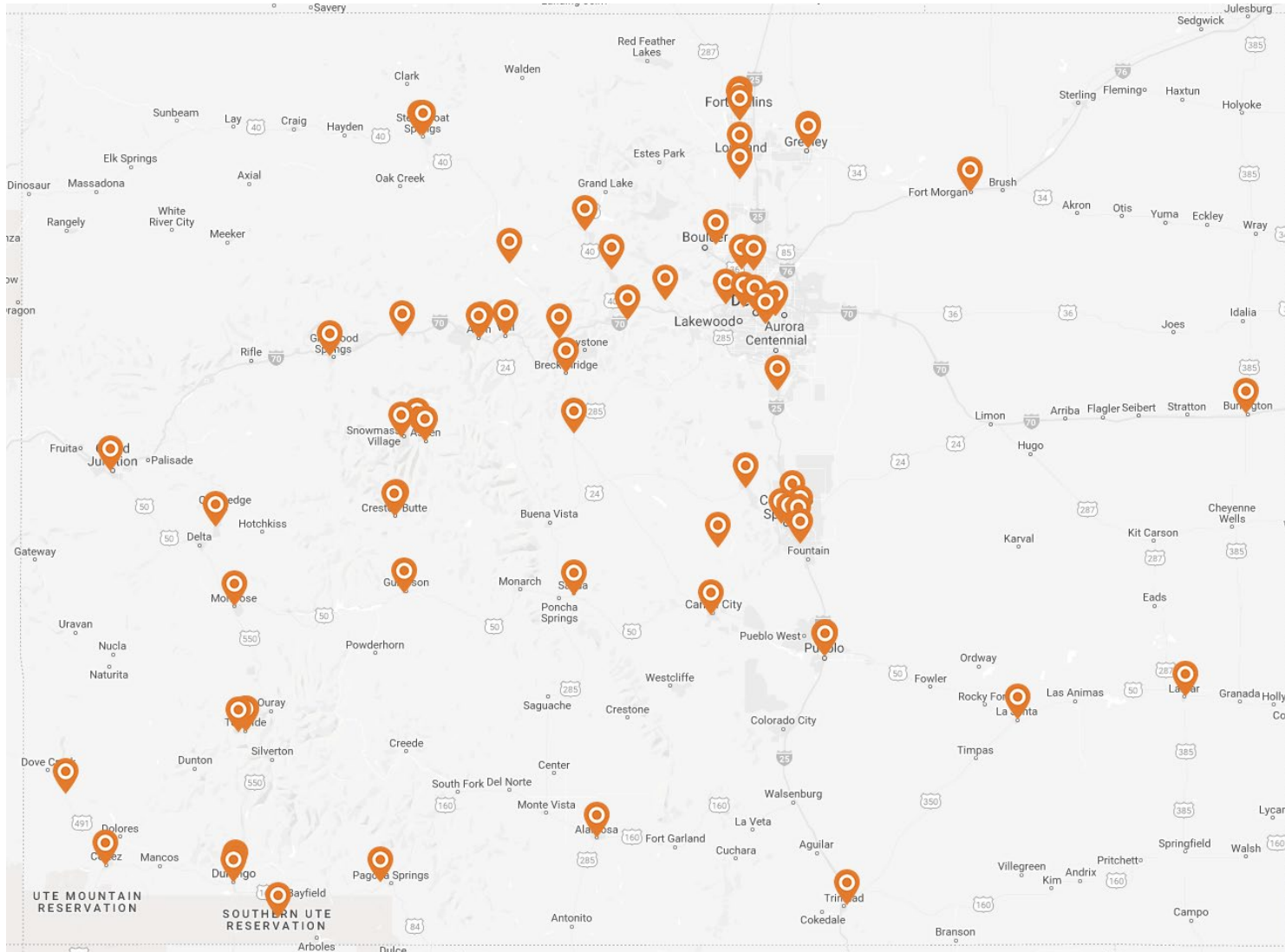
3.2.2.2. Public Transportation (Bus and Light Rail)

Public transportation (bus and/or light rail, also referred to as "transit") within a community can greatly increase accessibility and encourages equitable economic opportunity to all residents and visitors. Transit is a unique mode of transportation as it can substantially reduce vehicular traffic on community roadways. Because of this benefit, transit is often promoted as a preferred transportation mode for both visitors and local residents. Direct connections from airports to public transportation allow visitors quick and reliable mobility into and within the community. This level of convenience further boosts the airport's ability to connect the community and state to the rest of the world.

Inventory and Data Forms indicate that 16 of the 66 system airports are directly serviced by public transportation. Of these airports, nine are commercial service airports, and seven are general aviation airports. The five commercial service airports reporting no transit service include San Luis Regional, Cortez Municipal, Durango-La Plata County, Yampa Valley, and Telluride Regional airports.

Per the Colorado Association of Transit Agencies, 60 out of the 64 counties in Colorado provide transit services to their citizens and visitors. The Association's membership consists of 71 transit operators whose locations can be visualized in **Figure 3.2**.

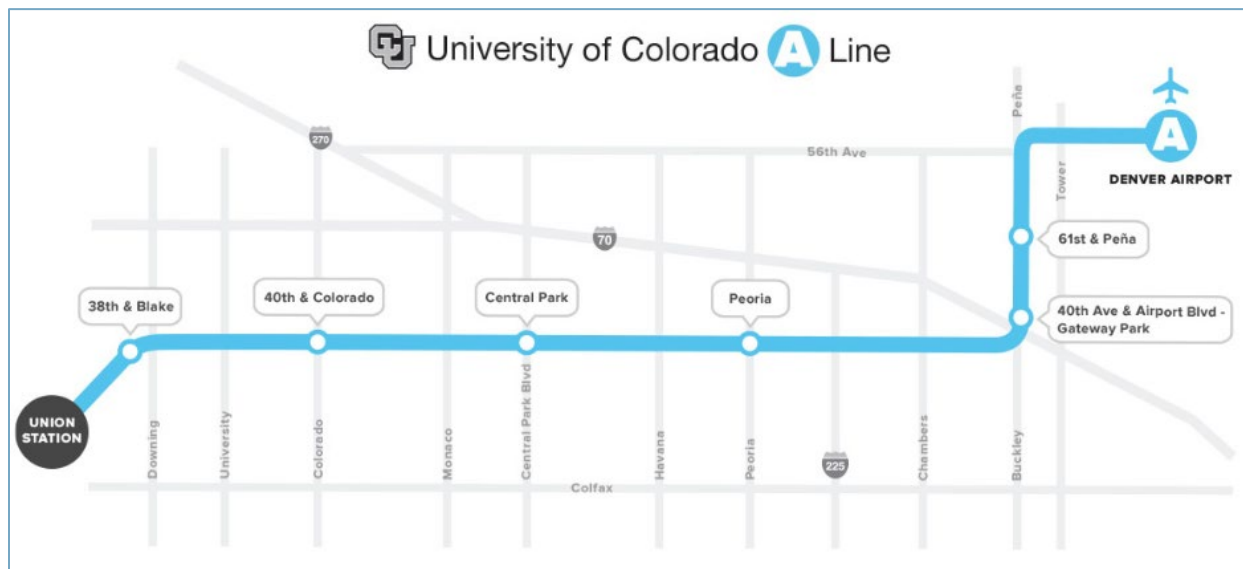
Figure 3.2. Colorado Transit Operators



Source: Colorado Association of Transit Agencies, 2019

Denver International is the only airport in the state that has commuter rail integration. Connected by the Regional Transportation District’s (RTD) “A Line,” Denver International is linked to downtown Denver via six commuter rail stops between the airport and Denver’s Union Station. With trains running every 15 minutes nearly 24 hours a day (a short break between 1:07 am and 3:15 am), this 37-minute trip far outpaces one’s ability to access downtown via automobile given the distance and traffic between the airport and downtown. **Figure 3.3** displays the A Line transit map.

Figure 3.3. RTD A Line Route Map



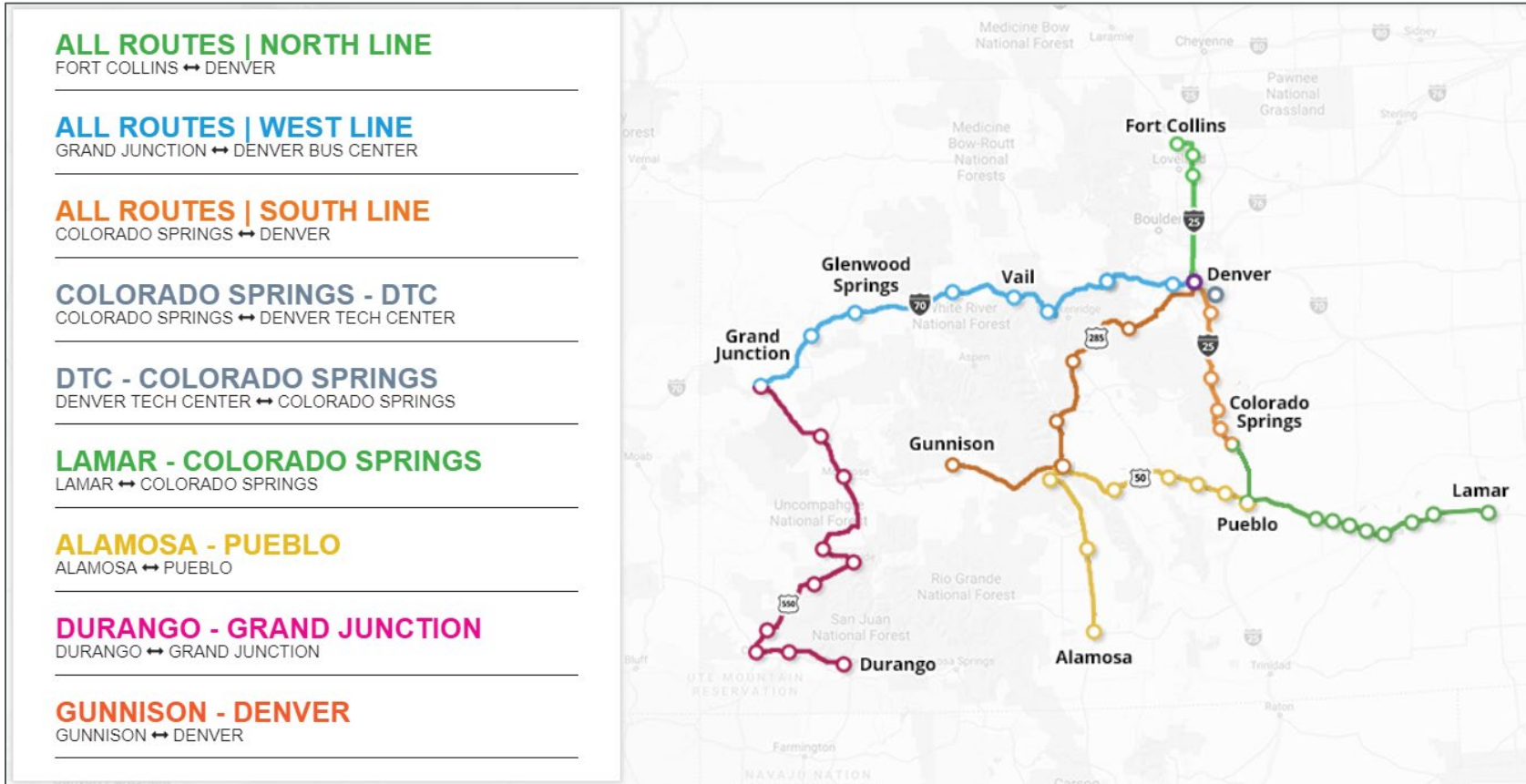
Source: RTD, 2019

3.2.2.3. Bustang Interregional Express Bus Service

Bustang is CDOT’s interregional express bus service, connecting major populations, employment centers, and local transit entities along the I-25 and I-70 corridors and other routes to Lamar, Alamosa, Gunnison, Durango, Grand Junction, and many communities in between.

As of May 2019, Bustang routes have stops in 26 CASP airport-associated cities. Of these 26 cities, 16 do not have local public transportation available. While the Bustang system provides service to many cities and population centers, there are still several regions of the state that remain unserved. These regions are primarily in the rural areas of the northwest, northeast, and southeast corners of the state. **Figure 3.4** depicts each of the nine Bustang routes in operation.

Figure 3.4. Bustang Route Map



Source: CDOT, 2019

3.2.3. Shared Mobility (Rideshare, Bikeshare, and Scootershare)

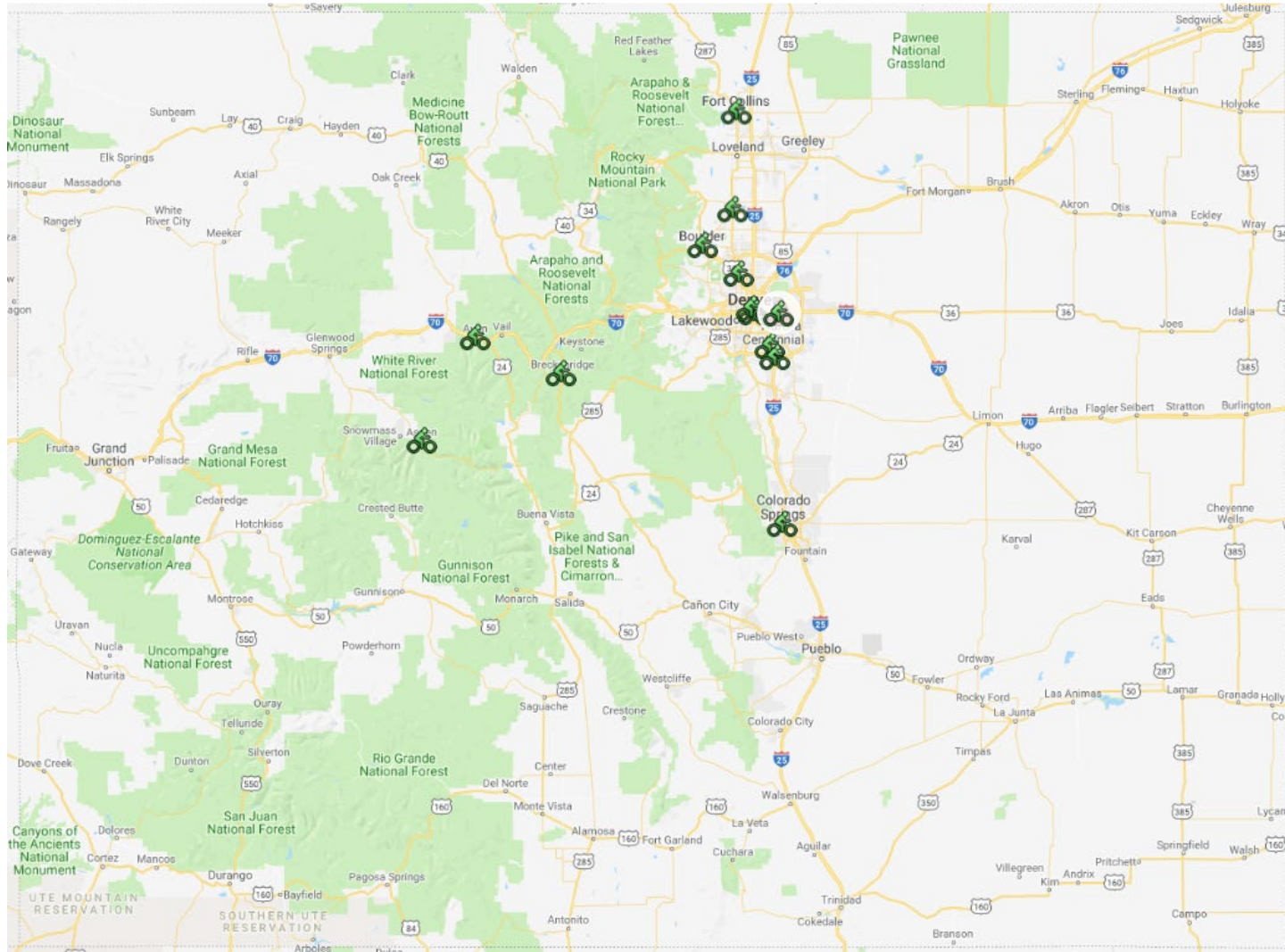
As somewhat of a phenomenon over the last few years, the concept of shared mobility has erupted as a new business model and mode of transportation. Shared mobility entails the shared use of a mobility device. Instead of each user owning their own car, bike, scooter, etc., these vehicles/devices are shared amongst a large user base. Rideshare companies such as Uber and Lyft pioneered this new shared mobility model and leveraged their user's independently owned vehicles to provide rides to other users.

As rideshare has evolved, both Uber and Lyft have further enhanced their services to not only provide users with a ride using another user's vehicle, but to also allow for shared carpooling. Uber has branded their carpool service as "UberPool" while Lyft has branded their service as "Shared." In these rideshare carpools, users can further share their ride with other users looking for transportation in the same direction. This allows for Uber and Lyft to achieve higher occupancy levels per trip. Using these services is also enticing for users as it further reduces the cost of their commute as everyone in the carpool pays an equitable share for the trip.

The Uber/Lyft business model has since caught on with other mobility devices such as bikes and scooters. However, with bikeshare and scootershare, private firms have partnered with communities to establish a network of shared bikes or scooters throughout the community. This network is often designed to place bike or scooters within the vicinity of other modal linkages such as bus and light rail stations. This provides a mobility option that helps solve the first and last mile connection issue between traditional transportation modes and users' final destinations.

Uber and Lyft rideshares are available in many communities throughout the state. In fact, 31 of the 66 CASP airports reported rideshare availability in their associated cities. As shown in **Figure 3.5**, bikeshare systems are currently in operation in Aspen, Aurora, Avon, Basalt, Boulder, Breckenridge, Centennial, Colorado Springs, Denver, Fort Collins, Longmont, Meridian, and Westminster. Although growing rapidly, scootershare systems are currently only operating in Denver and Aurora.

Figure 3.5. Colorado Bikeshare Systems



Source: Google Maps, 2019

3.2.4. Taxis and Courtesy Cars

For airports located in smaller communities where rental cars and public transportation may not be available, taxi service often provides the critical link between airports and their communities. However, taxi service is often unavailable in many rural areas of the state. For airports with this type of limited modal integration, a courtesy car can be used to maintain a link with the community. These cars are typically stored on-airport and sponsored by the airport owner/operator or by the fixed-base operator (FBO). Courtesy cars are often a favorite amenity for pilots and passengers who utilize these airports, as they provide a means to hop into town for meetings, meals, or entertainment. Users simply need to contact the car's overseer to gain access to the vehicle's keys. Typically, the user is responsible for purchasing fuel for the car for the next user. Without courtesy cars, many of Colorado's airports would isolate their visitors from connecting to local communities.

Data pulled from inventory forms and the 2018 Colorado Airport Directory show that 56 of the 66 CASP airports report having courtesy cars available. Of these 56 airports, 10 listed no other modal integration as being available (Brush Municipal, Astronaut Kent Rominger, Eads Municipal, Holyoke, Julesburg Municipal, Cuchara Valley, Hopkins Field, North Fork Valley, Rangely, and Walden-Jackson County airports). These 10 airports can provide courtesy transportation in areas where visiting pilots and passengers would otherwise have to remain at the airport without any other way to access the surrounding communities.

Four system airports reported having no transportation modes available and are listed as follows²:

- Blanca - Blanca Airport
- Holly - Holly Airport
- Monte Vista - Monte Vista Municipal Airport
- Westcliffe - Silver West Airport

Table 3.2 and **Figure 3.6** provide a tabular and visual summary of the intermodal integration for CASP airports.

² Leach Airport in Center identified livery services are available, so it is not included in this list; however, these services are not likely always available compared to other services. Saguache Municipal has a courtesy bicycle, but no motorized form of transportation from the airport.

Table 3.2. CASP Airport Intermodal Integration³

Associated City	Airport Name	FAA ID	Rental Car	Bus	Bustang Stop in Assc. City	Rail (Commuter & Freight)	TNC	Taxi	Courtesy Car	Other
<i>Commercial Service</i>										
Alamosa	San Luis Valley Regional	ALS	✓		✓		✓	✓		
Aspen	Aspen-Pitkin County	ASE	✓	✓			✓	✓	✓	Bikeshare
Colorado Springs	Colorado Springs Municipal	COS	✓	✓	✓		✓	✓	✓	Bikeshare
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	✓	✓	✓		✓	✓	✓	Livery Services
Gunnison	Gunnison-Crested Butte Regional	GUC	✓	✓	✓				✓	
Hayden	Yampa Valley	HDN	✓				✓		✓	
Fort Collins/ Loveland	Northern Colorado Regional	FNL	✓	✓	✓		✓	✓	✓	Bikeshare
Montrose	Montrose Regional	MTJ	✓	✓	✓				✓	
Pueblo	Pueblo Memorial	PUB	✓	✓	✓		✓	✓	✓	
Telluride	Telluride Regional	TEX	✓		✓			✓	✓	
<i>General Aviation</i>										
Akron	Colorado Plains Regional	AKO	✓						✓	
Blanca	Blanca	05V								

³ “Livery service” is an umbrella term for any ground transportation that is for-hire but is not a taxi or rideshare. Many airports reported multiple “other” ground transportation options such as limousine, black car, charter bus, etc. and livery service is used to describe this segment of ground transportation service.

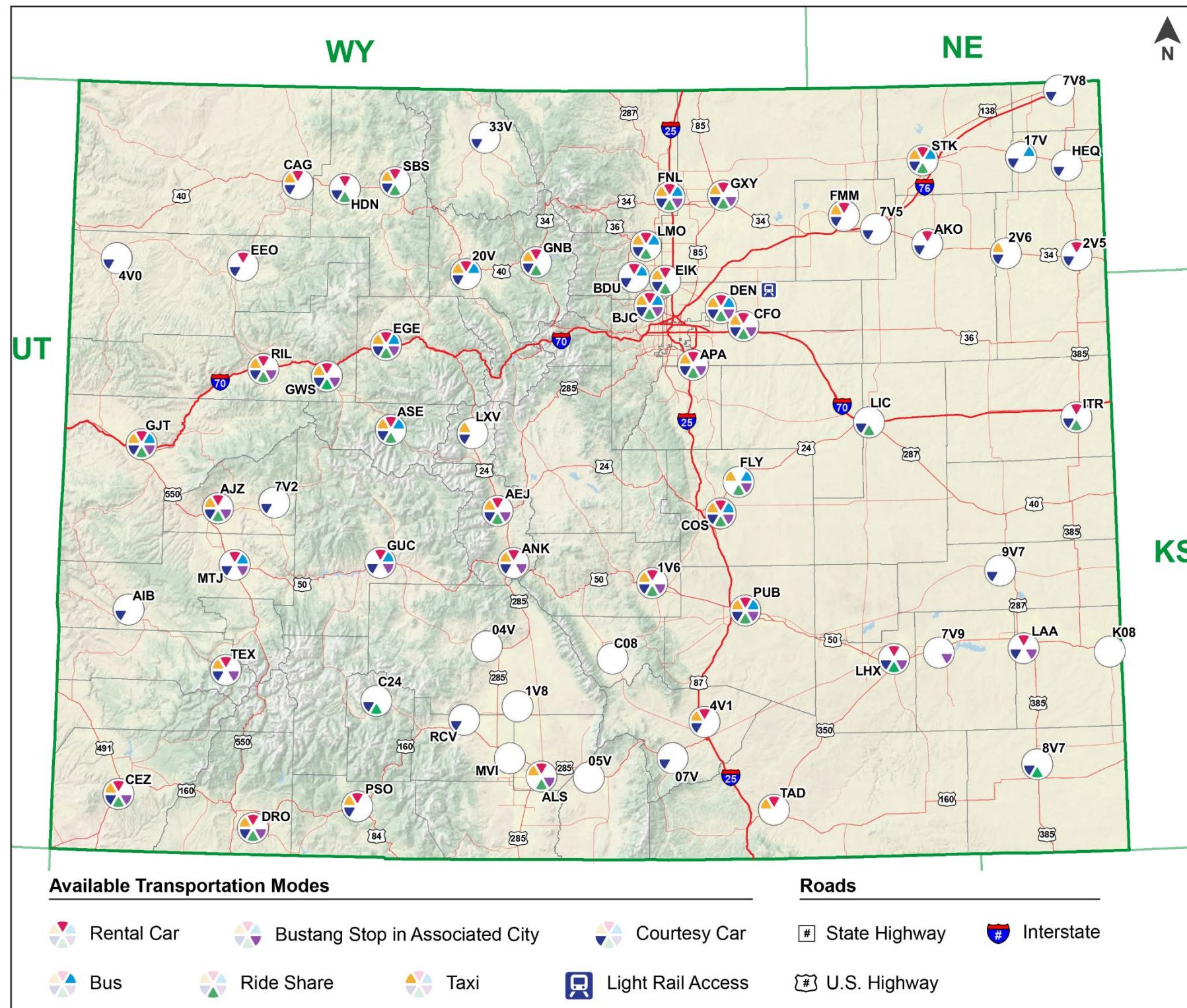
Associated City	Airport Name	FAA ID	Rental Car	Bus	Bustang Stop in Assc. City	Rail (Commuter & Freight)	TNC	Taxi	Courtesy Car	Other
Boulder	Boulder Municipal	BDU	✓	✓					✓	Bikeshare
Brush	Brush Municipal	7V5							✓	
Buena Vista	Central Colorado Regional	AEJ	✓		✓		✓	✓	✓	
Burlington	Kit Carson County	ITR	✓				✓		✓	
Canon City	Fremont County	1V6	✓		✓		✓	✓	✓	
Center	Leach	1V8								Livery Services
Colorado Springs	Meadow Lake	FLY		✓	✓		✓	✓		Courtesy Bicycle
Craig	Craig-Moffat	CAG	✓					✓	✓	
Creede	Mineral County Memorial	C24					✓		✓	
Del Norte	Astronaut Kent Rominger	RCV							✓	
Delta	Blake Field	AJZ	✓		✓		✓	✓	✓	
Denver	Centennial	APA	✓		✓		✓	✓	✓	Courtesy Bicycle, Bikeshare, Scootershare
Denver	Rocky Mountain Metropolitan	BJC	✓	✓	✓		✓	✓	✓	Bikeshare, Scootershare
Denver	Colorado Air and Space Port	CFO	✓		✓		✓	✓	✓	
Eads	Eads Municipal	9V7							✓	
Erie	Erie Municipal	EIK	✓				✓	✓	✓	
Fort Morgan	Fort Morgan Municipal	FMM	✓					✓	✓	
Glenwood Springs	Glenwood Springs Municipal	GWS	✓		✓		✓	✓	✓	Livery Services
Granby	Granby-Grand County	GNB	✓				✓	✓	✓	
Greeley	Greeley-Weld County	GXY	✓		✓		✓	✓	✓	

Associated City	Airport Name	FAA ID	Rental Car	Bus	Bustang Stop in Assc. City	Rail (Commuter & Freight)	TNC	Taxi	Courtesy Car	Other
Haxtun	Haxtun Municipal	17V		✓					✓	
Holly	Holly	K08								
Holyoke	Holyoke	HEQ							✓	
Julesburg	Julesburg Municipal	7V8							✓	
Kremmling	Mc Elroy Airfield	20V	✓	✓				✓	✓	
La Junta	La Junta Municipal	LHX	✓		✓		✓		✓	
La Veta	Cuchara Valley	07V							✓	
Lamar	Lamar Municipal	LAA	✓		✓				✓	
Las Animas	Las Animas-Bent County	7V9			✓					
Leadville	Lake County	LXV						✓	✓	
Limon	Limon Municipal	LIC					✓		✓	
Longmont	Vance Brand	LMO	✓	✓			✓	✓	✓	Bikeshare
Meeker	Meeker/Coulter Field	EEO	✓						✓	
Monte Vista	Monte Vista Municipal	MVI								
Nucla	Hopkins Field	AIB							✓	Courtesy Bicycle
Pagosa Springs	Stevens Field	PSO	✓					✓	✓	
Paonia	North Fork Valley	7V2							✓	
Rangely	Rangely	4V0							✓	Livery Services
Rifle	Rifle Garfield County	RIL	✓		✓		✓	✓	✓	
Saguache	Saguache Municipal	04V								Courtesy Bicycle
Salida	Harriet Alexander Field	ANK	✓		✓			✓	✓	
Springfield	Springfield Municipal	8V7					✓		✓	

Associated City	Airport Name	FAA ID	Rental Car	Bus	Bustang Stop in Assc. City	Rail (Commuter & Freight)	TNC	Taxi	Courtesy Car	Other
Steamboat Springs	Steamboat Springs	SBS	✓				✓	✓	✓	
Sterling	Sterling Municipal	STK	✓	✓			✓	✓	✓	
Trinidad	Perry Stokes	TAD	✓					✓		
Walden	Walden-Jackson County	33V							✓	
Walsenburg	Spanish Peaks Airfield	4V1	✓					✓	✓	
Westcliffe	Silver West	C08								
Wray	Wray Municipal	2V5	✓						✓	
Yuma	Yuma Municipal	2V6						✓	✓	

Sources: 2018 Inventory & Data Form; CDOT 2018 Colorado Airport Directory

Figure 3.6. CASP Airport Intermodal Integration



Sources: 2018 Inventory & Data Form; CDOT 2018 Colorado Airport Directory; CDOT, 2019

3.2.4.1. Freight Rail

When integrated with airports, heavy rail provides a unique connection that can facilitate the movement of goods and commodities. This type of connection is rare. However, it does represent a transportation mode that can be integrated with airports.

Based on inventory data collected, there are no Colorado system airports with integrated heavy rail. However, several system airports are within close vicinity of one or more rail lines.

The Rocky Mountain Rail Park is proposed just east of Colorado Air and Space Port. This proposal, confirmed in 2018, is 620 acres and is proposed as an industrial park with rail access from Union Pacific Railroad (UP). Information on the site can be found at www.rockymountainrailpark.com.

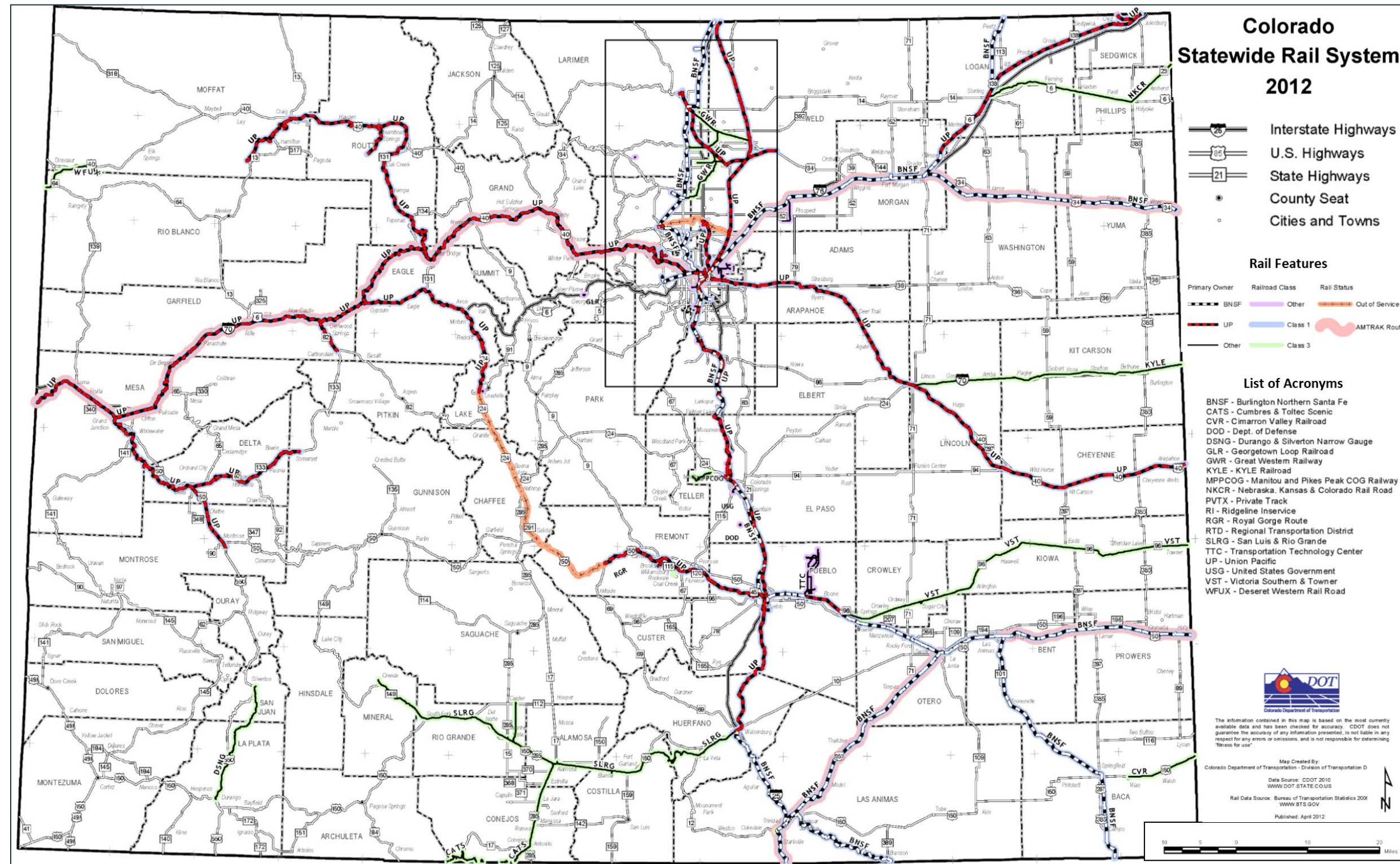
Pueblo Memorial Airport is also particularly well situated for heavy rail integration as old rail lines are already existing on airport property that connect the airport to major east/west and north/south rail lines (Burlington Northern and Santa Fe Railway [BNSF] and UP). However, these old on-site rail lines do not necessarily constitute heavy rail integration at present, as they are currently unused and would need to be extended a short distance to accommodate any type of intermodal facility.

Additionally, Pueblo is also uniquely connected to PuebloPlex via east/west rail lines by just a few short miles. PuebloPlex consists of nearly 16,000 acres of current and future development in rail-related industries including manufacturing, warehousing, storage, education and training, logistics and distribution, and research and development. The Transportation Technology Center Inc. (TTCI) is immediately north of PuebloPlex and is connected via rail. TTCI is a subsidiary of the Association of American Railroads that provides transportation research and testing.

With close proximities and rail connectivity to Pueblo Memorial Airport, these two major developments create a unique economic opportunity and present a compelling case for further exploration of heavy rail integration at the airport.

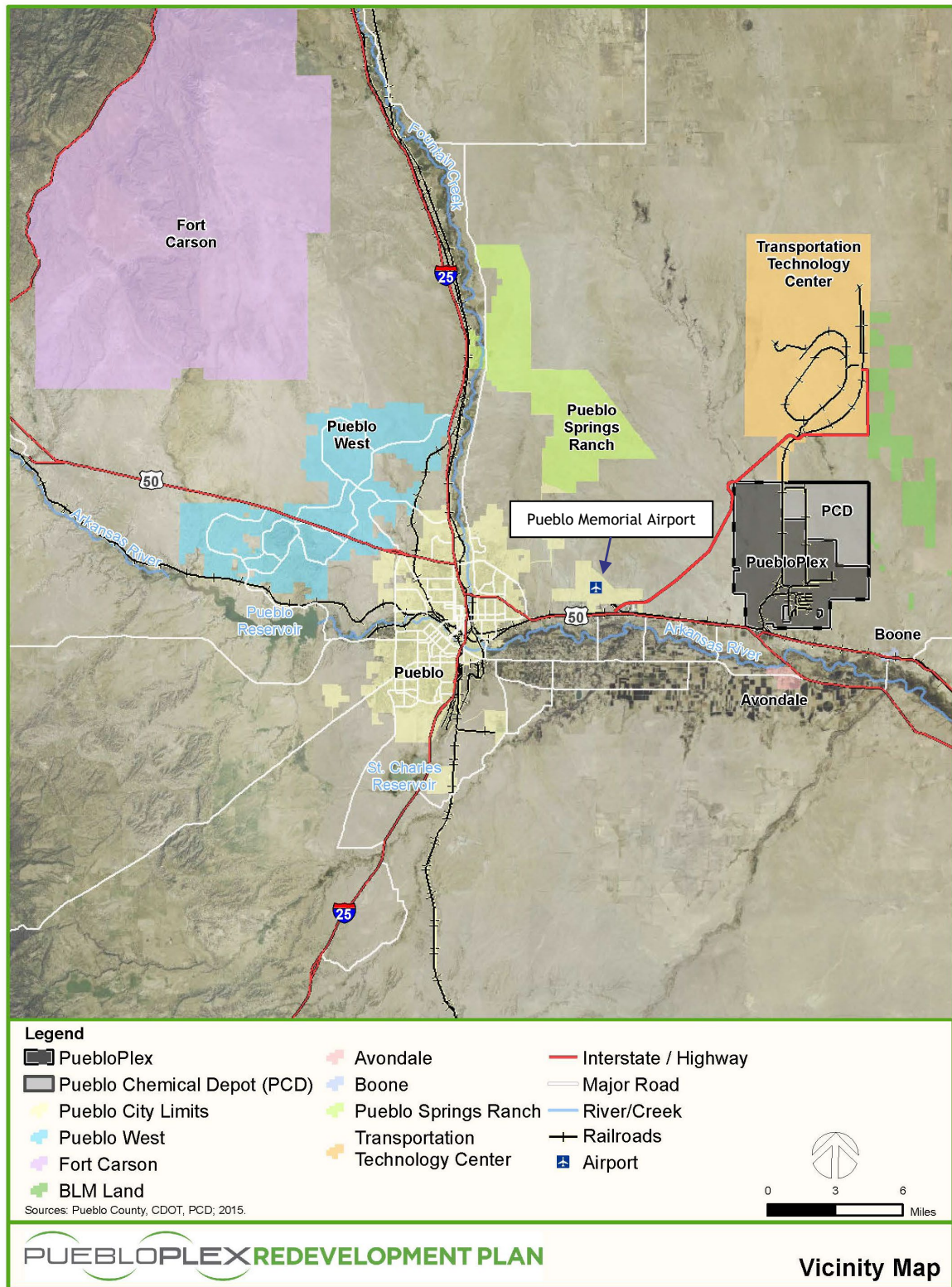
Figure 3.7 depicts the heavy rail network in Colorado. **Figure 3.8** provides a proximity map of these entities within the greater Pueblo region.

Figure 3.7. Colorado Statewide Rail System



Source: CDOT, 2019

Figure 3.8. Proximity Map of PUB with PuebloPlex, TTC, & Connecting Rail Network



Source: PuebloPlex, 2019

3.2.5. Transportation Areas of Concern

No transportation system is perfect. Through the CASP process, several areas of concern were identified through input from CDOT Division of Aeronautics staff, CDOT modal managers, metropolitan planning agencies and transportation planning region representatives, interviewed stakeholders, and Project Advisory Committee (PAC) members. The following subsections list a few of the most concerning areas regarding airport accessibility and intermodal integration that were identified.

3.2.5.1. Traffic Congestion

Colorado is currently experiencing large shifts in population that require constant adjustments to the state’s transportation and mobility infrastructure. Commonly known as “rural flight” and “urban explosion,” these types of population changes entail shrinking rural populations and growing urban populations. This dynamic is predominantly driven by younger generations migrating to urban areas for economic opportunities. As shown in **Table 3.3** and **Table 3.4**, according to the U.S. Census Bureau, Colorado was the eighth-fastest-growing state in numeric population growth and seventh-fastest-growing by percentage of population growth from 2017 to 2018.

Table 3.3. Top 10 States in Numeric Growth: 2017-2018

Rank	Name	2010	2017	2018	Numeric growth
1	Texas	25,146,114	28,322,717	28,701,845	379,128
2	Florida	18,804,580	20,976,812	21,299,325	322,513
3	California	37,254,523	39,399,349	39,557,045	157,696
4	Arizona	6,392,288	7,048,876	7,171,646	122,770
5	North Carolina	9,535,736	10,270,800	10,383,620	112,820
6	Washington	6,724,540	7,425,432	7,535,591	110,159
7	Georgia	9,688,709	10,413,055	10,519,475	106,420
8	Colorado	5,029,316	5,615,902	5,695,564	79,662
9	South Carolina	4,625,381	5,021,219	5,084,127	62,908
10	Nevada	2,700,679	2,972,405	3,034,392	61,987

Source: U.S. Census Bureau, 2019

Table 3.4. Top 10 States in Percentage of Growth: 2017-2018

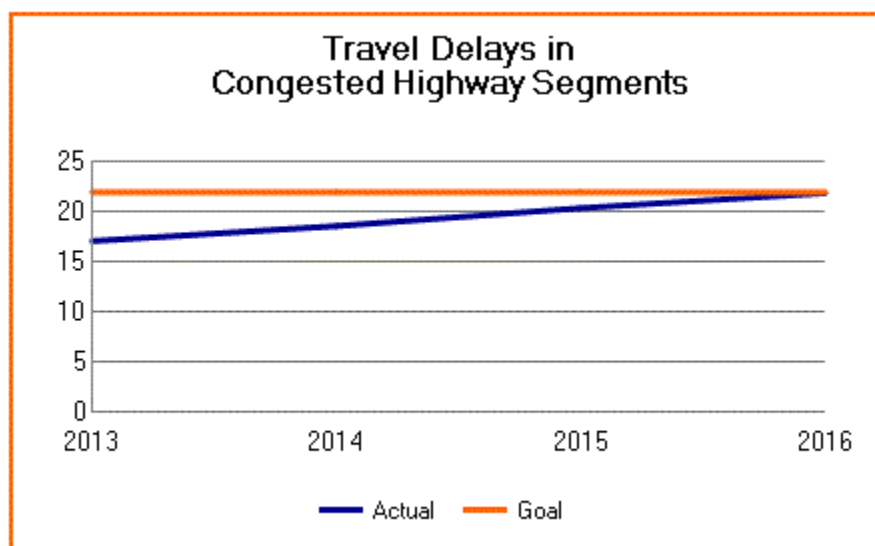
Rank	Name	2010	2017	2018	Percent growth
1	Nevada	2,700,679	2,972,405	3,034,392	2.1%
2	Idaho	1,567,657	1,718,904	1,754,208	2.1%
3	Utah	2,763,891	3,103,118	3,161,105	1.9%
4	Arizona	6,392,288	7,048,876	7,171,646	1.7%
5	Florida	18,804,580	20,976,812	21,299,325	1.5%
6	Washington	6,724,540	7,425,432	7,535,591	1.5%
7	Colorado	5,029,316	5,615,902	5,695,564	1.4%
8	Texas	25,146,114	28,322,717	28,701,845	1.3%
9	South Carolina	4,625,381	5,021,219	5,084,127	1.3%
10	North Carolina	9,535,736	10,270,800	10,383,620	1.1%

Source: U.S. Census Bureau, 2019

Rapid population growth typically leads to congestion of existing infrastructure due to an increase of users that stretch this infrastructure to its capacity. Unfortunately, rapid population shifts can be somewhat difficult to predict during long-range planning efforts which can inhibit a community’s ability to keep pace with infrastructure demand. Coupled with slow and costly development of new/expanded infrastructure, traffic congestion is rapidly becoming a mobility and accessibility issue for the state.

Figure 3.9 produced by CDOT, depicts the trend of increasing travel delays on congested highway segments. While CDOT maintained travel time delays to below their goal of 22 minutes through 2016, the increasing trend suggests that delay time continues to increase. Of note, travel time delay data has not been updated on the CDOT website beyond 2016.

Figure 3.9. Travel Delay Trend in Congested Highway Segments



Year	2013	2014	2015	2016
Long Range Goal	22	22	22	22
Actual	17.1	18.6	20.4	21.9

Source: CDOT, 2019

The I-70 corridor connecting the Denver metro area both east and west across the state has become a particularly concerning area of traffic congestion. Not only is this interstate taxed by a growing state population, it also winds its way through the Rocky Mountains connecting several resort communities such as Breckenridge, Copper Mountain, Vail, Beaver Creek, and Aspen to name a few. Winter months are especially taxing on the I-70 corridor due to adverse weather and high quantities of skiers making their way to the many ski resorts nestled in the mountains along the interstate.

To combat I-70 congestion, CDOT has developed an I-70 Mountain Corridor Vision that addresses the 144-mile route of I-70 through Colorado’s Rocky Mountains that includes improvements to transit, highway, safety, and environmental protection. This vision along with documentation regarding associated planning and decision making can be found at <https://www.codot.gov/projects/i-70mountaincorridor/vision.html>

3.2.5.2. Airport Isolation from Bike/Pedestrian (Ped) Accessibility

During the many outreach efforts associated with the CASP, project staff held collaboration meetings with the many CDOT modal managers, metropolitan planning agencies, and transportation planning region representatives who provided insight on the intermodal integration of the state's aviation system. During these discussions, CDOT's Multimodal Planning Branch representatives identified a prevailing concern regarding limited accessibility via walking or biking infrastructure within most communities throughout the state.

Most airport users do not expect to arrive at an airport entirely by foot or bike due to having baggage that may include flight bags for pilots and other gear such as recreational equipment or other luggage that are not conducive to being transported on a bike. However, improvements can always be made to the intermodal connectivity of transportation modes with bike and pedestrian infrastructure. These types of connectivity improvements provide users with greater first and last mile connectivity to the rest of the transportation system. That said, improving bike and pedestrian linkages typically progress at the same rate as other transportation mode enhancements. For example, a bus stop and transit service would be a precursor to a bike or pedestrian route connecting that transit stop with the surrounding community. Accordingly, overall expansion to intermodal connectivity will naturally present additional opportunities to provide first and last mile connections with bike and pedestrian routes/infrastructure.

To encourage and increase walking and cycling in the state, CDOT has established a Bicycle and Pedestrian Program that develops both infrastructure projects and promotional programs.⁴ An online interactive bicycle network map has also been developed as part of this program available at <http://dtdapps.coloradodot.info/bike#home>.

As part of this program, CDOT has produced a Statewide Bicycle and Pedestrian Plan (adopted in 2012, amended in 2015)⁵ and a Colorado Guide for the Development of Local and Regional Bicycle and Pedestrian Plans.⁶ Unfortunately, the Statewide Bicycle and Pedestrian Plan does not provide much content on the integration of bike and pedestrian infrastructure with airports. However, the Guide for the Development of Local and Regional Bicycle and Pedestrian Plans does recommend that linkages of bike and pedestrian systems should be provided wherever possible to interconnect with two or more modes of transportation. The guide recommends the provision of appropriate facilities for cycling and walking to bus stops and terminals, train stations, park and ride lots, airports, and other modal facilities.

3.2.5.3. Rideshare Concerns

Another concern raised during outreach efforts entails the rapid growth of rideshare (e.g., Uber and Lyft) as an emerging mode of transportation. A few concerns regarding rideshare interaction with airports are discussed below, such as its propagation of vehicular traffic, congestion of airport curb

⁴ Bicycle and Pedestrian Program Info available at: <https://www.codot.gov/programs/bikeped>

⁵ The Statewide Bicycle and Pedestrian Plan can be accessed here: https://www.codot.gov/programs/bikeped/building-a-bike-ped-friendly-community/Bike_Ped_Plan

⁶ The Colorado Guide for the Development of Local and Regional Bicycle and Pedestrian Plans can be accessed here: <https://www.codot.gov/programs/bikeped/building-a-bike-ped-friendly-community>

fronts, reduction of airport parking revenue, and encouraged growth of inequitable Americans with Disabilities Act (ADA) accessibility.

Propagation of Vehicular Traffic

Since their inception, Uber and Lyft have argued that their ridesharing services have helped to reduce traffic congestion within areas of operation. However, there seems to be lack of consensus on this topic amongst the academic and journalism communities. A brief literature review produces several studies and articles that both support and oppose the claim of reduced traffic congestion. However, one thing is certain: the popularity and growth of rideshare as a mode of transportation further encourages the continued use (and perhaps growth) of motorized vehicles providing transportation. Encouraged use of rideshare in the form of carpools, rather than single passenger trips, would certainly help to reduce the overall impact.

Congestion of Airport Curb Fronts

As the use of rideshare continues to increase, a larger percentage of airport users will be dropped off and picked up at airport curb fronts rather than parking a vehicle in traditional parking facilities. This naturally causes curb fronts to exceed their originally designed capacities. Associated concerns with crowded curb fronts include increased vehicle/vehicle and vehicle/pedestrian interactions leading to a higher collision risks and reduced user experience due to congestion and delay. Commercial service airports are testing various methods of ridesharing pick-up and drop-off points to reduce the curb front congestion, but a preferred method has not yet been determined and is likely an individual airport decision based on available space, the roadway network, and other issues potentially impacting curb front congestion.

Reduction of Airport Parking Revenue

As touched on in the section above, increased use of rideshare as a mode of transportation naturally reduces the demand on existing airport parking facilities. Similarly, any increased ridership of transit options (bus or light rail) will also affect the demand on parking. This presents a problem for airport operators as parking fees represent one of their largest revenue sources. Future sources of revenue will need to be explored to sustain operating budgets as all indications point to the continued growth of alternative transportation modes such as rideshare and transit providing access to and from airports.

Inequitable ADA Accessibility

A primary concern voiced by CDOT modal managers has to do with the limited capacity of rideshare companies to accommodate ADA users. As most drivers for rideshare companies use their own personal vehicles, the vast majority of the overall rideshare fleet is not configured to accommodate wheelchairs or other mobility equipment. Therefore, as rideshare grows as a transportation mode, the equitable share of ADA compatible transportation will naturally decrease.

Both Uber and Lyft have implemented accessibility programs to provide a limited number of vehicles that can accommodate non-folding wheelchairs. However, these services are only available in select markets and available vehicles can often take a considerable amount of time to arrive once a trip has been requested.

CDOT actively advocates for accessibility as required by the ADA and has developed an Accessibility Program and Transition Plan to help public entities to transition their facilities to ADA compliance.

These transitional improvements focus on ADA compatible curb ramps, rest stops, and building facilities. Provision of ADA compatible vehicles is left to the various transit districts, rideshare companies, taxi services, etc. The challenge lays in ensuring these types of entities, especially the growing rideshare companies, provide an equitable number of ADA-compliant vehicles across all service areas.

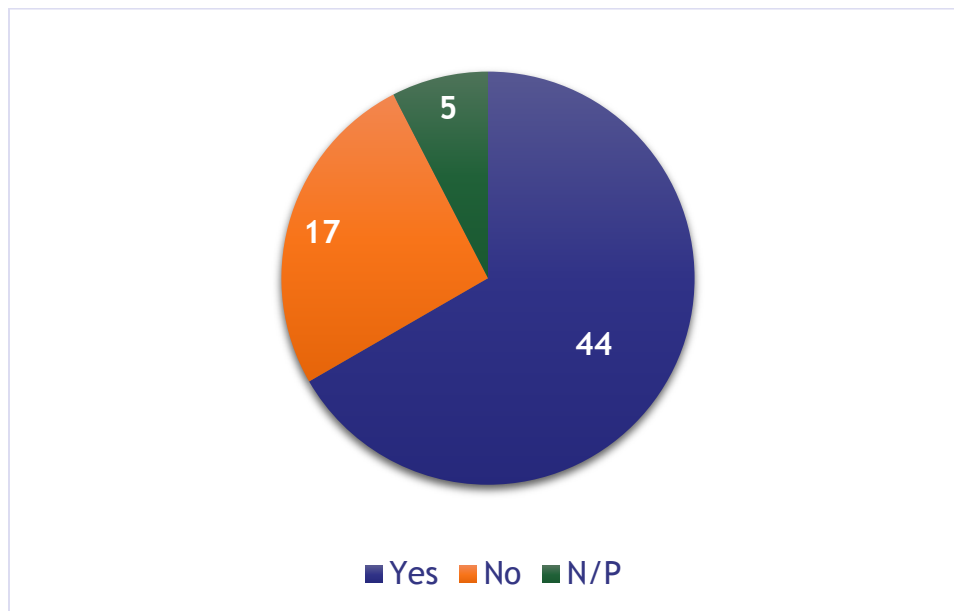
3.2.6. Planned Improvements

Planning is a critical component of ensuring viable growth and coverage of the state’s overall accessibility and modal interconnectivity. Planning allows communities to anticipate future growth and shifts in demand to best plan for desired outcomes. Following planning efforts, specific improvements can be identified and implemented along planned timelines or upon reaching specific milestones. The following subsections touch on local long-range planning efforts and specific infrastructure improvements that are either in process or planned for the near future for Colorado’s transportation/mobility systems.

3.2.6.1. Long-Range Planning

A primary goal of aviation system planning is to help airports integrate their needs and impacts with local land use and transportation planning efforts. Collaboration between airports and local land use authorities through local and regional planning efforts will help to ensure that airports are better integrated into their communities and specific access and other needs are being met by all parties involved. Accordingly, as part of the CASP, airport managers were asked to identify if their airport has been considered within their local land use or transportation planning efforts. As shown in **Figure 3.10** 44 of the 66 CASP airports have been considered in local land use or transportation plans. Seventeen airports responded that their airport has not been included or identified in local or regional planning efforts, with five airports not providing any information.

Figure 3.10. CASP Airports Considered in Local Land Use or Transportation Plans



Source: 2018 Inventory & Data Form

3.2.7. CDOT Statewide Transportation Plan 2040, Transportation Matters

CDOT’s current long-range statewide transportation plan entitled “Transportation Matters” is intended to guide the state’s multimodal transportation system through 2040. An update to this plan is underway, but data are not currently available from the new plan. The plan outlines the multimodal transportation options and what they will look like over the next 10 to 25 years. As a whole, the plan was developed by taking important features and findings from regional transportation plans, council of government plans, and modal plans from transit, freight, rail, aviation, and bicycle and pedestrian modes. With the intention of being a living document, the plan is an important tool to help the state to respond to changing needs over time. The goal of the 2045 SWP is to develop a 10-year strategic pipeline of projects inclusive of all modes informed by both a data-driven needs assessment and public and stakeholder input. The plan is anticipated to finish in spring 2020.

3.2.7.1. Planned Transportation Infrastructure Improvements

Through the statewide transportation planning efforts, Transportation Matters identified \$46 billion dollars of transportation needs over the 25-year span of the plan. In the same time, CDOT will have only generated \$21.1 billion in revenue. This contrast in funding needs and availability is vast and will need substantial effort on the part of the Colorado public to help bridge the funding gap.

These identified needs have been prioritized within CDOT’s Statewide Transportation Improvement Program (STIP) which lays out a program of planned transportation projects to be undertaken over the coming years. The STIP also incorporates the transportation improvement plans (TIPs) from each of the state’s metropolitan planning organizations (MPOs). The STIP is updated annually to add a new year’s worth of projects to the four-year program. The 2019 STIP summary report which lists each of the planned projects for 2019-2022 was published in May 2019. At 79 pages in length, the report lists many improvements for each type of transportation mode, especially for transit and pedestrian improvements. For I-70, a search produced 54 projects with “I-70” in the description.

One significant project to date is Central 70, the biggest project in CDOT’s history. This \$1.2 billion project will reconstruct a 10-mile stretch of I-70 between Brighton Boulevard and Chambers Road, add one Express Lane in each direction, remove an aging 55-year-old viaduct, lower the interstate between Brighton and Colorado boulevards, and install a four-acre park over a portion of the lowered interstate. As one of the state’s most important economic backbones, this corridor is home to 1,200 businesses, provides regional connection to Denver International Airport, and carries approximately 200,000 vehicles per day. When completed, the Central 70 Project will reduce congestion, improve safety, and better accommodate future growth along this vital transportation corridor. Design began in January 2018 with construction anticipated for completion in 2022.⁷

Additionally, CDOT is implementing a multiphase project to improve capacity and safety along the I-25 corridor between US 36 in the Denver metro area to CO 1 in Wellington in northern Colorado. Known as the I-25 North project, these improvements will provide modern multimodal transportation solutions for residents, workers, and visitors—as well as freight and other goods—traveling between Denver and

⁷ Additional information about the Central 70 Project, as well as links to the latest project updates, are available online at www.codot.gov/projects/i70east (accessed September 2019).

Wyoming.⁸ The \$350 million I-25 South Gap project is improving an 18-mile stretch of interstate from south of Castle Rock to Monument. Known as “The Gap,” this section is the only four-lane section of I-25 connecting Colorado’s two largest cities, Denver and Colorado Springs. Improvements will widen interstate shoulders, add an Express Lane in each direction, construction additional wildlife crossings and deer fencing, and improve pavement and other infrastructure.⁹ Both the I-25 South Gap and I-25 North projects will improve access and connectivity to the Front Range Airports.

Figure 3.11. Central 70 Project Overview



Source: CDOT, 2019

An interactive map of all STIP projects can be found at the following location:

<http://dtdapps.coloradodot.info/prolojs/>

It is important to note that all capacity improvements on the state highway system are subject to the Managed Lanes Policy Directive (1603.3). The policy requires that managed lane strategies be strongly considered during the planning process for all state highway facilities that are or will be congested. Strategies may include tolled express lanes, BRT, and high-occupancy vehicle requirements. This policy is designed to maximize investments into the multimodal system and find flexible, cost-effective strategies for sustaining or enhancing the movement of goods and people.¹⁰ Additionally, CDOT has adopted a Risk-based Asset Management Plan to articulate the strategies necessary to make the most efficient decisions regarding the allocation of resources. These strategies are designed to help direct funding to the state’s most critical projects, support the greatest return on state investments, and offer greater accountability into the use of public funds.¹¹ An update to this plan is currently

⁸ Additional information about the I-25 North project is available online at www.codot.gov/projects/north-i-25 (accessed September 2019).

⁹ Additional information about the I-25 South Gap project is available online at <https://www.codot.gov/projects/i25-south-gap> (accessed September 2019).

¹⁰ CDOT Office of Policy & Government Relations. (January 2013). “Managed Lanes Policy Directive.” Available online at www.codot.gov/about/governmentrelations/news-publications/policy-briefs/cdot-s-managed-lanes-policy-directive (accessed September 2019).

¹¹ CDOT. (December 2013). “Risk-based Transportation Asset Management Plan.” Available online at www.codot.gov/programs/colorado-transportation-matters/documents/risk-based-transportation-asset-management-plan.pdf (accessed September 2019).

underway, which is anticipated to include CDOT's emphasis on maintaining the roadway network that provides access to airports.

3.2.8. Potential Traffic Reduction Methods

Oftentimes building additional infrastructure or widening roadways does not solve congestion as induced demand takes affect and nullifies efforts to improve travel delay. Induced demand is a concept that can be summarized in the commonly known phrase of "if you build it, they will come". Simply put, when travelers see that there is additional capacity on roadways, they will adjust their trip planning to take advantage of the newly found path of least resistance. However, when constraints are placed on infrastructure, travelers will look to alternative routes or modal options instead. Perhaps they will decide to use transit or telecommute rather than drive to their office, or perhaps they will form a carpool to take advantage of Colorado's Express Lanes. In these types of situations, the solution to stressed infrastructure will need to be alleviated through alternative traffic reduction methods.

3.2.8.1. Promotion of Park and Ride/Transit Use

As discussed in earlier sections, the Bustang interregional bus system coupled with local transit districts and the Denver metro area's commuter and light rail systems are capable of transporting travelers to far-reaching areas of the state. If travelers reach the first point of transit in their area, then they theoretically can reach a large portion of the state through transit links. Oftentimes, the first and last mile connection between communities and transit stops is the largest barrier preventing a traveler to choose transit over a personal vehicle as their preferred transportation mode.

The establishment of strategically placed park and ride lots can help travelers to connect with their nearest transit stops and make that first and last mile link between their homes and transit options. Currently, Colorado has many park and ride lots that are owned by several different entities such as CDOT, local transit districts, and private entities. The total number and location of all park and ride lots in the state is difficult to quantify as a single data source does not appear to exist. However, CDOT alone maintains 27 lots and RTD (the largest transit system in the state) has a published list of 85 lots. The Roaring Fork Transportation Authority (RFTA) serving the Aspen, Glenwood Springs, and Rifle areas is the second largest transit system in the state and offers 12 park-and-ride lots throughout the Roaring Fork Valley. Taking into consideration the park-and-ride lots operated by the other 69 transit operators and local municipalities, Colorado offers a network of park and ride lots throughout the state.

Colorado's robust skiing industry is world-renowned. However, ski area vehicular infrastructure is characteristically limited due to the natural terrain. This causes congestion on narrow roadways and a shortage of available parking. As such, promotion of park-and-ride lots and transit usage is particularly important in these areas. In particular, RFTA and Eagle County Transit (ECO Transit) provide robust transit service to their associated ski areas. Of note, RFTA has implemented the first rural bus rapid transit (BRT) system in the nation to help alleviate congestion and improve mobility up and down the Roaring Fork Valley between Aspen, Glenwood Springs, and Rifle. Service is provided seven days a week with 12-minute headways (or less) between busses. BRT systems greatly serve to promote the use of park-and-ride lots as they provide similar commute times (or less) due to their ability to bypass congested corridors. Commuters are especially encouraged to take the bus when BRT busses consistently pass them by while stuck in traffic. Similarly, ECO Transit operates 21 hours a day, 7 days a week, with a fleet of 31 busses between the Gypsum, Vail, and Leadville mountain communities.

Furthermore, as mentioned in the Shared Mobility section above, bikeshare and scootershare are an emerging mode of transportation that can greatly help to alleviate the first and last mile issue. This is especially true when they are strategically placed at transit stops and park and ride facilities. Accordingly, to best enhance the first and last mile connectivity, improvements to bike and pedestrian infrastructure should be considered for all communities.

Further promotion of this interconnected network of transit, park and ride facilities, and shared mobility options can help to increase awareness and ridership, thus reducing the number of single occupancy vehicles on the roadways. As such, CDOT is actively working to enhance multimodal options by expanding current infrastructure and providing additional support to mobility programs. Existing park and ride transit locations will be re-envisioned as “mobility hubs,” which will emphasize multimodal options, seamless transition between modes, real-time passenger information, and rider convenience. Mobility hubs may include Bustang/Outrider or other interregional transit services, local transit service connections, electric vehicle charging stations, parking spaces, bicycle and pedestrian connections, and Wi-Fi to connect with first and last mile services. Hubs could help build demand for future Front Range mobility options, such as possible rail service along the I-25 and other essential service corridors.

3.2.8.2. Disincentives for Single Occupancy Vehicles & Incentives for High Occupancy Vehicles

It’s an unfortunate fact that a large portion of vehicles on Colorado roadways are single occupancy vehicles. These types of vehicular trips take up a large proportion of roadway capacity per person. In comparison, a high occupancy vehicle (carpool, van pool, or bus) can transport a larger number of people per vehicle thereby significantly reducing the amount of roadway capacity required per person. This principle represents an opportunity to increase the carrying capacity of Colorado’s existing roadways through disincentives for single occupancy vehicles and incentives for high occupancy vehicles. These types of disincentives and incentives can be creative in nature.

The existing Express Lanes program is an example of an incentive already employed to encourage travelers to form high occupancy vehicles. Similarly, the CDOT carpool/vanpool matching program assists travelers to find other travelers who are taking a similar route to help pair them into a carpool or vanpool. This program is especially helpful for commuters who make multiple trips on a similar route and on a similar schedule. A few new ideas could include the incentive of providing reserved close-up parking or free parking to high occupancy vehicles at end destinations, including airports especially for airport employees. Or a similar disincentive would be to require single occupancy vehicles to pay a higher parking rate or require that they park at the far end of parking lots. Tax credits for individuals or companies able to document consistent high occupancy vehicle use could also be explored.

As discussed in the Shared Mobility Section above, Uber’s “UberPool” and Lyft’s “Shared” carpool services could be promoted as not only a way to help form high-occupancy vehicle trips, but to also help users save money. When users form these shared carpools, each member of the pooled trip pays an equitable share of the trip cost, thereby making a single-occupancy rideshare trip less affordable and less attractive. Airports are looking at options related to incentivizing and/or requiring these types of services to address curb front congestion and increased environmental impacts from additional car trips.

3.2.8.3. Additional Mobility-related Initiatives

Enhancing intermodal integration and improving access to public transportation options provides the additional benefit of lowering carbon emissions associated with single occupancy vehicle travel and vehicle idling when traveling through congested areas of the roadway network. Furthering the sustainability benefits of providing an optimized multimodal transportation system and recognizing the technological advancements that have occurred in recent years, the CDOT Office of Innovative Mobility is working on an Emerging Mobility Impact Study in compliance with Senate Bill (SB) 19-239: Address Impacts of Transportation Changes. To address the technology and business model changes related to commercial vehicles, this bill requires that CDOT form a Stakeholder Working Group (SWG) with the following key responsibilities:¹²

- Quantify carbon emissions produced by motor vehicles used for commercial purposes and provide strategies on how to reduce those emissions
- Identify infrastructure needs to support zero emission vehicles and increased use of the new technologies and business models
- Identify potential fees to mitigate the impacts of new technologies and business models in the transportation industry and to incentivize zero emission vehicles and multi-passenger ride-sharing opportunities

During the summer of 2019, the SWG met to consider policy options, with the CDOT and Colorado Energy Office providing modeling support. By November 1, 2019, the SWG will present a report of policy recommendations and priorities. By October 1, 2020, CDOT will promulgate rules to the extent necessary to effectively implement SB 19-239.

Additionally, CDOT is committed to integrating safety into all aspects of agency operations, from employee behavior to planning, design, construction, and maintenance through its Whole System Whole Safety initiative. This program takes a systematic, statewide approach to reduce the rate and severity of crashes and improve safety conditions for all modes of transportation, including air travel.

3.2.8.4. Promotion of Non-Hub or Basic Commercial Service Airports

Colorado is a unique state due to its geographical and topographical diversity. The Rocky Mountains that cut the state in half longitudinally create unique mobility challenges as roadways typically wander around, over, and through steep mountain terrain. Communities in the mountainous half of the state may be close to another community geographically but requires a much longer vehicular trip than would normally be expected. Winter weather often compounds the travel time required to make similar trips, especially if a mountain pass must be crossed along the route.

In these types of scenarios, the public and visitors often overlook the availability of smaller commercial service airports (defined as all except Denver International and Colorado Springs Municipal) that make connecting to other parts of the state and country faster and more convenient. Use of these airports could also help to reduce the number of vehicles on already congested roadways (I-70 for example).

¹² The text of the SB is available online at <https://leg.colorado.gov/bills/sb19-239> (accessed September 2019).

Colorado’s smaller commercial service airports are shown in **Table 3.5**. Depending on the season, most of these airports provide daily regional flights to Denver as well as non-stop flights to other major U.S. markets. Given the tourist nature of many parts of Colorado, there are more robust flight schedules available during the winter (December - May) and summer (June - September) months to serve outdoor recreation demand, depending on the airport community’s prime season. Per the U.S. General Services Administration’s published per diem rates, much of the winter lodging demand is pointed at resort communities like Vail, Aspen, and Telluride. Contrastingly, higher summer lodging demand is seen in Boulder, Colorado Springs, Cortez, Durango, and Steamboat Springs.¹³

Table 3.5. Non-Hub and Basic Commercial Service Airports and Available Air Carriers

Associated City	Airport	Available Air Carriers
Alamosa	San Luis Valley Regional	Boutique Air
Aspen	Aspen-Pitkin County	American, Delta, United
Cortez	Cortez Municipal	Boutique Air
Durango	Durango-La Plata County	American, United
Eagle	Eagle County Regional	American, Delta, United
Fort Collins/Loveland	Northern Colorado Regional	Charter Only
Grand Junction	Grand Junction Regional	Allegiant, American, Delta, Denver Air Connection, United
Gunnison	Gunnison-Crested Butte Regional	American, United
Hayden	Yampa Valley	Alaska, American, Delta, JetBlue, United
Montrose	Montrose Regional	Allegiant, American, Delta, United
Pueblo	Pueblo Memorial	United
Telluride	Telluride Regional	Boutique Air, Denver Air Connection

Source: Individual airport websites, accessed April 2019

3.2.9. Summary

Colorado is a unique state with unique accessibility and intermobility challenges and opportunities. However, the state enjoys a robust, albeit stressed, roadway network and multiple transit options that extend outwards to link more rural parts of the state. Coordinated planning efforts between airports and communities will ensure that appropriate improvements to the existing transportation and aviation systems will further enhance airport access and multimodal integration with communities and statewide.

3.3. Environmental Context

As noted in the introduction above, the FAA included consideration of environmental conditions as a component of aviation system plans in its most recent system planning AC, 150-5070-7, change 1, *The*

¹³ U.S. General Services Administration per diem rates were pulled in April of 2019 from <https://www.gsa.gov/>

Airport System Planning Process. The purpose of including environmental conditions is to identify potential environmental concerns early in the planning process. This overview of environmental conditions and considerations utilizes existing readily available information provided by airports and the FAA, as well as data from other online resources to identify obvious and known environmental features that may be considered sensitive or have the potential to impact future airport development.

The basis for determining the categories of environmental concerns were those contained in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions*. These documents provide detailed guidance on how airports can establish compliance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ). These orders delineate specific environmental impact categories to be addressed for NEPA and CEQ compliance. This section of the CASP is not designed to be NEPA-compliant, but instead provides an initial framework for future evaluations conducted at the airport-specific level. Accordingly, this section outlines notable environmental considerations that are of particular importance to Colorado airports including:

- Air quality
- Biological resources
- U.S. Department of Transportation (DOT) Section 4(f) lands
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archaeological, and cultural resources
- Land use
- Water resources

A discussion of each consideration and the potential for impacts to Colorado airports are presented below. Each section also includes an example of a Colorado airport that has identified the environmental consideration as an issue of concern in its master plan or other planning document. A summary table of the potential environmental issues of concern identified at all Colorado system airports is provided at the end of this section (**Table 3.10**). This table summarizes issues reported in airports' most recent master plans and as reported in the 2018 Inventory & Data Form collected during the CASP inventory process.

In Colorado, aerial wildland firefighting is an important tool to contain wildland fires and protect natural and manmade resources. The Center of Excellence for Advanced Technology Aerial Firefighting (CoE), located at Rifle-Garfield County (RIL) is a quasi-independent research center to evaluate existing and new technologies that support the state's aerial wildland fighting efforts. Research projects demonstrate the wide range of contributions CoE is making to improve the state's capability for fighting wildfires. The airport, higher education institutions, state and federal government agencies, and business partners around the state are strong supporters of CoE and its research contributions to effective firefighting in Colorado.

3.3.1. Air Quality

Through the Clean Air Act of 1970 (CAA), the U.S. Environmental Protection Agency (EPA) established the National Ambient Air Quality Standards (NAAQS) for six common air pollutants: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), sulfur dioxide (SO₂), and lead (Pb). As the federal agency charged with managing issues related to air quality, the EPA regulates these six pollutants to permissible levels through enforcement of the NAAQS. Areas of the U.S. and its associated territories with ambient concentrations of the criteria pollutants that exceed the NAAQS are considered to not be in attainment of the NAAQS and are therefore designated as “nonattainment areas.” For each nonattainment area, states must develop an EPA-approved State Implementation Plan (SIP) that outlines regulations, programs, and measures to be used to attain and maintain the NAAQS within the timeline established by the CAA. When a nonattainment area attains the NAAQS, it is then designated as a “maintenance area” to ensure continued adherence with the SIP. Maintenance status can last up to 20 years before an area is re-designated as attainment.

Table 3.6 outlines the maintenance areas within Colorado for CO and Particulate Matter-10 (PM-10).¹⁴

Table 3.6. Colorado Air Quality Maintenance Areas

Area	NAAQS	Designated as Nonattainment	Re-designation to Maintenance
Colorado Springs	Carbon Monoxide (1971)	11/15/1990	10/25/1999
Denver-Boulder	Carbon Monoxide (1971)	11/15/1990	1/14/2002
Fort Collins	Carbon Monoxide (1971)	11/15/1990	9/22/2003
Greeley	Carbon Monoxide (1971)	11/15/1990	5/10/1999
Longmont	Carbon Monoxide (1971)	11/15/1990	11/23/1999
Adams, Denver, Boulder Counties	Particulate Matter-10 (1987)	11/15/1990	10/16/2002
Archuleta County; Pagosa Springs	Particulate Matter-10 (1987)	11/15/1990	8/14/2001
Fremont County; Canon City Area	Particulate Matter-10 (1987)	11/15/1990	7/31/2000
Pitkin County; Aspen	Particulate Matter-10 (1987)	11/15/1990	7/14/2003
Prowers County; Lamar	Particulate Matter-10 (1987)	11/15/1990	11/25/2005
Routt County; Steamboat Springs	Particulate Matter-10 (1987)	1/20/1994	11/24/2004
San Miguel County; Telluride	Particulate Matter-10 (1987)	11/15/1990	8/14/2001

Source: U.S. EPA, 2019

¹⁴ Additional details about all non-attainment areas in Colorado are available at www3.epa.gov/airquality/urbanair/sipstatus/reports/co_areabypoll.html

The Denver Metro/North Front Range region is the only nonattainment area in Colorado in terms of Ozone, which is not in attainment of 2015 eight-hour ozone standards with a designation of nonattainment in August 2018 (see **Figure 3.12**).¹⁵ This region contains all of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties, as well as part of Larimer and Weld counties. According to the NAAQS, eight-hour ozone standards are measured by taking the fourth-highest daily maximum eight-hour ozone level averaged over three years. It should be noted that this designation of nonattainment started in 2004 based on 1997 eight-hour ozone standards. In November 2007 (Federal Fiscal Year 2008), the region’s designation changed to “marginal” nonattainment for the same standard. In 2015 the EPA changed the ozone standard to the current eight-hour ozone standard of 70 parts per million. In early 2016, the region’s status was moved from “marginal” to “moderate” based on the 2008 standard.

To ensure federal agencies uphold the objectives of the CAA, help maintain the NAAQS, and remain compliant with SIPs, proposed airport actions and development at federally funded airports within nonattainment and/or maintenance areas require an air quality analysis. Known as the General Conformity Rule, this requirement is designed so that aviation-related activities do not contribute to a new violation of the NAAQS, worsen existing violations, or delay attainment of the NAAQS. Airports within non-attainment areas must also prepare an Airport Emissions Inventory to be included in their area’s SIP. This can be challenging and difficult to quantify, as airports emissions come from a variety of sources that include aircraft engines and auxiliary power units, as well as various types of powered ground support equipment. To help airports in this process and comply with the General Conformity Rule, the Airport Cooperative Research Program (ACRP) developed Report 84: *Guidebook for Preparing Airport Emissions Inventories for SIPs* (2013). Airports located in the counties that compose the Denver Metro/North Front Range nonattainment area are as follows:

- Adams - Colorado Air and Space Port (CFO)
- Arapahoe - Centennial (APA)
- Boulder - Boulder Municipal (BDU), Vance Brand (LMO)
- Denver - Denver International (DEN)
- Douglas - None
- Jefferson - Rocky Mountain Metropolitan (BJC)
- Larimer - Northern Colorado Regional (FNL)
- Weld - Erie Municipal (EIK), Greeley-Weld County (GXY)

While none of the airports noted a specific air quality concern that has impacted development to date, it is likely that any large redevelopment programs might have to be phased to fit within air quality standards as outlined in a SIP. Furthermore, air quality issues in this region may worsen as aviation demand rises in association with the area’s economic and population growth through the coming decades.

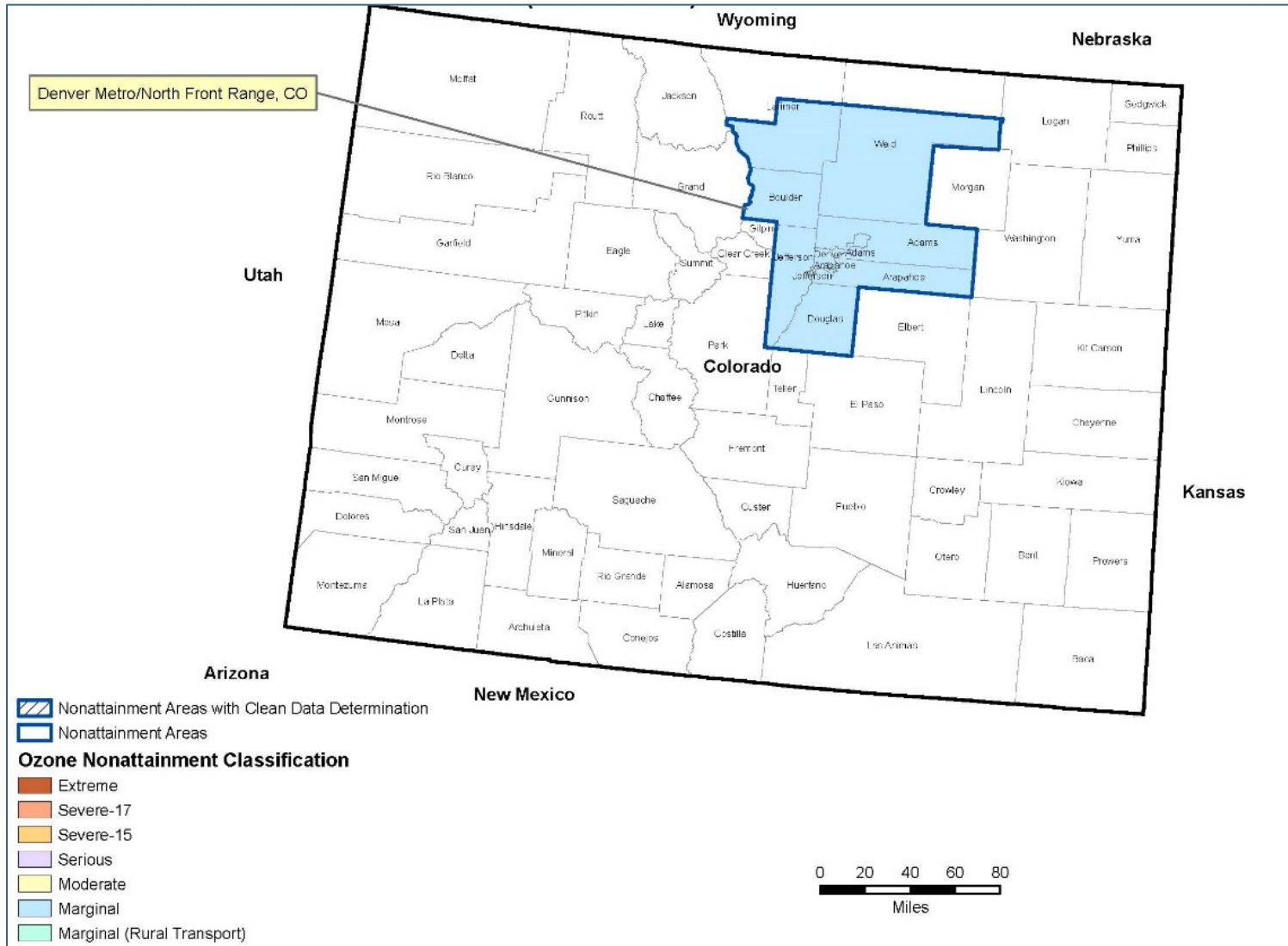
¹⁵ FAA. (2019). Colorado Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at https://www3.epa.gov/airquality/greenbook/anayo_co.html (accessed June 2019).

In addition to the requirements that are specific to airports in nonattainment and/or maintenance areas, an air quality analysis may also be required for NEPA purposes in the following cases:

- General aviation airports with a total of 180,000 or more annual general aviation and air taxi operations
- Commercial service airports with more than 1.3 million annual enplanements
- Proposed projects that would increase automobile traffic congestion at off-airport road intersections to a level of service of D, E, or F

For more information on air quality policies and procedures, airports should also consult FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*. Other ACRP resources pertaining to airports and air quality include ACRP Report 11: *Guidebook on Preparing Airport Greenhouse Gas Emissions Inventories*, Report 71: *Guidance for Quantifying the Contribution of Airport Emissions to Local Air Quality*, and Project 02-33: *Guidance for Estimating Airport Construction Emissions*.

Figure 3.12. Colorado Eight-hour Ozone Nonattainment Areas (2015 Standard)



Source: EPA Green Book, 2018

3.3.2. Biological Resources

Biological resources refer to the flora (plants) and fauna (fish, birds, mammals, reptiles, amphibians, etc.) of an area. These resources are valued for their aesthetic, economic, recreational, and environmental benefits. Numerous federal laws regulate and protect biological resources, including the Endangered Species Act (ESA), Fish and Wildlife Coordination Act, and Magnuson-Stevens Fishery Conservation and Management Act, among others. These regulations require consultations, permits, and/or authorizations for actions that could potentially impact biological resources.

According to FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, the most commonly applicable regulation when determining potential impacts on biological resources in consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the ESA. An ESA Section 7 consultation ensures that any federally authorized or funded action that may affect threatened or endangered species does not jeopardize the species' continued existence or result in destruction of the species' habitat. Additionally, the Colorado Revised Statutes (CRS) Title 33 - Parks and Wildlife, Article 2 - Nongame and Endangered Species Conservation provides state-level regulations related to biological resources.

The master plans of 29 system airports included sections addressing specific concerns related to biological resources and endangered species. The Colorado Springs Municipal Airport Master Plan (2013) identified multiple threatened or endangered species, such as the Western burrowing owl, Mexican spotted owl, Ferruginous hawk, mountain plover, piping plover, and interior least tern as observed on the airport's property.¹⁶ Additionally, the master plan noted that the Colorado Natural Heritage Program identified the airport as a Potential Conservation Area due to the presence of the largest known area of a Big Bluestem/Sandreed Tall Grass prairie in Colorado. To address these biological resource concerns, airport management created Designated Open Space parcels to ensure that the prairie ecosystem located on airport property would be minimally impacted by future development.

Table 3.7 lists the threatened and endangered species recognized by the federal and Colorado state governments. The table also denotes the Tier 1 Species of Greatest Conservation Need (SGCN) reported in Colorado's 2015 State Wildlife Action Plan (SWAP), a federally mandated plan prepared by Colorado Parks and Wildlife (CPW) (these species are denoted with a single asterisk).^{17,18} Tier 1 SGCN are of highest conservation priority in the state, although some species are not currently included on state and federal threatened and endangered species lists. In these cases, the agency(ies) that do recognize them as species of concern are noted.

¹⁶ Colorado Springs. (2013). Airport Master Plan. p. 7-5. Available online at coloradosprings.gov/sites/default/files/airport/files/COS_Master_Plan/cos_mp-finaltechnicalreportvol_1.pdf (accessed June 2019).

¹⁷ The Department of the Interior and Related Agencies Appropriations Act of 2002, Public Law [PL] 107-63, Title 1, mandates that each state prepare and adopt a SWAP to remain eligible for the State Wildlife Grants program (SWG).

¹⁸ CPW. (2015). *Colorado's 2015 State Wildlife Action Plan*. Available online at cpw.state.co.us/aboutus/Pages/StateWildlifeActionPlan.aspx (accessed June 2019).

Table 3.7. Colorado’s Key Threatened and Endangered Wildlife Species

Common Name	Scientific Name	Status**
<i>Amphibians</i>		
Boreal toad*	<i>Bufo boreas boreas</i>	SE, USFS, BLM
Couch's spadefoot	<i>Scaphiopus couchii</i>	SC
Great plains narrowmouth toad	<i>Gastrophryne olivacea</i>	SC
Northern cricket frog	<i>Acris crepitans</i>	SC
Northern leopard frog*	<i>Rana pipiens</i>	SC, USFS, BLM
Plains leopard frog	<i>Rana blairi</i>	SC
Wood frog	<i>Rana sylvatica</i>	SC
<i>Birds</i>		
American Peregrine falcon	<i>Falco peregrinus anatum</i>	SC
Bald eagle	<i>Haliaeetus leucocephalus</i>	SC
Brown-capped rosy finch*	<i>Leucosticte australis</i>	USFWS
Burrowing owl*	<i>Athene cunicularia</i>	ST, USFS, BLM
Columbian sharp-tailed grouse*	<i>Tympanuchus phasianellus columbianus</i>	SC, USFS, BLM
Ferruginous hawk	<i>Buteo regalis</i>	SC
Golden eagle*	<i>Aquila chrysaetos</i>	USFWS
Greater sage grouse*	<i>Centrocercus urophasianus</i>	SC, USFS, BLM
Greater sandhill crane*	<i>Grus canadensis tabida</i>	SC
Gunnison sage grouse*	<i>Centrocercus minimus</i>	FT, SC
Least tern	<i>Sterna antillarum</i>	FE, SE
Lesser prairie chicken*	<i>Tympanuchus pallidicinctus</i>	LT, ST, BLM, USFWS
Long-billed curlew	<i>Numenius americanus</i>	SC
Mexican spotted owl	<i>Strix occidentalis lucida</i>	FT, ST
Mountain plover*	<i>Charadrius montanus</i>	SC, USFS, BLM
Plains sharp-tailed grouse*	<i>Tympanuchus phasianellus jamesii</i>	SE
Piping plover	<i>Charadrius melodus circumcinctus</i>	FT, ST
Southwestern willow flycatcher*	<i>Empidonax traillii extimus</i>	FE, SE, USFWS
Southern white-tailed ptarmigan*	<i>Lagopus leucura altipetens</i>	USFS
Western snowy plover	<i>Charadrius alexandrinus</i>	SC
Western yellow-billed cuckoo*	<i>Coccyzus americanus</i>	SC, USFWS
Whooping crane	<i>Grus americana</i>	FE, SE
<i>Fish</i>		
Arkansas darter*	<i>Etheostoma cragini</i>	ST, BLM
Bueheaded sucker*	<i>Catostomus discobolus</i>	USFS, BLM
Bonytail chub*	<i>Gila elegans</i>	FE, SE
Brassy minnow*	<i>Hybognathus hankinsoni</i>	ST
Colorado pikeminnow*	<i>Ptychocheilus lucius</i>	FE, ST
Colorado River cutthroat trout*	<i>Oncorhynchus clarki pleuriticus</i>	SC, USFS, BLM
Colorado roundtail chub	<i>Gila robusta</i>	SC

Common Name	Scientific Name	Status**
Common shiner*	<i>Luxilus cornutus</i>	ST
Flannelmouth sucker	<i>Catostomus latipinnis</i>	USFS, BLM
Flathead chub*	<i>Platygobio gracilus</i>	SC, USFS
Greenback cutthroat trout*	<i>Oncorhynchus clarki stomias</i>	FT, ST
Humpback chub*	<i>Gila cypha</i>	FE, ST
Iowa darter	<i>Etheostoma exile</i>	SC
Lake chub	<i>Couesius plumbeus</i>	SE
Mountain sucker*	<i>Catostomus playtrhynchus</i>	SC, USFS, BLM
Northern redbelly dace*	<i>Phoxinus eos</i>	SE, USFS
Orangespotted sunfish*	<i>Lepomis humilis</i>	-
Plains minnow*	<i>Hybognathus placitus</i>	SE, USFS
Plains topminnow	<i>Fundulus sciadicus</i>	USFS
Plains orangethroat darter	<i>Etheostoma spectabile</i>	SC
Razorback sucker*	<i>Xyrauchen texanus</i>	FE, SE
Rio Grande chub*	<i>Gila pandora</i>	SC, USFS, BLM
Rio Grande cutthroat trout*	<i>Oncorhynchus clarki virginalis</i>	SC, USFS, BLM
Rio Grande sucker*	<i>Catostomus plebeius</i>	SE, USFS, BLM
Southern redbelly dace*	<i>Phoxinus erythrogaster</i>	SE, USFS, BLM
Stonecat	<i>Noturus flavus</i>	SC
Suckermouth minnow	<i>Phenacobius mirabilis</i>	SE
Mammals		
America pika*	<i>Ochotona princeps</i>	-
Black-footed ferret*	<i>Mustela nigripes</i>	FE, SE
Black-tailed prairie dog	<i>Cynomys ludovicianus</i>	SC
Botta's pocket gopher	<i>Thomomys bottae rubidus</i>	SC
Fringed myotis*	<i>Myotis thysanodes</i>	USFS, BLM
Gray wolf	<i>Canis lupus</i>	FE, SE
Grizzly bear	<i>Ursus arctos</i>	FT, SE
Gunnison's prairie dog*	<i>Cynomys gunnisoni</i>	USFS, BLM
Kit fox	<i>Vulpes macrotis</i>	SE
Little brown myotis*	<i>Myotis lucifigus</i>	-
Lynx*	<i>Lynx canadensis</i>	FT, SE
New Mexico meadow jumping mouse	<i>Zapus hudsonius luteus</i>)	USFS, BLM
Northern pocket gopher	<i>Thomomys talpoides macrotis</i>	SC
Olive-backed pocket mouse*	<i>Zapus hudsonius luteus</i>	USFS, BLM
Preble's meadow jumping mouse*	<i>Zapus hudsonius preblei</i>	FT, ST
River otter	<i>Lontra canadensis</i>	ST
Spotted bat*	<i>Euderma maculatum</i>	USFS, BLM
Swift fox	<i>Vulpes velox</i>	SC
Townsend's big-eared bat*	<i>Corynorhinus townsendii pallescens</i>	SC, USFS, BLM
Wolverine*	<i>Gulo gulo</i>	SE

Common Name	Scientific Name	Status**
<i>Reptiles</i>		
Colorado checkered whiptail*	Aspidoscelis neotesselata	SC
Common garter snake	Thamnophis sirtalis	SC, USFS, BLM
Common king snake	Lampropeltis getula	SC
Longnose leopard lizard	Gambelia wislizenii	SC
Massasauga*	Sistrurus catenatus	SC
Midget faded rattlesnake	Crotalus viridis concolor	SC
Roundtail horned lizard	Phrynosoma modestum	SC
Texas blind snake	Leptotyphlops dulcis	SC
Texas borned lizard	Phrynosoma cornutum	SC
Triploid checkered whiptail	Cnemidophorus neotesselatus	SC
Yellow mud turtle	Kinosternon flavescens	SC
<i>Mollusks</i>		
Rocky Mountain capshell	Acroloxus coloradensis	SC
Cylindrical papershell	Anodontoides ferussacianus	SC

*Note: Denotes Tier 1 SGCN.

**Note: Status Acronyms: FE: Federally Endangered, FT: Federally Threatened, SE: State Endangered, ST: State Threatened, SC: State Special Concern (not a statutory category), BLM: Bureau of Land Management, USFS: U.S. Forest Service, USFWS: U.S. Fish and Wildlife Service.

Sources: CPW, 2015, 2019

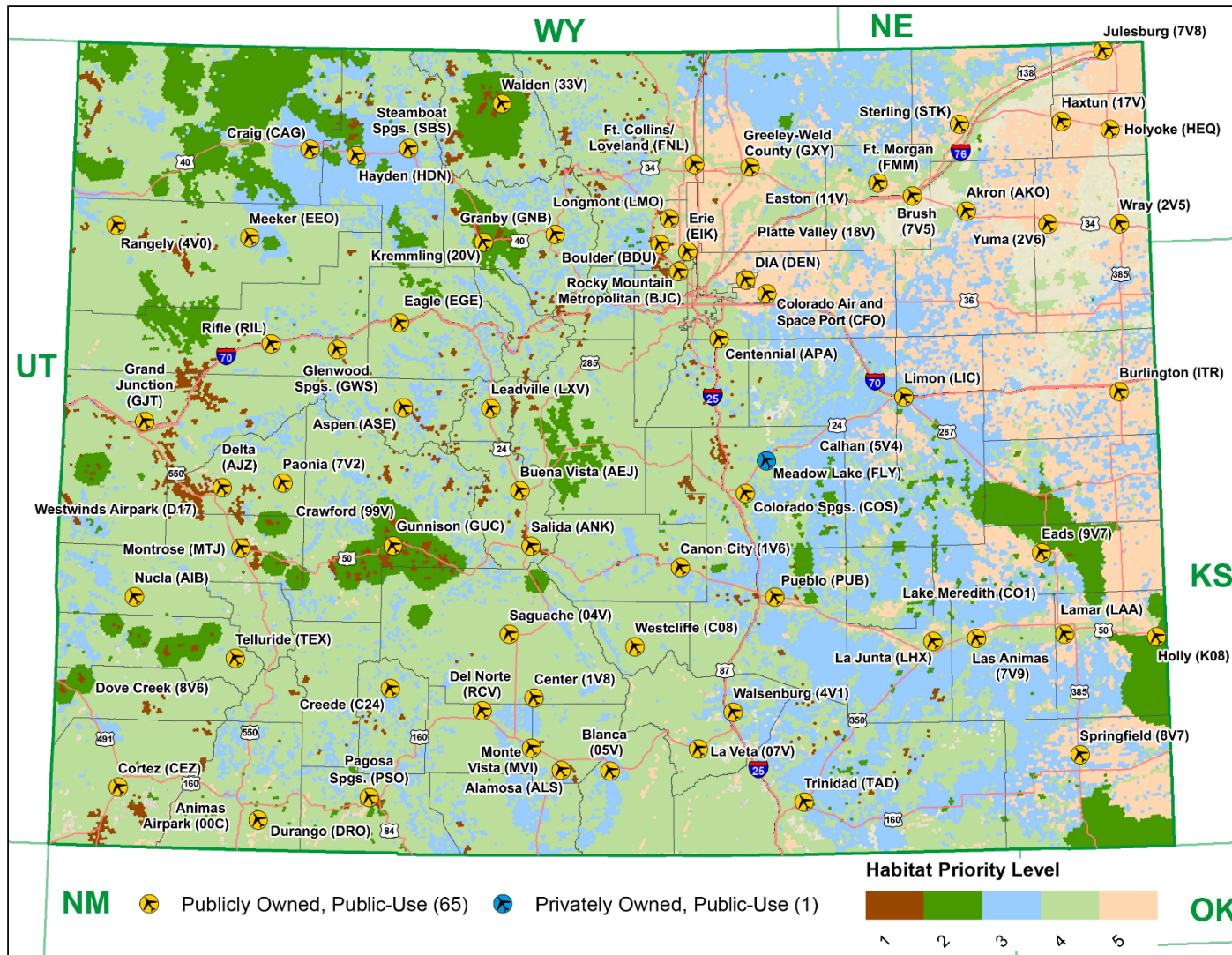
Figure 3.13 depicts the critical habitats of Colorado’s most threatened and endangered species. These areas contain the resources necessary for the survival and reproduction of wildlife including food, water, shelter, and movement corridors. Critical habitats have been established to prevent unacceptable declines in existing populations, facilitate future recovery efforts, or protect ecological systems with high biological diversity value.¹⁹ Ranked on a scale from one to five, priority areas represent those habitats and wildlife corridors that are rare, fragile, and essential to achieving species’ viability and biodiversity.

As shown, several of Colorado’s airports are surrounded by habitat priority levels one and two including Gunnison-Crested Butte Regional (GUC), Walden-Jackson County (33V), and Mc Elroy Airfield in Kremmling (20V). The Gunnison-Crested Butte Regional (GUC) sits within the USFWS-designated critical habitat for the Gunnison sage grouse, a ground-dwelling bird found only in Colorado and southeastern Utah. Because the Gunnison sage grouse is listed as federally threatened, the airport would be required to obtain a Section 10 permit under the ESA for any federally funded action that could result in a take.²⁰ While routine maintenance is not federally funded and thus excluded from Section 10 permitting, some routine activities conducted as part of an airport improvement project could be impacted. Mowing sage brush habitat, for example, is considered likely to result in a take and would require a Section 10 permit if conducted as part of a federally funded project.

¹⁹ Ibid. p. 400.

²⁰ Aviation. (2014). Gunnison-Crested Butte Airport Regional Airport Master Plan. p. 6-2.

Figure 3.13. Colorado Priority Habitats



Sources: CPW, 2015; Kimley-Horn, 2019

In addition to state- and federally-recognized threatened and endangered species, airports must also be cognizant of other wildlife species on or near airport property. All wildlife—such as birds, ungulates like deer and elk, and reptiles—can present serious safety risk to airport operations on the ground and in the air. While airport fencing is the primary means of preventing wildlife from entering the airfield, not all wildlife can be kept out with fencing, nor does every airport in the system employ a full perimeter wildlife fence. Because animals are attracted to areas that reflect their natural habitat or areas that provide food and water, airports can control their land use and landscaping to minimize potential animal attractants.

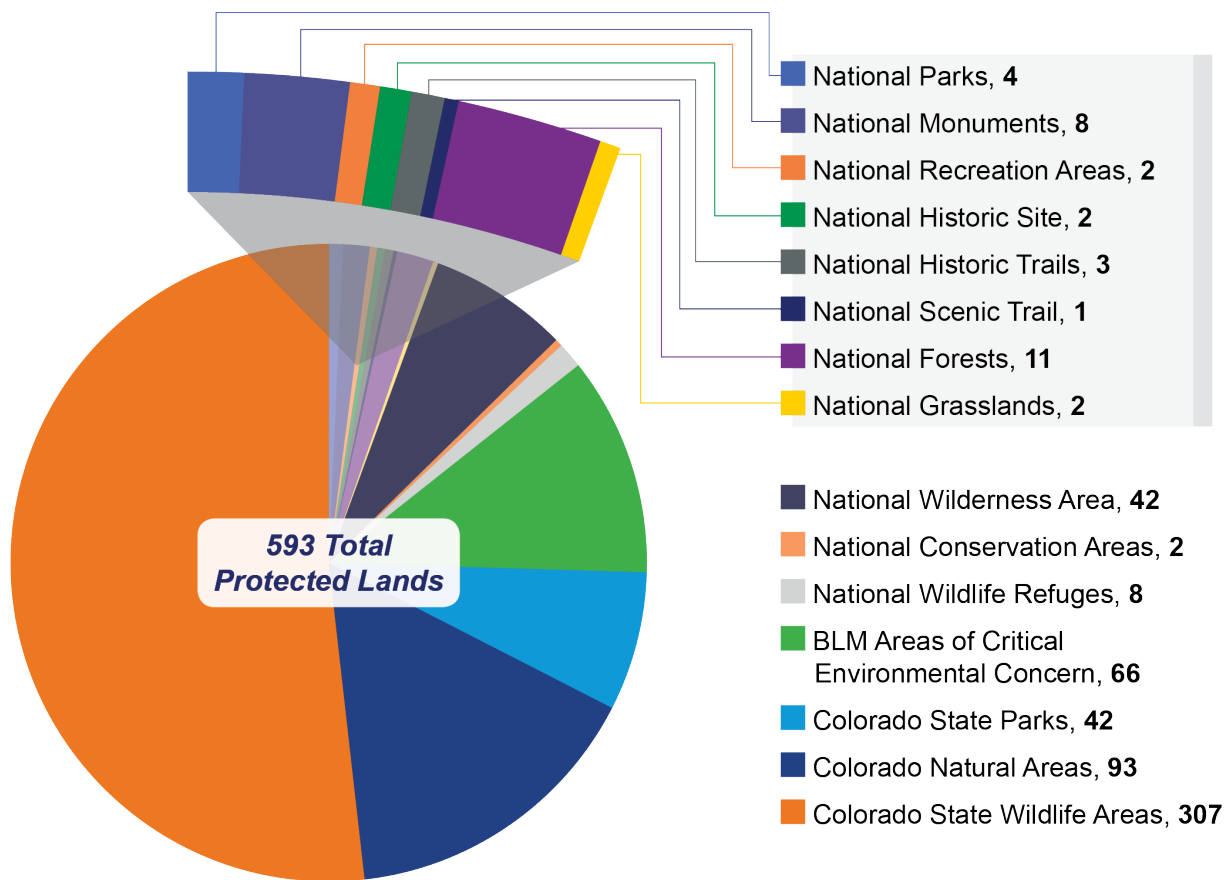
Airports can also perform wildlife hazard site visits to understand what potential threats exist for their airport or develop Wildlife Hazard Assessments (WHAs) or Wildlife Hazard Management Plans (WHMPs) to develop a strategy for mitigating against these hazards. The FAA requires that Part 139-certified airports conduct a WHA when certain qualifying events occur, such as when an air carrier experiences multiple or substantial wildlife strikes. The FAA then uses the WHA to determine if the airport is required to develop a more extensive WHMP based on the level of risk identified at the facility.

Chapter 2. Inventory of System Conditions provides additional information about airports in Colorado with wildlife fencing and WHAs.

3.3.3. DOT Section 4(f)

Section 4(f) of the United States DOT Act of 1966, 49 United States Code (USC) Section 303(c), provides that the Secretary of Transportation will not approve a transportation program or project that requires the use of publicly-owned land from a park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from an historic site of national, state, or local significance unless there is no feasible or prudent alternative or the DOT determines the use of the property will have minimal impact. If such a program or project is approved, it must include all possible planning to minimize harm resulting from the use. As shown in **Figure 3.14**, Colorado hosts various types of federally- and state-protected land, with 593 major protected lands in the state. Approximately 43 percent of total land in Colorado is owned by a public entity.

Figure 3.14. Number of Major State and Federal Lands in Colorado



Source: Kimley-Horn, 2019

This information does not encompass the numerous local parks and recreation areas that may qualify as Section 4(f) properties. Therefore, before beginning any airport improvement program or project, it is important that Colorado airports coordinate with the appropriate local, state, and federal authorities to determine if there are any Section 4(f) properties within the vicinity of the airport. If so, it is incumbent to then determine potential impacts the proposed program or project may have on those properties.

According to review of 66 Colorado public-use airport master plans, five airports noted specific concerns related to DOT Section 4(f) properties. Of these, the 2014 Eagle County Regional Airport Master Plan noted that 17 community parks and recreational areas were located near the airport. A neighborhood park located on Quail Run Circle approximately 1,500 feet from the Runway 07 threshold is an issue of particular concern. Several other parks and recreation areas, such as Gypsum Estates Park, Gypsum Sports Complex, Town Hall Park, Gypsum Recreation Center, and the Lundgren Theater, are also located within one mile of the airport. Although it is not anticipated that any recommended airport development projects would affect these facilities, future changes in airport operations could potentially cause impacts on the parks.

3.3.4. Farmlands

The Farmland Protection Policy Act (FPPA) of 1981 allows the United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) to regulate and prevent federal actions that may result in the unnecessary or irreversible conversion of important farmland to non-agricultural uses. As defined by the FPPA, important farmland includes “all land that is defined as prime, unique, or statewide or locally important.” These are defined by the NRCS as follows:

- Prime farmland. Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses.
- Unique farmland. Land other than prime farmland that is used to produce specific high-value food and fiber crops.
- Farmland of statewide importance. This is land, in addition to prime and unique farmlands, that is of statewide importance to produce food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land are to be determined by the appropriate state agency or agencies.
- Farmland of local importance. In some local areas, there is concern for certain additional farmlands to produce food, feed, fiber, forage, and oilseed crops, even though these lands are not identified as having national or statewide importance. Where appropriate, these lands are to be identified by the local agency or agencies concerned.

Projects are subject to FPPA requirements if they irreversibly convert farmland to nonagricultural uses and are completed by or with assistance from a federal agency. Farmland subject to FPPA requirements does not have to be currently used for cropland; it can also include forest/woodlands, pasturelands, and other land, but not water or previously developed urban land. According to the Economic Research Service (ERS) of the USDA, 31,820,957 acres of the state is farmland, representing approximately four percent of the total land area (2017 data). As shown in **Figure 3.15**, 35 percent is characterized as cropland, four percent for woodlands, and 59 percent for pastureland; The remaining land has already been developed or given over to ponds, roads, or wastelands. Fifty-four percent of cropland is harvested, four percent is used for pasture, and the remaining area is uncultivated. Colorado’s top agricultural commodities are cattle and calves, representing 51 percent of the state’s total farm receipts, followed by dairy products (11 percent), corn (8 percent), miscellaneous crops (7 percent), and hay (5 percent).²¹

²¹ USDA ERS. (2017). State Fact Sheets: Colorado. Available online at data.ers.usda.gov/reports.aspx?StateFIPS=08&ID=17854 (accessed 4 June 2019).

Fifteen airports in Colorado addressed specific concerns related to farmland in their master plans. In one example, the Rangely Airport Master Plan (2016) notes the NRCS determined that a 264-acre proposed development area is considered prime farmland. Because the development would require federal money, the airport would be required to conduct a land use evaluation and site assessment with the NRCS to establish the project’s farmland conversation impact rating score. The score is then reported on NRCS Form AD-1006, Farmland Conversation Impact Rating, which indicates if potential adverse effects on farmland exceed the recommended allowable level. Rangely Airport has not moved forward with the proposed development at the time of this writing.

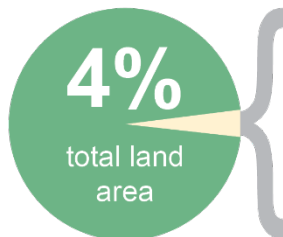
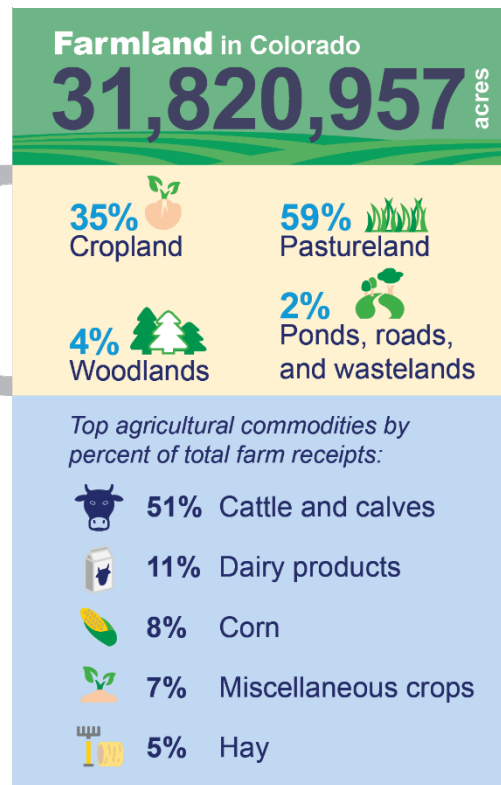


Figure 3.15. Farmland in Colorado



3.3.5. Hazardous Materials, Solid Waste, and Pollution Prevention

The three primary federal laws regulating the use, storage, transportation, and/or disposal of hazardous wastes, substances, and materials are the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Community Environmental Response Facilitation Act (CERFA), and the Resource Conservation and Recovery Act (RCRA). These statutes establish the following definitions:

- Solid waste. Defined by RCRA as any discarded material that meets certain requirements and includes items such as garbage, scrap metal, chemical by-products, and sludge from industrial facilities and wastewater treatment plants.
- Hazardous waste. Defined by RCRA as solid wastes that are ignitable, corrosive, reactive, or toxic. RCRA imposes strict requirements on the handling and disposal of hazardous wastes.
- Hazardous substance. Broadly defined by CERCLA to include substances designated as hazardous by the Clean Water Act, Clean Air Act, the Toxic Substances Control Act, and RCRA. This category does not include petroleum and natural gas products.
- Hazardous material. Defined by the CFRs as any substance or material that poses an unreasonable risk to health, safety, or property when commercially transported including petroleum and natural gas products.

In addition to these federal statutes, facilities must also comply with state and local rules, regulations, ordinances, and other requirements established by the Colorado Department of Public Health and

Environment (CDPHE), Colorado Board of Health, Air Quality Control Commission, Solid and Hazardous Waste Commission, and the Water Quality Control Commission, as well as local jurisdictions.²²

Airport projects must be reviewed to determine the type and extent of the waste materials that may be generated, disturbed, transported, treated, stored, or disposed of by any development action under consideration. Additionally, on-airport activities may involve the handling, application, and disposal of hazardous substances or materials, such as those conducted by a maintenance, repair, and overhaul (MRO) facility or an aviation-related supply manufacturer. Daily airport operations similarly produce various waste materials and involve the use of toxic materials, such as jet fuel and de-icing chemicals. It is each airport's responsibility to determine the type and extent of waste materials generated by on-airport activities and work with the applicable federal, state, and local authorities to comply with all applicable laws, regulations, and ordinances.

The CDPHE Hazardous Materials and Waste Management Division is generally responsible for regulating hazardous materials and waste management at the state level. At this time, no hazardous waste permitted facilities are located on or adjacent to airport property in Colorado.²³ However, the construction of airport capital improvement projects can generate solid waste that requires special handling. Some construction materials, such as fuel, oil, lubricants, paints, solvents, and concrete-curing compounds, may constitute hazardous substances.

The Aspen-Pitkin County Airport Master Plan (2012) notes that proper practices would need to be implemented during construction and operation of a new fuel facility on the west side of the airfield to reduce the potential release of hazardous materials. The airport would also need to update its Spill Prevention, Control, and Countermeasure (SPCC) plan and Stormwater Pollution Prevention Plan (SWPPP) due to the construction of the facility, as well as the potential expansion of apron space and west-side parallel taxiway.²⁴ In addition to Aspen-Pitkin County, 14 other Colorado system airports noted specific concerns related to hazardous materials, solid waste, and pollution prevention in their master plans. These concerns are generally associated with the potential creation of waste and/or pollution resulting from airport construction and development projects.

A concern to water quality and related to hazardous substances are the chemicals used for deicing aircraft which is a necessity in Colorado given the winter weather conditions. Depending on the controls in place to collect, contain, recover, and/or treat the wastewaters that contain deicing chemicals, there can be impacts to waterbodies. There are national regulations established by the EPA, referred to as effluent guidelines, that relate to discharging any pollutants and the guidelines are implemented through discharge permits that fall under the National Pollutant Discharge Elimination System (NPDES). In April 2012, the EPA released a rule regarding deicing that applies to "existing and new primary airports with 1,000 or more annual jet departures...that generate wastewater associated

²² Additional information about hazardous waste management in Colorado is provided at <https://www.colorado.gov/pacific/cdphe/hazwaste> (accessed 4 June 2019).

²³ CDPHE Hazardous Materials and Waste Management Division. (no date). Colorado Hazardous Waste Permits. Available online at environmentalrecords.colorado.gov/HPRMWebDrawerHM/RecordView/410277 (accessed 5 June 2019).

²⁴ Barnard Dunkelberg Company. (2012). Master Plan Update: Aspen/Pitkin County Airport. p. 7-16.

with airfield pavement deicing” regarding the types of deicers that can be used.²⁵ The rule also identified that “new airports with 10,000 annual departures located in cold climate zones are required to collect 60 percent of aircraft deicing fluid after deicing.”²⁶ These guidelines/requirements affect many of Colorado’s ski airports, requiring additional costs and consideration of how best to handle deicing operations while still meeting the environmental regulations and promoting an environmentally compatible operation.

Additionally, airport expansion projects can potentially conflict with nearby sites that handle or process hazardous materials or solid wastes. In particular, landfills are a significant wildlife attractant and should not be sited near an airport. FAA AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*, recommends a separation distance of 5,000 feet between such hazardous wildlife attractants and airports serving piston-powered aircraft and 10,000 feet for turbine aircraft not withstanding more stringent airport-specific needs. For all airports, the FAA recommends five statute miles between the farthest edge of the airport operations area (AOA) and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace. Additional information on this topic is available in AC 150/5200-34A, *Construction or Establishment of Landfills Near Public-use Airports*.

Figure 3.16 depicts the location of all landfills in Colorado with a five-mile buffer and the Colorado system airports. Table 3.8 lists the airports that may be located within the five-mile buffer zone of a landfill. These facilities should assess if any additional mitigation actions are warranted to reduce the potential for wildlife strikes due to the increased risks associated with proximity to a landfill.

Table 3.8. Potential Airport/Landfill Five-mile Conflicts

Associated City	Airport Name	FAA Identifier	Landfill Name
Aspen	Aspen-Pitkin County	ASE	Pitkin County Solid Waste Center
Burlington	Kit Carson County	ITR	Kit Carson / Burlington SDWS Landfill
Canon City	Fremont County	1V6	Phantom Landfill
Cortez	Cortez Municipal	CEZ	Montezuma County Landfill
Craig	Craig-Moffat	CAG	Moffat County Regional Landfill
Creede	Mineral County Memorial	C24	Mineral County SWDLF Landfill
Delta	Blake Field	AJZ	Adobe Buttes Landfill
Denver	Denver International	DEN	Tower Landfill Inc
Denver	Colorado Air and Space Port	CFO	East Regional Landfill
Eads	Eads Municipal	9V7	Eads SWDS Landfill
Erie	Erie Municipal	EIK	Front Range Landfill Denver Regional Landfill (South)
Fort Morgan	Fort Morgan Municipal	FMM	Morgan County Landfill

²⁵ EPA. (2012). Fact Sheet: Effluent Guidelines for Airport Deicing Discharges

²⁶ Ibid.

Associated City	Airport Name	FAA Identifier	Landfill Name
Gunnison	Gunnison-Crested Butte Regional	GUC	Six-Mile Lane Landfill
Holly	Holly	K08	Town of Holly SWDLF Landfill
Julesburg	Julesburg Municipal	7V8	Sedgwick County Landfill
Leadville	Lake County	LXV	Lake County Landfill
Montrose	Montrose Regional	MTJ	Montrose SWDS
Westcliffe	Silver West	C08	Custer County Landfill

Sources: CDPHE, 2019; Kimley-Horn, 2019

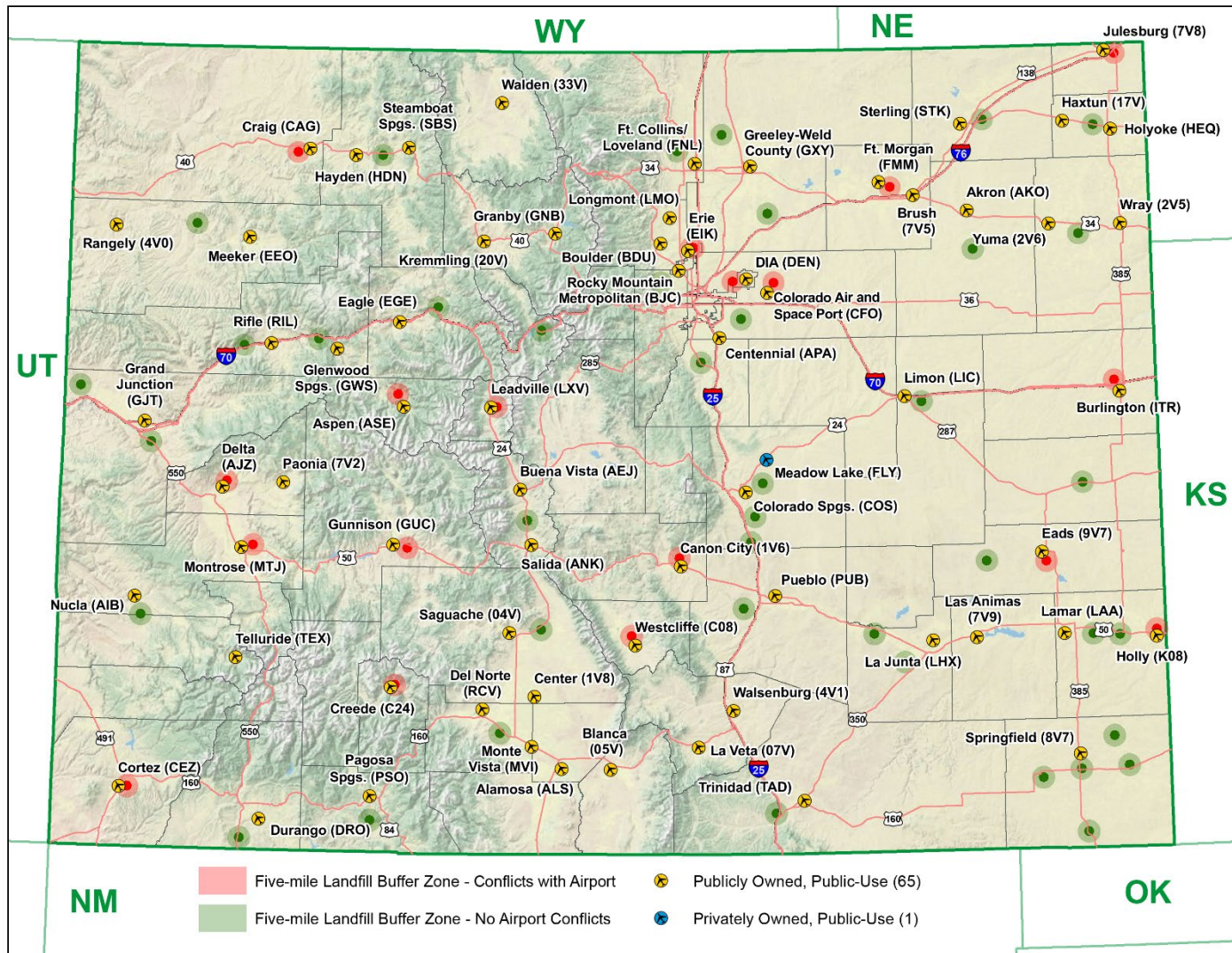
In addition to hazardous waste, substances, or materials generated by certain aviation-related activities and/or airport improvement projects, day-to-day airport operations generate municipal solid waste and construction debris that is typically sent to a landfill. The FAA Modernization and Reform Act of 2012 (FMRA) included two key changes pertaining to the recycling and disposal of this “normal” type of debris:²⁷

- FMRA Section 132 (b) expanded the definition of airport planning to include, “developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable state and local recycling laws, including the cost of a waste audit.”
- FRMR Section 133 added a provision that requires all federally funded airports that receive grant funding to address issues related to solid waste recycling in new or updated master plans. This content should address the feasibility of solid waste recycling, minimizing the generation of solid waste, operation and maintenance requirements, and a review of waste management contracts.

While many airports already have some type of recycling program in-place, the scope of these programs varies considerably. Accordingly, the FAA’s implementation guidance on the inclusion of recycling and waste reduction recognizes the content of each airport’s plan must reflect the unique needs of each facility. Airports have several resources available to aid in the development of recycling and waste reduction plans, including the *FAA Synthesis Document: Recycling, Reuse, and Waste Reduction Plans at Airports*; ACRP Report 80: *Guidebook for Incorporating Sustainability into Traditional Airport Projects*; ACRP Report 42: *Sustainable Airport Construction Projects*, and the Sustainable Aviation Guidance Alliance’s *Sustainable Aviation Resource Guide*. 20 airports in Colorado reported having a sustainability plan during the airport inventory process.

²⁷ FAA. (2014). *Memorandum: Guidance on Airport Recycling, Reuse, and Waste Reduction Plans*. Dated September 30, 2014.

Figure 3.16. Five-mile Landfill Buffer Zones Highlighting Conflicts with Colorado System Airports



Sources: CDPHE; Kimley-Horn, 2019

3.3.6. Historical, Architectural, Archaeological, and Cultural Resources

The National Historic Preservation Act of 1966 (NHPA) and the Archaeological and Historic Preservation Act of 1974 primarily regulate and protect historical, architectural, archaeological, and cultural resources at the federal level. These laws protect a range of sites, properties, and physical resources relating to human activities, society, and cultural institutions. These resources can include structures, objects, and districts considered important to culture or community, as well as aspects of the physical environment, natural features, and biota. Section 106 of the NHPA specifically requires federal agencies to consider the effects of their undertakings on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The Colorado State Historic Preservation Office (SHPO) manages the national historic preservation program for Colorado. SHPO is responsible for coordinating with federal agencies and relevant local government representatives during Section 106 reviews.

At the time of this writing, there are 1,543 Colorado sites identified by the NRHP; additional historic places and landmarks are being added on a continuous basis. Denver County has the highest number of sites in the state (300), followed by Larimer (105), El Paso (95), Boulder (89), and Jefferson (87) counties. **Figure 3.17** shows the density of NRHP-listed sites by Colorado county, as well as the 21 airports that reported specific concerns related to historical, architectural, archaeological, and cultural resources in their master plans.

For example, the Harriet Alexander Field (ANK) Airport Master Plan noted that there are three sites currently listed on the NRHP within one mile of the airport (2018).²⁸ These sites include the Chaffee County Poor Farm (site 5CF190), Fairview Cemetery (site 5CF342), and the Valley View School (site 4CF1598). Additionally, Hutchinson Ranch (site 5CF142), a state-recognized Centennial Farm, is currently being reviewed for potential inclusion in the NRHP.²⁹

²⁸ Burns & McDonnell Engineering Company, Inc. (October 2018). "Harriet Alexander Field Airport Master Plan." p. 2-44.

²⁹ The Centennial Farms and Ranches program recognizes the important role that agriculture has played in the state's history and economic development. To be considered for inclusion in the program, properties must have remained in the same family continuously for at least 100 years, operate as a working farm or ranch, and be a minimum of 160 acres or gross at least \$1,000 in annual sales. Additional information about this program is available online at www.colorado.gov/pacific/agmarkets/centennial-farms-program (accessed September 2019).

3.3.7. Land Use

Airport compatible land use occurs when the land adjacent to or near an airport can coexist with a nearby airport without constraining the safe and efficient operations of the airport or exposing people to unacceptable levels of noise and safety hazards. Incompatibility can result in undue noise-related nuisance to persons on the ground or safety-related concerns affecting airspace, overflights, and accident severity. It can also result in pressures to limit airport operations, close airports, or restrict access such as displacing runway thresholds, or requiring changes to instrument approach procedures which increase safety for an airport and the community it serves. Cases of airport land use compatibility can arise when previously undeveloped land becomes populated with residential or other incompatible development. In other cases, areas may be redeveloped from a compatible use, such as farmland or industrial use, to an incompatible one, such as a sensitive-use property like a hospital, school, daycare facility, or church.

In addition to the incompatibility associated with land use, other concerns are related to height. 14 CFR Part 77, “Safe, Efficient Use and Preservation of the Navigable Airspace,” was enacted to protect navigable airspace and ensure the safety of aircraft. Codified as Federation Aviation Regulation (FAR) Part 77, the regulation establishes specific airspace dimensions as “imaginary surfaces” based on the design criteria of airports that should not be exceeded by objects or structures. Imaginary surfaces are designed to allow aircraft to operate within the airport’s traffic pattern and along established approaches and routes into and out of the airport. Part 77 incursions occur when manmade and natural objects penetrate an imaginary surface.

Incompatible land use and Part 77 incursions result in degraded airport operations, increased safety risks, and more limited future economic and airport expansion and modification opportunities.³⁰ Other impacts include disruption of communities, relocation, induced socioeconomic impacts, and impacts on other public facilities (such as previously discussed regarding DOT Section 4(f) properties). To mitigate these issues, federal and state authorities have enacted legislation specifically addressing land use controls and Part 77 surfaces. 49 USC Section 47107(a)(10) requires airport sponsors to provide documented assurance that appropriate action has been or will be taken to restrict the land use adjacent to or in the immediate vicinity of an airport to activities and purposes compatible with normal airport operations (e.g., landing and takeoff of aircraft).

CRS Section 43-10-113, *Safe Operating Areas Around Airports - Establishment*, decrees that public airports and land areas surrounding such airports are a matter of state interest. As such, the law mandates that government entities with zoning and building permit authority adopt and enforce, at a minimum, rules and regulations to protect the land areas defined in 14 CRR Part 77. CRS Section 43-10-10, *Division of Aeronautics - Duties*, directs CDOT Division of Aeronautics to assist the FAA and local governments in the identification and control of potentially hazardous obstructions to navigable airspace utilizing the standards described in federal rules and regulations for identifying such hazardous obstructions. Land use and height controls are thus the joint responsibility of federal, state,

³⁰ National Academy of Sciences. (2010). *Enhancing Airport Land Use Compatibility, Volume 1: Land Use Fundamentals and Implementation Resources*.

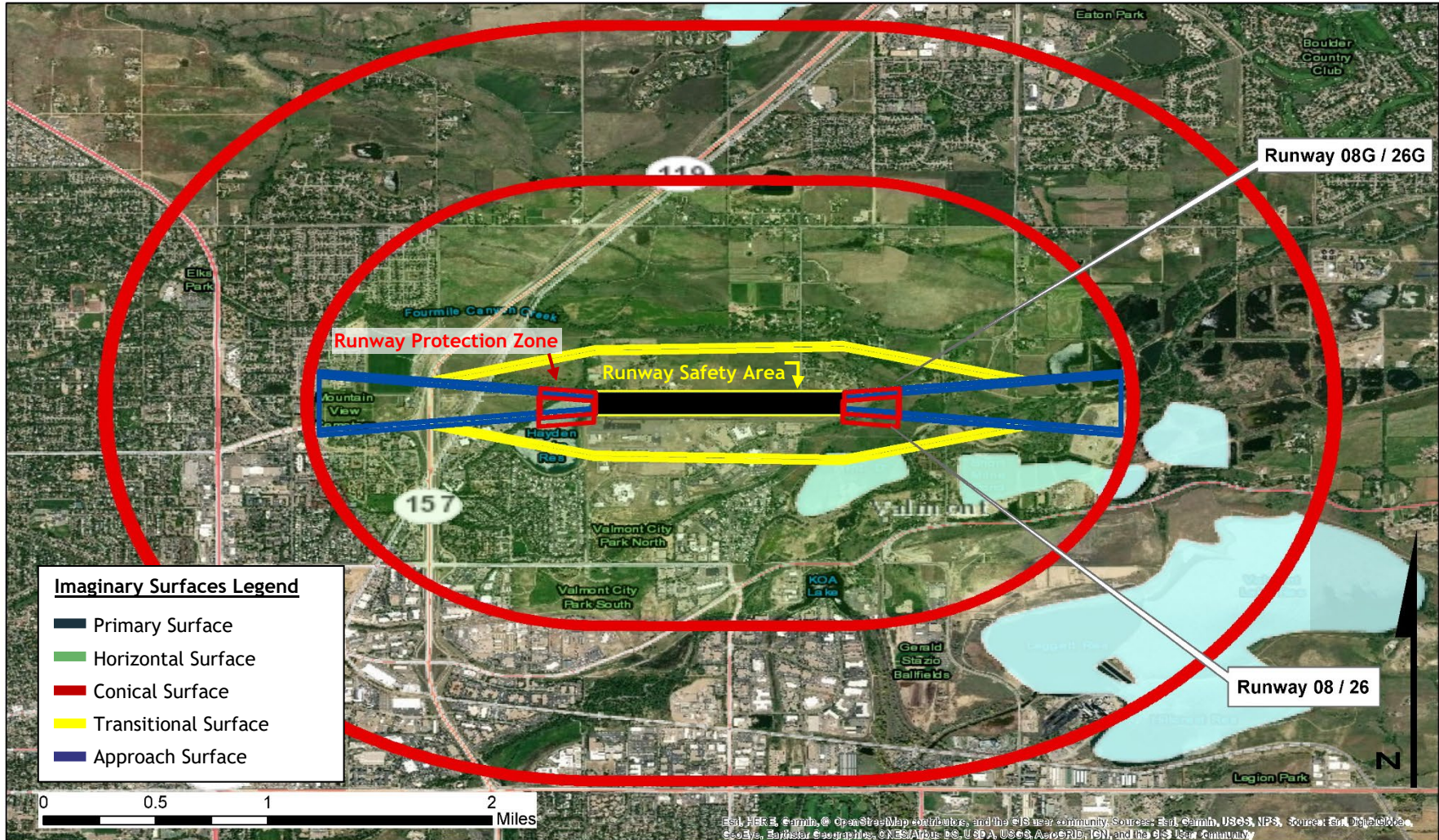
local government officials, as well as airports, to ensure airports can operate safely and harmoniously with their surrounding communities.

Issues of land use incompatibility are becoming particularly acute in Colorado as the population continues to boom, particularly in the state's urban core. To help airport managers identify existing zoning controls and articulate concerns relative to existing and future land use incompatibilities, FAR Part 77 maps were prepared near the outset of the CASP for each airport. These maps also identified the Runway Protection Zones (RPZs) and Runway Safety Areas (RSAs) for each runway. Maps were used during on-site airport visits to catalyze meaningful discussion on the most significant land use threats facing Colorado airports, educate managers on the importance of protected airspace, and identify areas of concern for future land acquisition should expansion be warranted. These conversations revealed that 64 percent of Colorado system airports had either or both land use or height controls, and 42 percent reported enforcing Part 77 surfaces. **Figure 3.18** is a sample Part 77 airspace, RPZ, and RSA exhibit prepared for the site visit at Boulder Municipal Airport (BDU).

These exhibits were discussed during site visits to identify areas of existing or potential incompatible land uses and concerns of the airport sponsors related to serving aviation demand while also promoting compatible land use development surrounding the airports. Airports identified concerns regarding the growing population and development boom that is increasing demand for aviation, but also creating more incompatibilities due to the high level of development, both commercial and residential, more of which seems to be inching toward airports. For example, lands surrounding Colorado Springs Municipal (COS) and Meadow Lake (FLY) airports are being converted to residential development, prompting significant concerns by the airports, the CDOT Division of Aeronautics, and local government officials. In fact, the Colorado Aeronautical Board sent a letter to the Board of El Paso County Commissioners in April 2019 encouraging the county to consider FLY when evaluating land use proposals. Proposed residential development near and adjacent to the airport could threaten the safety and utility of the facility, as well as cause safety and nuisance issues affecting future residents.

These issues are further documented in **Chapter 4. Aviation System Issues** and are likely to impact the Colorado airport system's future development needs and opportunities. CDOT Division of Aeronautics plans to use the results of the CASP, in conjunction with feedback from airports, to examine potential policy considerations to enhance land use compatibility, promote smart land use choices, and preserve long-term airport sustainability.

Figure 3.18. Boulder Municipal Airport (BDU) Part 77, RPZ, and RSA Exhibit Developed for CASP Site Visit



3.3.8. Water Resources

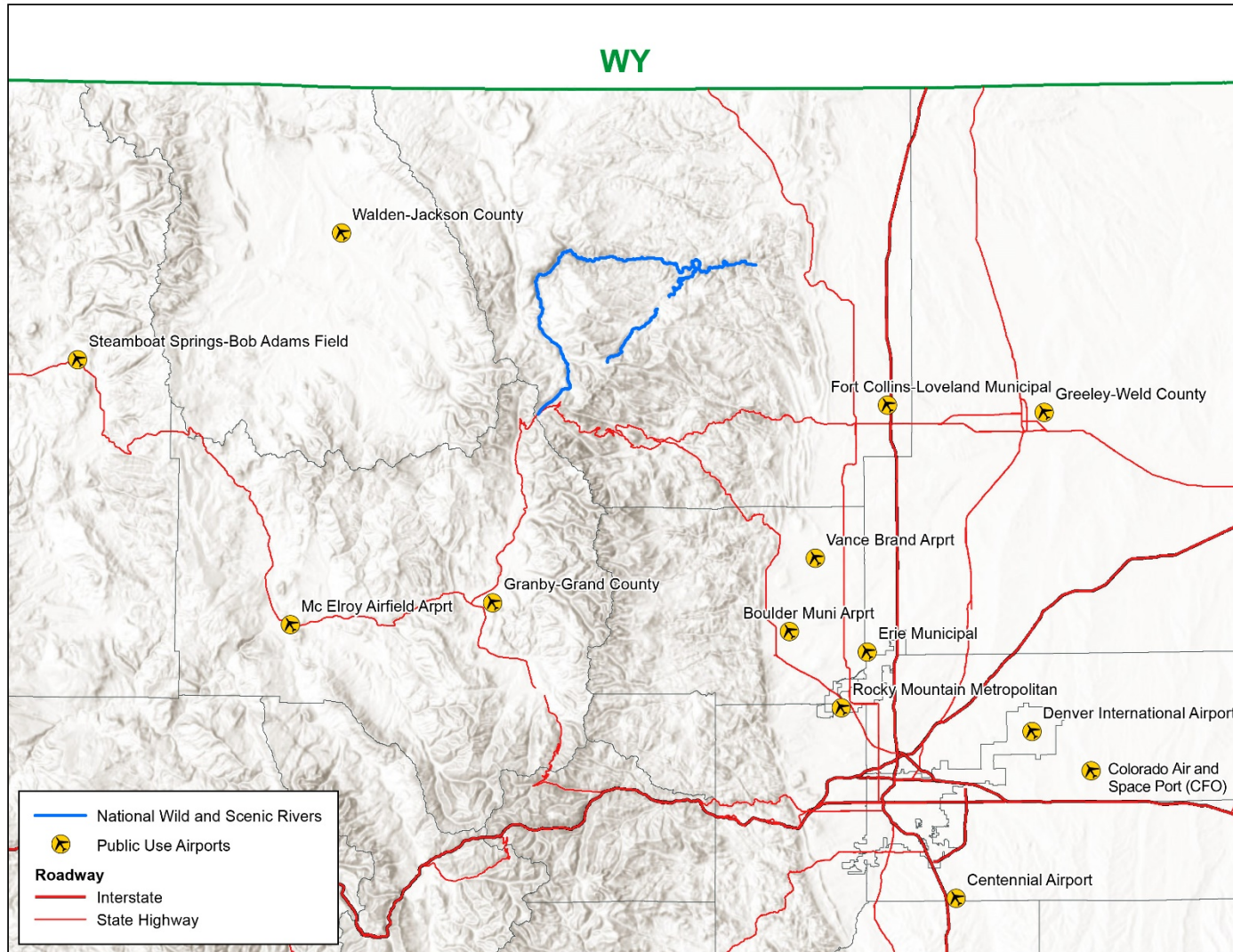
Water resources encompass all surface waters and groundwater. Water resources are important in providing drinking water, as well as in supporting ecosystems, industry, agriculture, transportation, and even recreation. Water resources include wetlands, surface waters, groundwater, floodplains, and Wild and Scenic Rivers. Previous FAA guidance separated these water resources into different impact categories. However, in recognition of the unavoidable interconnectedness of these different water resources and, therefore, how impacts on one water resource can have consequences on the function of the entire system, the FAA created the integrated Water Resources environmental impact category in 2015. The applicable water resource categories are as follows:

- **Wetlands.** Wetlands are areas inundated or saturated by surface or groundwater at a frequency and duration sufficient to support vegetation adapted for life in saturated soil conditions. This includes bogs, marshes, and swamps.
- **Floodplains.** Floodplains are lowland areas connected to inland and/or coastal waters that are periodically flooded.
- **Surface Waters.** Surface waters include rivers, streams, lakes, ponds, estuaries, and oceans.
- **Groundwater.** Groundwater is subsurface water found in space between rock, sand, and clay formations. Aquifers are the geologic layers that store and transmit groundwater to wells, springs, and other sources.
- **Wild and Scenic Rivers.** Wild and Scenic Rivers are rivers designated by the Wild and Scenic Rivers Act of 1968 as having certain outstanding natural, cultural, and recreational values. The special regulations imposed by the act preserve the free-flowing condition of these rivers for the enjoyment of present and future generations.

Federal agencies including the U.S. Army Corps of Engineers, U.S. EPA, and USFWS, as well as applicable regional, state, local, and tribal agencies are responsible for maintaining information on water resources to ensure airport actions do not have adverse impacts. The northernmost segment of the Cache la Poudre River is the only designated Wild and Scenic River in Colorado. This specific designation covers 76 miles from the headwaters of the river at Cache la Poudre Lake in Rocky Mountain National Park downstream along the south fork of the river. **Figure 3.19** depicts the designated Wild and Scenic segment of the Cache la Poudre River and surrounding airports.

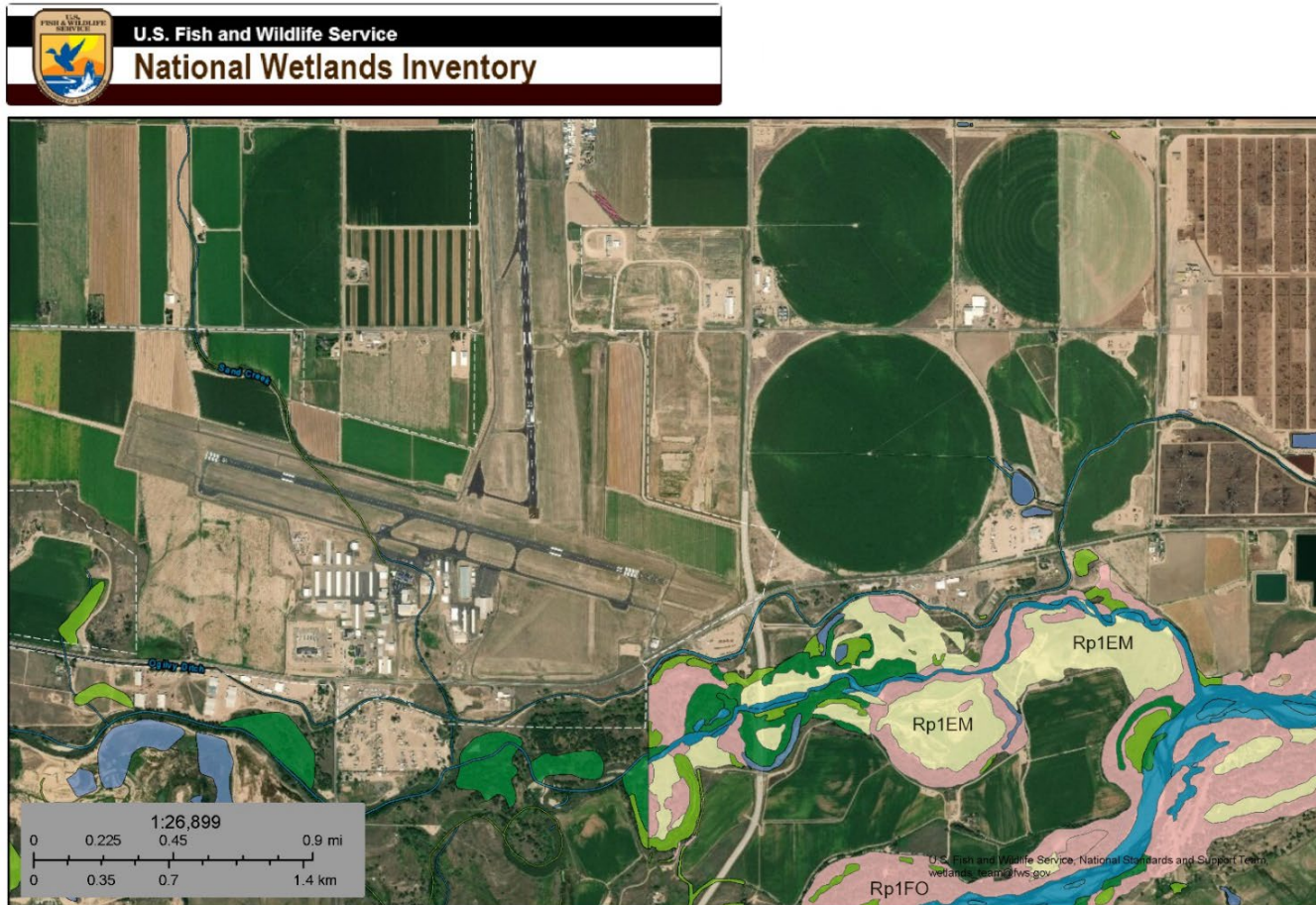
According to an analysis completed by the City of Greeley and the airport's 2015 master plan, the southern portion of Greeley-Weld County Airport is located within the floodplain of the Cache la Poudre River. Additionally, the USFWS National Wetlands Inventory revealed that a variety of wetlands exist to the west, southwest, south, southeast, and east of the airport property. Because of the airport's proximity to a Wild and Scenic River, as well as the existence of wetlands on airport property, the master plan determined that any airport development projects would need to be closely coordinated with the appropriate environmental agencies to ensure that adverse impacts on these water resources be mitigated and/or avoided. No airport other than Greeley-Weld County recognized the river as a potential environmental concern. **Figure 3.20** depicts the Cache la Poudre River and various wetlands surrounding Greeley-Weld County Airport.

Figure 3.19. Wild and Scenic Segment of the Cache la Poudre River and Surrounding Airports



Sources: National Wild and Scenic River System; Kimley-Horn, 2019

Figure 3.20. Wetlands and Other Waterways Surrounding the Greeley-Weld County Airport (GXY)



April 26, 2019

Wetlands

- | | | |
|--|---|--|
|  Estuarine and Marine Deepwater |  Freshwater Emergent Wetland |  Lake |
|  Estuarine and Marine Wetland |  Freshwater Forested/Shrub Wetland |  Other |
| |  Freshwater Pond |  Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Source: USFWS National Wetlands Inventory, 2019

3.3.9. Environmental Summary

The environmental context of an airport can significantly impact the course of development. From a system perspective, a particular environmental issue affecting one or multiple airports in a region can drive the type and volume of activity that occurs within the region, as well improvement projects that could be implemented to address those activities. For example, as demand increases in urban areas, it will likely become necessary to balance demand and capacity across multiple airports. Because some urban airports are already in air quality non-attainment areas, funding agencies could prioritize improvements to shift air traffic—and associated air pollution—to regions that do not experience air quality issues.

Table 3.9 reports the number of airports in Colorado that reported each type of environmental consideration in either their master plan or during the CASP inventory process. Airport-specific responses are reported in **Table 3.10**. Issues identified in master plans are denoted with a check-mark (✓); issues reported during the inventory process are denoted with a dot (●). This reveals that 59 out of 66 (89 percent) of the Colorado system airports are concerned about land use and 31 out of 66 (47 percent) identified biological resources as an issue of concern. Twenty-three (35 percent) airports reported concerns about water resources and 21 (32 percent) airports reported historical, architectural, archeological, and cultural resources being a major issue across the state. Only five (8 percent) airports reported DOT Section 4(f) as an issue. It is imperative that airports, CDOT Division of Aeronautics, and other federal, state, and local agencies involved in the governance of these resources work together to help airports coexist with the environment. Such a proactive approach will reduce conflicts and ensure that both the environment and airports can support current and future generations.

Table 3.9. Key Environmental Issues in Colorado

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

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

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

3.4. Supplemental System Context Summary

The information presented in this chapter represent key issues for Colorado. Considering mobility and access and environmental compliance needs will help guide future policy recommendations and provide insight for CDOT Division of Aeronautics when determining how to prioritize investments in the system. By using this information to conduct a proactive planning approach, CDOT Division of Aeronautics can maximize investment in the system and provide a viable aviation system over time.

Table 3.10. Environmental Considerations by Airport

Airports			Air Quality	Biological Resources	DOT Section 4(f)	Farmlands	Hazardous Materials, Solid Waste, & Pollution Prevention	Historical, Architectural, Archeological, and Cultural Resources	Land Use	Water Resources
Associated City	Airport	FAA Identifier								
Akron	Colorado Plains Regional	AKO		✓					●	
Alamosa	San Luis Valley Regional	ALS*		●					●	●
Aspen	Aspen-Pitkin County	ASE	✓	✓	✓		✓●	✓	✓●	●
Blanca	Blanca	05V*								
Boulder	Boulder Municipal	BDU	✓	✓	✓	✓	✓	✓	✓●	●
Brush	Brush Municipal	7V5*							●	
Buena Vista	Central Colorado Regional	AEJ		✓				✓	●	
Burlington	Kit Carson County	ITR*							●	
Canon City	Fremont County	1V6	✓						●	
Center	Leach	1V8*							●	
Colorado Springs	Colorado Springs Municipal	COS	✓	✓●		✓	✓●	✓	✓●	●
Colorado Springs	Meadow Lake	FLY							●	
Cortez	Cortez Municipal	CEZ*							✓●	●
Craig	Craig-Moffat	CAG		✓●			✓	✓	●	●
Creede	Mineral County Memorial	C24*								
Del Norte	Astronaut Kent Rominger	RCV*							●	
Delta	Blake Field	AJZ	✓	●					●	
Denver	Centennial	APA							●	●

Airports			Air Quality	Biological Resources	DOT Section 4(f)	Farmlands	Hazardous Materials, Solid Waste, & Pollution Prevention	Historical, Architectural, Archeological, and Cultural Resources	Land Use	Water Resources
Associated City	Airport	FAA Identifier								
Denver	Rocky Mountain Metropolitan	BJC	✓	✓		✓			✓●	✓
Denver	Denver International	DEN	●	✓●	●	●	●	✓	✓●	●
Denver	Colorado Air and Space Port	CFO	✓	✓				✓	●	●
Durango	Durango-La Plata County	DRO	✓	✓●		✓		✓	●	●
Eads	Eads Municipal	9V7*							●	
Eagle	Eagle County Regional	EGE		✓	✓			✓	●	●
Erie	Erie Municipal	EIK							●	●
Fort Collins/Loveland	Northern Colorado Regional	FNL		✓		✓	✓	✓	●	
Fort Morgan	Fort Morgan Municipal	FMM		✓●	✓	✓				
Glenwood Springs	Glenwood Springs Municipal	GWS*							●	
Granby	Granby-Grand County	GNB*							✓●	
Grand Junction	Grand Junction Regional	GJT		✓		✓	✓	✓	✓●	
Greeley	Greeley-Weld County	GXY	✓	✓		✓			●	●
Gunnison	Gunnison-Crested Butte Regional	GUC		✓●			✓	✓	●	●
Haxtun	Haxtun Municipal	17V*								
Hayden	Yampa Valley	HDN		✓			✓			●
Holly	Holly	K08*							●	●
Holyoke	Holyoke	HEQ*	✓			✓			●	
Julesburg	Julesburg Municipal	7V8*							●	
Kremmling	Mc Elroy Airfield	20V		✓			✓	✓	✓●	●

Airports			Air Quality	Biological Resources	DOT Section 4(f)	Farmlands	Hazardous Materials, Solid Waste, & Pollution Prevention	Historical, Architectural, Archeological, and Cultural Resources	Land Use	Water Resources
Associated City	Airport	FAA Identifier								
La Junta	La Junta Municipal	LHX	✓						●	
La Veta	Cuchara Valley	07V*							●	
Lamar	Lamar Municipal	LAA*							●	
Las Animas	Las Animas-Bent County	7V9*							●	
Leadville	Lake County	LXV	✓					✓	●	
Limon	Limon Municipal	LIC				✓	✓	✓	●	●
Longmont	Vance Brand	LMO	✓	✓●		✓			●	
Meeker	Meeker/Coulter Field	EEO		✓		✓		✓	●	
Monte Vista	Monte Vista Municipal	MVI*							●	●
Montrose	Montrose Regional	MTJ							●	●
Nucla	Hopkins Field	AIB		✓					●	
Pagosa Springs	Stevens Field	PSO*							●	
Paonia	North Fork Valley	7V2*								
Pueblo	Pueblo Memorial	PUB	✓	✓●					✓●	●
Rangely	Rangely	4V0	✓	✓		✓	✓	✓	●	
Rifle	Rifle Garfield County	RIL		✓	✓				●	
Saguache	Saguache Municipal	04V*							●	
Salida	Harriet Alexander Field	ANK		✓				✓	✓●	
Springfield	Springfield Municipal	8V7*							●	
Steamboat Springs	Steamboat Springs	SBS	✓	✓			✓	✓	✓●	●

Airports			Air Quality	Biological Resources	DOT Section 4(f)	Farmlands	Hazardous Materials, Solid Waste, & Pollution Prevention	Historical, Architectural, Archeological, and Cultural Resources	Land Use	Water Resources
Associated City	Airport	FAA Identifier								
Sterling	Sterling Municipal	STK*							✓●	
Telluride	Telluride Regional	TEX		✓			✓		●	
Trinidad	Perry Stokes	TAD		✓		✓			✓●	
Walden	Walden-Jackson County	33V*							●	
Walsenburg	Spanish Peaks Airfield	4V1		✓				✓	●	
Westcliffe	Silver West	C08*							●	
Wray	Wray Municipal	2V5					✓		●	
Yuma	Yuma Municipal	2V6				✓	✓	✓	✓●	

*Note: Master plans were unavailable. Responses obtained from the 2018 Airport Data & Inventory Form. Symbols: ✓ = Data obtained from master plan.

● = Data obtained during the CASP inventory process.

Sources: Colorado airports master plans (various dates); 2018 Airport Data & Inventory Form