CHAPTER 2

PROJECTIONS OF AVIATION DEMAND

Projecting aviation demand is an important step in the master planning process as it establishes the basis for determining the future infrastructure improvements needed at an airport. Data from forecast projections is used in multiple planning processes such as evaluating airfield capacity, the demand for aeronautical based infrastructure and related services, and for evaluation of off-airport socio, economic, and environmental impacts. This Chapter presents the aviation activity forecasts that were prepared for the Southwest Wyoming Regional Airport (RKS) over the 20-year planning period of this master plan. This chapter is organized as follows:

- Passenger Enplanements
- Aircraft Operations
- Based Aircraft
- Fleet Mix Projections
- Air Cargo
- Critical Aircraft Determination
- Conclusion / Comparison with Terminal Area Forecast

The Federal Aviation Administration (FAA) projects future aviation activity through its Terminal Area Forecasts (TAF) which is utilized to compare projections that were prepared for this master plan. Forecasts that are developed for airport master plans and/or federal grants must be approved by the FAA. It is the FAA's policy listed in Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, that FAA approval of forecasts be consistent with the TAF. Master plan forecasts for enplanements, operations, and based aircraft are consistent with the TAF if they meet the following criteria:

- Forecasts differ by less than ten percent in the five-year forecast and 15 percent in the ten- or 20-year period, or
- Forecasts do not affect the timing or scale of an airport project.

Forecasts presented in this chapter consider historic aviation activity trends, national aviation activity projections, and activity that is anticipated to occur. Federal Fiscal Year 2022 beginning October 1, 2021, and ending September 30, 2022, was used as the base year since it was the most recent 12-month period in which records were available to compare with the FAA TAF. Forecasting assumptions, selection of the preferred methodology, and comparison of the projections with the FAA's TAF are also presented in this chapter.

2.1 PASSENGER ENPLANEMENTS

Projections of passenger enplanements focus on two components: total annual passenger enplanements and peak hour enplanements, which are described in the following sections.

2.1.1 TOTAL ANNUAL ENPLANEMENTS

Historically, the number of total annual enplanements at RKS has fluctuated since 2012 (**Table 2.1**). From 2012 to 2016, total annual enplanements decreased from 28,563 to 16,267 according to the 2022 TAF however, starting in 2017, total annual enplanements steadily increased from 17,602 to a peak of 24,131 passengers in 2019 before impacts associated with the COVID-19 pandemic reduced travel in 2020 (13,841). From 13,841 enplanements in 2020, 2021 and 2022 saw total annual enplanements rebound slightly from 14,018 and 16,499, respectively.

Table 2.1
HISTORICAL TOTAL ANNUAL ENPLANEMENTS

Year	Enplanements	Percent Change from Previous Year
2012	28,563	N/A
2013	25,641	-10.2%
2014	21,648	-15.6%
2015	17,790	-17.8%
2016	16,267	-8.6%
2017	17,602	8.2%
2018	21,317	21.1%
2019	24,131	13.2%
2020	13,841	-42.6%
2021	14,018	1.3%
2022	16,499	17.7%
CAGR '12- '22	-5.34%	N/A

Note: *CAGR = Compound Annual Growth Rate*
Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

In total, three enplanement scenarios were developed for the purposes of the Airport Master Plan. The three scenarios utilize various trend line and regression forecasting methodologies and each scenario results in a forecast of future total annual enplanements at RKS. The three scenarios described below are the FAA TAF, Gross Regional Product Regression, and the FAA Aerospace Forecast. The following summarizes each methodology:

Terminal Area Forecast

The TAF is the official FAA forecast of aviation activity for airports in the National Plan of Integrated Airport Systems (NPIAS).

Gross Regional Product (GRP) Regression

This scenario used regression analysis modeling to project future enplanements as it is associated with the Compound Annual Growth Rate (CAGR) between 2022 and 2042 for the growth in gross regional product projected by Woods & Poole for Sweetwater County, Wyoming (1.6 percent).

FAA Aerospace Forecasts (ASF)

This scenario applied the average anticipated growth rate of domestic enplanements in the United States as projected by the FAA's Aerospace Forecast which is a CAGR of 3.8 percent.

Table 2.2 and **Figure 2.1** summarizes the total annual enplanement forecasts that includes all scenarios evaluated as well as identification of the preferred scenario, GRP Regression.

Table 2.2
ENPLANEMENT PROJECTIONS

Preferred

Year	Forecasting Methodologies		
	TAF	GRP Regression	ASF
Base Year			
2022	16,499	16,499	16,499
Projections			
2027	16,607	20,784	19,881
2032	16,717	23,984	23,957
2037	16,827	27,255	28,868
2042	16,937	30,594	34,786
CAGR '22- '42	0.13%	2.61%	3.61%

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*
Projections: *Mead & Hunt, 2023.*

Figure 2.1
ENPLANEMENT PROJECTIONS – GRP REGRESSION
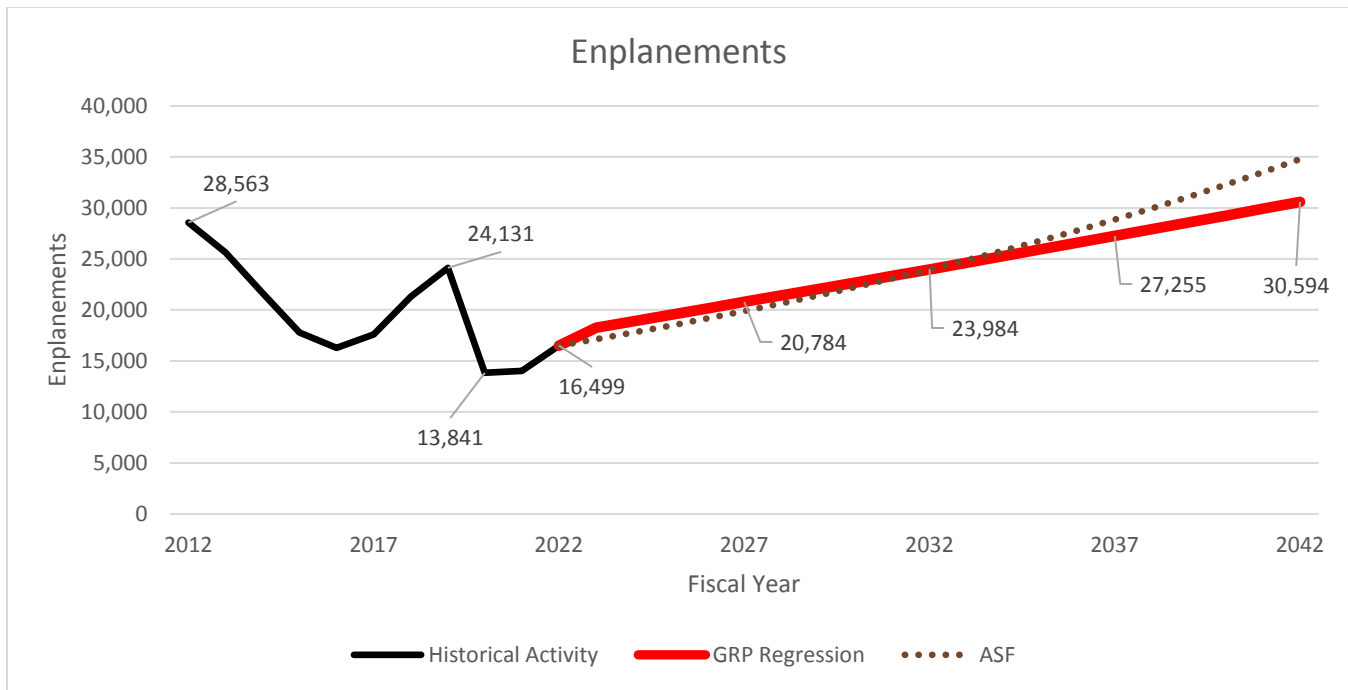
Enplanements

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

As shown, the GRP Regression scenario projects a 2.61 percent CAGR in enplanements which was selected as the preferred scenario because the growth rate best aligned with future air service assumptions at RKS. This growth rate also closely matched the regional TAF growth rate projections for enplanements at airports in the Rocky Mountain Region (2.85 percent). These assumptions were based on anticipated changes in air carrier service expected by SkyWest Airlines, operating as a regional airline for United Airlines that provides air carrier service to RKS. SkyWest Airlines is currently in the process of seeking approval from the United States Department of Transportation for a Part 135 air operator certificate. If approved, SkyWest would be allowed to use 30-seat regional jet aircraft to provide air carrier service with the intention to use the service to provide operations in underserved communities and markets. If approval is granted, it is expected this service would be initiated at RKS in 2025 or 2026. In addition, SkyWest is also in the process of expanding its fleet with 77-seat Embraer 175 aircraft that are projected to replace operations conducted by the Mitsubishi CRJ-200 which are expected to be retired by 2027. Finally, it is anticipated that less-than-daily service by a low-cost air carrier will be initiated at RKS by 2027 providing round trip service two or three times a week to regional destinations like Las Vegas or Phoenix.

2.1.2 PEAK HOUR ENPLANEMENTS

Determination of peak hour enplanements is useful because it can be used to measure and determine how well infrastructure supporting air carrier service is meeting demand. To determine the peak month when these enplanements occur, **Table 2.3** presents the total historical enplanements for each month at RKS between 2017 and 2021. December has historically been the month when the most monthly enplanements occur averaging over that timeframe 10 percent of all enplanements that occur each year.

Table 2.3
2017-2021 HISTORIC MONTHLY ENPLANEMENTS

Month	2017	%	2018	%	2019	%	2020	%	2021	%	'17-'21 Average	
Jan	1,248	7.2%	1,505	6.7%	1,815	7.6%	1,835	18.8%	684	4.1%	1,417	8.9%
Feb	1,255	7.2%	1,272	5.6%	1,703	7.1%	1,654	16.9%	649	3.9%	1,307	8.2%
Mar	1,334	7.7%	1,525	6.8%	2,067	8.6%	1,123	11.5%	923	5.5%	1,394	8.0%
Apr	1,371	7.9%	1,581	7.0%	1,795	7.5%	64	0.7%	995	6.0%	1,161	5.8%
May	1,596	9.2%	2,012	8.9%	2,012	8.4%	180	1.8%	1,331	8.0%	1,426	7.3%
Jun	1,440	8.3%	2,014	8.9%	1,838	7.7%	355	3.6%	1,741	10.4%	1,478	7.8%
July	1,464	8.4%	2,136	9.5%	2,377	9.9%	647	6.6%	1,869	11.2%	1,699	9.1%
Aug	1,660	9.5%	2,094	9.3%	2,123	8.9%	766	7.8%	1,738	10.4%	1,676	9.2%
Sep	1,420	8.2%	1,915	8.5%	1,936	8.1%	681	7.0%	1,609	9.6%	1,512	8.3%
Oct	1,493	8.6%	2,033	9.0%	2,104	8.8%	730	7.5%	1,554	9.3%	1,583	8.6%
Nov	1,564	9.0%	2,164	9.6%	1,915	8.0%	736	7.5%	1,735	10.4%	1,623	8.9%
Dec	1,555	8.9%	2,268	10.1%	2,228	9.3%	1,013	10.4%	1,851	11.1%	1,783	10.0%
TOTAL	**17,400**		**22,519**		**23,913**		**9,784**		**16,679**			

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

Applying the 10 percent average to the total number of annual enplanements and then dividing it by the number of days in December (31) provides the peak month average day (PMAD) enplanements presented in **Table 2.4**. PMAD enplanements is projected to increase from 53 to 99 by the end of the forecasting planning period; however, the actual peak hour passengers enplaned will be dependent on the air carrier fleet mix at the time.

Table 2.4
PEAK MONTH AVERAGE DAY ENPLANEMENT PROJECTIONS

Year	Projected Total Annual Enplanements	Peak Month Projected Enplanements	PMAD Projected Enplanements
Base Year			
2022	16,499	1,650	53
Projections			
2027	20,784	2,078	67
2032	23,984	2,398	77
2037	27,255	2,726	88
2042	30,594	3,059	99

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

2.2 AIRCRAFT OPERATIONS

Projections of aircraft for commercial operations, general aviation (GA) operations, military operations, and peak hour operations are presented in the following sections. In the base year, according to FAA TAF data, RKS accommodated 16,674 total annual operations. Most of these operations were classified as general aviation itinerant and general aviation local operations.

2.2.1 COMMERCIAL OPERATIONS

Commercial operations are comprised of air carrier and air taxi operations. When projecting air carrier operations, it is important to understand that local, state, and national trends can influence future air carrier service at an airport. At RKS, air carrier service is currently provided by United Express (operated by SkyWest Airlines). United offers one departure to Denver International Airport (DEN) once daily on Monday, Tuesday, Wednesday, Friday, and Sunday and twice daily on Thursday and Saturday. This equates to a total of nine departures a week or 468 departures annually.

In addition to these regularly scheduled air carrier departures, RKS occasionally receives charter activity conducted by air carriers for group travel to regional leisure destinations such as to Nevada for casino excursions in Reno and Las Vegas. There is not currently an air carrier offering these charter flights at RKS; however, they have occurred in the past. This is noted because in 2022, the FAA TAF indicated that 12 departures (24 operations) were conducted.

When these regularly scheduled and charter activity are conducted by air carriers, 50-seat regional jet aircraft types have also been used. The Mitsubishi CRJ-200 is the most common type that is used as it currently provides regularly scheduled air carrier service. Air carriers, however, are in the process of retiring the CRJ-200 in favor of next-generation regional jet aircraft that offer a greater seating capacity (70 to 90 seats). SkyWest operates more Embraer 175 regional jet aircraft than any other domestic airline and is in the process of growing its fleet of this type to 240 aircraft by 2025.

It is anticipated that the existing air carrier flight schedule by United will continue into the foreseeable future. Scheduled air carrier activity is projected to continue at a frequency of nine departures each week. By 2027, it is projected that SkyWest will have completely phased out the operation of CRJ-200s from its fleet and will replace the CRJ-200 with the Embraer 175 to provide air carrier service at RKS. Also, by 2027, the potential introduction of regularly scheduled service by a low-cost carrier offering less than daily flights once or twice a week to regional leisure destinations such as Las Vegas or Phoenix is anticipated based on discussions between RKS staff and low-cost carriers.

Table 2.5 presents the air carrier operation projections for RKS. As shown in the table, annual departures by 50-seat CRJ-200 aircraft are anticipated to be phased out completely by 2032 with service replaced during this time by the Embraer 175. By 2032, introduction of low-cost service by an operator like Avelo Airlines is projected with flights conducted by a type like the Boeing 737-700 or Boeing 737 MAX 8. In total, annual air carrier operations are expected to increase from 480 in 2022 to 1,058 by 2042. While total air carrier operations are not projected to significantly increase over the planning period, future enplanement growth will still be accommodated by the increase in seating capacity provided by larger aircraft.

Table 2.5
AIR CARRIER OPERATION PROJECTIONS

Year	Annual Departures by Type				Total Dep	Total Ops
	CRJ-200/550 (50 seats)	ERJ-175 (76 seats)	737-700 (150 seats)	737-800/MAX 8 (>150 seats)		
Base Year						
2022	480	-	-	-	480	960
Projections						
2027	234	234	52	-	520	1,040
2032	-	468	39	15	522	1,044
2037	-	468	35	25	528	1,056
2042	-	468	26	35	529	1,058

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

Concerning air taxi operations, the FAA TAF combines activity by air taxis and commuters when projecting this demand. To provide a base for the projection of air taxi operations, historic air carrier activity conducted by regional carriers classified as commuter must be subtracted. Using the air carrier operation projection information, **Table 2.6** indicates that 3,614 air taxi operations were conducted in 2022. Applying the CAGR for air taxi operations as projected by the FAA Aerospace Forecast, local air taxi activity can be forecasted. As shown in the table, air taxi activity is projected to increase from 3,614 annual operations in 2022 to 3,996 annual operations by 2042 at a CAGR of 0.5 percent.

Table 2.6
AIR TAXI OPERATION PROJECTIONS

Year	Air Carrier Operations	Air Taxi Operations	Total Commercial Operations
Base Year			
2022	960	3,614	4,574
Projections			
2027	1,040	3,649	4,689
2032	1,044	3,764	4,808
2037	1,056	3,873	4,929
2042	1,058	3,996	5,054
CAGR '22- '42	0.5%	0.5%	0.5%

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

2.2.2 GENERAL AVIATION OPERATIONS

GA operations that occur at an airport are classified either as itinerant or local. Generally, itinerant activity are flights that originate from, or depart to, another airport while local activity is generally flights that have originated and return to the same airport. Determining the number of itinerant and local flights that occur at an airport without ATCT like RKS is challenging; thus, the FAA TAF estimate of historic activity has been utilized. As shown in **Table 2.7**, the TAF reports that itinerant GA operations were flat with a CAGR of 0.1 percent experienced between 2012-2021. This flat growth does not support the use of a historical trend analysis for forecast future demand. Likewise, the TAF also reports flat growth for local GA operations as presented in **Table 2.8**.

Table 2.7
ITINERANT GENERAL AVIATION OPERATIONS

Year	TAF
2012	9,849
2013	9,849
2014	9,849
2015	9,849
2016	9,849
2017	9,849
2018	9,849
2019	9,849
2020	9,849
2021	9,849
2022	9,770
CAGR '12- '22	-0.1%

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

Table 2.8
LOCAL GENERAL AVIATION OPERATIONS

Year	TAF
2012	2,160
2013	2,160
2014	2,160
2015	2,160
2016	2,160
2017	2,160
2018	2,160
2019	2,160
2020	2,160
2021	2,160
2022	2,275
CAGR '12- '22	0.5%

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

Three scenarios using various methodologies including the TAF were considered to project itinerant GA activity for the forecast period 2022 to 2042:

Terminal Area Forecast

The TAF is the official FAA forecast of aviation activity for airports in the NPIAS.

State Market Share

This scenario applied the average of the percent of itinerant operations that occurred in Wyoming from 2018 to 2022 according to the TAF (7.6 percent).

MSA Employment Regression Modeling

This scenario applied regression modeling to correlate a statistical relationship between multiple variables to project future activity. The correlation of historic employment for the Rock Springs MSA from Woods & Poole was compared with historic trends with itinerant GA activity.

Likewise, four methodologies were considered to project local GA activity for forecast period 2022 to 2042. The TAF, Historical Trend Analysis, the FAA Aerospace Forecast, and local operations derived from projected itinerant operations. The following summarizes these scenarios:

Terminal Area Forecast

The TAF is the official FAA forecast of aviation activity with a 10 percent tolerance required if other methodologies are used unless otherwise approved by the FAA.

Historical Trend Analysis

This scenario applied the CAGR in the trend of historical local operations at RKS as reported by the TAF (0.5 percent).

FAA Aerospace Forecast

This scenario applied the average annual growth rate of total local GA activity projected by the FAA's Aerospace Forecasts to the historical number of local GA operations.

Local Operations Derived from Projected Itinerant Operations

This scenario projected local GA operations by taking the average percentage (18.9 percent) that local GA operations comprised total GA operations between 2017 and 2022 and applying it to the projected number of itinerant operations.

Table 2.9 and **Figure 2.2** present the itinerant GA operations projections while **Table 2.10** and **Figure 2.3** present the local GA operations projections. The State Market Share scenario is selected as the preferred forecasting approach for itinerant GA operations. Deriving the local operations projected to occur from the forecasted itinerant GA activity was selected as the preferred forecasting scenario for local GA operations. These two scenarios were selected as the preferred forecasting approaches because each best reflected activity anticipated to occur at RKS in the future. Itinerant GA operations have been induced in recent years by the construction of a

large community hangar and the potential construction of a second large community hangar is expected to further induce itinerant GA operations at RKS.

Table 2.9
ITINERANT GA OPERATIONS PROJECTIONS

Preferred

Year	Forecasting Methodologies		
	TAF	State Market Share	MSA Employment Regression
Base Year			
2022	9,770	9,770	9,770
Projections			
2027	9,770	9,910	9,840
2032	9,770	9,960	9,880
2037	9,770	10,020	9,910
2042	9,770	10,070	9,940
CAGR '22- '42	0.00%	0.15%	0.09%

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

Table 2.10
LOCAL GA OPERATIONS PROJECTIONS

Preferred

Year	Forecasting Methodologies			
	TAF	Trend Analysis	ASF	Derived from Itinerant Ops
Base Year				
2022	2,275	2,275	2,275	2,275
Projections				
2027	2,275	2,335	2,391	2,308
2032	2,275	2,396	2,513	2,319
2037	2,275	2,459	2,641	2,333
2042	2,275	2,524	2,776	2,345
CAGR '22- '42	0.00%	0.52%	1.00%	0.15%

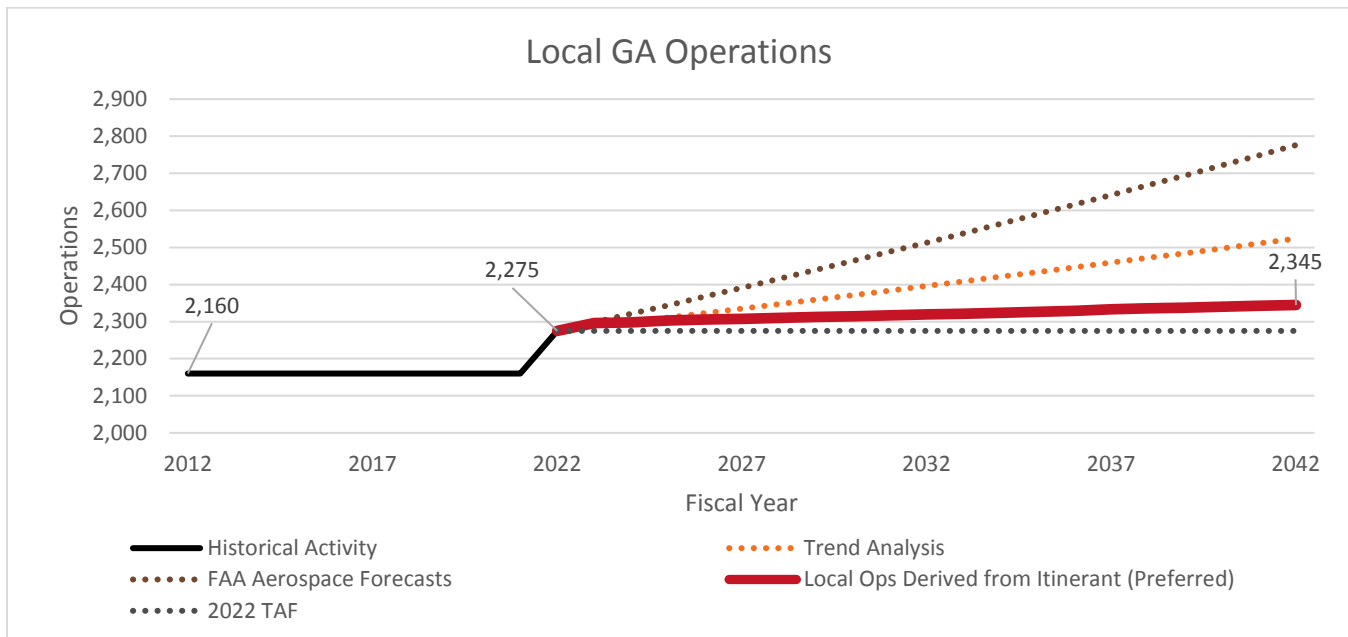***Sources:*** *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

Figure 2.2
ITINERANT GENERAL AVIATION OPERATIONS PROJECTIONS
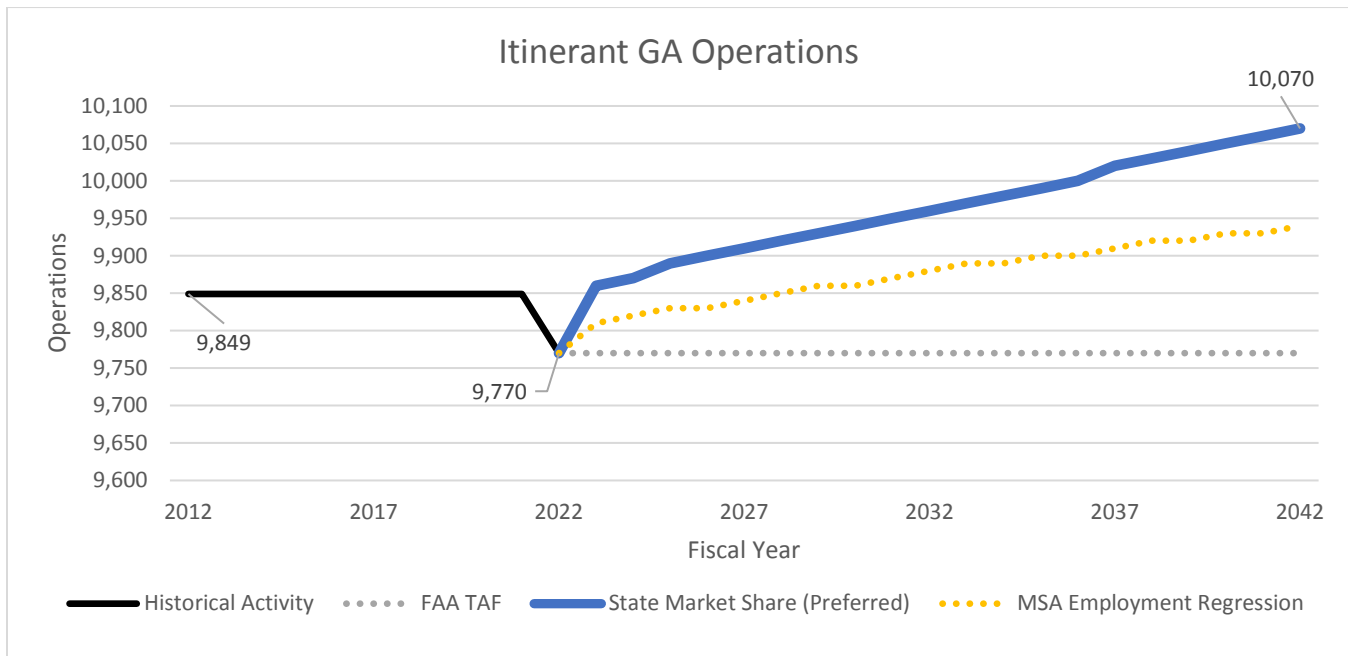
Itinerant GA Operations

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast published in 2023; Projections: Mead & Hunt, 2023.*

Figure 2.3
LOCAL GA OPERATIONS PROJECTIONS

Local GA Operations

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast published in 2023; Projections: Mead & Hunt, 2023.*

2.2.3 MILITARY OPERATIONS

Military operations are primarily driven by Federal Policy and national defense considerations, which are not typically influenced by socioeconomic factors. According to the 2022 TAF, the annual military operations grew from 18 operations in 2012 to 55 operations in 2017 and has remained consistent through 2022 (**Table 2.11**). These operations are typically associated with military aircraft transporting officials to and from the region as well those transient types conducting missed approaches and touch-and-gos.

Table 2.11
MILITARY OPERATIONS

Year	TAF
2012	18
2013	18
2014	18
2015	18
2016	46
2017	55
2018	55
2019	55
2020	55
2021	55
2022	55
CAGR '12- '22	11.8%

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

Since RKS does not have a based military presence and is not a joint-use facility, use of the FAA TAF projections is the preferred forecasting methodology selected to project future military operations. From 2022 to 2042, a flat growth rate of 55 military operations is projected annually by the TAF. **Table 2.12** presents the projections of future military operations at RKS through 2042.

Table 2.12
MILITARY OPERATIONS PROJECTIONS

Year	Forecasting Methodology
	Preferred TAF
Base Year	
2022	55
Projections	
2027	55
2032	55
2037	55
2042	55
CAGR '22-'42	0.00%

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

2.2.4 PEAK HOUR OPERATIONS

Since RKS does not have an ATCT, Automatic Dependent Surveillance-Broadcast (ADS-B) data from operations that occurred in 2022 by aircraft with ADS-B receivers were used to determine existing peak hour operations. As shown in **Table 2.13**, August was the peak month with 823 ADS-B operations recorded. This accounted for 10.29 percent of all ADS-B operations that occurred in 2022.

Table 2.13
AUTOMATIC DEPENDENT SURVEILLANCE-BROADCAST OPERATIONS BY MONTH (2022)

Month	2022	% of Total Annual ADS-B Ops
January	626	7.8%
February	543	6.8%
March	689	8.6%
April	609	7.6%
May	661	8.3%
June	766	9.6%
July	801	10.0%
August	823	10.3%
September	634	7.9%
October	651	8.1%
November	604	7.6%
December	590	7.4%
TOTAL	**7,997**	**100.0%**

Note: Peak Month
Source: *RKS ADS-B data, 2022.*

By taking the peak month percent of total annual ADS-B operations and applying it to the total annual operations projections, the forecasted peak month operations can be forecasted. Dividing this number by the number of days in a month (31) provides the peak month average day (PMAD) operations. As shown in **Table 2.14**, PMAD operations are projected to remain relatively constant increasing from 43 to 45 from 2022 to 2042.

Table 2.14
PROJECTED PEAK MONTH AVERAGE DAY OPERATIONS

Year	Total Projected Ops	Peak Month Ops	PMAD Ops
Base Year			
2022	13,036	1,341	43
Projections			
2027	13,313	1,370	44
2032	13,378	1,377	44
2037	13,464	1,385	45
2042	13,528	1,392	45

Sources: *RKS ADS-B data, 2022; Projections: Mead & Hunt, 2023.*

2.3 BASED AIRCRAFT

Historically, the number of based aircraft at RKS has remained constant with minor changes according to the FAA TAF. As presented in **Table 2.15**, the number of single-engine aircraft based at RKS has remained constant at 37 from 2012 through 2021 where 35 were reported in 2022. Based multi-engine aircraft, however, have remained constant at 5 aircraft through this same period. There have been no jets based at RKS during this time as well and no based helicopters until 2022. Aircraft classified as "experimental" are also based at RKS with 2 reported in 2022. In total, 44 aircraft are based at RKS as of 2022.

Table 2.15
HISTORIC BASED AIRCRAFT

Year	Single	Multi	Jet	Helicopter	Experimental	Total
2012	37	5	0	0	2	44
2013	37	5	0	0	2	44
2014	37	5	0	0	2	44
2015	37	5	0	0	2	44
2016	37	5	0	0	0	42
2017	37	5	0	0	0	42
2018	37	5	0	0	2	44
2019	37	5	0	0	2	44
2020	37	5	0	0	2	44
2021	37	5	0	0	0	42
2022	35	5	0	1	3	44
CAGR '12- '22	-0.6%	0.0%	0.0%	-	4.1%	0.0%

Source: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023.*

The following three forecasting methodologies were used to forecast based aircraft:

FAA Terminal Area Forecast

The TAF is the FAA's official forecast of based aircraft at RKS as well as other airports like it in the NPIAS. Use of projections of based aircraft outside a 10 percent tolerance of the TAF to plan infrastructure development requires approved by the FAA.

Market Share Analysis

The market share analysis forecasting approach compared the historic based aircraft count at RKS with the historic count of all based aircraft at all other airports in Wyoming according to the TAF.

Hybrid

The Hybrid methodology applies the CAGR from the growth projected nationally in the different categories of based aircraft from the 2022-2042 FAA Aerospace Forecast as well as accounting for jets being based at RKS in the future. This methodology was considered due to recent growth in jet activity at RKS, recent interests from jet aircraft operators in basing their aircraft at RKS, and the construction of new hangars capable of accommodating jet aircraft.

Table 2.16 and Figure 2.4 present the forecasts of based aircraft considering these three methodologies. As presented in the table, the hybrid forecasting approach has been selected as the preferred methodology because it accounts for jet aircraft being based at RKS, a forecasting component that is not projected by the other methodologies. Recently, business jet activity has increased, and interest has grown from jet charter operators to base these aircraft at RKS given its centralized location to serve communities in Wyoming, Utah, and Colorado. With this preferred forecasting approach, based single engine aircraft are projected to increase from 35 in 2022 to 39 by 2042. During this same period, an increase in two based jets, one based helicopter and two experimental aircraft are also projected. An additional based multi-engine aircraft is also projected.

Table 2.16
BASED AIRCRAFT PROJECTIONS

Preferred

	Forecasting Methodologies																	
Year	TAF						State Market Share						Hybrid					
	SE	ME	J	H	E	T	SE	ME	J	H	E	T	SE	ME	J	H	E	T
Base																		
2022	35	5	0	1	3	44	35	5	0	1	3	44	35	5	0	1	3	44
Proj																		
2027	35	5	0	1	3	44	37	5	0	1	2	**45**	37	5	2	2	4	**50**
2032	35	5	0	1	3	44	38	5	0	1	2	**46**	38	5	2	2	4	**51**
2037	35	5	0	1	3	44	39	5	0	1	2	**47**	39	5	2	2	4	**52**
2042	35	5	0	1	3	44	39	5	0	1	2	**47**	39	5	2	2	5	**53**
CAGR '22-'42	0%	0%	0%	0%	0%	**0%**	0.5%	0%	0%	0%	-2%	**0.3%**	0.5%	0%	200%	3.5%	2.6%	**0.9%**

KEY: *SE = Single Engine, ME = Multi Engine, J = Jet, H = Helicopter, E = Experimental, T = Total*
Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

Figure 2.4
BASED AIRCRAFT PROJECTIONS
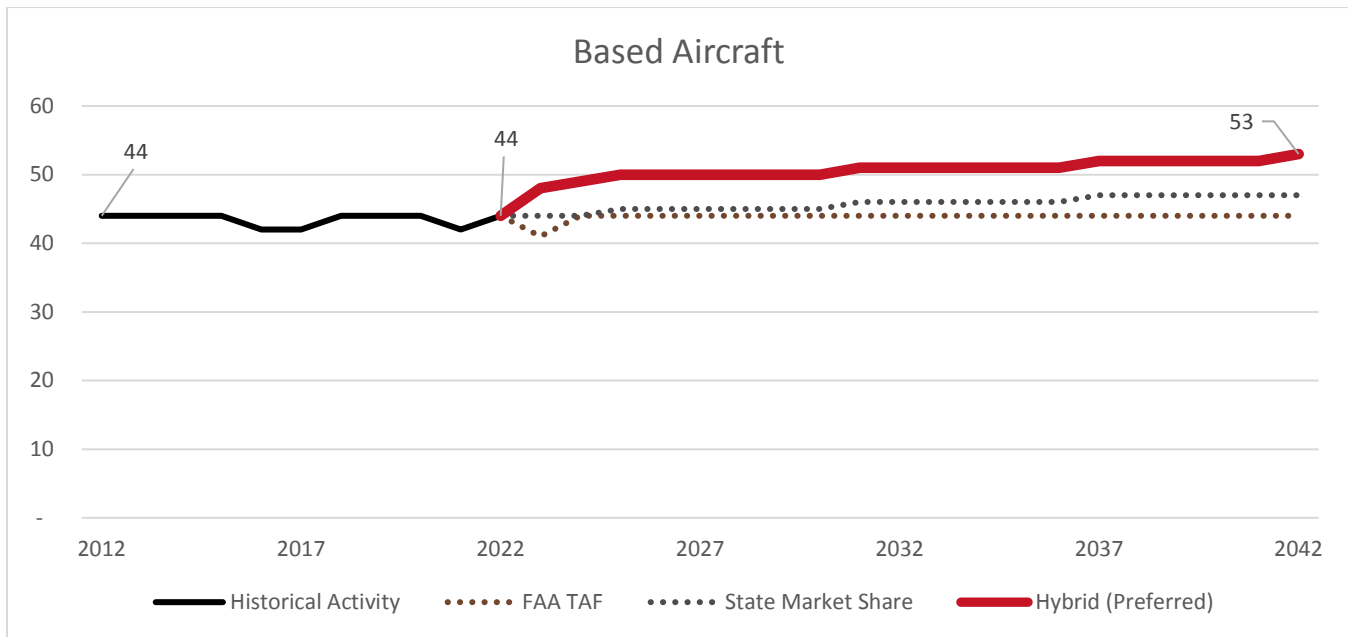
Based Aircraft

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*

2.4 FLEET MIX PROJECTIONS

Fleet mix projections can be derived from the GA, air carrier, air taxi, and military operations forecasts and applying known existing trends, national fleet mix projections, and local anticipated factors. **Table 2.17** on the following page presents the fleet mix projections for RKS. Piston activity is anticipated to increase slightly from 7,057 operations in 2022 to 7,144 operations in 2025, then decrease slightly to 6,799 operations by 2042. Likewise, operations by single turboprop aircraft are also expected to decrease throughout the planning period beginning in 2027; this, however, is attributed to operations conducted by the Cessna 208 Caravan being replaced by the twin turboprop Cessna 408 SkyCourier to provide FedEx air cargo service[1]. As a result, twin turboprop operations are projected to increase at a 1.2 percent CAGR throughout the planning period from 3,052 in 2022 to 3,861 by 2042.

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[1] https://investors.fedex.com/news-and-events/investor-news/investor-news-details/2017/FedEx-Express-Introduces-New-Feeder-Aircraft/default.aspx

GA jet operations are projected to increase due to the planned construction of additional hangars that are anticipated to be completed by 2026. This is expected to result in jets being based at RKS. Currently, the growth in jet operations is projected to increase at a 1.4 percent CAGR through the end of the forecast period. Finally, military operations are projected to remain constant throughout the planning period matching the TAF.

Table 2.17
FLEET MIX OPERATIONS PROJECTIONS

Year	Piston	Turbo Prop Single	Turbo Prop Twin	Small Jet	Medium Jet	Large Jet	Air Carrier	Military	Total
2022	8,990	3,350	2,335	254	653	78	960	55	16,674
2027	9,051	2,770	2,990	273	700	83	1,040	55	16,962
2032	8,987	2,809	3,015	318	817	97	1,044	55	17,142
2037	8,900	2,849	3,042	371	952	113	1,056	55	17,338
2042	8,778	2,889	3,068	432	1,110	132	1,058	55	17,524
CAGR	-0.12%	-0.74%	1.38%	2.69%	2.69%	2.69%	0.49%	0.00%	0.25%

Note: Small, medium, and large jet classifications based on business jet types that operated at RKS in 2022. No narrowbody or widebody types typically classified as "large" operated at RKS in 2022.

Sources: Federal Aviation Administration 2022 Terminal Area Forecast published, 2023; Federal Aviation Administration Traffic Flow Management System Counts database, Fiscal Year 2022; Projections: Mead & Hunt, 2023.

2.5 AIR CARGO

To project future air cargo activity, RKS airport administrative monthly records between 2019 and 2022 were reviewed to establish a historic baseline. As presented in **Table 2.18**, the total enplaned air cargo at RKS fluctuated between 1.0 million and 1.3 million pounds between 2019 and 2022. This enplaned air cargo is from FedEx and UPS feeder operations conducted by Corporate Air Cessna 208 Caravan aircraft for FedEx and multiple operators for UPS operating primarily Beech 1900, Beech 99 Airliner, and Swearingen Metroliner aircraft with the Metroliner being used to enplane the most air cargo for UPS.

Table 2.18
ENPLANED AIR CARGO (IN POUNDS)

Year	Enplaned Air Cargo (in pounds)
2019	1,332,176
2020	1,245,996
2021	1,392,317
2022	1,062,280
CAGR '19-'22	-7.3%

Source: Southwest Wyoming Regional Airport records, 2023.

Using historic data from 2019 to 2022, a historic growth rate of 2.5 percent for domestic cargo revenue ton miles (RTM) from the FAA 2022-2042 Aerospace Forecast was used to project future demand in the forecasting period 2022 to 2042. This approach considers the overall growth in air cargo nationwide in recent years due to the boom in internet-based shopping. As presented in **Table 2.19** and **Figure 2.5**, total air cargo enplaned at RKS is projected to grow at a CAGR of 2.5 percent to 1.7 million pounds by 2042.

*Table 2.19*
AIR CARGO PROJECTIONS

Year	Forecasting Methodology
	Preferred Trend Line Analysis (in pounds)
Base Year	
2022	1,062,280
Projections	
2027	1,200,588
2032	1,356,903
2037	1,533,571
2042	1,733,240
CAGR '22-'42	2.5%

Note: CAGR: Domestic Revenue Ton Miles, FAA 2023 Aerospace Forecast;
Sources: Southwest Wyoming Regional Airport records, 2023; Projections: Mead & Hunt, 2023.

Figure 2.5
AIR CARGO PROJECTIONS

Enplaned Air Cargo Projections
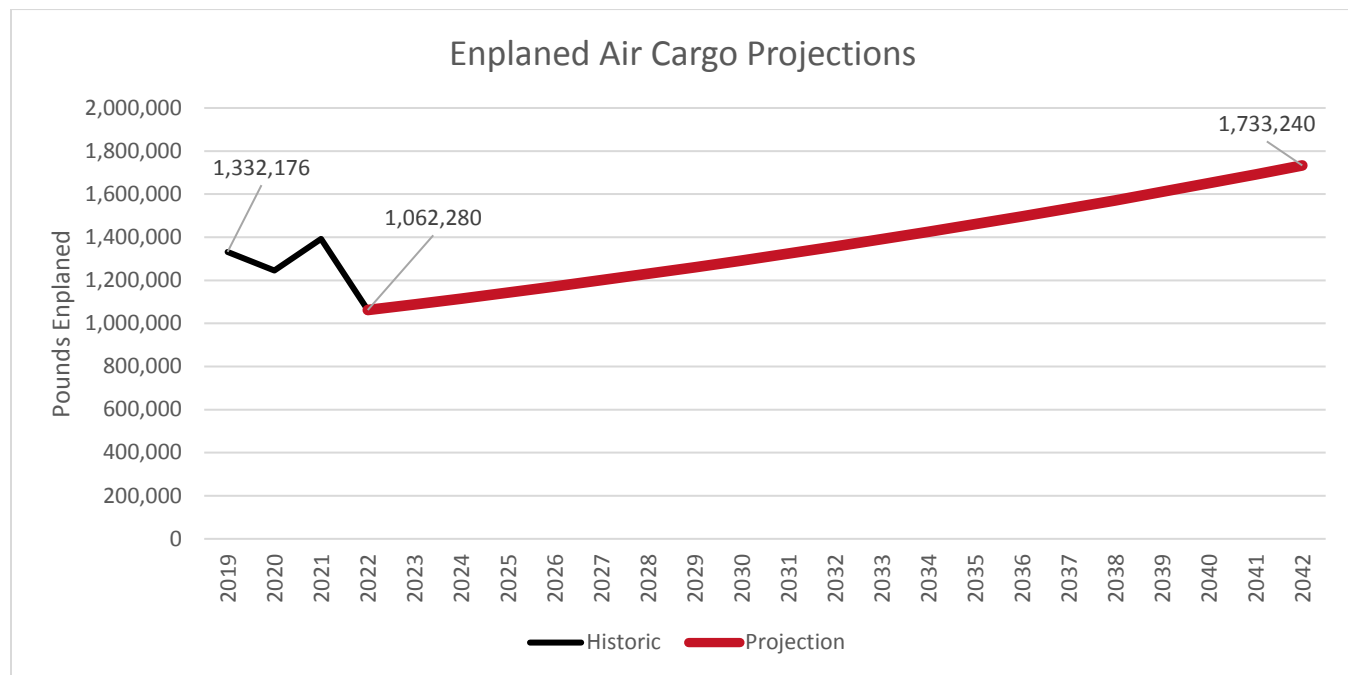
Sources: *Southwest Wyoming Regional Airport records, 2023; Projections: Mead & Hunt, 2023.*

2.6 CRITICAL AIRCRAFT DETERMINATION

To determine the existing critical aircraft, information was obtained from the FAA's Traffic Flow Management System Counts (TFMSC) database which is a record of operations by aircraft under Instrument Flight Rules (IFR) that have filed an IFR flight plan. Operations by aircraft under Visual Flight Rules (VFR) or operating under a VFR flight plan are not captured in this database. Though the TFMSC database does not provide a count of all aircraft operating at RKS, it does provide the best publicly available database to gain an understanding of the type of activity at an airport to determine the critical aircraft.

FAA Advisory Circular (AC) 150/5000-17, *Critical Aircraft and Regular Use Determination*, directs that the critical design aircraft can be either a single type or a family grouping that conducts at least 500 annual operations. This same AC also directs that an airport may have multiple critical aircraft based on the most demanding type intended to use the surface. The critical aircraft for the primary runway at an airport, for example, may vary from the critical aircraft for T-hangar taxilane surfaces designed for smaller aircraft.

To determine the existing critical aircraft by airfield surface, fiscal year 2022 TFMSC data was sorted to determine the aircraft that conducted annual operations at RKS. In **Table 2.20**, aircraft that conducted at least 500 annual IFR operations at RKS in Federal fiscal year 2022 are shown. The Pilatus PC-12 conducted the most operations (1,062), followed by the Mitsubishi CRJ-200 used by SkyWest to provide United Express air carrier service (948), the Cessna 208 Caravan used by Corporate Air to provide FedEx cargo feeder service, and the Swearingen

Metroliner used by Western Air Express to provide UPS cargo feeder service. These aircraft are classified as A-II, C-II, B-II, and B-II, respectively, by the Aircraft Reference Code (ARC).

Table 2.20
AIRCRAFT TYPES CONDUCTING AT LEAST 500 ANNUAL INSTRUMENT FLIGHT RULES OPERATIONS IN 2022

Aircraft Type	2022 Operations	ARC Designation
PC-12 – Pilatus PC-12	1,062	A-II
CRJ2 – Mitsubishi CRJ-200	948	C-II
C208 – Cessna 208 Caravan	626	B-II
SW4 – Swearingen Metroliner	548	B-II

Source: *Federal Aviation Administration Traffic Flow Management System Counts Database , Fiscal Year 2022.*

Likewise, an evaluation of the TFMSC data also occurred by family grouping of ARC aircraft types. As presented in **Table 2.21**, C-II aircraft represented by the Mitsubishi CRJ-200 were the most demanding types that conducted at least 500 annual operations. The next most demanding type to conduct at least 500 annual operations are the family grouping of B-II types represented by the Cessna 208 Caravan, Swearingen Metroliner, Beech 1900, and Beech 200 King Air.

Airfield surfaces at RKS are designed for different types of aircraft. The air carrier critical aircraft drives the design of Runway 9/27, parallel Taxiway A, its associated connector taxiways, and the air carrier apron. This is a family grouping of C-II aircraft types represented by the Mitsubishi CRJ-200 used to provide air carrier service. The GA critical design aircraft drives the design of Runway 3/21, Taxiway B, Taxiway F, associated connector taxiways, the GA apron, and Taxiway E connecting the north hangar area. For these surfaces, the critical design aircraft is a family grouping of B-II aircraft types represented by the Cessna 208 Caravan and Swearingen Metroliner. A summary of the existing critical aircraft for the design of airfield surfaces is presented in **Table 2.22** while fleet mix projections and determination of the future critical aircraft is presented in the next section.

Table 2.21
2022 INSTRUMENT FLIGHT RULES OPERATIONS BY ARC CLASSIFICATION

ARC Classification	2022 Operations	Representative Types
A-I	358	Mitsubishi Marquise/Solitaire, Cirrus SR 22
A-II	1,064	Pilatus PC-12, DeHavilland Twin Otter
B-I	572	Beech King Air 90, Cessna CitationJet/CJ1
B-II	1,858	<u>Cessna 208 Caravan</u>, <u>Swearingen Metroliner</u>
B-III	2	CASA CN-235
C-I	24	BAe HS 125/700-800/Hawker 800, Bombardier Learjet 60
C-II	1,082	<u>Mitsubishi CRJ-200</u>, Embraer ERJ-145
C-III	8	Bombardier BD-700 Global Express
C-IV	2	Boeing KC-135 Stratotanker
D-I	6	Bombardier Learjet 35/36
D-II	26	Gulfstream IV/G400
D-III	6	Gulfstream 650
No Data	130	n/a
TOTAL	**5,138**	

Key: | Air Carrier Critical Aircraft | GA Critical Aircraft |
Note: Representative critical type shown as <u>underline</u>
Source: Federal Aviation Administration Traffic Flow Management System Counts Database, 2022.

Table 2.22
EXISTING CRITICAL AIRCRAFT DETERMINATION BY AIRFIELD SURFACE

Critical Aircraft	Representative Type	Airfield Surfaces
C-II (Air Carrier)	Mitsubishi CRJ-200	Runway 9/27 Taxiways A, A1, A2, A3, A4, A5 Air Carrier Apron
B-II (General Aviation)	Cessna 208 Caravan, Swearingen Metroliner	Runway 3/21 Taxiways B, C, E, F, F1, F2, F3 General Aviation Apron

Source: Federal Aviation Administration Traffic Flow Management System Counts Database, 2022.

Concerning the future critical aircraft, the 2042 fleet mix projections were organized by ARC classification to make this determination. As presented in **Table 2.23**, the family grouping of C-III aircraft is projected to be the most demanding type that conducts at least 500 annual operations represented by the Embraer 175. This is the future critical aircraft for air carrier operations since the type will be replacing the CRJ-200 as it is retired. It is noted that as low-cost air carrier service is introduced at RKS, larger air carrier types like the ARC C-III Boeing 737-700 and D-III Boeing 737-800/MAX 8 are projected to also be operating at RKS; however, the frequency of operations by these types is not anticipated to be greater than 500 annually.

Airfield design surfaces like Runway 9/27, parallel Taxiway A and its associated connector taxiways, and the air carrier apron will need to be designed to accommodate this aircraft type. Likewise, the family grouping of B-II aircraft types is projected to remain the critical aircraft for GA activity as it is the next most demanding type conducting at least 500 annual operations at RKS. This is driven primarily by the continued operation of existing B-II types like the Swearingen Metroliner and Beech 1900 to continue to provide UPS air cargo feeder service as well as the introduction of the Cessna 408 SkyCourier to replace the Cessna 208 Caravan used by Corporate Air to provide FedEx cargo feeder service. With airfield surfaces used primarily for GA activity like Runway 3/21, Taxiways B, C, E, F, and associated connector taxiways as well as the GA apron already designed to these critical aircraft standards, no changes in airfield design are anticipated. **Table 2.24** presented at the end of the section summarizes the future critical aircraft for all runways, taxiways, and aprons at RKS.

Table 2.23
FUTURE CRITICAL AIRCRAFT – 2042 FLEET MIX PROJECTIONS

ARC Classification	2042 Projected Operations	Representative Types
A-I	5,173	Mitsubishi Marquise/Solitaire, Cirrus SR 22
A-II	2,372	Pilatus PC-12, DeHavilland Twin Otter
B-I	3,990	Beech King Air 90, Cessna CitationJet/CJ1
B-II	3,264	Cessna 408 SkyCourier, Swearingen Merlin 4/4A Metro2
B-III	4	CASA CN-235
C-I	55	BAe HS 125/700-800/Hawker 800, Bombardier Learjet 60
C-II	296	Bombardier Challenger 300, Learjet 70/75
C-III	1,076	Embraer 175, Bombardier BD-700 Global Express
C-IV	55	Boeing KC-135 Stratotanker
D-I	14	Bombardier Learjet 35/36
D-II	59	Gulfstream IV/G400
D-III	14	Boeing 737-800/MAX 8; Gulfstream 650
No Data	1,152	n/a
TOTAL	**17,524**	

Key: *GA critical aircraft highlighted in BLUE; Air carrier critical aircraft highlighted in ORANGE*
Note: *Representative critical type shown as underline.*
Sources: *FAA TFMSC database, 2022; Projections: Mead & Hunt, 2023.*

Table 2.24
FUTURE CRITICAL AIRCRAFT DETERMINATION BY AIRFIELD SURFACE

Critical Aircraft	Representative Type	Airfield Surfaces
C-III (Air Carrier)	Embraer 175	Runway 9/27 Taxiways A, A1, A2, A3, A4, A5 Air Carrier Apron
B-II (General Aviation)	Cessna 408 SkyCourier	Runway 3/21 Taxiways B, C, E, F, F1, F2, F3 General Aviation Apron

Source: *Federal Aviation Administration Traffic Flow Management System Counts Database, 2022.*

2.7 CONCLUSION / COMPARISON WITH TERMINAL AREA FORECAST

Passenger and aircraft activity at RKS has fluctuated in recent history due to the impacts of the COVID-19 pandemic; however, stable growth is projected as the aviation activity rebounds to meet growing community demands for air travel. A summary of these projections in comparison with the TAF is presented in specific FAA-required tabular formats in **Table 2.25** and **Table 2.26**. The FAA forecast approval letter is provided in **Appendix C**.

Table 2.25
FORECAST COMPARISON WITH TERMINAL AREA FORECAST

AIRPORT NAME:	Southwest Wyoming Regional Airport			
	Year	**TAF**	**Airport Forecast**	**AF/TAF (% Difference)**
Passenger Enplanements				
Base yr.	2022	16,499	16,499	0.0%
Base yr. + 5yrs.	2027	16,607	20,784	25.2%
Base yr. + 10yrs.	2032	16,717	23,984	43.5%
Base yr. + 15yrs.	2037	16,827	27,255	62.0%
Commercial Operations				
Base yr.	2022	4,574	4,574	0.0%
Base yr. + 5yrs.	2027	4,574	4,689	2.5%
Base yr. + 10yrs.	2032	4,574	4,808	5.1%
Base yr. + 15yrs.	2037	4,574	4,929	7.8%
Total Operations				
Base yr.	2022	16,674	16,674	0.0%
Base yr. + 5yrs.	2027	16,674	16,962	1.7%
Base yr. + 10yrs.	2032	16,674	17,142	2.8%
Base yr. + 15yrs.	2037	16,674	17,338	4.0%

NOTES: TAF data is on a U.S. Government fiscal year basis (October through September).
        AF/TAF (% Difference) column has embedded formulas.

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast published in 2023; Projections: Mead & Hunt, 2023.*

Table 2.26
FORECAST SUMMARY

Template for Summarizing and Documenting Airport Planning Forecasts

A. Forecast Levels and Growth Rates

AIRPORT NAME: Southwest Wyoming Regional Airport   **Specify base year:** 2022

	Base Yr. Level	Base Yr. + 1yr.	Base Yr. + 5yrs.	Base Yr. + 10yrs.	Base Yr. + 15yrs.	Base yr. to +1	Base yr. to +5	Base yr. to +10	Base yr. to +15
Passenger Enplanements									
Air Carrier	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
Commuter	16,499	18,271	20,784	23,984	27,255	10.7%	4.7%	3.8%	3.4%
TOTAL	16,499	18,271	20,784	23,984	27,255	10.7%	4.7%	3.8%	3.4%
Operations									
Itinerant									
Air carrier	960	936	1,040	1,044	1,056	-2.5%	1.6%	0.8%	0.6%
Commuter/air taxi	3,614	3,661	3,649	3,764	3,873	1.3%	0.2%	0.4%	0.5%
Total Commercial Operations	4,574	4,597	4,689	4,808	4,929	0.5%	0.5%	0.5%	0.5%
General aviation	9,770	9,860	9,910	9,960	10,020	0.9%	0.3%	0.2%	0.2%
Military	55	55	55	55	55	0.0%	0.0%	0.0%	0.0%
Local									
General aviation	2,275	2,296	2,308	2,319	2,333	0.9%	0.3%	0.2%	0.2%
Military	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TOTAL OPERATIONS	16,674	16,808	16,962	17,142	17,338	0.8%	0.3%	0.3%	0.3%
Peak Day Operations	43	43	44	44	45	0.0%	0.5%	0.2%	0.3%
Cargo/mail (enplaned in pounds	1,062,280	1,088,604	1,200,588	1,356,903	1,533,571	2.5%	2.5%	2.5%	2.5%
Based Aircraft									
Single Engine (Nonjet)	35	36	37	38	39	2.9%	1.1%	0.8%	0.7%
Multi Engine (Nonjet)	5	5	5	5	5	0.0%	0.0%	0.0%	0.0%
Jet Engine	0	1	2	2	2	100.0%	200.0%	200.0%	200.0%
Helicopter	1	2	2	2	2	100.0%	14.9%	7.2%	4.7%
Other	3	4	4	4	4	0.0%	0.0%	0.0%	0.0%
TOTAL	44	48	50	51	52	9.1%	2.6%	1.5%	1.1%

The columns under "Base yr. to +1", "Base yr. to +5", "Base yr. to +10", "Base yr. to +15" fall under the heading: Average Annual Compound Growth Rates

Sources: *Federal Aviation Administration 2022 Terminal Area Forecast, 2023; Projections: Mead & Hunt, 2023.*