

MASTER PLAN

FEBRUARY 2021



The
Aviation
Planning
Group



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Steamboat Springs Airport
Bob Adams Field

MASTER PLAN



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Airport Master Plan Introduction



Overview

This 2019 Steamboat Springs Airport/Bob Adams Field (SBS) Master Plan, completed from September 2018-December 2019, is an update to the 2008 SBS Master Plan. This 2019 SBS Master Plan will guide the orderly development of SBS over the next 20 years. The Master Plan was developed in accordance with the Federal Aviation Administration (FAA) Airport Master Plan Advisory Circular (AC 150/5070-6B).

Master Plan Definition, Purpose, & Process

A master plan, as defined by the Federal Aviation Administration, is “a comprehensive study of an airport that usually describes the short-, medium-, and long-term development plans to meet future aviation demand.” A master plan guides development of infrastructure built by the airport, the FAA, and airport tenants and users. A master plan does not resolve all of an airport’s management, maintenance, and operations issues – instead its purpose, as the definition above explains, is to guide development of the airport.

Products of a master plan include the master plan report that describes the analytical process used to reach the recommended plan and an airport layout

plan that graphically shows how airport improvements can be built according to FAA design standards.

Airport master plans help set development priorities and schedules. Airport development is usually recommended in a phased 20-year capital improvement program. The airport master plan and airport layout plan follow FAA planning and design standards to ensure airport development occurs in a safe manner. Airport improvements must be included in an airport layout plan to be eligible for FAA funding.

The FAA recommends that airports update their master plan regularly; with the frequency dependent on how fast the airport is changing and growing. That last SBS Master Plan was published in 2008.

Master plans follow a systematic and sequential process which corresponds to the chapters of this report. This includes:

1. Inventory of existing conditions, facilities, and issues;
2. Forecast of future activity;
3. Identification of facility requirements/needs;
4. Airport development alternatives and recommended plan;
5. Airport Layout Plan; and
6. Implementation.

Issues, needs, alternatives, and recommendations of a master plan are heavily influenced by the input of a wide array of airport users and stakeholders. The Steamboat Springs Airport – Bob Adams Field Master Plan had formal and informal methods of providing user/stakeholder input. In brief, they included:

- User interviews
- Surveys
- Presentations at stakeholder meetings –Yampa Valley Airport Commission and City Council
- Advisory Committee (three meetings)
- Public meetings (three meetings)

Master Plan Goals & Objectives

The following set of goals and objectives guided the SBS Master Plan process.



Safety:

Maintain a safe/secure operating environment.

- Provide safe facilities for aircraft, vehicles, and pedestrians.
- Comply with FAA design standards when practicable.
- Enhance security for tenants, users, and the public.
- Maintain safe aircraft operating surfaces.



Efficiency:

Maintain or enhance the efficiency and effectiveness of SBS's operations.

- Maintain and enhance the capacity of the existing runway and services offered.
- Accommodate forecasted growth as practicable.
- Develop facilities that improve the efficiency and reduce costs of airport maintenance.



Environmental Awareness:

Operate and develop SBS in a way that minimizes negative environmental impacts.

- Consider the noise sensitivity of nearby neighborhoods and minimize noise impacts through the careful siting of SBS operations that may generate noise.
- Consider recommendations of other local plans.



Fiscal Sustainability:

Enhance the longer-term fiscal sustainability of SBS.

- Consider SBS's role as an economic asset and enhance its ability to promote economic growth.
- Enhance SBS's ability to generate additional revenues to become more self-sufficient.



Land Management:

Facilitate longer-term SBS development through strategic land management planning.

- Promote the highest use of SBS property to best serve aviation.
- Provide flexibility for future development.
- Maximize use of existing facilities at SBS, where appropriate.



Communication:

Engage stakeholders through open communication.

- Encourage participation from all stakeholders.
- Ensure that SBS's positive impacts on the community are communicated.
- Respond to stakeholder comments.



Master Plan Advisory Committee

A committee, known as the Advisory Committee (AC), was responsible for providing input and insight on technical considerations as they pertain to the Airport and related elements addressed in this MP.

The AC was formed in consultation with the SBS Airport Board and composed of key representatives of the following entities:

- City of Steamboat Springs;
- Routt County;

- SBS;
- Federal Aviation Administration (FAA);
- Colorado Department of Transportation – Aeronautics Division (CDOT);
- Major tenants/operators at SBS; and
- Key community leaders.

In reviewing the MP work product, the AC evaluated its technical merit, while weighing the recommendations against community goals, values and needs.

Participants of the AC

	Member Name	Organization, Role
1	Randall Hannaway	Aircraft Owners and Pilots Association (AOPA), Airport Support Network (ASN)
2	Erin Orr	Butcherknife Brewing, NW CO Account Manager
3	Scott Storie	CDOT, Aviation Planner
4	Chris Leary	City of Steamboat Springs, Airport Maintenance Senior Technician
5	Stacie Fain	City of Steamboat Springs, Airport Manager
6	Ben Beall	City of Steamboat Springs, Engineer
7	Rebecca Bessey	City of Steamboat Springs, Planning Director
8	Beryl Lenk	City of Steamboat Springs, Public Works Coordinator
9	Jon Snyder	City of Steamboat Springs, Public Works Director
10	Eric Smith	EAS Architecture & SBS Airport Tenant
11	Brandon Champagne	Enterprise, Assistant Manager
12	John Sweeney	FAA, CO Planner
13	Linda Bruce	FAA, CO Planner
14	Tom Fox	Fox Construction, Senior Business Advisor & SBS Airport Tenant
15	Jeff Messinger	Lions Club, President
16	Dave Rasmussen	SBS Lead Pilot, Classic Air Medical
17	Carl Marbach	SBS, Airport Tenant
18	Steve Koonce	SBS, Airport Tenant
19	Scott Middleton	SBS, Airport User, Chief Pilot Rural Partners in Medicine
20	Dr. Eric F. Meyer	SBS, Airport User
21	John Bristol	Steamboat Chamber, Director of Economic Development
22	David Franzel	Yampa Valley Airport Commission, Commissioner

Chapter 1

Inventory of Existing Conditions

Inventory of Existing Conditions

1.1. Current Facility

1.1.1. Regional Setting

Steamboat Springs Airport is located within the Municipality of Steamboat Springs approximately 3 miles northwest of downtown Steamboat Springs. With a 2017 population of 12,965 people, Steamboat Springs is a year-round mountain tourist destination in Colorado and is a hub for transportation, commerce and services in the surrounding area and Routt County. Steamboat Springs is the county seat of Routt County, and makes up more than 50% of the county population, which was reported as 25,220 in 2017. Located in northwest Colorado, Steamboat Springs is accessible via US Route 40 (US-40), also known as the “Main Street of America”.

Yampa Valley Regional Airport (HDN), is the nearest commercial service airport to Steamboat Springs and is located 24.1 miles west on US-40. Denver, CO is the nearest major commercial service airport; located

179.8 miles east of steamboat springs via US-40, Colorado State Highway 9 (CO-9), and Interstate 70 (I-70). Interstate 70 is approximately 89 miles south of Steamboat Springs running east/west across the county. I-70 provides access to Denver (east) and Grand Junction, CO (west). Interstate 80 (I-80) is approximately 122 miles to the northeast of Steamboat Springs providing access to Cheyenne, WY.

There are two public use airports in Routt County that work together to satisfy the aviation needs of the community. SBS is a general aviation (GA) airport and is located the closest to the Steamboat Springs resort community. HDN located 2 miles southeast of Hayden, CO on US-40, is the closest commercial service airport to Steamboat Springs. Craig-Moffat Airport (CAG) located 30 miles west of SBS is a public use airport just outside of the county line to the West and primarily serves agricultural spraying activities for nearby fields. There is an avionics shop located at CAG and fuel is available upon callout. In addition to the public use airports of SBS, CAG and HDN there are multiple private airports located around the county as well.

Table 1.1: Area Airports (Public & Private)

Routt County Public Use Airports	Routt County Private Use Airports
1. Steamboat Springs-Bob Adams Field Airport – SBS <i>Location: Steamboat Springs, Colorado</i>	1. Eagle Soaring Airport – 1CD4 <i>Location: Steamboat Springs, Colorado</i>
2. Yampa Valley Regional Airport – HDN <i>Location: Hayden, Colorado</i>	2. Lucky L Ranch Airport – CD99 <i>Location: Steamboat Springs, Colorado</i>
	3. Skyote Airport – CD02 <i>Location: Steamboat Springs, Colorado</i>
	4. Mann Heliport – 13CO <i>Location: Steamboat Springs, Colorado</i>
	5. Mesa 1 Airport – 81CO <i>Location: Steamboat Springs, Colorado</i>
	6. Mount Werner Heliport – CD70 <i>Location: Steamboat Springs, Colorado</i>
	7. Phippsburg Heliport – CD80 <i>Location: Oak Creek, Colorado</i>
	8. Pleasant Valley Airport – 5CO8 <i>Location: Oak Creek, Colorado</i>

Area Public Use Airport

Craig-Moffat Airport – CAG
Location: Craig, Moffat County, Colorado



1.1.2. Airport Reference Code & Design Aircraft

The FAA has established an airport reference code (ARC) that is used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. The ARC has two components: airport approach category and airplane design group.

The approach category is based on the speed of the aircraft as it approaches the runway to land. It is assumed to be 1.3 times the stall speed of the aircraft. The approach category is represented by a letter, A through E, as shown on the following table.

Table 1.2: FAA Airport Reference Codes

Source: FAA AC 150/5300-13A

Aircraft Approach Category	
Category	Approach Speed (Knots)
A	< 90
B	91-120
C	121-140
D	141-165
E	166 <

Airplane Design Group	
#	Wingspan (Feet)
I	< 48'
II	49' - 78'
III	79' - 117'
IV	118' - 170'
V	171' - 213'
VI	214' - 262'

The AAC and ADG are combined to form the ARC. The runway at SBS has an ARC determined by past planning efforts to be appropriate for the critical aircraft (aka. design aircraft) identified for that runway.

The term “critical aircraft” is defined as the most demanding aircraft anticipated to operate (land or take off) on that runway at least 500 times annually.

Runway 14/32 is currently assigned a B-II ARC. This master plan update will determine whether the ARC is still appropriate as the basis for current and future development efforts at Steamboat Springs Municipal Airport. The ARCs will affect future projects by defining runway and taxiway pavement strengths, lengths and widths, safety areas, the size of runway protection zones, the size of runway approach slopes, and the amount of land needed to accommodate these needs.

Figure 1.1 below provides examples of different types of critical aircraft and their corresponding ARCs:

Figure 1.1: FAA Airport Reference Code Example Aircraft



* intended for aircraft weighing 12,500lbs or less

Source: DOWL Analysis

Chapter 1

Inventory of Existing Conditions

Figure 1.2: General Aviation Airport Categories



Source: 2019-2023 NPIAS Report

1.1.3. Airport Classification

The Steamboat Springs Airport – Bob Adams Field is Classified by the FAA as a “Local General Aviation Airport” (as per the National Plan of Integrated Airport Systems (NPIAS) Report 2019-2023). **Figure 1.2** above provides an overview of the FAA criteria used to categorize airports based on activity level and role of the airport. SBS is part of the NPIAS, and operates as a public use, non-primary, non-towered airport, located in Class G airspace.

General Aviation (GA) is a term that is broadly used to describe activities which include activities that are related to aerial application, aerial observation, corporate and business transportation, lifesaving aero medical flights, recreational flying, skydiving activities, aircraft rentals and instruction, and other special uses that benefit the local community. The primary role of the Steamboat Springs Airport is to serve the aviation interest and needs of its community in the geographical area. GA airports

constitute the clear majority of the nation’s airports, far outnumbering commercial service airports.

1.1.4. The NPIAS System & AIP

The NPIAS is an annual report to Congress which provides the total funding needs for all qualifying airports. To be included into the FAA’s NPIAS, an airport is required to achieve a set of criteria set forth by the FAA. This stringent criterion enables the FAA to ascertain the true importance of an airport to the local, regional and national airport systems. Inclusion into the NPIAS is a very important step in providing long term growth and development at airports such as SBS.

Per the most recent NPIAS report (2016), there are currently 3,321 public-use NPIAS airports in the United States of America that are considered vital to the national air transportation system. The vitality of these airports enables them to be eligible to receive grants through the FAA Airport Improvement Program (AIP).



The strict eligibility requirements for inclusion into the NPIAS are laid out in three principal requirements (See **Figure 1.3**):

1. Have 10 aircraft in the current inventory, or forecasted inventory, of based aircraft at the airport.
2. The airport must serve a community that is at a minimum thirty (30) minute drive from the next closest airport that is a current member of the NPIAS.
3. The airport must have an eligible sponsor willing to undertake ownership and development of the airport.

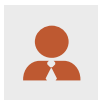
Figure 1.3: NPIAS Inclusion Requirements



Have, or forecast to have within 5 years, at least 10 based aircraft.



Serve a community that is at least a 30-minute drive from the nearest existing airport currently in the NPIAS.



Have an eligible sponsor willing to undertake ownership and development of the airport.

Source: FAA Order 5090.3C

Inclusion in the NPIAS provides beneficial access to the Airport Improvement Program and the funding put forth through the FAA. The primary goal for the AIP grants is to further develop and maintain the national airspace system. Due to the high level of importance associated with the projects in which the grants are provided, the FAA invokes a number of grant assurances. These grant assurances provide that the airport will follow the FAA's rules and regulations as they relate to the development of the airport. In addition, grant assurances guarantee that the sponsor of

the airport will continue to maintain the airport as well as provide adequate planning for future development. The FAA AIP grant assurances for SBS ensure that the Airport's future development and proper administration are consistent with AIP objectives.

1.1.5. Airport Role

SBS is the second largest and second busiest airport in Routt County, behind Yampa Valley Airport in the east portion of the county. Steamboat Springs has vital aviation operations occurring daily to include medivac operators based at the Airport. Additionally, there are daily business and recreational operations, and some cargo operations that occur as well. SBS primarily serves the residents of central Routt County and even more specifically the city and surrounding mountain areas of Steamboat Springs, CO.

Not only does the Airport serve the local community with access to aviation, but it also provides an "off ramp" for those flying overhead to be able to access the community. Transient aircraft routinely utilize the Airport for a wide variety of public, private, and commercial purposes, including medical flights, flight instruction, cargo operations, scenic tours, as well as a business and charter flights just to name a few. Steamboat Springs Airport – Bob Adams Field acts as a front door to the community, bringing 8,000 visitors in annually as reported by the Economic Impact Study completed by the Colorado Department of Transportation (CDOT) Aeronautics Division in 2013. The Economic Impact Study is currently being updated at this time by CDOT, with an expected release date in 2020.

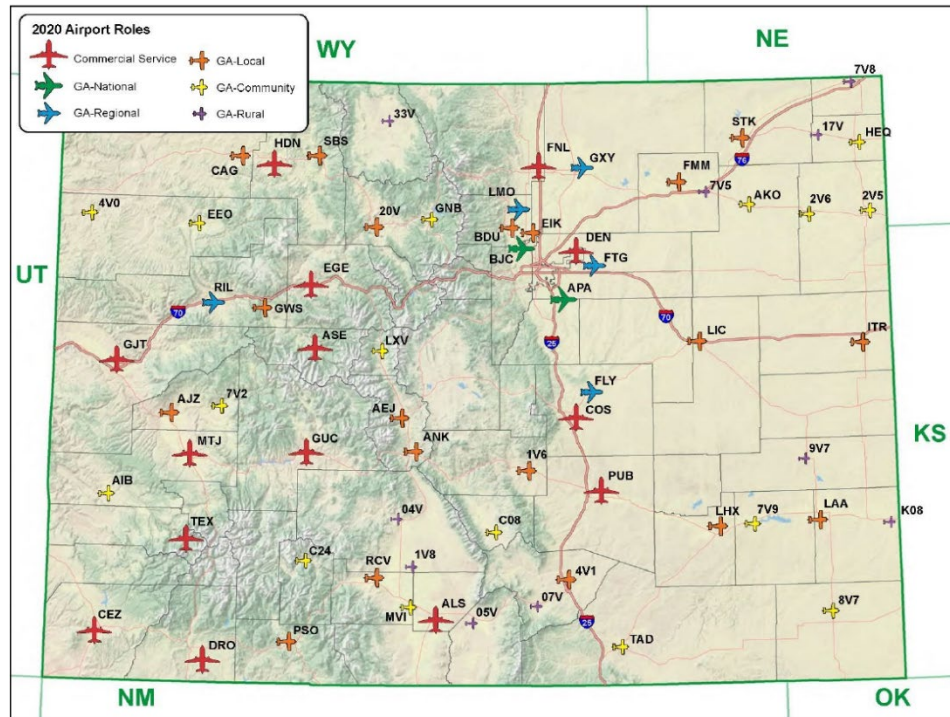
1.1.6. Colorado Airport System

The Colorado Department of Transportation (CDOT) Division of Aeronautics periodically prepares a Colorado Aviation System Plan Update (CASP). This document originated in 2000 and has been updated in 2005, 2011, and 2020. The CASP, like the ASSET study produced by the FAA, classifies airports according to their role within the Colorado transportation system as shown in **Figure 1.4**.

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Figure 1.4: Colorado Airport System



Similar to the NPIAS, CDOT Division of Aeronautics classifies airports within the Colorado Airport System. Steamboat Springs Airport is classified as GA-Local airport within the Colorado Aviation Transportation System; which has six functional classifications for airports within the state: (1) Commercial Service, (2) GA-National, (3) GA-Regional, (4) GA-Local, (5) GA-Community, and (6) GA Rural. SBS is connecting Steamboat Springs and Routt County to the rest of the state, nation, and the world through aviation and the airports system plan.

1.1.7. SBS History

The land which the Airport sits on has a history dating back to the Ute Indians. Known as the Yampatika, the Ute journeyed to the area for the sacred minerals and “medicine” springs for spiritual and physical healing. As the west began to be populated with explorers from the east in the 1800s, French trappers came upon the

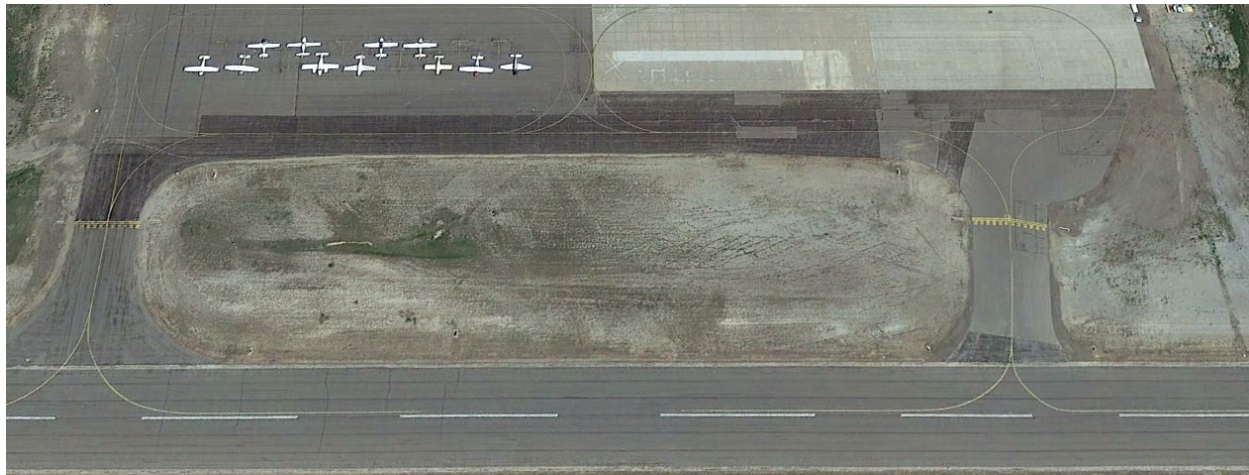
area and gave it the name it is known by today, as they thought they heard a steamboat’s engine before realizing it was the mineral springs.

James Crawford helped establish the Steamboat Springs Townsite Company in 1884 and within a year five families had joined him. One of the families included James Hoyle, who started the Steamboat Pilot newspaper in 1885, which is still in publication today. The town was incorporated in 1900, and with the addition of the railroad in 1909 the town took off. Skiing and ski jumping, what the area is known worldwide for, was brought to the town by Norwegian Carl Howelsen in 1914.

Steamboat Springs Airport began to develop in 1941 as two dirt strips used by local pilots to accommodate his aircraft. In the early 1970’s the airport was named the Routt County STOLport, and commercial service began with Rocky Mountain Airways. Due to the



Figure 1.5: Ramp Layout



altitude and short runway, DeHavilland Twin Otters and DeHavilland Dash 7's were used as they had the power and short field takeoff capabilities needed for the limited runway length and high altitude in which they were operating. Bob Adams, for whom the field is now named, led the development of the airport to its current length in the 1970's. The Airport changed hands to the City of Steamboat Springs in 1981, and a new terminal building was built in 1993.

Unfortunately, in 1995 scheduled airline service ceased at SBS. Yampa Valley Regional Airport has since assumed the role of commercial service airport for the valley. Without commercial airline service, SBS has focused on its GA role. With expanded hangar areas, opportunities for non-aviation development, and as a base for fire, medical, and rescue operations, SBS has served its GA role very well.

1.2. Airside Facilities

1.2.1. Airport Description

Steamboat Springs Airport is located at 40-30-58.5000N LAT and 106-51-58.7000W LONG at an elevation of 6882 feet Above Sea Level (ASL) on approximately 436 acres. SBS has a single runway (RWY): RWY 14/32 at a length of 4,452 feet long and 100 feet wide. RWY 14/22 has a B-II Airport Reference Code, indicating it has a design standard

for aircraft with wingspans that are less than 79 feet in length, and approach speeds that range between 91 and 120 KNOTS (**Table 1.2**). The runway is equipped with high intensity runway edge lighting, Precision Approach Path Indicators (PAPI) on the RWY 32 (south) end, and Runway End Identifier Lights (REILs) on the RWY 32 (south) end.

Runway 14/32 has two taxiways connecting at 90-degree angles to the ramp. RWY 14/32 is accessible only through back-taxi procedures, requiring aircraft to enter onto the runway from TWY A or TWY B and proceed to either end for takeoff. Taxiway (TWY) A is the south ramp connector and utilized to back-taxi the runway to RWY 32. TWY B is the north ramp connector and is utilized to back-taxi the runway to RWY 14. Neither end of Runway 14/32 is equipped with a turnaround area to allow aircraft a safe area to complete preflight run-ups and wait for aircraft to land after back-taxiing prior to takeoff. Because of the lack of a parallel taxiway, engine run ups and/or preflight procedures are accomplished prior to entering the runway for back-taxi. Once the aircraft has taxied on the runway to the appropriate departure end the pilot will turn the aircraft around 180 degrees on the runway and takeoff.

The parking apron is a 1,112' by 225' area comprised of both of asphalt and concrete portions. Apron

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access from the runway is via TWY A and TWY B. TWY B leads to the north hangar area and TWY A leads to the south hangar area. The taxiway that connects TWY A & B, which runs parallel to the runway and on the west side of the ramp is known locally as “Taxiway P”. The main ramp is interconnected with a “figure eight” taxiway around the ramp, with two parking areas. The parking areas are located inside of the taxiways, with one on the north portion of the ramp and one on the south portion. The north parking apron has 17 tiedowns and is the primary parking apron. The southern parking area has no tie downs and is used for larger aircraft and overflow parking. **Figure 1.5**

1.2.2. Paved Areas

The state of Colorado Department of Transportation Aeronautics Division conducted a pavement condition inspection in 2016 and again in 2019. The results of the 2016 inspection are depicted in **Figure 1.6** and **Table 1.3**. The 2019 data was provided by The Division of Aeronautics and included in **Table 1.3**, but all other depictions were not released at the time of the master plan. Pavement maintenance, crack filling and seal coats will cause the PCI's to change positively when performed.

Figure 1.6: SBS Pavement Condition Index Ratings 2016

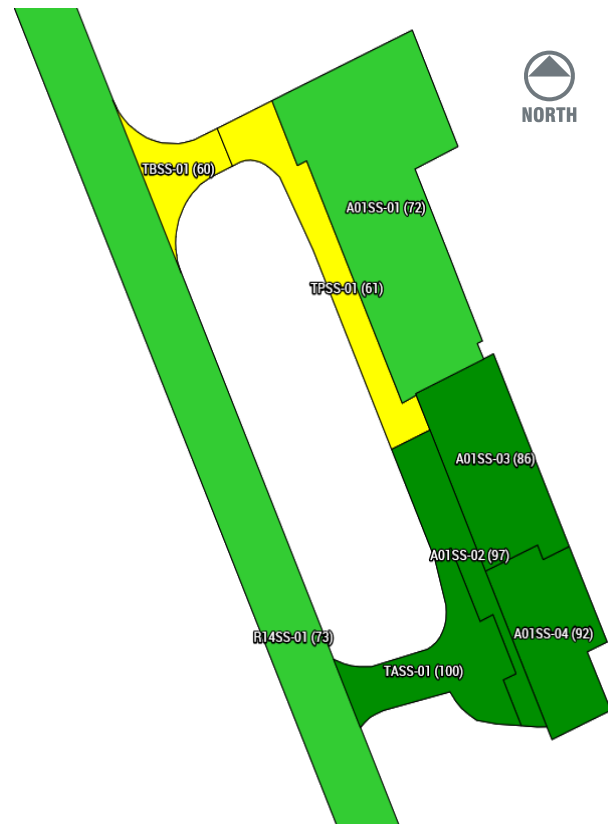


Table 1.3: SBS Pavement Information

Source: CDOT Division of Aeronautics

Pavement	Branch ID	Section ID	Surface Type	Area, SF	Last Construction Date	Last Inspection Date	Historical PCI			2019 PCI	2016 Est. PCI
							2010	2013	2016	2019	2021
Transient Ramp	A01SS	1	AC	104,850	6/1/2005	7/7/2016	91	87	72	75	64
Ramp Taxiway South	A01SS	2	AAC	27,756	8/1/2015	7/6/2016	89	69	97	86	84
Concrete Ramp North	A01SS	3	PCC	46,252	6/1/1994	7/6/2016	73	89	86	69	80



Pavement	Branch ID	Section ID	Surface Type	Area, SF	Last Construction Date	Last Inspection Date	Historical PCI			2019 PCI	2016 Est. PCI
							2010	2013	2016	2019	2021
Concrete Ramp South	A01SS	4	PCC	38,133	6/1/2003	7/6/2016	96 ■	89 ■	92 ■	89 ■	86 ■
Runway	R14SS	1	AAC	439,974	6/30/2000	7/6/2016	82 ■	66 ■	73 ■	66 ■	65 ■
Taxiway A	TASS	1	AC	28,526	8/1/2015	7/6/2016	93 ■	81 ■	100 ■	95 ■	92 ■
Taxiway B	TBSS	1	AAC	15,386	6/30/2000	7/6/2016	73 ■	70 ■	60 ■	74 ■	56 ■
Ramp Taxiway North	TPSS	1	AC	37,900	6/1/1996	7/6/2016	68 ■	67 ■	61 ■	68 ■	53 ■

■ Good Condition

■ Moderate Condition

■ Fair Condition

■ Poor Condition

Figure 1.7: CDOT Pavement Condition Inspection Photos (July 2016)

Source: CDOT Division of Aeronautics

A01SS-01



Long. and Trans. Cracking (Sample Unit No. 06)



Overview

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A01SS-01



Long. and Trans. Cracking (Sample Unit No. 06)



Overview

A01SS-02



Long. and Trans. Cracking (Sample Unit No. 02)



Overview

A01SS-03



Joint Spalling (Sample Unit No. 11)



Overview



Small Patching (Sample Unit No. 01)



R14SS-01



Long. and Trans. Cracking (Sample Unit No. 10)



Long. and Trans. Cracking (Sample Unit No. 18)



Overview

TASS-01



Overview

The pavement condition, without any additional maintenance is projected to deteriorate to the point where maintenance will be imminent. The historical trends over the last three inspections completed in 2010, 2013, and 2016 indicate that Taxiway A and the associated south ramp taxiway are holding up well, and the concrete ramp is maintaining its condition but requiring localized maintenance for crack near the seams and a transverse crack in the newest section. Areas that will need maintenance attention in the near future will include the runway (rehabilitation due to be completed in 2021), transient ramp, Taxiway B and the associated north ramp taxiway. Deterioration can be seen in the table above from a historical perspective coupled with the

estimate provided by the Colorado Department of Transportation Aeronautics Division during their last inspection in 2016.

During the 2016 inspection the following work was recommended between 2017 and 2021:

- **2017:** Localized maintenance on Concrete Ramp South (A01SS-3)
- **2020:** Overlay on the following areas:
 1. Transient Ramp (A01SS-1)
 2. Runway (R14SS-1)
 3. Taxiway B (TBSS-1)
 4. Ramp Taxiway North (TPSS-1)

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1.2.3. Obstructions

Steamboat Springs is a mountain ski and recreation community in the southwestern part of the North Park Range in Colorado, known for its breathtaking views as it is surrounded by mountains. Due to its location, the Airport faces many challenges with natural obstructions. The terrain around SBS is a river valley surrounded by mountains and hills on all sides. **Table 1.4** lists mountains within the surrounding area.

In addition to these peaks the Airport is surrounded by mountain ridges with an approximate distance of 15 miles to the northwest, west, and the Continental Divide to the southeast. Though challenging, many people fly to SBS for the beauty and wonder of its location and access to unparalleled outdoor activities.

Table 1.4: SBS Obstructions

Mountain	Distance from Airport	Direction from Airport	Elevation (MSL)
Deer Mountain	1.75	NW	7,400
Copper Ridge	2.5	NE	8,409
Howelsen Hill	3	SE	7,164
Query Mountain	3.5	S	8,251
Rocky Peak	6	NW	9,091
Elk Mountain	6.25	NW	8,600
Saddle Mountain	7	W	7,110
Mount Warner	9	SE	10,500

Source: DOWL Analysis

1.2.4. Traffic Pattern Info

The traffic pattern for fixed wing aircraft at SBS is a left turning pattern for Runway 32 and a right-hand pattern for Runway 14. Aircraft fly to the west of the Airport in both traffic patterns depending on the wind at an altitude 7,878 feet MSL (1,000 feet AGL) for both light and heavy aircraft. Helicopter traffic operates in a pattern to the east of the Airport at an altitude of 7,378 feet MSL (500 feet AGL). Natural obstructions in the area must be taken into consideration while pilots are maneuvering in the traffic pattern due to the mountains within the vicinity of the Airport.

1.2.5. Airspace & Communications

SBS does not have an air traffic control tower and is situated in Class G airspace. Operating within the airspace surrounding SBS requires no communication prior to entry, but a Common Traffic Advisory Frequency (CTAF) allows aircraft the ability to announce their position and receive advisory information. The SBS CTAF is 122.8 MHz. Denver Center is the Air Route Traffic Control Center (ARTCC) serving this sector of enroute airspace, which can be accessed in the air for certain approach and departure services. Other air traffic services can be accessed on the ground through the FAA Denver Flight Service Station (FSS). Local area pilots note that the current routing for East clearances from SBS are being routed significantly to the North and South as ATC is managing the flow into the Denver area. The FAA, through the implementation of NextGen has designated Denver as a Metroplex and has created Performance Based Navigation (PBN) procedures as well as Time Based Flow Management (TBFM) to make the Denver Metroplex more efficient. The FAA indicates the new procedures will have a \$1.8 million fuel savings by using 600,000 gallons of fuel less each year creating a reduction in the carbon footprint by 5,400 metric tons. The savings on the Metroplex is evident, but its effects in routing are significantly noticed to those at SBS as it requires more fuel and time to get to their destination when flying East.

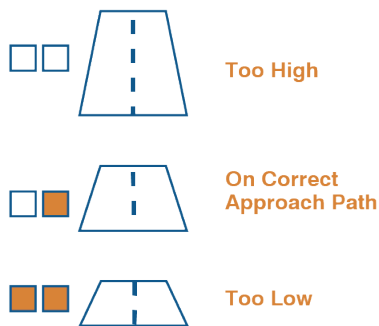


1.2.6. Navigation

Navigation aids assist pilots in multiple aspects of flight from departure, cross country and local flying, and landing. The Steamboat Springs Airport has a rotating beacon located on top of the maintenance building on the southeast end of the ramp. There are two windsocks on the field, one located in the segmented circle west of runway centerline across the runway from the south end of the ramp and the other at the south-west end of the airfield near the displaced threshold for Runway 32. The Precision Approach Path Indicators (PAPIs) are in place for Runway 32, which assist aircraft in providing a visual reference through the use of lights and red colored lenses so that the pilots can maintain a 4° glide slope when following the lighted signals. **Figure 1.8**

The PAPIs are set at the non-standard glide path angle of 4° rather than 3° due to the high terrain and mountains in the area affecting the glide path when the system was installed as part of the Microwave Landing System (MLS). The MLS system was removed around 2005 and consideration should be given in the alternatives section to re-evaluate the required degree of the glide path for the PAPI's. Additionally, the PAPIs for Runway 32 are baffled, which allows them to only provide safe course guidance to the right and 5.5° left of the runway centerline due to the high terrain in the area.

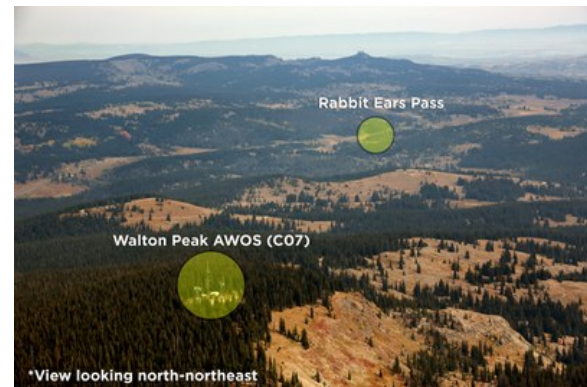
Figure 1.8: Precision Approach Path Indicators (PAPI)



Source: FAA AC 150/5300-13A

An Automated Weather Observing System (AWOS) is located on the Airport northwest of the wind sock on the west of RWY 14/32 centerline across the runway from the south end of the ramp. The AWOS broadcasts on a discreet frequency of 118.325 MHz and can also be accessed via phone by calling (970) 879-7794. It is owned and operated by the Airport. A second AWOS is available and provided by the Colorado Department of Transportation (CDOT) Aeronautics Division as part of the Mountain AWOS system.

Figure 1.9: Walton Peak AWOS



Source: CDOT Division of Aeronautics

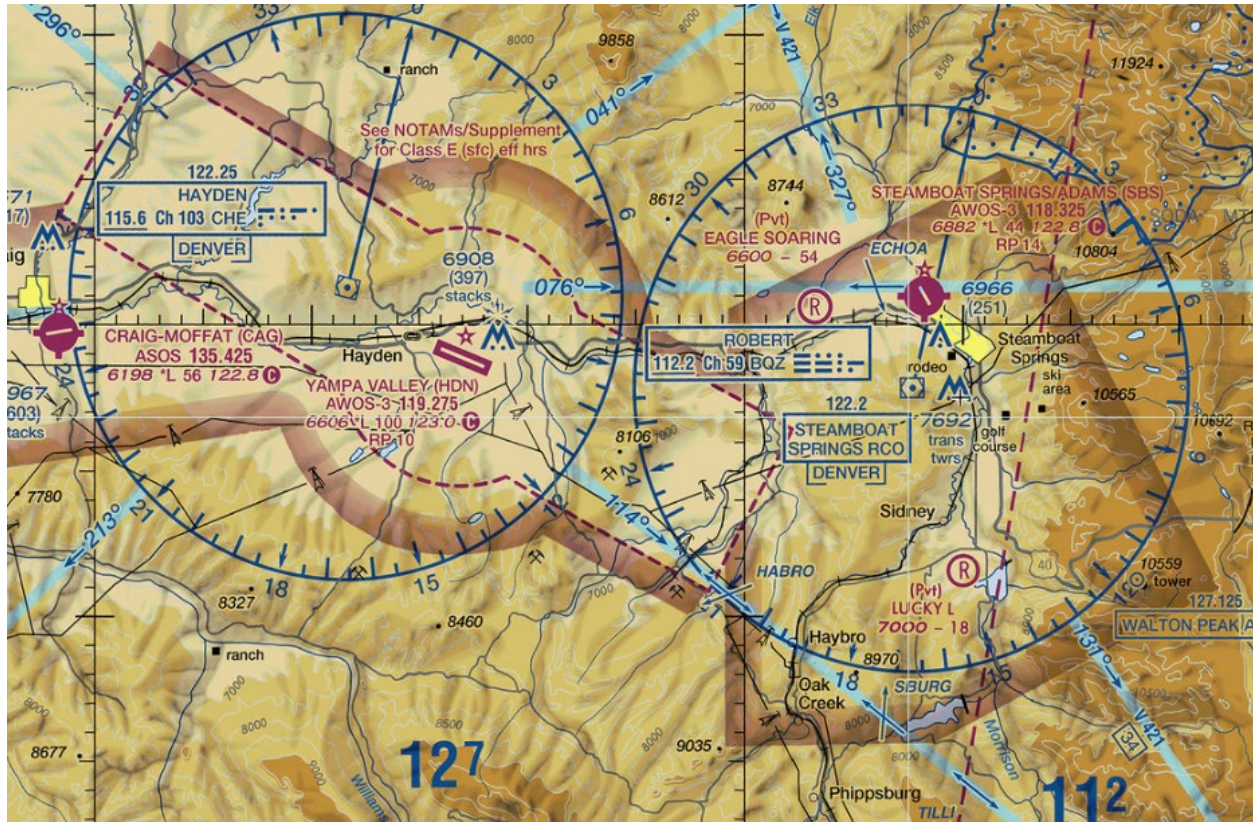
At one time the CDOT AWOS was known as the Mt. Werner AWOS and was located at the top of Mt. Werner at the Steamboat Ski Resort providing weather information to pilots of the mountainous conditions. The AWOS was relocated in the spring of 2016 and was renamed the Walton Peak AWOS (C07) (**Figure 1.9**). The new Mountain AWOS is located at the summit of Walton peak at 10,577 MSL, 5 miles west of Rabbit Ears Pass, and can be accessed via phone by calling (970) 824-0261 and on a frequency of 127.125.

The Steamboat Springs Airport – Bob Adams Field can be found on the Cheyenne Sectional 3.2 nautical miles (nm) north (349° radial) of the Robert VOR (Very high frequency Omnidirectional Range) station and 20.1 nm due east (83° radial) of the Hayden VOR. This location is beneficial as it provides great

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Figure 1.10: VORs & Airspace



access for local pilots to access navigational aids when departing the Airport, and it is just as important to transient aircraft traveling cross country.

Transient aircraft are aircraft not based at SBS but that stop at the Airport for services, overnight lodging, avoidance of weather, or business and/or pleasure objectives within the local community. “Victor” airways, which are low-altitude airways that crisscross the United States in straight line segments between radio navigation transmitters, provide positive course guidance to pilots flying according to the Visual Flight Rules (VFR). The “victor” airway nearest to SBS is designated as V-101 and it passes over the Airport (Figure 1.10).

1.2.7. Airfield Considerations

The airfield was known as a STOL (Short Takeoff and Landing) Port due to its elevation and runway length. Areas of importance to the continued growth of the Airport revolve around the nature of the Airport environment. The runway is currently 4,452 feet long, which is short considering the relatively thin mountain air. Aircraft performance is reduced at higher altitudes, especially during warm weather. Airports typically will have longer runways to compensate. The short runway at SBS can result in pilots needing to operate with lower weight to offset the reduced aircraft performance. Many business aircraft that have performance criteria that exceed the runway length are often unable to land at SBS and instead must use another airport such as HDN.



Lengthening the runway at SBS has been requested by many local and transient pilots to ensure the safety and viability of the Airport as the aviation market trends are moving to faster and more complex turbine type aircraft.

Taxiways A & B which connect the ramp to the runway are not in FAA compliance in their current configuration. The FAA has mandated that direct (straight line) access to the runway from the parking areas be eliminated to prevent unintentionally taxiing onto the runway. As mentioned previously, all aircraft are required to back taxi on the runway to the departure end prior to takeoff. Unlike many runways, there is no parallel taxiway so aircraft must taxi on the runway itself prior to initiating a takeoff in the opposite direction.

Lighting on the airfield is made up of standard elevated runway and taxiway lighting fixtures mounted on cans that are below the surface. The ramp area is lit, providing visibility at night for transient aircraft. The southern end of the ramp received extensive lighting upgrades in 1994 when SBS had airline service. The northern portion of the ramp is in need of improved lighting, as the majority of the transient aircraft park on the northern end, leaving room for the larger aircraft to park on the concrete areas on the southern portions of the ramp.

Consideration will be given in the alternatives chapter to lengthening the runway and alternative taxiway designs that could enhance the safety of Steamboat Springs Airport.

1.3. Landside Facilities

1.3.1. Roads

Due to the mountainous location, SBS is not located near major interstate highways. Interstate (I-70) is approximately 89 miles south of Steamboat Springs running east/west across the country. I-70 provides access to Denver (east) and Grand Junction, CO (west). Interstate 80 (I-80) is approximately 122 miles to the northeast of Steamboat Springs providing access to Cheyenne, WY (east) and Rock Springs, WY

(west). Highway US-40 is the primary access road in and out of the city of Steamboat Springs, entering from the northwest and south ends of the town. The Airport is located 3 miles northwest of the central portion of the city of Steamboat Springs and is accessed by Elk River Road off of US-40 (Lincoln Avenue) to the north. Airport Circle is the main airport drive, located on the west side of Elk River Road, and comprises nearly 2,000 feet of road access to the Airport and parking areas.

1.3.2. Parking Facilities

A parking lot serves Airport Office Building (AOB) tenants with 94 parking spots for day use only parking. The AOB tenants have exclusive use of this parking lot, which is accessible from the entrance road. There is adequate lighting in the parking area and this lot is plowed before and during business hours as needed. The city utilizes a sand truck to spread traction material in the lot as needed.

Parking for the Fixed Base Operator (FBO) is limited and scattered. There are roughly 20 spaces that are shared between staff, rental car companies, courtesy vehicles, tenants and the traveling public. The remaining parking areas for the FBO are located airside and require gate access.

In the summer the FBO will utilize various locations, both landside and airside, to park vehicles. In the winter months these areas are used for snow storage and snow removal. There are no dedicated parking facilities for the hangar tenants and tenants typically park their vehicles inside their hangar when using their aircraft.

1.3.3. Storage

The Steamboat Springs Airport utilizes an area of land east of the FBO building and north of the AOB parking area for pilot vehicles and revenue generating vehicle and trailer seasonal storage. The FBO manages the lot and requires a release of liability to those who use this area to store vehicles or equipment. The lot has been enhanced using asphalt millings, but during the spring thaw the lot can be difficult to use, and maintenance staff is able to

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provide limited snow removal to the area. There are no markings on the ground in this area to designate spaces, therefore vehicles are organized on an as needed basis by the FBO staff.

1.3.4. Non-Aeronautical Uses

At the time this master plan was prepared, the terminal building, known now as the Airport Office Building (AOB), was leased by Smartwool and they have provided notice to end their lease sometime between December 2019- June 2020. The Sponsor will begin to advertise the building to companies and organizations with an aeronautical affiliation in the near future. If there are no acceptable proposals received by the Airport and sponsor for an aeronautical company to lease the AOB, then proposals will be sought from non-aeronautical users.

Figure 1.11: Airport Office Building (AOB)



The current building interior is configured as an office building, which was converted from the original terminal building used by airlines. There is no hangar or maintenance area attached to the building but is situated with access to the ramp. Ideally a company

with aeronautical affiliation will lease the building, but as mentioned, any compatible use will be considered if no aeronautical companies are interested or able to lease the building. The AOB provides significant revenue opportunity and assists SBS toward the goal of becoming as self-sufficient as possible.

1.3.5. Security

The Steamboat Springs Airport staff take security very seriously. SBS is not regulated by the TSA under 49 CFR Part 1542 – Airport Security, placing the responsibility of security on the Airport and the Sponsor. If an individual is not positively identified on the airfield the staff will contact them to ensure they are there on appropriate business. In addition to the staff, local pilots also ensure that when individuals are unknown to them on the airfield or acting suspicious they will either make contact with the individual or report the person to the Airport staff or authorities. This is a common practice at general aviation airports across the United States and is commonly referred to as “See something, Say something.” Resources available for pilots and staff include the local authorities and the Aircraft Owners and Pilots Association (AOPA) Airport Watch Program. Through this nationwide AOPA program, pilots are encouraged to report all suspicious activity by calling 1-866-GA-SECURE.

Physical barriers to entry are also in place at SBS. The Airport is surrounded by an 8-foot-tall fence that aids in keeping wildlife and unauthorized individuals from entering the aircraft movement areas. Access points are provided through pedestrian and vehicle gates that are operated through coded electronic access.

Law enforcement, acting on behalf of the Airport Sponsor as a department within the City of Steamboat Springs, responds to all calls and requests for assistance required. Currently there are no agreements in place with the local law enforcement, rather the Steamboat Springs Police Department patrols the Airport on an unscheduled basis, monitoring activity, and provides extra patrols when needed or requested.



Figure 1.12: Airport and FBO Staff



1.4. Airport Services and Support Facilities

1.4.1. Airport Staffing

The Airport operates as a division of the Public Works Department of the City of Steamboat Springs. The Airport has an Airport Manager, Maintenance Senior Technician, and FBO staff.

The Airport Manager is responsible for the planning, direction, coordination, handles all administrative duties for the Airport, and works closely with the city, state, FAA, and consultants on projects associated with the Airport. The Airport Manager also oversees the operation and the administration of the FBO. The Maintenance Senior Technician and FBO staff handle the day to day inspections and care of the airport, ensuring that it meets the standards required by the State and FAA. The FBO staff work in shifts to provide coverage and attendance of the FBO. They provide customer service, fueling aircraft, and ramp management.

The Maintenance and FBO divisions are staffed with full-time, part-time, and on call positions. Collectively, these three position types ensure that the

FBO is staffed as required and provide excellent service to transient and based users alike.

1.4.2. FBO Services

The FBO is owned by the City of Steamboat Springs. The FBO staff monitors the Unicom radio and provides pilots with parking information and available services. The FBO staff fuels the aircraft on the field, providing Jet-A and 100LL Avgas options. Additional services include oxygen service, tug, Ground Power Units (GPU), engine preheating, overnight hangar options, and ramp tie downs. The Airport has the capabilities of moving aircraft with a flat tire to a safe area using an Aero Flat Tire Dolly, which is critical for a single runway operation.

The City owned FBO allows for the sponsor to determine the level of service provided to their customers rather than relying on a private FBO to provide the services. The FBO staff have received great reviews from based and area pilots on the level of service provided to each pilot and aircraft.

The FBO operates from summer and winter rates that are set each season by the City Manager, providing services to local and transient pilots year-round. FBO hours of operation are from 7 a.m. to 5 p.m. daily, 365 days a year.

1.4.3. Transient Pilot Services

Transient pilots, crew and passengers generally park on the ramp. Tie downs are available for daily, overnight and long-term parking, and there are transient hangar options with the same availability on a reservation basis, as available. Once off the airplane, the passengers and crew are received in the FBO, where there is weather information, phone and internet services, pilot supplies, coffee and water, vending machines, and restrooms. Rental cars can be delivered to the FBO by Enterprise Rental Car Company who has a contract with the City.

1.4.4. Tenant Pilot Services

All services offered to transient pilots are also available to tenant pilots and aircraft. Long term hangar leases and rental options are available to base aircraft. The

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Airport Manager holds a quarterly meeting for tenants and users to stay involved. It is generally an evening dinner meeting and provides timely information and training for Airport tenants and users. This is a great community building program that allows everyone to come together, talk about the needs of the Airport, and get to know one another.

1.4.5. Fuel Facilities

All fuel sold on the Airport is provided by the FBO and is dispensed via fuel trucks to aircraft. Two types of fuel are sold at the Steamboat Springs Airport: 100LL and Jet-A. Jet A and 100LL are both stored in 10,000-gallon single walled steel tanks equipped with clock gauges and overfill alarms. The aviation fuel tanks are located adjacent to the access road and were constructed in 1998-1999. The fuel is transferred from the tanks to the respective fuel trucks, and the trucks are then parked near the FBO. The FBO operates a 1,200-gallon capacity 1999 International 4700 100LL truck and a 3,000-gallon capacity 1999 International 4700 Jet-A truck. The Airport is actively pursuing upgrades to their current fuel storage and is also considering self-service fuel availability. Self-service fuel would allow for 24 hour fueling availability. More information on the Fuel Facility options will be in the Alternatives section of this Master Plan.

In addition to aviation fuel, equipment fuel is stored south of the SRE building. Equipment fuel is used in the maintenance vehicles, mowers, snow removal equipment, and other piston type engines that are used to maintain the facility. There is a 300-gallon unleaded fuel tank and a 500-gallon diesel tank maintained and utilized for the equipment.

1.4.6. Airport Businesses

The Airport property is made up of 436 acres, which encompasses the runway, taxiways, safety areas, and airside/landside facilities. The Fixed Base Operator (FBO) is the primary center of aviation business at SBS. Located immediately north of the AOB, the FBO offers based and transient pilots, crew and passengers a space for flight planning, weather

computers, restrooms, a conference room, pilot lounge, and a lounge area.

The AOB, currently occupied by Smartwool, is a 13,680 square foot facility located in the former commercial service terminal building. Smartwool currently uses the building as corporate office space.

Zephyr Helicopters, located on the north end of the ramp provides a variety of helicopter services including pipeline/powerline maintenance, tours, charter operations, and flight training on the airfield. Also, on the north end of the ramp, Mountain Aircraft Maintenance conducts aircraft maintenance at SBS, providing services for single engine, multi engine, jets, and helicopters. Classic Air Medical provides lifesaving medical flights in and out of SBS, which is their Northwest Colorado base.

1.4.7. Hangars

Figure 1.13: Hangar Map





There are 49 hangars on the airfield, of which 10 are city owned and rented out accordingly, and ground leases are in place for the remaining 39 units. Each hangar ground lease is tied to a CPI (Consumer Price Index) adjustment or a 3% increase depending on the ground lease agreement. The hangars and other buildings provide a reliable source of revenue that enhances the sponsor’s ability to continue towards the goal of long-term financial sustainability.

Table 1.5: Hangar Ownership

Hangars & Buildings at SBS	
Airport Owned	Private/Ground Lease
B 1-10	A-1
Airport Office Building (AOB)	Corp 1-2
Fixed Base Operator (FBO)	C 1-10
Snow Removal Equipment (SRE)	D 1-5
	E 1-3
	F 1-2
	G 1-2
	H 1-3
	I 1-4
	J 1-2
	K-1
	L 1-2
	M 1-2

Source: DOWL Analysis

The mixture of ground leases and sponsor owned hangars and buildings allows for growth and demand to work together to fulfill the needs of the Airport. Growth will occur when demand needs can be met through the ability of the Airport to erect a hangar and rent/lease it out or through private means or the

use of a ground lease for private hangar construction. As can be seen in **Figure 1.13** and **Table 1.5** The privately-owned hangars and ground leases far outnumber sponsor owned hangars.

Ground leases for privately developed hangars comply with FAA requirements and those found in Grant Assurances, ensuring that proper reversionary clauses are included in each lease and that the standards are applied equally and fairly to everyone. A reversionary clause is used so that a private party can lease a part of the airport property to build a hangar on for a specific period of time. The lease states that once the lease period is complete the land and all improvements made to it reverts to the Airport. The City may choose to create a new lease with the hangar owner rather than managing and maintaining the building. Airport management will need to work closely with the City Council to determine the path forward, as the decisions made will set the precedent for the future. The sponsor should be fully knowledgeable of when their leases are ending and have a plan in place for what will occur when that time arrives.

1.4.8. Emergency Response & Agreements

The City of Steamboat Springs owns and operates the Airport as well as the local police and fire departments. The police department patrols and monitors the Airport and the fire department responds to all emergencies necessitating their expertise. The Airport Manager leads an initiative to bring the incident responders (LEO, EMS, Fire) out to the Airport and familiarize them with the area and nature of activities that are conducted daily.

In addition to the familiarization training the Airport hosts table top exercises annually to work through the emergency response for a simulated incident. Generally, these exercises work through problems that involve aircraft accidents and incidents on and off the airfield. Collectively these exercises, combined with the familiarization and use of the Airport Emergency Plan, provide a foundation of understanding when an actual emergency occurs.

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Figure 1.14: SRE Building



Steamboat Springs Fire-Rescue (SSFR) provides Fire and EMS services in the City of Steamboat Springs and in the surrounding Steamboat Springs Rural Fire Protection District. Fire and Rescue crewmembers are both Firefighter and EMT Certified. Personnel include full-time, part-time and volunteer staff. Full-time staff cover 24 hour shifts with each shift staffed by eight full-time employees consisting of Firefighter/EMTs and at least two Firefighter/Paramedics. Part-time members are scheduled to augment the full-time staff, to fill vacant full-time shifts (vacation, sick, etc.) and to cover special events such as rodeos and sporting events. Full-time, part-time, and volunteer staff members are also paged (called) from home to respond to calls such as fires and second ambulance calls when demand exceeds the capability of full-time on-duty staff.

1.4.9. SRE Equipment

The Airport operates year-round and keeps the runway, taxiways, ramp and access roads plowed during and after every snow event. The Airport conducts the snow removal with a primary and secondary set of Snow Removal Equipment (SRE). **Table 1.6** details the primary and secondary equipment used at SBS for snow removal operations. A Snowcat is also used to groom the safety areas when the snow piles and ridges become too high and

obstruct the airfield lights. The Snowcat is borrowed from the City and is normally utilized at Howelsen Hill Ski Area.

Table 1.6: Acquired Equipment

Source: DOWL Analysis

Primary		
Type	Model	Year Acquired
Blower	1987 Oshkosh Snow Blower	2005
Loader	2009 Volvo L90F Loader	2008
Plow	2000 Sterling L7501 Snow Plow	1999
Secondary		
Type	Model	Year Acquired
Blower	1983 Rolba R-1000 Snow Blower	2000
Loader	2009 Volvo L90F Loader	2005
Plow	1981 Plow/Sand Truck	1989



To ensure proper snow removal at an airport that receives more snow than most any other airport in the US, all staff are trained in snow removal. The FBO is staffed along with two people operating the snow equipment during the snow events. Proper snow removal protocol is conducted according to the Snow Plan, which places priority on the runway and runway access. The Airport clears snow on the airside and landside to ensure complete snow removal occurs promptly and safely.

1.4.10. Maintenance & Equipment Storage

The maintenance and snow removal equipment storage building (65'x48') on the south end of the airfield ramp that houses the Airport's primary equipment utilized on the airfield. Within the building there is limited space to store the primary snow and grounds keeping equipment, while the secondary equipment is stored in the elements around the building. The facility offers an administrative office for the Maintenance Senior Technician as well as a break room often used by Wildland Firefighters during fire season. Storage is used along the walls and in the loft area above the offices and breakroom. The FAA utilizes a portion of the building for equipment storage that is critical to the area's Wide Area Multilateration (WAM), which is a specialized navigation system that provides air traffic controllers the ability to track

aircraft in mountainous areas that, due to terrain, cannot be seen by radar.

1.4.11. Airport Administration Areas

An administrative office is located in the FBO building for the Airport Manager. Administrative functions conducted by individuals other than the Airport Manager are conducted at the Steamboat Springs City Hall.

The FBO has a large desk and customer counter area where other FBO administrative tasks are completed. This area provides the necessary functionality for the staff to conduct the administrative requirements for the Fixed Base Operation as it relates to staffing, scheduling, fueling, record keeping, sales, and providing the additional services offered by the FBO.

1.4.12. Storm Water Data, Storage, & Disposal Facilities

The Steamboat Springs Airport has a Storm Water Pollution Prevention Plan (SWPPP), a Spill Prevention Control and Countermeasures (SPCC) Plan and a Storm Water Management Plan (SWMP) that provide reporting procedures quarterly of the storm water samplings taken from the Sample Points (SP) around the Airport. Per the 2017 Airport Storm Water Management Plan the sampling points:



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- **SP #1.** Represents run-on from the employee/visitor parking and runoff coming in to contact with A, B, C, K, L, M, and Mountain Aircraft Maintenance (MAM) hangar, designated wash area, Fueling Truck Parking Canopy, FBO building, eastern portions of the Aircraft Tie-Down Ramp, and the north portion of the Maintenance Shop. Runoff generally flows over impervious services to stormwater conveyances consisting of vegetated swales and inlets which discharge from the property through a culvert to a vegetated ditch at the corner of Airport Circle and Highway 129. Samples are collected at the point of discharge from the culvert. Water from the ditch eventually makes it to the Yampa River 1.3 miles away from the point of discharge.
- **SP #2.** Represents runoff coming in to contact with the fuel farm and hangars H and I.
- **SP #3.** Represents runoff coming in to contact with the hangars D, E, F, G and J, taxiway, northern portions of the tie-down ramp, and central areas of the runway. Runoff sheet flows over impervious services to vegetated swales, stormwater inlets, and culverts before discharging to a vegetated swale. The swale flows through a wetland area to a concrete basin at the north end of the runway. A culvert connects the basin to an outfall going in to Slate Creek. Samples are collected from the basin instead of at the outfall due to access and safety concerns.
- **SP #4.** Represents runoff coming in to contact with the Maintenance Shop, southern portions of the ramp, and taxiway A. Runoff sheet flows over impervious services to grass buffers or to inlets connected to a culvert that daylight into a ditch southeast of the Maintenance Shop

where samples are collected. The ditch flows off the property eventually into the ditch along Highway 129.

The Airport Maintenance Senior Technician collects storm water samples during the measurable runoff events quarterly. Containment areas are in place for the fuel, maintenance and wash operations that occur on the Airport. Completed information on the water samples and a signed Airport Storm Water Inspection are provided to the Airport Manager for signature and recording keeping. The Airport Manager provides a report to the Colorado Department of Public Health and Environment (CDPHE) annually.

1.5. Airport Environs

1.5.1. Topographical Information

The city of Steamboat Springs has a total land area of about 10.16 square miles, with .01 square miles of that being water as the Yampa River flows through town. This contrasts with the land area of Routt County which is made up of 2,362 square miles, of which 6.1 square miles of the county is covered in water. Routt County, located in northeastern Colorado, is the state's fifteenth largest county by area. Steamboat Springs is located in the Yampa Valley which provides a cold and temperate climate. The area is surrounded by mountains, providing convenient access to the Gore Mountain Range and the Medicine Bow Mountains for a variety of outdoor recreational activities.

1.5.2. Meteorological Data

The climate of the surrounding area, known as the Yampa Valley, is typical for this region, and it is classified cold and temperate. The Steamboat Springs Airport – Bob Adams Field experiences an annual average wind speed of approximately 4 to 6 miles per hour (MPH), with October to May averaging the highest average monthly wind speeds of more than 5.1 MPH. Temperatures in the area vary widely from winter to summer, with an average high of 82° Fahrenheit in July and an average low of 3°



Fahrenheit in January. The average annual temperature for Steamboat Springs year-round is 39.5° Fahrenheit. Precipitation averages for Routt County are typical for this part of Colorado with an annual average of 24.63 inches and the wettest time of the year falling between September and May. The average snowfall for the year is 180 inches, generally beginning in October and ending in May.

1.5.3. Socioeconomic & Demographic Data

Understanding the area in which the Airport is located is very important. Steamboat Springs is a year-round mountain destination with outdoor adventures and mountain air in the warmer months, and some of the finest ski areas in Colorado in the winter.

Table 1.7: Census Data

<https://www.census.gov/quickfacts/fact/table/steamboatspringscitycolorado/PST045217#PST045217>

Steamboat Springs, Colorado - Overview	2010 Census	
	Counts	Percentages
Total Population	12,088	100.00%
Population by Race		
American Indian and Alaska native alone	49	0.41%
Asian alone	96	0.79%
Black or African American alone	78	0.65%
Native Hawaiian and Other Pacific native alone	5	0.04%
Some other race alone	306	2.53%
Two or more races	187	1.55%
White alone	11,367	94.04%
Population by Hispanic or Latino Origin (of any race)		
Persons Not of Hispanic or Latino Origin	11,063	91.52%
Persons of Hispanic or Latino Origin	1,025	8.48%
Population by Gender		
Female	5,541	45.84%
Male	6,547	54.16%
Population by Age		
Persons 0 to 4 years	619	5.12%
Persons 5 to 17 years	1,619	13.39%
Persons 18 to 64 years	8,981	74.30%
Persons 65 years and over	869	7.19%

Source: US Census Bureau

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A wide variety of aircraft utilize the Airport from Piper Cubs to Lear Jets. Many people relocate to Steamboat Springs for the skiing and end up staying year-round due to the beauty and way of life in the mountains.

Like much of Colorado, the housing market is significantly higher than the national average. The US Census reports the 2017 estimates of the median value of owner-occupied housing units at \$481,000, accompanied by a median household income of \$53,996 and a civilian labor force of 76.4% (age 16 and older). The labor force in Steamboat Springs ranges from those just starting in the service industries to individuals retiring to the area after a full career.

The area around the Airport is comprised of industrial/multi-family areas to the south and east, and open lands to the north. New development possibilities for housing have been proposed to the west, which include proposals for through the fence housing options for those wishing to park their aircraft at their residence.

1.5.4. Zoning and Part 77 Protections

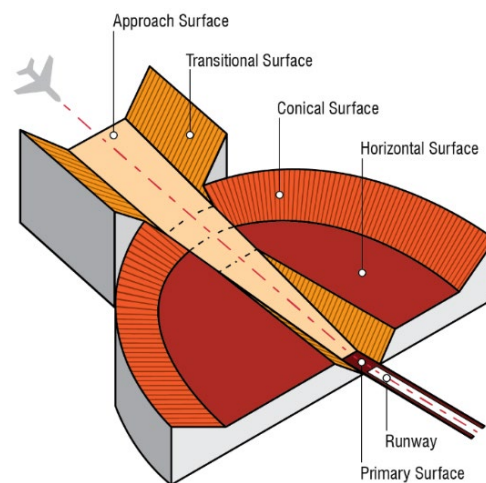
FAR Part 77 creates a basis for height restrictions around an airport using imaginary surfaces. Objects that penetrate these surfaces are studied to determine whether they are hazards to navigable airspace for aircraft and pilots within the vicinity of the airport. Understanding the importance of protecting the navigable airspace in a community and surrounding an airport, the City of Steamboat Springs is actively working towards ensuring that the Part 77 surfaces are protected, and height restrictions are being put in place around the Airport to protect the airspace.

The main goals of Steamboat Springs are to protect the public health, safety and general welfare of the residents of the town. In support of these goals, the city should adopt zoning ordinances around the Airport that establish height limitations, compatible land use zones, nonconforming uses, marking and lighting standards, and required certificates. These actions set-forth by the city would aim to protect the

municipality and its residents from potential liabilities, preserve federal grant monies, and help manage development around the Airport. The desire to create far-sighted regulations is a testament to the desire of the City of Steamboat Springs to protect their valuable airport asset.

Figure 1.15 shows a depiction of the primary, approach, transitional, horizontal and conical surfaces identified in FAR Part 77. The Steamboat Springs Airport has an “other than utility” runway, which is a runway intended for the operation of aircraft weighing more than 12,500 pounds. Table 1.8 provides the dimensions associated with the imaginary surfaces applied to SBS. These dimensions and slopes will change if a straight in instrument approach is able to be obtained.

Figure 1.15: Part 77 Imaginary Surfaces



Source: FAA Part 77 and NGS

Table 1.8: Part 77 Imaginary Surface Dimensions for SBS

Surfaces	Dimensions
Primary Surface	
Distance from Runway End	200'
Width	500'



Surfaces	Dimensions
Transitional Surface	
Slope	7:1
Approach Surface (Begins at the end of the primary surface)	
Inner Edge Width	500'
Outer Edge Width	3,500'
Horizontal Distance	10,000'
Slope	34:1
Horizontal Surface	
Height	150'
Arc Radius	10,000'
Conical Surface	
Slope	20:1
Horizontal Distance	4,000'

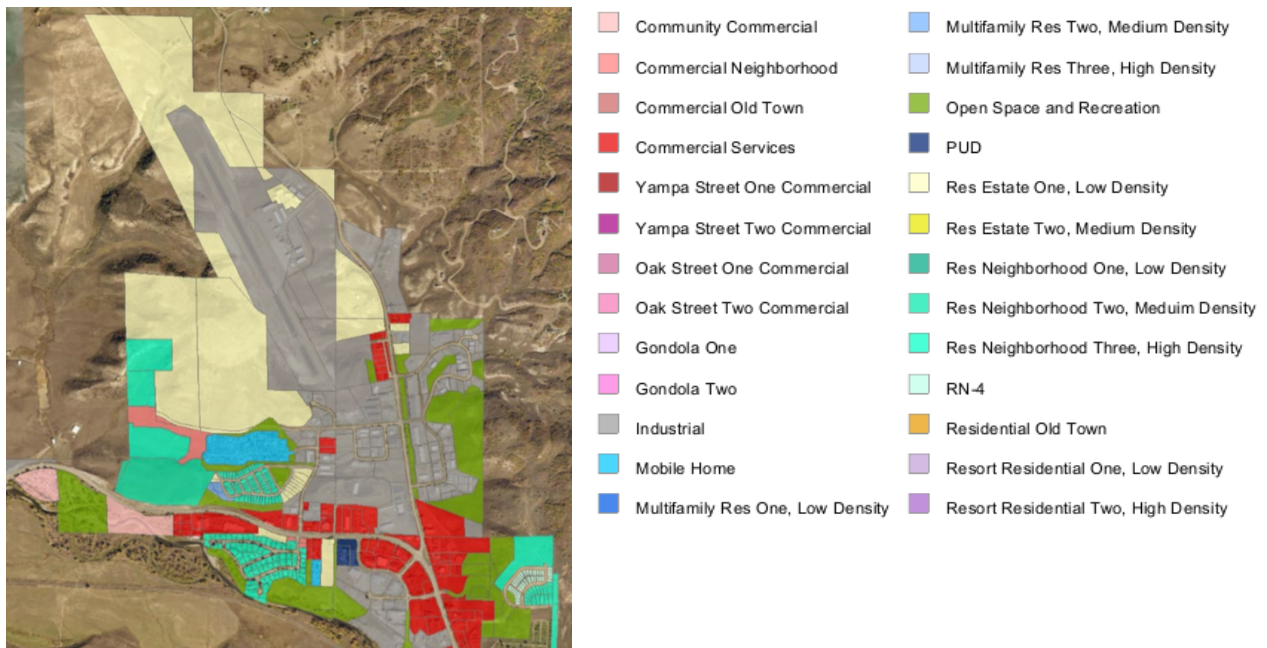
Source: FAA Part 77 and NGS

1.5.5. Compatible Land Use

Airports are community assets that provide significant benefits to the community by facilitating the movement of people, goods and services, promoting tourism and trade, stimulating business development and supporting a variety of jobs. The objective of land use planning is to guide development that is compatible with airport operations.

The FAA recommends that the airport sponsor protect the areas that surround an airport because the airport can impact or be impacted by the community that surrounds it. The FAA can provide guidance and funding to help promote compatible land development around airports, but it does not provide regulatory authority for controlling land uses. Local governments are responsible for land use planning, zoning and regulating development near the federally obligated airport that they sponsor.

Figure 1.16: Steamboat Springs Zoning Map

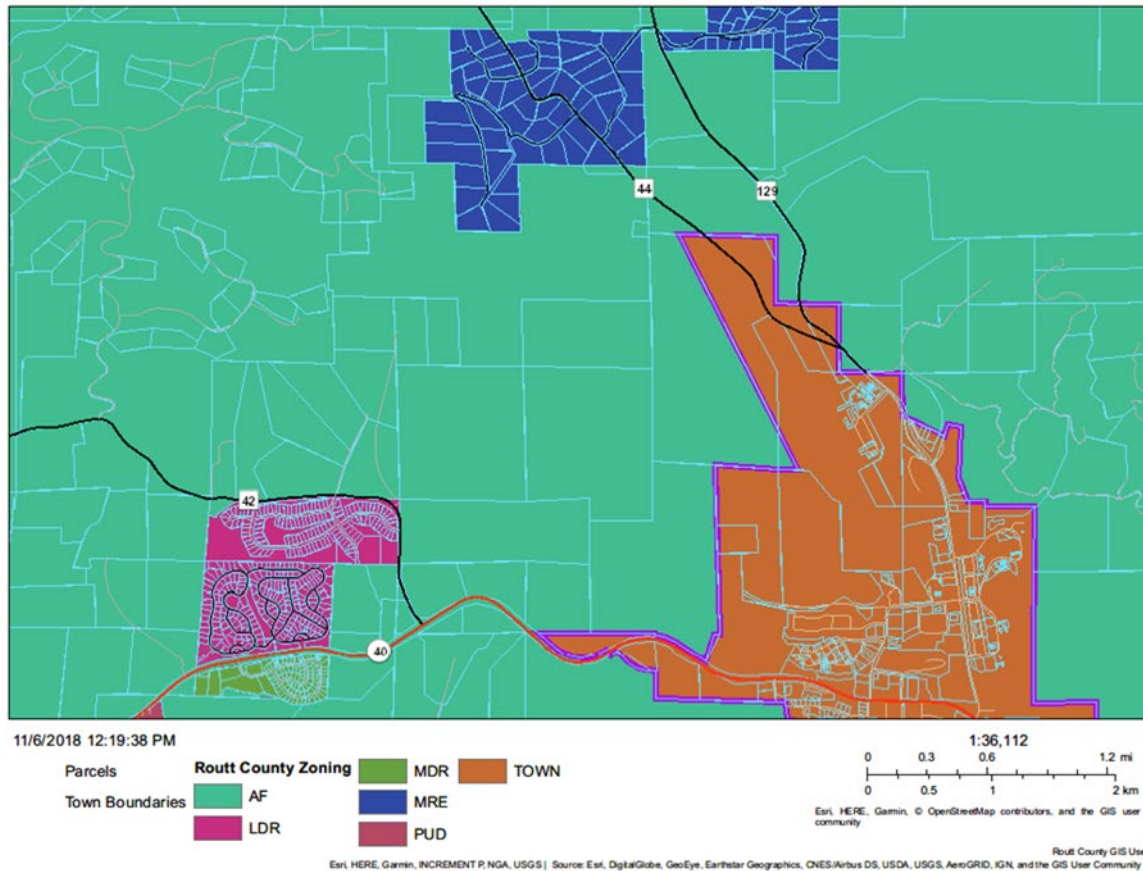


Source: City of Steamboat Springs

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Figure 1.17: Routt County Zoning Map



Source: Rout County, CO GIS

Incompatible land uses are one of the largest issues facing airports today and can result in conflicts between airports and their communities. Incompatible development can include land uses that are sensitive to aircraft noise, such as schools, residential development, churches and hospitals. Other incompatible land uses include wildlife attractants such as landfills, ponds, wastewater treatment facilities, etc.

SBS previously had Land Use Zoning in their city code but does not currently have any zoning regulations for the Airport. This master plan will

address the lack of Land Use Zoning and recommend future guidance.

1.5.6. Surrounding Land Use & Owners

The Airport has residential neighborhoods to the south and west, and business developments to the east and southeast. Some undeveloped land is to the north and west with some housing areas intermixed with the open lands. It is important to mention that there is currently a development consideration of nearly 134 acres immediately adjacent to the southwest property line for a through the fence development known as the Steamboat Airpark.



1.6. Environmental Data

This section describes the surrounding environmental conditions of the Airport as of the fall of 2018. The inventory included adheres to FAA guidelines, and briefly examines the impact categories identified in FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, as follows:

- Air quality
- Biological resources (including fish, wildlife, and plants)
- Climate
- Coastal resources
- Department of Transportation Act, Section 4(f)
- Farmlands
- Hazardous materials, solid waste, and pollution prevention
- Historical, architectural, archaeological, and cultural resources
- Land use
- Natural resources and energy supply
- Noise and compatible land use
- Socioeconomics, environmental justice, and children's environmental health and safety risks
- Visual effects (including light emissions)
- Water resources (including wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers).

1.6.1. Air Quality

The U.S. Environmental Protection Agency (EPA) sets air quality standards for six criteria pollutants known to impact human health and FAA cannot approve an action that is not supportive of the attainment and maintenance of National Ambient Air Quality Standards (NAAQS) conformity. Conformity applies to areas designated as “maintenance” or “non-attainment” for any of the criteria pollutants. The six criteria pollutants include

carbon monoxide (CO), particulate matter (PM), ozone (O₃), sulfur dioxide (SO₂), lead (Pb), and nitrogen oxide (NO_x).

The EPA defined geographic areas in one of four ways, with respect to air quality. “Non-attainment” areas are those areas where standards have been violated for one of the six monitored pollutants. “Maintenance” areas are those geographic areas that had a history of non-attainment, but now consistently meet the NAAQS. Geographic areas classified as “attainment” are those that are typically monitored but have had no violations. Areas are considered “non-classified” if air quality is generally not a concern. Routt County, Colorado is not identified as a non-attainment or maintenance area for any of the criteria air pollutants.

1.6.2. Biological Resources

Vegetation & Habitat

Much of the undeveloped land within the perimeter fence was previously disturbed during construction and operation activities. Vegetation consists primarily of seeded pasture species. Beyond the perimeter fence, the ground surface has not been graded and disturbed to the same extent but rather has traditionally been used for livestock range and wildlife habitat. The plant community here is somewhat dissected by steeply incised ephemeral drainages. Areas located on gentler upland slopes are generally dominated by mixed pasture grasses including timothy, Kentucky bluegrass, smooth brome, and western wheatgrass. Areas with thinner soils are dominated by Wyoming big sage, Oregon grape, mule's ear, Idaho fescue, needlegrass, and snowberry. Steep drainages feature an overstory of aspen, serviceberry, and chokecherry, with an understory that includes those species previously described.

Slate Creek is located approximately 980 feet northwest of the Airport and flows generally south west to the Yampa River.

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Threatened & Endangered Species

The Endangered Species Act of 1973 (ESA) is administered by the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service. Under ESA, species may be listed as either threatened or endangered. "Endangered" means a species is in danger of extinction throughout all or a significant portion of its range. "Threatened" means a species is likely to become endangered within the foreseeable future. A candidate species is any species whose status we are currently reviewing to determine whether it warrants listing under the Endangered Species Act. Candidate species receive no statutory protection under the ESA. However, the Service encourages the formation of partnerships to conserve these species because they are species that may warrant future protection under the ESA.

Threatened, endangered, and candidate species identified by U.S. Fish and Wildlife Service (USFWS) for Routt County, Colorado are listed in **Table 1.9**.

Table 1.9: Threatened, Endangered, and Proposed Threatened Species

Common Name	Scientific Name	Status
Bonytail chub	<i>Gilea elegans</i>	Federally Endangered
Colorado pikeminnow	<i>Ptychocheilus lucius</i>	Federally Endangered
Greenback cutthroat trout	<i>Oncorhynchus clarkia stomias</i>	Federally Threatened
Humpback chub	<i>Gila cypha</i>	Federally Endangered
Razorback sucker	<i>Xyrauchen texanus</i>	Federally Endangered
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Federally Threatened

Source: U.S. Fish and Wildlife Services

In 2010, as part of the environmental analysis associated with proposed Airport improvements, all species currently listed as of December 2018 under the Endangered Species Act (ESA) for Routt County, were evaluated for their potential to be present in and around the Airport, based on general geographic and elevation distribution, habitat requirements and documented occurrence records available from the USFWS. Based on the 2010 survey there is no habitat for federally listed threatened or endangered species on or adjacent to the Airport.

1.6.3. Migratory Bird & Bald/Golden Eagle Treaty Acts

The Migratory Bird Treaty Act (MBTA), enacted in 1918, prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations, and does not require intent to be proven.

Section 703 of the MBTA states:

“ Unless and except as permitted by regulations... it shall be unlawful at any time, by any means or in any manner, to... take, capture, or kill or possess... any migratory bird, any part, nest or eggs of any such bird.

The Bald and Golden Eagle Protection Act (BGEPA) prohibits knowingly taking or taking with wanton disregard for the consequences of an activity, any bald or golden eagles or their body parts, nests, or eggs, which includes collection, molestation, disturbance, or killing. The Airport area is at the extreme eastern edge of the Pacific Flyway bird migration route, which extends from the Pacific Ocean to the Continental Divide. Many common migratory bird species, including bald eagles nest and breed along this flyway route. Bald eagles are known to nest in Routt County along the Yampa and Elk Rivers.



1.6.4. Climate

Although greenhouse gasses (GHGs) are not directly discussed within FAA Order 1050.1F, they are discussed in the 1050.1F Desk Reference. GHGs are discussed here because research has shown a direct correlation between fuel consumption and GHG emissions. The FAA is participating in several initiatives to better understand the role played by commercial aviation in the production of GHG emissions. The FAA has developed the Aviation Climate Change Research Institute to attempt to advance understanding of regional and global climate impacts of aircraft emissions.

The amount of GHGs emissions created at the Airport are unknown; however, due to the modest operations at this airport, emissions are likely minimal.

1.6.5. Department of Transportation Act, Section 4(f) Resources

Section 4(f) of the U.S. DOT Act of 1966 (now codified within at 49 U.S.C.) protects significant publicly owned land including public parks, recreation areas, or wildlife or waterfowl refuges of national, state, or local significance, or land of an historic site of national, State, or local significance. The Secretary of Transportation will not approve any program that requires the use of this publicly owned land, unless there is no feasible and prudent alternative to the use of this land, and the project includes all possible planning to minimize harm.

A review of Steamboat Springs and eastern Routt County maps shows five potential resources near the project. The nearest Section 4(f) property is Iron Springs Park, managed by City of Steamboat Springs, located approximately 2 miles west of the Steamboat Springs Airport. Nearby 4(f) properties are listed in **Table 1.10**.

Table 1.10: Properties near SBS

4(f) Property	Direction from Airport	Distance from Airport	Agency with Jurisdiction
Iron Springs Park	West	2 miles	City of Steamboat Springs
Routt National Forest	East	4 miles	USDA Forest Service
Mount Zirkel Wilderness Area	North	7 miles	Mount Zirkel Wilderness Area
Arapahoe National Wildlife Refuge	Northeast	27 miles	US Fish & Wildlife Service
Flat Tops Wilderness	Southwest	28 miles	USDA Forest Service

Source: DOWL Analysis

1.6.6. Farmlands

The Farmland Protection Policy Act (FPPA), administered by the Natural Resources Conservation Service (NRCS) is intended to minimize the impact Federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that—to the extent possible—Federal programs are administered to be compatible with state, local units of government, and private programs and policies to protect farmland. For FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Farmland subject to FPPA requirements does not have to be currently used for cropland. It can be forest land, pastureland, cropland, or other land, but not water or urban built-up land. The Steamboat Springs Airport is not located on or near prime and unique farmland. During the 2008 Airport Master

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Plan update process the US Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) was contacted regarding proposed improvements impacting Prime or Unique Farmlands. The USDA responded stating that "most of the soils in Routt County including those around the Steamboat Springs Airport are in a cryic soil temperature regime (very cold). This precludes them from being designated as "Prime Farmland".

1.6.7. Hazardous Materials, Solid Waste, & Pollution Prevention

The Resource Conservation and Recovery Act (RCRA) of 1976 directs the EPA to protect the environment and human health and welfare from improper hazardous waste management practices. The RCRA requires labeled and effective containers for hazardous waste, record keeping, and transport manifests.

An airport's airside and landside operations use, transport, or generate, various kinds of hazardous materials. These substances include hazardous wastes and hazardous substances as well as petroleum and natural gas substances and materials. The SBS staff follow state and Federal regulations for use and disposal of hazardous materials.

Historical, Architectural, Archeological, & Cultural Resources

A Cultural Resource Survey of the Airport was completed in 2010 as part of the environmental analysis for proposed airport improvements. As part of that survey, a file search of the Colorado Office of Archaeology and Historic Preservation COMPASS database showed three listed sites off-site in the vicinity of the Airport including a historic trash dump/dam (5RT1199), the Woodchuck Ditch (5RT2240) east of the Airport, and a segment of U.S. Highway 40/Victory Highway (5RT2767.1). One historic homestead (5RT3053) was discovered during the field inventory and was evaluated as not eligible for inclusion on the National Register of Historic Places (NRHP).

1.6.8. Noise & Noise-Compatible Land Use

The compatibility of existing and planned land uses near an airport is usually associated with the extent of the airport's noise impacts. Land use within the vicinity of the Steamboat Springs Airport consists of open space, residential, and industrial. Noise contours were prepared in the 2008 master plan. The Airport's total annual aircraft operations is estimated to be approximately 10,700, which is below the threshold of 90,000 piston-powered aircraft and 700 jet-powered aircraft. Therefore, the Airport currently does not have noise impacts necessitating additional analyses.

1.6.9. Natural Resources & Energy Supply

FAA Order 1050.1F, Environmental Impacts: Policies and Procedures, asserts that Airport improvement projects will be examined to identify effects on local energy supplies or natural resources. If impacts are identified, energy producers and environmental stakeholders must coordinate activities. In its appendix, the FAA order refers to Executive Order 13123. Executive Order 13123 encourages the use of renewable energy and requires federal agencies to reduce air emissions and the consumption of petroleum, energy, and water.

Electric energy is used to power navigation aids, airfield lighting, and buildings. Petroleum fuels are used to power aircraft, maintenance vehicles, and other equipment, such as generators. Other natural resources affected by the Airport are discussed in the water resources, wetlands, biotic communities, and threatened and endangered species sections.

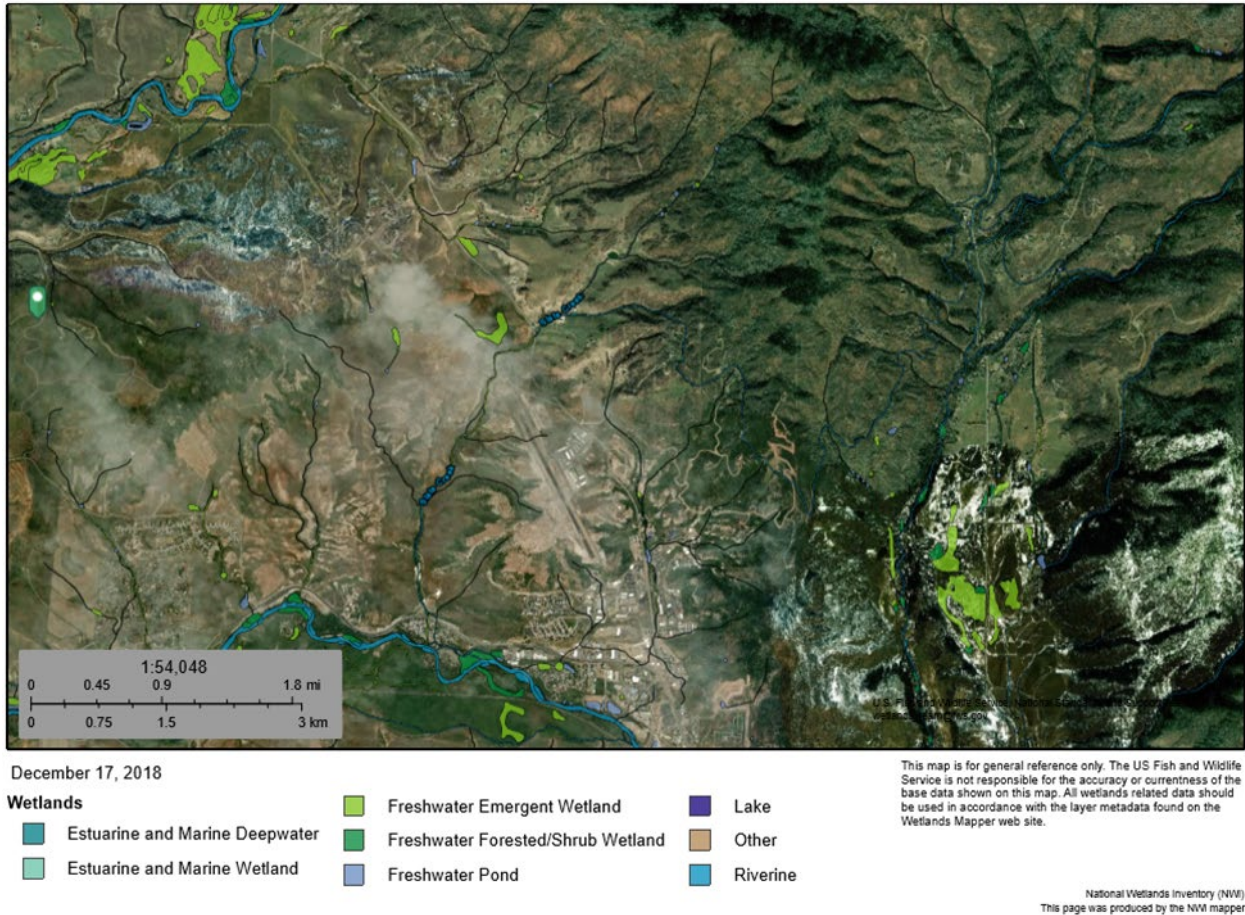
Coordination with natural resource and energy supply companies is recommended prior to the construction of new facilities requiring these services.

1.6.10. Socioeconomic & Demographic Characteristics

It will be necessary to evaluate the impacts of future projects on surrounding communities.



Figure 1.18: National Wetland Inventory



The areas surrounding the Airport are predominantly agricultural, mixed-use, industrial, and low density residential. There are no concentrations of minority or low-income populations within the immediate vicinity of the Airport.

1.6.11. Visual Effects

The Airport has a high-intensity runway and taxiway lighting system and is also equipped with runway end identifier lights (REILs), a rotating beacon, two lighted windsocks, a segmented circle, and a two-light precision approach path indicator (PAPI) on the left side of Runway 32. The Airport lighting is contained on-site and does not spill over into the neighboring

properties; however, it may be visible to the adjacent homes and businesses at night. In addition, the beacon may be visible at distances greater than one mile from the Airport.

1.6.12. Water Resources

Wetlands

Executive Order 11990, Protection of Wetlands, requires the FAA to protect, preserve, or enhance wetlands. This order is often called the ‘no net loss’ provision for wetlands and is the source for how mitigation programs are developed. In addition, Section 404 of the Clean Water Act requires a permit from the U.S. Army Corps of Engineers for any fill in

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wetlands or other Waters of the U.S. According to the U.S. Fish and Wildlife Service National Wetlands Inventory (<https://www.fws.gov/wetlands/>), the Airport and its vicinity have freshwater emergent, freshwater pond, and riverine habitats (**Figure 1.18**).

Four jurisdictional wetlands were identified at the north end of the Airport property in 2010 as part of the environmental analysis for proposed Airport improvements. Project-specific wetland delineations should be performed for future Airport improvement proposals.

Floodplains

Executive Order 11988 directs Federal agencies to “take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains...” A review of on-line Flood Insurance Rate Maps, prepared by the Federal Emergency Management Administration, shows the area is not within the mapped floodplain. The Airport is located 0.6 miles northeast of the floodplain of the Yampa River.

Water Quality

Water quality is generally governed under the provisions of the federal Water Pollution Control Act, as amended by the Clean Water Act and other amendments. Section 303(d) of the Clean Water Act authorizes EPA to assist states, territories and authorized tribes in listing impaired waters and developing Total Maximum Daily Loads (TMDLs) for these waterbodies. A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality.

A body of water is considered “impaired” if it fails to meet one or more water quality standards. ... Waters that do not meet their designated uses because of water quality standard violations are impaired.

Colorado Department of Public Health and Environment (CDPHE) maintains a listing of water bodies and impediments to meeting water quality

standards for each body. These standards are typically thresholds for the presence of a element or general conditions.

The CDPHE 2018 Integrated Water Quality Monitoring and Assessment Report indicates that segments of the Yampa River southwest of the Airport are designated Category 5, defined as segments “not meeting applicable water quality standards for one or more classified uses by one or more pollutants (303(d) waterbodies)”. Thermal pollution and arsenic are noted in these segments.

The primary water quality concern for airports is runoff generated from the creation of impervious surfaces, as well as potential impacts from oil or fuel spillage, and de-icing chemicals. The Airport does not use de-icing chemicals; however, oil and fuel are used in maintenance and operations, and aircraft operations. The fueling station has a spill containment pad and the Airport maintains a set of procedures outlined in the SPCC plan that are followed in the event of a spill. These procedures will prevent contaminants from entering the surface and groundwater, as well as local water bodies.

Wild & Scenic Rivers

Since passage of the Wild and Scenic Rivers Act in 1968, one river in the state of Colorado, the Cache le Poudre River, has been designated as part of the National System. This river is located approximately 115 miles east of the Airport.

1.7. Solid Waste Recycling Plan

1.7.1. Feasibility of Solid Waste Recycling at SBS

To comply with the FAA Modernization and Reform Act of 2012 (FMRA). Section 132 (b) this master plan specifically identifies specific aspects to further decrease solid waste by increasing resources that can be recycled in a more efficient manner. Currently, The Steamboat Springs Airport has a large dumpster and separate cardboard collection point for all the tenants and users. Additional recycling collection points are provided by Smartwool, a tenant in the



AOB. Smartwool provides collection points available to be utilized by the Airport under their business recycling efforts, and have multiple recycling options for papers, plastics, and other recyclable waste. Consideration will need to be given to an airport specific Solid Waste Recycling Plan and options prior to Smartwool moving from the AOB as a tenant of the Airport.

1.7.2. Minimizing the Generation of Solid Waste at SBS

The City of Steamboat Springs has worked with Routt County in ensuring that the solid waste generated in the area has the ability to be recycled. Minimization of the amount of waste deposited into the landfills is vitally important, and like most rural communities, the City of Steamboat Springs is working towards increasing its diversion rates. Minimization is not only helpful for the environment, it is the law. State laws have been enacted to prevent certain items such as paint, tires and electronics from being injected into the landfills.

1.7.3. Operations & Maintenance Requirements

The Steamboat Springs Airport will be required to have a plan in place that will account for the activities taken in disposing of the solid waste appropriately. The City of Steamboat Springs currently has a Sustainability Management Plan which is used to ensure that the recycling efforts within the city are maintained. Very little hazardous waste is typically collected by the Airport. The hazardous waste that is collected is usually small or contained, such as batteries. This type of hazardous waste is collected with other refuse and disposed of at the landfill, which has the capability to accept this type of waste, as per guidelines.

1.7.4. Review of Waste Management Contracts

The Steamboat Springs Airport utilizes the services of Waste Management which operates in Steamboat Springs.

1.7.5. Cost Savings/Revenue Generation Potential from Solid Waste Recycling

In most cases adding solid waste recycling can reduce the total cost of waste disposal. As the solid waste recycling will need to be transferred to the Airport after Smartwool leaves, the associated cost will more than likely also transfer to the Airport. This will result in cost rather than a revenue source, though ultimately would be more beneficial than acquiring an additional dumpster to accommodate the additional waste. Consideration should be given to associate a fee to new AOB tenants to cover the additional cost of implementing the Solid Waste Recycling operation under the Airport as it will possibly be the largest generator of recyclable waste due to the ability to accommodate the most people at the Airport.

1.8. Airport Financial Data

1.8.1. City Management Structure

The Steamboat Springs Airport and FBO are owned and operated as an entity of the City of Steamboat Springs. The Airport falls under the stewardship of the Public Works Department, which answers to the City Manager, whom answers to the City Council. A City Council, made up of seven elected Steamboat Springs residents, govern the actions and obligations of the City of Steamboat Springs.

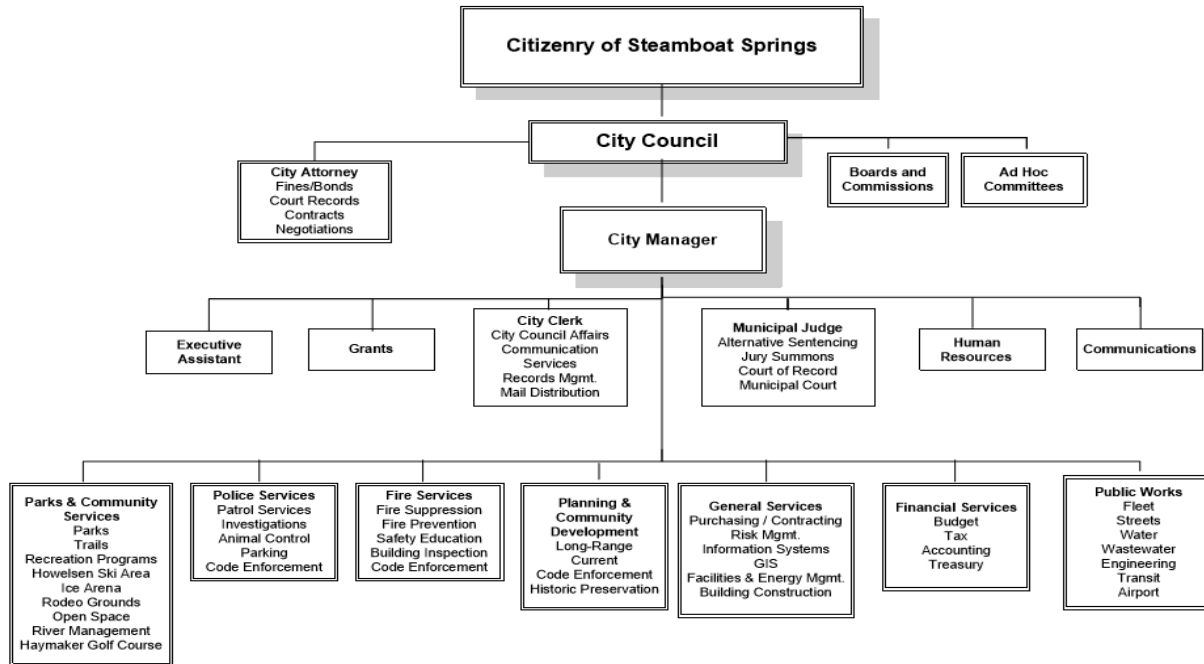
1.8.2. SBS Budget

The City of Steamboat Springs is the Sponsor of the Airport, and as the sponsor it aids in assuring that the department budget is breaking even or profiting every year through fund balances. The 2018 budget, shown below, indicates that it will require a \$152,684 fund balance to ensure that the Airport is able to meet all of its expenses of the year.

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Figure 1.19: Steamboat Springs Organizational Chart



Source: City of Steamboat Springs



Table 1.11: SBS 2018 Budget

CITY OF STEAMBOAT SPRINGS AIRPORT FUND SUMMARY 2018 BUDGET						
	2016 ACTUAL	2017 ORIG. BUD.	2017 PROJECTED	2018 BUDGET	PY BUD. % INC/(DEC)	PY PROJ. % INC/(DEC)
STAFFING PLAN						
FULL TIME EMPLOYEES						
Airport Manager	1.00	1.00	1.00	1.00		
Senior Maintenance Technician	1.00	1.00	1.00	1.00		
FBO Line Service Technician	-	-	0.90	0.90		
FBO Line Service Senior Technician	1.00	1.00	1.00	1.00		
TOTAL FULL TIME STAFF	3.00	3.00	3.90	3.90		
PART TIME AND SEASONAL STAFF						
Maintenance Worker, Senior	0.25	0.25	0.25	0.25		
Maintenance Worker	1.50	1.50	0.60	0.60		
TOTAL PART TIME STAFF	1.75	1.75	0.85	0.85		
REVENUE SUMMARY						
Charges for Services	\$ 1,100,516	\$ 1,106,170	\$ 1,035,883	\$ 1,125,279	1.73%	8.63%
Intergovernmental	-	-	-	316,666	N/A	N/A
Other Revenue	9,128	4,000	10,180	4,000	0.00%	-80.71%
Transfers	188,708	90,576	90,576	16,666	-81.60%	-81.60%
TOTAL REVENUES	1,298,352	1,200,746	1,136,639	1,462,611	21.81%	28.68%
EXPENDITURES BY CATEGORY						
Personnel Costs	324,894	329,437	331,076	400,801	21.66%	21.06%
Operating Expenses	549,853	586,218	461,509	606,927	3.53%	31.51%
Equipment	-	25,000	25,000	30,000	20.00%	20.00%
Capital & Other (reclassified grant expenses)	60,376	-	-	333,332	N/A	N/A
Overhead	131,191	132,142	132,142	116,250	-12.03%	-12.03%
Debt Service	15,629	15,629	15,629	15,629	0.00%	0.00%
Transfers	112,320	112,320	112,320	112,320	0.00%	0.00%
TOTAL EXPENDITURES	1,194,263	1,200,746	1,077,676	1,615,259	34.52%	49.88%
NET COSTS	\$ (104,089)	\$ -	\$ (58,963)	\$ 152,648	N/A	-358.80%
EXPENDITURES BY DIVISION						
Airport Operations	\$ 211,658	\$ 324,856	\$ 246,616	\$ 360,080	10.84%	46.01%
Fixed Base Operator	794,280	747,941	703,111	793,898	6.14%	12.91%
Capital Outlay	60,376	-	-	333,332	N/A	N/A
Debt Service	127,949	127,949	127,949	127,949	0.00%	0.00%
TOTAL EXPENDITURES	\$ 1,194,263	\$ 1,200,746	\$ 1,077,676	\$ 1,615,259	34.52%	49.88%

Source: City of Steamboat Springs

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Table 1.12: SBS Revenue & Expenses

Year	Revenue	Expense	Profit/Loss
2008	\$1,020,715	\$1,224,211	(\$203,496)
2009	\$989,419	\$1,026,612	(\$37,193)
2010	\$844,094	\$921,036	(\$76,942)
2011	\$1,042,172	\$1,290,995	(\$248,823)
2012	\$1,447,914	\$1,926,711	(\$478,797)
2013	\$1,073,568	\$1,742,789	(\$669,221)
2014	\$1,123,563	\$1,226,796	(\$103,233)
2015	\$2,068,841	\$2,142,734	(\$73,893)
2016	\$1,109,644	\$1,033,898	\$75,746
2017	\$1,059,198	\$1,024,611	\$34,587
2018	\$1,462,611	\$1,615,259	(\$152,648) *Budgeted

Source: City of Steamboat Springs

1.8.3. Revenues & Expenses

The revenue and expenses for the last ten years, as seen above, show a historic trend of fund balance requirements in order for the Airport to meet its expenses. Like many airports across the nation, Steamboat Springs Airport has worked very hard to narrow the margin needed in a fund balance to eventually be considered a self-sustaining airport. SBS is very close to achieving self-sustainability and has achieved it in 2016 and 2017.

The goal will be to continue to increase revenues over expenditures to maintain the self-sustainability of the Airport. The 2018 announcement of Smartwool relocating out of the AOB will require an in-depth analysis of possibilities and options to utilize the vacant space in a manner that will bring significant revenue generation and continue to pay the note on the building. The 2019 budget has been adjusted for the anticipation of the Smartwool lease ending. As can be seen in the FY2017 year-end financial audit, the Airport achieved a self-sustaining profitable year.



Table 1.13: SBS 2017 Budget

CITY OF STEAMBOAT SPRINGS AIRPORT FUND SCHEDULE OF REVENUES, EXPENDITURES AND CHANGES IN NET POSITION - BUDGET AND ACTUAL FOR THE YEAR ENDED DECEMBER 31, 2017				
	Budgeted amounts		Actual	Variance with Final Budget Positive (Negative)
	Original	Final		
REVENUES				
Taxes and assessments				
Charges for services	\$ 1,110,170	\$ 1,110,170	\$ 1,056,175	\$ (53,995)
Investment Income	-	-	3,023	3,023
Total revenues	1,110,170	1,110,170	1,059,198	(43,297)
EXPENDITURES				
Airport Operations				
Personnel services	155,467	155,467	92,450	63,017
Contractual services	118,917	124,732	117,458	7,274
Materials and supplies	16,750	16,517	13,654	2,863
Repairs and maintenance	32,016	33,316	35,928	(2,612)
Telephone and utilities	27,222	27,222	27,800	(578)
Total Airport Operations	350,372	357,254	287,290	69,964
Fixed Base Operations				
Personnel services	173,970	173,970	276,901	(102,931)
Contractual services	109,862	111,195	103,131	8,064
Materials and supplies	399,500	412,441	322,423	90,018
Repairs and maintenance	4,500	5,900	5,761	139
Telephone and utilities	9,593	9,593	8,232	1,361
Total Fixed Base Operations	697,425	713,099	716,448	(3,349)
Debt service				
Principal	14,923	14,923	14,923	-
Interest	706	706	706	-
Total Debt Service	15,629	15,629	15,629	-
Capital outlay				
Machinery and equipment	25,000	5,659	5,244	415
Total Capital Outlay	25,000	5,659	5,244	415
Total expenditures	1,088,426	1,091,641	1,024,611	67,030
Excess (deficiency) of revenues over (under) expenditures	21,744	18,529	34,587	23,733

Source: City of Steamboat Springs

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Inventory of Existing Conditions

1.8.4. Capital Improvements

Over the years many airport improvement projects have been accomplished with the assistance of financial grants from the Federal Aviation Administration (FAA) Aviation Improvement Program (AIP).

Table 1.14 is a comprehensive listing of all FAA AIP grants accepted by the Airport. When airport owners accept funds from FAA-administered airport financial assistance programs, they must agree to

certain obligations called grant assurances. These obligations require the recipients to maintain and operate their facilities safely and efficiently and in accordance with specified conditions. The nature and duration of these obligations depends on the useful life of the facility improvements being developed, and other conditions stipulated in the assurances. Design and construction grant obligations typically apply for a term of 20 years. Grant obligations for property acquisition typically apply for the life of the airport.

Table 1.14: SBS 20 Year AIP Grant History (FED & STATE)

SBS FAA Grant History				
Year	Description of Work	Federal Amount	State	Local
1998 State Grant	Rehab Fuel Farm		\$25,121	\$25,121
1999 State Grant	Security Gate		\$24,000	\$6,000
AIP-011 – 2000	Rehabilitate Runway	\$768,249		
	Groove Runway	\$84,000		
2000 State Grant	Snow Blower		\$62,400	\$19,000
2001 State Grant	Pavement Maintenance		\$20,000	\$5,000
AIP-012 – 2003	Rehabilitate Apron	\$462,716		
2003 State Grant	Seal Coat Runway/Remark		\$41,600	\$13,000
AIP-013 – 2004	Acquire Snow Removal Equipment	\$115,975		
2004 State Grant	Ramp repairs/ramp access		\$32,800	\$13,000
AIP-014 – 2005	Rehabilitate Apron	\$790,600	\$73,158	\$33,158
AIP-015 – 2006	Conduct Airport Master Plan Study	\$150,000	\$3,947	\$3,947
AIP-016-2007	Rehabilitate Runway - 14/32	\$150,000	\$33,947	\$33,947
AIP-018-2008	Acquire Snow Removal Equipment	\$38,760		
AIP-017-2008	Acquire Snow Removal Equipment	\$121,195		
AIP-019-2008	Install Perimeter Fencing	\$27,550		
AIP-020-2009	Install Perimeter Fencing	\$138,175	\$161,600	\$48,400



SBS FAA Grant History				
Year	Description of Work	Federal Amount	State	Local
AIP-021-2011	Acquire Easement for Approaches, Rehabilitate apron	\$300,000	\$216,666	\$38,888
AIP-022-2014	Construct Taxiway, rehabilitate Taxiway	\$523,500	\$179,054	\$45,725
AIP-023-2015	Rehabilitate Runway - 14/32	\$150,000	\$18,818	\$9,498
		FED \$4,120,720	STATE \$1,708,258	LOCAL \$393,828

Source: FAA AIP Grant History Look Up & CDOT Division of Aeronautics

Projects that were completed prior to 1998 (the year at which the current 20-year obligation begins at the time of this documents creation) in most cases are no longer considered obligated to the federal government or

state. **Table 1.15** depicts the projects that were completed prior to 1998 and have completed their obligation timeframe for the related grants.

Table 1.15: SBS AIP Grant History (FED & STATE Prior to 1998)

SBS FAA Grant History		
Year	Description of Work	Federal Amount
AIP-001 – 1985	Rehabilitate Runway	\$476,668
AIP-002 – 1986	Improve Snow Removal Equipment Building	\$68,826
AIP-003 – 1989	Improve Runway Safety Area	\$1,115,800
AIP-004 – 1991	Extend Runway	\$1,094,673
AIP-004 – 1991	Improve Safety Area	\$4,318
AIP-005 – 1992	Improve ARFF Building	\$427,988
AIP-005 – 1992	Install Guidance Signs	\$4,318
AIP-005 – 1992	Groove Runway	\$48,242
AIP-005 – 1992	Improve Airport Drainage	\$85,462
AIP-006 – 1993	Improve Access Road	\$656,575
AIP-006 – 1993	Construct Apron	\$260,000
AIP-006 – 1993	Construct Terminal Building	\$400,000
AIP-007 – 1994	Install Apron Lighting	\$38,672
AIP-007 – 1994	Acquire Land for Development	\$213,065

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Inventory of Existing Conditions

SBS FAA Grant History

Year	Description of Work	Federal Amount
AIP-007 – 1994	Install Airfield Guidance Signs	\$115,280
AIP-007 – 1994	Extend Runway	\$265,000
AIP-008 – 1994	Improve Access Road	\$45,900
AIP-008 – 1994	Construct Apron	\$56,850
AIP-009 – 1994	Improve Access Road	\$23,400
AIP-009 – 1994	Construct Apron	\$100,260
1995 State Grant	VOR Installation	\$100,000
AIP-010 – 1996	Rehabilitate Taxiway	\$58,132
AIP-010 – 1996	Install Runway Vertical/Visual Guidance	\$36,250
AIP-010 – 1996	Construct Taxiway	\$292,046

Source: FAA AIP Grant History Look Up & CDOT Division of Aeronautics

1.9. Issues

1.9.1. Issues Summary

Airport users, neighbors and other stakeholders were invited to identify SBS Airport Master Plan issues through a variety of methods including interviews, surveys, public open house meetings, City Council meetings, a Yampa Valley Airport Commission meeting, comment sheets, and Advisory Committee Meetings. While the focus of the issues identification was on Airport Master Plan issues, in some cases the issues identified were more related to airport management, maintenance, or operations issues. All issues identified were shared with airport staff so that they could be addressed outside the master plan, if appropriate.

The initial Fall 2018 User Survey (**Appendix B**), completed by 51 respondents, captures the primary issues that were brought up over the course of the study. The highest ranked Master Plan Issues from the survey are summarized below.

1. Improved Instrument Approaches
2. Taxiway Design: Full Parallel
3. Self-Service Fuel: 100LL
4. Additional Hangars to Rent/Own
5. Runway Length
6. Ramp Size and Parking Availability
7. Lighting, Windsocks, or other Navigational Aids
8. Airfield Lighting



Aviation Demand Forecast

2.1. Aviation Trends and Data

2.1.1. Introduction

Effective airport planning and development includes forecasting aviation demand as future activity levels drive the size and timing of necessary airport improvements of which become the basis for the airport's capital improvement plan. For Steamboat Springs Airport (SBS or Airport), forecasts are prepared for the 20-year planning period in three stages: short-term (2023), intermediate-term (2028) and long-term (2038).

Aviation activity in 2018 represents the baseline for the forecasts. The best available aviation activity data is used to estimate the existing activity. Airport activity data addressed for SBS includes:

- **Based Aircraft** – the number and types of aircraft (fleet mix). An aircraft is “based” at an airport if it spends the majority of its time at that airport.
- **Airport Operations** - categorized by annual, local, itinerant, and type (air taxi, general aviation and military). “Local” includes those operations that remain in the airport vicinity and typically comprise training, including touch-and-go activity. “Itinerant” includes activity that departs for or arrives from another location. Air taxi operations can refer to passenger/cargo charter or air taxi, medical transport, and other “for hire” flights in various helicopter and fixed wing aircraft.
- **Critical aircraft (design aircraft) and Airport Reference Code (ARC)**

Generally, these forecasts are unconstrained and assume that the City of Steamboat Springs will develop SBS to accommodate demand in the future. Further, a proposed airpark adjacent to SBS aims to supplement the Airport's facilities as based and seasonal/part-time aircraft demand increases.

It's important to note that due to the cyclical nature of the economy, predicting activity with any certainty over two decades is not possible. However, key aviation industry trends and socioeconomic characteristics can be studied to assess near-term to long-term potential growth at the Airport, which is presented in the forecasts.

The Federal Aviation Administration (FAA) is responsible for reviewing and approving the forecasts, so the figures may be used to update the FAA Terminal Area Forecasts (TAF). The master plan forecasts in this chapter provide the documentation to the FAA for the approval. The TAF supports the FAA's planning, budgeting and staffing requirements, and it serves as a guide for planning airport improvements. Forecasting guidance outlined in FAA Advisory Circular (AC) 150/5070-6B is followed.

The forecasting process begins with a review of national, state and local aviation trends that influence aviation demand at SBS.

2.1.2. National Aviation Trends

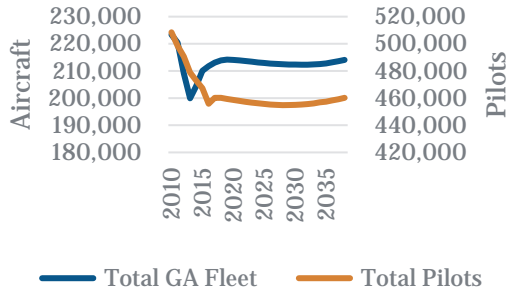
National trends in the aviation industry often translate to shifts in demand at the local airport level. As a general aviation airport, SBS is influenced more specifically by GA trends. GA includes all activity other than scheduled commercial airline and military aviation.

The FAA monitors a range of industry trends and influencing factors, and with respect to what is observed, they project various segments of aviation activity. Examples include number of GA aircraft, pilots, and hours flown. **Figure 2.1** depicts FAA's historical records on active GA aircraft and pilots, nationwide, as well their projected growth through 2038; both show minimal growth over 20 years—declining in the near-term and recovering in the long-term. This is representative of FAA's conservative approach to forecasting following the recession.

Chapter 2

Aviation Demand Forecasts

Figure 2.1: National GA Aircraft and Pilots



Source: FAA Aerospace Forecasts 2018-2038

Since GA serves a variety of air travel needs, the GA aircraft fleet is diverse, ranging from single-engine piston aircraft to business jets and helicopters.

Table 2.1: Nationwide GA and Air Taxi Active Fleet and Hours Flown

offers a snapshot of the active aircraft fleet and hours flown for GA in the U.S. Calculating the average hours flown per aircraft type clearly illustrates the disproportion. While single engine piston aircraft represent the vast majority of the fleet, they fly half of the hours flown. Turbojet fixed wing and rotorcraft both average around 300 hours per aircraft, while piston aircraft average 91 to 129 hours; this is a common disparity between costly, higher performance aircraft (high end GA segment) and piston airplanes (low end GA segment).

Table 2.1: Nationwide GA and Air Taxi Active Fleet and Hours Flown

Aircraft Type	Active Aircraft	% Fleet	Hours Flown	% Hours Flown	Hours per Aircraft
Piston SE Fixed Wing	130,330	73.4%	11,877,735	50.1%	91.1
Piston ME Fixed Wing	12,935	7.3%	1,665,676	7.0%	128.8
Turboprop Fixed Wing	9,430	5.3%	2,674,467	11.3%	283.6
Turbojet Fixed Wing	14,075	7.9%	4,273,872	18.0%	303.6
Rotorcraft	10,805	6.1%	3,237,145	13.6%	299.6
Total	177,575	-	23,728,894	-	133.6
Experimental	27,865	78.5%	1,248,478	76.1%	44.8
Sport Aircraft	2,585	7.3%	196,913	12.0%	76.2
Other	5,025	14.2%	194,623	11.9%	38.7
Total	35,475	-	1,640,014	-	46.2

Source: FAA Aerospace Forecast 2018-2038. (FAA derived fleet and hours data from a 2016 GA Survey.)

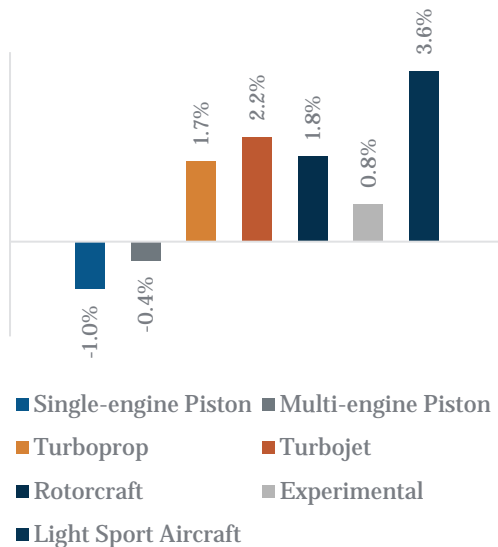
SE=Single Engine ME = Multi Engine



According to industry trends, the piston fleet is anticipated to continue its recent decline as older aircraft are retired. In contrast, other aircraft types have shown growth and the FAA projects that growth will continue. Jet aircraft, for example, are expected to increase 2.2% annually as a result of strong growth in the business aviation segment of the industry.

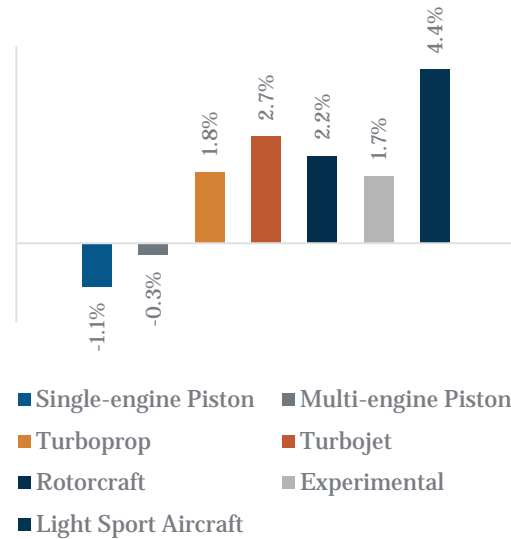
Figure 2.2 illustrates the variation in growth rates projected for the GA fleet. Further, Figure 2.3 presents the anticipated growth in hours flown for each aircraft type. All growth in the active fleet is expected to be outpaced by its associated growth in hours flown as the industry expects an increase in aircraft use. The total fleet will remain generally level with a modest 0.2% annual growth while general aviation hours flown are projected to increase 0.8 % annually over the next two decades. For both measures, declining piston activity is offset by growth in the remainder of the fleet.

Figure 2.2: Annual Growth Rate for GA Active Aircraft, 2018-2038



Source: FAA Aerospace Forecasts, 2018-2038

Figure 2.3: Annual Growth Rate for GA Hours Flown, 2018-2038



Source: FAA Aerospace Forecasts, 2018-2038

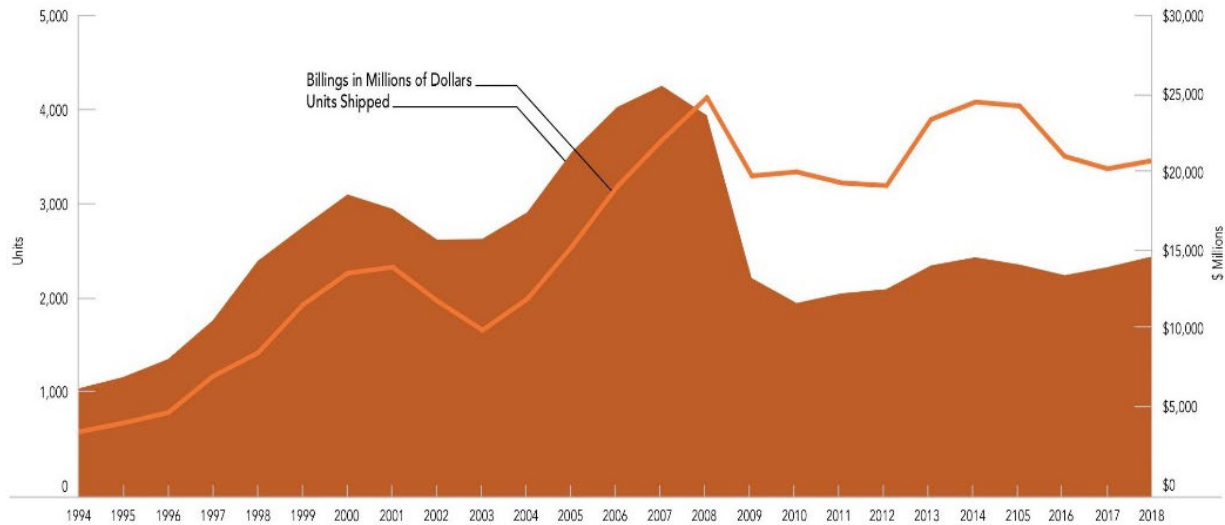
The General Aviation Manufacturer Association (GAMA) is another essential source of industry data and trends. GAMA reports on aircraft shipments and billings on a quarterly basis. In its annual report, historical data back to 1994 is included (Figure 2.4). As shown, the recession, which started in late 2007 and ended in mid-2009, had a significant impact on the industry with shipments hitting a low in 2010 before recovery began.

GA activity was stable and growing prior to the recession; recovery since that time has been slow but an uptick the last couple of years shows stability and growth. As a result, FAA and industry projections are looking slightly more optimistic than in recent past—evident in FAA Aerospace Forecasts Fiscal Years 2018-2038, updated annually. An example includes recorded operations at the 517 FAA and contract towers; operations in 2017 were up 0.7 percent over 2016, which is the first time these

Chapter 2

Aviation Demand Forecasts

Figure 2.4: GA Aircraft Shipments and Billings



operations have increased for three consecutive years since the 1998-2000 increase. Regarding aircraft fleet, the FAA noted that “...steady growth in both GDP and corporate profits results in continued growth of the turbine and rotorcraft fleets...”

In October 2018, Honeywell reported that in the coming years, strong growth is expected in the business jet industry that is driven, in part, by several new airplane models entering the market. The Global Business Aviation Outlook forecasts up to 7,700 new business jet deliveries over the next two decades, valued at \$251 billion, which is up from the 2017 forecast. These projections are based on input from operators who plan “...to make new jet purchases equivalent to about 20 percent of their fleets over the next five years as replacements or additions to their current fleet.” New models and improved economic performance are expected to support an average annual growth rate in the three to four percent range for the long-term.

Consideration of business aviation trends and projections is important to SBS and other GA airports as an indicator of overall GA industry health. With business aviation representing the highest growth segment of GA activity and one with great growth potential, considering this demand as part of the mix at SBS is important.

2.1.3. State Aviation Trends

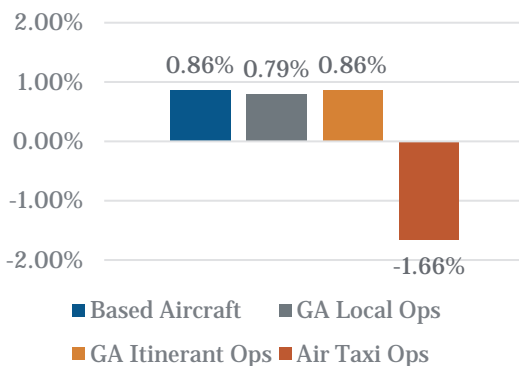
The latest available Colorado Aviation System Plan (CASP) was published in 2011 by the Colorado Department of Transportation (CDOT) Division of Aeronautics. An update to the CASP is underway with a published report anticipated in early 2020. The CASP includes 76 public use airports statewide comprised of 14 commercial service and 62 general aviation airports, including SBS. The CASP reviews the airport system to assess performance and identify needs. Such needs are determined in part by aviation activity forecasts. The CASP reported an estimated 5,245 based aircraft in Colorado for 2010, down 2.2% from the 2005 count. Total operations reported in 2010 totaled 2.43 million, down by 230,000 operations from 2005.



Statewide GA activity discussed in the CASP includes the full spectrum of aircraft types and users. Activity examples cited in the CASP include business and personal travel, recreational flying, flight instruction, emergency airlift, and agricultural spraying.

Like the CASP, the FAA TAF includes statewide aviation activity for Colorado—both historical and projected. According to the TAF, growth is anticipated in based aircraft as well as GA local and itinerant operations, while air taxi is expected to decline (Figure 2.5). This FAA projection is due in part to the recent decline in air taxi activity from 2016 to 2017, according to FAA records.

Figure 2.5: Projected 20-Year Colorado Growth Rates (FAA TAF)



Source: FAA TAF

2.1.4. Local Aviation Trends

Local aviation trends stem from a number of sources including airport management data such as based aircraft and tenant lists, aircraft operation counts, and fuel sales. Periodic use of motion-sensitive airfield cameras helps confirm the aircraft fleet mix served at the Airport. Pilot responses to a survey questionnaire help characterize airport activity and identify deficiencies that may be constraining aviation demand. Finally, historical data and projected activity published by the FAA

and CDOT Aeronautics provide additional SBS-specific information.

FAA measures aviation activity in terms of based aircraft and operations.

An aircraft is “based” at an airport if it spends the majority of its time there. To ensure aircraft counts are not duplicated, the FAA established the National Based Aircraft Inventory Program requiring sponsors enter tail numbers into a database. The database validates the aircraft or flags it as a duplicate tail number entered for another airport. Further, aircraft are cross-referenced with the FAA Registry to ensure each is active (not de-registered) and to identify its place of registration (city, state). Airport managers can keep their based aircraft list current through the database.

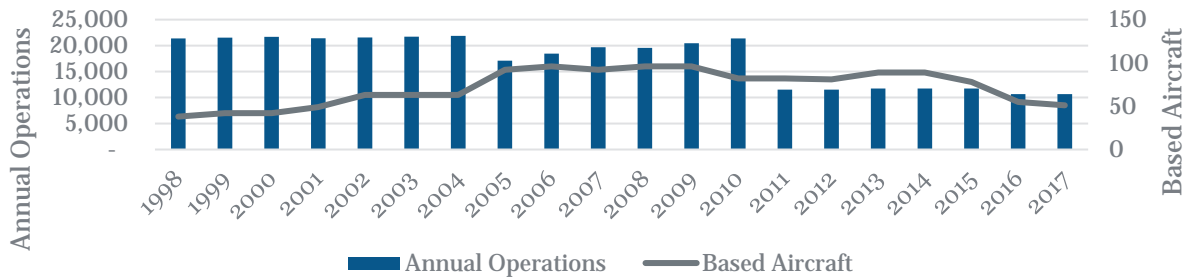
Steamboat Springs is currently home to 63 aircraft including 50 single-engine piston, three multi-engine piston, five turboprops, one jet, two rotorcraft, one ultralight, and one glider. At least 10 additional aircraft are located at SBS on a seasonal/ part-time basis. While not officially counted by the FAA as a based aircraft, part-time aircraft must be considered in facility requirements (next chapter); their activity is already counted in operations.

The proposed airpark development next to SBS would have through-the-fence (TTF) access to on-airport facilities and could potentially attract more aircraft and operations in the future. The FAA has defined TTF operations as those activities permitted by an airport sponsor through an agreement that permits access to the public landing area by independent entities or operators offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not part of, the airport property. Currently, FAA does not count TTF aircraft as “based” at that airport since they are not stored on airport property. Therefore, the presence of an airpark with TTF aircraft would not increase the based aircraft count for SBS but would increase the operations count.

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Figure 2.6: Historical SBS Records (FAA TAF)



Source: FAA TAF

Similar to other airports without a control tower, SBS must estimate operations. Fortunately, airport management documents aircraft activity during their operating hours, which helped define a more accurate estimate of annual operations for SBS. These operation counts have been recorded since 2011. Since some activity does occur beyond operating hours, it is estimated that after-hours operations represent an additional five percent of activity.

While the documented operation counts by airport management are more accurate than FAA TAF records, TAF review remains a part of a master planning study. Looking back 20 years, SBS historical based aircraft and operations data from the TAF are presented in Figure 2.6. The large fluctuations suggest the figures may be unreliable, which was not uncommon during a time when methods for collecting and documenting GA activity were inconsistent. With improved activity collection methods and airport master planning studies providing updated data to the FAA, records will ultimately offer more reliable data. In addition to historical data, the TAF provides projected activity for the Airport (Table 2.2). Data back to 1990 is included in five-year segments through 2010, with annual activity presented from 2011 to 2017.

The TAF forecasts show significant growth is anticipated for SBS in operations and based aircraft by 2038.

Table 2.2: FAA TAF Historical and Projected Activity for SBS

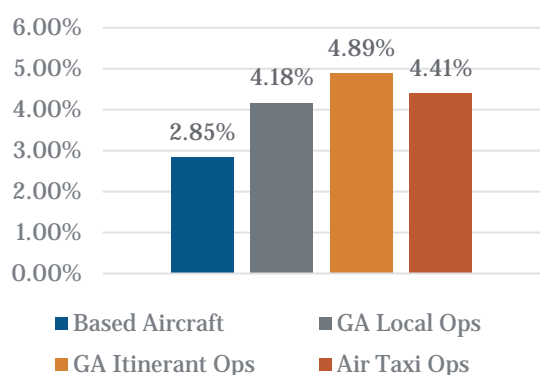
Year	Operations	Based Aircraft
1990	23,012	53
1995	14,522	34
2000	21,679	42
2005	17,092	92
2010	21,384	82
2011	11,522	82
2012	11,522	81
2013	11,738	89
2014	11,738	89
2015	11,738	78
2016	10,658	55
2017	10,658	51
2018	11,112	53
2023	13,693	63
2028	16,873	73
2038	25,617	93

Source: FAA TAF



Figure 2.7 breaks down the TAF-projected activity for SBS by growth rates for based aircraft and operations. Operations growth rates are presented by type: GA local, GA itinerant, and air taxi. As previously discussed, FAA TAF data is known to be uncertain and projections are often debatable. However, the FAA’s review and approval of the forecasts includes a comparison between FAA TAF data and the master plan forecasts as part of study, so TAF-related projections are addressed.

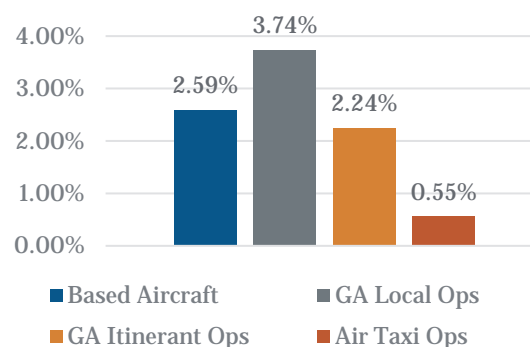
Figure 2.7: Projected 20-Year SBS Growth Rates (FAA TAF)



Source: FAA TAF for Steamboat Springs Airport (SBS)

Typically, the FAA TAF takes a more conservative approach to GA airport forecasting, so operations and based aircraft are often projected to remain unchanged for 20+ years. The FAA acknowledges that fluctuations may occur but predicts no overall increase. FAA’s strong growth rate projections for SBS deviate from that approach. For comparison, TAF growth rates projected for Yampa Valley Regional Airport (HDN) were reviewed (Figure 2.8). Strong growth is projected in based aircraft and GA operations at HDN.

Figure 2.8: Projected 20-Year Yampa Valley Regional Airport Growth Rates (FAA TAF)



Source: FAA TAF for Yampa Valley Regional Airport (HDN)

In contrast to both SBS and HDN, the FAA TAF projects no growth in based aircraft or operations at Craig-Moffat Airport (CAG) in the future.

2.1.5. Instrument Flight Rules (IFR) Operations

For the base year (FY 2018), FAA records of specific aircraft types flying by instrument flight rules (IFR) were helpful in estimating the mix of operations. Considering operations at SBS, the 1,994 IFR operations in 2018 represent approximately 23% of the annual activity at SBS, which means the remaining 77% of operations were under visual flight rules (VFR).

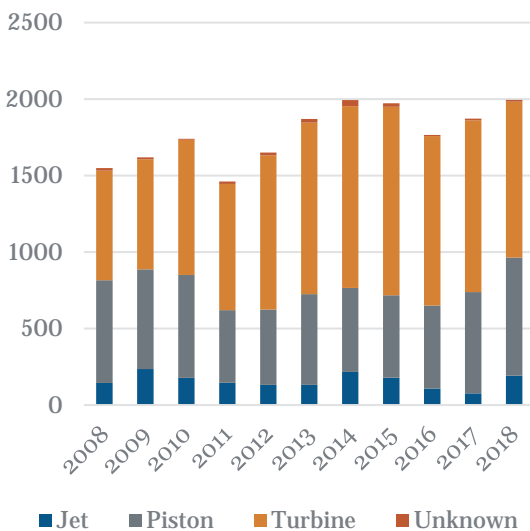
The IFR records include a broad range of turbine, piston and jet aircraft. Turbine aircraft conducted the highest number of IFR operations (over 1,000), with the most frequent activity by aircraft such as the Piper Malibu, Pilatus PC-12, King Air series and Socata TBM. Piston aircraft comprised 771 IFR operations with the most frequent activity by the Cirrus SR-22, Bonanza and Cessna Chancellor 414 aircraft, which represented 55% of the activity.

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Various models of the Cessna Citation comprised the largest portion of the IFR jet traffic; total IFR jet operations were less than 200 for the year, but industry trends suggest jet traffic will continue with appropriate facilities and services available. **Figure 2.9** depicts the last decade of IFR activity for SBS. While IFR Operations have fluctuated since 2008, activity has grown an average of 1.27% annually.

Figure 2.9: IFR Operations at SBS by Physical Class (FY 2008-2018)



Source: TFMSC

2.1.6. Aircraft Camera Data

Beginning August 7, 2018, two motion-sensitive “game cameras” were placed at SBS to capture aircraft activity. One camera, placed on Taxiway A, photographed aircraft through December 2018, while the second camera, placed on Taxiway B, took photographs through January 2019.

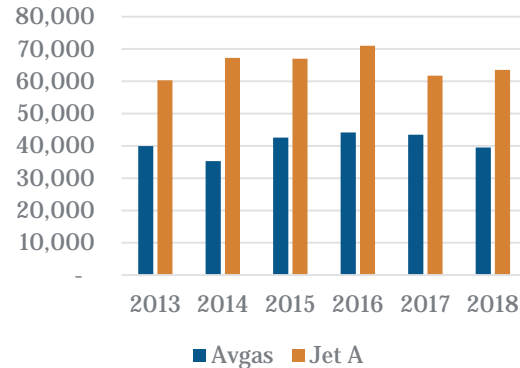
The photos represent a large sample of activity as there were only minor gaps in the image collection process. Based on the images, a total of 3,341 operations were estimated for the August 7 to January 31 timeframe, which equates to an average of 19 operations daily. In

comparison, airport management counts and other source data for the year suggest an average of 24 daily operations, or 8,700 annually. From the camera images, the various types of aircraft using SBS are identified. The images, combined with IFR operations and other source data, are helpful in determining the “critical aircraft” for SBS. Some of the key aircraft photographed include: King Airs, Pilatus PC-12s, Cessna Citations, and Learjets.

2.1.7. Fuel Sales

Historical SBS fuel sales data collected spans 2013 to 2018. **Figure 2.10** compares the annual fuel sales for Avgas and Jet A. Despite the fluctuations, total fuel sales increased an average of 0.6% annually over the 2013-2018 timeframe.

Figure 2.10: Historical 100LL and Jet A Fuel Sales (Gallons) for SBS

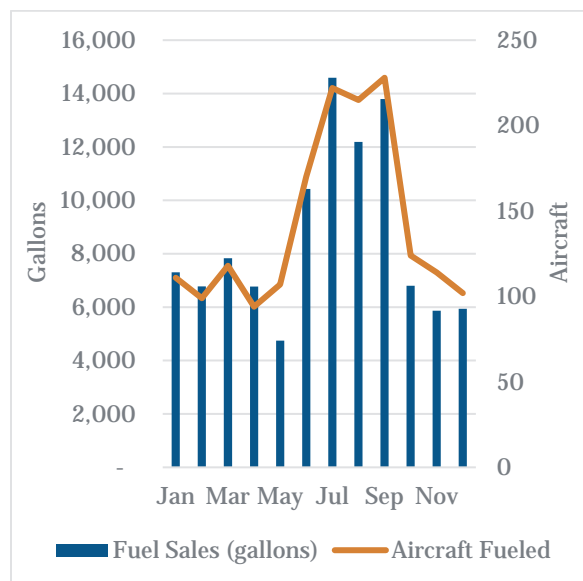


Source: Airport Management

Monthly fuel sales and transactions (aircraft fueled) help identify peak activity for SBS. **Figure 2.11** illustrates the gallons sold from January through December 2018, and clearly identifies peak activity in the summer months. Helicopter activity in the summer months often increases in support of fire firefighting, which is in addition to the typical increase in general aviation activity during the same time.



Figure 2.11: Monthly Fuel Sales and Aircraft Fueled at SBS



Source: Airport Management

2.1.8. Airport Users and Survey Responses

The Airport is home to a multitude of tenants and serves a broad range of transient operators.

Early in the master planning study, an airport user survey was distributed to numerous tenants and transient users. Of the respondents, 56% base one or more aircraft at SBS; others base elsewhere.

Eleven respondents identified one or more issues impacting their use of SBS. While facility needs will be addressed in the next chapter, some needs were identified by users as limiting their ability to operate at SBS today. Consequently, these are mentioned since they impact aviation demand. Runway length was the main issue, and for some, the length drove their need to store their aircraft elsewhere. An inadequate instrument approach was another key operations issue identified. Not surprisingly, several cited that inadequate hangar space was an issue, including space for transient operators.

Survey feedback is important in assessing aviation demand. While Yampa Valley Regional is a suitable alternative about 30 minutes from SBS, many users desire the convenience of SBS. According to airport management records, there is a wait list that has grown to 10 aircraft owners interested in hangar space. Waitlist aircraft owners may be interested in permanent or seasonal storage.

Also noteworthy is that many survey respondents use their aircraft for both personal and business purposes. Personal use was noted in 69% of responses and business in 50%. Further, 38% own local area businesses. For the non-based aircraft owners, the survey inquired about area home ownership. Results show that Steamboat Springs is the primary home to five pilots and a vacation/secondary home to eight. While tourists and part-time residents visit the area regularly, the Airport brings in visitors as well. In the past, fly-in pancake breakfasts, air shows, student tours, and pilot seminars, to name a few, have served as positive community outreach events that also generate additional aviation traffic.

2.2. Regional Demographic and Socioeconomic Influences

Regional demographics and socioeconomics often influence aviation demand. Increasing population, higher income, and growing employment can positively impact aviation demand. Declining economic indicators can have a similar negative impact. Key economic indicators for Routt County are presented in **Table 2.3**.

As shown, historical data goes back 20 years and forecasts look forward 20 years. Routt County’s economic history and outlook are positive, all supportive of potential growth in future aviation demand at SBS. Future economic development plans in the area can also promote growth in aviation demand. According to the local Chamber of Commerce, “The Steamboat Springs area has a diverse, year-round economy with a variety of strong industry sectors including tourism, mining, location-

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Table 2.3: Historical and Forecast Socioeconomic Factors for Routt County

Year	Total Population	Total Employment	Per Capita Income (2009 \$)	Economics Wealth Index (U.S. = 100)	Gross Regional Product (millions of 2009 \$)	Retail Sales Per Household (2009 \$)
1998	18,653	17,524	39,218	135.17	974.02	41,497
2003	20,893	19,658	52,278	159.72	1,284.96	46,010
2008	23,135	23,377	52,433	145.03	1,565.15	48,981
2013	23,587	22,033	55,792	151.86	1,474.17	41,070
2018	25,151	24,333	68,369	165.15	1,513.93	43,870
2023	26,478	26,604	72,577	164.69	1,672.42	44,726
2028	27,821	28,786	76,400	164.12	1,826.85	45,855
2038	30,320	32,358	81,955	162.70	2,083.96	48,279
Historical Average Annual Growth						
1998-2003	2.3%	2.3%	5.9%	3.4%	5.7%	2.1%
2003-2008	2.1%	3.5%	0.1%	-1.9%	4.0%	1.3%
2008-2013	0.4%	-1.2%	1.2%	0.9%	-1.2%	-3.5%
2013-2018	1.3%	2.0%	4.1%	1.7%	0.5%	1.3%
Projected Average Annual Growth						
2018-2023	1.0%	1.8%	1.2%	-0.1%	2.0%	0.4%
2023-2028	1.0%	1.6%	1.0%	-0.1%	1.8%	0.5%
2028-2038	0.9%	1.2%	0.7%	-0.1%	1.3%	0.5%

Source: Woods & Poole Economics

neutral businesses and employees, outdoor recreation products, creative industries, construction and regional health care.” U.S. News ranked Steamboat Springs as #3 among the best small towns to visit in the nation for its numerous year-round outdoor recreational opportunities. The *Denver Post* reported in June 2018 that statewide tourism was up in 2017 as a result of the population growth along the front range, noting that Colorado hit a record 86 million visitors with \$1.28 billion in tax revenue. This record followed consistent tourism growth since the recession in 2009; domestic visitors have increased by 41 percent, compared to the U.S. growth of 20

percent. Strong tourism growth is more good news for Routt County and Steamboat Springs.

2.3. Forecasts

In this section, based aircraft and operations are projected. The first step is to establish the baseline activity for FY2018. **Table 2.4** lists the based aircraft fleet mix and the annual operations by type for SBS.

The based aircraft fleet mix is derived from National Based Aircraft Inventory Program database where airport management entered aircraft tail numbers. Some aircraft that moved to SBS permanently are still



attached to other airports in the database but have been counted for.

SBS in anticipation of changes. A total of 63 aircraft are based at SBS. This does not include approximately 10 other aircraft stored at SBS on a seasonal/part-time basis.

Table 2.4: Baseline Activity at SBS

Based Aircraft	
Single-engine Piston	50
Multi-engine Piston	3
Turboprop	5
Jet	1
Helicopter	2
Other	2
Total	63
Operations	
Air Taxi	550
GA Local	3,260
GA Itinerant	4,880
Military	10
Total	8,700

Source: Airport Management and FAA data. Based Aircraft Forecasts

Baseline operations are estimated using airport management records and FAA data. Total operations at SBS are estimated at 8,700 for 2018

Next, forecasts previously published for SBS are presented. **Table 2.5** summarizes the FAA TAF, 2008 Master Plan and 2011 CASP forecasts for the Airport, which are reviewed and considered for the current forecasting element.

2.3.1. Based Aircraft Forecasts

Since it is reasonable to expect continued growth in the Steamboat Springs area and the continuation of positive aviation industry trends, growth in based aircraft at SBS is anticipated. A number of forecasting models were applied to produce various SBS projections. Considering the uncertain accuracy and significant fluctuations in historical data, regression analyses and trend line forecasting were excluded. **Figure 2.12** compares the various forecasting models with a description of each that follows. As shown, there is a broad range of results with a couple of the models aligning closely.

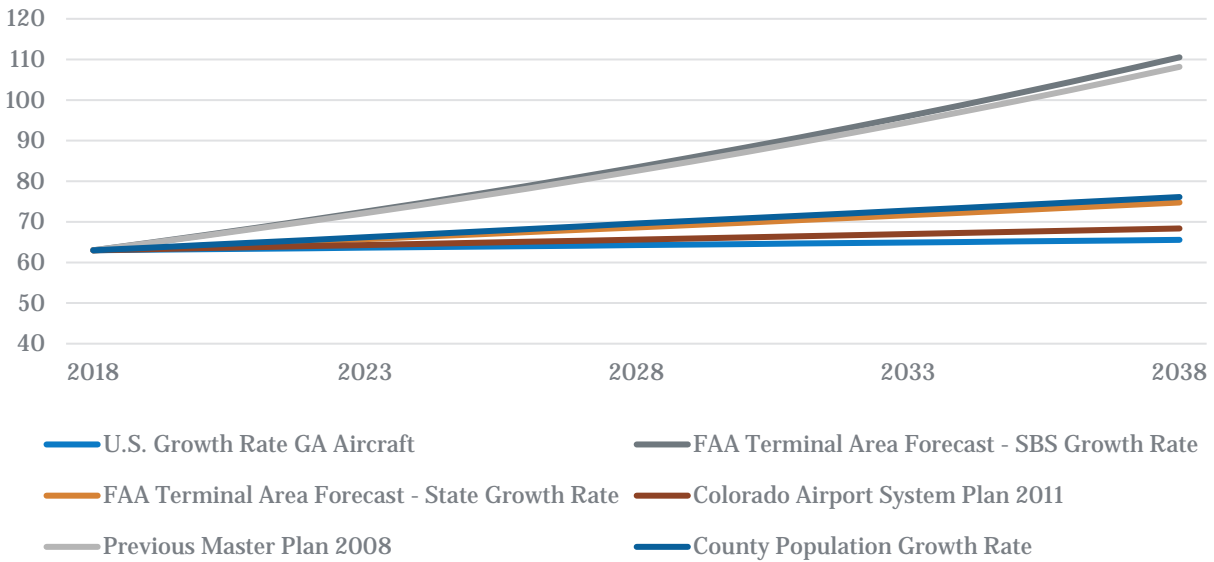
Table 2.5: Comparison of Published Forecasts for SBS

	Based Aircraft (annual growth rate & count)	Operations (annual growth rate & count)	Timeframe
Current FAA Terminal Area Forecast	2.85% 51 to 93	4.26% 10,658 to 25,617	2017 - 2038
2008 Master Plan	2.74% 92 to 158	4.58% 17,092 to 41,870	2005 - 2025
2011 Colorado Aviation System Plan	0.41% 83 to 90	0.41% 11,520 to 12,510	2010 - 2030

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Figure 2.12: Comparison of Based Aircraft Forecast Models for SBS



2.3.2. U.S. Growth Rate

As discussed earlier, FAA Aerospace Forecasts project that the national GA aircraft fleet will grow an average of 0.2% annually representing the anticipated decline in piston aircraft offset by growth in the remainder of the fleet. Applying this growth rate to SBS results in minimal growth, or three additional aircraft over the 20-year planning period for a total of 66.

2.3.3. FAA Terminal Area Forecast for Colorado

Statewide growth in based aircraft is projected to average 0.86% annually according to the FAA TAF. Applying this growth rate to SBS results in 12 more based aircraft for a total of 75 based aircraft by 2038.

2.3.4. Master Plan 2008

The previous master plan used an estimated 2.74% growth rate in forecasting based aircraft over a 20-year planning period. The 2008 master plan used 2005 as the base year when the airport had a total of 92 based

aircraft (with an anticipated increase to 158). Applying the 2.74% growth rate to the airport’s current count produces a total of 108 aircraft within the 20-year planning period, 2038. It’s important to note that the 2008 plan was completed prior to the most severe recession impacts hitting the GA industry.

2.3.5. FAA Terminal Area Forecast for SBS

The FAA TAF projects 2.85% annual growth for SBS in its latest projections. This is an aggressive growth rate uncommon to FAA TAF projections at GA airports and it represents the highest growth rate model for the based aircraft. By 2038, aircraft would increase by 76% for a total of 111.

2.3.6. Colorado Aviation System Plan 2011

The CASP, published in 2011, projected based aircraft would grow at an average of 0.41% annually, below the current FAA national growth rate. This results in five additional aircraft at SBS by 2038 for a total of 68.



Table 2.6: Based Aircraft and Fleet Mix Forecast for SBS

	SE Piston	ME Piston	Turboprops	Jet	Heli	Other	TOTAL
2018	50	3	5	1	2	2	63
2023	50	3	6	1	2	4	66
2028	50	3	7	2	3	5	70
2038	50	3	9	3	4	7	76
2018	79.4%	4.3%	7.9%	1.6%	3.2%	3.2%	100%
2023	75.8%	4.5%	9.1%	1.5%	3.0%	6.1%	100%
2028	71.4%	4.3%	10.0%	2.9%	4.3%	7.1%	100%
2038	65.8%	3.9%	11.8%	3.9%	5.3%	9.2%	100%

SE = Single Engine; ME = Multi Engine; Heli=Helicopter/Rotorcraft.

2.3.7. County Population Growth Rate

Aviation demand at SBS has not aligned with area population changes in the past. Instead, it has shown sensitivity to other economic drivers and industry factors. Still, population growth suggests potential for increased demand at SBS, particularly as business and employment grow as well. This model uses the Routt County population growth rate, 1.0% annually, which results in 13 additional aircraft by 2038, for a total of 76 based aircraft. This model represents the mid-range of the forecast models and is recommended as the preferred forecast. This forecast aligns well with recent trends in the GA industry. However, a shift in the fleet mix is anticipated based on the projected growth rates for the various aircraft types. **Table 2.6** presents the fleet mix for the based aircraft in the next 5-, 10-, and 20-year timeframes.

2.3.8. Operations Forecasts

Operations at SBS were estimated at 8,700 in 2018, considering airport management records, FAA data, user survey responses and airfield photos of aircraft activity. Air Taxi, general aviation and military

comprise the SBS activity. The recommended forecast for operations examined each traffic segment individually, described as follows.

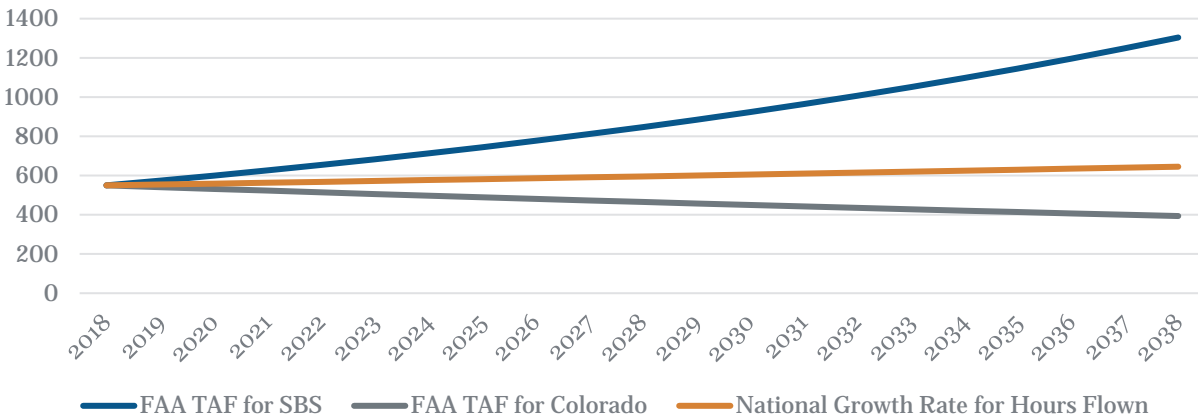
2.3.9. Air Taxi Forecast

According to the FAA records, there were an estimated 550 annual air taxi operations at SBS last year. As noted earlier, air taxi operations can refer to passenger/cargo charter or air taxi, medical transport, and other “for hire” flights in various helicopter and fixed wing aircraft. Contracted firefighting flights are often counted as air taxi, as well, but fluctuate significantly depending on the fire season. Classic Air Medical, which bases one Bell 407 helicopter at SBS, transports an average of 160 patients annually, which translates to an estimated 320 operations. In addition to their medical flights out of SBS, they conduct training flights, assist with search and rescue, attend community events, and conduct ferry flights for emergency service and law enforcement personnel. Their fixed wing aircraft, while not based at SBS, fly in for medical transport when weather prohibits use of the helicopter or it’s already been called out. Fixed

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Figure 2.13: Air Taxi Forecast Models for SBS



wing aircraft are typically called in from Craig (CO), Riverton (WY), or Page (AZ).

The FAA TAF projects 4.41% annual growth in air taxi operations at SBS, in stark contrast to FAA’s typical conservative growth projections at most GA airports. In fact, TAF projects total air taxi operations across Colorado will decline 1.66% annually. An intermediate growth rate comes from the *FAA Aerospace Forecasts*, where the FAA projects “GA and Air Tax Hours Flown” to grow at an annual rate of 0.8%. User survey respondents suggested that runway length and instrument approach limitations have been constraining air taxi demand, so improvements may support increased activity. The preferred forecast for SBS is the National Growth Rate model that increases air taxi operations from 550 to 645 over the planning period, or 0.8% annually.

2.3.10. GA Operations Forecast

A common practice in projecting GA operations at airports like SBS includes the use of an operations-per-based-aircraft (OPBA) ratio. The current OPBA ratio is determined by using the estimated annual GA operations, 8,140, and the current number of based aircraft, 63. Dividing the operations by based aircraft equates to a current OPBA of 169. For the GA

operations forecast, an OPBA is established that is to be multiplied by the forecast number of based aircraft. While it is recognized that these operations are conducted by both based and transient aircraft, the OPBA is simply a guideline and tool for estimating and forecasting operations.

The existing OPBA falls below the typical OPBA at airports similar to SBS, but this can be attributed to local pilots flying their small aircraft less frequently. For SBS, the OPBA is forecast to increase to 170 in the short-term, 175 in the intermediate-term, and 185 in the long-term. Considering industry trends for GA operations and hours flown, user survey responses regarding use for business, recreational, and training, this suggests stability and growth in operations for SBS. As a result, a slight increase in OPBA over the 20-year period is anticipated. Further, the GA local/itinerant operations split for 2018 is estimated at 40/60 percent. Local operations typically represent training activity. Local operations, like itinerant, are projected to increase, so the split is projected to remain at 40/60 through the planning period. With flight instruction on the field and opportunities to partner with college programs considering private pilot instruction, local GA local/training activity growth will remain strong at SBS.



For SBS, it's important to address the diversity of airport users served. Examples of GA activity include medical, flight training, corporate/ business, personal, tourism, recreational, utility inspections, search and rescue and other law enforcement activity. As mentioned previously, some activity such as medical transport or contract firefighting is counted as air taxi, but it's not uncommon for these operations to be counted as GA. The low number of air taxi operations in the IFR records suggests that numerous air taxi flights at SBS have been identified as GA.

Flight training, for SBS, is of significance as there are four flight instructors routinely providing training. The Steamboat Flying Club has a fleet of three aircraft that are used by its members for flight instruction as well as personal and business purposes.

Zephyr Helicopters, which previously offered helicopter training on a regular basis, is primarily conducting pipeline inspections. An estimated 98% of their activity includes pipeline inspections with approximately 2% comprising occasional scenic tours

and flight instruction and even less frequent charter, search and rescue and photo flights.

2.3.11. Military Operations Forecast

Military operations are minimal at SBS but fluctuate. According to the FAA records, existing military operations are estimated at 10 annually, which is 0.1% of total operations. The FAA typically projects no growth in military operations unless significant changes are expected with area military activity that is public knowledge. For security, reasons, military operations are not typically shared. The FAA TAF projects no change in current military operations for SBS or statewide. Accordingly, military operations at SBS are forecast to remain unchanged for the planning period.

2.3.12. Forecast Summary

In **Table 2.7**, a summary of the SBS forecast of based aircraft and operations is presented. The variance between the master plan forecast and FAA TAF projections is also noted.

Table 2.7: SBS Aviation Demand Forecasts 2018-2038

SBS Airport Master Plan Based Aircraft Forecast				
Aircraft Type	Base Year 2018	Short Term Forecast 2023	Intermediate Term Forecast 2028	Long Term Forecast 2038
Single Engine Piston	50	50	50	50
Twin Engine Piston	3	3	3	3
Turboprop (see note)	5	6	7	9
Jet	1	1	2	3
Helicopter	2	2	3	4
Other	2	4	5	7
Total Based Aircraft Forecast	63	66	70	76
FAA TAF Based Aircraft forecast	51	63	73	93
% Difference Between Forecast and TAF	24%	5%	-4%	-18.3%
SBS Airport Master Plan Operations Forecast				
Air Taxi	550	572	596	645
GA Local	3,260	4,488	4,900	5,624

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SBS Airport Master Plan Based Aircraft Forecast				
GA Itinerant	4,880	6,732	7,350	8,436
Military	10	10	10	10
Total Aircraft Operations Forecast	8,700	11,802	12,856	14,715
Current TAF Aircraft Operations	10,658	13,693	16,873	25,617
% Difference Between Forecast and TAF	-18%	-14%	-25%	-43%

Note: Turboprop aircraft at SBS are all single engine. Baseline figures used for the Master Plan are different than TAF records resulting in larger percentage variations.

This forecast will be submitted to the FAA on their FAA TAF Comparison worksheet, so a review and approval process may be completed before subsequent planning tasks are initiated.

2.3.13. Operations Fleet Mix

The existing and projected fleet mix of operations at SBS is presented in Table 2.8. Operations include single- and multi-engine piston, turboprops, jets, helicopters and other. Fleet mix figures are estimated and consider available aircraft and operations data, aircraft photos on the airfield from August through January, user surveys, and FAA’s forecast of hours flown for different types of air taxi and GA aircraft. Turboprops, jets, helicopters and the “other” category will have increasing proportions of aircraft operations, consistent with recent trends and the FAA’s national forecast. Despite the decline in piston aircraft operations, they will maintain the majority share of operations throughout the planning period.

2.3.14. IFR Operations

As discussed earlier, IFR operations reached 1,994 in 2018, representing 23% of annual activity at SBS. IFR operations have fluctuated over the last decade but grown at an average rate of 1.27%. This trend is projected to continue with total IFR operations comprising 27% of annual operations by 2038.

Table 2.8: Operations Fleet Mix for SBS

	2018	2023	2028	2038
SEP	68.8%	65.1%	61.0%	55.0%
	5,983	7,683	7,842	8,093
MEP	6.9%	6.8%	6.7%	6.5%
	596	803	861	956
Turboprop	15.6%	16.9%	18.0%	19.9%
	1,356	1,995	2,314	2,928
Jet	2.1%	2.8%	3.8%	5.0%
	180	330	489	736
Helicopter	6.0%	6.7%	8.0%	9.1%
	526	791	1,028	1,339
Other	0.7%	1.7%	2.5%	4.5%
	60	201	321	662
Total Ops	8,700	11,802	12,856	14,715

2.3.15. Through-the Fence (TTF) Operations

As part of the master planning study, it’s important to acknowledge the proposed development of an airpark adjacent to SBS with proposed TTF access. The city planning department, airport management and airpark developers have been in communication over the past year regarding the proposal. This is of particular importance to future SBS activity since the



Table 2.9: Peak Demand Forecast for SBS

	Base Year 2018	Short- Term 2023	Intermediate Term 2028	Long-Term 2038
Annual Operations	8,700	11,802	12,856	14,715
Peak Month (13% of Annual)	1,131	1,534	1,671	1,913
Design Day	38	51	56	64
Design Hour (14% of Design Day)	5	7	8	9

hangar storage will be available off-airport if facility capacity is consumed on-airport. Airpark development may attract additional users to SBS, increasing operations.

2.3.16. Peaking Characteristics

Typical of most airports is that activity fluctuates throughout the year, the month, and the day. For busy airports, it may be essential to calculate peak demand to ensure facility capacity is adequate and necessary improvements are completed in a timely manner. Peak activity has minimal impact on low activity airports.

Peak demand forecasts are determined by starting with total annual operations and identifying the “peak month”—month with the highest activity levels. According to airport counts of aircraft operations and fuel sales data, the busiest time is in the summer months, and the slowest period in recent history has been April and May. On average, peak month demand represents approximately 13 percent of annual operations. Next, “design day” is calculated by dividing the peak month operations by the number of days in the month. Finally, “design hour” is determined, which represents the busiest hour. For SBS, the busiest hour is estimated at 14% of the day, or currently five operations, and growing to nine operations in the 20-year planning period. **Table 2.9** is a summary of the peak demand.

2.4. Critical Aircraft and Airport Reference Code

Identification of the critical, or design, aircraft at SBS is essential to determine the design standards applicable to the Airport. The critical aircraft is defined as the most demanding aircraft that regularly uses the airport. FAA’s definition of regular use (or substantial use) is at least 500 annual itinerant operations.

The critical aircraft is not necessarily one specific model. Often, a family of aircraft defined by common features determines an Airport Reference Code (ARC). FAA design standards are tied to an ARC for the Airport.

As addressed in the Inventory Chapter, an ARC consists of a letter representing Aircraft Approach Category (1.3 x stall speed) and a Roman Numeral representing the Airplane Design Group (based primarily on wingspan, sometimes tail height).

For SBS the critical aircraft was identified by IFR records and airfield photographs of aircraft activity. As a result, the Super King Air is identified as the existing critical aircraft at SBS.

The Super King Air is a B-II aircraft, so the ARC identified for the Airport is B-II. B-II has an approach speed up to 120 knots, and a wingspan up to 78 feet. The airport will remain a B-II facility

Chapter 2

Aviation Demand Forecasts

Steamboat Springs Airport
Bob Adams Field

MASTER PLAN

through the planning period. However, jet traffic will be growing and by 2038, it is anticipated that the critical aircraft will be Citation, also a B-II aircraft. The airport currently serves occasional C-I and -II operations, but the activity is infrequent and is not anticipated to be near the 500 annual operations threshold during the planning period to require an upgrade to C-II standards.

Implications of the forecasting effort will be presented in Chapter 3, Facility Requirements.



Facility Requirements

The purpose of the Facility Requirements chapter is to define the existing and future development needs for SBS. Needs defined here are based on an evaluation of whether the current facility meets FAA standards, maintenance needs for existing facilities, facility expansion needs driven by current and future demand, and issues and needs identified by users, staff, the FAA, and other stakeholders. The facility requirements analysis begins with a discussion of the critical (design) aircraft. The critical (design) aircraft is the most demanding aircraft, or family of aircraft, with at least 500 annual operations that regularly operates, or is expected to operate, at the Airport. This is the aircraft that drives SBS design standards, safety zones, separation between facilities, and overall facility layout.

The Steamboat Springs Airport is currently classified as an aircraft design group (ADG) B-II airport. The FAA approved Forecast for SBS has conclusively determined that the current and forecasted future period needs of the Airport will not exceed B-II design standards. This means that the Steamboat Springs Airport will not need to immediately plan for expansion to meet FAA standards for a larger design group aircraft, but will need to continue to plan within the B-II design criteria to meet increased demand.

3.1. Airfield and Airspace Requirements

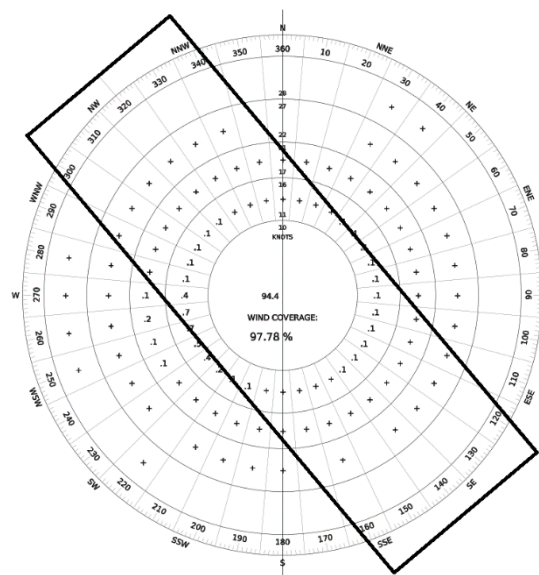
Runways and taxiways are the primary elements of an airport, and in order to protect these assets the FAA has designated protective areas to ensure the operations at the airport continue safely into the future. Runways are laid out in the predominant wind direction with proper length, protective areas, and airspace for aircraft use. Safety for the aircraft utilizing the airport is of the highest priority.

3.1.1. Runway Orientation

FAA AC 150/5300-13A provides guidance to determine runway orientation through an evaluation of wind coverage. Ten years of wind data is generally used to render a wind rose for an airport and this is generally obtained from the Automated Weather Observation System (AWOS). AWOS data for SBS only dates back to 2011. The FAA has allowed eight years of wind data to fulfill this requirement. The wind rose, shown in **Figure 3.1**, accounts for a 13-knot crosswind component. The raw data used in the creation of the Steamboat Springs Airport wind rose can be found in **Appendix C**.

SBS has one runway oriented on an approximate north/south axis along the magnetic headings of 140 degrees and 320 degrees. This provides wind coverage of 97.78% at 13 knots, which is well within the 95% FAA crosswind coverage requirement for B-II aircraft. If the runway was unable to achieve a 95% or greater crosswind coverage, then consideration would need to be given for a crosswind runway. **Since SBS exceeds 95% of coverage no crosswind runway is needed.**

Figure 3.1: SBS Wind Rose



Source: DOWL Wind Analysis

Chapter 3

Facility Requirements

3.1.2. Runway Length, Width and Surface

This section addresses the ability of Runway 14-32 to meet FAA design standards for the Runway Design Code (RDC) B-II design aircraft mix described in Section 3.1.

Some considerations when determining appropriate runway length include airport elevation, prevailing winds, average maximum temperature for the hottest month, and design aircraft performance at maximum operating weight. A runway length analysis performed using the criteria in FAA Advisory Circular 150/5325-4B, Runway Length Requirements for Airport Design to determine the runway length requirements is shown in **Table 3.1**. This analysis indicates that the recommended runway length is 8,100 feet to accommodate 95 percent of small airplanes, which is appropriate for general aviation airports such as SBS. With a present runway length of 4,452 feet, the existing runway is not adequate to meet current and future operational demands.

Table 3.1: Runway Length Analysis

Runway 14-32	
Mean Daily Maximum Temperature of the Hottest Month of Year:	82°F (July)
Airport Elevation:	6881.9 feet (MSL)
Service:	Small Aircraft (less than 12,500 lbs.)
Aircraft Category	FAA Recommended Runway Length
Small airplanes with less than 10 passenger seats:	
95 percent of these small airplanes	8100'
100 percent of these small airplanes	8200'

Source: DOWL Analysis

The topography around the airport makes major runway extensions very expensive. Because of this, and the demand for direct commercial passenger service into the valley to support tourism, Yampa Valley Regional Airport, 16 nm to the west in Hayden, CO, was significantly upgraded with a 10,000-foot runway. However, it is still advantageous to seek ways to add length the SBS to provide a longer runway for the efficiency and safety of pilots utilizing the Steamboat Springs Airport.

Additional runway length is recommended. The alternative section of this master plan will explore providing additional length to aid in accommodating more aircraft at SBS.

FAA AC 150/5300-13A Airport Design requires that runways intended for B-II aircraft have a width of 75 feet with 10-foot turf shoulders as a minimum. Runway 14-32 was built to accommodate the De Havilland DHC-7 (ADG A-III aircraft) when commercial service was operating at SBS. The runway was built to A-III standards at 100 feet wide, but the current family of aircraft regularly utilizing the airport fall into the B-II ADG.

The requirements for runway width are met.

The existing runway surface is asphalt with a reported pavement strength sufficient to support aircraft with single-wheel main gear and gross weights up to 50,000 pounds and double-wheel main gear and gross weights of 60,000 pounds. An aggregate friction seal coat was applied in May 2015. The most recent addition of structural asphalt to the runway was rehabilitated and grooved in 2000. In 2014 Taxiway A on the south end of the ramp was reconstructed.

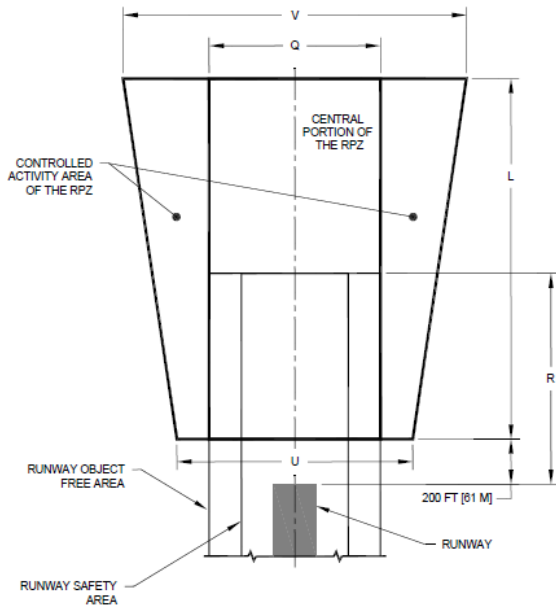
The requirements for runway weight bearing strength and surface condition are met. Continued pavement maintenance is necessary and required.



3.1.3. Runway Protection Areas

Runway protection surface standards are established by the FAA with the purpose of providing a safe area for runway operations. A summary of these and other characteristics regarding airfield geometry are provided in **Table 3.2**. These areas are graphically depicted in **Figure 3.2**.

Figure 3.2: Example Dimensions of Required Runway Protection Areas



Source: FAA AC 150/5300-13A Airport Design

Table 3.2: Runway Design Recommendations (all standards are met)

Source: FAA AC 150/5300-13A "Airport Design"
Contributing data: Current ARC Design B-II, SBS RNAV (GPS) & VOR/DME Circling Approaches; non-precision, 1¼ mile viz.

Runway Protection Surfaces	B-II (1 ¼ mile Visibility)
Runway Safety Area (RSA)	
Length beyond end of runway	300'
Width	150'
Runway Object Free Area (ROFA)	
Length beyond end of runway	300'
Width	500'
Runway Protection Zone (RPZ)	
Length	1000'
Inner Width	500'
Outer Width	700'
Acres	13.770
Runway Separations	
Aircraft Holding Position	200'
Parallel Taxiway	240'
Aircraft Parking Area	250'
Building Restriction Line (BRL)	
For structures 21' or lower	400'

Chapter 3

Facility Requirements

On the east side of the runway there is a short section of parallel taxiway that extends approximately 900 feet between Taxiway A and Taxiway B and is known as Taxiway P. This taxiway runs along the edge of the ramp and allows access to parking areas.

The standard for ARC B-II separation between a runway and its parallel taxiway is 240 feet. The current separation distance between Runway 14-32 and parallel Taxiway P is 300 feet—exceeding the requirement for a B-II airport.

The criteria for runway separation are met. The Alternatives chapter examines options to extend the parallel taxiway to enhance safety by eliminating back-taxiing operations.

3.1.4. Runway Safety Area

A Runway Safety Area (RSA) is a defined, graded area surrounding the runway that, in the event of the departure of an aircraft from the runway, must be capable under normal (dry) conditions of supporting the aircraft without causing structural damage to it or injury to its occupants. The existing RSA meets FAA standards with the current configuration of the displaced threshold on Runway 32.

The standards for Runway Safety Area are met.

3.1.5. Runway Object Free Area

Runway Object Free Areas (ROFA) and Runway Object Free Zones (ROFZ) enhance aircraft safety by providing clearance around runways and providing adequate airspace. The ROFA is centered on the runway centerline at ground level. Objects non-essential for air navigation or aircraft ground maneuvering must not be placed within the ROFA and ROFZ. This includes parked aircraft. The existing ROFA and ROFZ meet current FAA standards with the exception of the secondary windcone on the Southwest end of the runway. This windcone is located within the ROFA, and will need to be moved further West to ensure it is located outside of the ROFA.

The secondary windcone on the Southwest end of Runway 14-32 will need to be relocated further west to ensure the standards for the ROFA are met.

3.1.6. Runway Protection Zone

The FAA has identified land use standards for Runway Protection Zones (RPZ). An RPZ is an area at ground level prior to the threshold or beyond the runway end intended to enhance the safety and protection of people and property on the ground. FAA Advisory Circular 150/5300-13A Airport Design states, “It is desirable to clear the entire RPZ of all above-ground objects. Where this is impractical, airport owners, as a minimum, should maintain the RPZ clear of all facilities supporting incompatible activities.” Examples of incompatible uses include buildings, recreation uses, roads and parking, fuel and hazardous material storage, and above ground utilities. The RPZ south of Runway 32 has significant incompatible land uses (buildings) within it below the south end of the airport. The land is also not 100% owned by the City.

Ideally, land containing RPZ areas will be owned by the airport sponsor and will be cleared and kept clear of incompatible objects and activities. The FAA’s guidance on land uses within RPZ’s recommends avoiding introducing new uses, modifying/expanding existing incompatible uses, and removing or mitigating the incompatible uses, if practical.

The standards for the RPZ to the north are met. The standards for the RPZ to the south are not met but proper land use controls exist to prevent the introduction of additional incompatible uses.

3.1.7. Building Restriction Line

A Building Restriction Line (BRL) provides a setback standard for buildings in order to protect airspace and areas on the ground where buildings would be incompatible or when planning for future upgrades. At SBS, the non-precision instrument approaches



determine the maximum height that a structure can be for a given distance from the runway centerline. Once determined what height to plan for, the BRL is typically established along a straight line parallel to the runway. SBS has determined that the BRL should correspond to that of a C-II BRL. This requirement was achieved through FAA consultation to provide for future expansion and additional safety for the C-II traffic that frequents the airport currently. The BRL is placed at 400 feet from the runway centerline with a structures height of 21 feet.

The BRL meets FAA requirements.

3.1.8. Taxiway/Taxilane and Apron Requirements

Taxiways, which are defined paths established for taxiing of aircraft from one part of the airport to another, and taxilanes, which provide access from taxiways to aircraft hangars and parking positions, are the network of surfaces at SBS that provide aircraft with safe and efficient transitions from hangars and tie down areas to runways. Design of these surfaces is driven by the same ARC design standards for runway and taxiway design as found in FAA AC 150/5300-13A. Section 405 of the AC dictates that a “basic airport” should incorporate a full parallel taxiway. The reason for this is to eliminate, or reduce as much as practical, the need for back taxiing by aircraft on the runway.

The existing taxiways at SBS provide direct access routes from ramp to runway. AC 150/5300-13A Chapter 4 *Taxiway and Taxilane Design* illustrates preferred taxiway routes from parking aprons to the runway. It is advisable that the taxiway structure be changed to prevent direct access from the apron to the runway. Simply painting an island on the pavement between the apron and Taxiway A and B directly in front of the taxiway so that a turn is required by aircraft taxiing to the runway would resolve the issue.

The dimensions to accommodate taxiway design for a B-II ARC are found in **Table 3.3**.

Table 3.3: Taxiway and Taxilane Design and Separation Criteria

Source: FAA AC 150/5300-13A “Airport Design”

Contributing data: Current & Ultimate ARC Design B-II

Taxiway and Taxilane Design Items	B-II Standard
Taxiways	
Taxiway Width	35’
Taxiway Edge Safety Margin	7’6”
Taxiway Shoulder Width	10’
Taxiway Safety Area Width	79’
Taxiway Object Free Area	131’
Taxiway Wingtip Clearance	26’
Separation of Taxiway Centerline to Objects	105’
Taxilanes	
Taxilane Safety Area Width	79’
Taxilane Object Free Area	115’
Taxilane Wingtip Clearance	18’
Separation of Taxilane Centerline to Objects	57.5’

Airplane Design Group (ADG) dimensions, in conjunction with Taxiway Design Group (TDG) standards, are used to establish standard taxiway dimensions. The FAA sets standards for width, safety areas, and object free areas along with appropriate geometry for turns and intersections. An emphasis is put on identifying and reducing potential areas of conflict in movement areas that could require pilots to exercise greater vigilance for safe operations. The taxiway fillets (turning geometry) are determined using TDG design criteria, which are based on the Main Gear Width (MGW) and the Cockpit-to-Main-Gear Distance (CMG) of the design aircraft. SBS taxiway fillet design is based on a critical design

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aircraft with a TDG 2 designation. The Beech Super King Air, which has an 18.59' MGW, falls under the 2 TDG. The Forecast Chapter indicates that the future design aircraft will be the Cessna Citation, and this will require TDG 2 planning design criteria as well, as the MGW is greater than 15 feet in most models.

Taxiway and taxilane safety areas (TSA) reduce the risk of damage to aircraft deviating from the main taxiway centerline. The taxiway and taxilane Object Free Areas (OFA) provide clear space around taxiing aircraft free of vehicle service roads, parked aircraft, and other objects (except for necessary air or ground navigation facilities). In conjunction with ADG distances, taxiway OFA dimensions are based on wingtip clearances when aircraft are moving along a marked centerline.

The connecting taxiways vary in width from 50 feet at Taxiway A to 65 feet at Taxiway B. The standard width for a TDG 2 taxiway is 35 feet. All taxiways meet at least the minimum width requirement.

All standards for taxiway separation and design criteria are met.

Without a full or partial parallel taxiway, there is a need for a holding taxiway at the departure end of Runway 32 to alleviate congestion of traffic departing on Runway 32 as the runway requires back taxiing procedures. The holding apron should be at least 100 feet long and will require a 250-foot setback from the runway centerline for a B-II airport.

It is recommended that holding apron (taxiway turnarounds) be added with consideration given to a partial parallel taxiway to the south and an ultimate full parallel taxiway in the future planning periods. Parallel taxiways provide a higher level of safety by eliminating back taxiing.

Firefighting helicopters and transient helicopters routinely operate at the Airport and utilize the parking apron and the area south of the main apron. There is not an official helicopter parking area at SBS,

and the Alternatives Chapter will investigate an option for locating a permanent helicopter parking apron at the Airport.

It is recommended that a dedicated helicopter parking area be established to maximize apron space and safety, relieving congestion on the ramp.

3.1.9. FAR Part 77

Airspace around airports is regulated primarily through Code of Federal Regulations (CFR) Part 77 “Objects Affecting Navigable Airspace”. Having protected airspace surrounding an airport is critical to the safe operation of aircraft arriving and departing from the facility. With a few rare exceptions recently ceded to the National Wildlife Service and other agencies, the FAA administers all airspace within the United States. Similar in some ways to RPZs, the protected airspaces depicted within Part 77 define imaginary surfaces that surround an airport, however, unlike RPZ surfaces that only define and control objects and uses on the surface, Part 77 surfaces identify objects that penetrate the airspace above defined surfaces. See **Figure 1.15** for a representative depiction of the FAR Part 77 surfaces.

Part 77 dimensions are driven by the type of approaches to each runway and the weight of aircraft that each runway was intended to serve. The FAA defines this as either “Utility” (serving aircraft of 12,500lbs or less) or “Other than Utility” (serving aircraft over 12,500lbs). The Super King Air is the critical aircraft and it is over 12,500 lbs. **Table 3.4** provides the dimensions of Part 77 surfaces at the Steamboat Springs Airport – Bob Adams Field based on the current approaches.

The Airport Layout Plan (ALP) set of drawings depicts all objects that were surveyed, including their relationship to FAR Part 77 surfaces. Recommendations for their disposition are identified in the ALP set in Chapter 5.

Table 3.4: Dimension Requirements for Part 77 Standards at SBS

Source: FAA CFR Part 77 & NGS

Other than Utility Runway: runway intended for use of aircraft of 12,500lbs or more

Current: SBS RNAV (GPS) & VOR/DME Circling Approaches; non-precision, 1¼ mile viz.

Surfaces	RWY 14	RWY 32
Horizontal surface		
Height	150'	150'
Arc radius	10,000'	10,000'
Conical surface		
Slope	20:1	20:1
Horizontal distance	4,000'	4,000'
Primary Surface		
Distance from runway end	200'	200'
Width	500'	500'
Approach surface (begins at the end of the primary surface)		
Inner edge width	500'	500'
Outer edge width	3,500'	3,500'
Horizontal distance	10,000'	10,000'
Slope required	34:1	34:1
Existing slope	34:1	34:1

3.1.10. Airspace Classification

The airspace above the Steamboat Springs Airport (Figure 3.3) is regulated and administered by the FAA. SBS is surrounded by Class G Airspace up to 1,200 feet, and Class E above that up to 18,000 feet. The different classes, rules and general descriptions of FAA airspaces are depicted in Figure 3.4.

3.1.11. Approach Capabilities

SBS has an RNAV (GPS) circling approach with minimums down to 1,258' AGL and visibility to one and one quarter of a mile for category "A" aircraft. Category "B" aircraft maintain the same 1,258' AGL height but are restricted to one and one-half mile visibility (Figure 3.5). These minimums are consistent with expectations for airports surrounded by high terrain. However, with updated obstruction data, new analysis may indicate that lower minimums could be achieved.

It is recommended that the FAA reevaluate the instrument approaches using the AGIS data to determine if lower minimums could be achieved along with removal of the circling approach requirement.

Figure 3.3: SBS Aeronautical Chart



Figure 3.4: FAA Airspace Classification



Source: FAA Airspace

3.1.12. Airspace Obstruction Analysis

Obstructions can either be in the form of man-made objects or natural topography. As mentioned in section 1.2.3 of this master plan, the Airport is surrounded by mountainous terrain (Table 1.4). Because mountainous terrain is not feasible to remove, the challenge becomes one to design airspace procedures to safely route pilots away from the terrain. However, some obstructions can be mitigated by removing or lowering the object. This is especially true for trees that are closer to the airport and for other objects where the ground level is not also an obstruction. Once the objects have been surveyed and the amount of penetration has been calculated, this plan will propose how to mitigate any obstructions that may be hazards to air navigation.

The Airport Geographic Information Systems (AGIS) survey with this master plan identifies obstructions in the immediate area of the Airport and recommendations are shown on the ALP in Chapter 5.

3.2. Visual Aids to Navigation

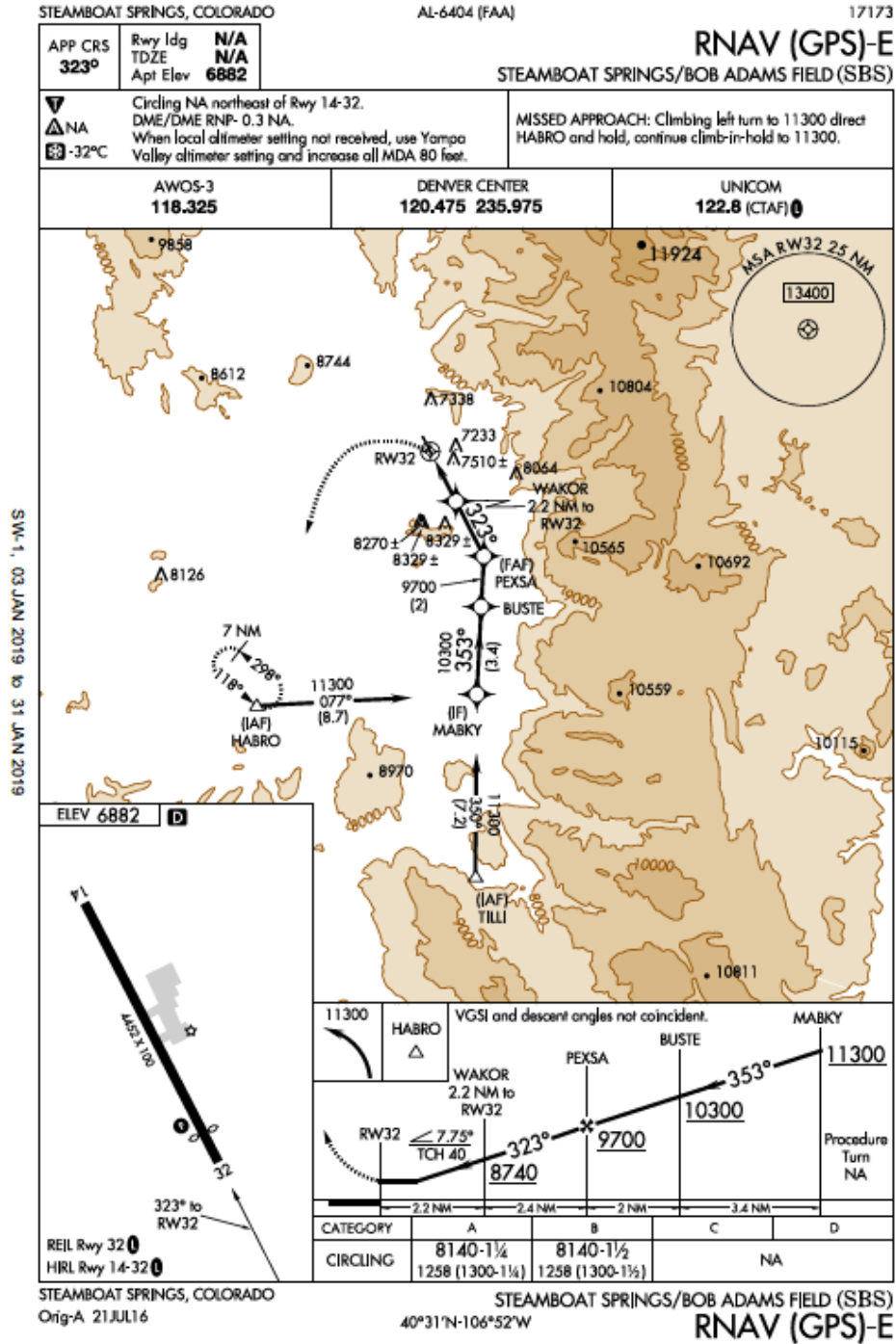
Steamboat Springs airport is accessible 24-hours per day, and as such needs to have lighting capabilities capable of allowing safe aircraft operations at night. Lighting along the paved surfaces allows pilots to see the path of usable pavement in front of them, while flood lighting on the ramp provides visibility when outside of the aircraft at night.

3.2.1. Precision Approach Path Indicator (PAPI)

Visual approach aids allow pilots to easily align their aircraft on a safe flight path to the runway end. Runway 32 is served by a two-light Precision Approach Path Indicator (PAPI) that is owned and maintained by the Airport. It has a four-degree visual glide path aiming angle to allow approaching aircraft to clear obstructions. The standard approach angle for airports is three degrees so this is steeper than pilots typically experience. The higher approach angle was established based on an instrument approach that has since been decommissioned.



Figure 3.5: SBS RNAV (GPS) Approach



Source: FAA Terminal Procedures

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From the AGIS survey, it is possible that the FAA could re-examine the current approach requirements with the hope that SBS can again have a three-degree approach angle that will be safer for pilots. Any obstructions that require removal to allow for the lower glide path angle will be identified in the ALP drawing set.

In addition, a note in the FAA Chart Supplement for the Runway 32 PAPI states that this PAPI has been baffled to 5.5 degrees left of runway center line in order to limit the horizontal visibility of it west of the runway centerline to avoid high terrain. It is not feasible to remove the terrain and so the baffling is appropriate.

It is recommended that FAA re-examine the glide path angle for current approach procedures. The PAPI should be adjusted or upgraded as appropriate based on AGIS findings.

3.2.2. Weather Reporting Equipment

In addition to visual aids, weather is observed and reported on the airfield through an Automated Weather Observing System (AWOS). The weather-reporting equipment at SBS is an AWOS-III. The AWOS is located northwest of the segmented circle and wind cone approximately 500 feet west of the runway centerline. The AWOS equipment is located outside of the Object Free Area.

The AWOS-III meets requirements for weather reporting equipment at SBS.

3.2.3. Airfield Lighting and Signage

Airfield lighting and signage provides guidance to pilots approaching the airport in low light conditions and navigating safely on the ground. Runway lighting at SBS includes Runway End Identifier Lights (REIL's) and a High-Intensity Runway Lighting (HIRL) system. Taxiway and apron area lighting consists of a mixture of stake-mounted reflectors and flood lights. The former commercial aviation ramp

on the south end of the apron is lit very well, leaving improvements to be made for the North end of the ramp to ensure proper evening hour visibility is standardized at the Airport. The runway lighting is located approximately 6' from edge of pavement making snow removal difficult. It is recommended that runway lights be located 10' from edge of pavement. The airfield lighting is in fair condition and approaching the end of the useful life.

Airfield signage consists of lighted guidance signs that are visible from airfield surfaces which provide pilots with direction and destination information. The guidance signs meet applicable standards for SBS and are in good condition. However, any changes to the configuration of the aircraft operating areas would necessitate corresponding changes to the signage.

The airfield lighting equipment and controls are in the SRE building and the equipment meets current requirements. Controls include the ability for pilots to activate airfield lighting through the Common Traffic Advisory Frequency (CTAF), which is an important feature for 24-hour facilities.

Airfield lighting should be upgraded to LED and taxiways lit with MIRL. Runway lights should be relocated to 10' from edge of pavement. As signs are replaced, they should also be upgraded to LED signs.

3.2.4. Beacon

The rotating beacon for SBS is located at the south end of the ramp 525 feet east of the runway centerline on top of the SRE building. Per AC 150/5300-13AA a beacon should be mounted high enough above the surface so that the beam sweep, aimed 2 degrees or more above the horizon, is not blocked by any natural or manmade object. The SRE building is not the tallest building on the airport and therefore the beam of light may be blocked by other buildings.

Relocation of the beacon to a permanent elevated pole or structure is recommended.



3.2.5. Wind Cones

The Airport has two windcones. The primary is a lighted wind cone located in the center of the segmented circle. The primary wind cone is located 440 feet west of the runway centerline in line with the south edge of the apron on the opposite side of the runway. It is outside of the B-II ROFA and no changes are planned for this wind cone. The secondary windcone is located 240 west of Runway 32 displaced threshold centerline, and 145 south of the Runway 32 threshold. The secondary windcone should be relocated a minimum distance of 250' from the runway centerline to ensure ROFA standards are met.

To meet current requirements, the secondary windcone on the Southwest end of Runway 14-32 should be relocated as it is located within the ROFA. The addition of a third windcone on the northwest side of the runway, outside of the ROFA is recommended for pilots approaching from the north. Additional windcones near future helicopter parking aprons is also recommended.

3.3. Roadways and Parking Lots

Airports are accessed by the runway for those landing at the airport, and by road for those coming in from the local community. Infrastructure that connects the airport with its local community is essential to the viability of the airport and is the entry corridor for those flying into Steamboat Springs.

3.3.1. Road Access to Airport

The Airport is accessible from Airport Circle, which is the road that enters into the vehicle parking area from Elk River Road. The road splits and leads to the FBO and to the Airport Office Building. Future development opportunities would eliminate the split and access to the FBO via one of the lanes, providing FBO access by way of the road that accesses the Airport Office Building Parking Lot.

No improvements are currently needed to meet access requirements. However, reconfiguration of hangar areas to meet future demand may impact access roads, requiring realignment.

3.3.2. Public Parking Areas

Public parking is available immediately adjacent to the FBO with approximately 20 parking spots available for FBO use and 94 space designated for the Airport Office Building. Currently parking and public access is relatively unhindered and easy to use.

Public parking areas are meeting current needs. Should hangar impact parking areas, replacement of any parking stalls should meet or exceed requirements per City code.

3.4. Support Facilities

Airports own and maintain other facilities and equipment that support general aviation activity. Snow removal equipment (SRE) and storage buildings, along with storage, aircraft fuel storage tanks and dispensing equipment, deicing facilities, aircraft washing facilities, and utilities are essential to the successful operation of a GA airport.

3.4.1. Airport Maintenance and Snow Removal Equipment

The Airport operates year-round and staff keeps the runway, taxiways, ramp and access roads plowed during and after every snow event. Snow removal is conducted with a primary and secondary SRE.

The airport has taken advantage of Denver International Airport and CDOT's equipment surplus sales in the past and will continue to do so into the future. FAA snow removal equipment calculations identify that the airport is eligible for 5 pieces of equipment (1 snow blower, 2 plows, 1 sweeper, and 1 hopper/spreader) using FAA grants according to the latest advisory circular. **Table 3.5** provides the types and ages of the primary and secondary equipment used at SBS for snow removal operations. A Snowcat is also used to groom the safety areas when the snow piles and ridges become

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too high and obstruct the airfield lights. The Snowcat is borrowed from the City and is normally utilized at Howelsen Hill Ski Area.

Equipment is stored in the SRE building which was built in 1992 with FAA funds. The SRE buildings grant obligations are for 40 years. General aviation airports may apply for SRE building assistance from the FAA, who will assist with 2,000 sq/ft of a new SRE building once the current building has reached its useful life and grant obligation.

Table 3.5: SBS SRE Equipment

Primary		
Type	Model	Year
Blower	1987 Oshkosh Snow Blower	2005
Loader	2009 Volvo L90F Loader	2008
Plow	2000 Sterling L7501 Snow Plow	1999
Secondary		
Type	Model	Year
Blower	1983 Rolba R-1000 Snow Blower	2000
Loader	2009 Volvo L90F Loader	2005
Plow	1981 Plow/Sand Truck	1989

Source: SBS Airport Management

Continued equipment replacement is recommended to ensure winter operations are not hindered either through surplus sales or using grant funding.

3.4.2. Aircraft Fuel Storage

The Airport currently has approx. 10,000 gallons of Jet A storage capacity and 10,000 gallons of 100LL storage capacity held in single walled above ground steel tanks equipped with clock gauges and overflow alarms. The current fuel storage facility is located along the Airport Circle road. In addition to the fuel storage tanks there is a 1,200-gallon capacity 1999

International 4700 100LL truck and a 3,000-gallon capacity 1999 International 4700 Jet-A truck.

The storage location of the fuel trucks is not in compliance with the National Fire Protection Association (NFPA) requirements that fuel storage be located 50 feet away from a structure. The current fuel truck parking canopy is located less than 50 feet from the FBO building.

It is recommended that the fuel truck canopy be moved to the East to ensure there is a minimum of 50 feet of separation between the canopy and any existing structures.

According to Airport staff, the current fueling capacity of the existing tanks is meeting current needs. However, providing the ability to allow pilots to refuel their aircraft 24 hours a day with self-serve fuel tanks would be a valuable amenity and increase revenues from fuel sales.

Over the long term, capacity and system shortfalls may become apparent with additional demand, aging of the tanks and vehicles, and future environmental and safety regulations. These factors may require SBS to mitigate the existing facilities. The Airport should remain current on environmental factors surrounding fuel tank ownership and operation.

A self-service fueling option should be considered in order to provide 24-hour fuel availability to aircraft utilizing the Airport. The Storm Pollution and Control Prevention Plan will need to be updated accordingly.

3.4.3. Deicing

Airports often have specific areas established for spraying deicing fluids and collecting the runoff. Environmental regulations are tiered according to how much deicing fluid is dispensed. In the past, deicing in higher volumes was conducted by airlines at SBS. Now that the Airport is operating as a GA airport, aircraft deicing is no longer available. The FBO has one small transient hangar to accommodate



small transient aircraft during inclement weather, but larger transient aircraft typically remain on the ramp subject to the elements

In order to provide a valuable service, increased safety, and additional revenue to SBS, it is recommended that a large transient hangar be built with heating elements used to remove frost from aircraft.

3.4.4. Airport Wash Pads

Dedicated areas to wash aircraft can be established to better manage storm water runoff quality. Often, wash pads can be collocated with deicing catchment areas. Deicing at SBS is historically conducted in a location on the apron between the FBO and the Corp 1 hangar. An additional collection system is also under the current SRE building. Utilizing these areas that were once used for their collection capabilities would allow the collection of runoff to be contained when individuals wash their aircraft. The Airport currently operates under the City's MS-4 permit, allowing the runoff to be properly managed. This can also generate revenue and provide an attractive amenity for both based and transient aircraft owners.

Although not required, a dedicated wash pad is recommended as an amenity and to generate additional airport revenue.

3.4.5. Utilities

Utilities that support operations at the Airport are meeting the current needs of the facilities. The movement of certain utilities to support future planning development at the Steamboat Springs Airport – Bob Adams Field will be addressed on an individual basis depending upon the development sought or analyzed. Future needs incorporating the latest technological developments could also be considered in order to reduce long term utility costs and increase service availability.

The requirements for utilities are met. Utilities will need to be extended as additional facilities are constructed at the airport.

3.5. General Aviation Facilities

Requirements set out for a general aviation airport, are put in place to ensure the airport is set up for its users. General aviation caters to aircraft that are predominantly not associated with commercial air travel. General aviation users require tie-downs and hangars as they operate out of an airport.

3.5.1. Apron, Tie Down Facilities, Leased Lots and Aircraft Hangars

Aircraft parking and storage is a necessity, requiring forethought and planning to ensure the needs of the users are met. All of the hangar positions are leased, and additional hangar positions will be needed. The apron area to the north of the FBO has 17 tie-down spaces with heater plug access available for transient and based aircraft to tie down year-round, though the user survey indicates aircraft owners and operators at SBS prefer to store their aircraft in hangars rather than on the ramp.

The airport is limited on transient hangar options for large aircraft, and most large transient aircraft park to the south of the FBO on a 21,000 square foot (2,333 sq/yds) transient aircraft parking apron capable of accommodating large general aviation aircraft. All aircraft parking areas are properly located outside of the Runway Object Free Area.

The number of based aircraft is expected to rise during the planning period. As of January 2019, Airport Management records show that SBS had 76 full and part-time aircraft hangered on the property with airworthy aircraft currently stored in hangars.

The forecast growth for aircraft at SBS over the next 20 years indicates that an additional 15 aircraft (13 full time and 2 seasonal aircraft) will be based at SBS by the end of the planning period. The waiting list as of August 2019 held 16 names of individuals desiring a hangar at the airport currently. In addition to based and seasonal aircraft, transient aircraft can

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remain on the ramp for hours or for many days as this is a resort community, and transient aircraft operations at SBS have increased on average 10.4% per year since 2013. The Forecast Chapter indicates a transition from smaller piston engine aircraft to larger turbine powered aircraft, requiring additional transient hangar spaces and adequate parking for the larger turbine aircraft in the future. Peak 2018 transient activity at the Airport accounts for 20 transient operations per day, while the annual Airport average is 10 transient aircraft per day. Due to the existing waiting list for hangars and the forecasted long-term growth, the airport will likely require greater than 20 additional hangar positions plus transient parking options for larger aircraft in the near to mid-term.

In order to meet forecasted demand for based aircraft more than 20 additional hangars are needed by the end of the planning period for based and seasonal aircraft; transient hangar space and apron parking is recommended. As additional land becomes available for lease demand for hangars may increase throughout the planning period.

3.5.2. FBO & Airport Office Building

The Airport is the Fixed Base Operator (FBO) for the airport and provides services and amenities to local and transient pilots and passengers. Services include internet, weather, restrooms, waiting area, pilot lounge, conference rooms, fuel and other aviation related supplies and services.

The FBO is located directly north of the old commercial terminal for SBS, which is now identified as the Airport Office Building (AOB). The AOB is a modern office building that is a revenue generating facility for the airport.

No improvements are necessary at this time for the FBO or AOB.

3.6. Airport Security/Access

Fences, roads, and access points are ways to protect an airport through controlled access and barriers to entry. To further protect the airport, airport security must go beyond physical barriers. Airspace protections through zoning, ordinances, and regulations protect the airport from hazards to aircraft that are outside the airport property.

3.6.1. Apron and Hangar Access

Access onto the aircraft movement area is provided by gated entrances off Airport Circle road and the airport parking lot. Motorized and non-motorized gates are utilized to ensure proper security and wildlife mitigations are in place. There are two motorized drive-through gates accessible with a key pad, and four public walk-through gates permitting landside to airside access.

No improvements are necessary at this time, but future development may require gate relocation.

3.6.2. Fences & Wildlife Control Measures

The perimeter fencing of the property and aircraft movement areas consists of an 8-foot tall fence, which meets FAA requirements the needs for security and wildlife control at GA airports. The USDA has strongly recommended that a skirting around the fencing of the property be included to prevent small wildlife from entering onto the airfield.

Operational game cameras placed on the airfield to record aircraft fleet mix and activity levels over the second half of 2018 captured evidence of small wildlife (coyote, rabbit, skunk, marmot, and birds) in and around the aircraft movement area. Large fauna, such as deer and elk, were not caught on film primarily due to the success of the current fencing.

Additional efforts to mitigate wildlife hazards on the property should include fence skirting, automatic gates and the elimination of forage attractants. It is recommended that staff ensure that the fence lines



and access points are maintained as new developments occur around the property.

Though not required by the FAA at SBS, the USDA and Homeland Security have expressed significant interest in ensuring all airports are properly fenced.

No improvements are required at this time by the FAA, but USDA has indicated the need for wildlife skirting around the fenced property.

3.7. Land Use

Protecting the airspace around SBS by preventing incompatible land uses within and beyond the Airport property, as required by the FAA Grant Assurances, is important to the safety of aircraft operations. The Routt County Code contains restrictions on anything (e.g. structures, vegetation, etc.) that might encroach into an airport's FAR Part 77 surfaces. The City of Steamboat Springs currently does not have any similar airport zoning protections. The City and the Airport are currently working to ensure the protections will be in put in place in the future through FAR Part 77 protections, zoning and compatible land use code.

3.7.1. Off Airport Land Use

Development around the Airport includes residential neighborhoods to the south and west, and business developments to the east and southeast. Land to the north and west is primarily agriculturally zoned land with some housing areas intermixed with the open lands. It is important to mention that there is currently a development consideration of nearly 134 acres immediately adjacent to the southwest property line for a through-the-fence development known as the Steamboat Airpark. There has also been a recent change in ownership of the agricultural land to the northwest, which could also be potentially developed with incompatible uses. This agricultural land is located outside of the City limits and will need to be addressed with the County.

City and County leaders should closely monitor changes in land use that could potentially impact the Airport and look to implement appropriate land use controls.

3.7.2. Local Zoning Ordinances

The City of Steamboat Springs has previously had airport land use zoning in their city code but does not currently have any zoning regulations for the Airport. Current zoning and land use regulations are being written by the Airport and the City, as they understand that the airport sponsor is obligated to protect the areas that surround an airport through its grant assurance obligations. The FAA does not provide regulatory authority for controlling land uses, as the obligation is placed on local governments to be responsible for land use planning, zoning and regulating development near the federally obligated airport that they sponsor.

It is recommended that the airport sponsor examine and implement effective zoning protections for the airport.

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3.8. Summary of Facility Requirements

Table 3.6 compiles the summary of required or recommended FAA B-II dimensional and airfield, airspace, facility, infrastructure and support requirements for the Steamboat Springs Airport – Bob Adams Field. These facility requirements will be addressed in development alternatives in Chapter 4.

Table 3.6: Summary of Facility Requirements

Facility Requirements Table: B-II ARC; IAP with 1 ¼ mile viz min			
Item	Existing Condition	Required or recommended	Action Required
Airfield and Airspace Requirements			
ARC to Meet Fleet Mix Demand	B-II	B-II	No
Runway			
Orientation	97.68%	95%	No
Length	4452'	8200'	Yes, to meet 100% of small GA fleet only
Width	100'	75'	No
Separation Standards	See section 3.1.3 above	See section 3.1.3 above	No
Runway Pavement Condition	Avg. PCI = 68 (Est:2019)	Avg. PCI = >70	Yes, the runway will need rehabilitation pavement maintenance in the future.
Taxiway			
Full or partial parallel	Yes	Yes	Yes, this is the FAA recommendation for a basic airport – accommodation not always possible. The existing connector taxiways also exceeds dimensional requirements.
Width	TWY A: 50' / TWY B: 65'	35'	No
Separation Standards	See section 3.1.4 above	See section 3.1.4 above	No
Taxiway Pavement Condition	Avg. PCI = 77	Avg. PCI = >70	No, but regular maintenance should be conducted on the taxiways and ramp areas.
Other Airfield Considerations			

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Facility Requirements Table: B-II ARC; IAP with 1 ¼ mile viz min			
Item	Existing Condition	Required or recommended	Action Required
Pavement Design Strengths	50,000 lbs.	30,000 lbs.	No, The runway is built to 50,000 pounds single wheel (60,000 pounds double wheel); however, ALL paved surfaces need to be considered in determining proper weight bearing strengths
Airfield separation standards (RPZ, RSA, ROFZ)	See section 3.1.3 above	See section 3.1.3 above	No
Airspace separation standards (Part 77)	See section 3.1.5 above	See section 3.1.5 above	No
Signing, Marking, Lighting, Nav aids, UNICOM, communications, weather and IAP considerations	Compliance with FAA AC 150/5340-1L and other ACs	Compliance with FAA AC 150/5340-1L and other ACs	Yes, (1) Runway lighting is aging and should be replaced. During replacement of the runway lighting it should be relocated so that it is 10 feet from the edge of pavement. (2) the beacon should be relocated to its own fixed pole.
Airport infrastructure, facilities and support requirements			
Hangars	At 100% Capacity	20 additional hangar spaces anticipated by 2038	Yes, hangar occupancy is at 100% currently. A strong waiting list is in place, and demand is anticipated to drive development.
General Aviation Related Development			
Apron / Transient Parking	17 tiedowns	No specific minimums	No
Apron Pavement Condition	Avg. PCI = 77	Avg. PCI = >70	No
Terminal / Pilot Lounge	Existing	Updated facility	No
Support Facilities			
ARFF / SRE Equipment and Storage	Existing (Outdated)	Updated SRE units	Yes, SRE equipment needs to be updated, and additional storage for the equipment is necessary.
Fuel Storage	24,200-gal capacity	No specific minimum	No
Public Access and Parking	20 spots designated for FBO Use	No specific minimum	No
Fencing	Complete Wildlife Fence	100% protection	Yes. Though wildlife fencing is in place, the USDA State Airport Wildlife Biologist states that full skirting of the fence is needed to prevent small animals from entering the airfield.
Utilities	Existing	No specific minimums	No

Source: DOWL Analysis



Alternatives

Several different alternatives for implementing the facility needs identified within the Steamboat Springs Airport Master Plan are described and depicted graphically within this chapter. The creation and selection of a Preferred Alternative is also depicted chronologically and explained in detail. The Preferred Alternative was developed after rigorous review and coordination with the FAA, CDOT Division of Aeronautics, Steamboat Springs – Bob Adams Field Airport Manager and the Master Plan Advisory Committee. The Preferred Alternative reflects facility needs, stakeholder priorities, FAA requirements, community resources, fiscal constraints and comments from stakeholders, the public and other interested parties. The alternatives chapter is an important and required part of a Master Plan and is built directly upon the facility requirements chapter and other information collected during the development of the Master Plan.

4.1. Development of Alternatives

Bringing together elements of the master planning process and incorporating the strategic vision of the City and the Airport Master Plan Advisory Committee is important when determining future airport development. Some key items that are weighed when developing alternatives for future development at the Airport include:

- Alternatives for development of previously identified Facility Requirements.
- Evaluation of the strengths, weaknesses, and implications of the Alternatives.
- Community and stakeholder input in determining the Preferred Alternative.

In addition to identifying aviation needs, several other factors were considered in the development of the Alternatives for the Airport. These included non-aviation related facility needs, FAA compliance concerns, area land uses and fiscal constraints.

Stakeholder input about the Preferred Alternative was provided by the Advisory Committee, the Yampa Valley Airport Commission, and the Steamboat Springs community. The various alternatives were presented and comments were received at the third and final Advisory Committee meeting and public open house that was held in June 2019. The feedback received from all sources was used to develop the Preferred Alternative.

4.2. Airport Alternatives

FAA AC 150/5070-6B dictates that the overall complexity, size, and use of an airport determines the number and complexity of alternatives that must be generated as part of the master planning process. Given Steamboat Springs Airport – Bob Adams Field’s status as a local GA airport, nine fundamental alternative areas were developed for stakeholder consideration. These alternatives and the Preferred Alternative reflect extensive analysis of the facility needs, fiscal abilities, current use, and forecasted growth of the Airport.

It is critical that any planned development at the Steamboat Springs Airport – Bob Adams Field is in full compliance with FAA standards and in accordance with FAA grant assurances. Non-compliance with FAA grant assurances could jeopardize all future development at the Airport. Due to this requirement, two specific items were deemed as absolutely necessary for any proposed development and were included as part of every alternative. These are:

- Continued Pavement Maintenance
- Sign and Marking Upgrades

The general development items that were addressed by the alternatives were:

- Designating helicopter parking areas, a self-service fuel location, and an aircraft wash station.
- Different alternatives for how to address compliance issues.

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- Development of revenue generating buildable areas for hangars.
- Airside and facility development opportunities to enhance safety, revenue, services and growth of the Airport.

4.2.1. Terminal Hangar

Development Area Alternatives

Existing hangar space is limited at the Steamboat Springs Airport due to the geographical features and topography of the Airport. This master plan has investigated the best use of the existing land and current buildable areas of the Airport and has found multiple options for buildable areas in the existing terminal area suitable for development.

Alternative 1.A - Terminal Hangar Development Area: Corporate Hangar Relocation and North Ramp Development

Alternative 1.A examines the realignment of existing hangars to provide full taxiway clearance between the Corporate Hangars and the FBO, and placement options for two new hangars.

The specific development needs addressed in Alternative 1.A include:

- Additional development of hangars as depicted in **Figure 4.1**.
- Buildable area:
 - 60' x 60'
 - 60' x 70'
- Relocation of the Corporate Hangars to the north to provide for 115' taxiway clearances. Currently the taxiway is limited to wingspans less than 53' in length.
- Relocation of the current gate and fence to provide a ramp extension to the new buildable area, and airside road access from Airport Circle.
- Construction of hangars through private investment and marketing the space for ground lease development to potential contractors and developers.

Figure 4.1: Alternative 1.A – Terminal Hangar Development Area: Corporate Hangar Relocation and North Ramp Development





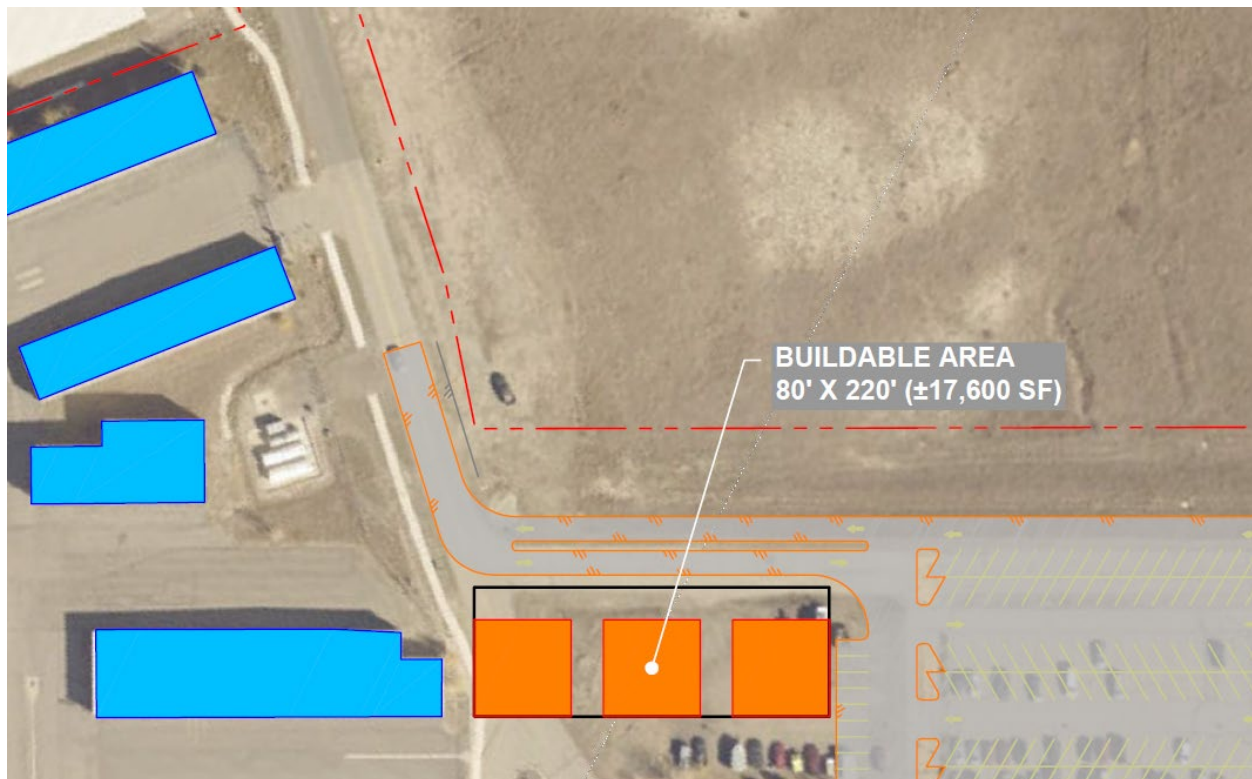
Alternative 1.B - Terminal Hangar Development Area: Development to the East of Existing Hangar Area

Alternative 1.B examines the potential use of the gravel parking lot north of the paved parking lot as buildable area.

The specific development needs addressed in Alternative 1.B include:

- Additional development of hangars as depicted in **Figure 4.2**.
- Buildable area: 80' x 220'
- Relocation of the current gate and fence to provide a ramp extension to the new buildable area, and airside road access from Airport Circle.
- Construction of hangars through private investment and marketing the space for ground lease development to potential contractors and developers.

Figure 4.2: Alternative 1.B – Terminal Hangar Development Area: Development to the East



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Alternative 1.C - Terminal Hangar Development Area: SRE Building and Hangar Site

Alternative 1.C proposes additional hangar space with prime apron access, while considering the existing condition of the current snow removal equipment (SRE) building. The SRE building is aging and in need of upgrades. Constructing a new SRE building on the north edge of the current apron would provide a correctly sized facility for the equipment used at the Airport and open up buildable area where the current SRE building is located. The buildable area could be maximized and provide space for an executive hangar to be constructed.

The specific development needs addressed in Alternative 1.C include:

- Additional development for a hangar and construction of a new SRE building as depicted in **Figure 4.3**.
- Buildable area: 60' x 90'
- Construction of hangars through private investment and marketing the space for ground lease development to potential contractors and developers.

Figure 4.3: Alternative 1.C - Terminal Hangar Development Area: SRE Building and Hangar Site





4.2.2. Relocation of Fuel Canopy Alternatives

The fuel canopy location is not in compliance with the National Fire Protection Association (NFPA). Fuel vehicles are required to be parked 50 feet away from any structure. To ensure compliance the canopy will need to be moved so that the vehicles, when parked, will be at a minimum of 50 feet from the FBO or any other structure on the Airport.

Alternative 2.A - Relocation of Fuel Canopy: New Apron Area

Alternative 2.A allows for the fuel canopy to be located in the future terminal hangar development area. This option would ensure compliance for the parked vehicles.

The specific development needs addressed in Alternative 2.A include:

- Location of the fuel canopy as depicted in **Figure 4.4**.
- Relocation of the current gate and fence to provide a ramp extension to the new buildable area would be required to ensure the canopy is 50 feet from the existing hangars.
- Construction of fuel truck parking area to ensure spill prevention when parked.
- Update the Spill Prevention, Control and Countermeasure (SPCC) Plan.

Figure 4.4: Alternative 2.A – Relocation of Fuel Canopy: Apron Area



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Alternative 2.B - Relocation of Fuel Canopy: Behind FBO

Alternative 2.B moves the fuel canopy 50 feet from the FBO, allowing for the fuel canopy to be located in the future terminal hangar development area while maintaining required setbacks for aircraft access to the area. This option would ensure compliance for the parked vehicles.

The specific development needs addressed in Alternative 2.B include:

- Location of the fuel canopy as depicted in Figure 4.5.
- Relocation of the current fence to provide a ramp extension to the new buildable area would be required to ensure the canopy is 50 feet from the FBO.
- Construction of fuel truck parking area to ensure spill prevention when parked.
- Update the SPCC Plan.

Figure 4.5: Alternative 2.B – Relocation of Fuel Canopy: Behind FBO





4.2.3. South Hangar

Development Alternatives

Hangar space and sources of revenue generation are of great importance for the continued sustainability and growth of the Airport and is a priority of Airport stakeholders. The south hangar development area options investigated the need for buildable area for hangars, parking for vehicles, and apron areas for aircraft parking.

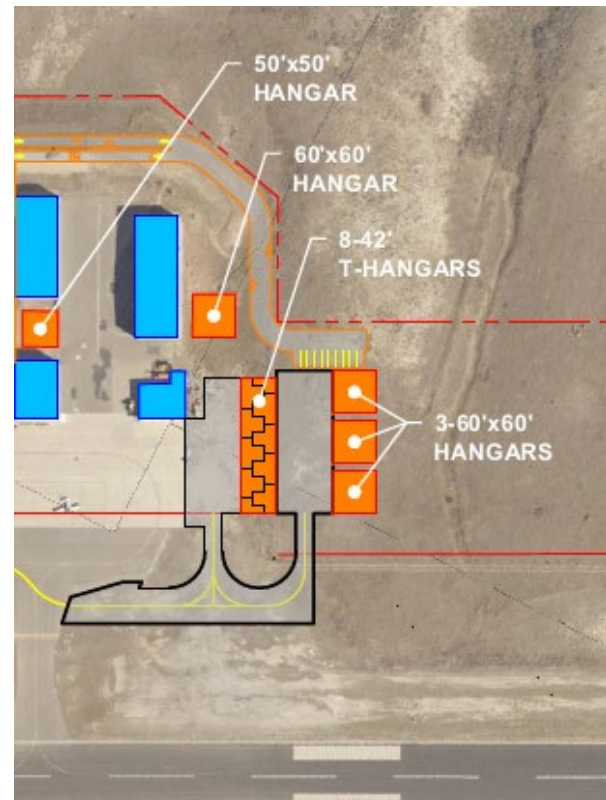
Alternative 3.A - South Hangar Development: Partial Parallel Taxiway, Hangars and Vehicle Parking

Alternative 3.A focuses on a future south hangar development with parking options on the east side of the proposed hangar development area. A partial parallel allows access to hangar areas, with future development to the south.

The specific development needs addressed in Alternative 3.A include:

- Additional development of hangars as depicted in **Figure 4.6**.
- Buildable areas:
 - 50' x 50'
 - 60' x 60'
 - 190' x 50' (8-42' T Hangars)
 - 190' x 60' (3- 60'x60' Hangars)
- Parking spots: 10
- Construction of hangars through private investment, and marketing the space for ground lease development to potential contractors and developers.
- FAA feedback indicates a preference for hangars to parallel the runway rather than multiple taxiways perpendicular to the runway as shown in **Figure 4.6**. due to the pavement required for this option.

Figure 4.6: Alternative 3.A – South Hangar Development: Partial Parallel Taxiway, Hangars and Parking



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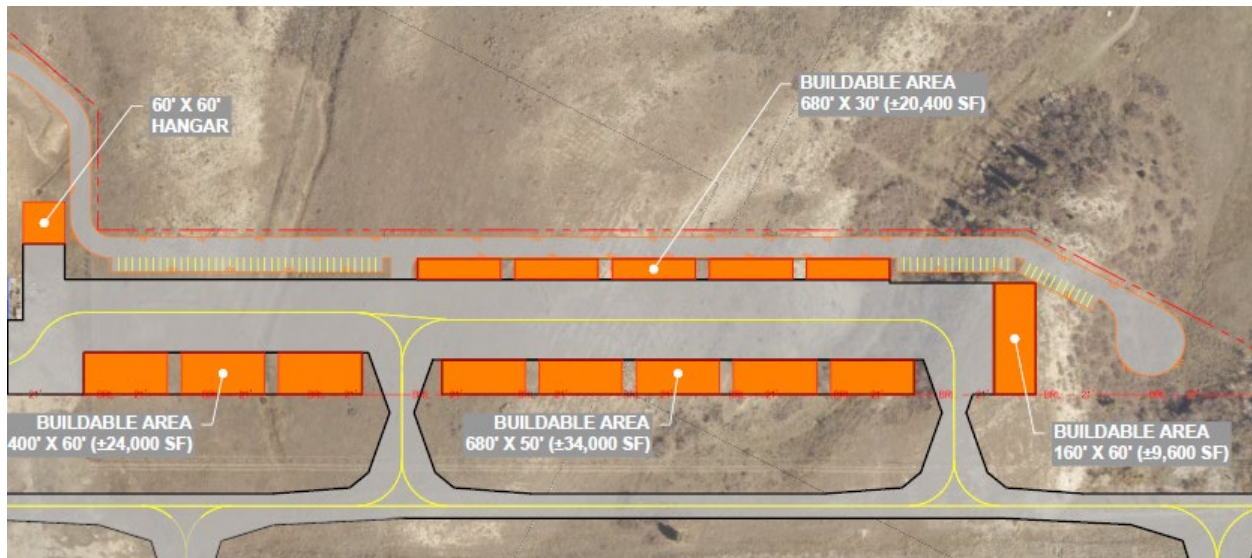
Alternative 3.B: Hangars and Vehicle Parking

Alternative 3.B focuses on a future south hangar development with parking options on the east side of the proposed south taxiway into the hangar area.

The specific development needs addressed in Alternative 3.B include:

- Additional development of hangars as depicted in Figure 4.7.
- Buildable areas:
 - 60' x 60'
 - 680' x 30'
 - 400' x 60'
 - 680' x 50'
 - 160' x 60'
- Parking spots: 66
- Construction of hangars through private investment, and marketing the space for ground lease development to potential contractors and developers.

Figure 4.7: Alternative 3.B – South Hangar Development: Hangars and Parking





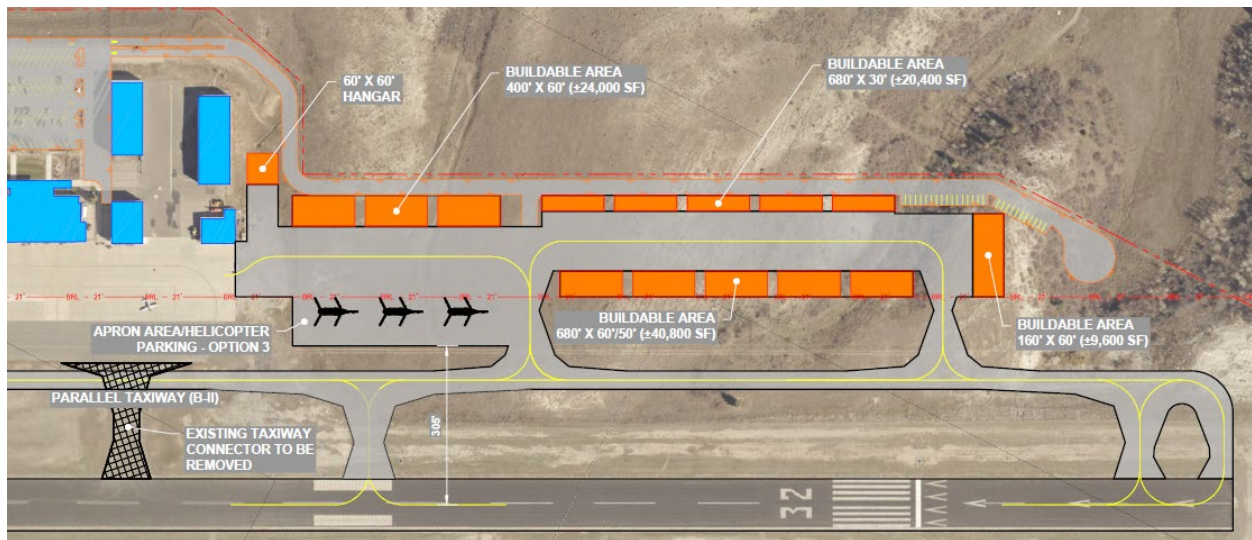
Alternative 3.C - South Hangar
Development: Hangars, Limited Vehicle
Parking, and Helicopter Parking

Alternative 3.C focuses on parking availability on the south end of the development area and Helicopter Parking-Option 3.

The specific development needs addressed in Alternative 3.C include:

- Additional development of hangars as depicted in **Figure 4.8**.
- Buildable areas:
 - 60' x 60'
 - 400' x 60'
 - 680' x 30'
 - 680' x 60'/50'
 - 160' x 60'
- Parking spots: 27
- Helicopter Parking – Option 3
- Construction of hangars through private investment, and marketing the space for ground lease development to potential contractors and developers.

Figure 4.8: Alternative 3.C – South Hangar Development: Hangars, Limited Vehicle Parking and Helicopter Parking



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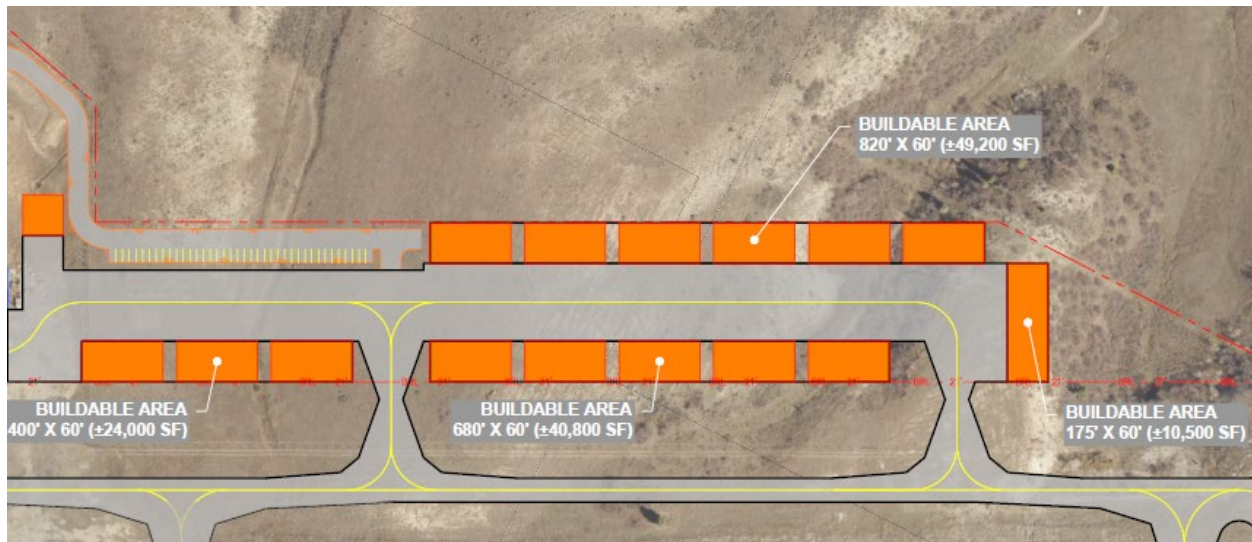
Alternative 3.D - South Hangar Development: Hangars and Limited Vehicle Parking

Parking availability on the north end of the south hangar development area and maximization of buildable area is provided through Alternative 3.D of the south hangar development options.

The specific development needs addressed in Alternative 3.D include:

- Additional development of hangars as depicted in **Figure 4.9**.
- Buildable areas:
 - 60' x 60'
 - 820' x 60'
 - 400' x 60'
 - 680' x 60'
 - 175' x 60'
- Parking spots: 39
- Construction of hangars through private investment, and marketing the space for ground lease development to potential contractors and developers.

Figure 4.9: Alternative 3.D – South Hangar Development: Hangars and Limited Vehicle Parking





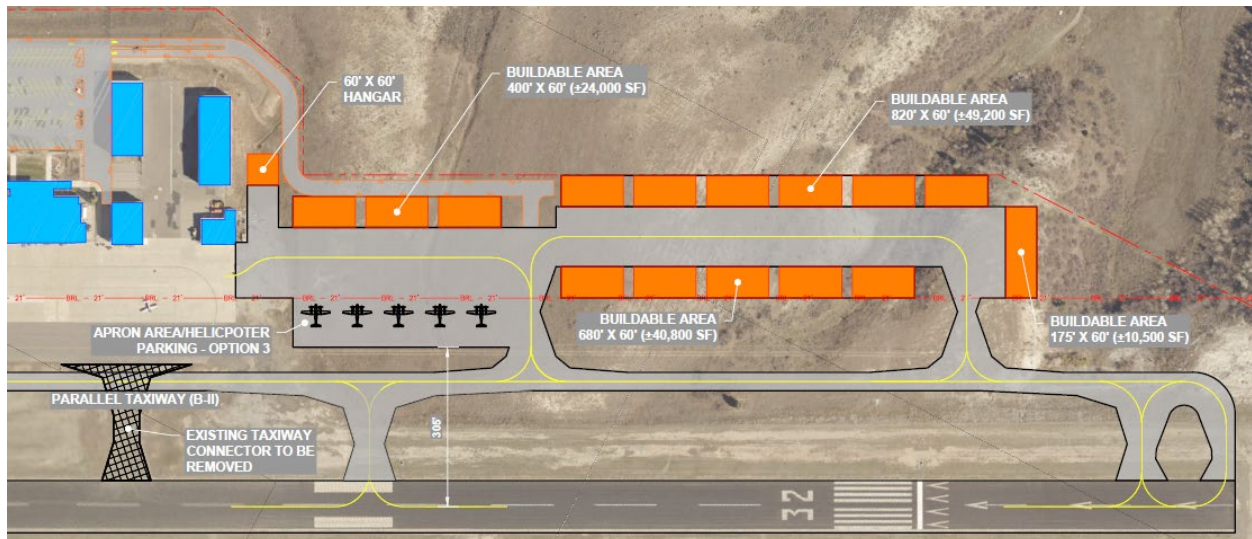
**Alternative 3.E - South Hangar Development:
Hangars and Helicopter Parking**

In an effort provide the largest amount of buildable area, along with parking apron space, Alternative 3.E eliminates parking from the south hangar development area.

The specific development needs addressed in Alternative 3.E include:

- Additional development of hangars as depicted in **Figure 4.10**.
- Buildable areas:
 - 60' x 60'
 - 400' x 60'
 - 820' x 60'
 - 680' x 60'
 - 175' x 60'
- Parking spots: 39
- Apron Area
- Construction of hangars through private investment, and marketing the space for ground lease development to potential contractors and developers.

Figure 4.10: Alternative 3.E – South Hangar Development: Hangars and Helicopter Parking



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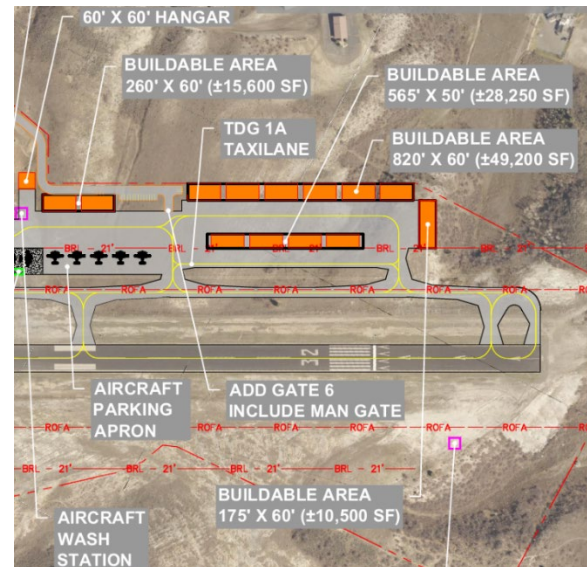
Alternative 3.F - South Hangar Development: Hangars with T-hangar Options, Limited Vehicle Parking, and Aircraft Apron Expansion

Alternative 3.F addresses the concerns of available parking space for based pilots in the south hangar development area raised by the FAA and the Airports desire for T-hangar availability. The nested T-hangar will have access on the east and west sides of the buildable area and be designed for Taxiway Design Group (TDG) 1A aircraft. TDG 1A will conform to all small aircraft with a main gear width of up to 15 feet and up to 20 feet between the main gear and the nose wheel.

The specific development needs addressed in Alternative 3.F include:

- Additional development of hangars as depicted in **Figure 4.11**.
- Buildable areas:
 - 60' x 60'
 - 260 x 60'
 - 565' x 50'
 - 820' x 60'
 - 175' x 60'
- Parking spots: 17
- Construction of hangars through private investment and marketing the space for ground lease development to potential contractors and developers.

Figure 4.11: Alternative 3.F – South Hangar Development: Hangars with T-hangar Options, Limited Vehicle Parking, and Aircraft Apron Expansion





4.2.4. Helicopter Parking Area

Alternatives

Steamboat Springs Airport – Bob Adams Field Alternatives 4.A through 4.C addresses stakeholder comments concerning the need for the development of dedicated helicopter parking and staging areas to address the significant year-round and seasonal helicopter traffic. Firefighting related activity utilizing helicopters has continued to rise at SBS and the need for separate and safe rotorcraft staging areas that do not impact local and transient fixed wing operations is very important. The need for this development is reflected by the increased use of larger Chinook and Sikorsky SkyCrane helicopters in recent years at SBS.

Alternative 4.A - Helicopter Parking Area: Far North

Alternative 4.A provides a rotorcraft parking and staging area that is separated 100% from the ramp traffic. A separate staging and parking area would allow for buildable area for based and long-term transient helicopter parking. Helicopter hangars could be built on leased space for storage of based helicopters with proper office space, allowing for existing hangars to be utilized for fixed wing aircraft

with ramp and runway access. There has been significant interest from emergency service providers to develop this area.

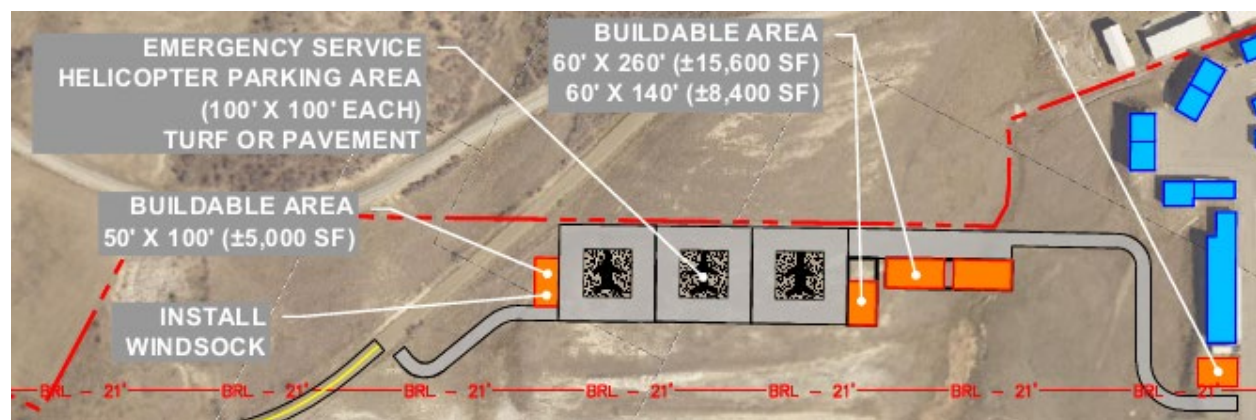
The firefighting operations could be conducted from this area, with abundant staging areas for the equipment necessary to support the seasonal operations.

Access would be from County Road 44, where an existing gate is currently in place. A road is proposed on Airport property for vehicular traffic and fuel trucks to access the hangar area from the ramp.

Specific Development needs addressed in Alternative 4.A include:

- New parking apron construction that includes proper surfacing and support for helicopter parking utilizing proper grading with turf or paved surfaces as depicted in **Figure 4.12**.
- Designation and marking of three 100' x100' helicopter parking areas.
- Construction of access roads.

Figure 4.12: Alternative 4.A – Helicopter Parking Area: Far North



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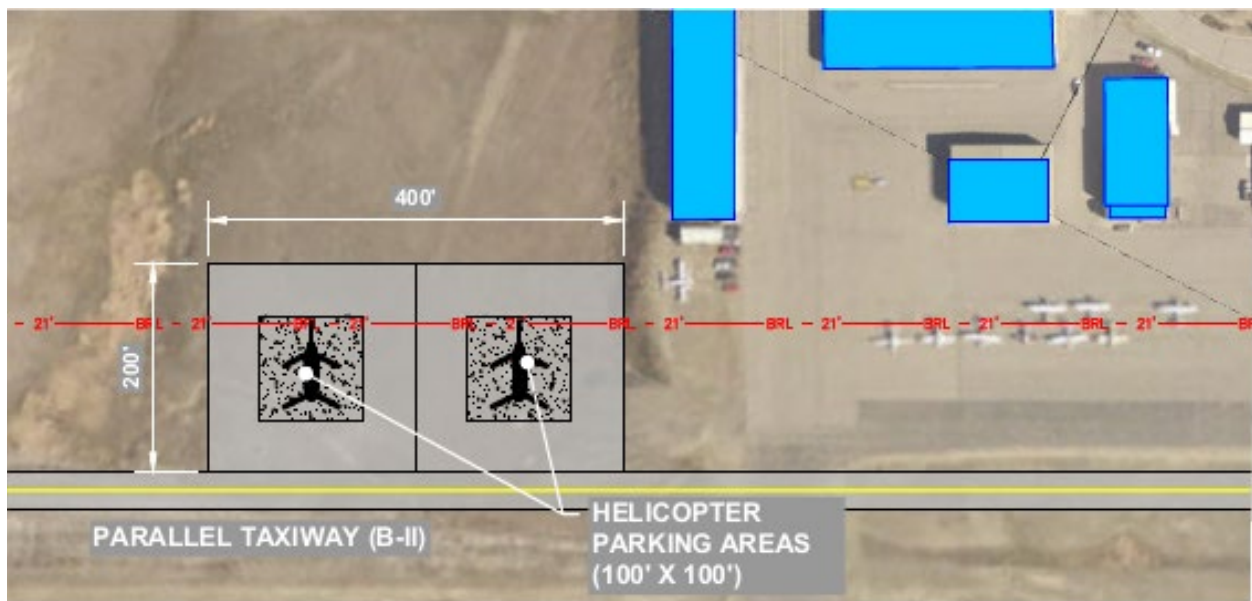
Alternative 4.B - Helicopter Parking Area: North of Existing Ramp

Consistent with the identified needs for helicopter parking and staging areas as described in Alternative 4.A, this alternative proposes the placement of two separate Helicopter Parking Aprons along the northern edge of the existing ramp. This configuration would allow for rotorcraft operations with access to the ramp and runway.

The specific development needs addressed in Alternative 4.B include:

- Significant fill will be required for the placement of the parking areas north of the existing ramp.
- New construction of a parking apron that includes proper surfacing and support for helicopter parking, with required setbacks from the future parallel taxiway and existing runway as depicted in **Figure 4.13**.
- Designation and marking two 100 x 100 helicopter parking areas located just to the north of the existing ramp.

Figure 4.13: Alternative 4.B – Helicopter Parking Area: North of Existing Ramp





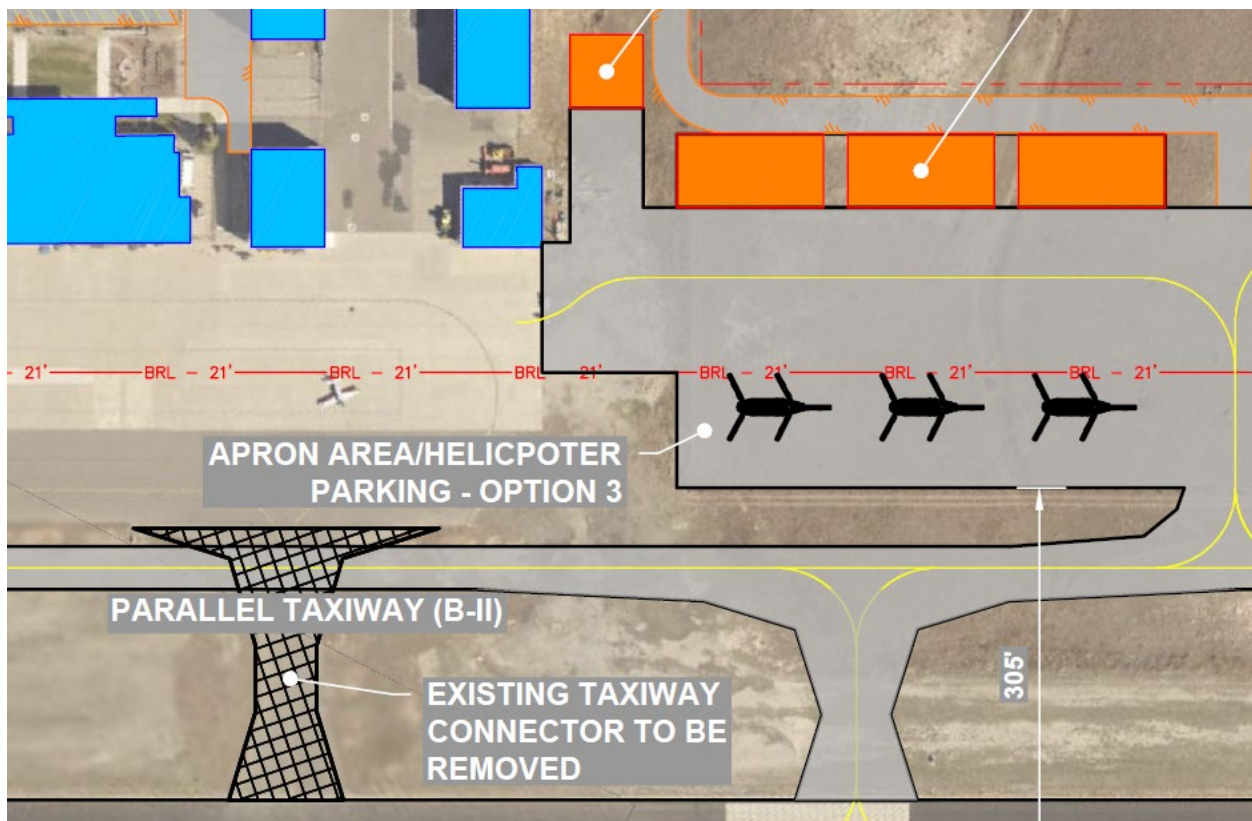
Alternative 4.C - Helicopter Parking Area: South Hangar Development Area

Alternative 4.C provides a designated space on a future ramp in the south hangar development area to be utilized for helicopter parking. Current helicopter parking for firefighting activity is conducted at the south edge of the current apron. Alternative 4.C provides an area close to the current parking area and separates the helicopters from the fixed wing parking areas while still providing access to the runway. This area could also be used for fixed wing aircraft parking when not in use by helicopters.

Specific development needs addressed in Alternative 4.C include:

- New parking apron construction that includes proper surfacing and support for helicopter parking utilizing concrete for structural integrity of the paved surface as depicted in **Figure 4.14**.
- Parking apron constructed with required setbacks from the future parallel taxiway and existing runway.

Figure 4.14: Alternative 4.C – Helicopter Parking Area: South Hangar Development Area



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4.2.5. Self-Service Fuel

Location Alternatives

Self-service fuel has been identified as a need through the pilot and user surveys conducted for the Airport as part of this master plan. Both 100LL and Jet A fuel types were requested by individual users, and Alternative 5.A and 5.B examine the locations and layouts available for the placement of self-service fueling options.

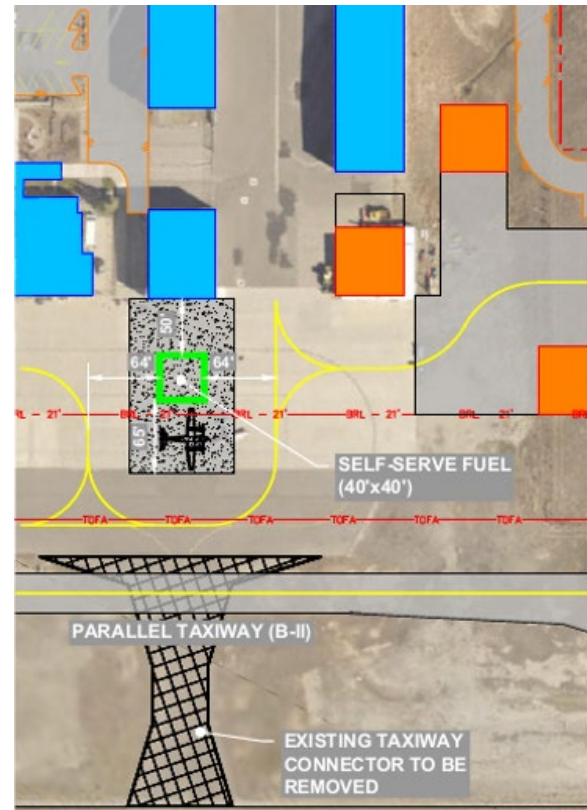
Alternative 5.A- Self-Service Fuel Location: Existing Apron

Alternative 5.A identifies an area located on the existing ramp capable of supporting the placement of fuel tanks and infrastructure needed for self-service operations.

Specific development needs addressed in Alternative 5.A include:

- Electrical power and phone/internet connection capabilities for the credit card machine portion of the self-service system.
- Fuel tank placement, protections, and anchoring into the existing concrete as depicted in Figure 4.15.
- Update pavement markings for the fuel tank location and taxi lines.

Figure 4.15: Alternative 5.A – Self-Service Fuel Location: Existing Apron





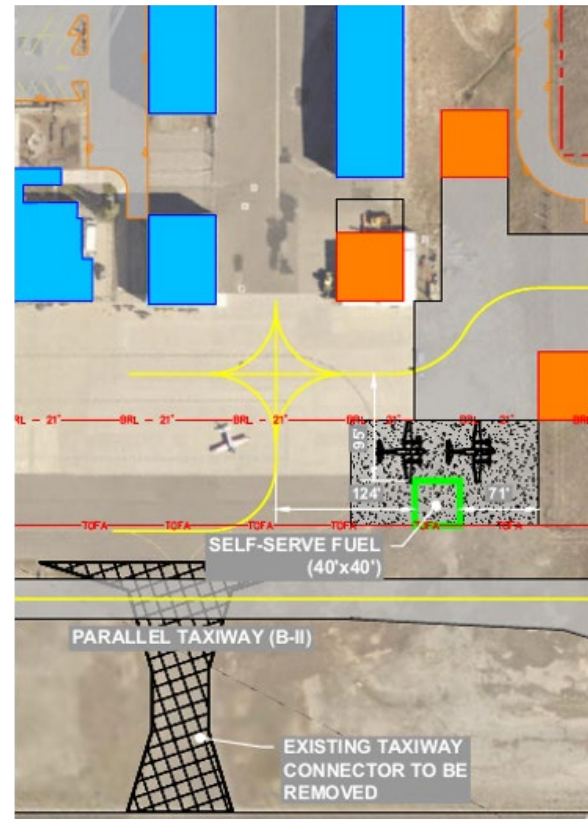
Alternative 5.B – Self-Service Fuel Location: South of Existing Apron

Alternative 5.B considers an area located south of the existing ramp capable of supporting the placement of paved surfaces and fuel tanks with the infrastructure needed for self-service operations. The area is currently undeveloped, but can be built to support such operations. This area allows for the existing apron space to remain available to the users, and a central location for fueling operations once the south hangar development area is built out.

Specific development needs addressed in Alternative 5.B include:

- Electrical power and phone/internet connection capabilities for the credit card machine portion of the self-service system.
- Paved surfaces for the tanks, aircraft parking areas and connections to the existing ramp as depicted in **Figure 4.16**
- Fuel tank placement, protections, and anchoring into the concrete.
- Area constructed with required setbacks from the future parallel taxiway and existing runway.
- Update the SPCC and Stormwater Management Plans (SWMP).

Figure 4.16: Alternative 5.B – Self-Service Fuel Location: South of Existing Apron



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4.2.6. Aircraft Wash Station

Location Alternatives

Wash stations are an important service provided to pilots at many general aviation airports. Aircraft can be washed in specifically identified wash stations to allow for the runoff to be collected as to not introduce the contaminants into the storm water runoff.

Alternative 6.A and 6.B investigate two options for wash station locations where existing infrastructure may be utilized.

Alternative 6.A – Aircraft Wash Station Location: North of FBO

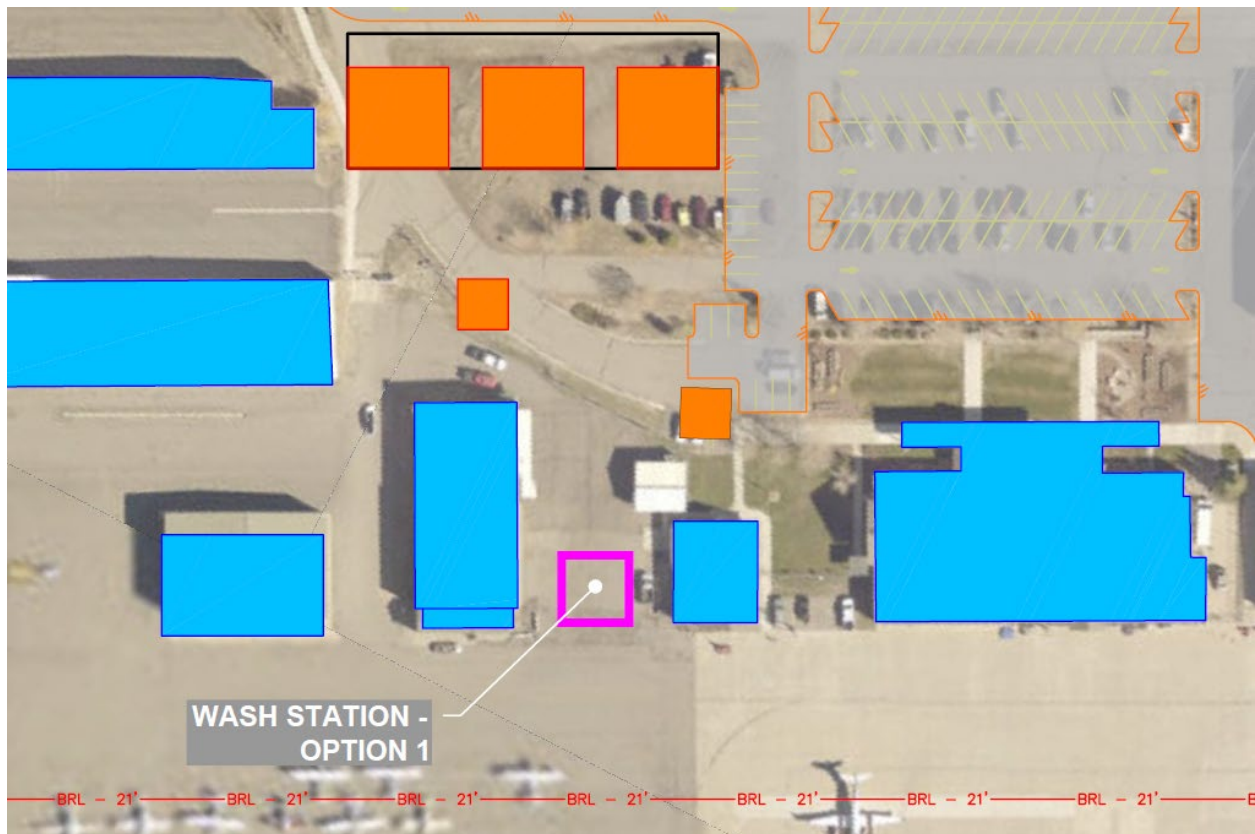
The current area generally utilized for washing aircraft is located near Alternative 6.A, as most of the aircraft washing is conducted by the maintenance facilities

located at the Airport. Wash Station - Option 1 would investigate utilizing the de-ice system that was once used for commercial aircraft at the Airport.

Specific development needs addressed in Alternative 6.A include:

- Collection point investigation and testing to ensure compatibility as an aircraft wash station collection point.
- Construct to operable status as depicted in Figure 4.17.
- Update the SPCC and Stormwater Management Plans (SWMP).

Figure 4.17: Alternative 6.A – Aircraft Wash Station Location: North of FBO



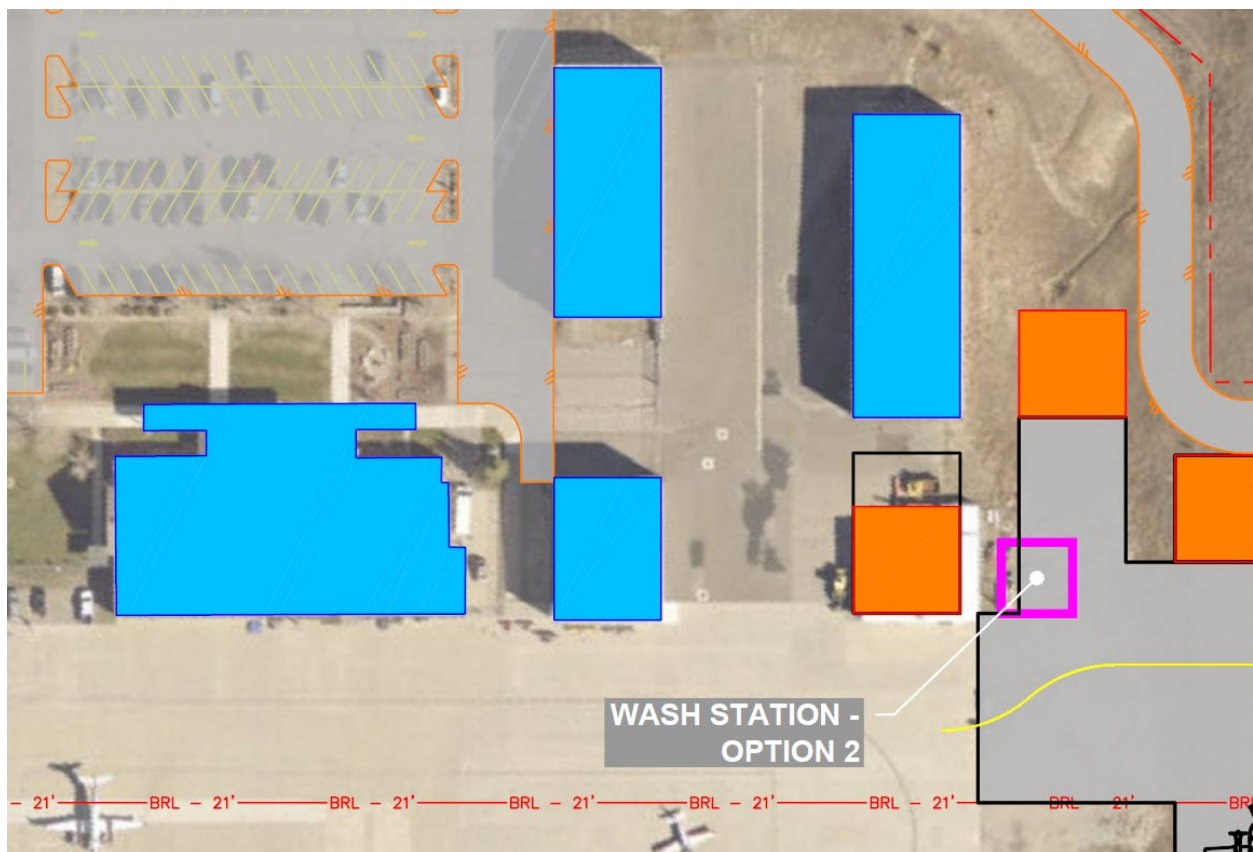
**Alternative 6.B – Aircraft Wash Station Location:
South of Current SRE Building**

Alternative 6.B provides a second option for an aircraft wash station that is similar to Alternative 6.A as it could possibly utilize an existing oil and sand separator located in the current SRE building. If the separator is not found to be of use for the wash station, a wash pad and collection point could be constructed in this area as new pavement will be required.

Specific development needs addressed in Alternative 6.B include:

- Collection point investigation and testing to ensure compatibility as an aircraft wash station collection point.
- Construct to operable status, to include pavement as depicted in **Figure 4.18**.
- Update the Stormwater Management Plan (SWMP).

Figure 4.18: Alternative 6.B – Aircraft Wash Station Location: South of Current SRE Building



4.2.7. Taxiway Alternatives

Runway access is currently limited to two access points near the center of the runway from the north and south end of the existing apron. Pilots enter the runway from the connector taxiways and back-taxi the runway for departure. In order to alleviate the time on the active runway Alternative 7.A - 7.D investigates taxiway options for the runway.

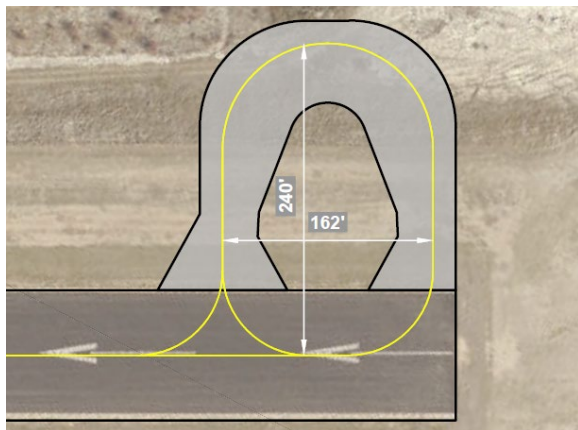
Alternative 7.A – Taxiway: South Taxiway Turnaround

Alternative 7.A places a taxiway turnaround at the south end of Runway 32, allowing pilots to back-taxi the runway, and exit the runway, prior to re-entering for departure. This option provides a safe area for an aircraft to exit the runway to allow other aircraft to land and also to check their aircraft, instruments, and clearances prior to departure. Runway 32 is the preferred calm wind runway and the most used runway for departures and landings. Aircraft landing on Runway 14 can also use this turnaround.

Specific development needs addressed in Alternative 7.A include:

- Construct to operable status, to include pavement as depicted in Figure 4.19.

Figure 4.19: Alternative 7.A – Taxiway: South Taxiway Turnaround



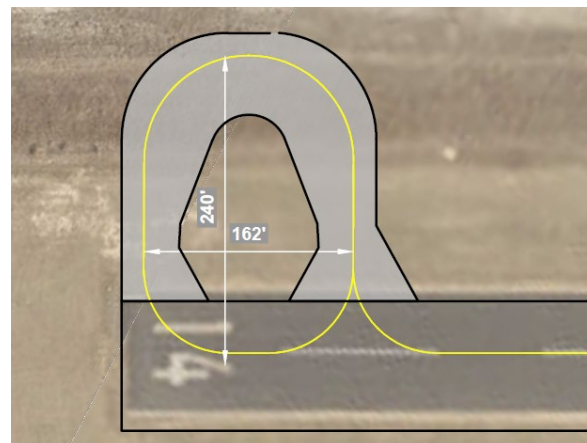
Alternative 7.B – Taxiway: North Taxiway Turnaround

Alternative 7.B depicts the installation of a taxiway turn around on the north end of the runway near the beginning of Runway 14. Similar to the south taxiway turnaround, this alternative allows pilots to exit the runway after back taxiing and prior to re-entering for departure. This option provides a safe area for an aircraft to exit the north end of the runway to allow other aircraft to land and also to check their aircraft, instruments, and clearances when departing to the south. Aircraft departing Runway 14 and landing on Runway 32 would utilize the turnaround to back taxi the runway to and from the ramp.

Specific development needs addressed in Alternative 7.B include:

- Fill the area to the northeast of the runway for the construction of the turnaround.
- Construct to operable status, to include pavement as depicted in Figure 4.20.

Figure 4.20: Alternative 7.B – Taxiway: North Taxiway Turnaround





Alternative 7.C – Taxiway: Partial Parallel Taxiway to the South

A partial parallel taxiway is considered in Alternative 7.C where the south taxiway turnarounds is utilized. If this alternative is chosen over the taxiway turnaround, there will be no need for the south taxiway turnaround. A parallel taxiway can be built in the future and incorporate taxiway turnarounds if they are already existing at the time. This option would eliminate the need to back taxi the runway for aircraft departing Runway 32 and landing on Runway 14. Removal of the existing connector taxiway and placement of new connector taxiways would allow for proper FAA Airport Design compliance by removing connector taxiways in the middle third of the runway and preventing ramp to runway direct access.

Specific development needs addressed in Alternative 7.C include:

- Fill material will be needed and proper grading to ensure no more than a 2% slope in the taxiway.
- Construct to operable status, to include pavement as depicted in **Figure 4.21**.

Alternative 7.D – Taxiway: Full Parallel Taxiway

Construction of a full parallel taxiway would provide the ultimate design capabilities for taxiway access from the hangar areas to the runway. The need for back taxiing would be eliminated and aircraft would only need to access the runway for takeoff and landing operations.

Specific development needs addressed in Alternative 7.D include:

- A large amount of fill material will be needed and proper grading to ensure no more than a 2% slope in the taxiway.
- Construct to operable status, to include pavement as depicted in **Figure 4.22**.

Figure 4.21: Alternative 7.C – Taxiway: Partial Parallel Taxiway to the South



Figure 4.22: Alternative 7.D – Taxiway: Full Parallel Taxiway



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4.2.8. Runway Lengthening Alternatives

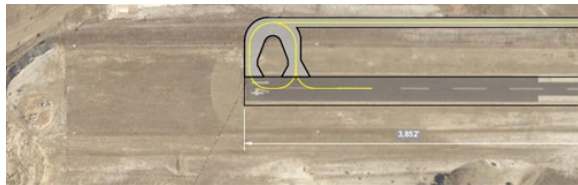
The runway length is currently 3,852 feet long with a 600-foot displaced threshold on the south end. A significant amount of fill is required on the north end of the runway in order to construct an extension and County Road 44 will need to be moved out of the Runway Safety Area. The FAA has expressed that SBS is currently a low priority for funding a runway extension. Any extension will most likely be locally or privately funded.

Alternative 8.A – Runway Lengthening: No Build Option

Specific development needs addressed in Alternative 8.A include:

- No runway extension, pavement as depicted in **Figure 4.23**.

**Figure 4.23: Alternative 8.A – Runway Lengthening:
No Build Option**



Alternative 8.B – Runway Lengthening: Extend to 5,000 Feet

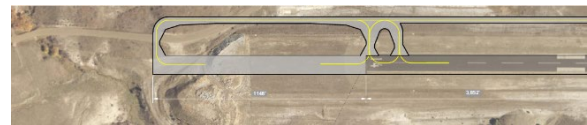
Many aircraft charter companies require a runway to be at least 5,000 feet in length to ensure their insurance is in compliance. To better accommodate these aircraft, and other aircraft desiring a longer runway, a runway length of 5,000 feet is proposed with a 600-foot displaced threshold on the south end.

Alternative 8.B would require a significant amount of fill on the north end of the runway and relocation of County Road 44.

Specific development needs addressed in Alternative 8.B include:

- Fill material will be needed and proper grading to ensure the runway extension and relocated safety areas meet requirements.
- An engineered material arresting system (EMAS) may be a potential option in reducing the total amount of fill needed to meet FAA standards for the RSA. Total life maintenance costs should be fully considered in the design process.
- Construct to operable status, to include pavement as depicted in **Figure 4.24**.

**Figure 4.24: Alternative 8.B – Runway Lengthening:
Extend to 5,000 Feet**



4.2.9. Windcone Location Alternatives

The primary windcone (Windcone #1) is located in the segmented circle, west of the runway directly across from the existing SRE building and beacon. Secondary windcones are used by pilots to identify the wind conditions at points other than the primary windcone location. A secondary windcone is in place on the south end of the runway (Windcone #2), and interest by management and tenants has been expressed in adding an additional secondary windcone on the north end of the runway (Windcone #3) to increase pilot situational awareness when operating on the north end of the Airport.



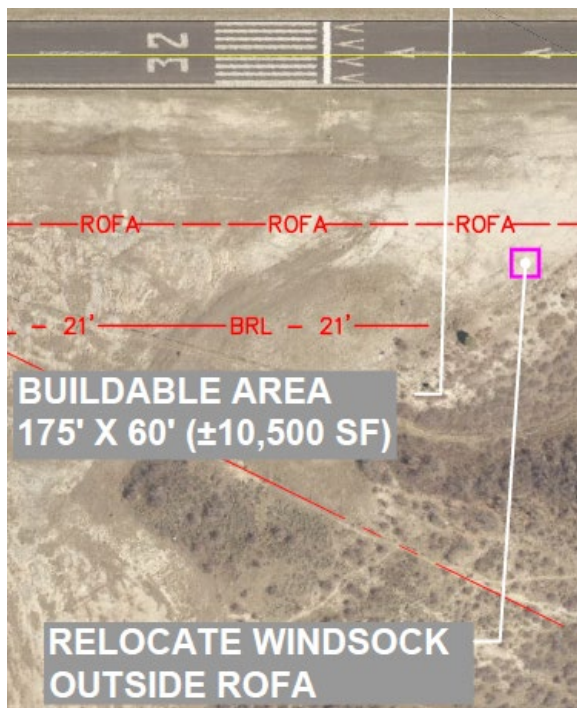
Alternative 9.A – Secondary Windcone Relocation: South (Windcone #2)

Alternative 9.A depicts the relocation of the current secondary windcone (Windcone #2) in order to meet compliance with the FAA. The current location is within the Runway Object Free Area (ROFA) southwest of the Runway 32 displaced threshold, and in order to bring the windcone into compliance it will need to be moved outside of the ROFA.

Specific development needs addressed in Alternative 9.A include:

- Relocate existing windcone to the northwest of its existing location outside of the ROFA as depicted in Figure 4.25.
- Electricity will need to be located at the new site to provide power to the lighted windcone.

Figure 4.25: Alternative 9.A – Secondary Windcone Location: South



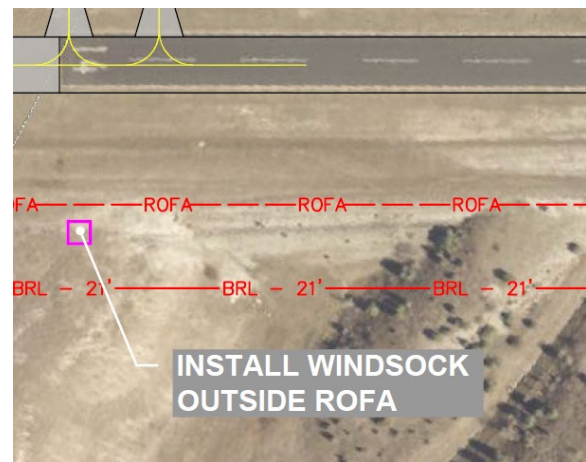
Alternative 9.B – Secondary Windcone Location: North (Windcone #3)

Alternative 9.B provides an additional secondary windcone (Windcone #3) on the north end of the runway to the west of Runway 14. This windcone should be placed outside of the ROFA as shown in Figure 4.24.

Specific development needs addressed in Alternative 9.B include:

- Electricity provided to the lighted windcone location.
- Installation of a new windcone as depicted in Figure 4.26.

Figure 4.26: Alternative 9.B – Secondary Windcone Location: North



4.3. Environmental Review of Near-term Projects

The environmental review in this section is not intended to fulfill the requirements of environmental review required by National Environmental Policy Act (NEPA) or provide a definitive determination of what level of environmental review pursuant to NEPA will be required. The purpose of this environmental summary is to inform the community,

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airport sponsor, and regulatory agencies of the importance of minimizing the environmental impacts of proposed development and to provide a general indication of the likely need for further investigation.

Table 4.1 provides an indication of the likely need for further environmental analysis to determine the exact impacts, if any, that are associated with the proposed improvements. At the appropriate time, the FAA would decide whether and to what extent any

additional investigation would be required. Appropriate environmental documentation in accordance with FAA Order 5050.4B, NEPA Instructions for Airport Actions and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures is required to be completed prior to commencing with project actions.

Table 4.1: Review of Environmental Resource Categories at SBS

FAA Resource Category	FAA Threshold of Significance	Potential Concerns
Air Quality, including Greenhouse Gases (GHGs) and Climate	Potentially significant air quality impacts associated with an FAA project or action would be demonstrated by the project or action exceeding one or more of the National Ambient Air Quality Standards (NAAQS) for any of the time periods analyzed. The six criteria air pollutants include carbon monoxide (CO), particulate matter (PM, ozone (O3), sulfur dioxide (SO2), lead (Pb), and nitrogen oxide (NOx). With respect to GHGs and climate, federal standards for aviation-related GHG emissions are still being developed.	Routt County, Colorado is not identified as a maintenance or non-attainment area for the criteria air pollutants.
Coastal Resources	No specific thresholds have been established; however, if a local Coastal Development Permit cannot be issued due to a lack of consistency with a local coastal program, the FAA typically will not make a Federal Coastal Consistency determination either.	N/A
Compatible Land Use	Compatible land use evaluations for airports must consider the land uses in the vicinity of an airport to ensure those uses do not adversely affect safe aircraft operations. In addition, if an airport action would result in impacts exceeding FAA thresholds of significance which have land use ramifications, such as disruption of communities, relocation of businesses or residences, and induced socioeconomic impacts, the effects of the land use impacts shall be discussed. Local land use policy inconsistencies may also indicate land use compatibility issues.	The land uses within the vicinity of SBS consist of open space, residential, industrial, and mixed use. The master plan has proposed zoning for land uses surrounding the Airport. It is recommended that the City adopt an airport overlay district. Future development projects will be evaluated to determine any significant impact on surrounding communities.



FAA Resource Category	FAA Threshold of Significance	Potential Concerns
Construction Impacts	Construction impacts alone are rarely significant pursuant to NEPA. See significance threshold(s) for the resource(s) that construction could affect.	FAA-required best management practices (see Advisory Circular (AC) 150/5370-10G, Standards for Specifying Construction of Airports, Item P- 156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control), as well as State and local permits, would be implemented during construction projects at the Airport.
Department of Transportation (DOT) Act: Section 4(f)	When the action’s physical use would be more than minimal, or its constructive use substantially impairs the Section 4(f) property. In either case, mitigation is not enough to sustain the resource’s designated use.	No direct impacts or substantial impairment (constructive use) of Section 4(f) resources were found as a part of the Master Plan process. This will be reviewed as a part of any future NEPA review.
Farmland	When the combined score on Form AD1006 ranges between 200 and 260. Impact severity increases as the total score approaches 260. NOTE: Form AD-1006 is used by the U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) to assess impacts under the Farmland Protection Policy Act (FPPA).	No concerns. SBS is not located on or near prime or unique farmland. In 2008 USDA-NRCS was contacted and responded that “most of the soils in Routt County including those around SBS are in cryic soil temperature (very cold). This precludes them from being designated as “Prime Farmland.”
Fish, Wildlife, and Plants	The United States Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service determines a proposed action would likely jeopardize a species’ continued existence or destroy or adversely affect a species’ critical habitat.	No known endangered species of fish, plants or wildlife are known to inhabit the Airport property. However, agency coordination may be needed under Section 7 of the Endangered Species Act during the environmental review of future projects.
Floodplains	Executive Order 11988, Floodplain Management directs federal agencies to “avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative”	No concerns. A review of the on-line Flood Insurance Rate Maps prepared by FEMA, shows the Airport is not located within the mapped floodplain. The Airport is approximately .6 miles northeast of floodplain of the Yampa River.

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FAA Resource Category	FAA Threshold of Significance	Potential Concerns
Hazardous Materials, Pollution Prevention, and Solid Waste	<p>Hazardous materials. When an action involves a property on or eligible for the National Priority List (NPL). Uncontaminated properties within an NPL site’s boundary do not always trigger this significance threshold.</p> <p>Pollution prevention. See significance thresholds for water quality.</p> <p>Solid waste. There are no solid waste thresholds of significance established.</p>	<p>There are no NPL sites located on the Airport.</p> <p>The Airport currently recycles cardboard, aluminum, glass, plastics, paper products, and batteries. The Airport also recycles milling from Airport pavement during construction projects.</p> <p>Construction would produce construction debris. The effects of additional waste and its disposal to landfills will be considered during any environmental review process of future development.</p>
Archaeological, and Cultural Resources	<p>An action adversely affects a protected property and the responsible FAA official determines that information from the State and/or tribal Historic Preservation Officer addressing alternatives to avoid adverse effects and mitigation warrants further study.</p>	<p>Any areas at the Airport that would be disturbed by new development should be surveyed for cultural resources prior to ground disturbance and monitored during construction unless previously disturbed to the point that artifacts could no longer be intact. In the event that unknown resources are found during construction, all applicable State and Federal laws regarding such finds must be followed. Based on the historical inventory completed as part of this master plan, there are no historical resources that would be adversely affected by the master plan. However, A cultural resources survey and Section 106 and Government to Government consultation will need to be undertaken prior to any development.</p>
Light Emissions and Visual Effect	<p>Light emissions. An action’s light emissions create annoyance to interfere with normal activities.</p> <p>Visual effects. Consultation with Federal, State, or local agencies, tribes, or the public shows these effects contrast with existing environments and the agencies state the effect is objectionable.</p>	<p>Light emissions. All new lighting associated with the proposed development would remain on the airfield and other developed portions of the Airport.</p> <p>Visual effects. Proposed improvements on Airport property will be evaluated to determine any significant change to the overall appearance of the Airport from off- airport areas.</p>



FAA Resource Category	FAA Threshold of Significance	Potential Concerns
Natural Resources and Energy	An action’s construction, operation, or maintenance would cause demands that would exceed available or future (project year) natural resource or energy supplies.	Planned development projects at the Airport are not anticipated to result in a demand for natural resources or energy consumption beyond what is available by service providers.
Noise	An action, compared to the No Action alternative for the same timeframe, would cause noise sensitive areas located at or above the 65 decibel (dB) Day-Night Equivalent Level (DNL) to experience a noise increase of at least DNL 1.5 dB. Additionally, an increase from DNL 63.5 dB to DNL 65 dB is a significant impact.	Noise maps were prepared for the 2008 Airport Master Plan. Additional noise analysis is not required for GA if there are less than 90,000 annual piston powered aircraft operations or 700 annual jet powered aircraft operations. However, The FAA may determine a runway extension may require a noise analysis. Any subsequent project-related environmental review process will evaluate the need for a noise analysis.
Secondary (Induced) Impacts	Induced impacts will not normally be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts.	In general, the recommended projects are being designed/planned to accommodate forecast aviation growth rather than proposing development that would induce growth at the Airport.
Socioeconomic Impacts, Environmental Justice, and Children’s Environmental Health and Safety Risks	<p>Socioeconomic issues. An action would cause:</p> <ul style="list-style-type: none"> - Extensive relocation, but sufficient replacement housing is unavailable; - Extensive relocation of community businesses that would cause severe economic hardship for affected communities; - Disruption of local traffic patterns that substantially reduce the Levels of Service of roads serving the Airport and its surrounding communities; - A substantial loss in community tax base. <p>Environmental justice issues. If an action would cause disproportionately high and adverse human health or environmental effects on minority and low-income populations, a significant impact may occur.</p>	<p>The areas surrounding the Airport are predominantly agricultural, mixed-use, industrial and low density residential. There is an affordable housing apartment complex approximately .6 miles from the Airport.</p> <p>However, future development projects will be evaluated to determine any significant impact on surrounding communities.</p>

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FAA Resource Category	FAA Threshold of Significance	Potential Concerns
	<p>Children’s health and safety risk. An action causing disproportionate health and safety risks to children may indicate a significant impact.</p>	
Water Quality	An action would not meet water quality standards. Potential difficulty in obtaining a permit or authorization may indicate a significant impact.	Environmental review of future projects will assess possible impacts on local receiving waters including those related to stormwater runoff.
Wetlands, Jurisdictional or Non-Jurisdictional	<p>An action would:</p> <ul style="list-style-type: none"> - Adversely affect a wetland’s function to protect the quality or quantity of a municipal water supply, including sole source aquifers and a potable water aquifer. - Substantially alter the hydrology needed to sustain the affected wetland’s values and functions or those of a wetland to which it is connected. - Substantially reduce the affected wetland’s ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare. - Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically- important timber, food, or fiber resources of the affected or surrounding wetlands. - Promote development that causes any of the above impacts. - Be inconsistent with applicable State wetland strategies. 	Four jurisdictional wetlands were identified at the north end of the Airport property in 2010 as a part of proposed development. Project specific wetlands determinations and/or delineations should be performed for future Airport improvement proposals.
Wild and Scenic Rivers	No specific thresholds have been established.	No concerns. Cache le Poudre River is located approximately 115 miles from the Airport. There are other rivers in the area that are not designated as wild and scenic that the City protects through an MS4 permit.



4.4. Preferred Alternative

The creation of the Preferred Alternative and terms for development was heavily influenced by all formal comments and discussions with Airport Management, the City, the Advisory Committee, the Yampa Valley Airport Commission, the CDOT Division of Aeronautics, the FAA, and the public about the specific alternatives. Comments were solicited and received from all sources identified within this Master Plan and considered by the Steamboat Springs Airport Master Plan Advisory Committee, and the City of Steamboat Springs. The Preferred Alternative combines selected alternative elements previously defined in this chapter.

The Preferred Alternative sought to enhance safety, resolve compliance issues, improve capacity of based and transient aircraft, and improve services while balancing the impacts on the environment and fiscal constraints. Through consultation with Airport Management and the Advisory Committee each alternative was reviewed and evaluated. The following criteria was used to evaluate the alternatives:

1. **Improving Safety.** How well does each alternative improve safety.
2. **Achieving Compliance.** How well does each alternative bring the Airport into compliance with all federal, state, and local regulations.
3. **Ability to Serve Forecast Demand.** How well does each alternative accommodate the forecast Airport activity levels including based aircraft and annual operations over the next 20 years and beyond.
4. **Airfield Functionality.** How well does each alternative maximize available developable airfield property and provide for the safe and efficient movement of aircraft around the airfield.
5. **Environmental Compatibility.** What are the environmental impacts associated with each alternative. These impacts include land use, noise, cultural, archeological, social, transportation, and wetlands to name a few.

6. **Capital Development Costs.** How does each alternative compare given approximate development costs.
7. **Operating and Maintenance Costs.** Similar to development cost, how does each alternative compare regarding potential operating and maintenance costs.

4.4.1. Steamboat Springs Airport – Bob-Adams Field Master Plan Preferred Alternative

The Preferred Alternative, as depicted in **Figure 4.27**, is a result of selecting the preferred development option from each of the Airport alternative categories. The Preferred Alternative also incorporates the mandatory elements previously described as:

- Continued Pavement Maintenance
- Sign and Marking Upgrades

The preferred development option from each alternative is described below:

- **Alternative 1.B and 1.C.** Expansion of the terminal hangar area into the parking lot will provide developable hangar areas in the near-term. Constructing a new SRE building on the north end of the ramp will allow for the existing SRE building to be removed or remodeled by the City when the time is appropriate to make way for more buildable hangar space with direct ramp access. By utilizing both alternatives the buildable area will be maximized in the terminal hangar area.
- **Alternative 2.B.** Relocation of the fuel canopy will provide compliance with FAA and NFPA standards for fuel truck parking. This alternative will provide an adequate parking area within close proximity to the FBO, and not inhibit the apron area for future hangars.

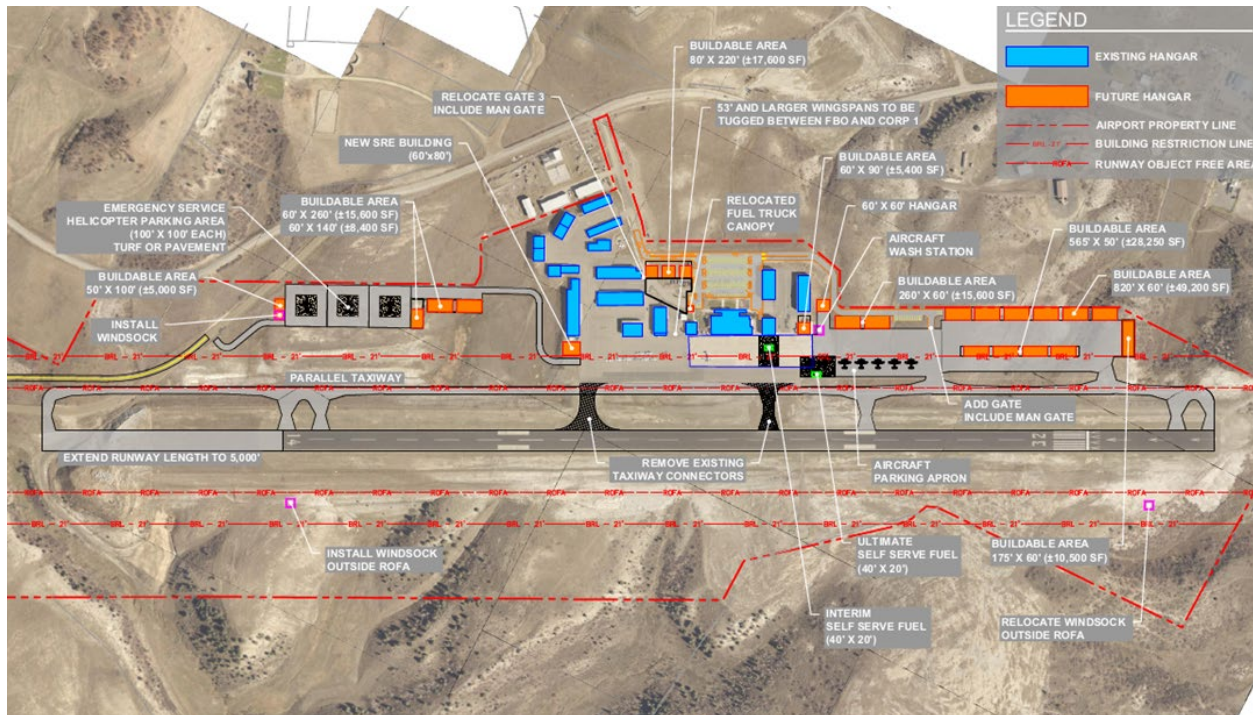
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- **Alternative 3.F.** Parking, ramp expansion, hangar space, and developable T-hangar sites are incorporated into this alternative to maximize the usable space. SBS is limited in buildable area to expand, and a proper mix of all needs have been incorporated into this alternative.
- **Alternative 4.A.** Continuing to maximize usable area, the helicopter parking location below and to the north of the existing terminal area was selected as the option that provides the greatest use of land and accessibility for the helicopter operators and support crews. This area can be developed to house based helicopter operators and seasonal helicopter operators and support crews. Relocating the helicopter parking to this area will free up much needed ramp space for fixed wing aircraft on the existing ramp.
- **Alternative 5.A and 5.B.** Self-service fuel is currently needed at the Airport and a phased implementation plan that combines both alternative options can be utilized in the near and long-term development. A 100LL self-service tank can be installed on the existing ramp, if demand is significant enough a Jet-A tank can later be added. As the development continues to the south and funding becomes available the fuel tanks can be relocated to the south end of the existing ramp. This will return the former self-service fuel location back to apron space and provide for greater accessibility to aircraft.
- **Alternative 6.B.** The aircraft wash station location will be to the south of the current SRE building. The design process can identify if existing infrastructure will be compatible for aircraft washing activities or if a new collection system will need to be installed. This alternative was chosen as it limits apron access congestion and will be centrally located once the south hangar development area is fully built.
- **Alternative 7.A, 7.B, 7.C, and 7D .** Development of the taxiway turnarounds and the parallel taxiway has been selected to be phased depending on what is available for funding. Ultimately the advisory committee agreed that a full parallel taxiway is preferred. If a full parallel taxiway cannot be achieved due to funding, a partial taxiway on the south end of the runway with a taxiway turnaround on the north end would be desired. If this is unachievable, the taxiway turnarounds should be installed on each end, with the south taxiway turnaround being considered primary over the two turnaround options.
- **Alternative 8.B.** This Alternative provides for fill to be completed on the north end of the runway, relocation of County Road 44, and a 1,148 foot runway extension to have a total runway length of 5,000 feet with a 600 foot displaced threshold.
- **Alternative 9.A and 9.B.** Compliance issues require that the current (windcone #2) and future secondary windcone (windcone #3) be located outside of the Runway Object Free Area. Relocating the current secondary windcone (windcone #2) will be a primary objective of this alternative with the placement of a second secondary windcone (windcone #3) on the north end as a secondary objective.



Figure 4.27: Preferred Alternative



4.4.2. Preferred Alternative Conclusion

Identifying the Preferred Alternative for future development at SBS is a requisite step in the development of the Master Plan. The Preferred Alternative is directly translated into the drawings contained in the ALP. By setting forth specific developments with appropriate timelines that meet strict FAA standards, the Preferred Alternative graphically reflects the fundamental needs of the Airport and desires of the Airport stakeholders. Aviation in general is very dynamic, and Airport needs, and community funding abilities can change rapidly and unexpectedly. The Preferred Alternative is designed to assist with these unexpected changes by outlining future developments and allowing for flexibility in the implementation.

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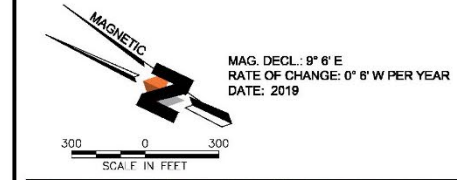
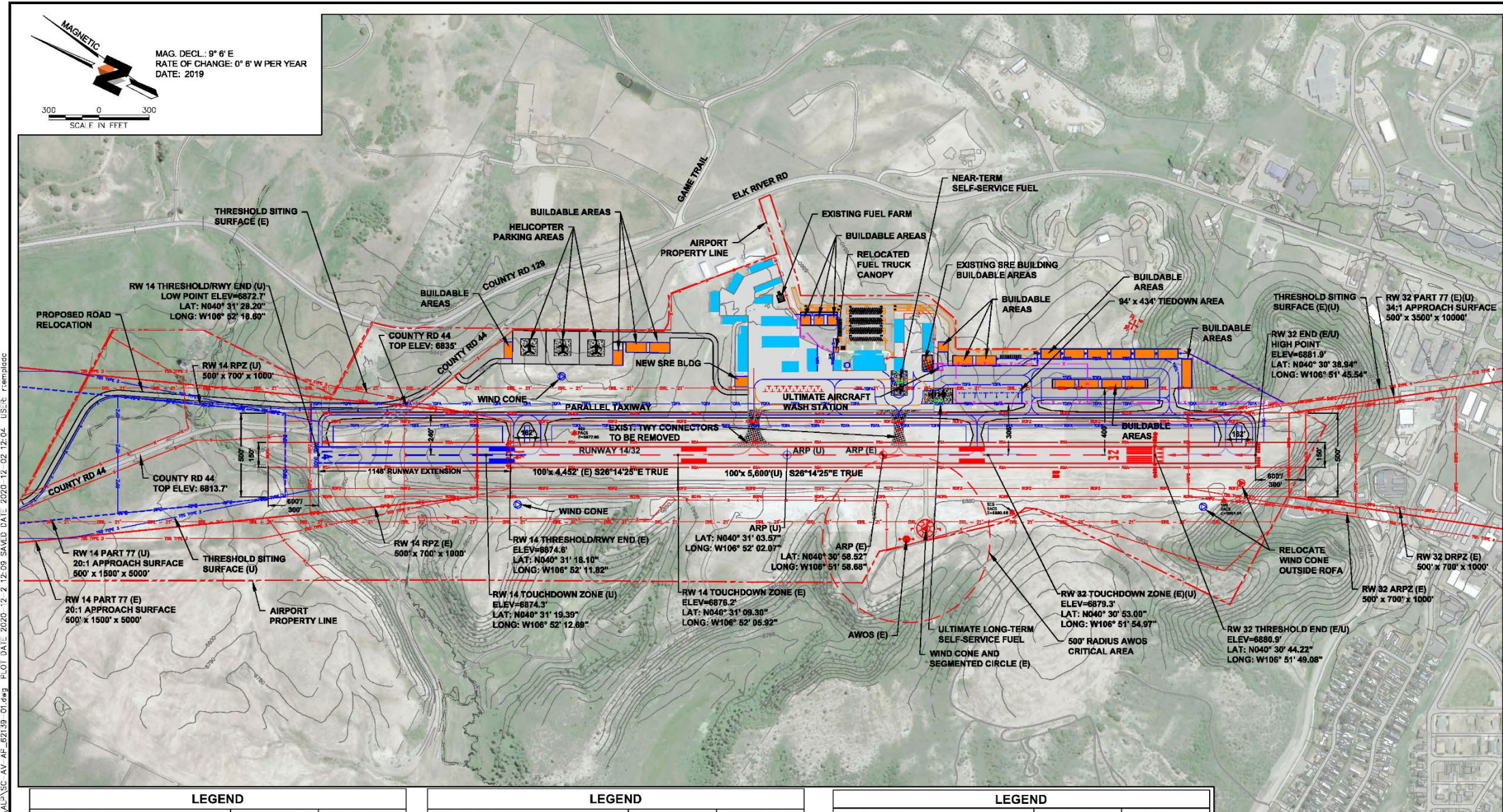
Steamboat Springs Airport
Bob Adams Field

MASTER PLAN



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Airport Layout Plan



\\DEN-15\JEN_projects\23\62139_01\65CAD\aviation\ALP\SC_AV_AF_62139_01.dwg PLOT DATE: 2020-12-02 12:04 US: rramblod

LEGEND		
DESCRIPTION	EXISTING (E)	ULTIMATE (U)
AIRFIELD DEVELOPMENT	[Symbol]	[Symbol]
STRUCTURAL / FACILITIES (BUILDING)	[Symbol]	[Symbol]
RUNWAY DEVELOPMENT	[Symbol]	[Symbol]
PAVEMENT REMOVAL	N/A	[Symbol]
BUILDING REMOVAL	N/A	[Symbol]
AIRPORT PROPERTY LINE (APL)	[Symbol]	[Symbol]
RUNWAY PROTECTION ZONE (RPZ)	[Symbol]	[Symbol]
RUNWAY SAFETY AREA (RSA)	[Symbol]	[Symbol]
OBSTACLE FREE ZONE (OFZ)	[Symbol]	[Symbol]
RUNWAY OBJECT FREE AREA (ROFA)	[Symbol]	[Symbol]
TAXIWAY SAFETY AREA	[Symbol]	[Symbol]

LEGEND		
DESCRIPTION	EXISTING (E)	ULTIMATE (U)
APPROACH SURFACE	[Symbol]	[Symbol]
THRESHOLD LIGHTS	[Symbol]	[Symbol]
REIL	[Symbol]	[Symbol]
VASI / PAPI	[Symbol]	[Symbol]
TAXIWAY OBJECT FREE AREA (TOFA)	[Symbol]	[Symbol]
BUILDING RESTRICTION LINE (BRL)	[Symbol]	[Symbol]
THRESHOLD SITING SURFACE (TSS)	[Symbol]	[Symbol]
SECURITY FENCE / WILDLIFE FENCE	[Symbol]	[Symbol]
FENCE TO BE REMOVED	N/A	[Symbol]
PAVEMENT MARKING	[Symbol]	[Symbol]
PAVEMENT MARKING TO BE REMOVED	N/A	[Symbol]

LEGEND		
DESCRIPTION	EXISTING (E)	ULTIMATE (U)
AIRPORT REFERENCE POINT (ARP)	[Symbol]	[Symbol]
AIRPORT BEACON	[Symbol]	[Symbol]
WIND CONE / SEGMENTED CIRCLE	[Symbol]	[Symbol]
AIRCRAFT TIEDOWN	[Symbol]	[Symbol]
SECTION CORNER	[Symbol]	[Symbol]
AWOS	[Symbol]	[Symbol]
PACS / SACS	[Symbol]	[Symbol]
CONTOURS	[Symbol]	[Symbol]
WIND CONE	[Symbol]	[Symbol]
SELF-SERVICE FUEL	[Symbol]	[Symbol]
DRAINAGE CULVERT	[Symbol]	[Symbol]

FAA APPROVAL

CONDITIONALLY APPROVED Dec 15, 2020
Subject to letter dated:

FEDERAL AVIATION ADMINISTRATION
DENVER AIRPORTS DISTRICT OFFICE
Date: Dec 15, 2020 [Signature]

CASE NO. 2020-ANM-2512-NRA

SPONSOR APPROVAL

[Signature] Gary Suiter
Dec 14, 2020
City of Steamboat Springs Date

REVISIONS	DESCRIPTION	DATE	BY

SHEET INFO	KN	RT	J.H. LW	KN	12/2/20	12/2/20
DESIGNED						
DRAWN						
CHECKED						
APPROVED						
LAST EDIT						
PILOT DATE						

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STEAMBOAT SPRINGS AIRPORT
STEAMBOAT SPRINGS, COLORADO
AIRPORT LAYOUT PLAN
AIRPORT LAYOUT PLAN DRAWING

PROJECT	62139.01
DATE	12/2/20
© DOWL 2020	
SHEET	3
OF	10

Chapter 5

Airport Layout Plan

Steamboat Springs Airport
Bob Adams Field

MASTER PLAN



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Implementation Plan

The preceding chapters of the Steamboat Springs Airport Master Plan identified future facility needs based on existing conditions and projected demand, as well as FAA design standards. Chapter 4, Identification and Evaluation of Alternatives, outlined a comprehensive Preferred Alternative that includes projects needed to ensure the Airport continues to comply with FAA standards and recommendations, as well as projects to meet demand for aeronautical related services. These projects are allocated into time related phases based on need and anticipated demand levels.

The projects outlined in Chapter 4 are incorporated into the ALP in Chapter 5. Chapter 6 outlines the priority for project implementation by first addressing compliance issues and safety critical items and then delving into capacity and service enhancement projects for the airport. The proposed projects are separated into three distinct time periods: 5-year (near-term); 10-year (mid-term); and 20-year (long-term) development phases. The purpose of this implementation chapter is to update the Airport's existing FAA Airport Capital Improvement Plan (ACIP) to include the projects outlined in the Preferred Alternative. This chapter describes the phasing and financial implications of implementing the specific projects.

Overall, this chapter serves to:

- Update the ACIP to include those projects related to the Airport's new development plan; and
- Discuss the potential sources of funding for implementing the projects discussed in this chapter.

Many projects have interrelated components that must be identified and implemented in a coordinated manner for the project(s) to move forward. The first section of this chapter will discuss the required development sequence at the individual project level. The middle sections will present the specific projects

by near-term, mid-term, and long-term development phases and include funding options. Other potential strategic and non-aviation related projects are also discussed. The last section will describe the potential sources of funds for each project. Planning-level cost estimates are provided for each project in 2019 dollars.

6.1. Implementation Process

To complete each capital project, several specific steps are necessary. It is not unusual for FAA funded project coordination to begin up to four years before the facility/improvement is needed or required. This lead time is necessary to coordinate the funding, environmental documentation, design, as well as complete the actual construction. Below is a typical sequence of events necessary to complete an FAA eligible airport project.

Typical Steps Four Years Prior To Construction

- Identify the project in the approved ALP;
- Coordinate with FAA and CDOT to ensure project is included in the FAA ACIP;
- Validate project justification and funding eligibility;
- Determine probable level of Environmental Review (If an Environmental Impact Statement [EIS] is likely, planning may need to begin much earlier);
- Determine whether in-flight procedure modifications will be required; and
- Coordinate steps with local officials and airport users.

Typical Steps Three Years Prior To Construction

- Identify, plan and allocate local and state leverage funding sources;
- Determine if a Benefit/Cost Analysis is needed;
- Determine if Reimbursable Agreements may be necessary for navigational aids (NAVAIDs) or for FAA NPE funds with partner airports; and

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- Begin purchase or assembly of all necessary land for the project.

Typical Steps Two Years Prior To Construction

- Refine project scope and cost estimates;
- Initiate NAVAID and/or NPE Reimbursable Agreements in coordination with the FAA;
- Submit requests for new/modified flight procedures with the FAA;
- Initiate a request for Airspace review of project;
- Initiate and submit Benefit/Cost Analysis to FAA;
- Begin FAA grant application process
- Begin project Environmental Assessment or submit Categorical Exclusion documentation for FAA review and funding; and
- Coordinate with local officials and airport users on refined project scope and schedule.

Typical Steps One Year Prior To Construction

- Ensure completion of airspace study;
- Complete significant environmental documentation;
- For design related projects, initiate and complete 90% design, plans, and specifications after FAA environmental findings are concluded;
- Execute reimbursable agreements to support NAVAIDs, if relevant;
- Prepare and coordinate Construction Safety Phasing Plan;
- Secure all necessary local, state and NPE partner airport funding;
- Secure environmental and other necessary permits;
- Submit Benefit/Cost Analysis;
- Coordinate Safety Risk Management Panel with FAA-Air Traffic Organization (ATO)

or FAA - Office of the Associate Administrator of Airports (ARP), as necessary; and

- Finalize construction bidding, grant application and acceptance schedules.

Year of Construction

- Complete 100% design, plans, and specifications;
- Complete FAA Environmental documentation for current fiscal year;
- Advertise and secure bids according to acceptance schedules;
- Accept Federal grants;
- Coordinate with local officials and airport users on the progress and schedule;
- Issue notice-to-proceed; and
- Monitor environmental mitigation requirements during construction.

After Construction

- Submit final report and close any accepted Federal grants;
- Monitor environmental mitigation measures; and
- Update ALP drawing set.

6.1.1. Land Use and Zoning Regulations

The City of Steamboat Springs has implemented zoning protections for the airport recommended through the master plan process. As a City, a primary goal of Steamboat Springs is to protect the public health, safety and general welfare of the residents. In support of these goals, the City adopted zoning ordinances around the Airport that establish height limitations, compatible land use zones, nonconforming uses, marking and lighting standards, and required certificates. These actions completed by the City aim to protect the municipality and its residents from potential liabilities, preserve federal grant monies, and help manage development around the Airport. The desire to create these regulations is a



testament to the desire of the City of Steamboat Springs to protect their valuable airport asset.

The Airport Overlay Zone is broken into four subzones: Subzone A: Airport Influence Area, Subzone B: Traffic Pattern Area, Subzone C: Approach Area, and Subzone D: Runway Protection Area. Each zone is depicted in the Airport Overlay Zone Map included as **Appendix D**. Each overlay zone is applied in addition to the standards of the underlying zone district. The Airport Overlay Zone will require aviation easements and aircraft overflight disclosures for certain types of new development. Additional information regarding the City's zoning regulations is available on the City's website.

6.1.2. Environmental Considerations

The environmental process for projects within each development phase will need to be completed in advance of the design and construction to allow for project completion in accordance with applicable Federal rules and regulations. A five-year developmental Environmental Assessment (EA) may be appropriate to analyze the potential environmental consequences associated with the proposed action prior to construction beginning. A categorical exclusion (CE) may also be deemed acceptable for analyzing environmental impacts.

FAA Order 1050.1F, Policies and Procedures for Considering Environmental Impacts, and 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airports, require the evaluation of airport development projects as they relate to specific environmental impact categories. A complete evaluation of the impact categories identified in FAA Orders 1050.1E and 5050.4B is required during an EA. It is possible that an EIS is deemed necessary as part of the EA process. An EIS is a complex, multi-level environmental assessment that may take years to complete. A CE is typically submitted in lieu of completing an EA in support of projects typically causing minimal environmental effects. If approved by the FAA, it allows for the project to proceed without the need for a costly EA.

It is not anticipated that any substantial environmental concerns would arise from any of the identified near-term development projects and a CE will be sufficient for evaluating the environmental impacts. Environmental consideration will likely be required for the new parallel taxiway, South Hangar Development area, long-term self-service fuel location, and runway extensions proposed in this Master Plan. All these projects are mid-term to long-term development projects which would occur more than 5 years from the completion of this study. In preparing for implementation of all projects, discussion with FAA environmental staff should take place to determine the best course of action for environmental processes.

6.1.3. Project Responsibilities

FAA AIP eligible airport projects are closely coordinated with the FAA to ensure compliance with all planning, design and environmental standards. Steamboat Springs Airport representatives are responsible for project justifications and working closely with the FAA and the Colorado Department of Transportation (CDOT) Division of Aeronautics staff to secure funding and identifying any necessary environmental processes and documentation. Steamboat Springs is also responsible for submitting grant applications to the CDOT Division of Aeronautics and the FAA, issuing project bid advertisements for project planning, environmental analysis, design and construction as well as all materials and documentation required by local, state and federal agencies in support of the project. To assist with these efforts, Steamboat Springs should obtain the support of a qualified consultant as part of the individual project effort or as part of a multi-year retainer for services. To ensure FAA compliance with AIP eligibility and existing grant assurances, Steamboat Springs will need to select a consultant in accordance with FAA Advisory Circular standards. Once FAA AIP money is accepted, Steamboat Springs must comply with all FAA and CDOT grant assurance standards.

6.2. Airport Capital Improvement Plan

This section presents the various projects recommended to be included into the ACIP, broken into near-term, mid-term, and long-term development phases. The current ACIP reflects recommendations from this Master Plan. Changes recommended to the ACIP are reflective of the information contained within this Master Planning effort and the Preferred Alternative. These projects range in total cost widely, from million dollars plus infrastructure improvement and maintenance projects to much smaller elements costing far less.

The recommended projects presented in this chapter can be directly correlated to those projects outlined in the Preferred Alternative, illustrated in **Figure 4.27**. The following subsections provide in-depth detail of each project included in the recommended ACIP. Planning-level cost estimates are provided for each of these specific projects. Approximate cost estimates for the anticipated projects have been developed utilizing estimated quantities for the major work items (e.g. asphalt, base course, earth work, and associated electrical items), including a 30% contingency factor to account for unforeseen conditions and additional work that may present itself through design. Consultant services (planning, engineering design, construction phase and contract administration services) are added in at 15%. Safety, FAA compliance and identified facility requirements are the primary factors that determine the type of projects included in the Preferred Alternative. As expected, safety is a critical component for project selection and timing. The proposed timing for projects included in the recommended ACIP is also based on cost to benefit considerations and budget constraints while always considering safety and compliance.

Each project will require an environmental review, most likely leading to a Categorical Exclusion (CATEX). Ensuring that the project will not

negatively impact the environment is of high importance, and crucial in sustaining the future of the developable land.

6.2.1. Near-Term Development Projects

Near-term (Federal Fiscal Year) 2020 – 2024 capital improvements include those development items that are expected to begin within the next five years (see **Figure 6.1**). **Table 6.1** outlines the near-term capital projects which are recommended to be included in the ACIP. Each of the near-term projects is also described in detail, including project description, costs and justifications.

The Airport has limited flat ground available for development. The Master Plan prioritized areas for fill starting with the south hangar development area. All fill locations must be approved through the environmental planning process.

Phase I – Near-Term (1-5 Years)

Table 6.1: Phase I – Near-Term (0-5 Years)

Year	Project	Funding Source				Total Project Cost	Minimum Required	
		FAA AIP (90%)		State Aeronautics (0%-5%)	Private Development			Local Funding
		Entitlement	FAA State Apportionment					
2020	CATEX for Terminal Hangar Area, Helicopter Parking Apron, SRE Building Location, & Runway Rehab Projects	\$ -	\$ -	\$ -	\$ -	\$6,180	\$6,180	X
2020	Runway Maintenance (Repainting)	\$ -	\$ -	\$40,000	\$ -	\$5,000	\$45,000	X
2021	Fuel Canopy Relocation (Design)	\$ -	\$ -	\$ -	\$ -	\$10,000	\$10,000	X
2021	Construction of Terminal Hangar Development Area with Fence & Gate Relocation	\$ -	\$ -	\$ -	\$3,663,332	\$ -	\$3,663,332	
2021	Fuel Canopy Relocation (Construction)	\$ -	\$ -	\$ -	\$ -	\$80,000	\$80,000	X
2021	Runway 14/32 Rehabilitation, Connector Taxiway, and Taxilane P Design	\$150,000	\$ -	\$308,333	\$ -	\$41,667	\$500,000 ¹	X
2022	Runway 14/32 Rehabilitation, Connector Taxiway, and Taxilane P Construction	\$600,000	\$4,000,000	\$650,000	\$ -	\$305,557	\$5,865,845 ²	X
2023	No Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
2024	Self-Serve Fuel Station on Existing Ramp	\$ -	\$ -	\$ -	\$ -	\$181,352	\$181,352	
2024	Helicopter Parking Apron Grading with Access Gravel Road (Phase 1)	\$ -	\$ -	\$ -	\$485,995	\$ -	\$485,995	
2024	Pavement Rehabilitation – Seal Coat & Markings	\$300,000	\$ -	\$16,666	\$ -	\$16,666	\$333,333	X

Phase I Near-Term Development Footnotes: 1. CDOT will fund an overmatch for design in FY22. The City will need to utilize entitlements only to complete design. Any cost over \$333,333 can be moved into a Phase II design project under the construction grant or can be fronted by the City and reimbursed in FY22. 2. FY22 Runway Rehabilitation project funding available is just over \$5.5 million with an estimated cost of \$5.8 million. The project scope will need to be scaled accordingly at the time of design and bidding to match available funds.

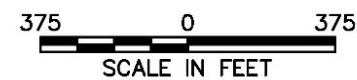
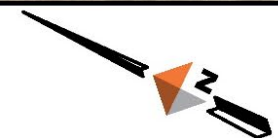
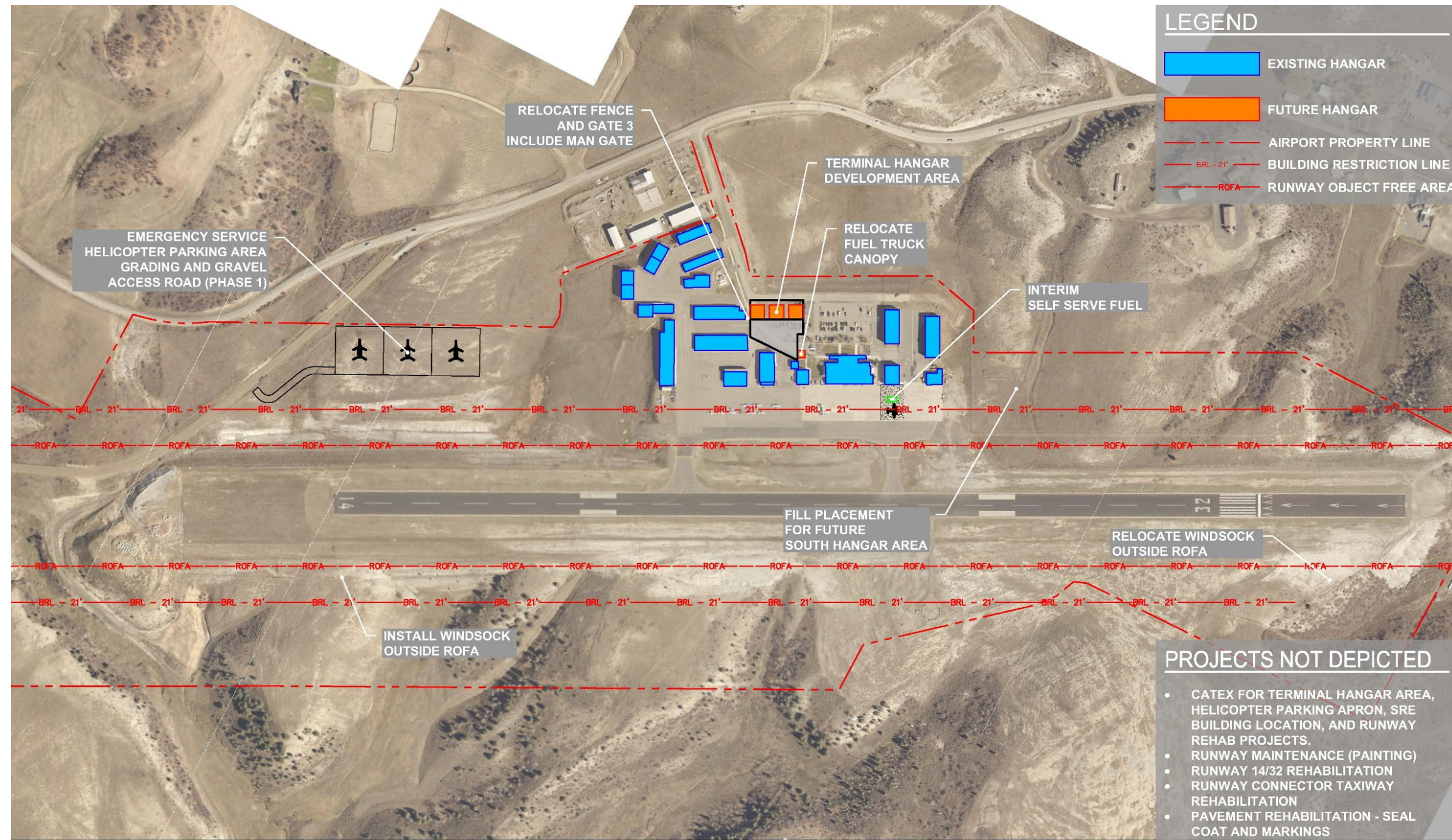
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Figure 6.1: Phase I – Near-Term (0-5 Years)



NEAR-TERM (0-5 YEARS) DEVELOPMENT PROJECTS

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Near-Term Project Descriptions

Near-Term Projects Include:

- **Environmental Planning.** A CatEx for near term projects including fuel canopy relocation and terminal hangar development area, helicopter parking, Runway 14/32 rehabilitation, and fill for the south hangar development area phase I.
- **Improved Approach.** Now that the AGIS study has been completed and approved by the FAA the Airport can request a review of existing approaches. Improved approaches may be possible. The Airport should submit a written request to the FAA for the existing approaches to be reviewed.
- **Runway Maintenance.** In concurrence with the CDOT Division of Aeronautics, the runway markings will be reapplied. The markings are worn due to frequent snow removal operations and normal traffic wear. The markings will be repainted to provide adequate visual references for the pilots until the time the runway is rehabilitated.
- **Runway 14/32 Rehabilitation, South Windcone Relocation, Runway Connector Rehabilitation, and Taxilane P Rehabilitation.** Runway 14/32 is scheduled to be rehabilitated as the existing pavement has reached its useful life. During the rehabilitation of the runway, the south windcone will be relocated out of the Runway Object Free Area (ROFA) to correct an existing compliance issue and a new windcone added on the north end. Runway lighting will be replaced, and the beacon relocated. The PAPI will also be replaced, allowing it to be properly aligned. The rehabilitation of the runway will provide a renewed life to the runway

pavement that will serve the airport for years to come. The FAA will fund a rehabilitation project for the runway at the current width of 100'. Future reconstruction projects will be eligible for funding for the design standard of a B-II runway, which is 75'. The Airport and City will need to determine in the future how reconstruction of the additional 25' will be funded when it is required.

The north taxiway connector (Taxiway B) pavement is planned to be rehabilitated during the runway rehabilitation project. If funds are available the project will also fund rehabilitation of part of Taxilane P. Funding for the connector will be a joint effort between FAA and CDOT. FAA will fund from the runway to the hold line and CDOT will fund from the hold line to the apron and Taxilane P in a state only grant.

- **Fuel Canopy Relocation.** The relocation of the fuel canopy to a position that is 50 feet from the FBO will rectify a compliance issue that currently exists, provide a concrete parking pad and have necessary secondary containment. In addition, the relocation will provide an opportunity to place the fuel canopy in such a way that it is in line with the existing FBO. The setback will maximize the future taxilane between the Corporate Hangars and the FBO, for future hangars in the terminal development area.
- **Emergency Service Helicopter Parking Apron Grading with Access Gravel Road (Phase 1).** An area for specific use of helicopters is provided through the development of the separate dedicated helicopter parking and staging areas north of the terminal apron. This area is advantageous as it is a lower elevation than the terminal ramp and would require

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excessive fill to be used for any other purpose. This helicopter parking apron will greatly expand the usability of the Steamboat Springs Airport for rotor operations especially during firefighting operations. This will help to better separate air traffic on and near ramps and minimize inadvertent issues with blowing foreign object debris (FOD) from helicopter operations. In addition to the separate helicopter parking and staging areas, the expansion of the apron area will allow for more efficient use of the current ramp area.

- **Construction of Terminal Hangar Development Area with Fence and Gate Relocation.** With the limited space for buildable area around the terminal area, an expansion to the East will provide growth opportunities. A buildable area of 80'x200' is developable in the area where a gravel parking lot currently exists. The fence and gate will need to be relocated and pavement matched up to existing pavement for aircraft access.
- **Self Service Fuel Station on Existing Ramp.** In order to increase revenue, reduce staffing demand, and provide exceptional service to the users of SBS, self-service fuel will be phased onto the airport. A 100LL tank and card reader will be installed on the existing concrete ramp to utilize existing paved surfaces. When expansion occurs to the south, the self-serve fuel tank will be relocated to a permanent location. For cost savings the City should explore options of a mobile unit which can be easily relocated or placing conduit above ground for utilities on the apron to prevent the need to cut into the existing concrete apron.

- **Pavement Maintenance .** Maintaining existing surfaces is of the upmost importance for every airport. Pavement maintenance is required to ensure the capital projects previously accomplished at the Airport are protected from premature deterioration. Preventative maintenance enables pavements to provide for the most cost-effective benefit and maintain structure integrity. Maintenance items include periodic crack fill, sealing and spot maintenance. This type of maintenance is required as part of FAA grant assurances for at least 20 years after receiving FAA grant funds for a project. This project will provide for added life to the existing paved surfaces and be funded through CDOT.

6.2.2. Mid-Term Development Projects

Mid-term development improvements include projects that are within the second five-year planning period (2025-2029) (see **Figure 6.2**). **Table 6.2** outlines the mid-term capital projects which are recommended to be included in the ACIP. Each of the mid-term projects is also described in detail, including project description, costs and justifications. Environmental planning should be completed in conjunction with each project or at the beginning of the mid-term period to ensure compliance with NEPA.

The City should take advantage of any continued fill opportunities for the south hangar development area. The next highest priority for fill is the south taxiway turnaround, which is not expected to be funded by FAA as part of the project. This area of fill should be included in the next environmental planning project.

Phase II – Mid-Term (6-10 Years)

Table 6.2: Phase II – Mid-Term (6-10 Years)

Year	Project	Funding Source				Total Project Cost	Minimum Required	
		FAA AIP (90%)		State Aeronautics (0%-5%)	Private Development			Local Funding
		Entitlement	FAA State Apportionment					
2025	No Project	\$ -	\$ -	\$ -	\$ -	\$ -		
2026	Concrete Apron Rehabilitation & Asphalt Surface Sealcoat & Markings	\$300,000	\$ -	\$429,849	\$ -	\$62,576	\$792,4253	X
2027	No Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
2028	Pavement Maintenance	\$300,000	\$ -	\$16,666	\$ -	\$16,668	\$333,334	X
2029	No Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
2030	No Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	

Phase II Mid-Term Development Footnotes: The City should request a CDOT only grant to provide additional funds for the concrete apron rehabilitation.

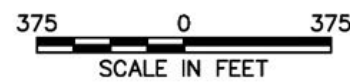
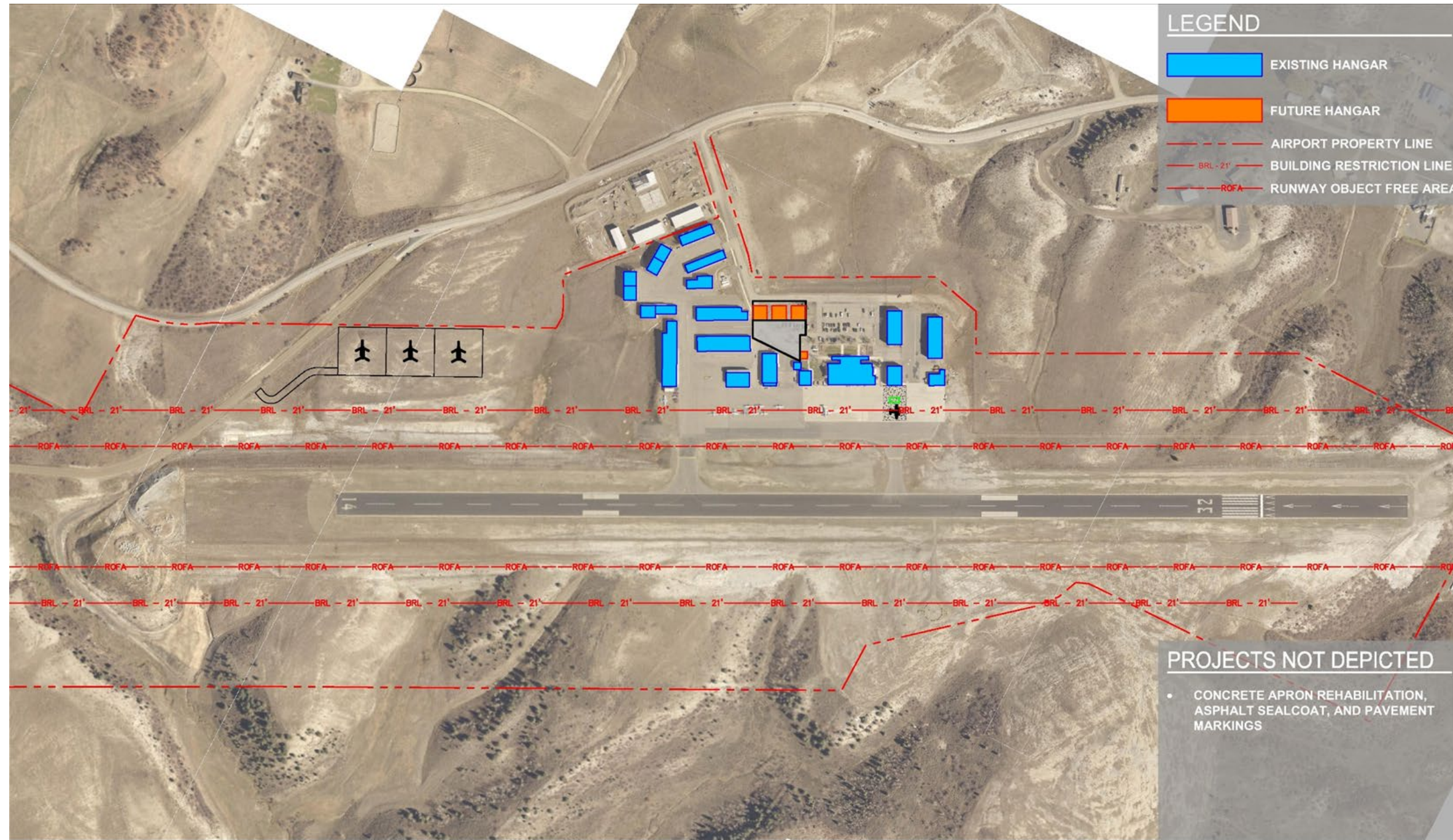
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Figure 6.2: Phase II – Mid-Term (6-10 Years)



MID-TERM (6-10 YEARS) DEVELOPMENT PROJECTS

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Mid-Term Project Descriptions

Mid-Term projects include:

- **Concrete Apron & Pavement Maintenance.** The concrete apron will be rehabilitated, and a sealcoat applied to the existing asphalt apron. These projects will provide rejuvenation to the existing surfaces allowing for the extended useful life of each area of the apron.
- **Pavement Maintenance.** Regular maintenance of existing surfaces is of the utmost importance for every airport. Pavement maintenance is required to ensure the capital projects previously accomplished at the Airport are protected from premature deterioration. Preventative maintenance enables pavements to provide for the most cost-effective benefit and maintain structure integrity. Maintenance items include periodic crack fill, sealing and spot maintenance. This type of maintenance is required as part of FAA grant assurances for at least 20 years after receiving FAA grant funds for a project.

6.2.3. Long-Term Development Projects

Long-term development improvements include those projects that are further out than 10 years as illustrated in **Table 6.3** and **Figure 6.3**. These projects are all planned for the ultimate development of the airport beyond the near or mid-term planning period.

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Phase III – Long-Term

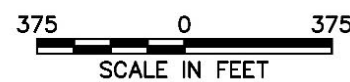
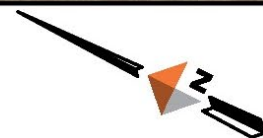
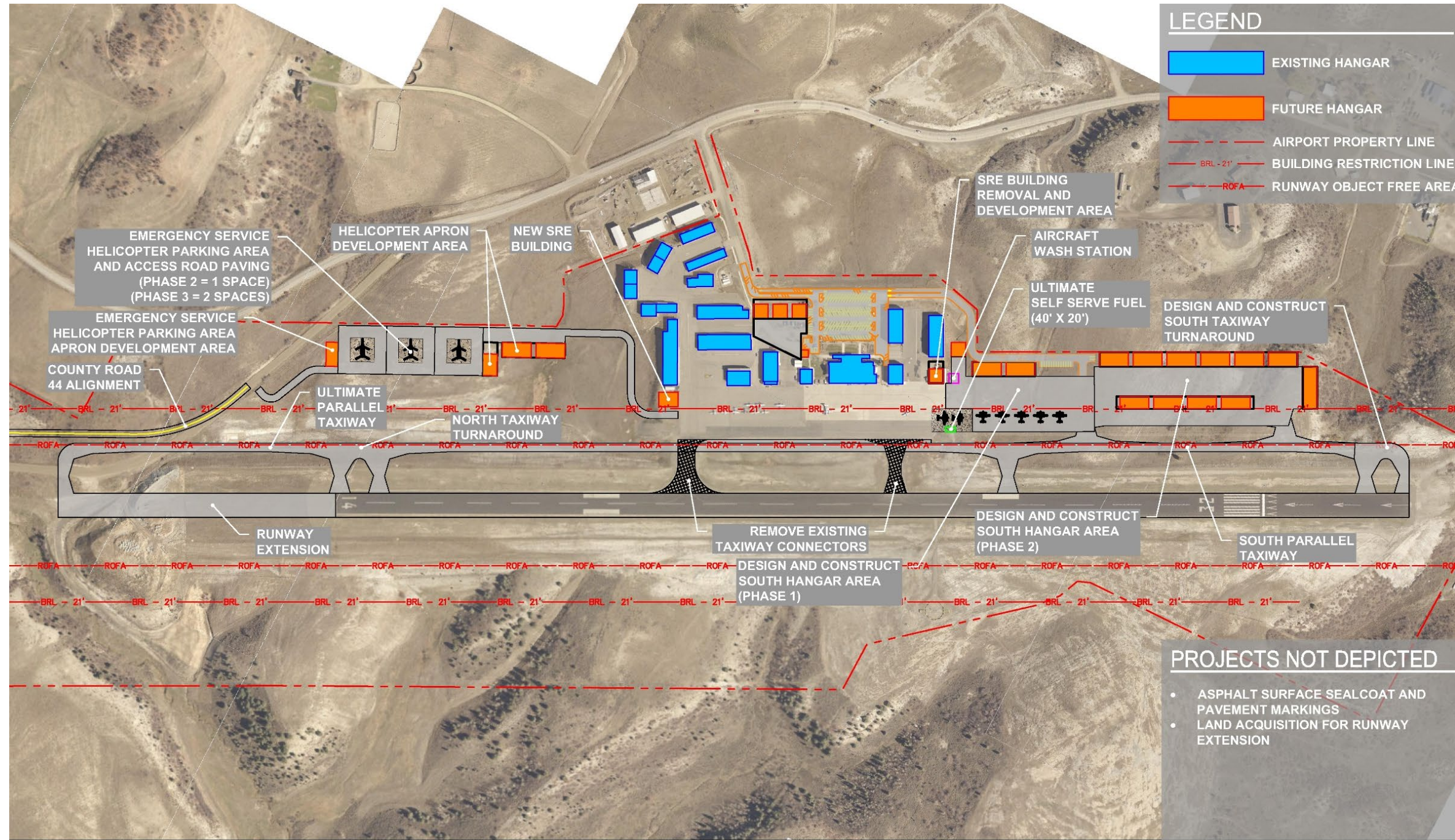
Table 6.3: Phase III – Long Term

Project	Funding Source				Total Project Cost	Minimum Requirement	
	FAA AIP (90%)		State Aeronautics (0%-5%)	Private Development			Local Funding
	Entitlement	FAA State Apportionment					
Design of South Taxiway Turn Around for Runway 32	\$300,000	\$ -	\$16,666	\$ -	\$16,666	\$333,332	
Design Phase 2 of Hangars & Construction of South Taxiway Turn Around for Runway 32	\$150,000	\$ -	\$250,000	\$ -	\$5,960,082	\$6,360,082	
Phase I of South Hangar Development Area	\$ -	\$ -	\$ -	\$25,952,415	\$ -	\$25,952,415	
Aircraft Wash Station	\$111,105	\$ -	\$6,172	\$ -	\$6,172	\$123,450	
Self Service Fuel Farm Relocation	\$ -	\$ -	\$ -	\$ -	\$914,275	\$914,275	
Asphalt Surface Sealcoat & Markings	\$150,000	\$1,219,920	\$76,107	\$ -	\$76,107	\$1,522,134	X
Emergency Service Helicopter Parking Apron Paving (1 Spot – Phase 2)	\$150,000	\$ -	\$159,931	\$2,888,696	\$ -	\$3,198,627	
Construction of New SRE Building	\$ -	\$ -	\$1,741,631	\$ -	\$193,515	\$1,935,146	
Emergency Service Helicopter Parking Apron (2 Spots – Phase 3)	\$300,000	\$ -	\$237,989	\$4,221,792	\$ -	\$4,759,781	
Construction of Partial Parallel TWY to the South & North Turnaround	\$300,000	\$ -	\$250,000	\$ -	\$27,518,326	\$28,068,326	
Construction of Phase 2 South Hangar Development Area	\$450,000	\$ -	\$250,000	\$52,081,723	\$ -	\$52,781,723	
Construct Runway Extension	\$ -	\$ -	\$ -	\$ -	\$139,436,931	\$139,436,931	
Construct Ultimate Parallel Taxiway	\$ -	\$ -	\$ -	\$ -	\$47,759,569	\$47,759,569	



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Figure 6.3: Phase III – Long-Term



LONG-TERM (11-20+ YEARS) DEVELOPMENT PROJECTS



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Long-Term Project Descriptions

Long-Term projects are planned for outside of the initial near and mid-term planning period in order to establish a development goal for the airport in the years to come. It is imperative to plan for the full development of the airport to ensure protections are put into place for all future anticipated development, even though some projects may fall outside of the current planning period. Fill material is essential to the ultimate development of the airport, and the costs associated with much of the long-term development are primarily due to the cost of fill material. The City can solicit fill from projects off airport to reduce costs and enable long-term projects to be financially feasible. Fill should be prioritized for the taxiway turnaround, partial parallel, and then for a future runway extension. Long-term projects in this ultimate planning period include:

- **Pavement Maintenance.** Regular maintenance of existing surfaces is of the upmost importance for every airport. Pavement maintenance is required to ensure the capital projects previously accomplished at the Airport are protected from premature deterioration. Preventative maintenance enables pavements to provide for the most cost-effective benefit and maintain structure integrity. Maintenance items include periodic crack fill, sealing and spot maintenance. This type of maintenance is required as part of FAA grant assurances for at least 20 years after receiving FAA grant funds for a project. This project will provide for added life to the existing paved surfaces and will be funded by CDOT.
- **South Taxiway Turn Around for Runway 32.** Current operations at the airport require aircraft to taxi back and turn around on the runway for departure and after landing. A turnaround on the south end of the runway will allow for aircraft to

exit the active runway after they have back taxied on the runway. This turnaround will provide an area for the users to perform their runups and final checks prior to departure while not sitting on the active runway, providing room for other aircraft to land and enhancing safety.

- **Phase I of the South Hangar Development Area.** Developable flat land at the Airport is limited and currently in use or planned to be. The next area anticipated for development will be to the south of the existing ramp. This area will require fill to ensure compliance is met with grades but is less fill than what would be required on the north end. Phase I will provide for additional apron space, buildable areas, parking, gated access, and service areas (aircraft wash station, self-service fuel).
- **Aircraft Wash Station.** To prevent contaminants, such as oils and fuels, from entering the ground water system, construction of a designated aircraft wash station will provide for proper collection and disposal of contaminants from aircraft. Construction will consist of a designated wash pad, water supply, and drainage collection point that will connect to the City's waste water collection system. This project will provide continued environmental stewardship and a service available to local and transient aircraft operators.
- **Self-Service Fuel Farm Relocation.** The self-service 100LL fuel system will be relocated towards the south edge of the existing ramp and the north portion of Phase 1 of the South Hangar Development Area. The 100LL tank and card reader will be installed on a new concrete ramp for optimal operations and to provide for



greater parking ramp space and be in a centralized location for local and transient aircraft as development continues to the South. The opportunity to expand the self-service fuel to include Jet A may be explored as a part of this project.

- **Emergency Service Helicopter Parking Apron Paving (1 Spot – Phase 2).** As demand warrants, paving of the apron will occur in subsequent phases to fully develop the helicopter apron. One parking spot will be constructed to provide a paved surface capable of handling the weight of heavy helicopters. This project will further enhance the helicopter apron and its capabilities for all weather situations.
- **Construction of New SRE Building and Removal of Existing SRE Building.** The existing snow removal equipment (SRE) building is in a prime hangar location, and the current building is nearing its useful life. The existing building is in a prime location on the apron and best use of the space would be for aircraft storage either for a transient hangar or corporate style hangar. A location found to be suitable for an SRE building is located on the north end of the Apron, which would have a height restriction (BRL of 21') that would not be suitable for a corporate style hangar, but adequate for an SRE building. To ensure the equipment is housed and protected from the elements a pole barn style structure can be erected in the proposed location for the SRE equipment which would reduce overall project costs.
- **Emergency Service Helicopter Parking Apron (2 Spots – Phase 3).** As demand warrants, Phase 3 of the helicopter parking apron will complete the paving of all helicopter parking spaces. This area will

allow for functional operating areas for fire crews and emergency service providers who utilize helicopters in their operations and allow existing ramp space to be utilized by based and transient aircraft.

- **Construction of Partial Parallel Taxiway to the South and North Turnaround.** To increase safety a partial parallel taxiway is planned to be constructed from the existing ramp south to Runway 32. This will eliminate the need to back taxi the runway when taking off to the north, which is the most common departure direction. A turnaround on the north end of the runway (Runway 14) will provide an area for aircraft to taxi off the active runway to turn around prior to, or immediately after, back taxiing the runway. This project will require significant fill to ensure compliant slopes are achieved due to the terrain.
- **Construction of Phase 2 South Hangar Development Area.** Development to the south will continue as Phase 2 will expand the buildable area to accommodate the forecasted future growth in the planning period. Significant fill will be required due to terrain, but not as much fill as would be required to the north of the existing ramp. Hangars are very important due to the winter elements and snow events, and buildable area will be necessary once Phase 1 of the South Hangar Development Area is complete and all existing buildable locations are full.
- **County Road 44 Realignment.** In order to extend the runway, County Road 44 will need to be realigned to ensure that they road does not pass through the RPZ or Runway Safety Area. Realignment is anticipated to be completed on airport property which will place the road in an

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alternate location, providing access to those who use the road, and development of the airport.

- **Construct Runway Extension and Ultimate Parallel Taxiway.** To better meet the needs of the existing and forecast aircraft fleet mix at the Steamboat Springs Airport, the preferred alternative includes a long-term future extension of the existing runway to 5,000 feet plus a 600-foot displaced threshold. A 1,178-foot runway extension would allow aircraft with a 5,000-foot runway insurance requirement to operate in compliance to and from SBS. Lengthening the runway will provide full utilization of the airport property available as well.

As described within Chapter 3 “Facility Requirements” the FAA places a high emphasis upon the safety of dynamic aircraft movements, especially to avoid inadvertent runway incursions. A full parallel taxiway is a safety element that the FAA highly desires for an airport such as Steamboat Springs and will be constructed parallel and to the east of Runway 14/32. The depicted preferred alternative taxiway is compliant with all B-II separation standards. The physical terrain of the airport may prohibit or necessitate the need for an alternate design or modified full parallel taxiway. A full parallel taxiway at the Steamboat Springs Airport is possible, but will require large amounts of fill and significant capital investment.

6.3. Sources of Capital Funding

The Steamboat Springs Airport is eligible to receive funding from various sources, including the FAA Airport Improvement Program (AIP), CDOT Division of Aeronautics grants, airport/local funds,

and local City match funding. It is anticipated that the projects listed within the recommended ACIP would be funded through a combination of these funding sources, as detailed below.

6.3.1. Federal Funding

The FAA AIP program allows eligible airport sponsors to apply for grants to assist with funding for eligible airport planning, engineering and construction related projects. To be eligible, airport sponsors must be included within the FAA National Plan of Integrated Airport Systems (NPIAS), a system the Steamboat Springs Airport is a part of. The NPIAS ensures that only those airports that meet certain minimum qualifications are eligible for Federal funding. FAA AIP funds are supplied by the Federal Airport and Airway Trust Fund, authorized by Congress. Nearly all these trust funds are generated by aviation user fees, such as airline ticket taxes and other federal aviation related taxes that benefit all NPIAS airports. Many types of planning and construction projects are eligible for funding through FAA AIP grants, including: master planning, ALP updates, land acquisition, noise mitigation, airfield improvements, airport roadways, public areas of terminal building projects, safety and security systems, planning, environmental, and equipment. Steamboat Springs Airport is eligible to receive reimbursement up to 90% of eligible costs associated with planning and development projects through the FAA AIP program. The remaining 10% of costs is the responsibility of the sponsor, however, the CDOT Division of Aeronautics will allow for sponsors to apply for state cost sharing of this remaining 10%, that will cover up to 5% of the match required.

As part of the inclusion of an airport within the NPIAS, every airport that is non-commercial or has less than 10,000 commercial enplanements per year, (non-primary), is eligible to receive up to \$150,000 in AIP programmed entitlement grant allocations annually if the ACIP reflects a minimum need for that amount. These funds are called Non-Primary Entitlement Funds (NPEs). As a non-primary general



aviation airport, the Steamboat Springs Airport qualifies for these entitlements.

6.3.2. State Funding

The CDOT Division of Aeronautics grant program provides funding to eligible airports and aviation facilities throughout Colorado. Any airport or facility that is public-use is eligible to apply for these specific grants. The Steamboat Springs Airport is categorized as a public-use airport. Typical projects include pavement maintenance, rehabilitation and construction; lighting; communications; terminal or pilot lounge construction; fuel systems and many other items.

The CDOT Division of Aeronautics grants are intended to provide funding for up to half of the airport's share of federally funded airport project costs, or up to 90% of the total airport's costs for non-federally funded projects. Historically the grants are primarily funded by a \$.06 per gallon excise tax on general aviation Avgas fuel, 4% excise tax on non-airline use of Jet-A, and a 2.9% sales tax on all jet fuel sold. The Aeronautics Division returns 67% of the fuel tax money to the airport of origin as an annual entitlement, and 30% is dispersed through maintenance, equipment and developmental grants for Colorado's public use airports. The remaining 3% of the aviation fuel tax collections are used for administrative purposes by the Division of Aeronautics.

In addition to state grants, all NPIAS airports are eligible to apply for other types of AIP grant funds through the State, such as state apportionment and discretionary grants, which are administered by CDOT Division of Aeronautics. Unlike NPE funds, these funds are administered and granted on a competitive basis.

6.3.3. Low Interest Loans

The State Infrastructure Bank (SIB) Loan Program is supported by the Colorado Transportation Commission and assists in funding airports and other transportation facilities through low interest loans.

The SIB revolving loan program was adopted in 1999 and has been an asset to airport development in the state of Colorado. The interest rate is set annually and is equal to or less than the market rate. This loan program is open to all airports that have the ability to repay the loan amount.

6.3.4. Local Funding

The Steamboat Springs Airport generates a commendable amount of revenue each year from leases and through services and fuel sales by the City-owned FBO. The Airport's fuel sales include general aviation fuel (100LL) and Jet fuel (Jet-A) sold through the Airport's fuel trucks when requested. The Airport receives revenue from leasing airport owned buildings for aeronautical and non-aeronautical activities. Additional revenues are also generated from ground leases on which tenants have built privately owned hangars. All revenues are used to help offset the Airport's operational and maintenance expenses. Any remaining funds in reserve are eventually used to help pay for the required local share of airport capital and maintenance projects.

6.3.5. Private Funding

In addition to the more traditional sources of airport capital funds listed above, other potential capital contributors include airport tenants, users, and investors. Airport tenants often construct their own hangar facilities. In addition, many airport sponsors will utilize private third-party financing when the planned improvements will be primarily used by a private businesses or other organizations. Projects such as these are not ordinarily eligible or may have very low priority for federal funding. In response to possible shortages of public capital, as well as the desire of investors to seek more innovative uses for their funds, it is becoming more commonplace to see airports using more non-traditional funding for capital projects. There has been some interest within the community to establish an Airport Endowment Fund, where interested parties can donate money to the Airport for specific project development. The City should explore establishing the fund for projects

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not likely to be funded by the FAA such as areas of fill, self-service fuel, wash station, and the runway extension. Private development is anticipated to contribute close to \$90 million dollars over the planning horizon.

6.4. Capital Improvement Plan Summary

Based on the identification of capital improvement projects for the Steamboat Springs Airport total project costs for the recommended ACIP is more than \$300 million over the period described, including those projects expected to be funded privately. Less than \$10 million in projects are required over the 20-year planning horizon and much of the cost associated with these projects is expected to be eligible and funded at least 90% by the FAA and CDOT.

The following assumptions were necessary in the creation of the ACIP.

- The Airport will continue to receive \$150,000 in NPEs each year and state apportionment or discretionary monies for high-ranking projects such as the runway rehabilitation;
- Projects will be prioritized by CDOT Division of Aeronautics in conjunction with the FAA and funded at various levels from 5% to 95% depending on the individual project;
- The funding necessary to leverage project grant funds will be provided by a combination of local sources and other grant funds;
- Strategic opportunities are expected to be funded through a combination of FAA, CDOT Division of Aeronautics grants, local, other grant funds, and private developers.

