

Yellowstone Airport Winter Operations Narrative Report Inventory and Milestone Evaluation May 2023



TABLE OF CONTENTS

	Executive Summary	
1.1	Introduction.....	1-1
1.2	Sponsor of Focus.....	1-1
1.3	Airport Facilities and Equipment.....	1-2
	Airport Setting and Environs.....	1-2
1.4	Airspace and Approach Data.....	1-10
	Airspace Structure.....	1-11
	Navigational Aids.....	1-11
	Instrument Approaches.....	1-11
	Air Traffic Control Facilities.....	1-11
1.5	Seasonal Climate and Weather Trends.....	1-18
	Climate and Geography.....	1-18
1.6	Airport Operational Data.....	1-21
	Clearance Priorities.....	1-21
	Clearance Times.....	1-23
	Snow Removal Equipment (SRE).....	1-24
1.7	Comparable Winter Operations.....	1-24
	Afton-Lincoln County Municipal Airport, Afton, WY.....	1-25
	Nevada Automotive Test Center – NATC.....	1-26
	Jackson Hole Airport – Jackson, WY.....	1-28
1.8	Service Area Trends.....	1-29
	Local Demographics / Airport Service Area.....	1-29
1.9	Yellowstone Airport Activity and Trends.....	1-32
	Historical Operations.....	1-32
	Historical Based Aircraft.....	1-32
	Historical Enplaned Passengers.....	1-33
	Other Area Attractions & Increased Service Potential.....	1-39
1.10	Airport Budgets.....	1-40
1.11	Financial Resources.....	1-42
	Funding Sources.....	1-42
1.12	NEPA Environmental Considerations.....	1-45
1.13	Evaluation Milestone.....	1-46
	Operational Costs.....	1-46
1.14	Conclusion.....	1-52



TABLE OF FIGURES

Figure 1-1: Location Map.....	1-3
Figure 1-2: Gallatin County Growth Policy Land Use Diagram.....	1-4
Figure 1-3: Airport Layout.....	1-6
Figure 1-4: Terminal Area Plan 2015 Master Plan.....	1-8
Figure 1-5: Conceptual Terminal Area Layout.....	1-9
Figure 1-6: Airspace Classification.....	1-12
Figure 1-7: Sectional Chart.....	1-14
Figure 1-8: ILS Localizer Approach Plate.....	1-15
Figure 1-9: RNAV (GPS) RW 1 Approach Plate.....	1-16
Figure 1-10: RNAV (GPS) RW 19 Approach Plate.....	1-17
Figure 1-11: Yellowstone Airport – Priority Snow Removal Area(s).....	1-22
Figure 1-12: Annual Visitors Yellowstone National Park.....	1-30
Figure 1-13: Monthly Visitors Yellowstone National Park – West Gate.....	1-31
Figure 1-14: Annual Enplaned Passengers Yellowstone Airport.....	1-34
Figure 1-15: Monthly Enplaned Passengers Yellowstone Airport.....	1-35
Figure 1-16: Annual Growth Rate Comparison.....	1-36
Figure 1-17: Yellowstone Airport Flights Available.....	1-37
Figure 1-18: Yellowstone Airport Seats Available.....	1-38
Figure 1-19: Yellowstone Airport Load Factors.....	1-39

TABLE OF TABLES

Table 1-1: Existing Taxiway Data.....	1-5
Table 1-2: Existing Apron Areas.....	1-7
Table 1-3: Approach Minimums at Yellowstone Airport.....	1-13
Table 1-4: West Yellowstone Climate Data.....	1-18
Table 1-5: Average Monthly Snowfall.....	1-19
Table 1-6: Daily Climatological Data for West Yellowstone, MT – January 2020.....	1-19
Table 1-7: Daily Climatological Data for West Yellowstone, MT – February 2020.....	1-20
Table 1-8: Average Monthly Snowfall in Inches – Afton vs. West Yellowstone.....	1-25
Table 1-9: Average Monthly Snowfall in Inches – Jackson vs. West Yellowstone.....	1-28
Table 1-10: West Yellowstone Area Population.....	1-29
Table 1-11: Historic Populations – State of Montana, Gallatin County, and West Yellowstone.....	1-30
Table 1-12: Yellowstone Airport Operations.....	1-32
Table 1-13: Yellowstone Airport Based Aircraft.....	1-33
Table 1-14: Historic Revenues, Expenses and Cash Flow.....	1-41
Table 1-15: Additional FBO Income Estimated by YNP Winter Visitation Rate.....	1-49
Table 1-16: Organizational Advantages/Disadvantages to Extend or Year-Round Operations.....	1-50
Table 1-17: Sponsor Cost Impacts from Extended or Year-Round Operations.....	1-55

Executive Summary

This Winter Operations Narrative Report (WONR) for the Yellowstone Airport was prepared to evaluate the feasibility (potential benefits, requirements, and costs) of extending the airport's operating season into the winter months.

Several areas of focus were identified by the Montana Department of Transportation – Aeronautics Division (Sponsor) related to transitioning the Yellowstone Airport to year-round operations including:

- Snow removal operations – staffing and equipment
- Increased operational costs compared to likely benefits
- Potential to jeopardizing "Seasonal" status under the Airport Improvement Program and associated annual FAA grant funding
- NEPA environmental evaluation should season extend or go to year-round operations.

These areas are discussed and evaluated in the body of this document.

The scope of this Winter Operations Narrative Report (WONR) included an inventory of facilities, operational data, demographic trends and financial resources. Following the inventory, a "decision point" was established. The purpose of the decision point was to evaluate whether the inventory process identified issues that provided sufficient clarity to reach a decision on winter operations prior to initiating subsequent study scope elements.

The study's inventory phase identified the following issues which, when considered collectively, were determined to warrant concluding the study:

- **Immediate loss of revenue.** Approximately \$60,000 annually from existing winter ground operations leases by Nevada Automotive Test Center (NATC) and others would be lost immediately upon initiation of winter aeronautical operations.
- **Risk to entitlement grant funds.** If the commercial operating season is extended beyond 6 months and passenger enplanements drop below 10,000 annually, annual grant entitlement eligibility reduces from \$1 million annual primary entitlement to \$150,000 annual non-primary entitlement.
- **Significant operation & maintenance costs to implement winter snow removal operation.** Millions of dollars in equipment and equipment storage would be required, as well as hundreds of thousands of dollars in annual operational budgets for additional staffing & maintenance costs.
- **Apparent potential benefits are limited and highly speculative.** While a robust level of winter passenger traffic from commercial service could arguably support revenue to businesses such as rental car vendors, the FBO, and a restaurant, there is little evidence to suggest robust demand for airport use in the winter months. Factors challenging robust demand include, but are not limited to the area population reflects approximately 3,200 residents (some seasonal), the six months outside (November thru April) of the airport's operating season (May thru October) account for less than 4% of the overall total of



tourists accessing Yellowstone National Park through the West Yellowstone entrance, and the associated closure of many of the town of West Yellowstone business during the tourism off season.

For these reasons, the Sponsor determined not to pursue further evaluation of opening the Yellowstone Airport to winter aeronautical operations at this time.

1.1 Introduction

Yellowstone Airport (WYS), owned and operated by the Montana Department of Transportation (MDT) - Aeronautics Division, has, since its inception in 1965, not operated during winter months due to harsh weather conditions and lower aviation traffic demand. Currently, scheduled commercial operations are limited to five and a half months out of the year, from the beginning of May through mid-October. In addition to cessation of commercial operations, the airport is typically NOTAMd (Notice to Air Missions) closed to all traffic between November 15 and April 15. During this time, there is no snow removal, and there are no operating navigational aids. Aircraft wishing to land after the airport is NOTAMd closed require prior permission from MDT Aeronautics.

Combined interest on behalf of community stakeholders, airport business operators and users has identified the need to evaluate the feasibility of 1) extending the current operating season, or 2) year-round operations, to include winter months. While the commercial Essential Air Service (EAS) provider (SkyWest operating for Delta and United) has not indicated a desire to extend the operating season beyond the months of May thru October, their expanded service in recent years both in daily flights available and length of operating season may suggest potential interest in further extending operations. Previous planning recommendations including the Yellowstone Airport Market Analysis (2009), Airport Master Plan (2015), Jet Service Environmental Assessment (2015), and the Terminal Area Narrative Report (2020) have been prepared based on the assumption of seasonal operation. Extension of the operating season into the winter months has not recently been evaluated in a comprehensive manner. Future decision making related to seasonal operations at WYS requires a comprehensive and orderly review of likely outcomes that could be expected under different operating season scenarios. This Winter Operations Narrative Report (WONR) is prepared to evaluate the potential benefits, requirements, and costs of extending the operating season into the winter months.

1.2 Sponsor Areas of Focus

Several areas of focus have been identified by the sponsor related to transitioning the Yellowstone Airport to year-round operations. These areas will be discussed and evaluated in the body of this document:

- Snow removal operations – staffing and equipment
- Increased operational costs compared to likely benefits
- Potential to jeopardizing “Seasonal” status under the Airport Improvement Program and associated annual FAA grant funding
- NEPA environmental evaluation should season extend or go to year-round operations.

1.3 Airport Facilities and Equipment

This section presents an overview of present airport facilities and equipment, based aircraft, adjacent land uses, zoning laws and ordinances, and area wide planning efforts as pertinent to the evaluation of the airport's operational season.

Airport Setting and Environs

The Yellowstone Airport is located two miles north of the Town of West Yellowstone in southwest, just west of the Wyoming border and Yellowstone National Park's western entry. It is the closest Park entrance to Old Faithful and Yellowstone's geyser areas. US Highway 191 connects West Yellowstone with Interstate 90 in Bozeman, 115 miles to the north. US Highway 20 connects West Yellowstone with Interstate 15 and Idaho Falls, 110 miles to the south. Salt Lake City is 320 road miles to the south. West Yellowstone has a very small resident population with a town population of approximately 1,376 and approximately 4,000 people residing within a 45-minute drive. Area resident population increases significantly in the summer with the annual influx of second homeowners, seasonal employees, and tourists. West Yellowstone provides lodging, tours, and shopping for visitors to Yellowstone National Park and offers a base for a variety of recreational activities in the region. Delta and United provide scheduled passenger service to the area through Sky West Airlines in the 2022 season, with non-stop service to Salt Lake City and Denver. The location of the Airport in its local and regional setting is depicted in **Figure 1-1**, on the following page.

The Yellowstone Airport is surrounded by a vast area of land that is owned by the United States Forest Service, largely disturbed by logging in the 1960's.

Residential and commercial development associated with the Town of West Yellowstone lies approximately three quarters of a mile southeast of airport property. These areas are not aligned with the approach to Runway 1-19. While the Town does not have airport zoning, the land use surrounding the airport is identified on Gallatin County's Growth Policy Land Use Diagram as public lands (see **Figure 1-2**). The County Growth Policy does not anticipate or encourage development on lands so designated.

Neither Gallatin County nor the Town of West Yellowstone has adopted a specific height hazard zoning ordinance for the airport. However, the Town of West Yellowstone zoning code does not allow structures exceeding 50 feet, in any of its zoning districts. This effectively restricts structure heights in the Town limits to well under the Part 77 horizontal surface for the Yellowstone Airport. Land outside the corporate boundaries of the Town of West Yellowstone is US Forest Service and National Park Service land and, thus, is not subject to development.

The Town of West Yellowstone operates two sewage treatment lagoons on airport property in the approach to Runway 1. Wastewater treatment facilities can serve as attractants for wildlife, particularly birds, increasing the potential for wildlife strikes. The Yellowstone Airport has completed a Wildlife Hazard Assessment and Wildlife Hazard Management Plan which assesses the degree of wildlife attraction and recommended mitigation strategies.

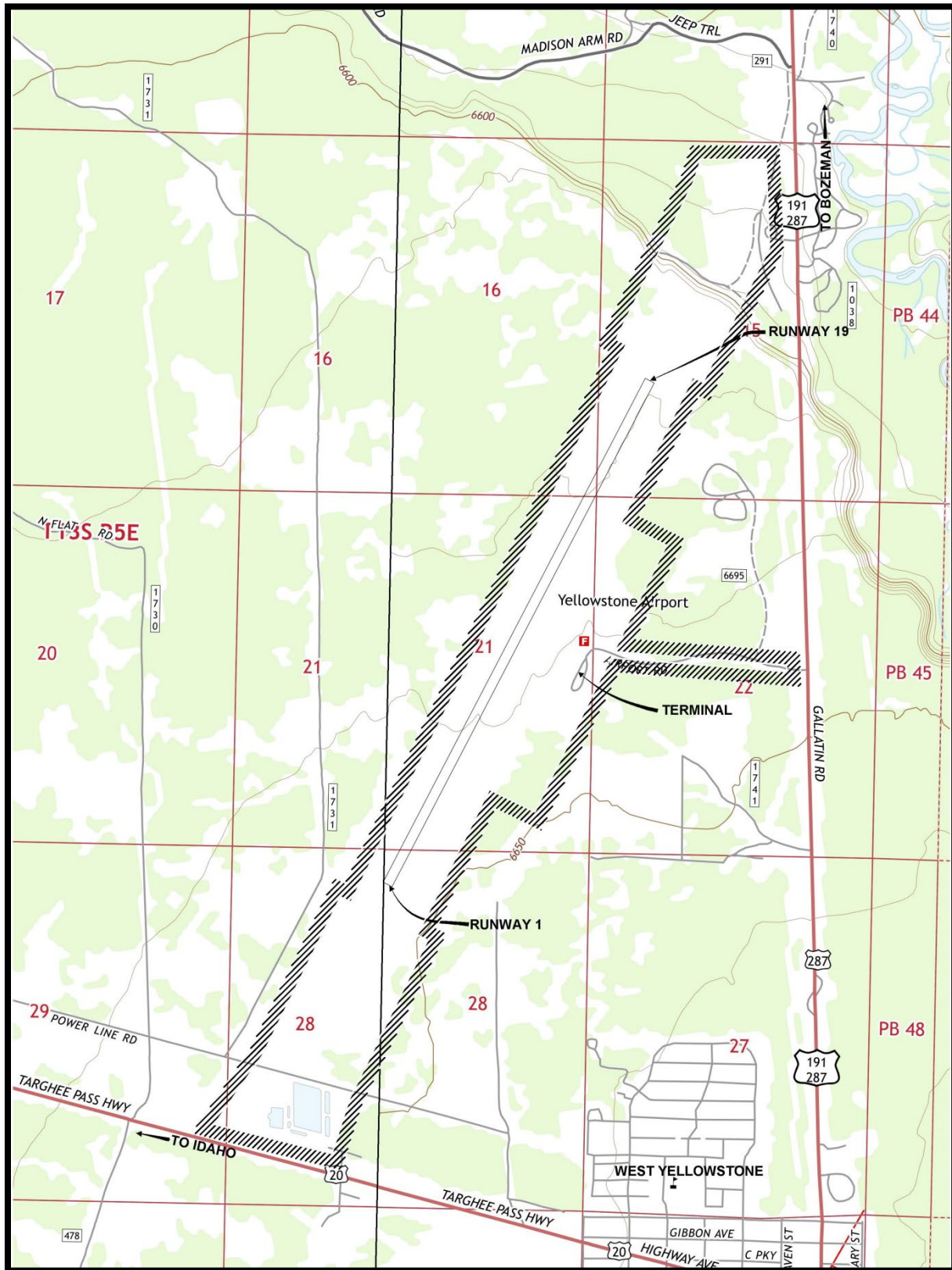


Figure 1-1: Location Map

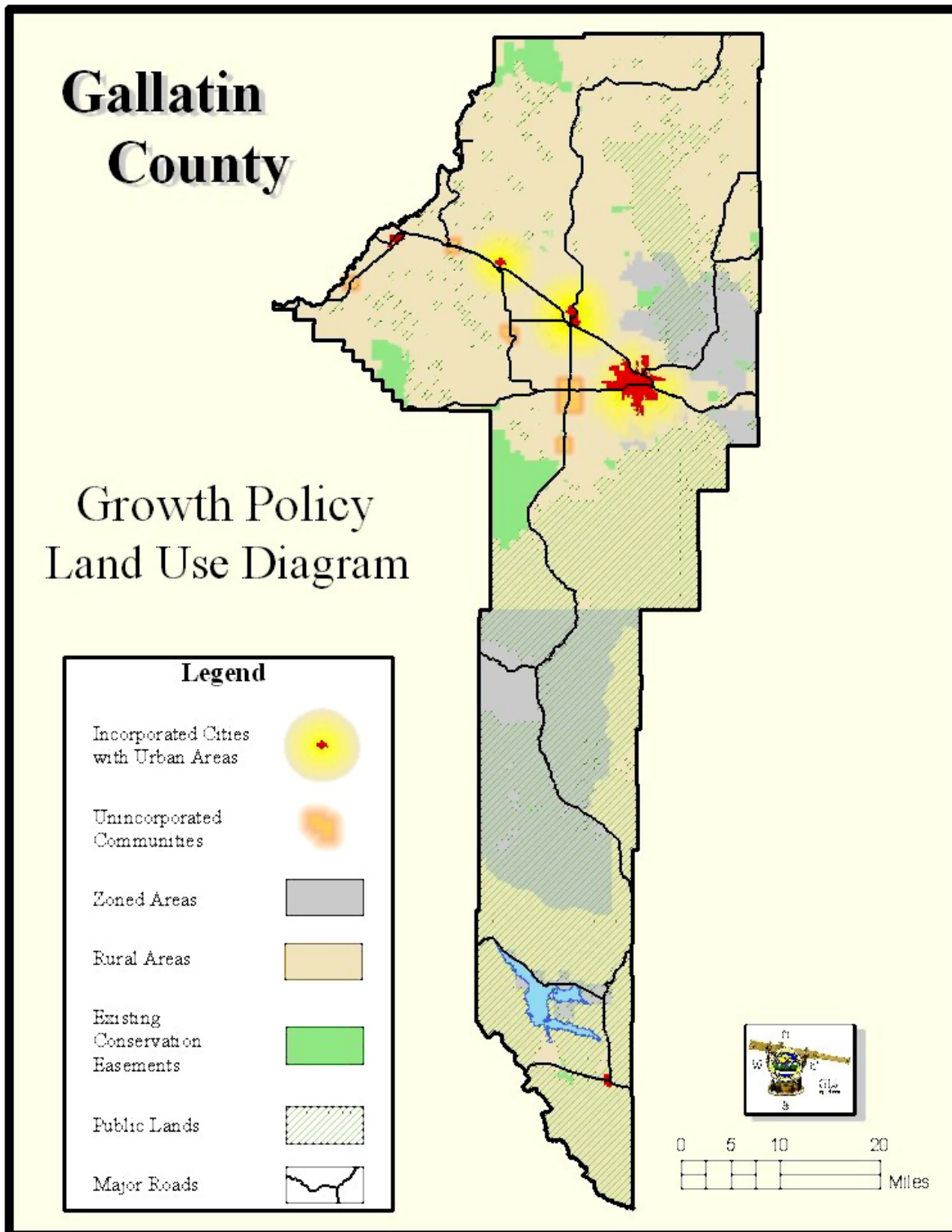


Figure 1-2: Gallatin County Growth Policy Land Use Diagram

Airside Pavement

Figure 1-3 depicts existing airport facilities.

Runway 1-19

Runway 1-19 is 8,399 feet long and 150 feet wide. The runway elevation slopes up from 6634 feet above MSL at the Runway 19 (north) end to 6649 feet above MSL at the Runway 1 (south) end (a 0.2% slope to the northwest).

Taxiways

As shown on **Figure 1-3** the taxiway system at the airport is comprised primarily of one parallel taxiway aligned with Runway 1-19 and several connecting taxiways. **Table 1-1** summarizes the features of all existing taxiways. All taxiways are equipped with medium intensity taxiway lights (MITL).

Table 1-1: Existing Taxiway Data

Taxiway	Width (Taxiway Design Group)	Safety Area Width	Pavement Strength*
TW A	75' (5)	118'	90S;150D;280DT
TW A1	75' (5)	118'	90S;150D;280DT
TW A2	75' (5)	118'	90S;150D;280DT
GA Taxiway	75' (5)	118'	90S;150D;280DT
Middle Taxiway	75' (5)	118'	90S;150D;280DT
Air Carrier Taxiway	75' (5)	118'	90S;150D;280DT
Hangar Access Taxiway	25' (1A and 1B)	49'	12S

* Pavement strength in 1,000 pounds.

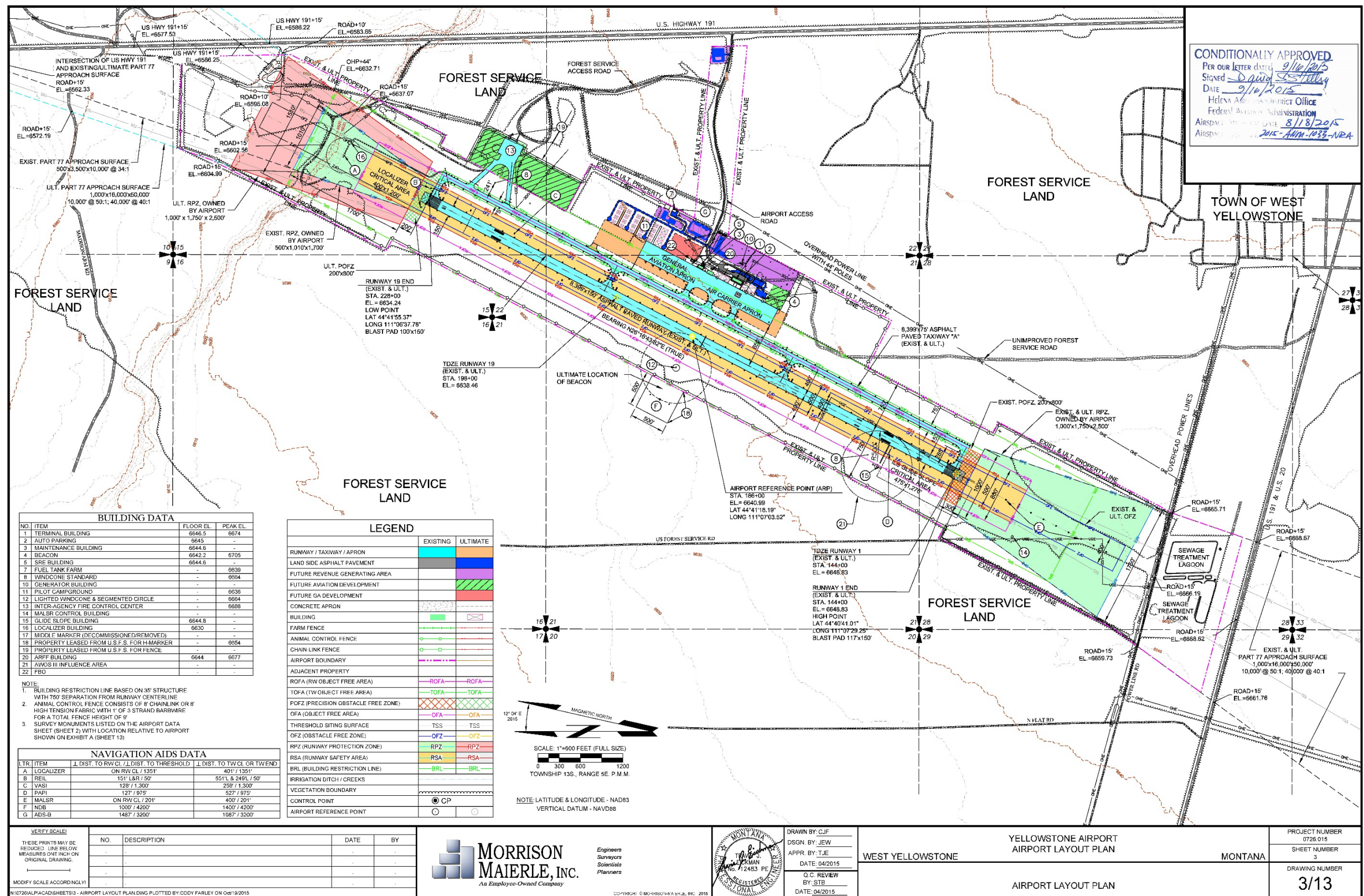


Figure 1-3: Airport Layout



Apron Areas

The Yellowstone Airport has one apron area for public use. The apron is divided into two categories, General Aviation (GA) and commercial, based on usage. These apron areas are listed in **Table 1-2** and are generally depicted in **Figure 1-3**.

Table 1-2: Existing Apron Areas				
		Pavement (Ft.)	Width Pavement Length (Ft.)	Area (SF)
Commercial Apron (South Apron Area)		250	855	213,750
North General Aviation Apron		250	800	200,000
Central General Aviation Apron		250	444	111,000

Terminal Facilities

Services associated with the terminal complex include passenger processing, baggage claim, concessions, and support functions. Existing and planned terminal area facilities from the 2015 airport master plan are depicted on **Figure 1-4**. Terminal area plans were refined with the planning of a new terminal building in the 2019 Terminal Area Narrative Report (TANR) as shown on **Figure 1-5**. The terminal area is currently undergoing refined planning associated with the ongoing design of a new terminal building as described below.

The existing terminal building was constructed in 1964 - 1965. Design of a new terminal building is currently underway with construction of the new, approximately 36,210 square foot facility anticipated to be operational by the end of the 2024 operating season. While the existing building has a variety of maintenance issues and is inefficient to heat in the winter months, the new building will be constructed to modern energy efficiency standards.

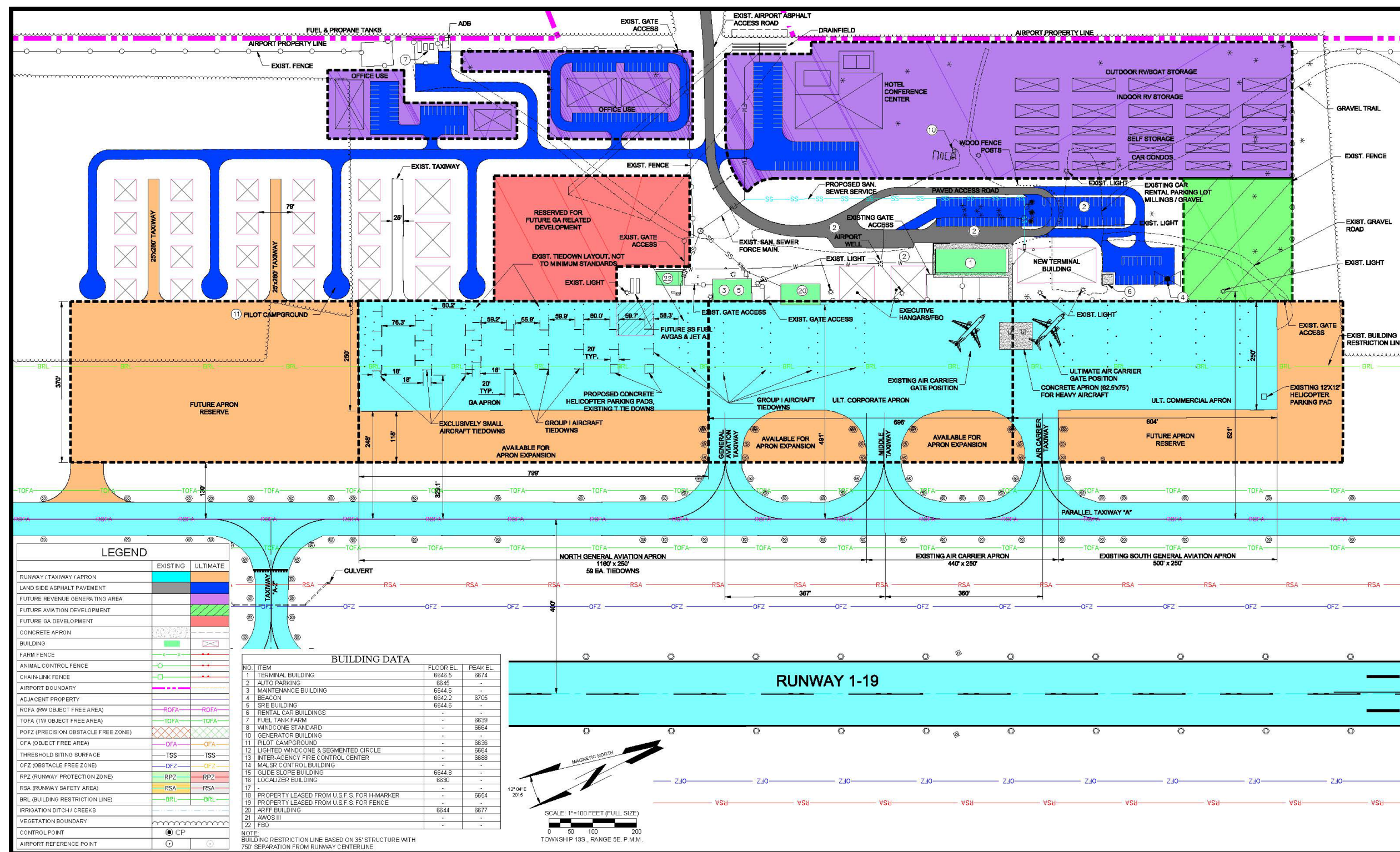


Figure 1-4: Terminal Area Plan 2015 Master Plan

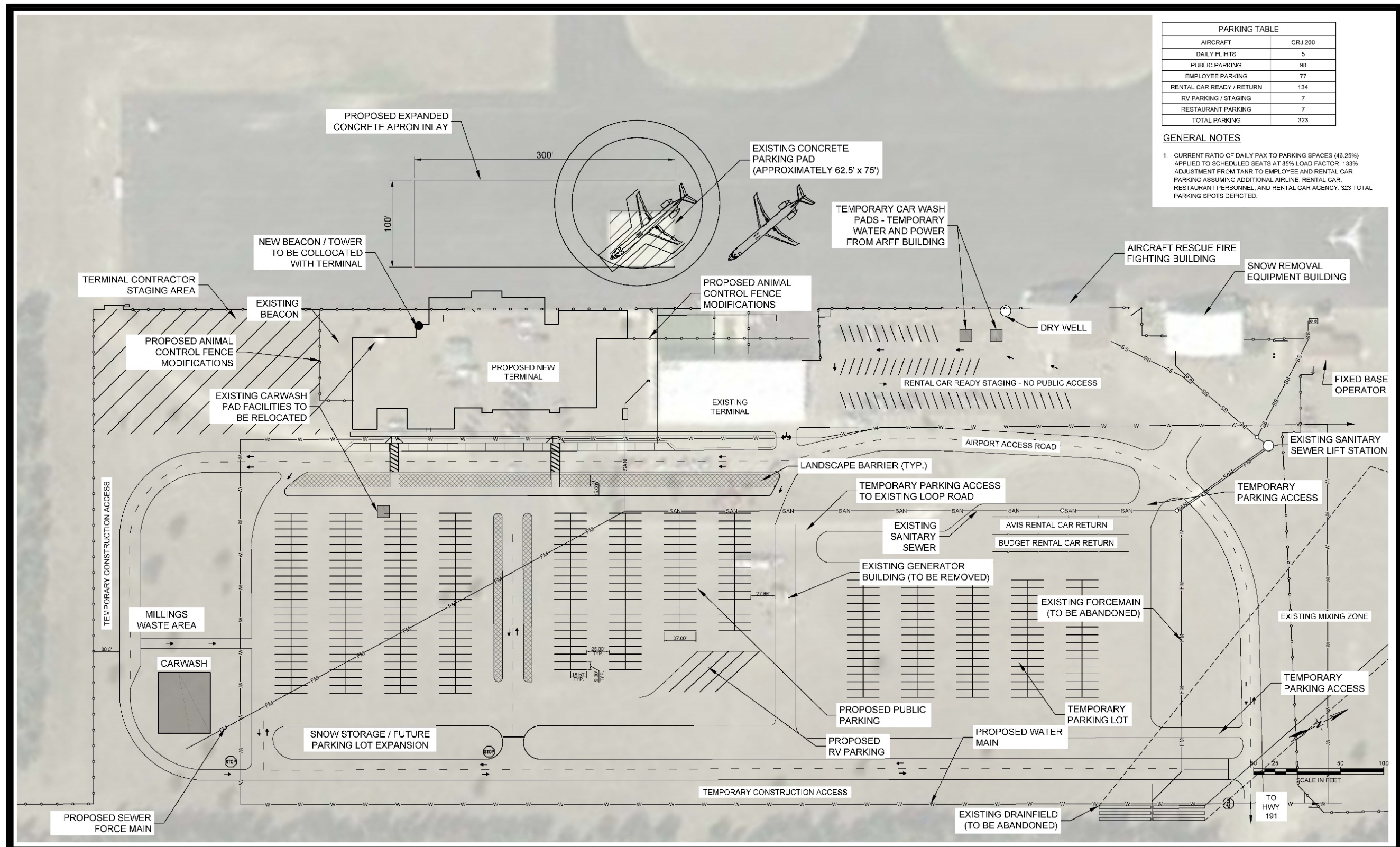


Figure 1-5: Conceptual Terminal Area Layout

Terminal Access and Parking

Access to the terminal is currently from US Highway 191. The access road is approximately 0.75 miles long and is currently plowed in winter months to allow access by airport management personnel and winter tenants including the Nevada Automotive Test Center (NATC) and Chamber of Commerce snowmobiling events.

A combined long and short-term public parking area is located north and east of the terminal and an existing millings parking area for rental cars is provided immediately south and southwest of the terminal. Both parking areas are asphalt millings. There are limited diagonal pull in / back out parking stalls along the west side of the access road just to the north of the terminal and just to the east across the access loop road from the terminal building that are paved. With the new terminal construction, paved public, rental car, and employee lots are being proposed as conceptually depicted on **Figure 1-5**.

Rental Car Facilities

Three rental car companies currently operate at the airport. Avis and Budget operate from the terminal and at the airport. The rental car companies' operations at the airport are closely tied to the schedule of the commercial airlines, generally operating between May 1 and October 15.

Fuel Sales

One full service fixed base operator (FBO) provides fueling services for both general aviation and commercial airlines. Choice Aviation provides both avgas and jet fuel and is typically open May through mid-October. A fuel tank farm is located approximately 750 feet northeast of the FBO and is accessed by native obsidian sand road. During the off season, the FBO and associated fuel storage facilities are winterized, and no fuel is available to the public on the airfield. Access to the fuel tank farm would require plowing in winter months to facilitate fueling operations if the airport were to remain open for winter operations. Fuel deliveries would likely require a large area to turn an 18-wheeler around. In addition, perimeter fence access is through a manual gate that would also need to be kept cleared and open.

Operational Staff

As noted, the FBO is staffed for fueling services May through mid-October only. Airport staff, which would be responsible for airfield maintenance and snow removal staff is currently limited to 2.5 full time equivalent (FTE) employees during operational months and 1 FTE employee during winter months.

1.4 Airspace and Approach Data

This section describes existing airspace, instrument approaches and navigational aids at the Yellowstone Airport. In order to operate in winter months, navigational equipment at the airport must be maintained to operational standards throughout the winter season to retain approach visibility minimums. Visual approach aids such as runway and approach lights must be visible and promptly repaired or replaced when damaged.

Airspace Structure

Airspace in the United States is classified as controlled, uncontrolled, or special use. Controlled airspace encompasses those areas where there are specific certification, communication and navigation equipment requirements that pilots and aircraft must meet to operate in that airspace. Airspace is classified as Class A, B, C, D, E, G, or special use airspace. These are depicted on **Figure 1-6** and described below.

As a non-towered airport, Yellowstone Airport is located under Class G, uncontrolled airspace.

Navigational Aids

Runway 1-19 is equipped with high intensity runway lights (HIRL) and threshold lights that define the edges and ends of the runway. Runway 1 is equipped with a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights, known as MALSR. This approach system is an arrangement of white and red lights, essentially an extended runway centerline. Runway 1 is also equipped with an Instrument Landing System (ILS) comprised of a glide slope and localizer and a four box Precision Approach Path Indicator (PAPI-4). Runway 19 is equipped with Runway End Identifier Lights (REIL) and a four box Precision Approach Path Indicator (PAPI-4). The airport has an Automated Weather Observing System (AWOS III-P), which is located west of the runway, near the glide slope and Runway 1 PAPIs. The airport also provides a clear and green rotating beacon, a lighted wind cone, two supplemental windcones and segmented circle on site. There is also an ADS-B antenna located near the fuel farm.

Keeping approach aids for the active runway cleared would be a priority during winter snow events. As the existing runway and threshold lights, as well as taxiway lighting only have 6-inch stems, it is likely that all such lighting would need to be upgraded to increase the height of the lighting to reduce the probability of being totally obscured with a single snow event.

Instrument Approaches

The TARGY Non-Directional Beacon (NDB) located (on Targhee Pass) 6.9 nautical miles from the Runway 1 threshold serves as the Initial Approach Fix (IAF) for the ILS Runway 1 approach.

Figure 1-7 reflects the aeronautical chart in the immediate proximity of the Yellowstone Airport. **Table 1-3** summarizes the following published approach charts at the Yellowstone Airport followed by each of the respective approach plates:

- ILS or LOC (ILS Localizer) RWY 1 – **Figure 1-8**
- Runway Area Navigation (RNAV) (GPS) RWY 1 – **Figure 1-9**
- RNAV (GPS) RWY 19 – **Figure 1-10**

Air Traffic Control Facilities

Currently, Yellowstone Airport does not have an air traffic control tower. Pilot communication is managed using a Common Traffic Advisory Frequency/UNICOM (CTAF Frequency 123.0). The Salt Lake Center is responsible for approach and departure control on frequencies 132.4 and 338.30.

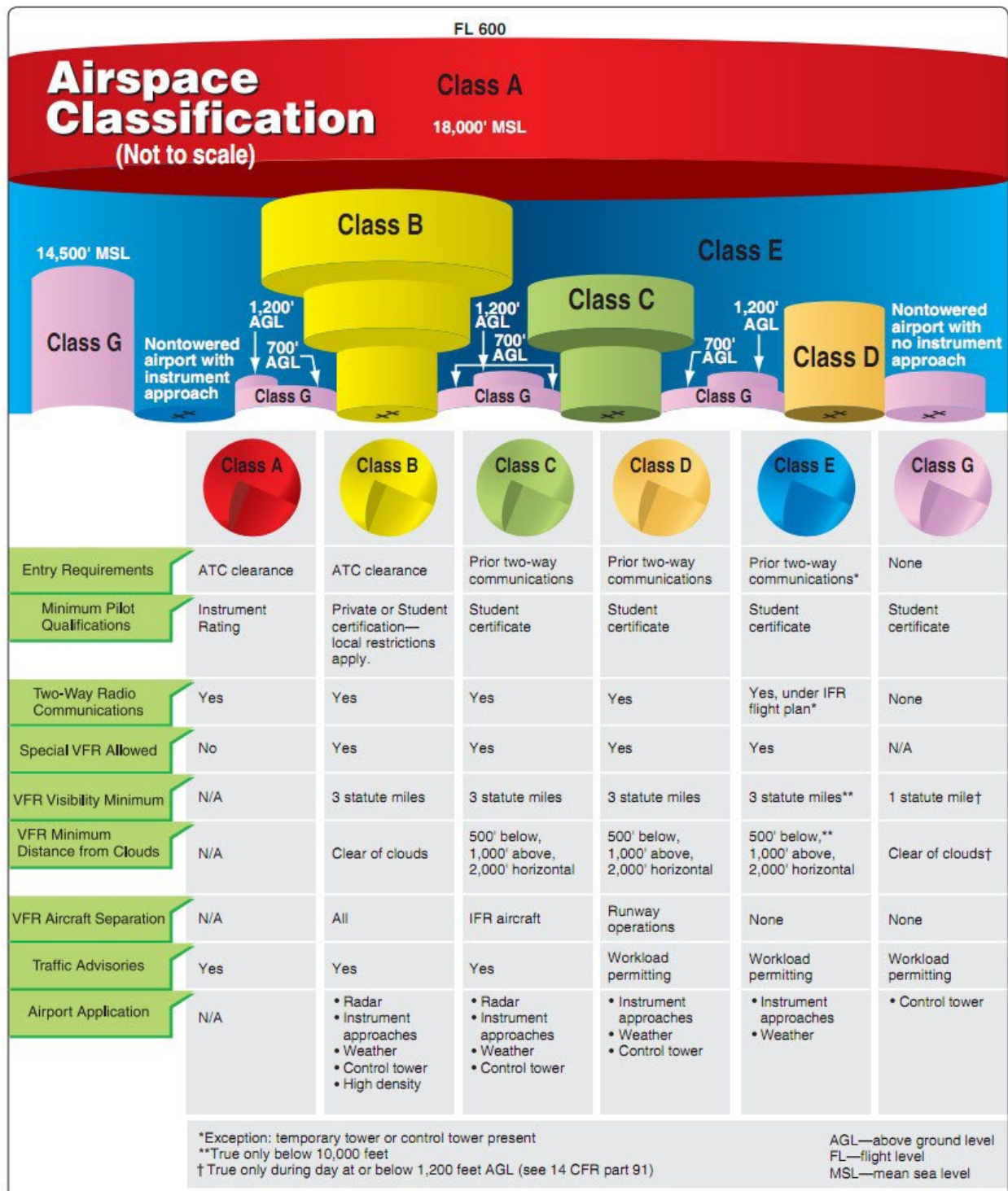
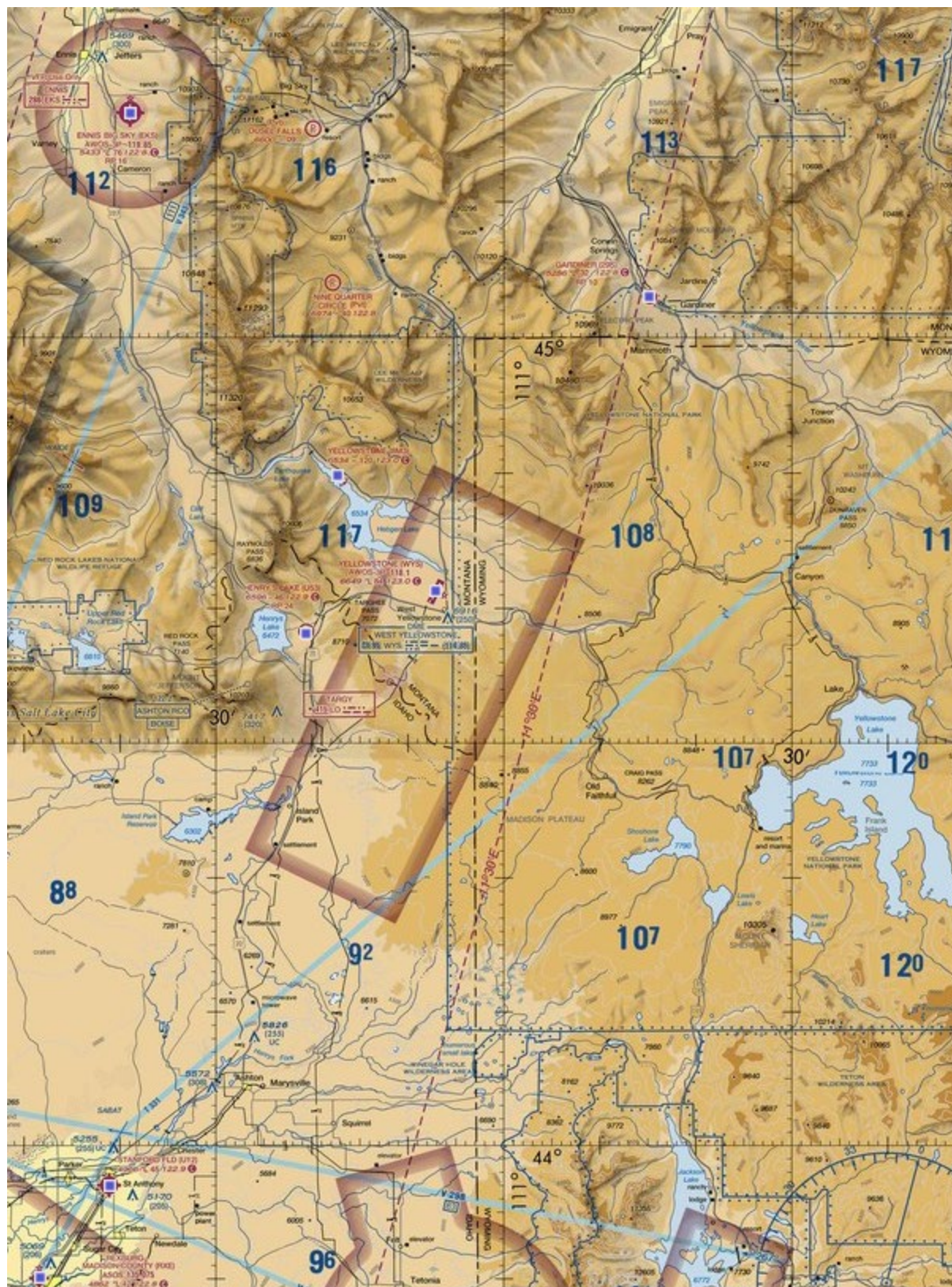


Figure 1-6: Airspace Classification



Table 1-3: Approach Minimums at Yellowstone Airport

Approach Speed (Knots)	0-90	91-120	121-140	141-165
Approach Category	A	B	C	D
ILS OR LOC Y RWY 1				
S-ILS 1 Straight-In ILS to Runway 1	6849 1/2 – 200 (200-1/2)			
*Missed approach requires a minimum climb of 300 ft per NM 10 10100				
S-ILS 1 Straight-In ILS to Runway 1	7449 2 1/2 – 800 (800-2 1/4)			
S-LOC 1 Straight-in with Glide Slope Inoperative or Not Used to Runway 1	7780-1¼ 1131 (1200-1¼)	7780-1 1131 (1200-1)	7780-2½ 1131 (1200-2½)	
Circling	7780-1¼ 1131 (1200-1¼)	7780-1½ 1131 (1200-1½)	7780-3 1131 (1200-3)	
RNAV (GPS) RWY 1				
LPV DA	6849-1/2 – 200 (200-1/2)			
LNAV MDA	8240-1¼ 1591 (1600-1¼)	8240-1½ 1591 (1600-1½)	8240-2 3/4 1591 (1600-2 1/2)	
Circling	8240-1¼ 1591 (1600-1¼)	8240-1½ 1591 (1600-1½)	8240-3 1591 (1600-3)	
RNAV (GPS) RWY 19				
LPV DA	7184-2 – 546 (600-2)			



Source: AirNav.com

Figure 1-7: Sectional Chart

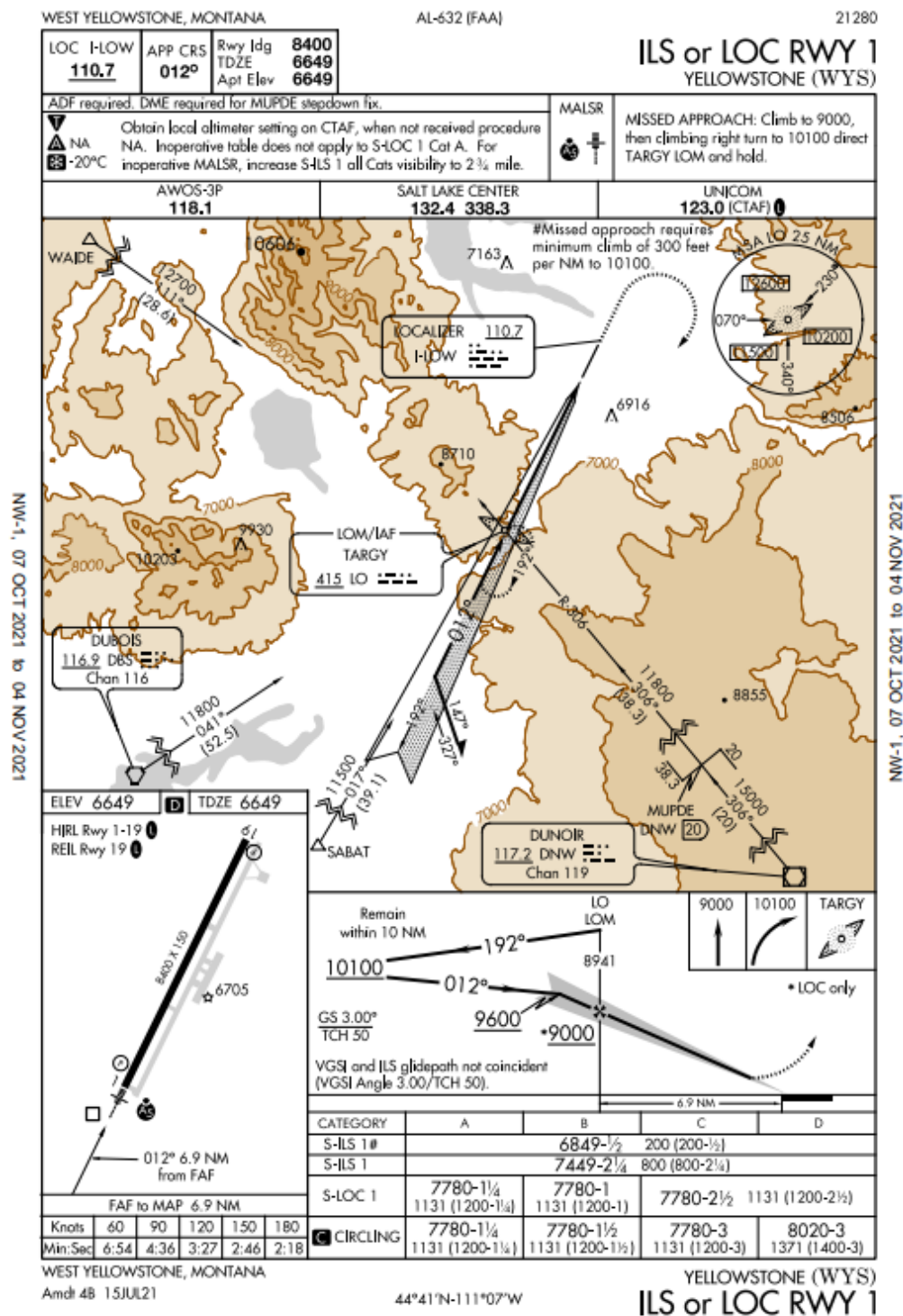


Figure 1-8: ILS Localizer Approach Plate

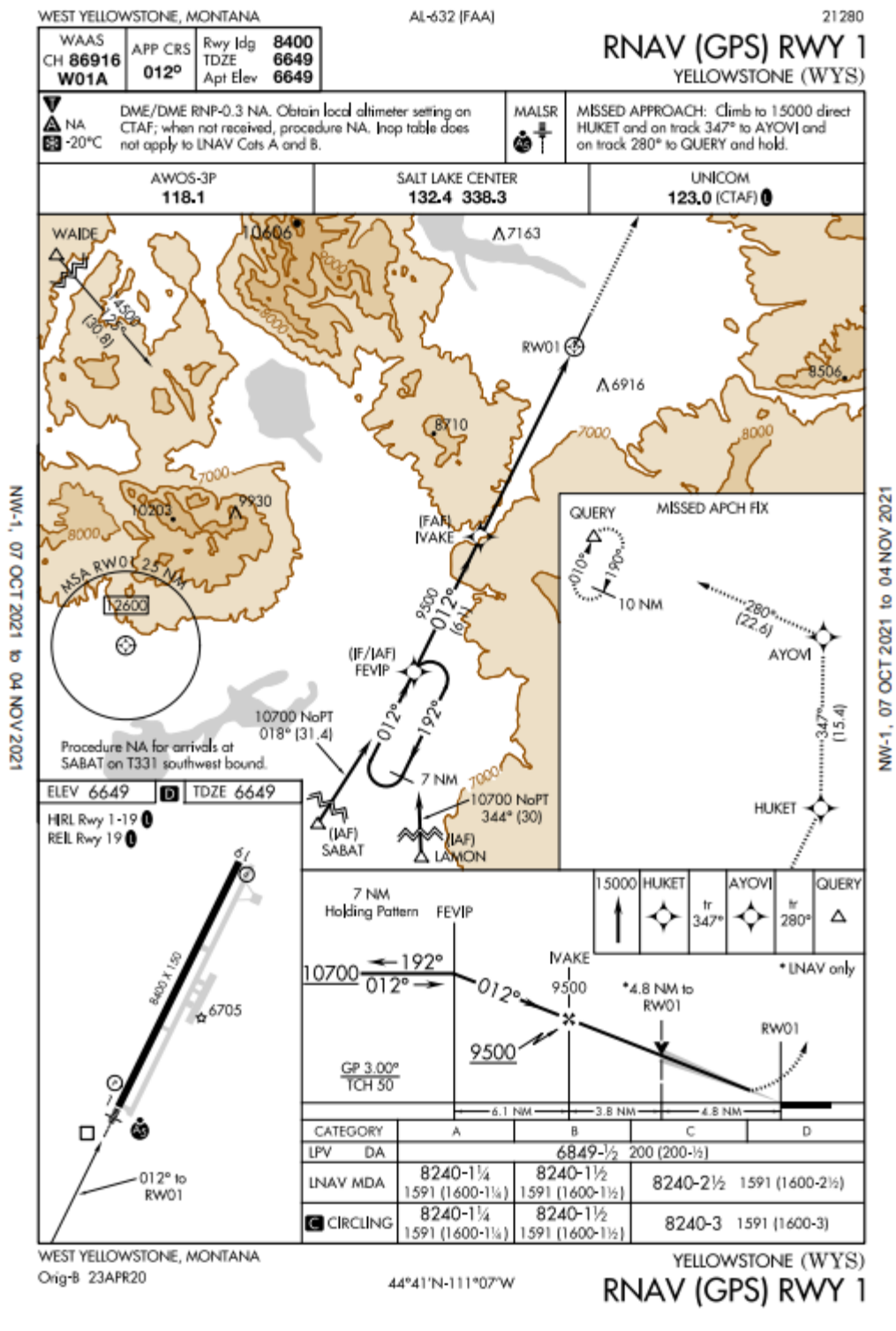


Figure 1-9: RNAV (GPS) RW 1 Approach Plate

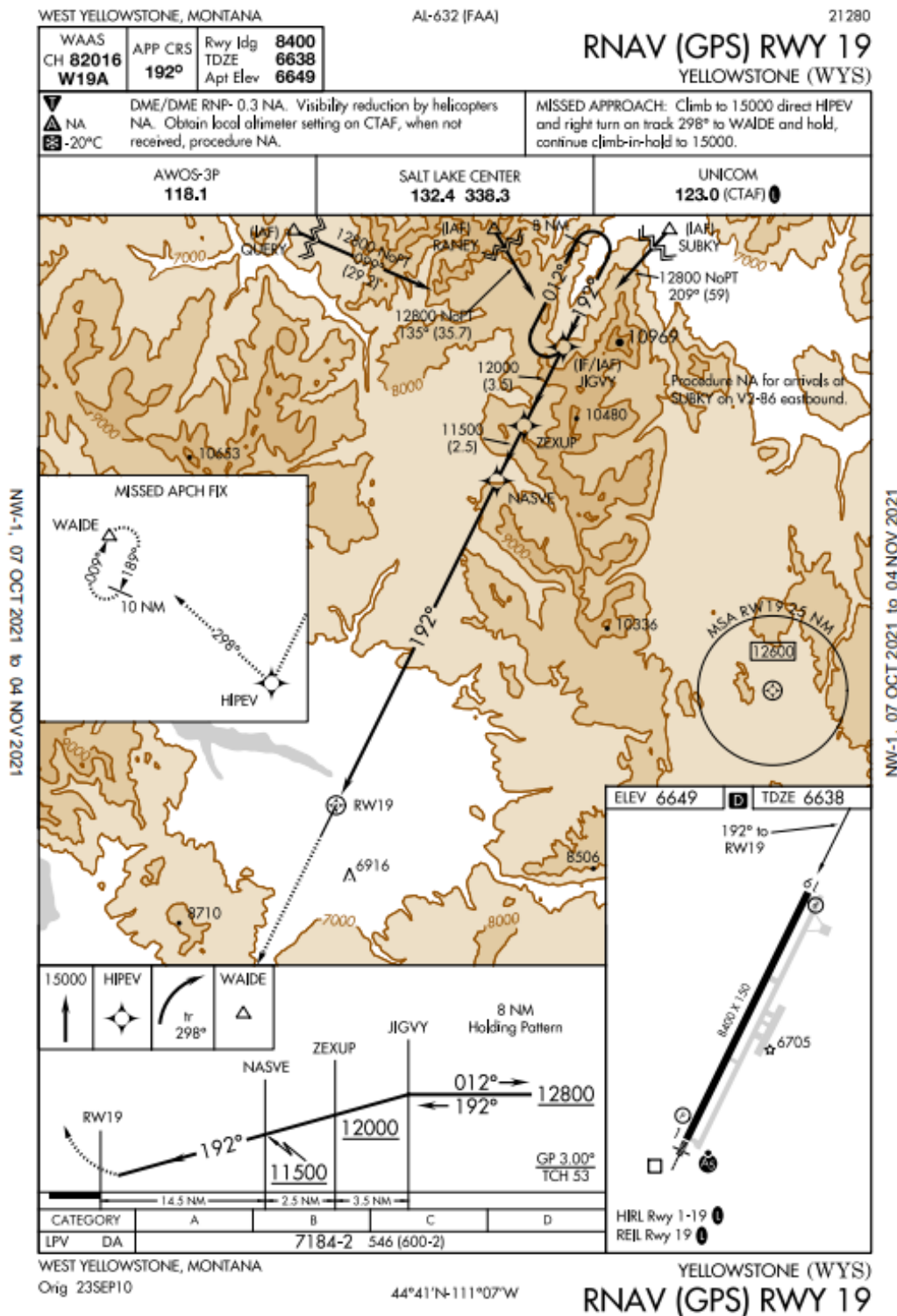


Figure 1-10: RNAV (GPS) RW 19 Approach Plate

1.5 Seasonal Climate and Weather Trends

Seasonal climate and weather trend data has been collected to understand the winter operating environment at the Yellowstone Airport.

Climate and Geography

At 6,649 feet above sea level, and almost exactly halfway between the equator and north pole, West Yellowstone experiences a subarctic climate with cold, sometimes bitterly cold, winters and brief but generally warm summers. During summer, the average low is 41 °F and the average high is 78 °F. During the winter, the average low is 1 °F (–17°C), and the average high is 24 °F (–4 °C). West Yellowstone’s weather is also somewhat unpredictable and can include thunderstorms and strong windy weather. In general, rainfall levels remain fairly low and most months average around 1 inch or less. April, May, and June tend to be the wettest months, when rainfall of 1.5 inches or slightly more can be expected.

Table 1-4 shows climate data for West Yellowstone.

Table 1-4: West Yellowstone Climate Data

Annual Averages	
Average Annual Precipitation	20.2"
*Average Annual Snowfall	160.1"

Summer Averages (July – warmest month)	
Average Number of 90° and Above Days (June through September)	2.3
Average High Temperature in July	79°
Average Low Temperature in July	38°
Average Precipitation in July	1.3"
Record Low in July	20°

Winter Averages (January – coldest month)	
Average High Temperature in January	25°
Average Low Temperature in January	–1°
Average Precipitation in January	2.2"
*Average Snowfall in January	32.9"
Record High in January	47°

Sources: www.weatherbase.com, * Western Regional Climate Center

A key consideration for year-round operations at the Yellowstone airport is new requirements for snow removal equipment and operations. As noted in **Table 1-4** West Yellowstone receives

an average 160.1 inches of snowfall annually and 32.9 inches in the snowiest month of January. **Table 1-5** details the average monthly snowfall in West Yellowstone throughout the year.

Table 1-5: Average Monthly Snowfall

	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Inches	160.1	32.9	26.6	23.3	10.7	3.3	0.6	0.0	0.1	1.1	7.3	22.9	31.4

Source: Western Regional Climate Center - <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?mt8857>

Period of Record : 01/02/1924 to 06/30/2013

Tables 1-6 and **1-7** provide snapshots of daily temperature, snow, and wind conditions for the months of January and February of 2020. Within these two months, West Yellowstone saw 28 days with temperatures below zero degrees Fahrenheit, 20 days with snowfall events leaving one inch or more of new snow and ten days with wind events exceeding 10knots. Wind is predominantly from the southwest and wind events cause drifting of snow across the runway and taxiway even on days without snow events.

Table 1-6: Daily Climatological Data for West Yellowstone, MT - January 2020

Date	Temperature				Precipitation	New Snow	Snow Depth	Wind > 10 kt
	Maximum	Minimum	Average	Departure				
2020-01-01	29	5	17.0	4.5	0.31	3.5	18	Y
2020-01-02	26	19	22.5	10.0	0.02	0.5	18	Y
2020-01-03	25	17	21.0	8.5	T	T	18	
2020-01-04	26	3	14.5	1.9	0.00	0.0	17	Y
2020-01-05	28	-3	12.5	-0.1	0.07	1.0	18	
2020-01-06	26	6	16.0	3.3	0.08	1.0	19	
2020-01-07	24	14	19.0	6.2	0.26	3.0	22	
2020-01-08	27	17	22.0	9.2	T	T	21	
2020-01-09	31	16	23.5	10.6	0.03	0.4	21	
2020-01-10	31	-18	6.5	-6.5	0.06	1.1	21	
2020-01-11	19	11	15.0	1.9	0.16	2.5	23	
2020-01-12	23	14	18.5	5.3	0.09	1.0	24	
2020-01-13	22	13	17.5	4.3	0.35	4.8	27	Y
2020-01-14	20	12	16.0	2.7	0.15	3.0	26	Y
2020-01-15	25	-4	10.5	-2.9	0.03	0.5	26	Y
2020-01-16	25	-18	3.5	-10.0	0.02	0.2	26	
2020-01-17	27	2	14.5	0.9	0.18	4.0	28	
2020-01-18	27	8	17.5	3.8	T	T	27	
2020-01-19	29	1	15.0	1.2	0.02	0.5	26	
2020-01-20	34	-1	16.5	2.7	0.00	0.0	25	
2020-01-21	32	0	16.0	2.1	0.00	0.0	23	
2020-01-22	38	13	25.5	11.5	0.09	1.0	24	Y
2020-01-23	32	12	22.0	7.9	0.01	0.5	24	
2020-01-24	32	25	28.5	14.4	T	T	24	
2020-01-25	33	24	28.5	14.3	0.06	0.5	25	

Date	Temperature				Precipitation	New Snow	Snow Depth	Wind > 10 kt
	Maximum	Minimum	Average	Departure				
2020-01-26	31	24	27.5	13.2	0.02	0.3	25	
2020-01-27	35	26	30.5	16.1	0.19	3.0	27	
2020-01-28	35	14	24.5	10.1	T	T	26	
2020-01-29	35	19	27.0	12.5	0.16	1.0	27	
2020-01-30	35	13	24.0	9.4	0.03	0.3	26	
2020-01-31	36	5	20.5	5.9	0.00	0.0	26	

Source: National Weather Service, National Oceanic and Atmospheric Administration

<https://www.weather.gov/wrh/Climate?wfo=tfx>

Wind Data Source- National Centers for Environmental Information, National Oceanic and Atmospheric Administration

[https://www.ncei.noaa.gov/access/search/data-search/global-](https://www.ncei.noaa.gov/access/search/data-search/global-hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096)

[hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096](https://www.ncei.noaa.gov/access/search/data-search/global-hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096)

T = trace value recorded

M= measurement missing / not available

Table 1-7: Daily Climatological Data for West Yellowstone, MT - February 2020

Date	Temperature				Precipitation	New Snow	Snow Depth	Wind > 10 kt
	Maximum	Minimum	Average	Departure				
2020-02-01	30	20	25.0	10.3	0.00	0.0	26	
2020-02-02	35	27	31.0	16.2	0.00	0.0	26	Y
2020-02-03	29	9	19.0	4.2	0.60	5.0	31	
2020-02-04	19	-29	-5.0	-19.9	0.00	0.0	30	
2020-02-05	21	-29	-4.0	-19.0	T	T	30	
2020-02-06	15	2	8.5	-6.6	0.17	3.0	33	
2020-02-07	23	14	18.5	3.3	0.35	4.2	34	
2020-02-08	35	17	26.0	10.7	0.02	T	33	Y
2020-02-09	30	-11	9.5	-5.9	0.08	0.5	33	
2020-02-10	29	-12	8.5	-7.0	0.04	0.5	33	
2020-02-11	30	-21	4.5	-11.1	T	T	32	
2020-02-12	21	-17	2.0	-13.7	0.11	2.0	34	
2020-02-13	32	1	16.5	0.7	T	T	33	
2020-02-14	28	8	18.0	2.0	T	T	32	
2020-02-15	32	-5	13.5	-2.6	0.01	T	32	
2020-02-16	25	19	22.0	5.7	0.09	2.0	34	
2020-02-17	31	-4	13.5	-2.9	0.13	2.0	35	
2020-02-18	23	-15	4.0	-12.6	0.00	0.0	33	
2020-02-19	25	-22	1.5	-15.3	T	T	32	
2020-02-20	27	-28	-0.5	-17.5	0.00	0.0	32	
2020-02-21	33	-25	4.0	-13.2	0.00	0.0	32	
2020-02-22	40	-23	8.5	-9.0	0.00	0.0	31	
2020-02-23	42	-13	14.5	-3.2	0.00	0.0	31	
2020-02-24	40	-11	14.5	-3.4	0.04	0.8	31	
2020-02-25	31	-15	8.0	-10.2	T	T	31	
2020-02-26	33	-16	8.5	-10.0	0.00	0.0	31	

Date	Temperature				Precipitation	New Snow	Snow Depth	Wind > 10 kt
	Maximum	Minimum	Average	Departure				
2020-02-27	31	-6	12.5	-6.3	T	T	31	
2020-02-28	37	-7	15.0	-4.0	0.00	0.0	31	
2020-02-29	44	-4	20.0	0.8	0.00	0.0	30	Y

Source: National Weather Service, National Oceanic and Atmospheric Administration

<https://www.weather.gov/wrh/Climate?wfo=tx>

Wind Data Source - National Centers for Environmental Information, National Oceanic and Atmospheric Administration

[https://www.ncei.noaa.gov/access/search/data-search/global-](https://www.ncei.noaa.gov/access/search/data-search/global-hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096)

[hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096](https://www.ncei.noaa.gov/access/search/data-search/global-hourly?dataTypes=WND&pageNum=3&bbox=44.705,-111.132,44.669,-111.096)

T = trace value recorded

M = measurement missing / not available

1.6 Airport Operational Data

Snow removal is a primary operational consideration for winter operations at commercial airports. Snow clearance requirements for Part 139 airports are provided in FAA Advisory Circular (AC) 150/5200-30D *Airport Field Condition Assessments*, and AC 150/5220-20A *Airport Snow and Ice Control Equipment*.

Clearance Priorities.

Snow removal priorities and clearance times are outlined in 150/5200-30C. This AC recommends that areas requiring snow removal be prioritized as follows:

Priority 1 Area. Primary instrument runway, its principal taxiways and high-speed turnoffs, designated ramp areas, emergency roads or firefighter's access routes, and NAVAIDs for the active instrument runway.

Priority 2 Area. Secondary runways and taxiways, other NAVAIDs, and ramp areas not otherwise classified.

Priority 3 Area. Refueling and perimeter roads, landside infrastructure (sidewalks, access road(s), parking lot(s), etc.

Figure 1-11 illustrates the Priority 1 Area for snow removal at the Yellowstone Airport. The existing pavement footprint with the runway width of 150' and taxiway width of 75' accommodates a Runway Design Code of C-III versus what is required to accommodate the C-II classified CRJ-200 that is currently utilizing the airport (100' runway width and 35' taxiway width). While the Priority 1 footprint does not encompass the full areas identified under the Priority 1 area defined above, it is meant to provide the required access and provide the minimum areas to evaluate the clearance times and equipment capabilities.

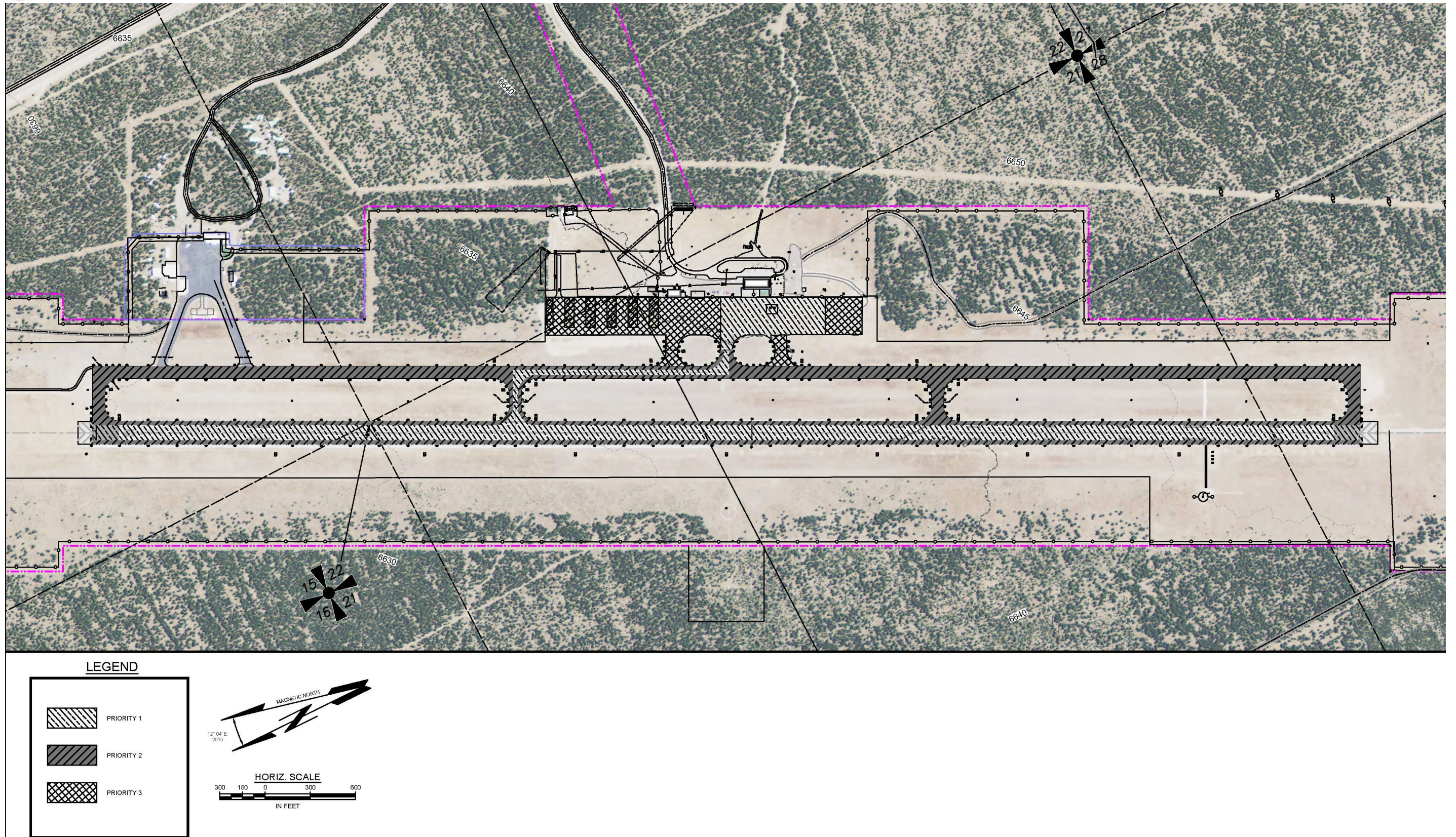


Figure 1-11: Yellowstone Airport – Priority Snow Removal Area(s)

Clearance Times

AC 150/5200-30D states for commercial service airports *"Airports should have sufficient equipment to clear 1 inch of snow weighing up to 25 pounds per cubic foot from Priority 1 areas that accommodate anticipated airplane operations."* Per the AC, the guidance in Table 1-1 below is provided to assist the airport in determining necessary equipment, but should not be interpreted as a requirement to clear surfaces within any particular time. The AC further recommends the following clearance times, based on the number of annual operations.

Table 1-1 – Clearance Times for Commercial Service Airports, AC 150/5200-30D	
Annual Operations	Clearance Time (hours)
40,000 or more	1/2
10,000 – but less than 40,000	1
6,000 - but less than 10,000	1 ½
Less than 6,000	2

Based on 2021 records for Part 135 helicopter tour flights (1,055 flights x 2 operations per flight = 2,110 operations) and airline flights (479 x 2 operations per flight = 958 operations), scheduled flights account for approximately 3,068 operations. With additional unscheduled operations, total annual operations at the airport are still estimated to be under 6,000. Therefore, the Priority 1 Areas should be cleared of snow within 2 hours or less.

As airport operations during the winter would likely include non-air carrier traffic, the AC was also reviewed for those requirements to determine the most demanding recommended clearance times. AC 150/5200-30D states the same information for non-air carrier airports *"Airports should have sufficient equipment to clear 1 inch of snow weighing up to 25 pounds per cubic foot from Priority 1 areas that accommodate anticipated airplane operations."* The AC further recommends the following clearance times, based on the number of annual operations.

Table 1-2 – Clearance Times for Non-Air Carrier Airports, AC 150/5200-30C	
Annual Operations	Clearance Time (hours)
40,000 or more	2
10,000 – but less than 40,000	3
6,000 - but less than 10,000	4
6,000 or less	6

At less than 6,000 annual operations per year, the Priority 1 Areas should be cleared of snow within 6 hours or less when the airport is open to non-air carrier traffic and not accommodating commercial service (i.e., outside of commercial air service operating season). Based on the comparison of the recommended air carrier and non-air carrier clearance times, it is determined 2 hours is the recommended clearance time for the most demanding situation (commercial air service).

Snow Removal Equipment (SRE)

The following is the list of the SRE at the Yellowstone Airport:

- 2009 New Holland TV6070 Bi-Directional Tractor with Loader (purchased used in 2016)
 - 16' Power Reversible Side Wing Plow
 - 14' Power Reversible, Hydraulic Rotary Broom
 - 9' PTO Driven Snow Blower
- 1995 MDT Highways Surplus Snowplow Truck
 - 12' Plow
- 1990 MDT Highways Surplus Snowplow Truck
 - 12' Plow

The airport is managed year-round by an airport manager, with additional assistance from two seasonal full time airport personnel during the summer months. The realistic time available for airport staff to remove snow from the Priority 1 areas to maintain the airport at operational standards is limited to those times that staff are available on the airport and in coordination with their other duties.

The airport's SRE (2009 New Holland Tractor) was purchased with the design intent of clearing Priority 1 areas within the 2-hour time requirement for commercial service airports per Table 1-1 of AC 150/5200-30C as commercial air service operations were 6,000 or less. The supplemental snowplow truck equipment was donated by MDT Highways to aid the airport in opening the airport as soon as practicable in the spring. While this equipment is available for primary snow removal operations during the operating season, the readiness of such equipment is questionable based on their ability to build air within their operating systems for breaks, as well as other equipment limitations due to age. In addition, all three pieces of SRE cannot be stored in the existing heated SRE building at the same time.

1.7 Comparable Winter Operations

Operators at Afton – Lincoln County Municipal Airport in Afton, Wyoming, Jackson Hole Airport in Jackson, Wyoming, and the Nevada Automotive Test Center, which operates at the Yellowstone Airport during the winter months, were interviewed to obtain a qualitative description of snow

operations in a comparative climactic region. Driggs Airport in Driggs, Idaho did not reply to numerous requests for comments regarding their snow removal operations.

Afton – Lincoln County Municipal Airport, Afton, WY

Rick Sessions, Airport Manager, was interviewed regarding winter snow operations at the Afton – Lincoln County Municipal Airport. Afton – Lincoln County Municipal Airport is a general aviation airport located in Wyoming’s Star Valley, approximately 135 miles south of the Yellowstone Airport. While sharing similar elevations, Afton at 6221 MSL and West Yellowstone at 6649 MSL, it should be noted that the Yellowstone Airport receives significantly more snowfall (more than double) than Afton as is apparent in **Table 1-8** below which compares average monthly snowfall levels.

Table 1-8: Average Monthly Snowfall in Inches - Afton vs. West Yellowstone

	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
West Yellowstone, MT	160.1	32.9	26.6	23.3	10.7	3.3	0.6	0.0	0.1	1.1	7.3	22.9	31.4
Afton, WY	77.5	16.2	13.2	11.8	5.5	0.8	0.2	0.0	0.0	0.3	2.4	11.4	15.7

Source: Western Regional Climate Center –

<https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?mt8857>

Period of Record : 01/02/1924 to 06/30/2013

https: <https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?wy0027>

Period of Record : 05/01/1957 to 06/10/2016

Staffing:

The Airport Manager is a “one man show.” Mr. Sessions is the only employee dedicated to the airport and, as such, is responsible for airfield maintenance operations including snow removal.

Equipment:

Afton – Lincoln County Municipal Airport’s snow removal equipment includes:

- 2007 Freightliner Snow Plow Truck w. 14’ blade and 12’ dump body, 4wd
- 2015 John Deere Front End Loader w/ 5 CY light duty bucket, 18’ wing plow, and 14’ rotary broom
- 2016 Massey Ferguson Tractor (5713SL) w/ PTO driven 2-stage Schulte RDX-102 8’ single chute blower

Operation:

During the months of January and February, the airport manager estimates that 60 percent of his time is spent on snow removal operations. During December and March, that is reduced to 40 to 50 percent and in April snow removal accounts for approximately 25 percent of his time.

For a significant snow event of one foot or more, it takes the airport manager one full day, approximately 8 hours, to get the runway and taxiway opened and fully operational with the plow. Then, another two partial days are needed to finish clearing 2nd priority areas. These areas include

the spaces between tie-downs, runway lights, ladder taxiways, and taxiway reflectors. On occasion, the manager must plow during nighttime hours to keep the airport operational. The manager estimates that approximately 18 hours are spent clearing each significant snow event. Smaller snow events, when occurring back-to-back, require similar levels of attention to large events. When large snow events occur back-to-back, it is difficult for a one-man operation to keep up. In the past, the airport has had to close due to the inability to clear back-to-back storms. While not a direct correlation for West Yellowstone, this information is provided as a basis for operating with limited staff and what type of equipment may be required to facilitate comprehensive snow removal operations.

Cost Considerations:

Mr. Sessions estimates that a total of \$5,000 to \$6,000 is spent on fuel for per year (based on 2021 fuel costs of ~\$3.00/gallon) for all airport maintenance equipment, with an estimated 80% (\$4,000 to \$4,800) of that total cost spent on snow removal operations.

Additional cost considerations include extra maintenance on things like runway lights, taxiway lights, and signs, that are inevitably damaged while plowing and blowing snow. In addition, with increased use, increased maintenance is required on SRE.

Nevada Automotive Test Center - NATC

Jesse Bennett, Test Engineer, was interviewed regarding winter snow operations at the Nevada Automotive Test Center (NATC). The NATC has operated a winter automotive test facility at the Yellowstone Airport for many years. The facility operates from November 15 to April 15 each year and maintains a variety of snow and ice surface courses for vehicle testing on the terminal apron, the taxiway, and the runway. Snow removal is required throughout the operating season to maintain consistent surfaces on the courses.

Staffing:

During times when automotive testing is underway, NATC utilizes five to six employees full time for snow removal. Typically, employees are scheduled in shifts with two to three working during the day and two to three working at night. In the early and late seasons when snow events are lighter and automotive testing is not underway, two full time employees are dedicated to snow removal. Scheduling staff is difficult due to sporadic weather conditions. While there are slow periods between snow events, snow removal staff must be available at all times in the event of a storm. Employees must be experienced in snow removal. NATC has found it "almost impossible" to find local employees due to the seasonal nature of the job, the expertise required and the low local population. It's snow removal employees at West Yellowstone are based at the company's Nevada headquarters and are stationed at West Yellowstone for the winter season only. The company provides temporary housing for its employees in West Yellowstone hotels.

Equipment:

The snow removal equipment operated by NATC exceeds that currently owned by the Yellowstone Airport. Typically, at least two pieces of equipment are operated simultaneously by snow removal personnel. NATC's snow removal equipment includes:

- International Paystar 4x4 w/ 12' Plow. Two-way plow
- Cat 966D loader with Kodiak Northwest 10' ribbon style blower. Detroit 8v92 diesel powering the blower
- 2 x 2500HD pickups with 8' Boss Plows
- John Deere road grader

Operation:

According to NATC personnel, a large storm / snow event that requires dedicating significant manpower seems to occur on average every seven to ten days. It is rare to go 2-3 days without some kind of snow event. Storm frequency is irregular. Sometimes there are back-to-back storms for five days in a row, while sometimes there may be two weeks without snow, but with severe subzero temperatures that cause equipment maintenance issues.

After a large snow event, it typically takes the snow removal staff approximately 12 hours to clear the airport. Snow drifts are difficult for snow removal operators to manage. In windy conditions, such that regularly exists in West Yellowstone during the winter months, powdery snow drifts across paved surfaces filling in the space between plowed berms. During windy times it is not uncommon to plow an area and have it fill in again within an hour due to snow drifts. Even in minor snow events, in windy conditions, it is necessary to constantly remove snow to maintain course operations.

As a ground vehicle testing operation, NATC snow removal operations do not include clearing runway lights, taxiway lights and nav aids, as would be needed for aeronautical operations.

Cost Considerations:

Leases and various fees paid by NATC provide annual operating revenue of approximately \$60,000 per year to MDT aeronautics.

Mr. Jesse Bennet estimates that a total of \$6,000 to \$12,000 is spent on fuel for per year (based on 2021 fuel costs of ~\$3.00/gallon) for their snow removal operations. In addition, maintenance on snow removal equipment typically requires approximately 130 mechanic hours and \$2,000 to \$4,000 in parts per season. It should be noted that NATC equipment is rather aged and may be difficult to compare to new equipment (less maintenance anticipated).

Additional cost considerations include extra maintenance on things like runway lights, taxiway lights, and signs, that are inevitably damaged while plowing and blowing snow. In addition, with increased use, increased maintenance is required on SRE.

Jackson Hole Airport – Jackson, WY

Dustin Havel, Assistant Airport Director, was interviewed regarding winter snow operations at the Jackson Hole Airport in Jackson, Wyoming. Jackson Hole Airport is a commercial service airport located approximately 75 miles southeast of the Yellowstone Airport. Jackson Hole and Yellowstone Airports share similar elevations, Jackson Hole at 6450 MSL and West Yellowstone at 6649 MSL, it should be noted that the Yellowstone Airport receives significantly more snowfall (more than double) than Jackson as is apparent in **Table 1-9** below which compares average monthly snowfall levels.

Table 1-9: Average Monthly Snowfall in Inches - Jackson vs. West Yellowstone

	Annual	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
West Yellowstone, MT	160.1	32.9	26.6	23.3	10.7	3.3	0.6	0.0	0.1	1.1	7.3	22.9	31.4
Jackson, WY	76.9	19.3	14.0	10.9	4.1	1.0	0.1	0.0	0.0	0.2	1.5	9.3	16.6

Source: Western Regional Climate Center –

<https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?mt8857>

Period of Record : 01/02/1924 to 06/30/2013

<https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?wy4910>

Period of Record : 01/03/1905 to 06/10/2016

Staffing:

Jackson Hole Airport has a seasonal staff of 12-14 personnel dedicated to snow removal operations. Approximately 2/3 of these staff are full time and 1/3 are part time. Full time snow removal employees work 40 hours per week whether snowing or not.

Equipment:

Jackson Hole Airport's snow removal equipment includes:

- 4 combination plower, broom, blower trucks (est. \$800,000 - \$1 million each)
- 3 rotary plows (est. \$1 million each)
- Several loaders and bulldozers for clearing ramps

Operation:

During snow season, most staff arrives at 3:00am to prep and manage areas for customers. Snow operations are continuous until the last flight at 9:30 or 10pm. During snow events, the runway is cleared with 3-4 plowers running simultaneously to clear the runway with one pass (taking approximately 10 minutes) between scheduled flights. Plows are followed by broom passes, then taxiways, runout areas, deicing pad, maintenance areas, etc. SRE crews must keep NAVAID areas including the ILS critical area and MALSR access roads clear. If snow accumulates to over 18" in the ILS critical area, the ILS is to be shut down. Lights and access roads must also be kept clear.

Cost Considerations:

Mr. Havel indicated a \$400,000 annual budget for snow removal personnel payroll and an annual budget of \$400,000 for snow removal dedicated parts and equipment (including \$100,000 in fuel). Portions of a \$300,000 airfield repair and maintenance budget overlap with snow removal operations with expenses for general tools, replacement parts and general repair. Mr. Havel indicated that snow removal is “not a damage free process.”

1.8 Service Area Trends

The purpose of this section is to discuss population and economic trends in the Yellowstone Airport service area in order to characterize the future economic climate as it relates to potential sources of aviation demand for the Yellowstone Airport.

Local Demographics / Airport Service Area

The West Yellowstone area has a very small resident population. The entire area within a 45-minute drive of the airport has a resident population of about 4,000. Traffic to the Yellowstone Airport is of 90% inbound origin¹, comprised primarily of visitors to Yellowstone National Park (YNP or Park), the boundary of which is less than one half mile east of the airport in some locations. Because of this dynamic, aviation demand at the Yellowstone Airport is driven more by national economic and aviation trends than local demographics.

The airport service area is generally defined by the proximity of other airports providing similar services. Competition is from Bozeman Yellowstone International Airport at Gallatin Field, Bozeman, MT (approximately 85 miles north), Idaho Falls Regional Airport, Idaho Falls, ID (approximately 108 miles southwest), Yellowstone Regional Airport, Cody, WY (approximately 100 miles east), and Jackson Hole Airport near Jackson, WY (approximately 80 miles southeast).

Table 1-10: West Yellowstone Area Population

Place	2019 Population
59758 zip code – West Yellowstone MT	1,434
59720 zip code – Cameron MT	150
83429 zip code – Island Park ID	519
82190 zip code – Yellowstone National Park WY	1,103
Area Population	3,206

Source: United States Census Bureau. B01001 SEX BY AGE, 2019 American Community Survey 5-Year Estimates. U.S. Census Bureau, American Community Survey Office.

<https://data.census.gov/cedsci/table?q=B01001%3A%20SEX%20BY%20AGE&g=860XX00US59720,59758,82190,83429&tid=ACSDT5Y2019.B01001>

Historic population data from U.S. Census for the State of Montana, Gallatin County, and the town of West Yellowstone over the period ranging from the 1990s to 2020 are shown in **Table 1-11**.

¹ *Yellowstone Airport Market Analysis*, Boyd Group International, 2009

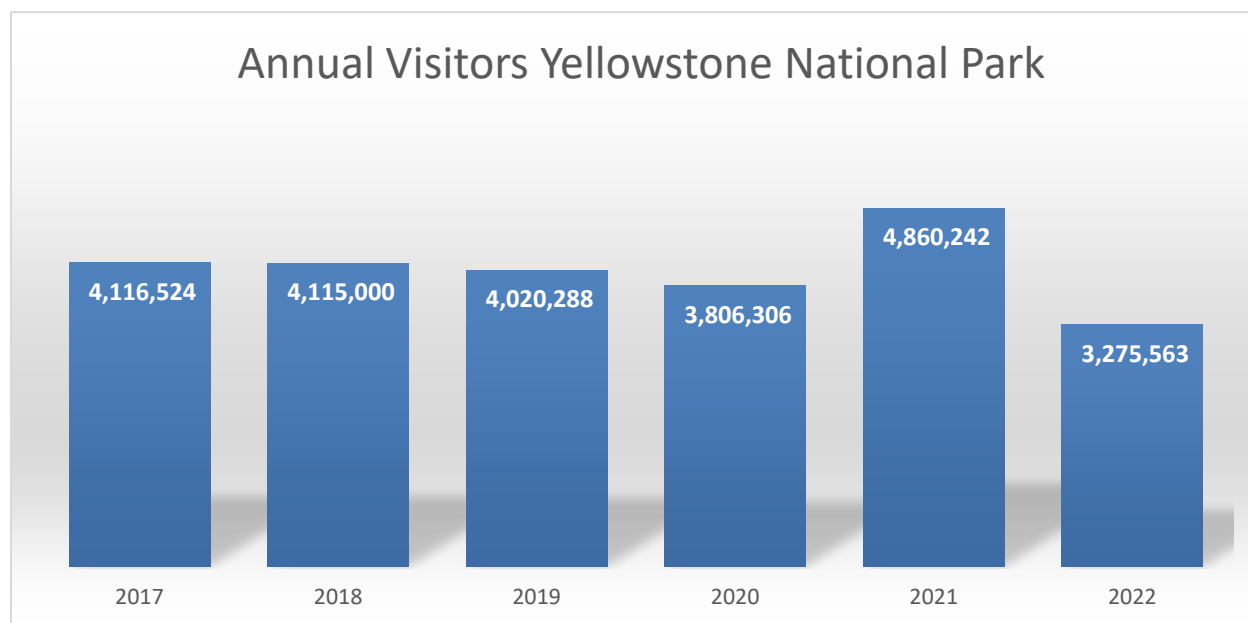
The US Census Bureau estimates the base population of West Yellowstone at 1,272 and Gallatin County at 111,960 in 2020. Since the 2010 census, the population increased by an estimated 0.0% for West Yellowstone and 32.9% for Gallatin County.

Table 1-11: Historic Populations – State of Montana, Gallatin County, and West Yellowstone

Year	State of Montana	Gallatin County	Town of West Yellowstone
1990	799,065	50,759	910
2000	902,195	68,406	1,175
2010	990,722	89,513	1,271
2020	1,084,225	118,960	1,272

Source: US Census Bureau

Figure 1-12 shows annual visitors to YNP. Over the last 5 years for which data is available, there has been an average increase of 3.3% annually in visitation to the Park. Park visitation was depressed in 2020 by the global Covid 19 pandemic and saw a dramatic rise of 25.8% in 2021 as of October 31, 2021. While complete data is not available for 2022, road closures due to summer flooding caused a significant drop in YNP visitation in that year.



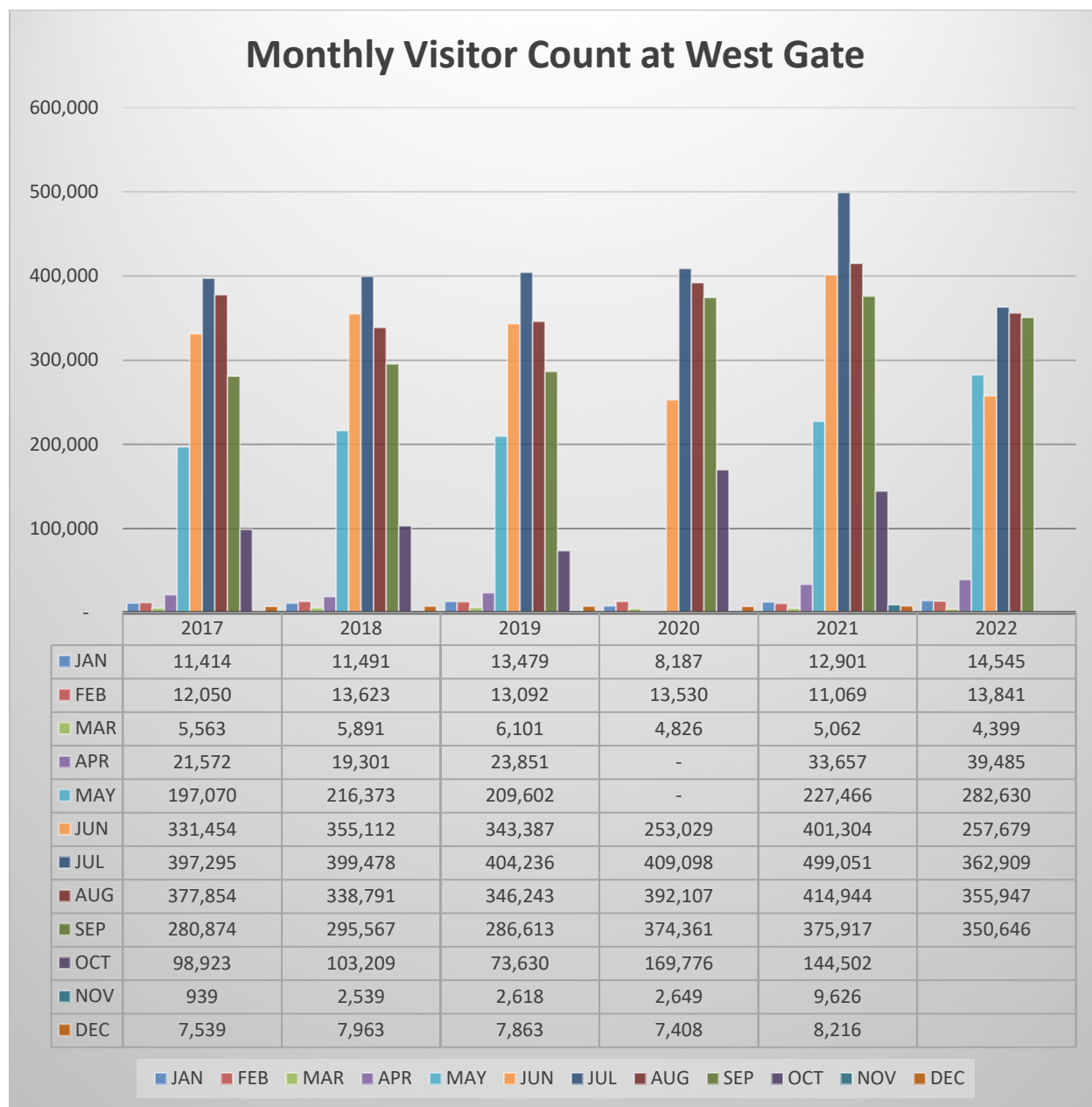
Source: National Park Service

Note: 2022 YNP counts estimated based on January - September data

Figure 1-12: Annual Visitors Yellowstone National Park

Visitation to YNP varies widely on a month-to-month basis. The Park's primary visitation season occurs between May and October, which also coincides with the commercial airline operations at

the airport. The Park's peak visitation months are July and August, followed by June, September, May, and October. This pattern is consistent from year to year.



Source: National Park Service

Data not available for October-December 2022

Figure 1-13: Monthly Visitors Yellowstone National Park - West Gate

The west entrance of YNP is 3 miles from the Yellowstone Airport and is the primary destination of the airport's passengers. The west entrance to the Park, nearest to Old Faithful, is the most visited of the Park's five entrances. Monthly visitor counts to the west entrance of the park are shown on **Figure 1-13**. Consistent with the patterns of visitation to the park overall, monthly traffic

is heaviest in July and August, followed by the months of June, September, May, and October, with negligible visitation from November through April. The six months outside (November thru April) of the airport's operating season (May thru October) have accounted for less than 4% of the overall total of tourists accessing Yellowstone National Park through the West Yellowstone entrance for the entire season annually since at least 2017. This is also reflective of why many West Yellowstone businesses are seasonal and shut down during these 'off season' months with little tourism traffic.

1.9 Yellowstone Airport Activity and Trends

Historical Operations

Because the Yellowstone Airport does not have a tower, operations counts are estimated as reflected per the FAA Terminal Area Forecast. The most recent estimate, for operations through 12/31/18 as reported to FAA are shown in **Table 1-12**. The Air Taxi / Commuter category represents operations by commercial carriers. With the addition of flights by United Airlines in 2021, this category has increased to approximately 1,000 for 2021.

Table 1-12: Yellowstone Airport Operations

	Itinerant					Local			Total Ops
	Air Carrier	Air Taxi / Commuter	GA	Military	Total Itinerant	GA	Military	Total Local	
ACTUAL									
2013	0	530	8,000	75	8,605	2500	0	2,500	11,105
2014	0	530	8,000	75	8,605	2500	0	2,500	11,105
2015	0	530	8,000	75	8,605	2500	0	2,500	11,105
2016	0	530	8,000	75	8,605	2500	0	2,500	11,105
2017	0	530	8,000	75	8,605	2500	0	2,500	11,105
2018	0	530	8,000	75	8,605	2500	0	2,500	11,105

Source: FAA Terminal Area Forecast and FAA Airport Master Record Form 5010 (2022)

Historical Based Aircraft

Table 1-13 presents the aircraft based at the WYS since 2013 by category from the FAA Terminal Area Forecast (TAF) and Airport Master Record for 2021. The FAA defines based aircraft as an aircraft that is "operational and air worthy" that is based at the airport for a majority of the year.

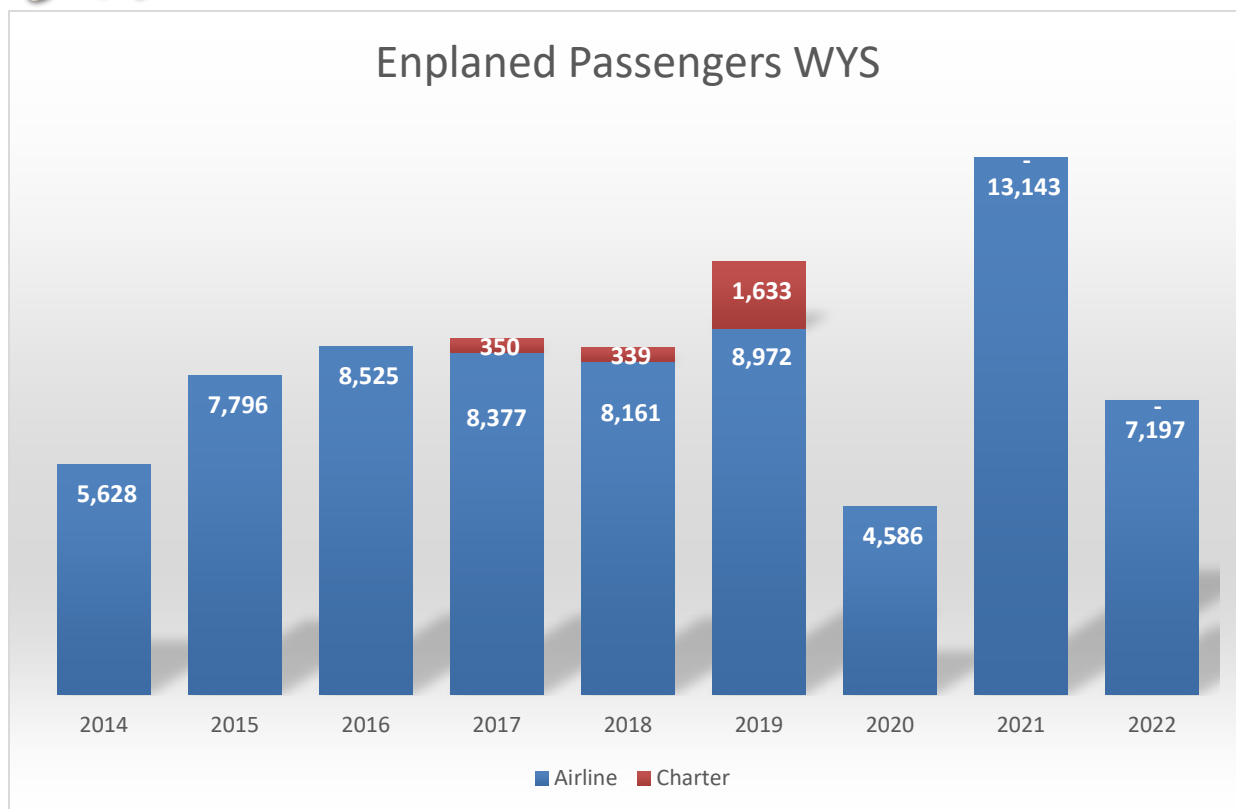
Table 1-13: Yellowstone Airport Based Aircraft

	Single Engine	Jet	Multi Engine	Helicopter	Other	TOTAL
2013	0	0	0	0	0	0
2014	0	0	0	0	0	0
2015	0	0	0	0	0	0
2016	0	0	0	1	0	1
2017	2	0	0	1	0	3
2018	2	0	0	1	0	3
2019	2	0	0	2	0	4
2020	2	0	0	2	0	4
2021	2	0	0	2	0	4

Note: aircraft based at the airport during the operating season are counted as based aircraft.
Source: FAA Terminal Area Forecast and FAA Airport Master Record Form 5010 (2022)

Historical Enplaned Passengers

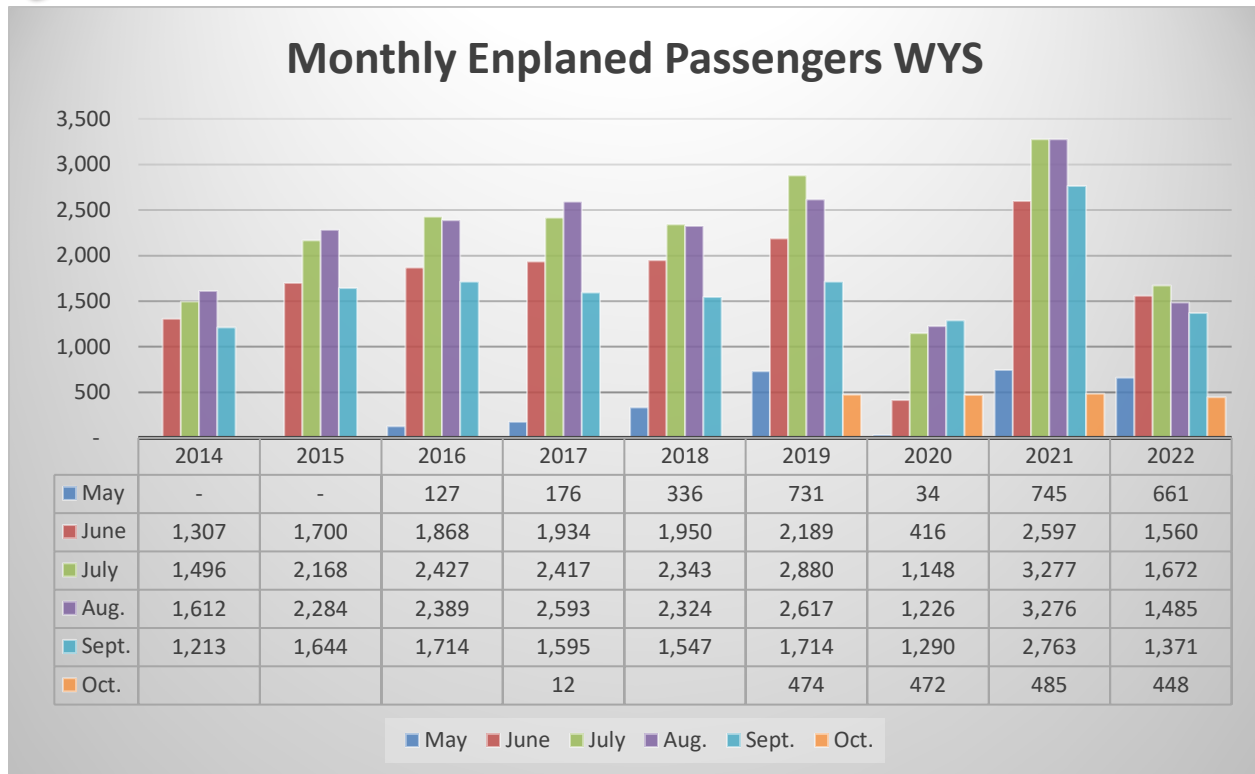
Figure 1-14 shows the historical enplaned passengers at the Yellowstone Airport for the last nine years, per MDT records. The airport has seen strong growth in enplaned passengers from 2013, when the airlines enplaned 5,290 passengers, through 2019, when 10,605 passengers were enplaned. Enplanements fell off dramatically in 2020 with the Covid-19 pandemic, to 4596 passengers, but, as of September of 2021, were at historic highs. In 2022, enplanements then fell back below 2015 levels due in large part to the closing of YNP in part of June 2022 and the resulting extended effects due to a 500-year flood event. (Note: Beginning in 2020, the FAA revisited charter enplanements at WYS and concluded that the definition of Part 139 charter operations was not met by the private operators at WYS. Therefore, charter enplanements were not included in WYS enplaned passenger counts in 2020 and beyond.)



Source: MDT Records

Figure 1-14: Annual Enplaned Passengers Yellowstone Airport

Figure 1-15 shows monthly enplaned passenger counts at the Yellowstone Airport for the last nine years. Monthly passenger enplanements are a function of both demand and schedule. The higher numbers of passengers in July and August correspond generally with higher levels of visitation to YNP in those months. This is compounded when the airline adds weekly flights to the schedule in response to increased demand. In 2016, for example, the airline extended its schedule to begin operating for one week in May and offered additional flights over the previous year in July and August. In 2021, United Airlines added service at the airport significantly boosting enplanements. Closure of YNP during part of June 2022 and the extended effects thereof due to a 500-year flood event led to dramatic declines in passenger traffic at the airport. Currently, airline service is scheduled from early May to mid-October. This generally corresponds with the automobile traffic season of YNP’s west entrance, which currently opens the last week in April and closes the first week in November.

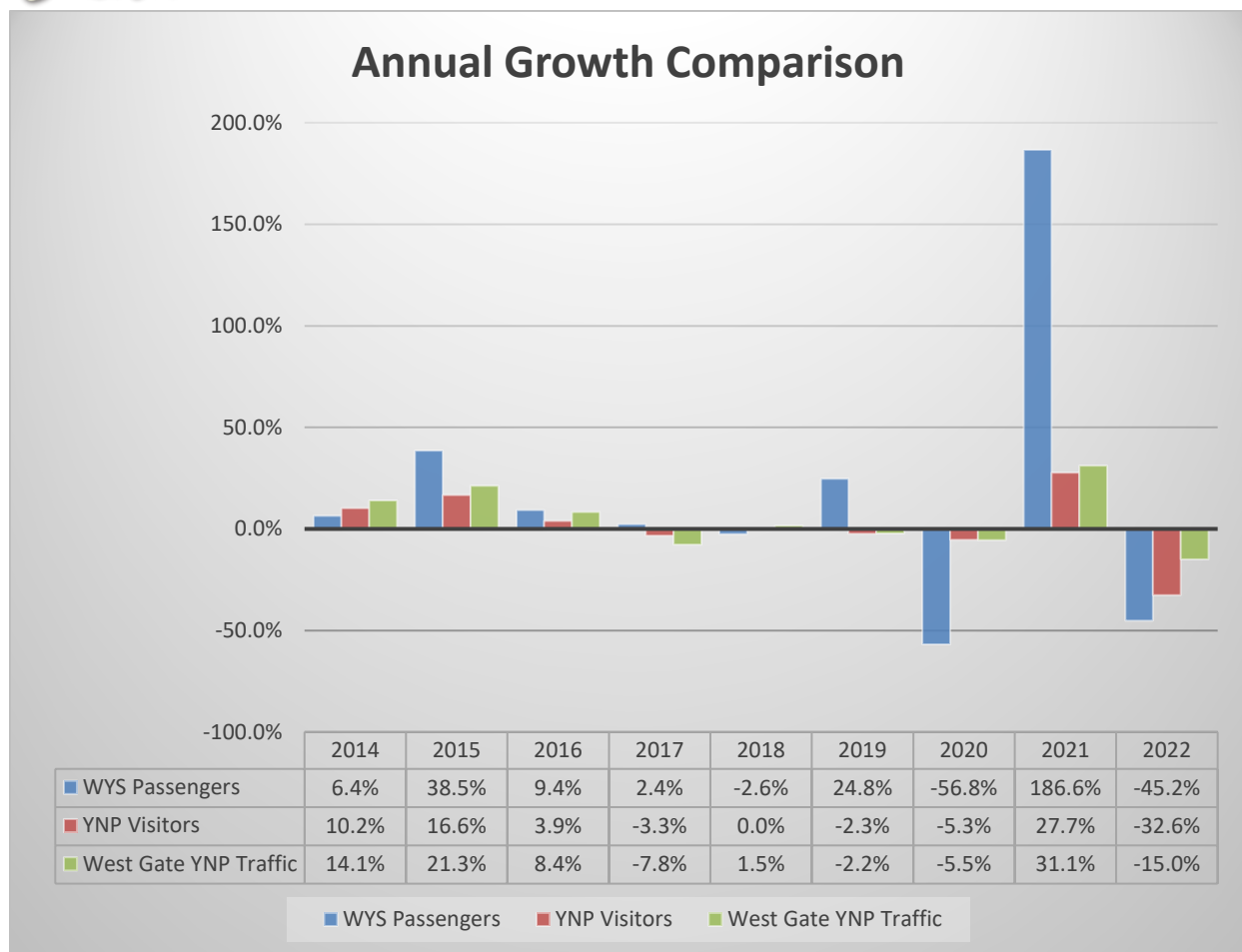


Source: Bureau of Transportation Statistics T-100 Segment data & MDT Records

Note: Data available from BTS through July 2022 at time of writing, Data for August through October 2022 from MDT Records

Figure 1-15: Monthly Enplaned Passengers Yellowstone Airport

Figure 1-16 is a comparison between year-to-year growth rates at the Yellowstone Airport, YNP and the west gate of YNP for the years 2014 -2022. While passenger growth at WYS has increased generally with visitor growth at YNP and traffic at the west gate, it has also responded dramatically to the introduction of regional jet service and the introduction of a new carrier. In 2015, when service by the 50 seat Canadair Regional Jet was introduced, passenger enplanements surged by 38.5% as compared to 21.3% growth in traffic at the west entrance of the Park. In 2021, with the addition of service by United Airlines, passenger enplanements grew by 176% over 2020. In 2022 summer road closures at YNP due to flooding precipitated dramatic declines in both park visitation and airport passenger traffic.



Source: National Park Service & Bureau of Transportation Statistics T-100 Segment data

Note: 2022 YNP counts are estimated based on January - September data

Figure 1-16: Annual Growth Rate Comparison

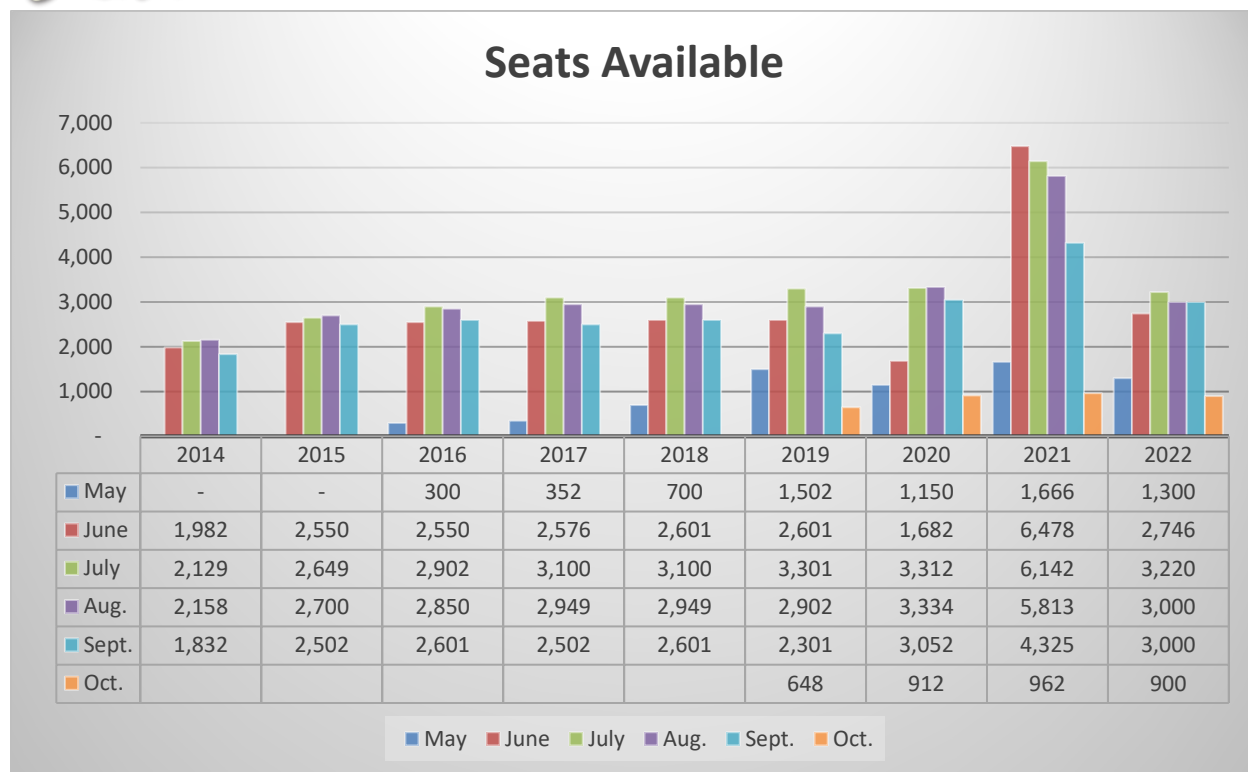
Figure 1-17 shows the number of available flights every month to Yellowstone Airport for the years 2014-2021. **Figure 1-18** shows the number of available seats (the number of flights X the number of seats available on each aircraft) for each month. Despite fewer available flights beginning in 2015, more seats were available due to the use of larger 50 seat aircraft. The number of available flights and seats roughly doubled in 2021 with the addition of service by United Airlines. Preliminary data from 2022 indicates a dramatic cutback in flights available, potentially an airline response to reduced demand from flooding related road closures at YNP.



Source: Bureau of Transportation Statistics T-100 Segment data & MDT Records

Note: Data available from BTS through July 2022 at time of writing, Data for August through October 2022 from MDT Records

Figure 1-17: Yellowstone Airport Flights Available



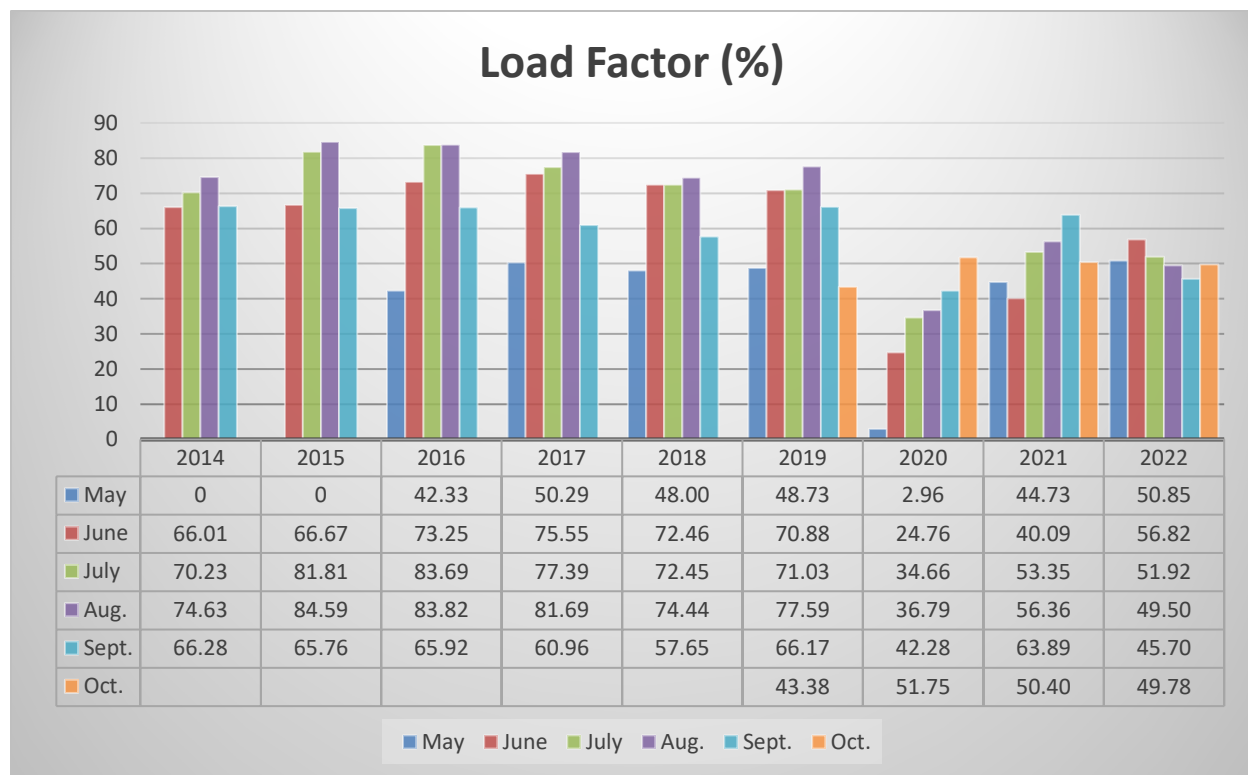
Source: Bureau of Transportation Statistics T-100 Segment data & MDT Records

Note: Data available from BTS through July 2022 at time of writing, Data for August through October 2022 from MDT Records

Figure 1-18: Yellowstone Airport Seats Available

Passenger load factor measures how much of an airline's passenger carrying capacity is being used. To obtain the passenger load factor, the number of passenger seat miles available is divided by the number of passenger seat miles sold. The resulting figure represents the percentage of capacity filled. A higher load factor represents aircraft at higher passenger capacity and indicates higher profitability for the airline. High load factors to a market can spur an airline to add flights, while low load factors can cause an airline to reduce flights.

Figure 1-19 shows average monthly load factor (% of capacity filled) for the Yellowstone Airport for the last eight years. Generally, higher load factors are seen in the months of greatest demand, July and August. Load factors increased dramatically in 2015 when SkyWest transitioned to regional jets. Load factors exceeding 80% in July and August of 2015, 2016, and 2017 indicated high demand for these flights and suggested potential for additional flights in the schedule. Load factors fell in 2020 due to the Covid 19 pandemic. With the addition of service by United Airlines in 2021, representing a doubling of available seats and flights, load factors remain strong but below pre-pandemic levels. The flooding and Park closure in the summer of 2022 could also impact performance of the West Yellowstone air service market in the near-term future.



Source: Bureau of Transportation Statistics T-100 Segment data & MDT Records

Note: Data available from BTS through July 2022 at time of writing, Data for August through October 2022 from MDT Records

Figure 1-19: Yellowstone Airport Load Factors

Other Area Attractions & Increased Service Potential

There exists a strong level of enthusiasm within some local residents of the community of West Yellowstone and the Fixed Base Operator (FBO) for year-round airport operations. However, as noted above, the West Yellowstone area has a low population and is not, in itself, likely to support significant year-round demand for aviation services.

As shown by the above data, current aviation demand at the Yellowstone Airport is closely tied to visitation to YNP. A key question to opening Yellowstone Airport during the winter months, when visitation to YNP is dramatically reduced, is whether providing year-round operations would make Yellowstone Airport an attractive alternative to other airports, such as in Bozeman and/or Jackson Hole, in the winter months. Such amenities as aircraft storage, deicing, aircraft maintenance, rental cars, restaurant availability, shopping, and other traveler desired services would likely weigh in on the success of any year-round operations.

Apart from YNP, the most significant destination would likely be the growing communities associated with the Big Sky Resort located 40 miles north of the Yellowstone Airport. While the Yellowstone Airport would be a viable airport to access the Big Sky area, Bozeman Yellowstone International Airport (BZN) lies 45 miles to the north of Big Sky. BZN is the busiest airport in the region, with scheduled service by nine airlines, direct flights from over 20 destinations, and

proximity to the amenities of the City of Bozeman. Private pilots and charters wishing to avoid the busy BZN airspace and airport could potentially generate some additional level of demand in favor of the Yellowstone Airport, but the degree is difficult to gauge. Even for private and charter travelers to Big Sky, the Yellowstone Airport will always be in competition with the amenities available at BZN and in the City of Bozeman.

The Yellowstone Club is a private residential club, ski resort and golf resort located 5 miles west of Big Sky. Representatives from the Yellowstone Club were interviewed regarding usage of the Yellowstone Airport. The club hosts approximately 160 to 180 private flights per year, all of which utilize BZN. A majority of these flights (estimated 100 to 110) are during winter months. Diverted flights typically go to Helena Regional Airport in Helena or Bert Mooney Airport in Butte. The Ennis and Livingston airports are not typically viable when BZN isn't available representatives stated. After landing in Bozeman, an estimated 99% drive and 1% helicopter to Yellowstone Club.

The following amenities were noted as requirements for users of private air service to reach Yellowstone Club:

- Hangar Space
- Deicing Capabilities
- Limousine Service
- Rental Cars
- Dependable Commercial Airline Service

The availability of commercial airline service was identified as a high priority need for multiple reasons. It serves as primary transportation for some and also provides backup transportation for private jet users when unexpected issues arise.

1.10 Airport Budgets

The Yellowstone Airport's operating budget is shown in **Table 1-14**. Key sources of revenue that are derived from the operation of the airport include fees from the airlines, Fixed Base Operator (FBO) fees which include a percentage of fuel flow revenue, a percentage of rental car revenue, concessions and advertising leases, land leases for private hangar(s), and the lease of the airport to NATC during the off-season months.

Net operating revenue is historically very tight to negative and requires assistance from MDT. This is typical of commercial airports with lower operations and enplanements due to limited opportunities for revenue generation from sources such as surface parking, rental cars, fuel flowage, and hangar leases as compared to fixed operational and maintenance costs.

Table 1-14: Historic Revenues, Expenses and Cash Flow

	FY 18	FY 19	FY 20	FY 21
BEGINNING WORKING CAPITAL	611,424	\$807,754	\$963,650	\$1,684,221
REVENUE				
Airline Income	43,567	55,691	41,355	66,665
PFC Fees	46,974	33,212	28,061	42,627
Fixed Base Operator Income	24,291	42,804	26,037	33,552
Rental Car Income	147,324	165,919	155,575	145,150
Restaurant Income	3,873	5,532	3,990	5,390
Advertising Income	7,600	6,142	5,315	4,425
Terminal Rent Income (TSA & Rental Car Counter)	18,027	18,424	22,195	19,508
Winter Operations Income	78,140	58,886	58,203	54,375
Leased Land Income	46,875	49,400	53,500	75,018
Air Ambulance Income	46,374	23,304	19,104	19,900
Air Tourism Income	3,830	3,645	6,106	
Miscellaneous Receipts	2,406	1,071	1,012	876
Intern Grants	7,475	5,000		
Gallatin County Property Tax Transfer	5,878	8,878	9,260	13,729
TOTAL REVENUE	828,859	515,546	876,670	481,215
AVAILABLE WORKING CAPITAL	1,440,283	1,323,300	1,840,320	2,165,435
EXPENSES				
Yellowstone Airport Operating Expenditures (less projects below)	320,724	319,254	165,188	86,106
Compensated Absences	1,725	4,329	(21,418)	(11,475)
PFC Audit				
Federal Projects				
Runway Reconstruction				
Taxiway & Apron Reconstruction - Design (FY17: 06200-016)	310,080		2,029	
Runway & Pavement Maintenance		4,405		
Taxiway & Runway Lighting Rehabilitation				
Airport Master Plan Study				
Yellowstone Airport EPP				
WYS01 Yellowstone Airport Rehabilitate Runway (8.12%)				
WYS03 YA IIA Infrastructure Projects				
WYS04 YA Taxiway/Apron Expansion				
WYS05 FTE Airport Facilities Specialist				
WYS02 YA Apron/Taxiway Pavement Maintenance				
Terminal				
TOTAL EXPENDITURES	632,528	359,651	156,100	74,631
Total revenue less expenses	196,331	155,896	720,571	406,583
ENDING WORKING CAPITAL	807,754	963,650	1,684,221	2,090,804

1.11 Financial Resources

Funding Sources

The Yellowstone Airport is eligible to receive financial assistance for capital projects through several funding sources. Included in these is the FAA's Airport Improvement Program (AIP), temporary special funding allocations such as Coronavirus Aid, Relief, and Economic Security (CARES) Act (expires May 2024) and Bipartisan Infrastructure Law (BIL) grants (FY 2022-2026), the FAA Passenger Facility Charge (PFC) program (presently dedicated to reimbursement of projects for foreseeable future), MDT Aeronautics Division Loan and Grants Program (historically the Yellowstone Airport doesn't receive additional support from the MDT Aeronautics Commission through this program), and through local user fees and charges. As a commercial service airport in the National Plan of Integrated Airport Systems (NPIAS), the greatest source of available funding is the AIP program.

Under the AIP, eligible projects (such as airfield, apron, terminal, and access roads) can receive up to 91.88 percent federal participation at the Yellowstone Airport. On rare occasions AIP grants may offer participation up to 100 percent (2021 grants).

AIP airport categories, defined by activity, are listed below:

Commercial Service Airports

Commercial service airports are publicly owned airports that have at least 2,500 passenger enplanements each year and receive scheduled passenger service.

Nonprimary Airports

Nonprimary airports are commercial service airports that have at least 2,500 and no more than 10,000 passenger enplanements each year. Nonprimary airports receive \$150,000 annually for eligible projects and are also eligible to receive discretionary funds.

Primary Airports

Primary airports are commercial service airports that have more than 10,000 passenger enplanements each year. Primary airports receive apportionment funds based upon the number of passenger enplanements. If full funding is made available for obligation, the minimum amount apportioned to the sponsor of a primary airport is \$1,000,000, and the maximum is \$26,000,000. Primary airports are divided into sub-categories based on hub type, including: large hub, medium hub, small hub and nonhub.

Seasonal Airports

With the passage of the FAA Reauthorization Act of 2018, "Seasonal Airports" was added to the list of AIP commercial airport categories.

Seasonal Airports are addressed in the legislation as follows:

SEC. 164. SEASONAL AIRPORTS.

Section 47114(c)(1) of title 49, United States Code, as amended by this Act, is further amended by adding at the end the following:

“(I) SEASONAL AIRPORTS.—Notwithstanding section 47102, if the Secretary determines that a commercial service airport with at least 8,000 passenger boardings receives scheduled air carrier service for fewer than 6 months in the calendar year used to calculate apportionments to airport sponsors in a fiscal year, then the Secretary shall consider the airport to be a nonhub primary airport for purposes of this chapter.”.

With annual passenger enplanements, just under the 10,000 level, the Yellowstone Airport has historically fallen into the category of a nonprimary commercial service airport. However, with the FAA Reauthorization Act of 2018, the airport now falls into the new seasonal airport category and is now considered a nonhub primary airport for purposes of calculating apportionments under AIP. This has significantly increased the funding available to the airport for terminal improvements, as well as increased the Sponsor’s obligations for matching funds.

AIP Entitlement Funds

As a Seasonal Commercial Service Airport, the Yellowstone Airport now qualifies for the entitlement funds of a primary airport at a minimum amount of \$1,000,000 per year.

The reauthorization act authorizes entitlement funds for nonprimary airports to be available not only during the initial year of allocation, but will be carried over for the two remaining years immediately following. If entitlement funds are not utilized for AIP eligible improvements the money will be recycled back into the Aviation Trust Fund. While the Yellowstone Airport is identified as a primary airport currently, it is on the cusp of the 10,000 enplanement criteria that dictates the differentiation between a nonprimary and primary airport for year-round operations. Maintaining the “seasonal” airport designation allows the airport to maintain its primary status with only 8,000 annual enplanements. A risk for year-round commercial operations for the Yellowstone Airport would be losing the “seasonal” designation and falling under the 10,000 annual enplanement threshold for primary status. As a non-primary airport, it would then be eligible for only \$150,000 annually in entitlement funds vs. \$1,000,000 as a primary airport.

AIP Discretionary Funds

Discretionary funds are of two types. The first, Set-Aside Funds, are reserved for noise compatibility planning and implementing noise compatibility programs. The second type of discretionary funds includes those that are remaining after the apportionments are made and set-asides are accommodated. Of these remaining funds, 75 percent, are reserved for preserving and enhancing capacity, safety, security and carrying out noise compatibility planning and programs at primary and reliever airports. The remaining 25 percent of the funds are known as remaining or pure discretionary, may be used at any airport for any AIP eligible improvement.

For terminal projects, discretionary funds are capped at \$200,000 for nonprimary airports and \$20,000,000 for primary airports. Under the new definition of seasonal (primary) Airport, the Yellowstone Airport is now eligible to receive up to \$20,000,000 in discretionary funds toward terminal improvements.

Temporary Special Funding Allocations

Temporary special funding allocations can include adjustment of the Sponsor required match to Federal funding, or as is currently enacted, CARES and BIL grant funding. The Airport's CARES Act funding is presently dedicated to addressing Sponsor match, FAA ineligible items, or to make up funding shortfalls of the Terminal Improvement Project(s). It is not anticipated that any CARES Act funds will be able to support any snow removal related infrastructure or equipment.

BIL grants amount to \$1,005,828 in Federal funds for each FY 2022-2026. These funds are eligible but not dedicated to be used to support snow removal related infrastructure or equipment.

Passenger Facility Charge (PFC)

The *Aviation Safety and Capacity Act of 1990* authorized commercial service airports enplaning 2,500 passengers annually to impose a PFC of up to \$3.00 per each paying passenger enplaned at an airport. The *Wendall H. Ford Aviation Investment and Reform Act for the 21st Century* (AIR-21), enacted in 2000, modified the PFC program allowing an increase in the fee to \$4.50 per enplaned passenger.

The current FAA PFC program allows a commercial service airport the authority to collect a "passenger fee" from enplaned passengers provided that the amount and duration of the fee does not result in excess revenue; the proceeds of the PFC are utilized for AIP eligible improvements; preserves or enhances capacity, safety, or security, reduces noise or encourages enhanced airline competition; and is adequately justified. PFCs may be used to offset debt service incurred during the completion of an eligible improvement. Additionally, the costs of administering a PFC program are eligible for inclusion in the allowable PFC costs of implementing the program.

The Yellowstone Airport currently collects a \$4.50 PFC for approved capital improvements. PFC funds for the airport are committed for the foreseeable future to reimbursement of numerous eligible projects.

Car Rental Customer Facility Charge

The operation of an airport as a public facility attracting airline passengers who use car rental facilities imposes a financial responsibility on the airport to provide car rental facilities in and adjacent to the terminal building, parking lots, and access roads. Many airports have established a Car rental Facility Charge (CFC) imposed by a rental car company upon a car rental customer arriving at the airport and renting a vehicle from an on-airport or off-airport car rental company serving the airport. The CFCs are typically used to pay or reimburse the Airport for the costs associated with the design, planning, and construction of facilities or improvements exclusively used by the rental car companies serving the airport. Any or all the CFCs collected may be pledged

to the punctual payment of debt service on obligations issued by or on behalf of the airport for the cost of the rental car portion of a parking garage expansion, car wash facility, or parking lots established for the rental car companies. CFCs are typically collected by the rental car company and remitted to the airport monthly.

The Yellowstone Airport has established a CFC of \$4 per contract (identified as a "Maintenance Facility Fee") which is added to an operational fee of \$400 per season. Fees collected are used for services and facilities provided to the rental car companies by the airport for the conduct of their business including power service, water service and trash collection.

Land Leases

The airport has a valuable resource in its land holdings. While a portion of these holdings will need to be reserved for aviation-related improvements, some land can be developed for additional commercial/industrial uses to increase airport revenues. The airport currently has land leases with Town of West Yellowstone for its city sewer lagoon and Energy West for its liquefied natural gas plant.

Until recently, the Yellowstone Airport was prevented from realizing potential revenue from non-aeronautical development by restrictions contained within its deed with the U.S. government.

The MDT – Aeronautics Division and the FAA, on December 6, 2018 completed the process of releasing select deed restrictions that had prevented non-aeronautical development on the airport. Now that select deed restrictions have been lifted, opportunities for revenue generating non-aeronautical development are possible. While possible, there are numerous steps that need to occur prior to any development taking place – release of the land from aeronautical use and environmental review under the National Environmental Policy Act (NEPA) and Montana Environmental Policy Act (MEPA). Such activities may delay actual improvements, and as a result, the realization of additional revenue. Revenue from future land leases can be used to support operations and maintenance of airport facilities.

1.12 NEPA Environmental Considerations

The Yellowstone Airport has conducted numerous environmental analyses under NEPA for various actions and improvements. Due to its proximity to YNP, one of the key environmental impacts considered in each of these analyses is potential effects of aircraft noise on wildlife. Previous evaluations have notably included an evaluation of introducing jet service to the airport in 2014.

Discussions with FAA environmental personnel and a cursory review of past documentation indicate that the wildlife impact evaluations of past NEPA documents have not based conclusions on the assumption of seasonal operations. These past conclusions should remain valid for year-round operations per current FAA interpretation.

If the airport is to shift to year-round operations, some level of NEPA evaluation is likely to be required. Current interpretation is that this evaluation would likely be on the order of a

documented categorical exclusion rather than an environmental assessment. Were the Sponsor to make the decision to pursue year-round operations in earnest, it would be necessary to gain formal concurrence with the FAA that no previous environmental conclusions have been contingent on the assumption of seasonal operations at the Yellowstone Airport. If not the case, and it is determined that previous conclusions were predicated on the assumption of limited operations, the Sponsor would likely need to perform NEPA analysis on the order of an Environmental Assessment, primarily to demonstrate no significant impact due to noise effects from increased operations on threatened and endangered species.

1.13 Evaluation Milestone

Upon completion of this inventory, the Sponsor will evaluate the information obtained in the inventory process. Any apparent "deal breakers" that have become evident in the inventory process which are highly likely to render extension of operations into the winter season infeasible will be identified before proceeding with more detailed analysis. A few key considerations for this evaluation are identified below:

Operational Costs

The following cost elements have been identified in the course of this inventory:

- Operational costs on the order of approximately \$10,000 to \$12,000 per year (2021 diesel fuel expense at ~\$3.00/gallon, summer 2022 diesel fuel expense at over \$6.00/gallon) in fuel for SRE operations, based on Afton – Lincoln County Municipal Airport snow removal for approximately half the snow volume of West Yellowstone.
- Additional staffing would be required equating roughly to two to four additional full time staff (as based on NATC input from their snow removal staffing levels at the Yellowstone Airport) in January and February which could feasibly be reduced to half time in December March and April. Acquisition of seasonal staff in the West Yellowstone area has proven extremely difficult in the past. The Sponsor will need to determine the level of responsiveness of snow removal operations desired and level of readiness of the airfield (i.e. 24/7 staffed to facilitate continual snow removal operations, budgeting level for any regular staff over time compensation, staffing to facilitate opening by a set time daily, closing the airport until available staff have it cleared, or other criteria.)
- New snow removal equipment (SRE) would be required on the order of one to two pieces of additional equipment at a minimum. While exact SRE are not identified at this point in the process, it is anticipated that acquisition at a minimum may include: 1) 350 minimum horsepower diesel snow plow truck with 14 foot power reversible plow and 6 CY dump body with hydraulic hoist, and 2) 162 minimum horsepower turbo diesel loader with 5 CY light duty bucket, 18-foot power reversible side wing plow, and 14-foot hydraulic rotary broom. The existing tractor with blower and other attachments could be continued to be utilized to address larger piles and clean out around lights and signs. Cost magnitude of this equipment is approximately \$300,000 (truck/plow) and \$350,000 (loader with attachments), respectively. The current Capital Improvement Plan has a placeholder project in 2026 at the FAA contribution of \$650,000 (91.88% of project) for a total project cost of approximately \$707,445. Other equipment to consider could be a standalone

broom, plow, scraper, or de-icing system such as the MB3, or multi-tasking machine that combines plow/broom/blowers with one carrier vehicle such as the MB5 to maximize staffing levels. Such equipment as the MB3 or MB5 come at a higher project cost of approximately \$850,000. Sponsor consideration of the volume of snow events and what the optimal equipment to staffing levels are will shape how the equipment fleet is developed.

- Expansion of the SRE building and/or a new building to house new equipment would be required at an order of magnitude cost of approximately \$2,000,000. It is anticipated that the existing SRE building would not be economically remodeled to accommodate new SRE equipment (wider garage bay doors, need for updates to be Code compliant, etc.) and would have to be razed following construction of a new SRE building that would be sized appropriately to house the fleet of new equipment.
- Additional annual maintenance expense would be incurred on SRE equipment and repair of lights, signs, etc. that are inevitably damaged during snow removal operations. While there would be reduced maintenance in having new equipment as compared to 1990's era snowplow trucks, maintenance of equipment is always required. Anticipated costs are not provided as there are extensive variables (hours, snow load, cold temperatures, creation of a capital reserve account for replaceable items (i.e. tires, plow cutting edges, broom bristles, etc.) that come into play in wear and tear on equipment. An approximately order of magnitude for budget purposes may be in the range of \$5,000 to \$10,000 annually.
- Annual revenue of approximately \$60,000 per year from current non-aeronautical winter operations would be lost with displacement of existing winter tenants.

In summary, to break even from added winter operations costs, additional annual revenue of approximately \$225,000 to \$360,000 would be required, as shown below.

\$9,338	to	\$16,240	Payback of Sponsor share of FAA project capital costs @8.12% paid back over 10 yrs. & 40 years respectively for equipment and buildings)
55,000	to	80,000	Loss of existing winter lease revenue
100,000	to	200,000	Additional staffing expense
10,000	to	12,000	Snow removal operating costs (fuel)
50,000		50,000	Snow removal maintenance costs
\$224,338	to	\$358,240	Total additional revenue required annually to break even

As shown in **Table 1-14**, total annual revenues from airlines, passenger facility charges (PFCs), the FBO, rental cars and the restaurant are currently in the range of \$255,000 to \$303,000. Revenue from these sources would need to roughly double to recoup costs. This is anticipating that the annual FAA funding doesn't revert from \$1,000,000 in Primary Entitlements to \$150,000 per year in Non-Primary Entitlements with any airport classification change as a result of enplanements, and that may otherwise require the airport Sponsor share to increase to cover FAA funding shortfalls.

"Seasonal Airport" Category

Should air carrier service at the Yellowstone Airport extend to more than six months in the calendar year, the airport would no longer fall into the "Seasonal Airport" AIP funding category. As noted previously the Seasonal Airport category allows the airport to be considered a nonhub primary airport for AIP funding purposes, boosting eligibility for AIP entitlement funds from \$150,000 per year to \$1,000,000 per year. Without the Seasonal Airport designation, the airport would need to maintain more than 10,000 enplanements per year to qualify this level of entitlement funding as a traditionally defined nonhub primary airport. The airport exceeded 10,000 enplanements in 2019 (10,605) and in 2021 (13,143) with five to five and a half months of commercial operations. Should the airline operating season extend beyond six months per year, it is likely that annual enplanements would exceed 10,000, however, it is not assured. With a greater than six-month airline operating season, there would be some risk to the Sponsor of dipping below 10,000 enplanements, losing nonhub primary status and the associated significantly increased annual entitlement funding.

Potential Benefits

The potential benefits of extending the operating season of the Yellowstone Airport into the winter months include:

- Improved access for winter tourism, local residents of town of West Yellowstone, and emergency services
- Potential to boost local business
- Potential for additional revenue for the Part 135 Operators, FBO, rental car operators, restaurant concessions, and airlines

However, these benefits are likely to be too limited in scale to overcome anticipated costs. Commercial demand in the winter months is anticipated to be low due to the seasonal nature of visitation to Yellowstone National Park, which is largely limited to May through October. Other venues, such as Big Sky, exist beyond YNP, but these have historically been served from Bozeman.

An incremental increase in fuel flowage collections from the FBO can be anticipated with added operations in winter months. While some additional revenue from fuel flowage will accrue with winter operations, it would not be anticipated to be comparable to summer fuel flowage revenue. It is impossible to predict with confidence, the number of additional operations that would occur if the airport were open in winter months. However, as has been noted, overall operations at the Yellowstone Airport have been highly correlated to visitation at YNP. **Table 1-15** below, applies the percentage of annual visitation to the west gate of YNP during winter months (November through April), as noted in **Table 1-13**, to historic income from FBO collections, as noted in **Table 1-14**. This provides an order of magnitude illustration of potential additional income from the FBO and predicts additional revenue from FBO operations of less than \$2,000 in the busiest years. Revenue could be boosted by additional demand from winter destinations like Big Sky, but the degree to which this could occur is highly speculative. As previously discussed, potential additional winter demand is undercut by competition with the amenities available at BZN and in the City of



Bozeman, especially given the lack of available general aviation hangar space at the Yellowstone Airport.

Table 1-15: Additional FBO Income Estimated by YNP Winter Visitation Rate

	FY 18	FY 19	FY 20	FY 21
Historic Annual Income from FBO	\$24,291	\$42,804	\$26,037	\$33,552
Percentage of Annual Visitors to West Gate YNP in Winter (November - April)	3.4%	3.9%	2.2%	3.8%
Additional Income from FBO by West Gate YNP Winter Visitation Rate	\$865	\$1,724	\$596	\$1,310

The community of West Yellowstone, with a resident population 1,272 per the 2020 census, could see unquantifiable benefits from year-round local air access. Winter commercial air service, if added, would eliminate the need for residents of West Yellowstone to travel to other airports for commercial air service during winter months. Other benefits such as fixed wing Life Flight / air ambulance service and enhanced patronage to local businesses during the winter months could also accrue to the community.

The Fixed Base Operator, which provides fuel and services to aviation users, would benefit from the addition of winter aviation operations through the potential for increased fuel sales and the potential addition of winter services such as aircraft storage, maintenance, and deicing.

Table 1-16 summarizes key considerations which have been obtained in this inventory process for initial evaluation.

Table 1-16: Organization Advantages / Disadvantages to Extended or Year-Round Operations

Organization	Advantages	Disadvantages
Sponsor – Montana Department of Transportation	<ul style="list-style-type: none"> Potential for extended operating season to achieve additional enplanements (Part 135 or Part 139) to sustain 10,000 plus enplanements and \$1,000,000 in annual AIP funding 	<ul style="list-style-type: none"> Potential risk of loss of \$1,000,000 annual AIP funding through Seasonal Airport or Primary Service airport designation if 10,000 enplanements is not maintained. Increased labor, equipment, and infrastructure operating costs to maintain airport snow removal. Loss of NATC and Chamber of Commerce winter lease revenue While there is the potential for fuel sales/rental car/PFC revenue, it is anticipated that operating/maintenance costs will be well more than revenues generated without any revenue guarantee(s).
Commercial Airline(s)	<ul style="list-style-type: none"> Potential for extended operating season revenue – not anticipated to be extensive without enhanced marketing of service(s) or revenue guarantee(s) 	<ul style="list-style-type: none"> Potential loss of revenue that may require additional Essential Air Service revenue guarantees. Potential degraded passenger experience if any delays or inability to land due to snow removal issues. Anticipated to have reduced operating schedule such as presently exists at beginning and end of seasons that could cause concern for retaining regular staff on reduced hours.
Transportation Security Administration (TSA)	<ul style="list-style-type: none"> None known 	<ul style="list-style-type: none"> Anticipated to have reduced operating schedule such as presently exists at beginning and end of seasons that could cause concern for retaining regular staff on reduced hours.
Rental Cars	<ul style="list-style-type: none"> Potential for additional revenue 	<ul style="list-style-type: none"> Would require enclosed conditioned space for washing and detailing of rental vehicles. Such venue(s) do not presently exist on the airport, with limited local facilities available in the Town of West Yellowstone. Anticipation of reduced airline schedule (i.e. one daily flight) could cause concern for retaining regular staff on reduced hours.



Organization	Advantages	Disadvantages
Restaurant Concessions	<ul style="list-style-type: none"> Potential for additional revenue 	<ul style="list-style-type: none"> Anticipation of reduced airline schedule (i.e., one daily flight) could cause concern for retaining regular staff on reduced hours.
Air Methods (Helicopter Life Flight Operations)	<ul style="list-style-type: none"> Access Life Flight fixed wing capabilities to augment helicopter range limitations. 	<ul style="list-style-type: none"> Cold, snow conditions, and limited Return on Investment during low tourism winter months has resulted in only seasonal service in recent years.
Part 135 (Air Charter / Tour) Operations	<ul style="list-style-type: none"> Potential for additional revenue 	<ul style="list-style-type: none"> Limited Return on Investment during months of low tourism has resulted in a compressed seasonal service within the airport's typical operating season for helicopter tour business(es).
GA Itinerant Pilots	<ul style="list-style-type: none"> Access Alternative to other local airports in the event of mechanical issues or otherwise during flight 	<ul style="list-style-type: none"> None anticipated, unless fuel, landing fee, or other related rates increased seasonally to aid in funding snow removal operations.
Local West Yellowstone Area Residents and Traveling Public	<ul style="list-style-type: none"> Access – reduced travel to other airports for commercial air service during winter months Life Flight fixed wing capabilities Potential boost to area businesses 	<ul style="list-style-type: none"> None anticipated, unless Town, local business(es), or benefactor(s) aid with any revenue guarantees.
Fixed Base Operator	<ul style="list-style-type: none"> Potential for increased fuel sales Potential for service sales (storage, maintenance, deicing, etc.) 	<ul style="list-style-type: none"> None anticipated, unless fuel, landing fee, or other related rates increased seasonally to aid in funding snow removal operations.
Nevada Automotive Test Center (NATC)	<ul style="list-style-type: none"> None as NATC loses its annual lease or reduces its operating season if commercial service extends significantly on either seasonal end 	<ul style="list-style-type: none"> Any extended airport operations during winter months jeopardizes NATC's lease.

1.14 Conclusion

The scope of this Winter Operations Narrative Report (WONR) included a “decision point” following the preparation of the inventory chapter. The purpose of this decision point in the scope was to evaluate whether the inventory process identified issues that provided sufficient clarity to reach a decision on winter operations prior to initiating subsequent study scope elements. Concluding the study at the earliest point that a decision becomes apparent is considered a fiscally prudent approach.

The study’s inventory phase has identified the following issues with establishing winter operations which have collectively been determined to warrant concluding the study at this time:

Immediate loss of revenue. Approximately \$60,000 annually from existing winter ground operations leases by Nevada Automotive Test Center (NATC) and others would be lost immediately upon initiation of winter aeronautical operations.

Over the past four years, revenue from winter operations, predominantly by the NATC has accounted for \$58k – 78k, (7%-11%) of annual revenue generated at the Yellowstone Airport. This has been a reliable revenue stream for the airport for many years. Because NATC operations utilize the runway, taxiway, and aprons to test vehicle performance in winter conditions, vehicle testing would not be feasible in conjunction with aeronautical operations. The introduction of winter aeronautical operations would require termination of this lease and would result in the loss of the associated revenue stream.

Risk to entitlement grant funds. If the commercial operating season is extended beyond 6 months, the Yellowstone Airport would no longer be designated a “seasonal airport”. The airport would be required to maintain 10,000 annual enplanements (as a non-seasonal airport) vs. 8,000 annual enplanements (as a seasonal airport) to maintain eligibility for FAA primary entitlement grant funds. The Yellowstone Airport currently operates very close to this threshold, making the risk noteworthy. FAA entitlement funding is \$1 million/yr. as a primary airport vs. \$150,000/yr. as a non-primary airport.

With the passage of the FAA Reauthorization Act of 2018, the Yellowstone Airport was redesignated from a nonprimary commercial service airport to a “seasonal airport”. For airports receiving commercial operations for fewer than six months in the calendar year, the seasonal airport designation reduces the annual enplanement requirement from 10,000 to 8,000 in order to receive primary entitlements of \$1,000,000 in annual AIP entitlement grants as compared to \$150,000 as a nonprimary airport. The Yellowstone Airport has exceeded 10,000 enplanements in only two of the last five years. One of those years also included Part 135 operations that are no longer qualified to be counted toward the 10,000 enplanements requirement. Should the commercial operating season be extended beyond six months and passenger enplanements not be consistently maintained above 10,000 per year, the airport, without its “seasonal” classification, would see its AIP entitlement apportionment drop from \$1,000,000 per year to \$150,000 per year.

Given the fluctuations inherent in the air service industry, this is considered a potentially significant risk. In the last 5 years, only two years of enplanements have exceeded 10,000 (2019 and 2021) and only one non-covid year (2022) failed to reach 8,000 enplanements.

Significant operation & maintenance costs to implement winter snow removal operation. Millions of dollars in equipment, and equipment storage would be required, as well as hundreds of thousands of dollars in annual operational budgets for additional staffing & maintenance costs. Given the local population, the ability to reliably staff year-round snow removal operations is questionable.

Airport staff, which would be responsible for airfield maintenance and snow removal staff is currently limited to 1 FTE employee during winter months.

Interviews with personnel from Jackson Hole Airport and Afton – Lincoln County Airport in neighboring Wyoming and NATC provided a qualitative assessment of what snow removal would entail. Jackson Hole Airport is the nearest commercial service airport to the Yellowstone Airport, lying 75 miles to the southeast. With approximately half the annual snowfall of the Yellowstone Airport, Jackson Hole employs a winter season staff of 8 full time and 5 part time employees dedicated solely to snow removal. Annual budgets for snow removal include approximately \$400,000 for payroll, \$400,000 for snow removal fuel, parts and equipment and portions of a \$300,000 airfield repair and maintenance budget. In addition, there is an extensive fleet of plow trucks, brooms, and blowers that require the capital investment in both equipment and storage facilities.

The Afton- Lincoln County Airport, a general aviation airport located approximately 135 miles south of the Yellowstone Airport, also receives approximately half the annual snowfall of the Yellowstone Airport. During winter months more than half of the airport manager's time is spent on snow removal operations with individual snow events frequently requiring round-the-clock attention to keep the airport operational.

NATC employs five to six full time staff for its snow clearing operations in West Yellowstone. These employees are required to maintain pavement surfaces for vehicle testing, a smaller area than would be required for aeronautical use. NATC has found it "almost impossible" to find local snow removal employees due to the seasonal nature of the job, the expertise required and the low local population. It's snow removal employees at West Yellowstone are based at the company's Nevada headquarters and are stationed at West Yellowstone for the winter season only. The company provides temporary housing for its employees in West Yellowstone hotels.

Snow removal equipment at the Yellowstone Airport is not sufficient for reliable year-round winter operations. Multiple additional snow removal vehicles would be required to maintain the airport to FAA standards throughout the winter months. A heated equipment storage building would also be required. With snow removal equipment approaching \$1 million per unit, several million dollars in up front capital expenses would be required to establish a winter snow removal operation in

equipment costs alone. A Snow Removal Equipment building would also require capital expenditures to house the equipment and is anticipated to be a several million dollar investment.

Apparent potential benefits are limited and highly speculative. While a robust level of winter passenger traffic from commercial service could arguably support improved access for winter tourism, a boost to local businesses, and revenue to some airport tenants, it would be speculative to suggest robust demand for airport use in the winter months.

While a robust level of winter passenger traffic from commercial service could arguably support revenue to businesses such as rental car vendors, the FBO, and the restaurant, there is little evidence to suggest robust demand for airport use in the winter months. The local population of the Town of West Yellowstone is estimated at 1,272 by the US Census Bureau. Including neighboring zip codes, the total area population is estimated at 3,206 in 2019. With competition from airports serving surrounding population centers such as Bozeman, Idaho Falls, Cody and Jackson Hole, the local population of West Yellowstone will not be a driver of significant airport use in the winter months.

Aviation demand for the Yellowstone Airport is largely tied to, and is dependent upon, tourism. Airport use appears to be correlated predominantly to use of the west entrance to Yellowstone National Park, which is dramatically lower in winter months. The six months of November thru April have historically cumulatively accounted for less than 4% of the overall total of tourists accessing Yellowstone National Park through the West Yellowstone entrance annually. While a robust level of winter passenger traffic from commercial service could arguably support revenue to businesses such as rental car vendors, the FBO, and the restaurant, the low visitation of Yellowstone National Park west entrance during the winter season suggests very limited existing demand. This is also evident in that many businesses in the town of West Yellowstone close the months of October to April. The notion of extending the airport's operating season to create new aviation demand is considered speculative.

As noted previously, a rough doubling of annual airport revenues from airlines, passenger facility charges (PFCs), the FBO, rental cars and the restaurant would be required to recoup the additional costs associated with winter operations at WYS.

Table 1-17 summarizes the key fiscal considerations as highlighted above. The costs shown should not be considered formal estimates, but rather represent rough order of magnitude cost illustrations as derived from inventory research.

Table 1-17: Sponsor Cost Impacts from Extended or Year-Round Operations

	Order of Magnitude Cost	Order of Magnitude Revenue
Potential risk of loss of AIP funding through Seasonal Airport or Primary Service airport designation if 10,000 enplanements is not maintained	Risk reduction of \$1,000,000 AIP entitlements to \$150,000	
Loss of NATC and Chamber of Commerce winter lease revenue	Approximately \$60,000 Annual loss	
Additional snow removal staff (2 – 4 full time staff, 6 months)	\$100,000 - 200,000 annually	
Snow removal equipment	\$650,000 – 1,500,000 per unit	
New snow removal equipment building	\$2,000,000	
Snow removal operational costs (fuel)	\$10,000 - \$12,000 annually	
Additional snow removal related maintenance costs (deicing, plow cutting edges, broom bristles, other parts, etc.)	\$50,000 + annually	
Potential for fuel sales/landing fees/tiedown fees / rental car/PFC revenue		Less than \$10,000 additional revenue anticipated



2880 Technology Blvd West
Bozeman, MT 59718

406.587.0721
www.m-m.net