Chapter Three

Forecast of Aviation Demand

3.1 Introduction

Long-range development plans for airport development are based upon anticipated or projected levels of aviation activity. This activity is best described through airline passenger enplanements, aircraft operations and fleet mix, cargo landed weight, and based aircraft. A key element in the Airport Master Planning process is the forecast of Aviation Demand to assist with future development, financial planning and other key decisions affecting the Springfield Branson National Airport (SGF or The Airport). The Forecast of Aviation Demand analyzes historical data and current aeronautical and socioeconomic trends to develop future projections that can be reasonably expected to occur at SGF during the planning period (2021-2041).

The Federal Aviation Administration (FAA) Advisory Circular 150/5070-6B *Airport Master Plans* (AC-6B) provides guidance and standards for the preparation of airport master plans. AC-6B states the forecast must be realistic, based on the latest data available and provide adequate justification for airport planning and development. Ultimately, the forecast needs approval by the FAA and then may be used by the Airport for future planning and developmental needs.

The forecasts for SGF, as required by AC-6B, will include the following:

- Passenger/Commercial Service
    - Enplanement and operations
    - Peak month/design day
- Air Cargo
    - Tonnage (belly and all-cargo)
    - Operations
    - Landed Weight
- General Aviation (GA)
    - Operations and based aircraft
- Military
    - Operations
- Identification of Existing and Future Critical Aircraft

These forecasts will serve as the foundation to determine the overall facility needs and the basis for the analysis of the Master Plan process.

3.2 Forecasting Process

This process uses AC-6B and FAA's Office of Aviation Policy and Plans report Forecasting Aviation Activity by Airport to identify the key components and steps used in the forecast.

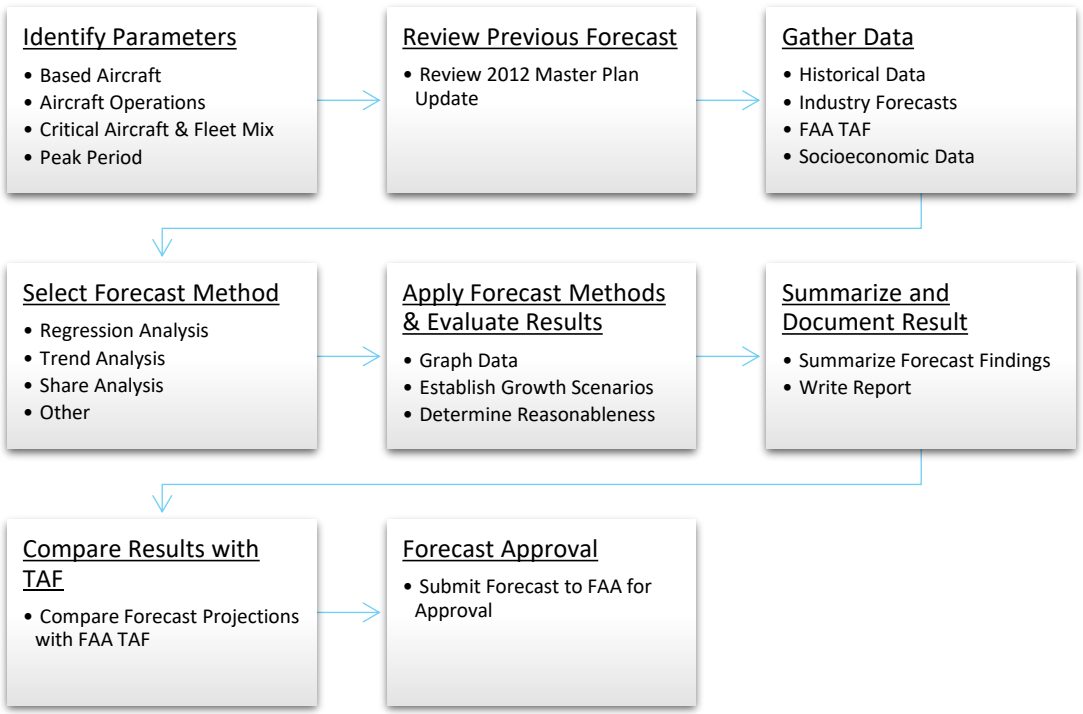
Two accepted philosophies for aviation forecasting include:

1. That aviation activity itself and the use of historical performance trends are alone sufficient to project future activity.

2. That economic, social, and technological factors are presumed to influence future aviation demand.

A balanced approach between the two philosophies is needed when creating the forecast. Irrespective of the approach used in a forecast, the size of the airport or scope of the study, the framework, or process, is often the same. Exhibit 3.2-1 contains a flowchart that lists the forecasting process.

Exhibit 3.2-1: Forecasting Process



Source: Advisory Circular 150/5070-6B Airport Master Plans; CMT (2021)

The following sections will further explain the forecast process in more detail.

3.2.1 Identify Aviation Forecast Parameters and Measures

SGF serves a diverse range of airport users from commercial service (airlines), GA, air cargo, and military. A combination of passenger enplanements, aircraft operations, based aircraft, fleet mix, peak hour activity and cargo weight will all be analyzed to effectively determine the level and type of aviation activity that can be expected at the Airport, as well as the nature of the planning needing to be completed.

3.2.2 Review Previous Airport Forecasts

The review step in the forecast process collects and reviews previously published forecasts. It is recommended that the review of previous forecasts include any available federal, state, local and/or regional aviation planning forecasts. SGF completed a Master Plan in 2012, which is when the last locally prepared forecast was developed. The State of Missouri Department of Transportation (MoDOT) completed an Airport System Plan Update in 2019, which provided airport specific forecasts for airports within the state. Also, the FAA provides annual SGF forecasts included in the FAA Terminal Area Forecast (TAF).

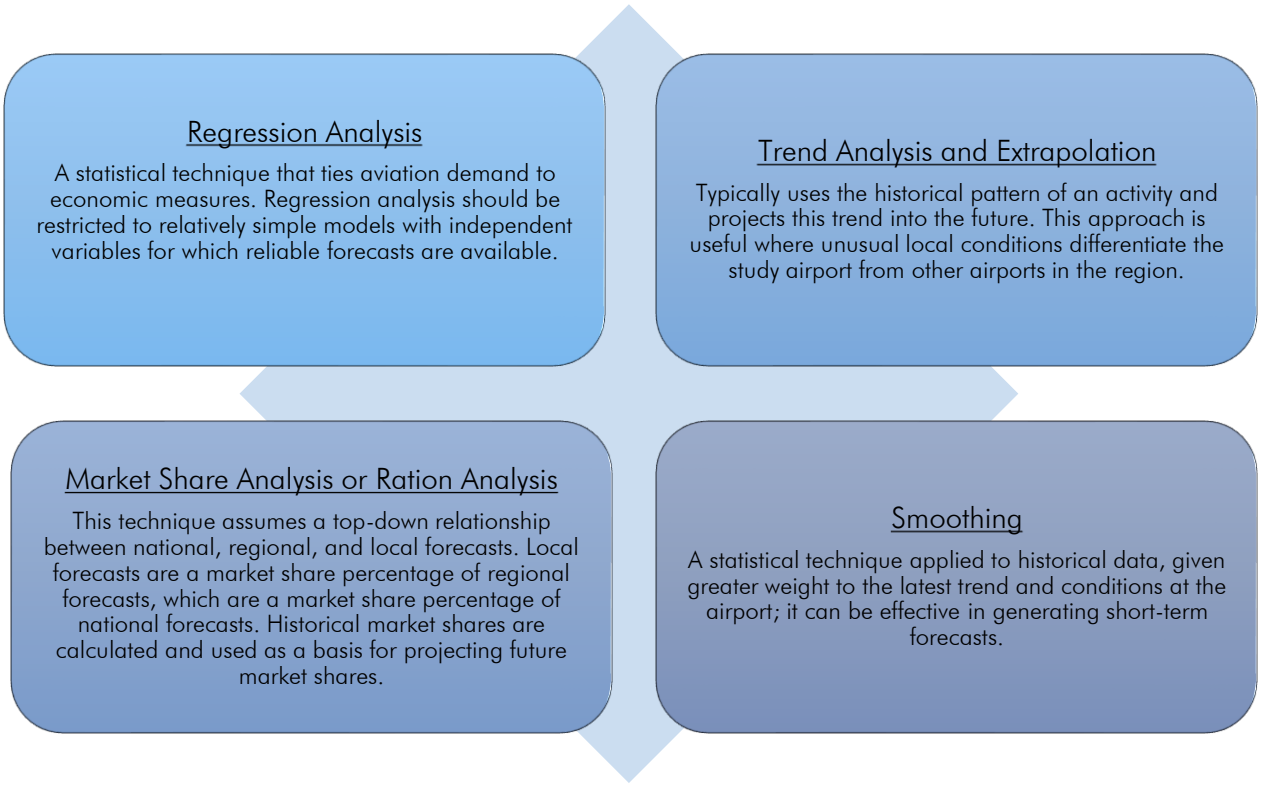
3.2.3 Gather Data

The data gathering step is essential to the forecasting process. Gathering historical, recent, and relevant data is essential to analyze the information that will aid in forecast projections. Consideration should be given to collecting data at the local, regional, national, and global levels. Data gathered includes, but is not limited to, historical aviation trends, FAA forecasts (TAF and Aerospace Forecast), industry publications, outlooks and forecasts, socioeconomic data, and labor statistics. Utilizing the most recent data available will help ensure that an accurate baseline and reasonable forecast is created. Data gathered in this step is also used to establish the baseline year (2021).

3.2.4 Forecast Methodologies

AC-6B states *"there are several appropriate methodologies and techniques for forecasting aviation activity at a specific airport."* The AC recommends the use of professional judgement to determine the different techniques which planners will use to evaluate and analyze data and to create projections from the established baselines. AC-6B lists four of the most common statistical methods used in aviation forecasting. Exhibit 3.2-2 provides a description of these four methodologies.

Exhibit 3.2-2: Forecasting Methodologies



Source: Advisory Circular 150/5070-6B Airport Master Plans; CMT (2021)

3.2.5 Apply Forecast Methodology and Evaluate Results

The selected methodology is then applied to the baseline year data created from the previous steps which established parameters and gathered and analyzed data to create future projections of demand. Planners may use a combination of several methodologies to create forecasts. It is necessary to evaluate the resulting projections for reasonableness. All unreasonable forecasts should be rejected.

3.2.6 Summarize and Document Forecast Results

The process now requires a report-style writeup of the forecast(s) that have been evaluated and determined to be reasonable. The report will summarize the entire forecasting process, list the methodologies used, provide detailed analysis of the forecast, and explain any significant assumptions made during the process. Tables and graphs are used to present the historical and projected data used in the forecast.

3.2.7 Compare Forecast with FAA Terminal Area Forecast

This portion of the report compares the developed forecast to the FAA TAF. The FAA creates the TAF for all airports that are part of the National Plan of Integrated Airport Systems (NPIAS). According to AC-6B, *"the general requirement for FAA approval of the master plan study's forecasts is that they are supported by an acceptable forecasting analysis and are consistent with the TAF."* For SGF that means

the forecast cannot differ by more than 10 percent in the 5-year forecast and 15 percent in the 10-year forecast period. If any differences are made between the forecasts and the TAF, then proper justification of the differences need to be resolved prior to moving on to the rest of the report.

3.2.8 Forecast Submittal and Approval

The forecast is shared with Airport staff to verify they seem realistic and reasonable. Once Airport staff validates the forecasts, they are sent to the FAA for approval. FAA's approval of the forecast will allow for the subsequent chapters of the Master Plan to be developed.

3.3 Factors Affecting Demand

External local, regional, national, and global factors can and will influence future projections. Planners must take these issues into consideration when constructing a demand-driven forecast. As stated in AC-6B, planners should consider socioeconomic data, demographics, disposable income, geographic attributes, and other external factors such as fuel costs and local attitudes toward aviation. The following section will describe several of the many factors that can affect the aviation demand forecasts at SGF.

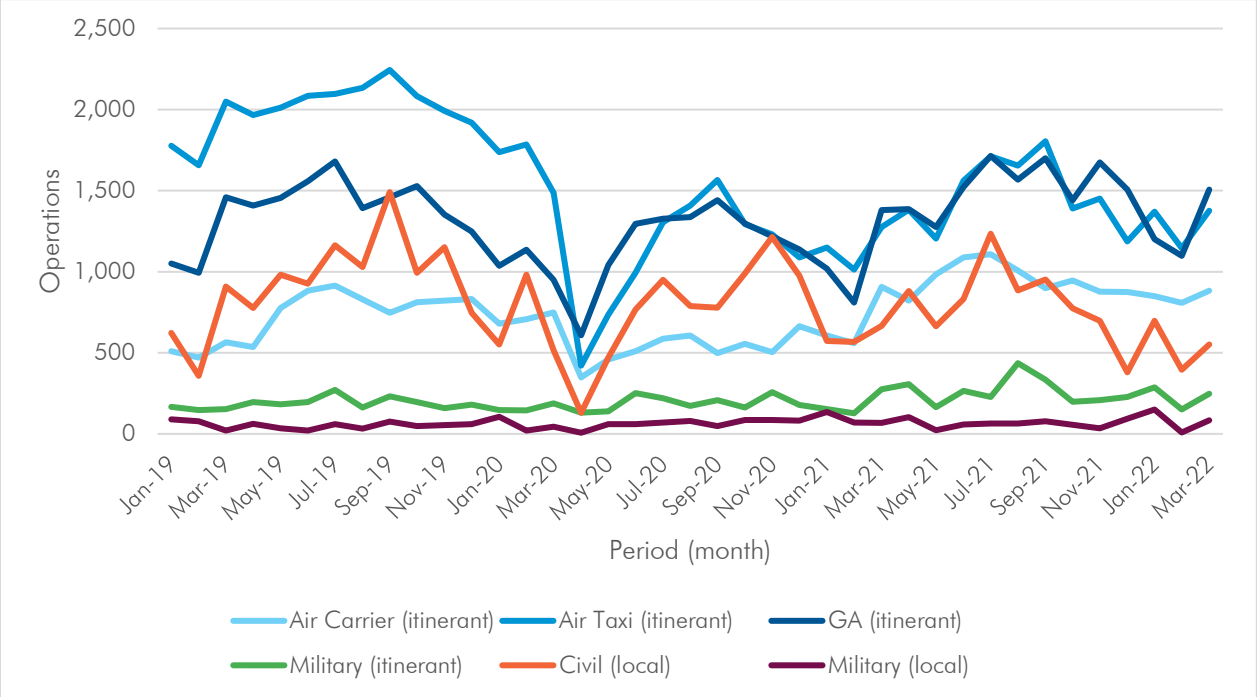
3.3.1 COVID-19 Pandemic

The COVID-19 global pandemic (COVID-19 or Pandemic) has substantially impacted the aviation industry around the world. Nearly all facets of the aviation industry have experienced unprecedented operational and economic impacts from COVID-19 beginning in early 2020. While the outbreak of COVID-19 slowly began spreading across the world throughout January and February of 2020 it was not until March 2020 that the United States (U.S.) experienced an increase in the total number of confirmed cases. COVID-19 has impacted airports differently, with airports that rely completely on commercial passenger traffic in non-leisure destinations being impacted the most, while many general aviation (GA) airports experienced minimal to no impact in activity.

Nearly all types of operations at SGF (except military) decreased in the Spring of 2020, however, operations did improve quickly despite the ongoing Pandemic. By 2021, SGF operations reached pre-Pandemic total annual operational levels (approximately 57,000) and are anticipated to remain consistent throughout the 20-year forecasting period (2021-2041). Subsequent sections of this chapter will examine the effects of COVID-19 on SGF's commercial segment in greater detail.

Exhibit 3.3-1 presents historical SGF operations by category from 2019 through the first quarter of 2022.

Exhibit 3.3-1: SGF Historical Operations By Category



Source: FAA OPSNET January 2019 through March 2022

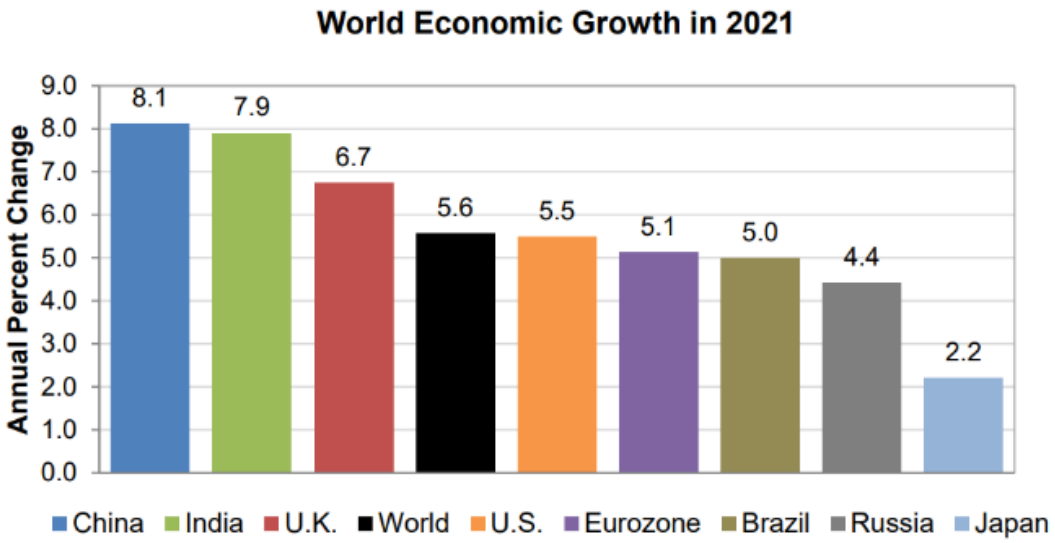
3.3.2 Global Influence

Global events can impact and influence airports of all sizes worldwide. The aviation industry experienced unprecedented and economic impacts from COVID-19 beginning in March 2020. Passenger demand (enplanements) within the commercial aviation sector dramatically decreased in result, causing many airlines to reduce capacity and routes. In April 2020, SGF enplaned approximately 3,036 passengers compared to the previous year in 2019 where SGF enplaned 44,001 passengers. The sharp decrease in enplanements recovered to 2021 substantially to 33,837 enplanements. Although SGF was greatly affected by the Pandemic, the post-Pandemic levels indicate significant recovery.

The FAA Aerospace Forecast Fiscal Years 2022-2042 presents a forecast showing global Gross Domestic Product (GDP) growth of 5.6% in 2021, after falling to 3.5% in 2020. The GDP globally is not anticipated to return to pre-Pandemic levels until about the middle of the decade. Moving into 2022 and 2023, countries are shifting their focus to fiscal restraint, rising interest rates and reducing inflation, contributing to moderate projected GDP growth in coming years.

On the other hand, the U.S. GDP growth is shown slowing from 5.5% in 2021 to 4.3% in 2022, and 2.9% in 2023 as the effects of COVID-19 relief wear off and consumer spending normalizes. The recovery from the Pandemic, as well as rising concerns of inflation, will be the key factors for GDP in the future. **Exhibit 3.3-2** depicts Worldwide GDP in 2021.

Exhibit 3.3-2: World Economic Growth in 2021

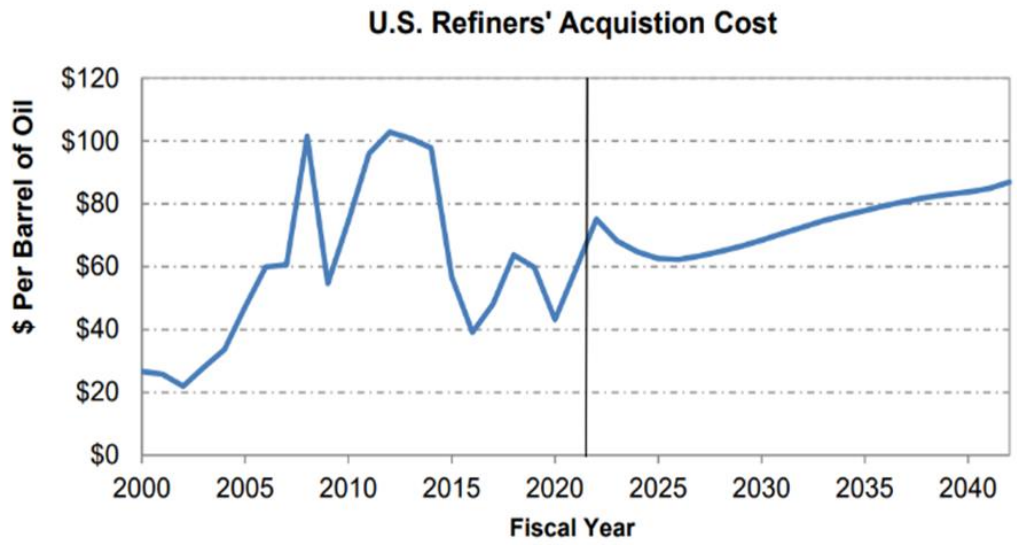


Source: FAA Aerospace Forecast Fiscal Years 2022-2042

3.3.3 National Influence

Oil costs have always been a driving factor for the aviation industry. Aviation fuel is the largest single expense to airlines and the price fluctuates with the price of a barrel of oil. Generally, fuel prices have a direct correlation on aviation activity. The FAA Aerospace Forecast Fiscal Years 2022-2042 projects the price of oil to increase due to growing global demand and higher costs of extraction. It has forecasted the U.S. refiners acquisition cost of crude to rise to $87 a barrel at the end of the forecast horizon. Exhibit 3.3-3 shows the projected Refiners' Acquisition Cost of oil. It is important to note that the FAA Aerospace Forecast Fiscal Years 2022-2042 does not include the impacts of the Russian invasion of Ukraine, which will likely drive the prices of oil even higher in 2022 and beyond.

Exhibit 3.3-3: U.S. Refiners' Acquisition Cost



Source: FAA Aerospace Forecast Fiscal Years 2022-2042

3.3.4 Local Influence

Factors affecting demand at a local level include influences spanning local businesses to local attractions and socioeconomic trends. These factors serve as important elements to the forecast and are factored into future projections for the Airport. According to FAA's OPSNET, SGF had over 57,000 total operations in 2021. Of those 57,000 total operations, nearly 10,000 of those were local operations (approximately 9,000 civil and 1,000 military). This data indicates a considerable portion of local traffic at SGF resulting from the presence of flight training activity and private aircraft based at the Airport. In addition to national and global issues, the Airport is largely affected by local factors which can heavily influence different areas of aviation at SGF. For example, existing companies in the area or ones that relocate to the area, will most likely use SGF. Additionally, companies that have flight departments may result in an increase in operations and based aircraft at SGF.

ECONOMY

SGF's local economy is robust and thriving due to many factors. The Springfield-Branson area is home to several big-name company's headquarters, including Bass Pro shop and O'Reilly Auto Parts. Amazon also has a large fulfillment center contributing to the local economy. Other big-name companies that have local branches include Expedia, T-Mobile, AT&T and Kraft Foods. Corporate headquarters commonly fly both executive level and employees to and from the area to conduct company business. This creates a demand for commercial airline service, charter service, corporate aviation and based aircraft at SGF.

Another economic driving factor that attracts businesses to the region is the Foreign Trade Zone (FTZ). FTZ's enhance the capabilities of local businesses competition on the global trading market. As previously mentioned in Chapter One – Airport Inventory, the Southwest Missouri FTZ is unique as it not only includes businesses at the Airport, but also extends the customs easing benefits to businesses with

fixed sites within 23 counties surrounding the Airport. The FTZ is a regional economic booster and attractant to businesses for the local area.

Springfield Missouri has functioned as a gateway for tourists due to the proximity it is to Branson and to Lake of the Ozarks, as these are both top tourist destinations. The surrounding area of the city also includes large reservoirs, national and state parks that are attractive destinations for people to visit. While tourism does play a large role in the region's economy, trade, health care and education are just as important to the region's sustainability.

Furthermore, within the local economy, there are several higher education institutions including Ozarks Technical Community College (OTC), Missouri State University (MSU), Drury University, Evangel University, Southwest Baptist University, Cox College of Nursing and nine other colleges in the area. Typically, large universities help generate commercial air traffic for the Airport due to student travel, athletic events, research, and recruitment.

SOCIOECONOMIC

Socioeconomic trends of the Springfield Missouri area may reveal key indicators of future aviation demand. Correlations can be drawn from economic activity to aviation activity and can suggest future need for the Airport. The database from Woods & Poole Economics was consulted for the socioeconomic assessment of the area surrounding SGF.

As presented in greater detail in Chapter One – Airport Inventory, key socio-economic data utilized in the forecasting process analyzed historical and projected data for Greene County, Springfield Metropolitan Statistical Area (MSA) and the State of Missouri for:

- Population
- Personal Income Per Capita
- Employment

FLIGHT TRAINING SCHOOL

Opening in Fall 2017, the local fixed-based operator (FBO) Premier Flight Center (PFC) partnered with the local community college, OTC, and the Airport to provide an FAA-approved Part 141 flight training program. As a vendor to OTC, PFC provides a flight training curriculum for students to train and obtain their private and commercial pilot's license, with an instrument rating, while at the same time working on an associate degree in Aviation Flight Technology.

Additionally, OTC is planning to build a new 22,700 square foot Airframe and Powerplant (A&P) facility on the Southeast side of the Airport. This new facility will boost enrollment for the college. Students will be able to achieve a certificate in Aviation Airframe Maintenance in which it prepares individuals for a career in aviation maintenance. The anticipated opening of the new facility is in the Fall of 2024.

MILITARY

For about 57 years, SGF has been home to the Missouri National Guard 1107th AVCRAD (Aviation Classification Repair Activity Depot) that services military aircraft from 14 states, including a fleet of around 370 helicopters and various other aircraft. The 1105th AVCRAD is one of four depots in the country that services U.S. Army helicopters. Such services include repairing aircraft damaged from sand and bullets as well as routine maintenance.

A recent facility expansion completed in 2020 has given the AVCRAD an extra 85,000 square feet to better perform services to aircraft such as the CH-47 Chinooks, AH-64 Apache, and UH-60 Blackhawks. The expansion allows for the depot to operate more orderly with the extra space to overhaul and repair. For the purposes of this Master Plan forecast, military operations, both itinerant and local, will be held constant at 2020 operational levels.

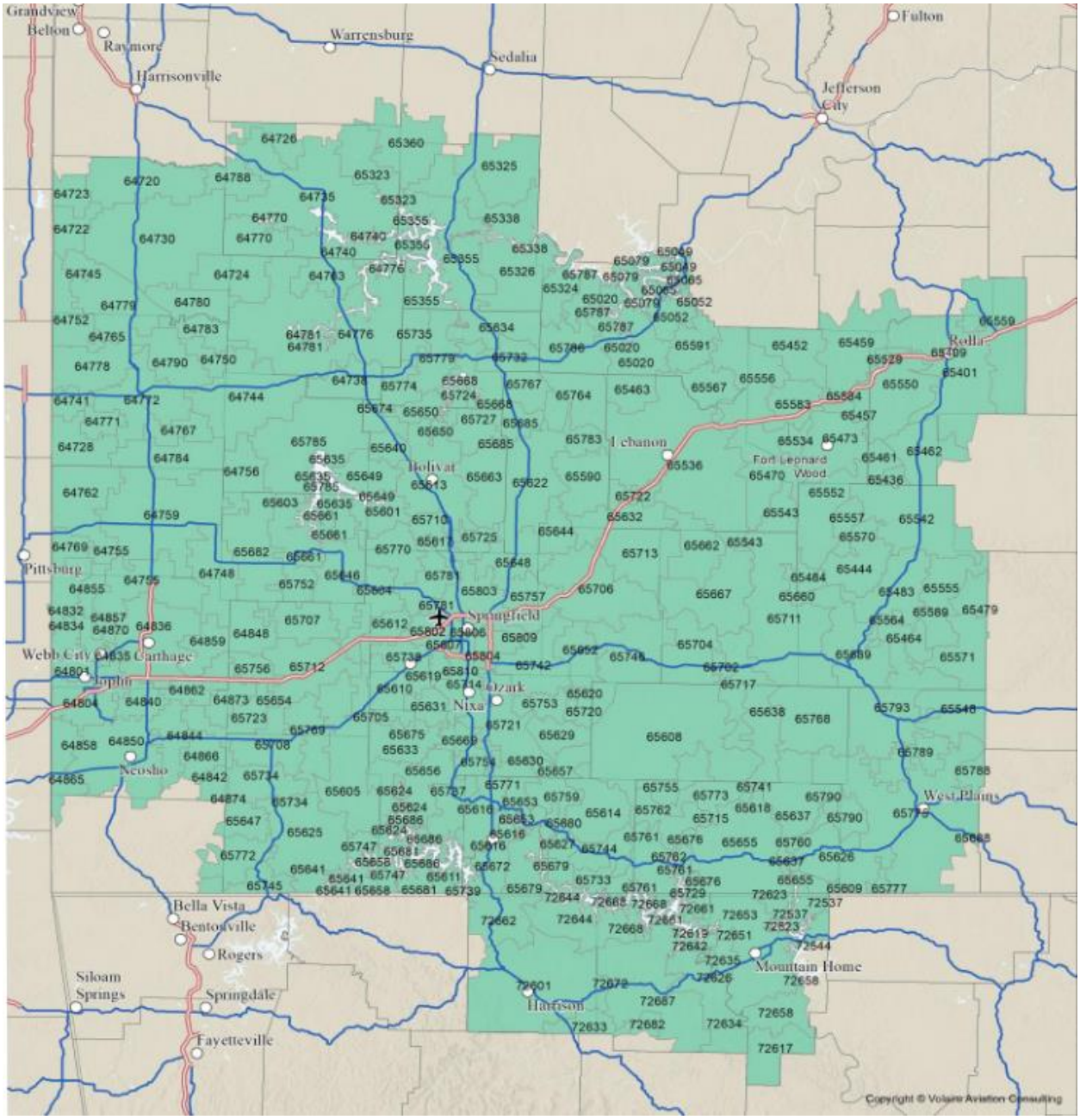
AIRPORT SERVICE AREA

The airport service area refers to the geographic area surrounding an airport that generates "local" activity. The population, economic characteristics, and capabilities of competing airports within an airport's service area are principal factors in defining locally generated demand for aviation facilities and services and influence the Airport's ability to attract transient aircraft activity. As previously discussed, the local economy is thriving, which bodes well for both GA and commercial passenger service at SGF.

From a commercial passenger perspective, the "catchment area" is the geographic area surrounding an airport where it can reasonably expect to draw passenger traffic from. The 2019 Leakage and Retention Study for SGF identified the Airport's catchment area, which is depicted in **Exhibit 3.3-4**. The catchment area spans 258 zip codes throughout 36 counties in Southwest Missouri and three counties in North Central Arkansas. The 2019 study also evaluated airports in the Southwest Missouri region in relation to the amount of drive time to and from SGF. The drive time map, depicted in **Exhibit 3.3-5**, shows that while no airports are within the 60-minute drive time window of SGF, there are a significant number of other airports within the 120 and 180-minute drive time windows, including STL and MCI. So, while SGF can draw from a large area of local passengers, there's also strong competition within only a few hours' drive. The 2019 Leakage and Retention Study also determined the commercial passenger traffic distribution by airport among passengers from within the catchment area. The study showed that passengers from within the catchment area use seven airports 98% of the time, each with the following market share:

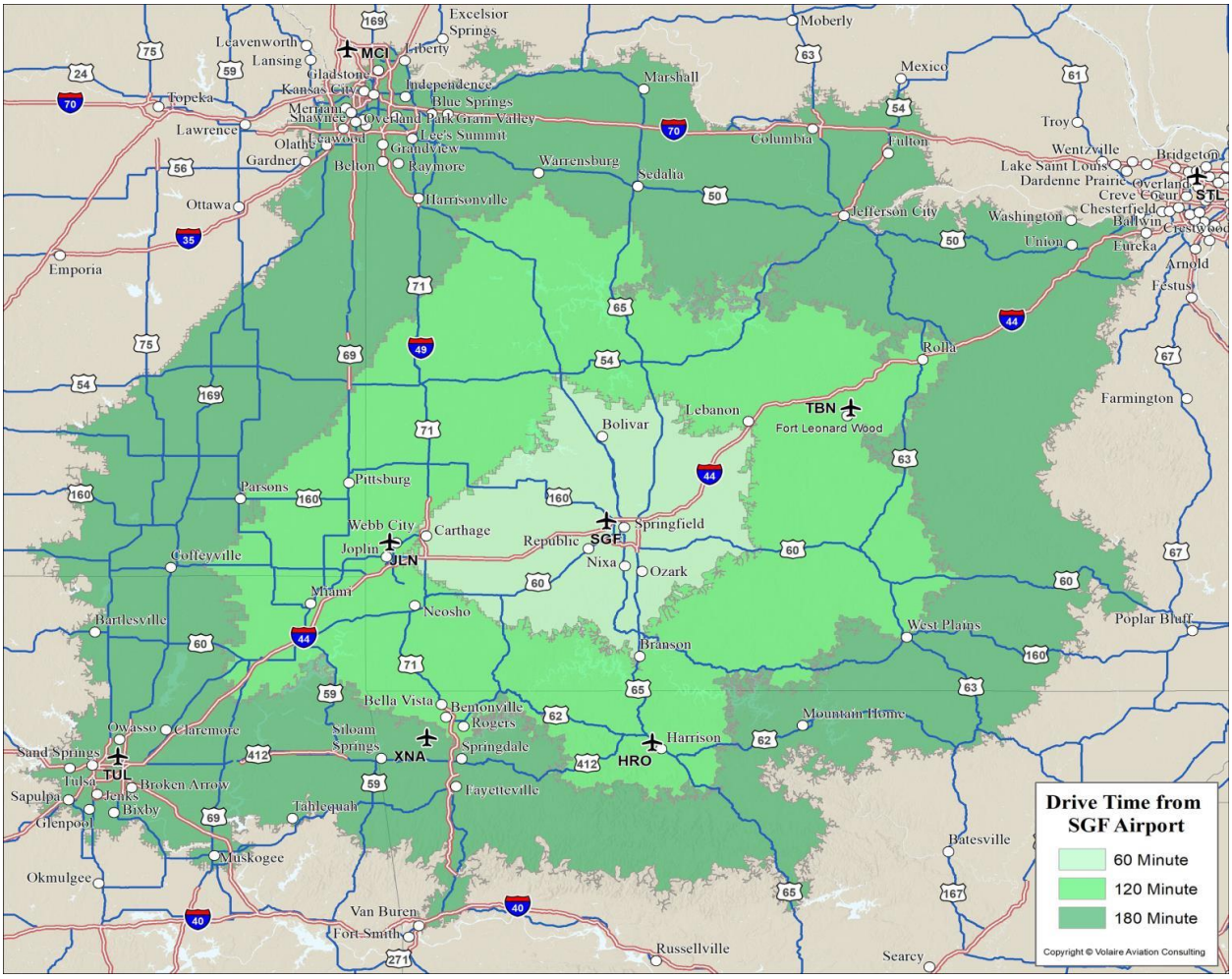
- 46.2% - SGF, Springfield-Branson National Airport
- 21.5% - MCI, Kansas City International Airport
- 18.9% - STL, St. Louis Lambert International Airport
- 4.7% - XNA, Northwest Arkansas Regional Airport
- 4.4% - TUL, Tulsa International Airport
- 1.3% - DFW, Dallas/Fort Worth International Airport
- 0.9% - LIT, Little Rock Clinton National Airport

Exhibit 3.3-4: Springfield-Branson National Airport Catchment Area



Source: Volaire (2019)

Exhibit 3.3-5: Springfield-Branson National Airport Drive Time



Source: Volaire (2019)

3.4 Industry Trends and Published Forecasts

In preparation for the development of an aviation forecast, it is important to collect, review and analyze industry trends, publications, and forecasts. Industry publications such as the FAA Aerospace Forecasts, General Aviation Manufacturers Association (GAMA) outlook, FAA Terminal Area Forecast (TAF), the Airbus Global Market Forecast and the Air World Cargo Forecast by Boeing should all be reviewed to gain an understanding of the broader outlook on aviation. These publications are generally created each year and use indicators such as historical trends, aircraft sales, tourism trends, oil prices, and economic outlooks to develop future projections.

3.4.1 FAA Aerospace Forecast Fiscal Years 2022-2042

The FAA Aerospace Forecast is published annually, providing market outlooks for all sectors of the aviation industry. The most current publication, FAA Aerospace Forecast Fiscal Years 2022-2042, provides industry outlook beginning nearly two years after the onset of COVID-19, which has been the largest disruption in aviation history.

According to the FAA Aerospace Forecast Fiscal Years 2022-2042, domestic commercial passenger growth over the next 20 years is projected to grow at a 4.7% compounded annual growth rate (CAGR). Following the COVD-19 recovery period (2020-2022), domestic passengers are forecast to return to 2019 levels by 2023 and continue growing at a 2.6% CAGR through the end of the forecast period.

The GA sector of the aviation industry was less affected by COVID-19 than the commercial sector. The FAA Aerospace Forecast Fiscal Years 2022-2042 projects the total active GA fleet to grow at 0.1% CAGR by the end of the forecast period. Over the 20-year outlook, the FAA projects piston aircraft to decrease at -0.8% CAGR, turbo prop aircraft to increase at a 2.6% CAGR, and jet aircraft to increase at a 2.6% CAGR. The FAA forecast expects air travel demand to grow between 2022 and 2026 due to the U.S. economy recovering from the impacts of COVID. Operations at towered airports are forecast to grow at a 1.5% CAGR over the forecast period with commercial activity growing at approximately five times the rate of non-commercial traffic. The FAA forecast states that at towered airports, total aircraft operations in 2021 increased by 7.4% compared to 2020. During the same time period air carrier activity increased by 4.1%, air taxi increased 7.1%, and GA increased by 9.1%.

3.4.2 General Aviation Manufacturers Association

GAMA is an international trade organization that primarily represents GA aircraft manufacturers. Historically, GAMA publishes an annual report each year, which not only includes historical aircraft delivery data, but also fleet and flight activity forecasts for all facets of the GA sector. However, since the onset of COVID-19, GAMA has not published an annual report, nor any industry forecasts. The most recent report published by GAMA is the 2019 Annual Report. Due to the report being published prior to the Pandemic, it is likely to be unreliable and unreasonable to consider in this Master Plan forecast. Therefore, no GAMA projections are documented in the SGF Master Plan forecast.

3.4.3 FAA Terminal Area Forecast

Every year the FAA publishes a TAF for each airport included in the NPIAS. The TAF assumes a demand-driven forecast based upon local and national economic conditions, as well as industry trends. In 2020, there was a major decrease in U.S. passenger enplanements and commercial operations because of the COVID-19 Pandemic. In 2021, there was modest recovery with passenger enplanements and commercial operations increasing above historical average growth rates. Due to the impact of COVID-19, the current published 2021 TAF (published March 2022) is inaccurate. As such, the FAA has provided the Airport a revised draft TAF that is anticipated to be published late in 2022. The Airport has agreed that the draft TAF better aligns with current conditions at SGF. Therefore, the revised draft 2022 TAF will be used and referenced throughout this forecast chapter for the purposes of enplanements and aircraft operations forecasting. The revised draft 2022 TAF did not include based aircraft counts, so the currently published 2021 TAF (listed in Appendix A inside this document) will be used for purposes of based aircraft forecasting.

The FAA's revised draft 2022 TAF projects commercial enplanements at SGF to increase from 422,931 in 2021 to 840,077 in 2041, which represents a 98.63% increase and a 3.49% CAGR. The draft TAF projects total aircraft operations to increase from 56,342 to 73,881 between 2021 and 2041, representing a 31.13% increase and a 1.36% CAGR. The current published 2021 TAF projects based aircraft to increase from 143 to 186 between 2021 and 2041, representing a 30.07% increase and a 1.32% CAGR.

Table 3.4-1 presents the data from the SGF revised draft TAF anticipated to be issued late in 2022.

Table 3.4-1: FAA Draft 2022 SGF Terminal Area Forecast

FISCAL YEAR	ENPLANEMENTS			AIRCRAFT OPERATIONS									BASED AIRCRAFT[1]
	Commercial Enplanements			Itinerant Operations					Local Operations			TOTAL OPS	
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total		
2021	98,169	324,762	422,931	9,706	16,372	16,028	2,889	44,995	10,433	914	11,347	56,342	143
2022*	122,651	418,311	540,962	10,500	18,256	17,832	3,301	49,889	6,646	740	7,386	57,275	146
2023*	127,961	444,725	572,686	13,033	19,488	17,850	3,301	53,672	7,512	740	8,252	61,924	148
2024*	134,991	469,346	604,337	15,719	17,274	17,868	3,301	54,162	9,249	740	9,989	64,151	150
2025*	138,361	481,133	619,494	17,488	15,596	17,885	3,301	54,270	11,322	740	12,062	66,332	152
2026*	141,421	491,787	633,208	20,919	11,610	17,903	3,301	53,733	11,350	740	12,090	65,823	154
2027*	144,280	501,769	646,049	22,083	10,664	17,921	3,301	53,969	11,378	740	12,118	66,087	156
2028*	147,111	511,625	658,736	22,447	10,772	17,939	3,301	54,459	11,407	740	12,147	66,606	158
2029*	149,938	521,471	671,409	22,809	10,882	17,957	3,301	54,949	11,435	740	12,175	67,124	160
2030*	152,874	531,687	684,561	23,186	10,993	17,975	3,301	55,455	11,464	740	12,204	67,659	162
2031*	155,877	542,151	698,028	23,571	11,105	17,993	3,301	55,970	11,492	740	12,232	68,202	164
2032*	158,881	552,623	711,504	23,956	11,217	18,012	3,301	56,486	11,521	740	12,261	68,747	166
2033*	161,833	562,907	724,740	24,333	11,331	18,030	3,301	56,995	11,550	740	12,290	69,285	168
2034*	164,819	573,307	738,126	24,714	11,446	18,048	3,301	57,509	11,579	740	12,319	69,828	170
2035*	167,826	583,786	751,612	25,096	11,562	18,066	3,301	58,025	11,608	740	12,348	70,373	172
2036*	170,885	594,440	765,325	25,485	11,680	18,084	3,301	58,550	11,637	740	12,377	70,927	174
2037*	174,097	605,630	779,727	25,893	11,798	18,102	3,301	59,094	11,666	740	12,406	71,500	176
2038*	177,385	617,082	794,467	26,311	11,918	18,120	3,301	59,650	11,695	740	12,435	72,085	178
2039*	180,758	628,840	809,598	26,739	12,039	18,138	3,301	60,217	11,724	740	12,464	72,681	180
2040*	184,171	640,727	824,898	27,171	12,162	18,157	3,301	60,791	11,754	740	12,494	73,285	183
2041*	187,555	652,522	840,077	27,597	12,285	18,175	3,301	61,358	11,783	740	12,523	73,881	186

[1] *Based aircraft presented from 2021 TAF Issued March 2022*

Source: FAA Revised Draft 2022 SGF TAF

3.4.4 Airbus Global Market Forecast

The 2022 Airbus Global Market Forecast projects future traffic growth and passenger aircraft demand over the next 20 years. Airbus projects that the demand for new aircraft will progressively shift from fleet growth to the replacement of older, less fuel-efficient aircraft. Only 20% of the current in-service fleet is the latest generation of fuel-efficient aircraft, in result, driving future demand for newer aircraft.

The Airbus Forecast projects that 39,500 new aircraft deliveries will be needed over the 20-year period. Of the new passenger aircraft to be delivered worldwide, 6,580 aircraft will be delivered to North America. Similarly, 410 of the 890 total new freighter unit deliveries worldwide will be delivered to North America. Overall, the total projected aircraft deliveries by the end of the forecast period worldwide are projected to be 80% single aisle aircraft and 20% wide body aircraft.

Additionally, the Airbus Forecast projects global demand for passenger traffic will grow at a 3.6% CAGR over the next 20 years, while U.S. Domestic traffic is projected to increase at 2.1% CAGR.

3.4.5 Boeing Commercial Outlook

The Boeing Company's Commercial Market Outlook (CMO) 2022-2041 is a long term forecast of commercial air traffic and aircraft demand. The CMO reflects a global market that is recovering. The demand for domestic air travel has made strong recovery and is on track to return to pre-Pandemic levels by 2023 to 2024. CMO forecasts $7.2 trillion in new airplane deliveries as global aircraft fleets increase 80% by 2041.

The CMO states that as technology advances and airlines strive to be fuel efficient and more sustainable, demand for new aircraft is significantly increasing. The CMO forecast projects approximately half of passenger jets will be replaced with newer models throughout the forecasting period. Asian markets account for 40% of the long-term global demand for new airplanes whereas, Europe and North American each account for 20% of the demand. The remaining deliveries is for all other global regions combined. In total, the CMO forecast demands for more than 40,000 new airplanes will be delivered over the next 20 years.

3.4.6 Boeing World Air Cargo Forecast

The Boeing Company also issues the World Air Cargo Forecast (WACF) 2020-2039 to provide a comprehensive, up-to-date overview of the air cargo industry. The forecast summarizes the world's major air trade markets, identifies major trends, and presents forecasts for the future performance and development of markets, as well as for the world freighter airplane fleet.

The Boeing WACF states that worldwide air cargo traffic is projected to grow at a4.0% CAGR over the next 20 years. The Asia-Pacific region will continue to lead the world in average annual air cargo growth, with domestic China and East Asia markets expanding 5.8% and 4.9% per year. These markets are supported by faster-growing economies and growing middle classes, making these markets grow slightly faster than the world average growth rate. In the markets between North America and Europe, growth will be below the world average growth rate. North American is forecasted to increase 2.6% over the forecasting period.

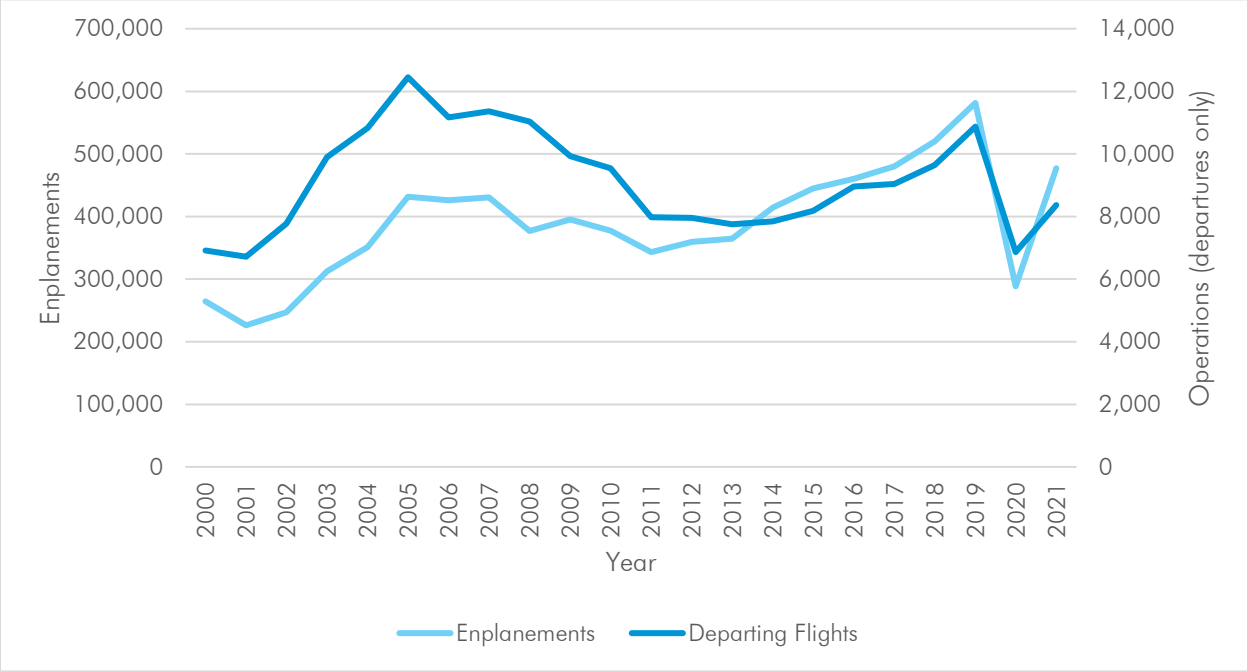
3.5 Commercial Aviation Forecast

This section presents the analysis and findings of the passenger air carrier and commuter (simplified as commercial) passenger service scenarios and forecasts at SGF. This analysis considers the recent air service available at SGF, the potential for growth, and various scenarios the forecast how growth could occur in the future.

3.5.1 Historical Passenger and Operations Data

Before the COVID-19 Pandemic, enplanements at SGF grew consistently from 2011 through 2019, at a 6.8% CAGR. This strong passenger growth is largely due to the strong local economy (previously discussed) and the continued economic growth in the region. At the same time, the number of departing flights at SGF grew at a 3.9% CAGR indicating that there was a growing number of passengers per departing flight, a trend will be explained in greater detail in subsequent report sections. **Exhibit 3.5-1** presents historical commercial enplanement and operations (departures only) data at SGF since 2000.

Exhibit 3.5-1: SGF 20-Year Historical Enplanements and Operations



Source: DOT T-100 Data for SGF 2000-2021; CMT (2022)

As the graph above shows, despite some stagnation due to the Great Recession in the late 2000s and early 2010s, SGF has seen significant growth in enplanements over the past 20 years. Over the period from 2000 through 2019, enplanements grew at an annual rate of 4.2%. This is significantly faster than the overall U.S. domestic average of 1.6% annually. While these trends were disrupted by the Pandemic, strong growth is anticipated to return to SGF once capacity stabilizes. This data historic data is listed in **Table 3.5-1** in tabular format

Table 3.5-1: SGF 20-Year Historical Enplanements and Operations

YEAR	ENPLANEMENTS	DEPARTURES
2000	264,202	6,909
2001	226,218	6,716
2002	247,174	7,768
2003	312,714	9,904
2004	351,251	10,826
2005	431,667	12,450
2006	426,114	11,164
2007	430,578	11,362
2008	376,885	11,030
2009	395,094	9,928
2010	377,180	9,540
2011	343,249	7,979
2012	359,692	7,957
2013	364,777	7,752
2014	414,232	7,845
2015	444,786	8,183
2016	460,001	8,963
2017	479,928	9,039
2018	520,122	9,645
2019	581,449	10,868
2020	288,265	6,859
2021	477,093	8,369

Source: DOT T-100 Data for SGF 2000-2021; CMT (2022)

3.5.2 Impacts of COVID-19 Pandemic on Commercial Aviation

Like most airports in the country, SGF was significantly impacted by the Pandemic, with much of the Airport's passenger demand evaporating overnight. At its worst, demand fell to 94% below 2019 levels in April 2020. While the rest of 2020 experienced reduced demand, by summer 2021 commercial activity was returning towards normal. Passenger demand in May 2021 was only 17% below 2019 levels and has been relatively consistent at that level as of this report writing (summer 2022). The challenge recently is not that demand has not recovered, instead, supply has remained below pre-Pandemic levels as airlines struggle with staffing and restoring their schedules. For example, scheduled seat capacity at SGF in July 2022 was 17% lower than in July 2019, but flights were incredibly full, with throughput at the Transportation Security Administration (TSA) checkpoints per scheduled seat at 0.96 (this will not match a true load factor due to airline crews and employees being screened and counted, but is a good indication of the strength of demand and more timely than other statistics). This analysis concludes that if supply had returned to 2019 levels, then the demand at SGF would have similarly recovered.

However, based on comments and published outlooks from airlines, an imminent recovery in airline capacity is not anticipated. The baseline (medium) forecast scenario, discussed in detail in the following section, has a return to 2019 passenger volumes in late 2023 into 2024. Until then, this scenario assumes that capacity will slowly return to SGF, but that load factors will remain elevated several percentage points higher than historical averages. Load factors come down to average in the baseline scenario at the end of 2024 as capacity stabilizes.

One lasting impact from the Pandemic that will be described in more detail later in this section are aircraft retirements and fleet changes. Several airlines have indicated a desire to dramatically scale back their 50-seat regional jet fleets and have already retired a significant number of aircraft. This is especially impactful in a market like SGF. In 2019, 68% of scheduled departures and 51% of scheduled seats were flown on 50-seat regional jets. By 2022, these adjustments already reduced those percentages to 44% of scheduled departures and 29% of scheduled seats. This analysis concludes that these trends will continue over time with fewer and fewer 50-seat regional jets in operation. Among other impacts, SGF can expect to accommodate larger aircraft, but with fewer flights, driving the average seats per departure higher. SGF will therefore experience more passengers in the terminal even as the number of flights does not significantly grow. The impact of this will be described in more detail in subsequent report sections.

3.5.3 Commercial Enplanement Forecast Scenarios

As part of the commercial enplanements analysis, numerous base forecasts were evaluated as the foundation to construct a Low, Medium, High and Super-High forecast scenario on top of. These base forecasts were developed and evaluated to determine the most appropriate to select as the foundation to build off for the commercial service forecasts for this Master Plan. The various base forecasts that were evaluated include:

FAA DRAFT 2022 TAF FOR SGF

Evaluated the FAA's 2022 Draft Terminal Area Forecast that we expect to be published in late 2022 for SGF.

SGF AS A % OF NATIONAL 2021 TAF (PUBLISHED MARCH 2022)

Calculated the percentage of enplanements that use SGF today of the national total, then applied that percentage to the national TAF for future years.[1]

SGF AS A % OF FAA CENTRAL REGION 2021 TAF (PUBLISHED MARCH 2022)

Like the National TAF Scenario, the same methodology was used, but for the Central Region TAF.

POPULATION-BASED FORECAST

Using population forecast data from EMSI, the rate of air passengers per capita was calculated and evaluated how it was growing over time, then extended that trend onto future population forecasts. The "propensity to fly" rate (passengers per capita) for the Springfield area has been growing significantly,

[1] Although the Draft 2022 TAF is used throughout this report, only details for SGF is available at this time. Therefore, for comparisons to the national or regional TAF, the 2021 TAF that was published in March 2022 is used in the scenarios.

so this forecast methodology understates future demand, even though the passenger per capita rate was increased over time based on historical trends.

JOB BASED FORECAST

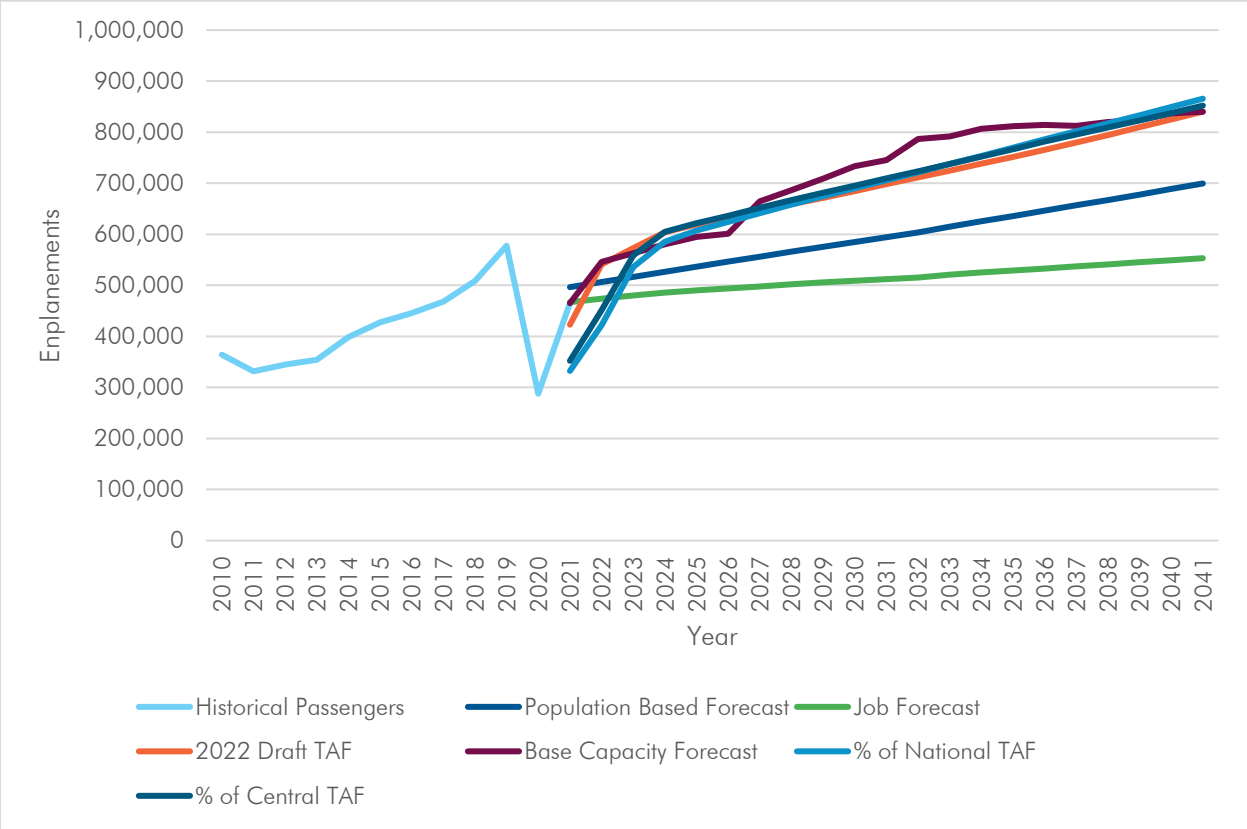
Just like the population-based forecast, future job growth in the area was compared to current passengers and extended the trend. This returned the lowest growth rate of any forecast.

BASE CAPACITY FORECAST

Last, but certainly not least, the Base Capacity Forecast was compiled by building airline capacity sets for each current and potential future market by month along with aircraft size and load factors. This base capacity forecast was ultimately selected as the foundation to be used for further development of the Low, Medium, High and Super-High forecast scenarios.

The base forecast projections are depicted in **Exhibit 3.5-2**.

Exhibit 3.5-2: Base Forecast Projections - SGF Commercial Enplanements



Source: CMT Analysis (2022)

Building upon the Base Capacity Forecast, a Low, Medium, High and Super-High commercial forecast scenario was developed, each modifying various possibilities for future air service at SGF. The details of each scenario are as follows:

LOW SCENARIO

- Long Recession: Assumes that a prolonged recession will begin in late 2022 and have an extended impact on the market. This scenario begins with the same core capacity assumptions as the Medium scenario, but with significant adjustments. First, load factors (how full planes are) are reduced significantly and stay depressed for the entire 20-year planning period. The Low scenario also holds back capacity growth and new markets significantly longer than they would likely begin. Simply as an example, the Base Capacity Forecast assumes that SGF will gain flights to a hub in the Northeast (likely DCA, PHL, JFK, or BOS) in 2024. In this Long Recession scenario, that same flight does not launch until 2028. Similar delayed growth plans are carried across all carriers and routes, where there is not only a delay in frequency growth but also delay up-gauging (larger aircraft).
- Short Recession: While not a part of the Low Scenario, a Short Recession scenario was developed since it is more likely to occur. While it has similar impacts with delayed growth, load factors and growth do return to normal far more quickly than in the Long Recession. However, since it tracks along with the Medium Scenario for most of the time, it was quickly dismissed as a separate scenario for further consideration.

MEDIUM SCENARIO

- Base Capacity Forecast: As previously described, the Base Capacity Forecast includes a monthly airline capacity set built out along with aircraft size. It assumed that all current details continue to be served, and that many of them see growth in frequency and/or size of aircraft going forward. For example, currently, United flies to Denver three times daily using 50-seat regional jets. Over time, this scenario upgauges the route to larger regional aircraft, and also adds additional flights so that by 2040 there are four daily flights on 76-seat regional jets to Denver. This scenario also includes new service to a Northeast Hub (likely DCA, PHL, JFK, or BOS) starting in 2024 and new service to an Upper Midwest Hub (likely MSP or DTW) starting in 2027. Lastly, this scenario includes Allegiant expanding some of their "experimental" Texas service into a more normal and consistent service pattern going forward. While this forecast scenario does show consistent growth, it is believed that it aligns with what airlines have said publicly about their business models, fleet growth, and hub service to be the most realistic scenario, and therefore after further evaluation of all scenarios, the Medium Scenario was selected as the Preferred Forecast for commercial enplanements.

HIGH SCENARIO

- Allegiant Based Aircraft: Allegiant currently provides service to SGF using aircraft and crews flown in from other cities. However, Allegiant has been opening up more bases around the country, including in cities with roughly the same size of operations at SGF. This scenario assumes that Allegiant does decide to open a base at SGF and assigns two aircraft to fly routes to and from SGF. This creates two large impacts that drives service higher. First, because those aircraft are based at SGF year-round, there is less seasonal variation in flying than there is today. Therefore, some off-peak months see an increase in service from Allegiant. There are still peak months, but some of that extra demand will be served by aircraft and crews based elsewhere rather than local SGF aircraft and crews. Second, the timing of flights changes

dramatically since aircraft start and end each day in SGF rather than in another city. This scenario does not assume changes in enplanements, but it does impact the peak hour of the day, as well as passenger volumes through the terminal at various times of the day, which will be detailed further in the subsequent Peak Hour section.

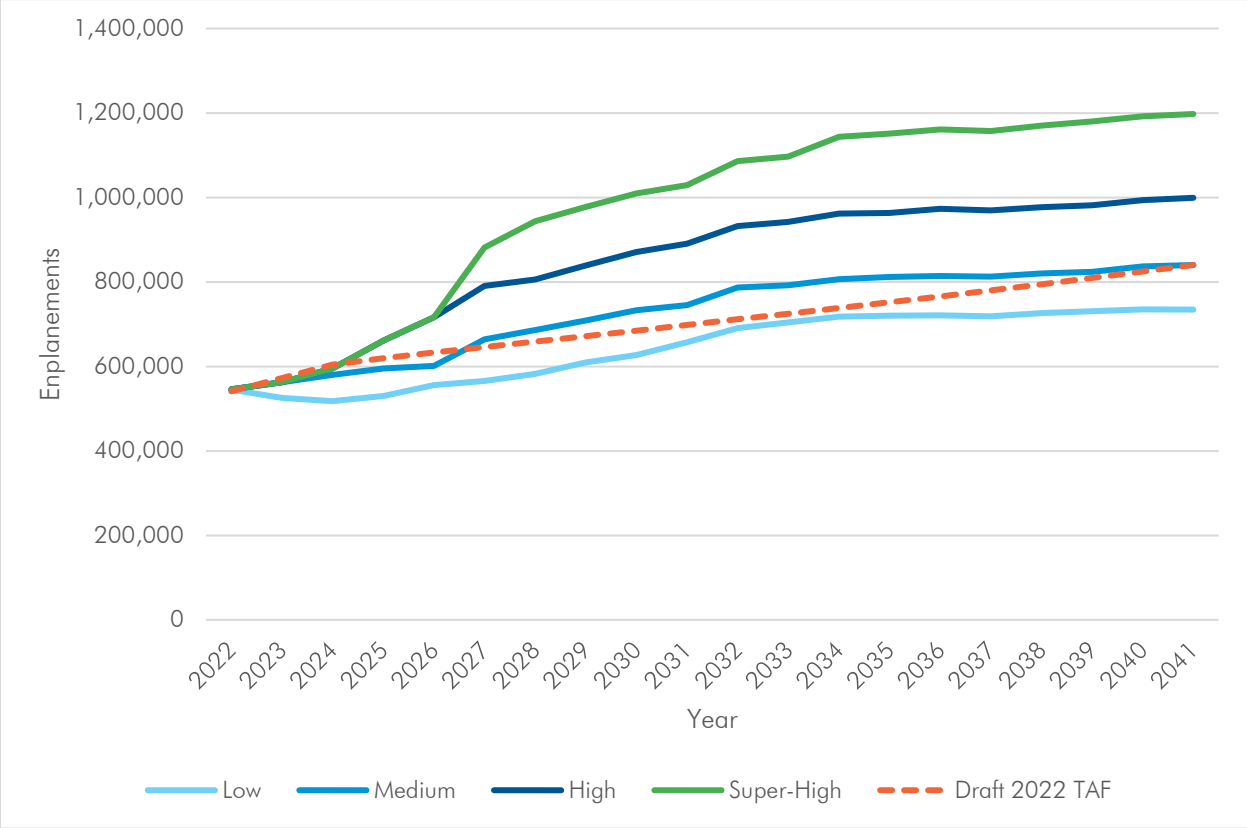
- International Service: While the Springfield region has relatively low international demand, this scenario assumes there is a limited market for international flying, particularly to leisure destinations like Cancun or Puerto Vallarta. Allegiant has publicly discussed plans to launch international service, and is seeking a partnership with Mexico's Viva Aerobus as part of their international strategy. However, this scenario does not assume that Allegiant or any specific airline would fly the service, other low-cost and ultra-low-cost carriers also operate similar routes today. In any event, this scenario calls for limited flying 2-4 times weekly at most, to meet this leisure demand. Service is often only seasonal, but will be flown on mainline high-density aircraft like a 737 or A320.
- Ultra-Low-Cost Carrier Service: Ultra-Low-Cost Carriers (ULCCs) are growing rapidly as a share of passenger volume in the domestic market, and they are anticipated to continue growing into cities like Springfield in the coming years. Like above International Service scenario, this Ultra-Low-Cost Carrier Service scenario assumes the opportunity is relatively limited, however with large high-density mainline aircraft, even minimal schedules can carry significant passengers. This scenario assumes service beginning in 2024, three weekly flights, and growing over time and peaking at nine weekly flights. This scenario does not specify destinations or a specific airline.

SUPER-HIGH SCENARIO

- Southwest Airlines Service: Due to the differences in Southwest's business model and the impacts their service would have on an airport like SGF, a Southwest Airlines (Southwest) service scenario was developed. Should Southwest begin service at SGF, this scenario assumes the frequency would begin with three daily flights and grow to just over five daily flights over time. Southwest only operates 737 aircraft, so each flight has a minimum of 143 seats onboard, meaning it drives a significant volume of passengers. While this scenario provides no opinion on the likelihood of Southwest Airlines service at SGF, Southwest has been growing into markets with a similar population size, so it was reasonable, and therefore prudent, to explore this scenario, particularly given how much larger it is than other scenarios shown here.

The Low, Medium, High and Super-High commercial forecast scenarios all vary from the 2022 Draft TAF though in different ways. This analysis concludes that in most cases, SGF will experience faster growth in the late 2020's and 2030's than the TAF provides, and that the growth rate will slow in the 2040's. All of the forecast scenarios developed reflect that similar trend; though, at significantly different levels and growth rates depending on the assumptions discussed above. **Exhibit 3.5-3** graphically provides a comparison between the Low, Medium, High and Super-High commercial forecast scenarios and the TAF, while **Table 3.5-2** provides the data in tabular format.

Exhibit 3.5-3: Forecast Scenario Projections - SGF Commercial Enplanements



Source: CMT Analysis (2022)

Table 3.5-2: Forecast Scenario Projections - SGF Commercial Enplanements

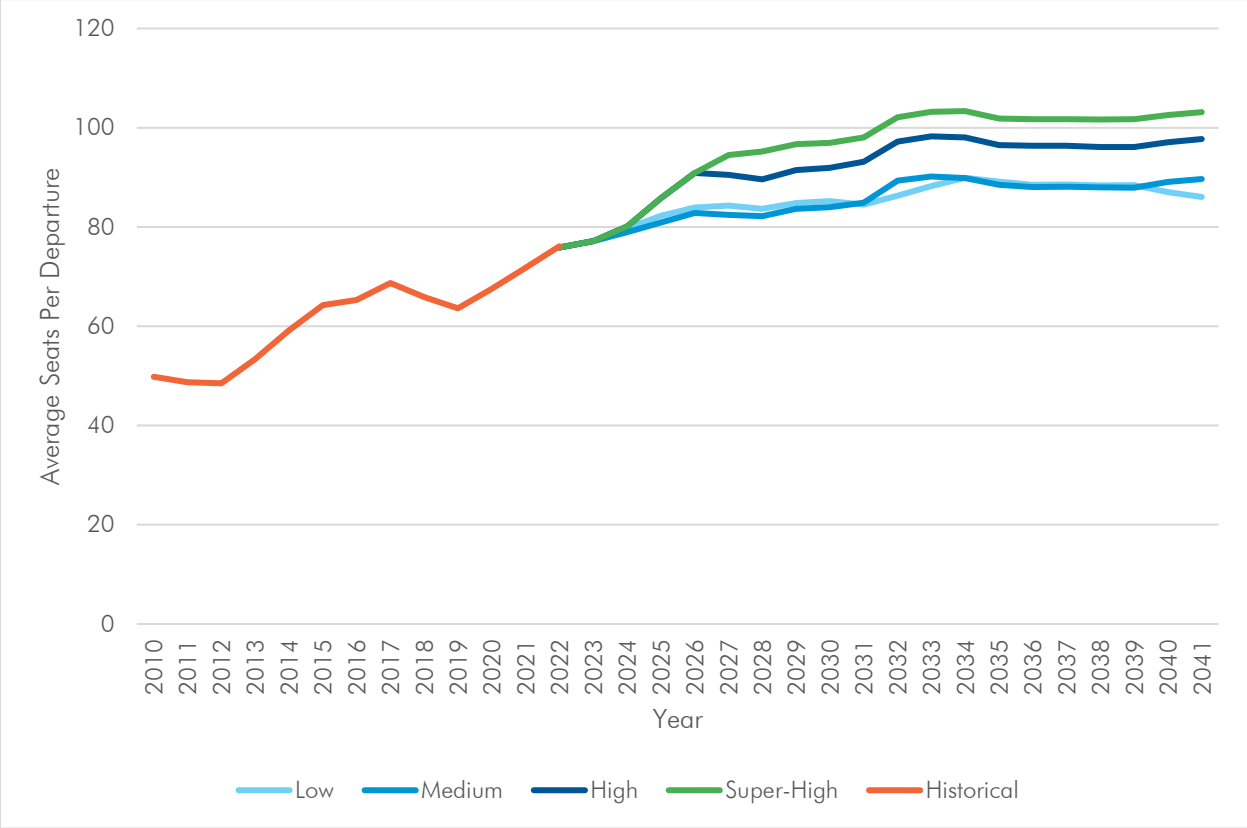
YEAR	LOW	MEDIUM	HIGH	SUPER-HIGH	2022 DRAFT TAF
2022	544,745	545,789	545,789	545,789	540,962
2023	525,483	562,671	562,671	562,671	572,686
2024	517,744	580,214	594,797	594,797	604,337
2025	530,130	595,060	660,948	660,948	619,494
2026	555,620	601,424	716,401	716,401	633,208
2027	565,435	664,133	790,613	881,165	646,049
2028	582,170	686,322	805,987	943,645	658,736
2029	609,309	709,076	839,142	977,874	671,409
2030	626,778	733,278	870,590	1,009,322	684,561
2031	657,143	745,378	890,830	1,029,562	698,028
2032	690,542	786,622	932,148	1,085,999	711,504
2033	704,225	791,838	942,364	1,096,399	724,740
2034	717,632	806,734	961,724	1,143,673	738,126
2035	719,961	811,874	963,233	1,151,192	751,612
2036	720,809	814,090	972,845	1,161,262	765,325
2037	718,958	812,570	969,450	1,157,409	779,727
2038	726,033	820,018	976,898	1,170,119	794,467
2039	730,616	823,666	981,438	1,179,808	809,598
2040	734,999	836,773	993,222	1,192,106	824,898
2041	734,492	840,018	999,130	1,197,499	840,077

Source: CMT Analysis (2022)

3.5.4 Commercial Aircraft Operations Forecast Scenarios

The commercial aircraft operations forecast tracks the previous enplanement scenarios in broad terms, but with a slower growth rate. This is due to the number of seats per departure is expected to grow over time. This is not a new trend for SGF - the average seats per departure has grown from 50 in 2010 to 76 in 2022. This continued growth in seats per departure is anticipated for the duration of the planning period in all scenarios. Exhibit 3.5-4 depicts the previously discussed forecast scenarios for average seats per departure, illustrating a lower growth rate, driving the need for fewer additional departures over the planning period.

Exhibit 3.5-4: Forecast Scenario Projections – SGF Average Seats Per Departure

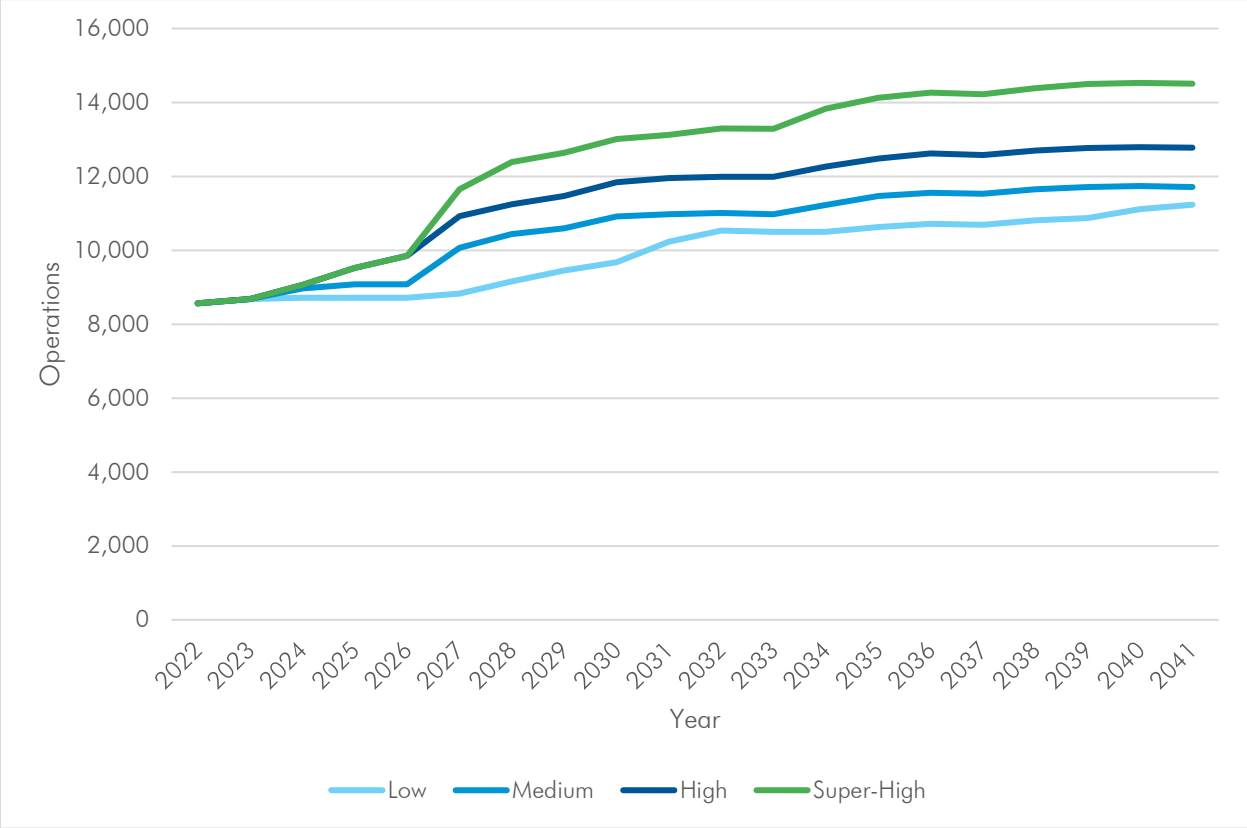


Source: CMT Analysis (2022)

Due to this growth in aircraft size, fewer additional departures are needed to meet the growth in enplanements that are forecast. Since much of the projected commercial growth comes from larger aircraft, the Low and Medium forecast scenarios have very slow growth in operations. However, the High and Super-High scenarios that add new airlines and new routes show far more additional operations, and those operations are generally on larger mainline aircraft from ultra-low-cost and low-cost carriers.

There is some variation in the number of seats per departure and total operations as capacity grows over time. This is generally since as a market grows, it is assumed that larger aircraft are substituted first, then additional flights are added later with smaller aircraft that we grow over larger over time as the market develops. **Exhibit 3.5-5** graphically depicts annual commercial departures for the Low, Medium, High and Super-High commercial forecast scenarios, while **Table 3.5-3** provides the data in tabular format.

Exhibit 3.5-5: Forecast Scenario Projections - SGF Commercial Departures



Source: CMT Analysis (2022)

Table 3.5-3: Forecast Scenario Projections - SGF Commercial Departures

YEAR	LOW	MEDIUM	HIGH	SUPER-HIGH
2022	8,564	8,564	8,564	8,564
2023	8,683	8,683	8,683	8,683
2024	8,718	8,963	9,061	9,061
2025	8,713	9,078	9,521	9,521
2026	8,713	9,078	9,851	9,851
2027	8,827	10,069	10,919	11,654
2028	9,155	10,439	11,243	12,386
2029	9,448	10,595	11,469	12,640
2030	9,675	10,917	11,840	13,011
2031	10,231	10,977	11,954	13,126
2032	10,530	11,006	11,984	13,296
2033	10,502	10,977	11,988	13,282
2034	10,502	11,222	12,263	13,832
2035	10,625	11,464	12,481	14,124
2036	10,713	11,555	12,622	14,269
2037	10,685	11,524	12,579	14,222
2038	10,807	11,647	12,701	14,390
2039	10,867	11,707	12,767	14,501
2040	11,110	11,738	12,789	14,528
2041	11,232	11,707	12,776	14,510

Source: CMT Analysis (2022)

3.5.5 Preferred Commercial Aviation Forecast

While all of the commercial forecast scenarios previously presented have a reasonable likelihood of occurring over the forecast period, it is the recommendation of this Master Plan that the Medium Forecast Scenario best aligns with FAA's methodology and guidance for developing a forecast and should therefore be used as the Preferred Commercial Forecast. The Preferred Medium forecast scenario is listed in Table 3.5-4.

Table 3.5-4: SGF Preferred Forecast Scenario – Enplanements and Operations

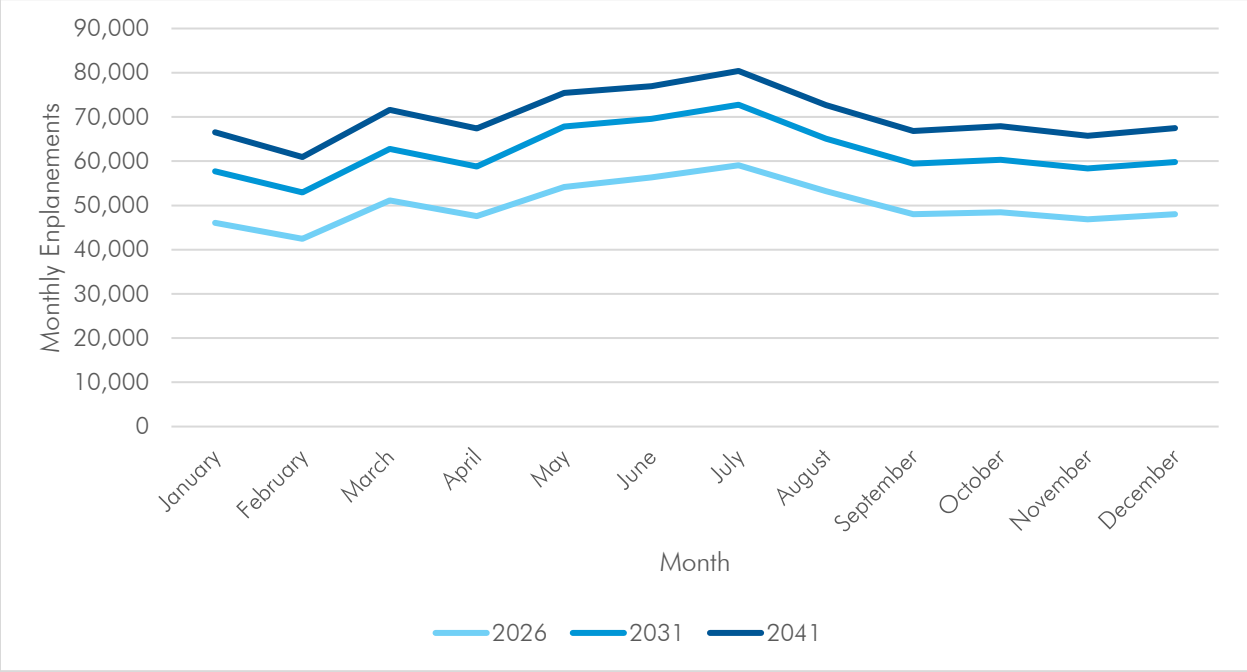
YEAR	ENPLANEMENTS *(Medium Scenario)*	OPERATIONS *(Medium Scenario)*
2021	430,964	17,036
2022	545,789	17,128
2023	562,671	17,366
2024	580,214	17,926
2025	595,060	18,157
2026	601,424	18,157
2027	664,133	20,138
2028	686,322	20,877
2029	709,076	21,190
2030	733,278	21,833
2031	745,378	21,953
2032	786,622	22,012
2033	791,838	21,953
2034	806,734	22,443
2035	811,874	22,928
2036	814,090	23,110
2037	812,570	23,048
2038	820,018	23,293
2039	823,666	23,413
2040	836,773	23,476
2041	840,018	23,413

Source: CMT Analysis (2022)

3.5.6 Peak-Hour Activity Forecast

While the Medium Forecast scenario is the preferred forecast for this Master Plan, peak-hour data for other scenarios were analyzed and presented to illustrate the differences in growth. To analyze the peak hour for commercial activity and operations, the peak month needs to first be identified. For this analysis, the base year +5, +10, and +20 years, or schedules for 2026, 2031, and 2041 were evaluated. Due to the Low scenario being largely similar to the Medium scenario (with smaller aircraft and lower load factors, but with comparable schedules) the focus of this analysis included the Medium, High, and Super-High scenarios. In the +5, +10, and +20 years, the Medium scenario shows that July is the peak month for enplanements, as depicted in **Exhibit 3.5-6**.

Exhibit 3.5-6: SGF Commercial Forecast Peak Month +5, +10 Year, and +20 Year



Source: CMT Analysis (2022)

Since many of the carriers operate varied schedules by day of week, this analysis needed to evaluate a specific day of the week. Throughout the forecast scenarios, Monday is either the busiest day or tied for the busiest day, therefore Monday was used to determine the peak hour as presented in **Table 3.5-5**.

Table 3.5-5: Forecast Scenario Projections – Commercial Forecast Peak Day Departures in July

Year	Scenario	MON	TUE	WED	THU	FRI	SAT	SUN
2026	Medium	30	22	24	25	29	27	29
	High	31	23	25	26	30	28	30
2031	Medium	37	29	31	30	36	33	35
	High	38	30	32	31	38	34	37
	Super-High	41	33	35	34	41	37	40
2041	Medium	39	31	33	32	38	35	37
	High	40	32	34	33	40	36	39
	Super-High	45	37	39	38	45	41	44

Source: CMT Analysis (2022)

The analysis then evaluated hours separately for each forecast scenario since they vary significantly in how airlines will schedule flights. This is most significant between the Medium and High scenarios where Allegiant bases aircraft at SGF. The impact from these based aircraft is not necessarily additional flights, but that these flights all depart early in the morning and return in the evening, shifting when there is a significant number of passengers using terminal facilities.

For example, looking at the 2026 Design Day Flight Schedules (DDFS) in the Medium scenario, the peak hour for departing passengers is in the 8:00am hour with 358 passengers departing. However, in the High scenario, that shifts to the 6:00am hour and grows significantly larger with 526 passengers departing. It is also important to note that the peak hour for passengers is not necessarily the peak hour for operations, as shown in the Medium scenario. The variation is largely due to the timing of mainline departures compared to regional jets, since the smallest mainline in the DDFS is roughly twice the size of most regional jets. This peak hour analysis determined the peak "clock hour" for passengers and number of flights for the Medium and High scenarios, which are listed in Table 3.5-6.

Table 3.5-6: Forecast Scenario Projections - Commercial Forecast Peak "Clock Hour"

DEPARTURES BY HOUR - 2026	MEDIUM		HIGH	
	Passengers	Flights	Passengers	Flights
06:00	229	4	526	6
07:00	162	3	162	3
08:00	358	3	210	2
09:00	61	1	61	1
10:00	122	2	122	2
11:00	128	2	277	3
12:00	80	2	229	3
13:00	210	3	210	3
14:00	149	1	149	1
15:00	210	2	61	1
16:00	0	0	0	0
17:00	128	3	128	3
18:00	61	1	210	2
19:00	61	1	61	1
20:00	298	2	0	0

Source: CMT Analysis (2022)

However, the table above is only evaluating the peak "clock hour" for simplicity and to illustrate the differences between it and the actual peak hour. The actual peak hour is determined by looking at the busiest 60-minutes of the day at the airport using 5-minute increments to evaluate schedules. **Exhibit 3.5-7** depicts how arriving and departing passengers peak and valley throughout the day in the 2026 Medium forecast scenario DDFS, looking at a rolling 60-minute evaluation by 5-minute increments, where departing passengers are positive and arriving passengers are negative.

Exhibit 3.5-7: 2026 Medium Commercial Forecast Scenario Actual Rolling "Peak Hour"

Source: CMT Analysis (2022)

Using this same methodology across the Medium and High forecast scenarios, the analysis determined that since the peak hour varies for each metric, and may occur several times throughout the day, the peak hour demand does not correlate to any specific 60-minute part of the day. Table 3.5-7 lists the actual peak hour, in both departing and arriving passengers (pax) and operations, for the Medium and High forecast scenarios at the +5, +10, and +20 year periods.

Table 3.5-7: Commercial Forecast Actual "Peak Hour"

PEAK 60 MINUTES		DEPARTURES	DEPARTING PAX	ARRIVALS	ARRIVING PAX	TOTAL FLIGHTS	TOTAL PAX
2026	Medium	5	358	6	358	7	656
	High	6	526	7	499	9	824
2031	Medium	5	435	6	435	9	763
	High	6	547	7	478	9	824
	Super-High	6	547	7	540	11	1,053
2041	Medium	5	419	7	517	10	814
	High	6	563	7	536	11	869
	Super-High	6	563	7	536	11	946

Source: CMT Analysis (2022)

3.6 Air Cargo Forecast

Cargo, within the aviation industry, is referred to as being categorized as either "passenger cargo" (also known as belly cargo) or "all-cargo." Belly cargo refers to cargo (freight or mail) that is transported under the main deck of a commercial passenger aircraft (i.e., United Airlines, American Airlines, Delta Airlines, etc.) along with the passenger luggage. All-cargo, refers to cargo that is transported by an air freight operator that is in the business of transporting cargo rather than passengers. At SGF, there are two all-cargo operators, FedEx and UPS.

The cargo industry, specifically the air cargo industry, is extremely complex. Transporting goods from one part of the world to another, typically via multiple modes of transportation (i.e., aircraft then by truck, vessel, rail, etc.) is accomplished within a niche network of highly skilled and highly technical operators. The elaborate network these operators manage must determine the best way to transport goods, giving consideration to the mode(s) of transportation needed based on location, shipping price and desired delivery date (i.e., overnight delivery, next day air, two-day shipping, etc.).

Like the commercial sector of aviation, the Pandemic impacted the air cargo industry too. Supply chain issues and demand for personal protection equipment (PPE) related to COVID-19, the sharp decrease in available passenger aircraft capacity to transport cargo, economic conditions, and more all contributed to unprecedented changes in the air cargo industry over the past couple of years. There were large changes to the work world brought on by the Pandemic, including a shift to the remote "work from home" schedule, while also bringing upon unemployment to many. With people now at home for longer periods of time throughout the day than usual, coupled with the fear of shopping in public stores, drove demand for e-commerce. As a result, the cargo industry experienced significant growth in many markets across the country.

The following report section presents the analysis and findings of the air cargo forecast scenarios developed for SGF. The analysis evaluates the existing air cargo operations at SGF and the potential for cargo growth within the Springfield market. Forecasts developed herein pertaining to cargo include an air cargo tonnage (belly and all-cargo) forecast, air cargo operations forecast, and an air cargo landed weight forecast. Given the complex nature of the cargo industry as illustrated above, the forecasts prepared in this report were developed for high-level facility planning purposes (i.e., apron sizing, parking positions, and land use planning) and are not intended to be used for detailed planning such as cargo building dimensions (which are determined by individual operators). It should be noted that UPS is currently in the process of upsizing their operation at SGF from a 2,500 sq.ft. facility to over 20,000 sq. ft. This cargo investment, along with signing a new long-term lease agreement with the Airport, illustrates the existing, and future, cargo growth and demand at SGF.

3.6.1 Historical Cargo Data

Each year, air carriers (passenger and cargo) and airports are required to report key statistical data related to aeronautical activity (including operations and landed cargo weight) to the Department of Transportation (DOT). Utilizing the DOT's Air Carrier Statistics Database (also known as the T-100 data bank), historical data was analyzed. Ten years of historical SGF cargo data is presented in Table 3.6-1.

Table 3.6-1: SGF Historical Cargo Data

YEAR	AIR CARGO TONNAGE				AIR CARGO OPERATIONS		
	Belly Cargo (lbs)	All-Cargo: FedEx (lbs)	All-Cargo: UPS (lbs)	All-Cargo: Total (lbs)[1]	FedEx[2]	UPS[2]	All-Cargo Total
2011	32,908	15,327,438	31,096,129	46,423,567	518	896	1,414
2012	30,150	15,905,306	36,511,254	52,416,560	556	988	1,544
2013	21,069	15,442,779	36,020,752	51,463,531	536	970	1,506
2014	32,835	15,782,211	37,076,191	52,858,402	512	910	1,422
2015	46,543	16,156,506	36,628,237	52,784,743	542	910	1,452
2016	43,482	14,162,515	29,700,885	43,863,400	524	832	1,356
2017	33,279	14,715,313	33,840,333	48,555,646	516	908	1,424
2018	24,217	15,125,098	21,781,414	36,906,512	506	634	1,140
2019	25,892	14,897,817	19,917,001	34,814,818	516	620	1,136
2020	17,171	14,300,702	18,773,347	33,074,049	520	624	1,144
2021	29,213	15,856,394	23,795,438	39,651,832	504	898	1,402

[1] *FedEx and UPS*
[2] *Scheduled departures (2x)*

Source: Bureau of Transportation Statistics, Air Carrier Statistics (Form 41 Traffic)-US Carriers, T-100 Domestic Segment; CMT (2022)

3.6.2 Air Cargo Operations Forecast

The air cargo operations forecast provides analysis and projections of aircraft operations for all-cargo operations at SGF. Research was conducted to better understand how FedEx and UPS operate at SGF, as well as the overall regional market from an air cargo perspective. Historical flight data and schedules, payload, freight, and load factor data was also analyzed.

The data analysis appears to support the business model of both FedEx and UPS largely concentrating their efforts at SGF with providing overnight package delivery services. This is evident by the early morning arrivals between the 3am and 6am hour. As the table above shows (except 2018-2020), UPS has historically operated approximately 74% more flights annually in and out of SGF than FedEx. The analysis shows that UPS generally operates two daily departures five days a week while FedEx operates one daily departure five days a week. FedEx flies directly to and from their hub in Memphis, Tennessee, at the Memphis International Airport (MEM) approximately 98% of the time, while UPS only flies to and from their hub in Louisville, Kentucky, at the Louisville Muhammad Ali International Airport (SDF) approximately 66% of the time. The analysis suggests UPS operates a slightly different routing system than FedEx. Unlike FedEx, UPS will frequently route aircraft to other airports before and after SGF to enplane and deplane cargo. These airports include the Wichita Dwight D Eisenhower National Airport (ICT) in Wichita, Kansas, and to the Mc Allen Miller International Airport (MFE) in Mc Allen, Texas.

Given the proximity of SGF to other major metropolitan cities in the regions (such as St. Louis, Kansas City and even Memphis), it is reasonable to assume that services other than overnight delivery (i.e., next day, two day, etc.) are within acceptable drive-times where cargo could be transported via truck rather

than air. For the purpose of this forecast, it is assumed both operators will maintain their business model of providing overnight package delivery services at SGF.

CARGO OPERATIONS SCENARIOS

This air cargo operations analysis generated 43 forecast scenarios of projected growth, using the historical trend, market share and regression analysis forecasting methodologies, as well as developing a custom forecasting scenario. Five-year and 10-year historical growth rates and datasets were utilized throughout the scenarios, and albeit the disruption in 2020, two-year growth rates were also evaluated in the forecast scenarios. The cargo operations forecast developed and evaluated the following scenarios:

Local Trend

The local trend analysis developed five forecast scenarios using the historical trend methodology. Three scenarios were created based purely on FedEx and UPS's two-year, five-year and 10-year historical growth rates, generating future projections assuming these growth rates would continue over the planning period. In order to customize the parameters and evaluate various growth scenarios, two additional scenarios were developed. The first scenario, "Local (Custom #1)," assumed no changes in both carriers' operational levels and were maintained throughout the planning period, projecting the 10-year average of annual operations for both carriers; FedEx 10-year average was 523 annual flights and UPS 10-year average was 835 annual flights. The second scenario, "Local (Custom #2)," assumed both carriers will upgauge aircraft beginning in 2031 to B767-300F aircraft. In this scenario FedEx maintains one flight a day but UPS shifts from two daily flights to one.

Market Share

The market share analysis assumes a top-down approach to forecasting. Using this methodology, six forecast scenarios were developed. Historical data was analyzed, and using a larger aggregate, (the FAA TAF's forecasted operations for the state of Missouri and for FAA's Central Region), a local "market share" forecast was derived. Using historical data, SGF's local market share percentage of cargo operations was determined when compared to both the state of Missouri and FAA's Central Region, and growth rates at the two-year, five-year, and 10-year intervals were identified. Using the FAA TAF's 20-year forecast for both larger aggregates, six scenarios were developed to generate SGF's local market share of cargo operations. [2]

Regression Analysis

Using the regression analysis methodology, 24 forecast scenarios were developed. This analysis performed regressions at the five and 10-year data points (and in some scenarios two-year data points were also evaluated) correlating cargo operations during these time periods to the Greene County, Springfield MSA, and state of Missouri data sets for population, income per capita, and employment. This forecast scenario also performed regression analyses against multiple variable socioeconomic indicators to evaluate if there were stronger relationships between multiple socioeconomic data sets. For these regression analyses, the Woods & Poole socioeconomic data previously discussed was used.

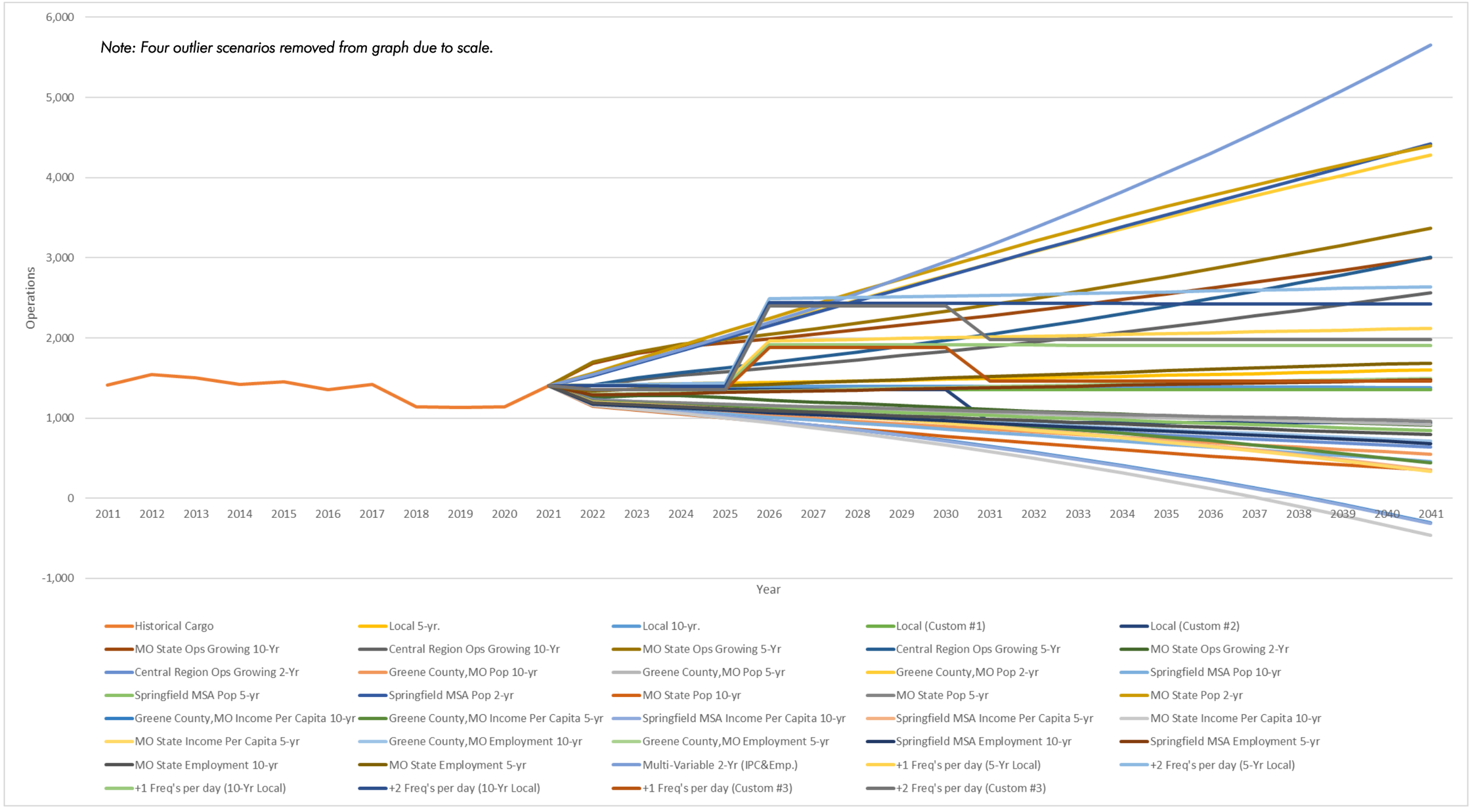
[2] The draft revised 2022 TAF was not published at the time of this analysis and therefore larger aggregates (state of Missouri and Central region) were unavailable, resulting in the 2021 TAF published in March 2022 being used for the market share analysis.

Additional Frequency

Eight additional forecast scenarios were developed in which a new cargo operator, likely Amazon Air, begins operations at SGF to serve the southwest Missouri region. Beginning in the +5 year (2026) planning horizon, his analysis evaluated adding one and two daily frequencies (using B737-800) on top of the Local Trend projections (which were based on historical growth rates). One additional scenario, "Custom #3," was developed that evaluated adding additional frequencies by the new carrier on top of the Local (Custom #2) scenario previously developed in Local Trends.

Exhibit 3.6-1 presents the scenarios developed for the air cargo operations forecast.

Exhibit 3.6-1: Air Cargo Operations Forecast Analysis



Source: CMT *Analysis (2022)*

PREFERRED AIR CARGO OPERATIONS FORECAST

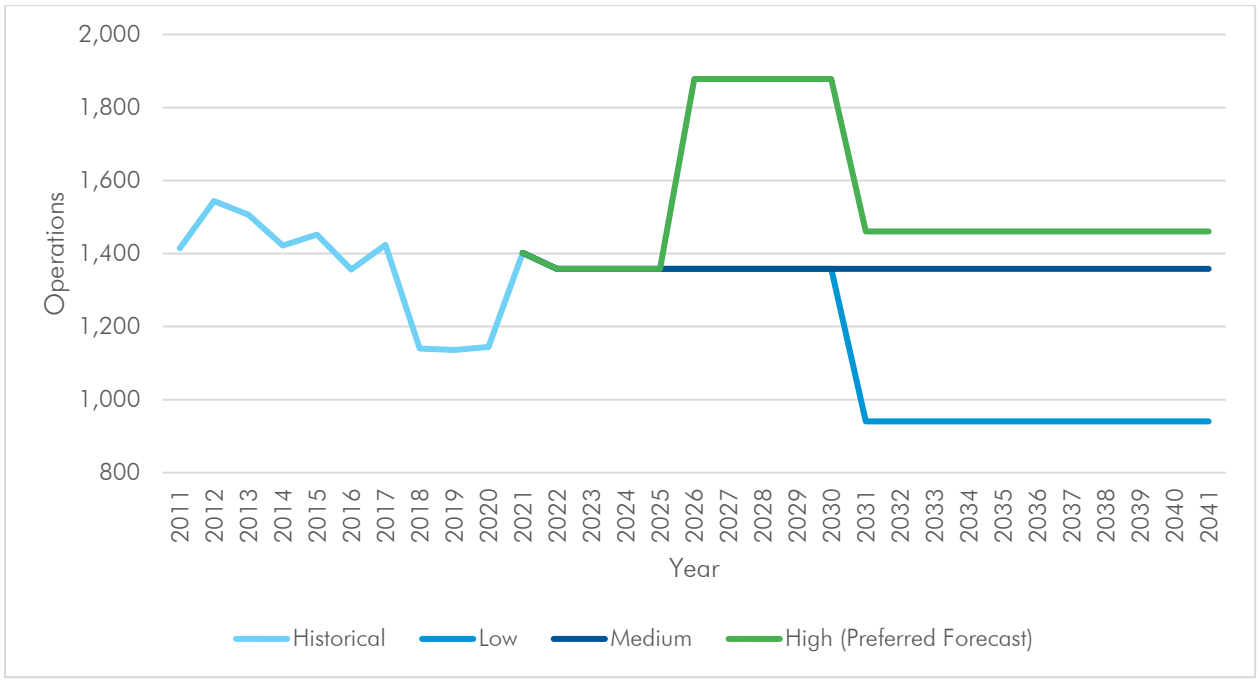
The 43 air cargo operations forecast scenarios were evaluated using several metrics, including reasonability, statistical relationship (R^2 value), and professional judgement. While some scenarios statistically produced strong relationships (near 1.0 R^2), the number of operations projected over the planning period in some scenarios produced negative growth, and therefore were dismissed.

As such, the Historical Local Trend and Additional Frequency Scenarios were further evaluated. Professional judgement was used to select three scenarios for further consideration, which are depicted in **Exhibit 3.6-2** and consist of the following:

- Low: The Local (Custom #2) Scenario assumes that both FedEx and UPS will upgauge aircraft in 2031. From an operations standpoint, this did not change FedEx's annual operations projections since they currently operate one aircraft daily. UPS however, due to upgauging to a larger aircraft, reduces its daily frequencies from two to one flight per day halfway through the planning period. This analysis produced the Low forecast scenario and generated 940 operations in 2041, yielding a -1.98% CAGR.
- Medium: The Local (Custom #1) Scenario assumes the status quo will be maintained throughout the planning period. Using historical data, average annual operations data for past 10 years for each air carrier was identified and assumed they would remain constant for each year over the planning period. This analysis produced the Medium forecast scenario and generated 1,358 operations in 2041, yielding a -0.16% CAGR.
- High: The +1 Freq's per day (Custom #3) Scenario examined additional cargo frequency beginning in 2026 and layered these additional operations on top of the Local (Custom #2) Scenario. Assuming a new cargo operator would begin operations at SGF adding one frequency per day, five days a week, this scenario added 520 operations annually on top of the Local (Custom #2) Scenario. This analysis produced the High forecast scenario and generated 1,460 operations in 2041, yielding a 0.20% CAGR.

It is recommended that the Preferred Forecast for the air cargo operations forecast be the High Forecast Scenario.

Exhibit 3.6-2: Air Cargo Operations Forecast Scenarios



Source: CMT Analysis (2022)

3.6.3 Belly Cargo Forecast

T-100 data shows that belly cargo on passenger aircraft at SGF has consisted of, on average over the past 10 years, 2% mail and 98% freight, averaging a total weight of 30,614 lbs annually. In 2020, belly cargo fell to a 10-year low of 17,171 lbs. This is largely due to the fact that there were significantly less passenger aircraft operating that year from COVID-19 impacts to transport cargo on. As shown above in Table 3.6-1, belly cargo quickly rebounded in 2021, surpassing both 2018 and 2019 total annual weights.

BELLY CARGO SCENARIOS

This belly cargo analysis developed 17 forecast scenarios of projected growth, using historical trend and regression analysis forecasting methodologies. Five-year and 10-year historical growth rates and datasets were utilized for future projections, and albeit the disruption in 2020, two-year growth rates were also evaluated in a couple of the scenarios. The belly cargo forecast developed and evaluated the following scenarios:

Local Trend

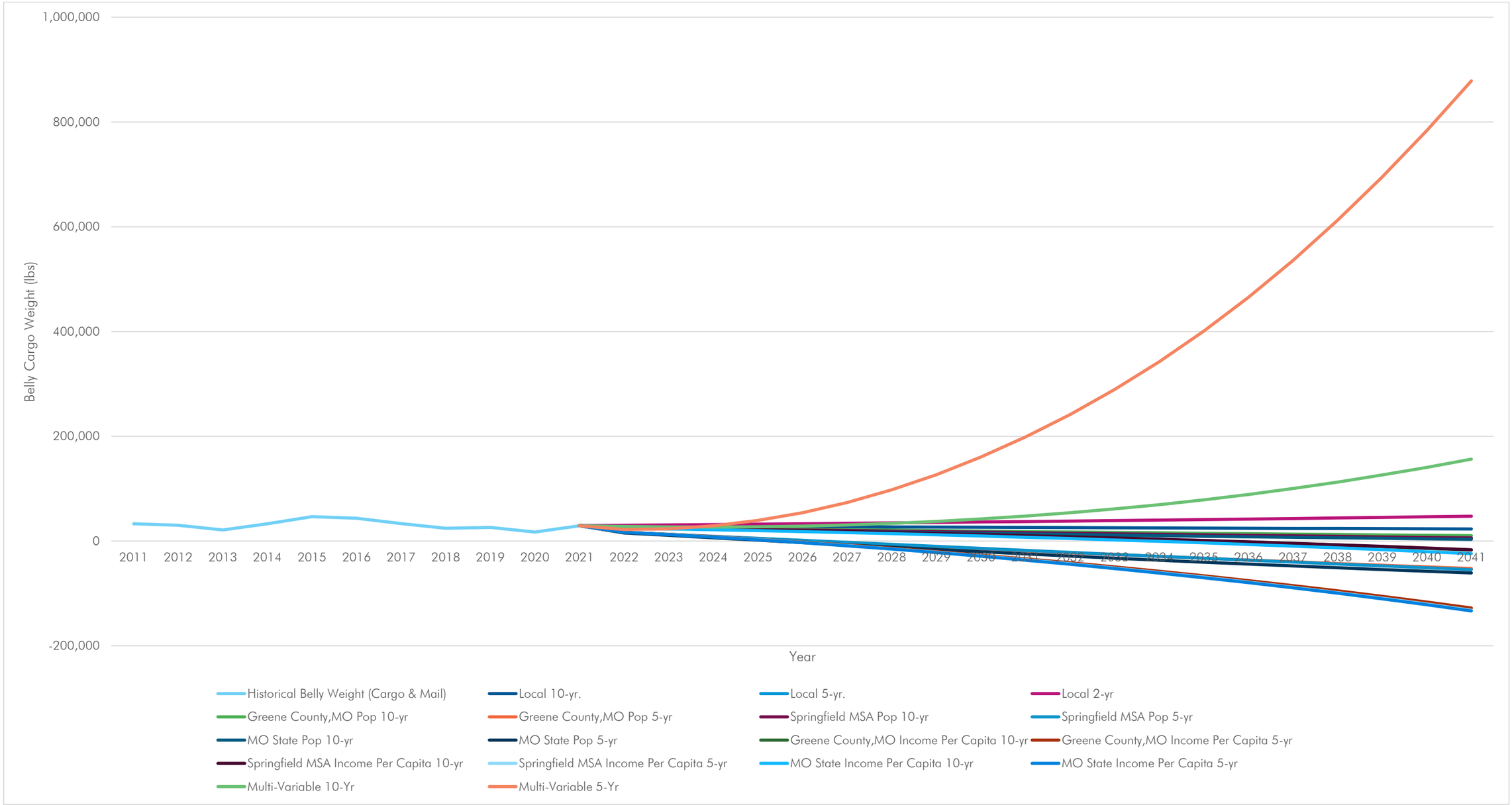
The local trend analysis provided three forecast scenarios using the historical trend methodology. Two-year, five-year and 10-year historical growth rates were determined, and future projections assumed these growth rates would continue over the planning period.

Regression Analysis

Using the regression analysis methodology 14 forecast scenarios were developed. This analysis performed regressions at the five and 10-year data points (and in some scenarios two-year data points were also evaluated) correlating belly cargo during these time periods to the Greene County, Springfield MSA and Missouri state data sets for population and income per capita. This forecast scenario also performed belly weight regression analyses against multiple variable socioeconomic indicators to evaluate if there were stronger relationships between multiple socioeconomic data sets. For these regression analyses, the Woods & Poole socioeconomic data previously discussed was used.

The 17 belly cargo scenarios are depicted in **Exhibit 3.6-3**.

Exhibit 3.6-3: Belly Cargo Forecast Analysis



Source: CMT Analysis (2022)

PREFERRED AIR CARGO TONNAGE "BELLY CARGO" FORECAST

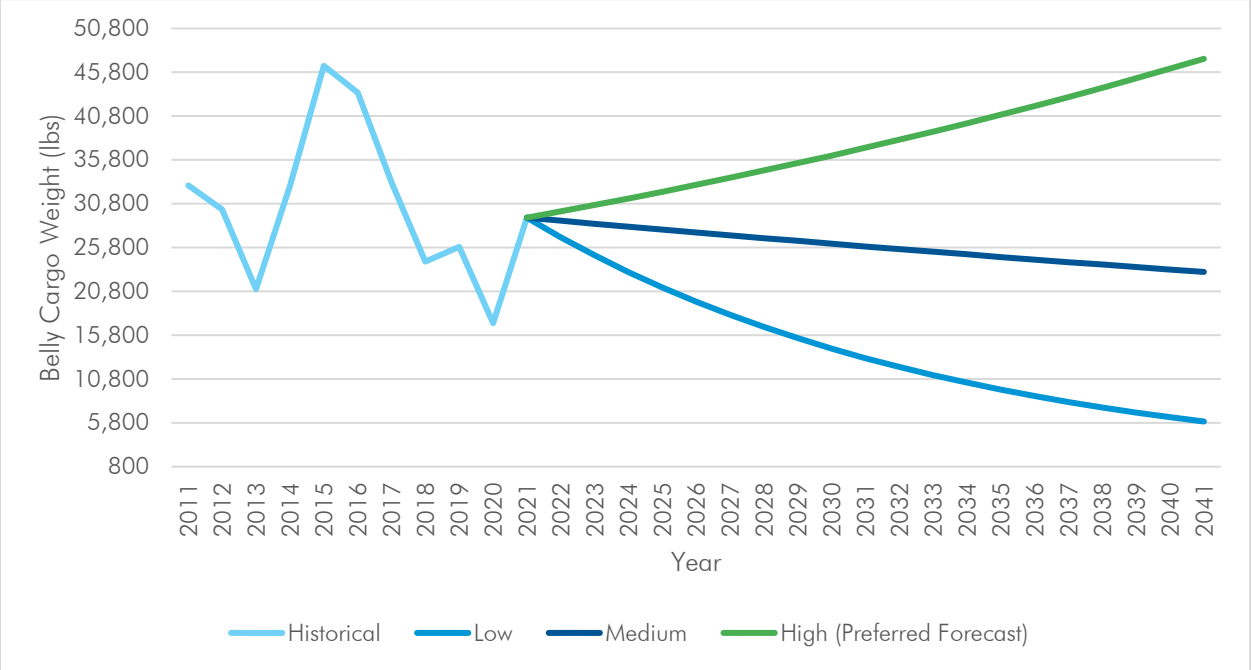
The 17 forecast scenarios produced different growth rates of future belly cargo weight. Throughout all regression analyses, there were no strong relationships (R^2 value) identified that logically explained the projected growth, and were therefore dismissed for further consideration. The strongest R^2 value produced was in the multi-variable regression scenario which yielded a 0.71 R^2. This scenario was also dismissed for further consideration due to the unrealistic 18.55% CAGR it produced over the planning period.

As such, the historical (local) forecasts were further evaluated. Professional judgement was used to select three scenarios for further consideration, which are depicted in **Exhibit 3.6-4** and consist of the following:

- Low: The Local 5-Yr Scenario assumes that the five-year historical growth rate will be maintained throughout the planning period. This analysis produced the Low forecast scenario and projected 5,952 lbs. of belly-cargo in 2041, yielding a -7.65% CAGR.
- Medium: The Local 10-Yr Scenario assumes that the 10-year historical growth rate will be maintained throughout the planning period. This analysis produced the Low forecast scenario and projected 23,021 lbs. of belly-cargo in 2041, yielding a -1.18% CAGR.
- High: The Local 2-Yr Scenario assumes that two-year historical growth rate will be maintained throughout the planning period. This analysis produced the Low forecast scenario and projected 47,339 lbs. of belly-cargo in 2041, yielding a 2.44% CAGR.

Although it is not a generally acceptable practice to use a two-year historical growth as the foundation for future projections, the two-year growth rate appears reasonable considered cargo operators shift in operating since the Pandemic and it also produced the most realistic scenario over the planning period. Therefore, it is recommended that the Preferred Forecast for the air cargo belly-cargo forecast be the High Forecast Scenario, showing minimal growth.

Exhibit 3.6-4: Belly Cargo Forecast Scenarios



Source: CMT Analysis (2022)

3.6.4 All-Cargo Forecast

Over the past 10 years, in addition to FedEx and UPS, there have been a handful of other all-cargo carriers operating at SGF. However, FedEx and UPS have historically been responsible for 99.8% of all the all-cargo operations, and therefore, this analysis will only evaluate these two key operators.

DOT T-100 data showed that over the past five years, FedEx has exclusively operated the Boeing 757-200 aircraft at SGF. Over the same period, UPS has operated the Airbus A300-600, Boeing 757-200 and Boeing 767-300 at SGF, approximately 42%, 56% and 1% of the time respectively. As depicted above in Table 3.6-1, FedEx has generally been more consistent when compared to UPS, year over year, in regard to the volume of cargo transported each year. Between 2011 and 2021, FedEx's total annual freight ranged between 14.1 to 16.1 million lbs. of cargo transported, while UPS's total annual freight ranged between 18.7 to 37.0 million lbs. of cargo transported. In 2020, as COVID-19 peaked, UPS experienced the lowest year in cargo transported over the past decade (FedEx came close with 2020 being the second lowest volume year over the same period). Since 2020 however, both FedEx and UPS have experienced modest growth, 2.10% CAGR and 6.11% CAGR, respectively.

ALL CARGO SCENARIOS

This all-cargo analysis generated 33 forecast scenarios of projected growth, using historical trend and regression analysis forecasting methodologies, as well as developing a custom scenario. Two-year, five-year and 10-year historical growth rates and datasets were evaluated in the scenarios. The all-cargo forecast developed and evaluated the following scenarios:

Local Trend

The local trend analysis provided five forecast scenarios using the historical trend methodology. Three scenarios were based on FedEx and UPS's two-year, five-year and 10-year historical growth rates, generating future projections assuming these growth rates would continue over the planning period. Like the cargo operations Local Trend scenario, two additional "Custom" scenarios were also developed. The first custom scenario created, "Local (Custom #1)", assumed both carriers would maintain the status que and continued to operate with no significant changes over the planning period. This scenario utilized the 10-year average of annual freight weight reported by both carriers. The FedEx 10-year average was 15,242,916 lbs. of cargo and UPS's 10-year average was 29,558,271 lbs. of cargo. The second custom scenario created, "Local (Custom #2)", assumed both carriers will upgauge aircraft in 2031 and both be operating the B767-300F at SGF. In this scenario FedEx maintains one flight a day but UPS shifts from two daily flights to one in 2031.

Regression Analysis

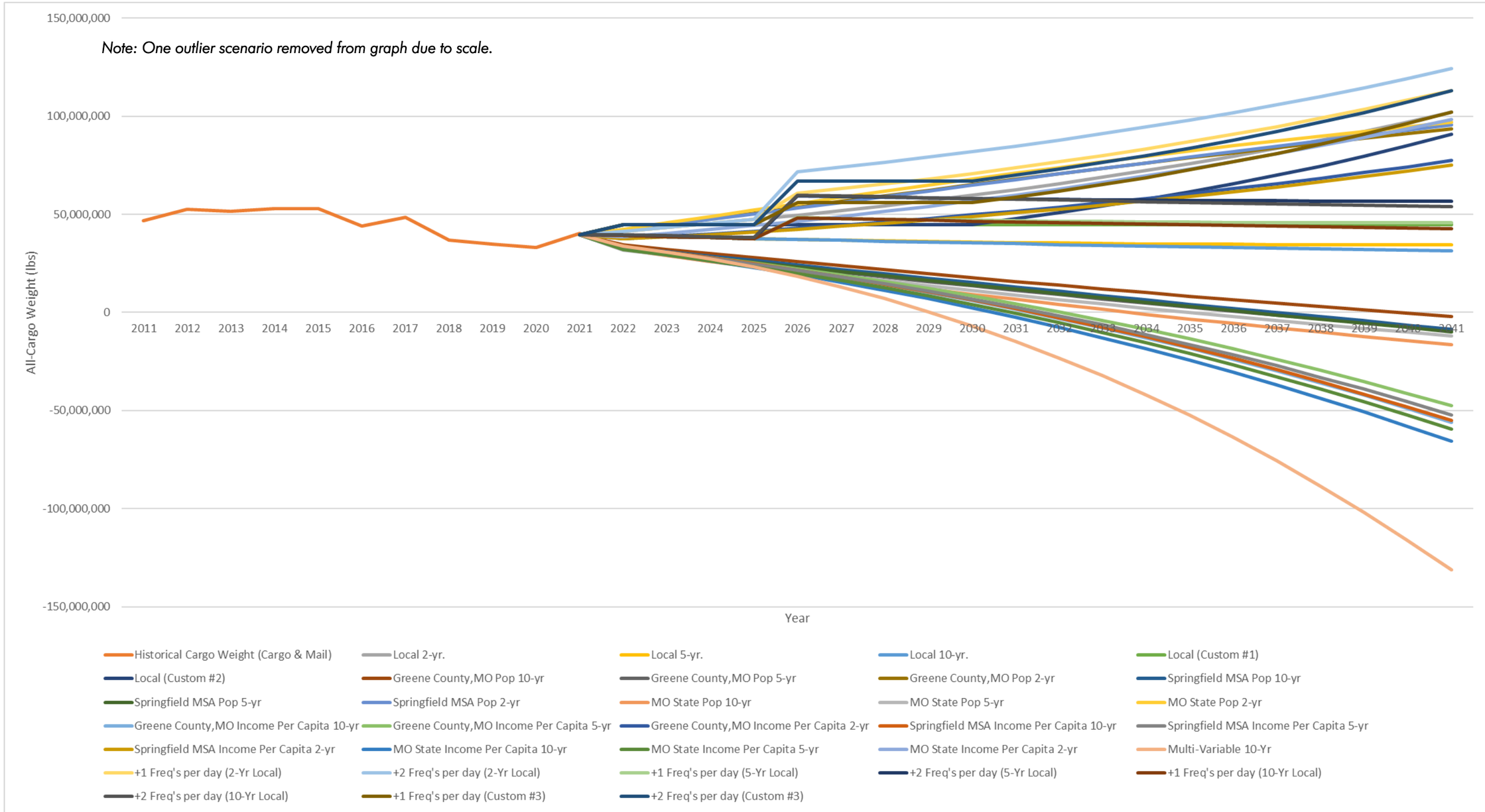
Using the regression analysis methodology 20 forecast scenarios were developed. This analysis performed regressions at the five and 10-year data points for annual belly cargo which correlated these time periods for each Greene County, Springfield MSA and Missouri state data sets for population and income per capita. This forecast scenario also performed all-cargo weight regression analyses against multiple variable socioeconomic indicators to evaluate if there were stronger relationships between regressing multiple socioeconomic data sets. For these regression analyses, the Woods & Poole socioeconomic data previously discussed was used.

Additional Frequency

Like the cargo operations forecast scenario, an all-cargo forecast scenario was developed that assumed additional cargo frequency would be realized at SGF in the +5 year (2026), likely from a new operator such as Amazon Air. Using the projected cargo operations from the Local Trend scenario in the section above, additional all-cargo weight was added on top of these forecasts. Like the cargo operations scenario, one- and two-day additional frequencies were evaluated. Assuming the new carrier would be operating a Boeing 737-800, the additional weight used in these forecast scenarios was determined by examining a typical Amazon Air route at a similar size operation as SGF. 2021 T-100 data for Amazon Air was collected on a route that flew almost exclusively 737-800 aircraft showed, load factors considered, that Amazon Air on average flew 21,388 lbs. of cargo per flight. This weight was used to calculate the additional frequencies. Like in the cargo operation scenario, a custom scenario, labeled Custom #3, was also evaluated that added additional frequency on top of the Custom #2 scenario that was developed under the Local Trend scenario.

The 33 all-cargo scenarios are depicted in **Exhibit 3.6-5**.

Exhibit 3.6-5: All-Cargo Forecast Analysis



Source: CMT Analysis (2022)

PREFERRED AIR CARGO TONNAGE "ALL-CARGO" FORECAST

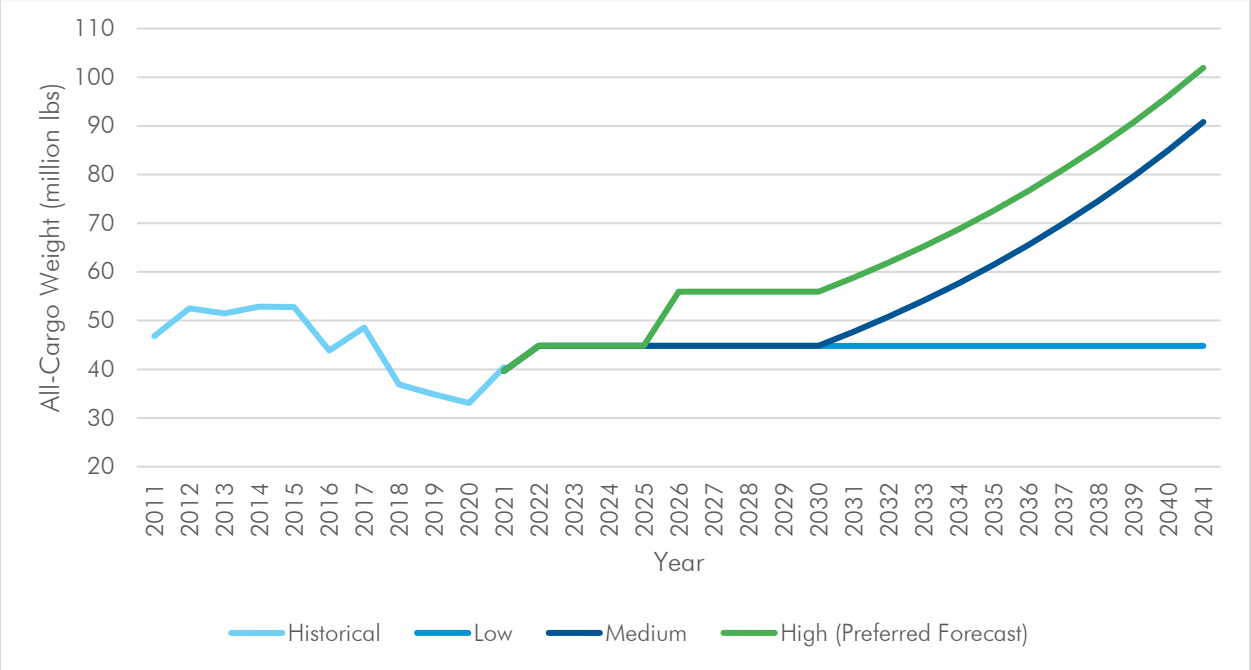
The 33 forecast scenarios produced significantly different growth rates of future all-cargo weight. Throughout all regression analyses, there were no strong relationships (R^2 value) identified that logically explained the projected growth, and were therefore dismissed for further consideration. The strongest R^2 value produced was in the multi-variable regression scenario which yielded a 0.91 R^2. This scenario was also dismissed for further consideration due to the unrealistic 20.97% CAGR it produced over the planning period.

As such, the Local Trend and Additional Frequency scenarios were further evaluated. Professional judgement was used to select three scenarios for further consideration, which are depicted in **Exhibit 3.6-6** and consist of the following:

- Low: The Local (Custom #1) Scenario assumes the status quo will be maintained throughout the planning period. Using historical data, average annual freight weight for past 10 years for each air carrier was identified and assumed they would remain constant for each year in the planning period. This analysis produced the Low forecast scenario and generated 44,801,187 lbs of all-cargo weight in 2041, yielding a 0.61% CAGR.
- Medium: The Local (Custom #2) Scenario assumes that both FedEx and UPS will upgauge to a Boeing 767-300 aircraft in 2031. From an operations standpoint, this did not change FedEx's annual operations projections since they operate one aircraft daily. UPS however, due to upgauging to ta larger aircraft, reduces its daily frequencies from two to one flight per day. In this scenario load factors drop in 2031 due to upgauging and gradually rebound over the planning period. Based on the operations counts this scenario produced, future weights were projected. This analysis produced the Medium forecast scenario and generated nearly 91,000,000 lbs of all-cargo weight in 2041, yielding a 4.23% CAGR.
- High: The +1 Freq's per Day (Custom #3) Scenario examined additional cargo frequency at SGF and layered these additional operations on top of the Local (Custom #2) Scenario. Assuming a new cargo operator would begin operations at SGF in 2026 adding one frequency per day, five days a week, this scenario added 520 new annual operations on a Boeing 737-800, transporting approximately 21,000 lbs. per additional operation on top of the Local (Custom #2) Scenario. This analysis produced the High forecast scenario and generated nearly 102,000,000 lbs. of all-cargo weight in 2041, yielding a 4.83% CAGR.

Given recent trends of Amazon Air launching new distribution points at locations similar in size to SGF it is feasible that SGF could be approached by a new cargo operator. Therefore, it is recommended that the Preferred Forecast for the all-cargo forecast be the High Forecast scenario.

Exhibit 3.6-6: All-Cargo Forecast Scenarios



Source: CMT Analysis (2022)

3.6.5 Air Cargo Landed Weight Forecast

The air cargo landed weight forecast provides analysis and projections for landed cargo weight at SGF. The annual landed cargo weight at an airport is an important number because it determines how much cargo entitlement funds an airport receives. According to the most recent FAA report *"CY 2021 All-Cargo Airports by Landed Weight,"* SGF ranked 113th among U.S. airports in terms of landed payload weight, with 160,333,000 lbs. recorded in 2021.

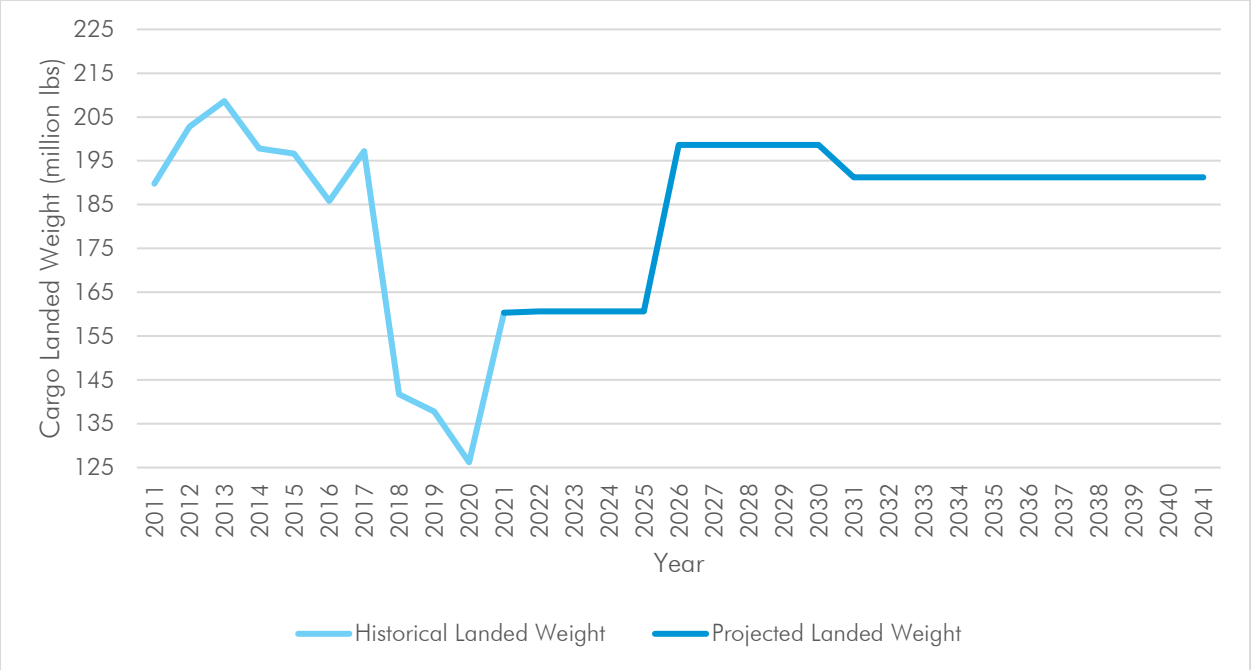
Landed cargo weight is determined by the certified maximum landed weight of an aircraft. FAA provides a list of maximum landed weight for all types of aircraft[3]. Since annual landed weight is based on the type of aircraft conducting the operations, this air cargo landed weight forecast utilized the Preferred Cargo Operations Forecast from Section 3.6.2 to determine projected landed weight at SGF. The preferred cargo operations forecast maintained existing FedEx and UPS operations until 2031, at which point both carriers upgauge aircraft to a Boeing 767-300F, each with one daily flight. The operations forecast also assumed a new cargo carrier beginning operations at SGF in the +5-year planning horizon (2026), utilizing a Boeing 737-800 aircraft.

Accordingly, future projected landed weight was calculated, and is depicted in **Exhibit 3.6-7** along with 10-years historical landed weight at SGF. The landed weight at SGF is projected to increase 24% in the first 5-year planning period due to the entrant of a new cargo operator. Then, as a result of upgauging

[3] The most recent published FAA list is the "Aircraft for CY2022 All-Cargo Report."

of aircraft in 2031, the landed weight is then projected to decrease 4% which is maintained throughout the planning period.

Exhibit 3.6-7: Cargo Landed Weight Forecast



Source: FAA All-Cargo Airports by Landed Weight (2011-2021); CMT Analysis (2022)

3.7 GA Operations Forecast

This section presents the analysis and findings of the GA forecasts at SGF. To determine the GA facility needs, it is necessary to understand the demand for existing and future GA operations at SGF. This section will provide a GA aircraft operations forecast broken out by itinerant and local GA operations. A local operation is typically an aircraft that either stays in an airport's traffic pattern or travels to a practice area within 20 miles of the airport. The FAA defines an aircraft operation as either one takeoff or one landing (a touch-and-go equates to two operations). Subsequently, an itinerant operation is typically counted when an aircraft travels to/from a distance of greater than 20 miles from an airport. Similar to the analyses performed in previous sections, a series of analysis-based scenarios were developed to assess potential growth in GA aircraft operations at SGF.

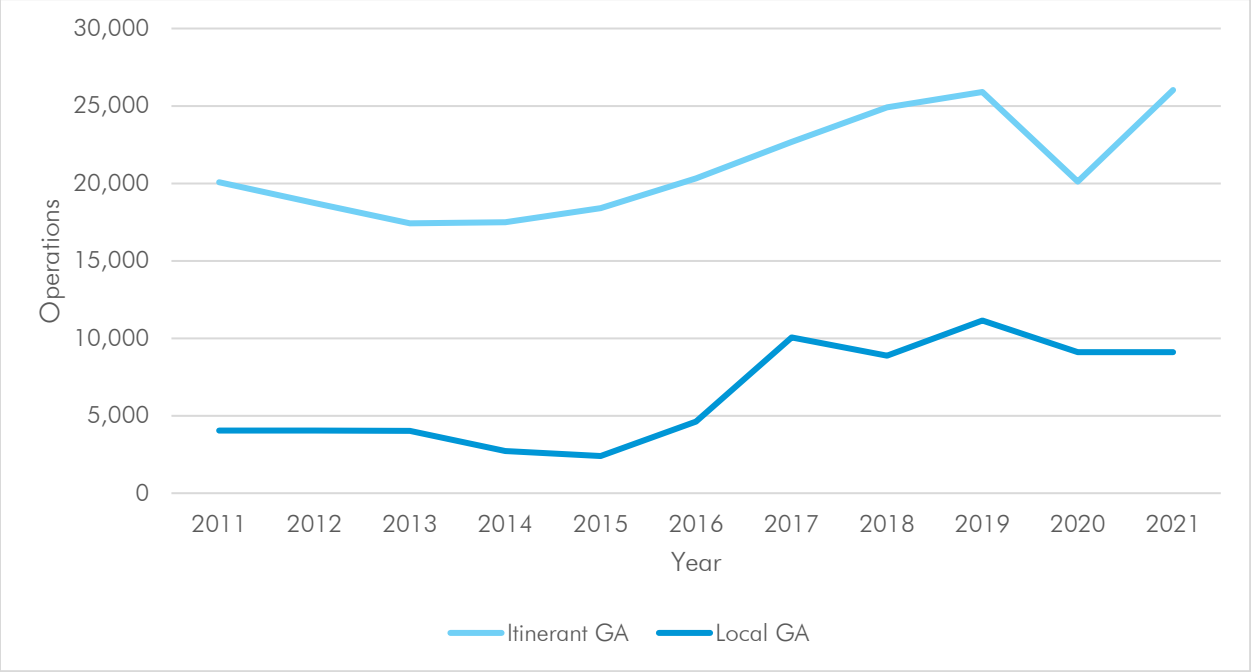
3.7.1 Historical GA Operations

To determine existing and historical GA operations counts at SGF an analysis of FAA's Operations Network (OPSNET) was conducted. FAA OPSNET is the official source of National Airspace System (NAS) air traffic operations and delay data4. The format which OPSNET presents the data is not necessarily an accurate representation of operations counts, specifically GA itinerant operations, at least not contextually for the purpose of this report. For master planning purposes, differentiating operations by commercial (i.e., those who use the terminal and purchase a ticket on an airline), and GA is important, as each serve different functions and have different facility needs. Appendix B in this document provides a table of the methodology used to determine itinerant GA operations from the OPSNET report for this forecast.

Historical itinerant and local GA operations at SGF are depicted in Exhibit 3.7-1. On average, over the past 10 years, GA itinerant and GA local accounted for 42% and 12%, respectively, of total operations at SGF. Over the past five years, on average, GA itinerant and GA local accounted for 42% and 16%, respectively, of total operations at SGF.

[4] FAA Operations & Performance Data: (OPSNET) is the official source of NAS air traffic operations and delay data.

Exhibit 3.7-1: SGF Historical GA Operations



Source: FAA OPSNET (2011-2021); DOT T-100 Data (2011-2021); CMT Analysis (2022)

3.7.2 GA Itinerant Operations Scenarios

This GA itinerant operations analysis developed 26 forecast scenarios of projected growth, using historical trend, market share and regression analysis forecasting methodologies. Five-year and 10-year historical growth rates and datasets were utilized for future projections. The GA internet operations forecast developed and evaluated the following scenarios:

Local Trend

The local trend analysis provided two forecast scenarios using the historical trend methodology. Five-year and 10-year historical growth rates were determined, and future projections assumed these growth rates would continue over the planning period.

Market Share

The market share analysis assumes a top-down approach to forecasting. Using this methodology, four forecast scenarios were developed. Historical data was analyzed, and using a larger aggregate, (the FAA TAF's forecasted operations for the state of Missouri and for FAA's Central Region), a local "market share" forecast was derived. Using historical data, SGF's local market share percentage of total operations was first determined when compared to both the state of Missouri and FAA's Central Region, and growth rates at the five-year and 10-year intervals were identified. Future projections of total operations were then created using these market share growth rates. Market share projections based on total operations were first developed due to the way the OPSNET data was manipulated to derive accurate GA itinerant operations counts. The five and 10-year percent averages of itinerant GA

operations at SGF was determined and then applied to the total operations projections to develop the GA itinerant scenarios. [5]

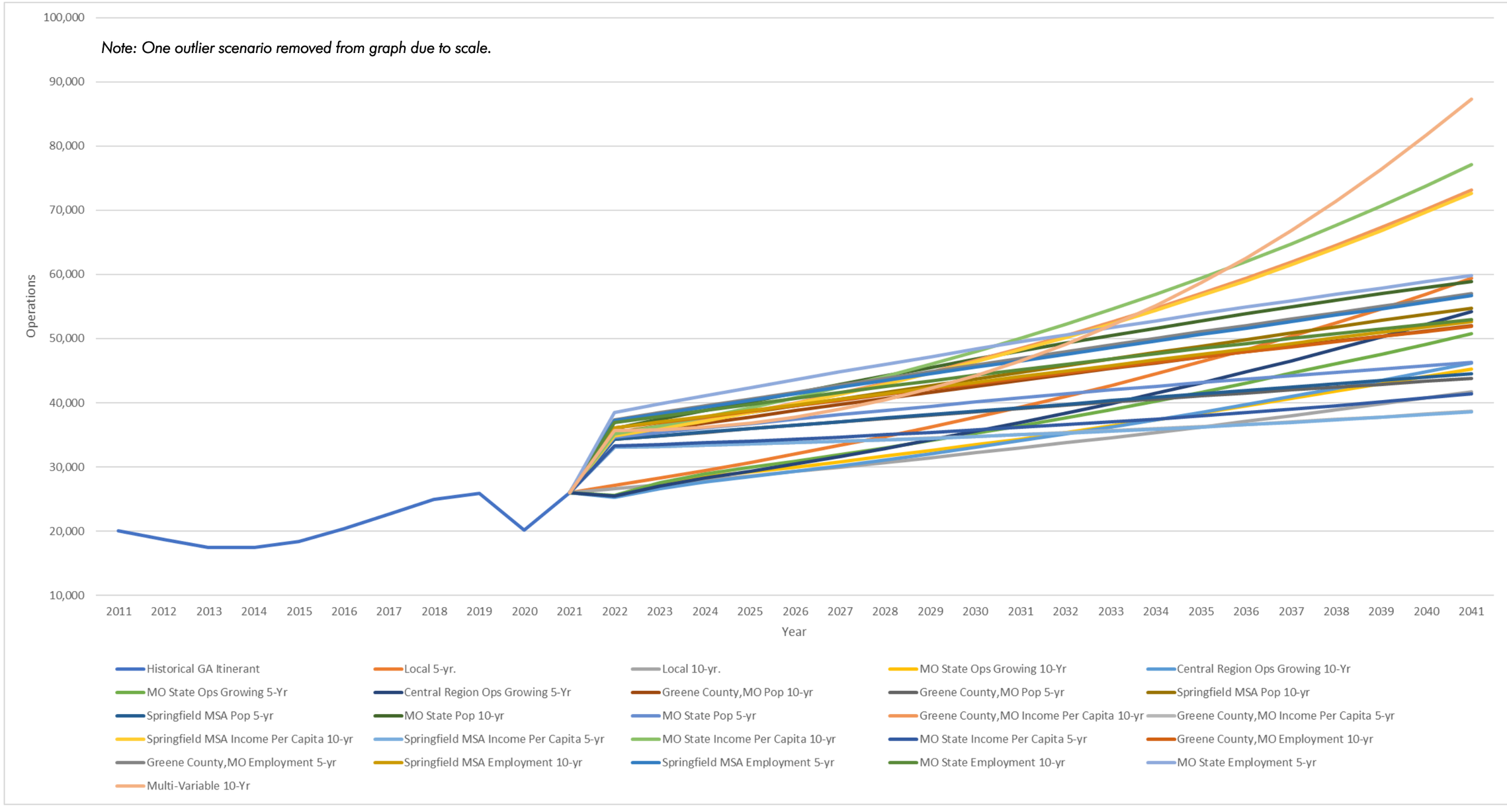
Regression Analysis

Using the regression analysis methodology 20 forecast scenarios were developed. This analysis performed regressions at the five and 10-year data points correlating GA itinerant operations during these time periods to the Greene County, Springfield MSA and Missouri state data sets for population, income per capita, and employment. This forecast scenario also performed GA itinerant operations regression analyses against multiple variable socioeconomic indicators to evaluate if there were stronger relationships between multiple socioeconomic data sets. Like previous regression analyses, the Woods & Poole socioeconomic data previously discussed was used.

The 26 GA itinerant operations scenarios are depicted in **Exhibit 3.7-2**.

[5] The draft revised 2022 TAF was not published at the time of this analysis and therefore larger aggregates (state of Missouri and Central region) were unavailable, resulting in the 2021 TAF published in March 2022 being used for the market share analysis.

Exhibit 3.7-2: GA Itinerant Operations Forecast Analysis



Source: CMT Analysis (2022)

PREFERRED GA ITINERANT OPERATIONS FORECAST

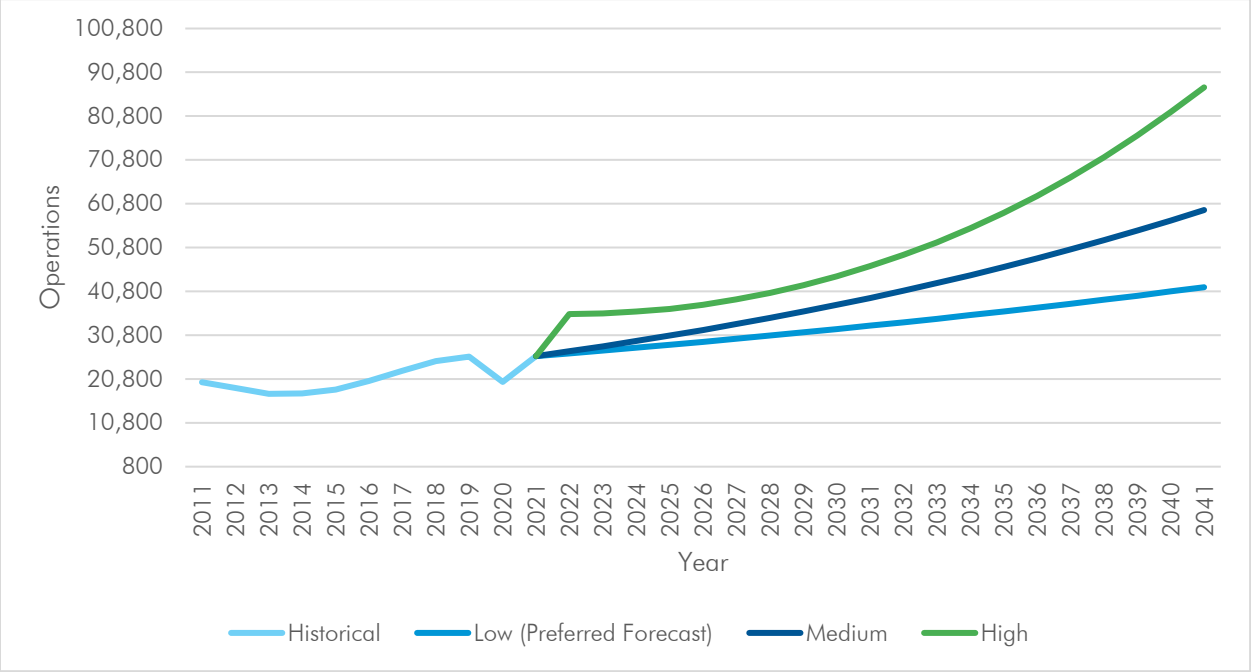
The 26 GA Itinerant operations forecast scenarios were evaluated using several metrics, including reasonability, statistical relationship (R^2 value), and professional judgement. While some scenarios statistically produced strong relationships (near 1.0 R^2), the number of operations projected over the planning period in some scenarios produced negative growth, and therefore were dismissed.

As such, the historical local trend and regression analyses scenarios were further evaluated. Professional judgement was used to select three scenarios for further consideration, which are depicted in **Exhibit 3.7-3** and consist of the following:

- Low: The Local 10-Year Scenario assumes that the ten-year historical growth rate will be maintained throughout the planning period. This analysis produced the Low forecast scenario and projected 41,746 operations in 2041, yielding a 2.39% CAGR.
- Medium: The Local 5-Year Scenario assumes that the five-year historical growth rate will be maintained throughout the planning period. This analysis produced the Medium forecast scenario and projected 59,367 operations in 2041, yielding a 4.21% CAGR.
- High: The Multi-variable 10-Year (Regression) Scenario examined if a relationship existed between multiple socioeconomic data sets and GA itinerant operations using the regression analysis methodology. The correlation of 10-years historical data explained 79.5% of the projected GA itinerant operations in this scenario (R^2 value = .795). This analysis produced the High forecast scenario and generated 87,357 operations in 2041, yielding a 6.24% CAGR.

It is recommended that the Preferred Forecast for the GA itinerant operations forecast be the Low Forecast scenario.

Exhibit 3.7-3: GA Itinerant Operations Forecast Scenarios



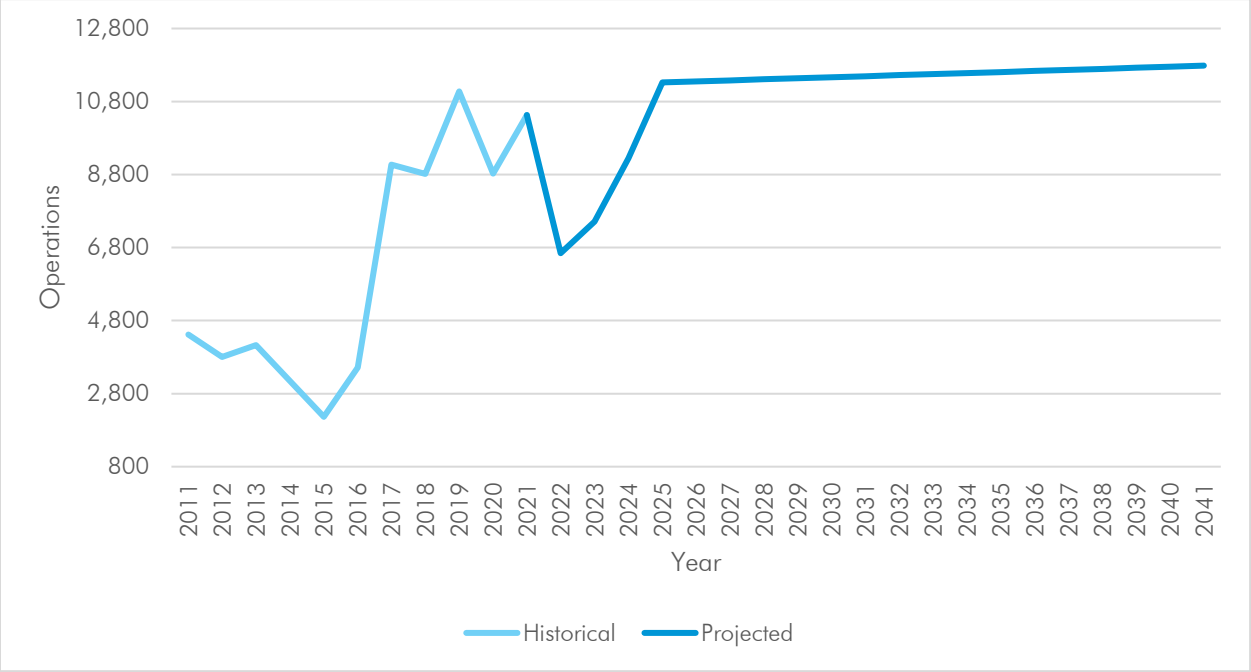
Source: CMT Analysis (2022)

3.7.3 GA Local Operations Forecast

As depicted in **Exhibit 3.7-1**, local operations significantly increased in 2017 (up 118% from 2016). This is largely due to PFC beginning operations in 2017 and providing flight training to local area. Operations counts of PFC flight training are not recorded and therefore historical data of flight training activity was not available for this analysis.

The revised draft 2022 FAA TAF reflects the 2017 uptick in local operations, and it is maintained throughout the TAF's planning period. Since PFC likely accounts for the majority of local operations, and since historical operations records of flight activity do not exist, it is recommended that the revised draft 2022 TAF's "Local – Civil" forecast be used as the Preferred Forecast for local operations. This forecast shows a 36% decrease in operations in 2022 with operations returning to 2019 levels in 2025. Over the planning period the forecast provides modest growth with 11,783 local operations in 2041, yielding a 0.61% CAGR. **Exhibit 3.7-4** depicts the GA local operations forecast.

Exhibit 3.7-4: GA Local Operations Forecast



Source: FAA Revised Draft 2022 SGF TAF

3.7.4 GA Aircraft Operations Fleet Mix Forecast

In order to evaluate an airport facility's ability to accommodate air traffic, it is important to understand the types of aircraft that utilize an airport. The "fleet mix" forecast is an analysis of the types of aircraft that currently operate and are forecast to operate at SGF.

The GA operations fleet mix forecast establishes the existing GA operations fleet mix and shows how it is forecast to change over the planning period. The data used to determine the GA operations fleet mix forecast includes the FAA TAF, IFR data, and metrics from the 2022 FAA Aerospace Forecast Table 29. The fleet mix forecast includes both local and itinerant GA operations and is based on the Low Forecast Scenario from the GA itinerant aircraft operations forecast.

The GA aircraft fleet mix forecast is listed in five-year intervals in Table 3.7-1.

Table 3.7-1: GA Operations Fleet Mix Forecast

AIRCRAFT TYPE	PROPELLER		JET					
Year	*Piston*	*Turbo Prop*	*Very Light Jet*	*Light Jet*	*Mid Size Jet*	*Super Mid Jet*	*Large Jet*	*Super Long Range Jet*
2021	23,958	11,772	20	334	112	88	142	34
% of Fleet	65.7%	32.3%	0.1%	0.9%	0.3%	0.2%	0.4%	0.1%
2026	23,757	16,023	24	394	132	104	167	40
% of Fleet	58.5%	39.4%	0.1%	1.0%	0.3%	0.3%	0.4%	0.1%
2031	24,192	19,247	28	464	156	122	197	47
% of Fleet	54.4%	43.3%	0.1%	1.0%	0.4%	0.3%	0.4%	0.1%
2036	24,882	22,654	33	548	184	144	233	56
% of Fleet	51.1%	46.5%	0.1%	1.1%	0.4%	0.3%	0.5%	0.1%
2041	25,810	26,308	39	646	217	170	275	66
% of Fleet	48.2%	49.1%	0.1%	1.2%	0.4%	0.3%	0.5%	0.1%

Very Light Jet - ≤10,000 MTOW

Light Jet – 10,001-20,000 MTOW

Midsize Jet – 20,001-30,000 MTOW

Super Mid Jet – 30,001-41,000 MTOW

Large Jet – ≥41,000 MTOW

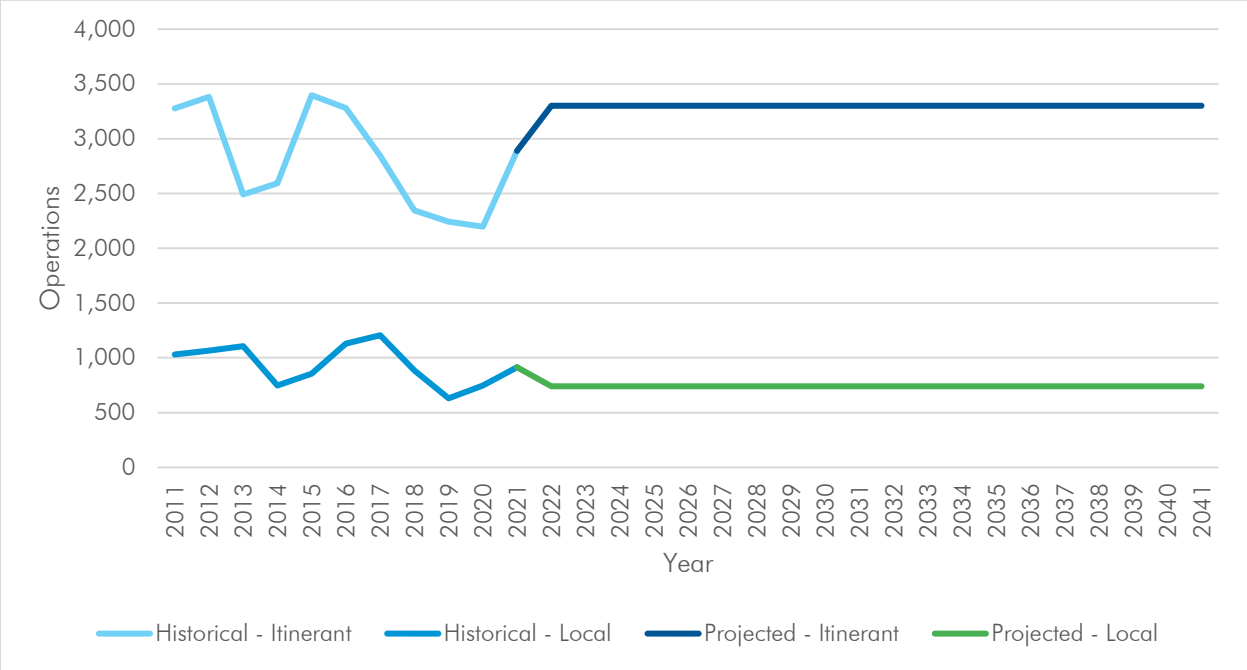
Super Long-Range Jet – ≥41,000 MTOW AND 6,000NM or greater range

Source: CMT Analysis (2022)

3.8 Military Forecast

The Army National Guard, a branch under the Department of Defense (DoD), does not normally share historical or forecast data other than what is publicly available (i.e., FAA TAF), and therefore the Military data presented in the revised draft 2022 FAA TAF for SGF was utilized for the Military operations forecast. The TAF shows both itinerant and local to remain constant throughout the planning period, with 3,301 operations and 740 operations respectively. The TAF's historical and projected military operations counts are depicted in Exhibit 3.8-1.

Exhibit 3.8-1: Historical and Projected Military Forecast



Source: FAA Revised Draft 2022 SGF TAF

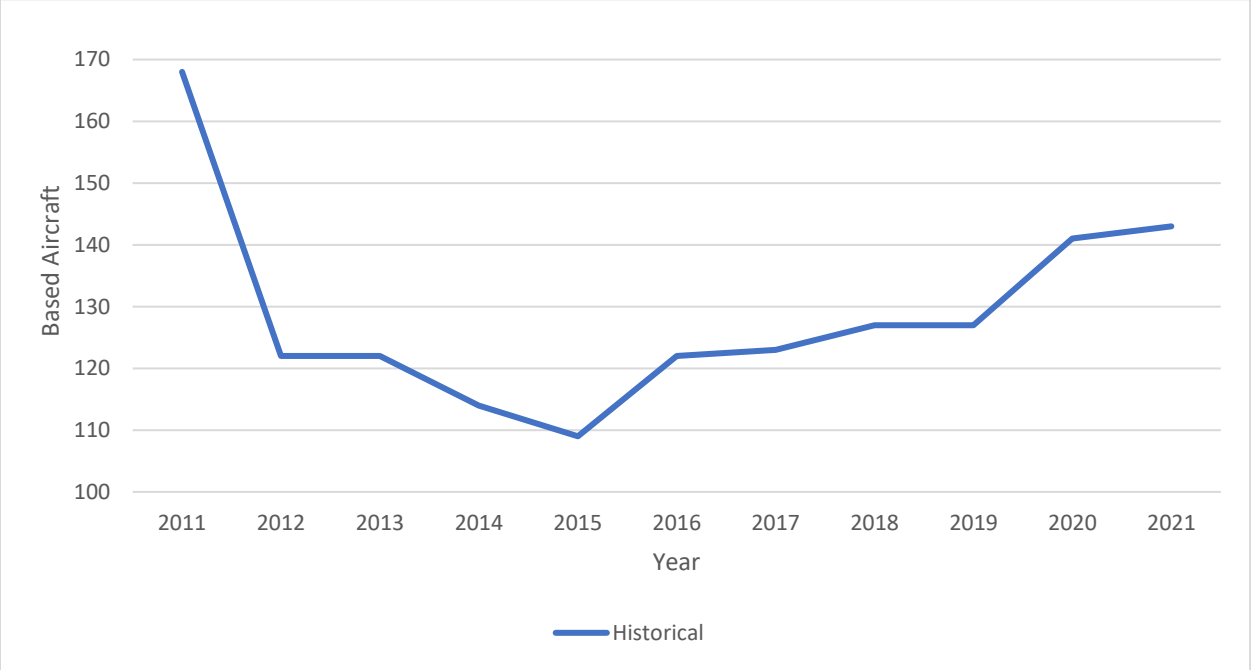
3.9 GA Based Aircraft Forecast

To determine the GA facility needs, it is necessary to understand the demand for existing and future based aircraft at SGF. The number of based aircraft at an airport generally serves as a good indicator of aviation demand. Typically, a higher based aircraft count is a positive indicator that the airport offers more desirable features versus the competing airports. Similar to the analyses performed in previous sections, a series of analysis-based scenarios were developed to assess potential growth in the number of GA aircraft based at SGF.

3.9.1 Historical Based Aircraft

The revised draft 2022 FAA TAF did not include based aircraft projections, and therefore the 2021 FAA TAF issued in March 2022 was utilized for evaluation of historical based aircraft counts SGF. The TAF provides historical based aircraft counts for all airports in the NPIAS. Airport sponsors submit an FAA Airport Master Record 5010 Form each year that provides FAA with current based aircraft counts. **Exhibit 3.9-1** depicts the SGF 10-year historical based aircraft data as presented in the 2021 FAA TAF. The data shows SGF has experienced year over year growth since 2015.

Exhibit 3.9-1: SGF Historical Based Aircraft Counts



Source: FAA 2021 SGF TAF Issued March 2022

3.9.2 Based Aircraft Scenarios

This based aircraft forecast analysis developed 27 forecast scenarios of projected growth, using historical trend, market share and regression analysis forecasting methodologies. Five-year and 10-year historical growth rates and datasets were utilized for future projections. The based aircraft forecast developed and evaluated the following scenarios:

Local Trend

The local trend analysis provided two forecast scenarios using the historical trend methodology. Five-year and 10-year historical growth rates were determined, and future projections assumed these growth rates would continue over the planning period.

Market Share

The market share analysis assumes a top-down approach to forecasting. Using this methodology, four forecast scenarios were developed. Historical data was analyzed, and using a larger aggregate, (the FAA TAF's forecasted based aircraft for the state of Missouri and for FAA's Central Region), a local "market share" forecast was derived. Using historical data, SGF's local market share percentage of based aircraft was determined when compared to both the state of Missouri and FAA's Central Region, and growth rates at the five-year and 10-year intervals were identified. Using the FAA TAF's 20-year forecast for both larger aggregates, four scenarios were developed to generate SGF's local market share of based aircraft. [6]

Regression Analysis

Using the regression analysis methodology 20 forecast scenarios were developed. This analysis performed regressions at the five and 10-year data points correlating based aircraft during these time periods to the Greene County, Springfield MSA and Missouri state data sets for population, income per capita, and employment. This forecast scenario also performed based aircraft regression analyses against multiple variable socioeconomic indicators to evaluate if there were stronger relationships between multiple socioeconomic data sets. Like previous regression analyses, the Woods & Poole socioeconomic data previously discussed was used.

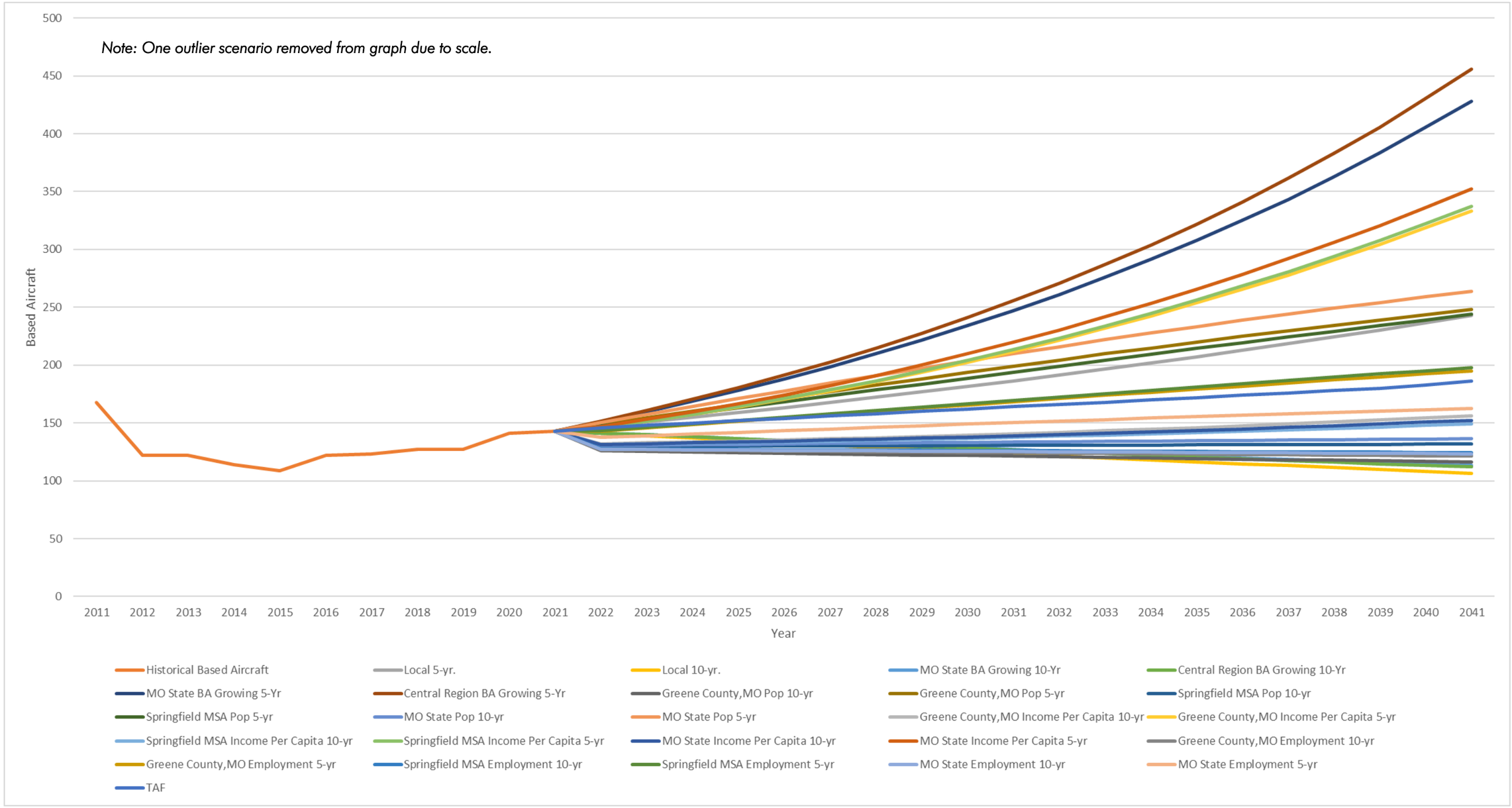
FAA 2021 TAF (Issued March 2022)

The based aircraft analysis also evaluated the based aircraft projections contained in the FAA's 2021 TAF prepared for SGF.

The 27 based aircraft scenarios are depicted in **Exhibit 3.9-2**.

[6] The draft revised 2022 TAF was not published at the time of this analysis and therefore larger aggregates (state of Missouri and Central region) were unavailable, resulting in the 2021 TAF published in March 2022 being used for the market share analysis.

Exhibit 3.9-2: Based Aircraft Forecast Analysis



Source: CMT Analysis (2022)

3.9.3 Preferred Based Aircraft Forecast

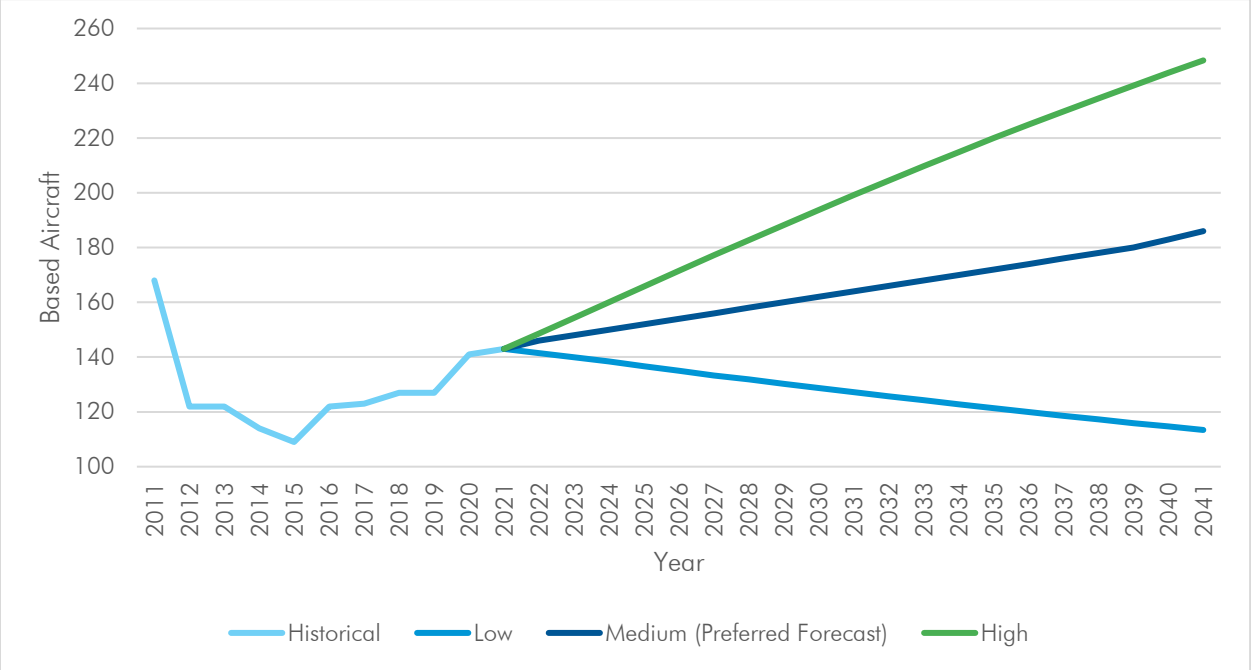
The 27 based aircraft forecast scenarios were evaluated using several metrics, including reasonability, statistical relationship (R^2 value), and professional judgement. While some scenarios statistically produced strong relationships (near 1.0 R^2), the number of based aircraft projected over the planning period in some scenarios produced growth that was unrealistic and not logical, and therefore were dismissed.

As such, analyses from all scenarios were further evaluated. Professional judgement was used to select three scenarios for further consideration, which are depicted in **Exhibit 3.9-3** and consist of the following:

- Low: The Market Share "MO State BA Growing 10-Yr" Scenario projected based aircraft growth based on the historical 10-year market share percentage of SGF's local market share of based aircraft compared to the state of Missouri's. Using the FAA 2021 TAF's 20 year-based aircraft forecast for the state of Missouri and SGF's historical local market share percentage, this analysis produced the Low forecast scenario and projected 113 based aircraft in 2041, yielding a -1.15% CAGR.
- Medium: The 2021 FAA TAF Scenario assumes SGF will add approximately two based aircraft each year over the planning period. The 2021 FAA TAF was evaluated as the Medium forecast scenario and projected 186 based aircraft in 2041, yielding a 1.32% CAGR.
- High: The Population Regression Analysis "Greene County, MO Pop 5-Yr" Scenario examined the relationship existed between population in Green County, MO and based aircraft at SGF. The correlation of 5-years historical data explained 86.8% of the projected based aircraft in this scenario (R^2 value = .868). This analysis produced the High forecast scenario and generated 248 based aircraft in 2041, yielding a 2.80% CAGR.

It is recommended that the Preferred Forecast for the based aircraft forecast be the Medium Forecast Scenario.

Exhibit 3.9-3: GA Based Aircraft Forecast Scenarios



Source: CMT Analysis (2022)

3.9.4 Based Aircraft Fleet Mix

The Preferred based aircraft forecast previously identified was the Medium Forecast Scenario (FAA 2021 TAF issued in March 2022). This forecast projects based aircraft to increase from 143 aircraft in 2021 to 186 in 2041, representing a 1.32% CAGR. However, the projected fleet mix does not align with recent SGF based aircraft activity. Over the past five years there has been significant demand (and construction) for corporate jet sized aircraft hangar storage. According to the historical TAF data, SGF has increased from 15 based jet aircraft in 2011 to 27 based jet aircraft in 2021. Therefore, to better position the Airport for future hangar planning in subsequent report sections, the TAF's fleet mix was modified. The projected fleet mix is listed in five-year intervals in Table 3.9-1.

Table 3.9-1: Based Aircraft Fleet Mix Forecast

YEAR	SINGLE	MULTI	JET	*HELO*	*OTHER*	*TOTAL*
2021	93	11	27	2	10	143
2026	99	15	29	1	9	154
2031	106	16	31	2	9	164
2036	112	17	33	2	10	174
2041	120	18	35	2	11	186

Source: FAA TAF 2021 Issued March 2022

3.10 Critical Design Aircraft

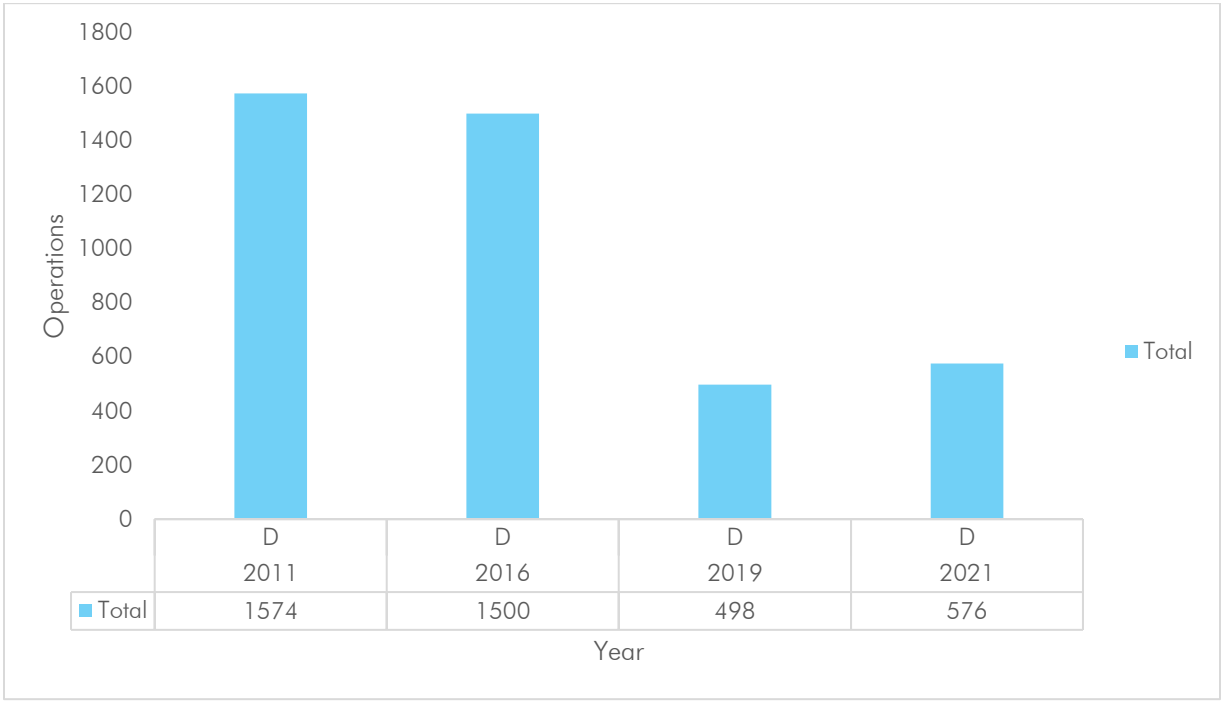
An important element of any aviation demand forecast is the determination of the appropriate level of facility planning needed to accommodate existing and anticipated aviation demand. This is accomplished by identifying the most demanding aircraft, or grouping of aircraft, that makes regular use of an airport, known as the critical aircraft. Regular use is defined by the FAA as 500 annual operations, including both itinerant and local operations, but excluding touch-and-go operations.

This section presents the analysis and findings that determined the critical aircraft at SGF. The critical aircraft determined in this report chapter will establish the Airport Reference Code (ARC), which is the most demanding critical aircraft of all the runways at an airport. The subsequent Master Plan chapter will determine the critical aircraft for each runway.

3.10.1 Existing Critical Aircraft

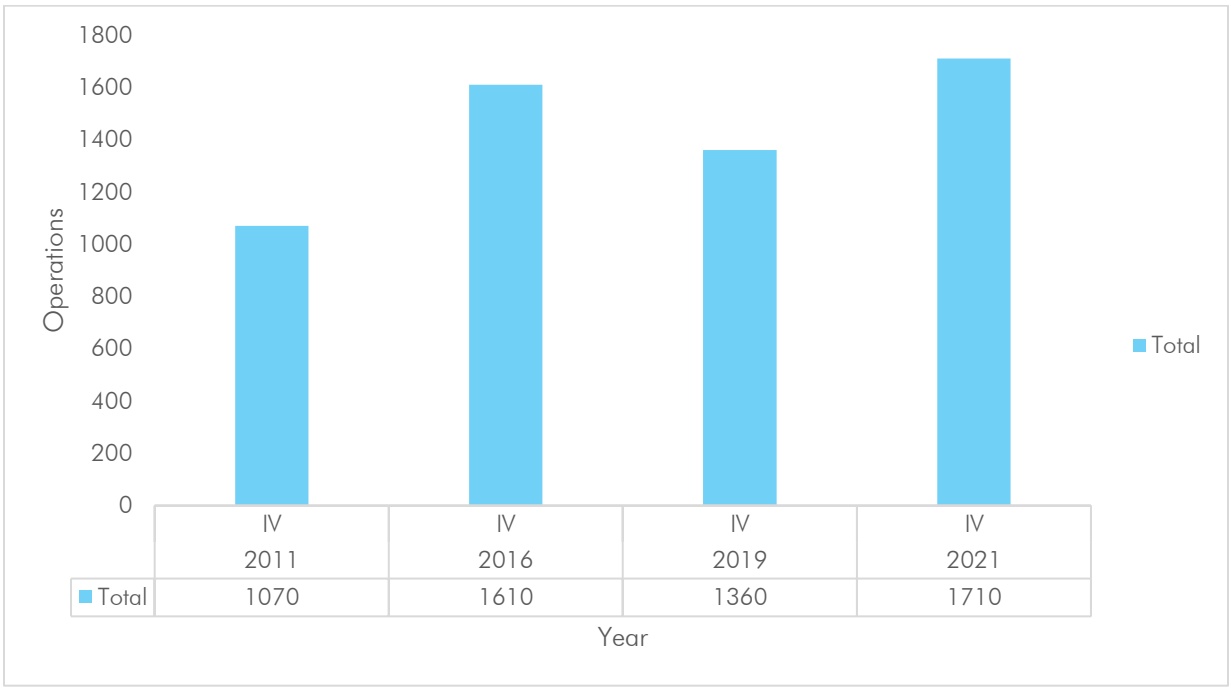
In order to determine the existing critical aircraft and to understand how operations by the most demanding aircraft types have changed at SGF over the past 10 years, an analysis of historical itinerant operations was completed using operations recorded by TFMSC from 2011 to 2021. Over the past decade, the most demanding Aircraft Approach Category (AAC) aircraft that made regular use of SGF was AAC D aircraft. Similarly, the most demanding Airplane Design Group (ADG) aircraft was group IV. Historical AAC and ADG data is graphically depicted in Exhibit 3.10-1 and Exhibit 3.10-2.

Exhibit 3.10-1: Historical AAC Operations at SGF



Source: TFMSC 2011-2021

Exhibit 3.10-2: Historical ADG Operations at SGF



Source: TFMSC 2011-2021

The data shows AAC D aircraft declining between 2016 and 2019. During this time period, airlines (Delta and Allegiant) retired the MD-80 series aircraft (AAC D) and replaced it with newer equipment. The most recent data shows that in 2021, AAC D aircraft are flown by both commercial airlines (B737-800, B737-900, B757-300) and GA (largely GLF4, GLF5 and GLF6). The data also shows there to be well over 500 operations by ADG IV aircraft. This is largely due to cargo operators using the B757-200 aircraft.

Based on this analysis, the critical aircraft representing the existing ARC is D-IV (Family - B737-800, B737-900, B757-300, GLF4, GLF5, GLF6, and B757-200).

3.10.2 Future Critical Aircraft

The future critical aircraft and ARC are primarily driven by the cargo operations. While the preferred cargo operations forecast adds new frequencies and existing operators maintain and then upgauge their aircraft, all cargo operations are conducted by AAC D or ADG IV aircraft. Therefore, it is recommended that the future critical aircraft and ARC remain D-IV; however, the B767-300F is anticipated to replace the B757-200 in the air cargo fleet.

Table 3.10-1 presents the existing and future critical aircraft and ARC for SGF.

Table 3.10-1: SGF Existing and Future Critical Aircraft

DESIGN ELEMENT	EXISTING	FUTURE
Aircraft Approach Category	D	IV
Airplane Design Group	D	IV
Representative Aircraft	B737-800/900, B757-300, GLF4/5/6, B757-200	B737-800/900, B757-300, GLF4/5/6, B767-300F

Source: CMT Analysis (2022)

3.11 Summary and TAF Comparison

The previous sections presented various aeronautical demand forecasts at SGF individually. **Table 3.11-1** presents a summary of the commercial, cargo, GA and military forecasts. The operations forecasts are further broken out by itinerant and local traffic.

As discussed in the beginning of this chapter, forecasts must be "consistent" with the FAA TAF. To be considered "consistent", a forecast must be within 10% in the 5-year forecast and 15% in the 10-year forecast period, when compared to the TAF. A summary of all forecasts prepared in this chapter are listed in **Table 3.11-2** as well as the percent variance when compared to the TAF. The two planning horizons that fall outside the tolerances prescribed by FAA are the +5 and +10 year forecast periods for total aircraft operations. For these instances, the TAF's numbers will be used for programming purposes, and the Master Plan's forecast will be used for local planning purposes.

The FAA's forecast approval letter is provided in **Appendix 5**.

Table 3.11-1: SGF Preferred Forecast Summary

YEAR	ENPLANEMENTS	AIRCRAFT OPERATIONS							BASED AIRCRAFT
		Itinerant				Local		Total	
	Total	Commercial	Cargo	General Aviation	Military	General Aviation	Military		Total
2021 (*base year*)	430,964	17,036	1,402	26,027	2,924	9,103	844	57,336	143
2022 (*+1*)	545,789	17,128	1,358	26,649	2,889	11,290	914	60,228	146
2023 (*+2*)	562,671	17,366	1,358	27,286	2,889	11,319	914	61,132	148
2024 (*+3*)	580,214	17,926	1,358	27,938	2,889	11,347	914	62,373	150
2025 (*+4*)	595,060	18,157	1,358	28,606	2,889	11,375	914	63,299	152
2026 (*+5*)	601,424	18,157	1,878	29,290	2,889	11,404	914	64,532	154
2027 (*+6*)	664,133	20,138	1,878	29,990	2,889	11,432	914	67,241	156
2028 (*+7*)	686,322	20,877	1,878	30,707	2,889	11,461	914	68,726	158
2029 (*+8*)	709,076	21,190	1,878	31,441	2,889	11,489	914	69,801	160
2030 (*+9*)	733,278	21,833	1,878	32,193	2,889	11,518	914	71,225	162
2031 (*+10*)	745,378	21,953	1,460	32,962	2,889	11,547	914	71,726	164
2032 (*+11*)	786,622	22,012	1,460	33,750	2,889	11,576	914	72,602	166
2033 (*+12*)	791,838	21,953	1,460	34,557	2,889	11,605	914	73,379	168
2034 (*+13*)	806,734	22,443	1,460	35,383	2,889	11,634	914	74,724	170
2035 (*+14*)	811,874	22,928	1,460	36,229	2,889	11,663	914	76,084	172
2036 (*+15*)	814,090	23,110	1,460	37,095	2,889	11,692	914	77,160	174
2037 (*+16*)	812,570	23,048	1,460	37,982	2,889	11,721	914	78,015	176
2038 (*+17*)	820,018	23,293	1,460	38,890	2,889	11,751	914	79,198	178
2039 (*+18*)	823,666	23,413	1,460	39,820	2,889	11,780	914	80,276	180
2040 (*+19*)	836,773	23,476	1,460	40,771	2,889	11,809	914	81,320	183
2041 (*+20*)	840,018	23,413	1,460	41,746	2,889	11,839	914	82,262	186
CAGR	***3.39%***	***1.60%***	***0.20%***	***2.39%***	***-0.06%***	***1.32%***	***0.40%***	***1.82%***	***1.32%***

Source: CMT Analysis (2022)

Table 3.11-2: SGF Forecast Comparison to TAF

COMMERCIAL ENPLANEMENTS				
Planning Horizon	**Allowable Variation**	**Master Plan Forecast**	**Revised Draft 2022 FAA TAF**	**% Diff**
2021 Base Year	-	430,964	422,931	-
2026 (+5)	*10%*	601,424	633,208	-5.0%
2031 (+10)	*15%*	745,378	698,028	6.8%

AIRCRAFT OPERATIONS				
Planning Horizon	**Allowable Variation**	**Master Plan Forecast**	**Revised Draft 2022 FAA TAF**	**% Diff**
2021 Base Year	-	57,336	56,342	-
2026 (+5)	*10%*	64,532	65,823	*-2.0%*
2031 (+10)	*15%*	71,726	68,202	*5.2%*

BASED AIRCRAFT				
Planning Horizon	**Allowable Variation**	**Master Plan Forecast**	**2021 FAA TAF Issued March 2022**	**% Diff**
2021 Base Year	-	143	143	0.0%
2026 (+5)	*10%*	154	154	0.0%
2031 (+10)	*15%*	164	164	0.0%

Source: Enplanements & Operations - FAA Revised Draft 2022 SGF TAF; Based Aircraft – FAA 2021 TAF; CMT Analysis (2022)

APPENDIX A

Appendix A: FAA 2021 SGF Terminal Area Forecast

FISCAL YEAR	ENPLANEMENTS			AIRCRAFT OPERATIONS									BASED AIRCRAFT
	Commercial Enplanements			Itinerant Operations					Local Operations			TOTAL OPS	
	Air Carrier	Commuter	Total	Air Carrier	Air Taxi & Commuter	GA	Military	Total	Civil	Military	Total		
2021*	100,185	330,779	430,964	9,706	16,372	16,028	2,889	44,995	10,433	914	11,347	56,342	143
2022*	100,755	400,925	501,680	10,572	17,144	16,730	2,889	47,335	11,290	914	12,204	59,539	146
2023*	112,085	448,525	560,610	12,614	16,691	16,747	2,889	48,941	11,319	914	12,233	61,174	148
2024*	116,878	468,382	585,260	14,680	14,171	16,763	2,889	48,503	11,347	914	12,261	60,764	150
2025*	119,425	478,838	598,263	16,000	11,830	16,780	2,889	47,499	11,375	914	12,289	59,788	152
2026*	122,017	489,203	611,220	17,235	9,667	16,797	2,889	46,588	11,404	914	12,318	58,906	154
2027*	124,798	500,358	625,156	18,331	9,104	16,814	2,889	47,138	11,432	914	12,346	59,484	156
2028*	127,650	511,812	639,462	18,916	9,195	16,831	2,889	47,831	11,461	914	12,375	60,206	158
2029*	130,364	522,727	653,091	19,196	9,287	16,848	2,889	48,220	11,489	914	12,403	60,623	160
2030*	133,034	533,450	666,484	19,465	9,380	16,865	2,889	48,599	11,518	914	12,432	61,031	162
2031*	135,734	544,293	680,027	19,735	9,474	16,882	2,889	48,980	11,547	914	12,461	61,441	164
2032*	138,464	555,261	693,725	20,005	9,569	16,898	2,889	49,361	11,576	914	12,490	61,851	166
2033*	141,116	565,920	707,036	20,263	9,664	16,915	2,889	49,731	11,605	914	12,519	62,250	168
2034*	143,879	576,998	720,877	20,533	9,761	16,932	2,889	50,115	11,634	914	12,548	62,663	170
2035*	146,638	588,096	734,734	20,803	9,859	16,949	2,889	50,500	11,663	914	12,577	63,077	172
2036*	149,381	599,117	748,498	21,068	9,957	16,966	2,889	50,880	11,692	914	12,606	63,486	174
2037*	151,965	609,511	761,476	21,313	10,057	16,983	2,889	51,242	11,721	914	12,635	63,877	176
2038*	154,527	619,810	774,337	21,554	10,157	17,000	2,889	51,600	11,751	914	12,665	64,265	178
2039*	157,131	630,273	787,404	21,799	10,259	17,018	2,889	51,965	11,780	914	12,694	64,659	180
2040*	159,776	640,922	800,698	22,047	10,362	17,035	2,889	52,333	11,809	914	12,723	65,056	183
2041*	162,472	651,719	814,191	22,301	10,465	17,052	2,889	52,707	11,839	914	12,753	65,460	186

Source: FAA 2021 TAF Issued March 2022

APPENDIX B

Appendix B: Methodology of Manipulating OPSNET Data

YEAR	ITINERANT									LOCAL		
	Air Carrier (AC)	Air Taxi (AT)	*AC + AT*	*Comm. (T-100)*	*Cargo (T-100)*	*AC/AT minus T100*	GA	*NEW GA Itinerant*	Military	Total	Civil	Military	Total
2011	3,048	18,396	*21,444*	*16,468*	*1,414*	*3,562*	16,509	*20,071*	3,278	41,231	4,034	1,030	5,064
2012	3,009	17,382	*20,391*	*16,114*	*1,544*	*2,733*	15,997	*18,730*	3,382	39,770	4,034	1,065	5,099
2013	2,771	16,936	*19,707*	*15,996*	*1,506*	*2,205*	15,216	*17,421*	2,490	37,413	4,029	1,105	5,134
2014	3,117	17,001	*20,118*	*16,238*	*1,422*	*2,458*	15,027	*17,485*	2,594	37,739	2,722	747	3,469
2015	5,648	15,188	*20,836*	*16,722*	*1,452*	*2,662*	15,737	*18,399*	3,397	39,970	2,400	854	3,254
2016	6,942	15,467	*22,409*	*18,308*	*1,356*	*2,745*	17,578	*20,323*	3,281	43,268	4,615	1,129	5,744
2017	9,455	13,814	*23,269*	*18,378*	*1,424*	*3,467*	19,205	*22,672*	2,844	45,318	10,061	1,206	11,267
2018	8,769	19,520	*28,289*	*19,709*	*1,140*	*7,440*	17,471	*24,911*	2,345	48,105	8,876	883	9,759
2019	8,696	24,010	*32,706*	*22,257*	*1,136*	*9,313*	16,581	*25,894*	2,242	51,529	11,147	630	11,777
2020	6,865	15,048	*21,913*	*14,485*	*1,144*	*6,284*	13,823	*20,107*	2,197	37,933	9,111	748	9,859
2021	10,679	16,788	*27,467*	*17,036*	*1,402*	*9,029*	16,998	*26,027*	2,924	47,389	9,103	844	9,947

Note: Red text indicates revisions/calculations CMT applied to OPSNET data for analysis.

Source: FAA OPSNET (2011-2021); CMT Analysis (2022)

Appendix B: SGF Summary of Airport Planning Forecasts

Specify base year: 2021

	Base Yr. Level	Base Yr.+1yr.	Base Yr.+5yrs.	Base Yr.+10yrs.	Base Yr.+15yrs.	Average Annual Compound Growth Rates: Base Yr. to +1	Base Yr. to +5	Base Yr. to +10	Base Yr. to +15
Passenger Enplanements									
Commercial	430,964	545,789	601,424	745,378	814,090	26.6%	6.9%	5.6%	4.3%
TOTAL	430,964	545,789	601,424	745,378	814,090	26.6%	6.9%	5.6%	4.3%
Operations									
Itinerant									
Commercial	17,036	17,128	18,157	21,953	23,110	0.5%	1.3%	2.6%	2.1%
Cargo	1,402	1,358	1,878	1,460	1,460	-3.1%	6.0%	0.4%	0.3%
General aviation	26,027	26,649	29,290	32,962	37,095	2.4%	2.4%	2.4%	2.4%
Military	2,924	2,889	2,889	2,889	2,889	-1.2%	-0.2%	1.1%	0.7%
Local									
General aviation	9,103	11,290	11,404	11,547	11,692	24.0%	4.6%	2.4%	1.7%
Military	844	914	914	914	914	8.3%	1.6%	0.8%	0.5%
TOTAL OPERATIONS	57,336	60,228	64,532	71,726	77,160	5.0%	2.4%	2.3%	2.0%
Peak Hour Enplanements	273	280	358	435	483	2.6%	5.6%	4.8%	3.9%
Peak Hour Commercial Operations	6	6	7	9	10	0.0%	3.1%	4.1%	3.5%
Cargo - Belly (lbs)	29,213	29,927	32,960	37,188	41,957	2.4%	2.4%	2.4%	2.4%
Cargo - All-cargo (1,000 lbs)	40,417	44,801	55,922	58,817	76,662	10.8%	6.7%	3.8%	4.4%
Cargo – Landed Weight (1,000 lbs)	160,333	160,674	198,634	191,254	191,254	0.2%	4.4%	1.8%	1.2%
Based Aircraft									
Single Engine (Nonjet)	93	94	99	106	112	1.1%	1.3%	1.3%	1.2%
Multi Engine (Nonjet)	11	14	15	16	17	27.3%	6.4%	3.8%	2.9%
Jet Engine	27	28	29	31	33	3.7%	1.4%	1.4%	1.3%
Helicopter	2	1	1	2	2	-50.0%	-12.9%	0.0%	0.0%
Other	10	8	9	9	10	-20.0 %	-2.1%	-1.0%	0.0%
TOTAL	143	146	154	164	174	2.1%	1.5%	1.4%	1.3%

B. Operational Factors

	Base Yr. Level	Base Yr.+1yr.	Base Yr.+5yrs.	Base Yr.+10yrs.	Base Yr.+15yrs.
Average aircraft size (seats)					
Air carrier	76.6	81.0	89.6	91.4	93.7
Average enplaning load factor					
Air carrier	87.6%	91.7%	80.0%	80.0%	80.0%
GA operations per based aircraft	127	143	140	138	135

Appendix B: SGF Comparing Airport Planning and TAF Forecasts

	Year	Airport Forecast	TAF	AF/TAF (% Difference)
Passenger Enplanements				
Base yr.	2021	430,964	422,931	1.9%
Base yr. + 5yrs.	2026	601,424	633,208	-5.0%
Base yr. + 10yrs.	2031	745,378	698,028	6.8%
Base yr. + 15yrs.	2036	814,090	765,325	6.4%
Commercial Operations				
Base yr.	2021	17,036	26,078[7]	-34.7%
Base yr. + 5yrs.	2026	18,157	32,529	-44.2%
Base yr. + 10yrs.	2031	21,953	34,676	-36.7%
Base yr. + 15yrs.	2036	23,110	37,165	-37.8%
Total Operations				
Base yr.	2021	57,336	56,342	1.8%
Base yr. + 5yrs.	2026	64,532	65,823	-2.0%
Base yr. + 10yrs.	2031	71,726	68,202	5.2%
Base yr. + 15yrs.	2036	77,160	70,927	8.8%

[7] TAF operations include Itinerant "Air Carrier" and "Air Taxi & Commuter" while SGF operations are purely "commercial" (airline) operations. The TAF numbers count commercial, but also cargo, charter, on-demand, etc., so the TAF operations numbers do not represent true "commercial" only operations.