

Orlando Sanford International Airport – Master Plan Update

Working Paper #3 – Aviation Forecast

Sanford Airport Authority

March, 2020



Contents

Chapter	Page
3. Aviation Demand Forecasts	4
3.1. Introduction	4
3.2. Socioeconomic Review of the Market Area	4
3.2.1. Gross Domestic Product Trends and Outlook	6
3.2.2. Population	8
3.2.3. Employment Trends	10
3.2.4. Major Employers in the Region	14
3.2.5. Tourism and Visitor Industry	14
3.3. Forecast Methodology	15
3.4. Passenger Enplanements	15
3.4.1. Enplanement Trend Line Analysis	16
3.4.2. Enplanement Regression Analysis	18
3.4.3. Enplanement Market Share Analysis	21
3.4.4. Comparison of Enplaned Passenger Forecasts	24
3.4.5. Preferred Enplanement Forecasts	26
3.5. Based Aircraft Forecast and Fleet Mix	27
3.5.1. Based Aircraft Trend Line Analysis	28
3.5.2. Based Aircraft Regression Analysis	30
3.5.3. Based Aircraft Market Share Analysis	33
3.5.4. Comparison of Based Aircraft Forecasts	36
3.5.5. Preferred Based Aircraft Forecast	38
3.6. Aircraft Operations and Fleet Mix	40
3.6.1. Air Carrier Operations and Fleet Mix	40
3.6.2. Air Cargo Tonnage	44
3.6.3. General Aviation and Air Taxi/Commuter Aircraft Operations	46
3.6.4. GA and Air Taxi/Commuter Trend Line Analysis	48
3.6.5. Comparison of GA and Air Taxi/Commuter Operations Forecast	56
3.6.6. Military Operations	62
3.7. Peak Activity Forecasts	63
3.8. Enplanements and Aircraft Operations Summary	66

Tables

Table 3-1: Historical and Forecast GDP Growth (CY 1997-2037)	7
Table 3-2: Historical and Forecast Population Growth (CY 1997-2017)	9
Table 3-3: Non-Agriculture Employment (June 2017 to June 2018)	10
Table 3-4: Historical and Forecast Employment Growth (CY 1997-2017)	13
Table 3-5: Top 10 Market Area Largest Employers	14
Table 3-6: TAF vs. SAA Historical Enplanements – Five Year Average Difference	16

Table 3-7: Enplanement Trend Analysis	17
Table 3-8: Enplanement Regression Analysis	19
Table 3-9: Enplanement Market Share Analysis	22
Table 3-10: Enplanement Forecast Comparison	24
Table 3-11: Preferred Enplanement Forecast Comparison – Domestic and International Split	27
Table 3-12: Historical Based Aircraft	28
Table 3-13: Based Aircraft Trend Analysis	29
Table 3-14: Based Aircraft Regression Analysis	31
Table 3-15: Based Aircraft Market Share Analysis	34
Table 3-16: Based Aircraft Forecast Comparison	36
Table 3-17: Preferred Based Aircraft Forecast	39
Table 3-18: Preferred Based Aircraft Fleet Mix Forecast	40
Table 3-19: Total Operations Forecast by Year	42
Table 3-20: Air Carrier Operations and Fleet Mix Forecast	43
Table 3-21: Air Cargo Tonnage Forecast	45
Table 3-22: GA and Air Taxi Operations OPBA Forecast	47
Table 3-23: GA and Air Taxi/Commuter Trend Analysis	49
Table 3-24: GA and Air Taxi Operations Regression Analysis	51
Table 3-25: GA Operations and Air Taxi/Commuter Market Share Analysis	54
Table 3-26: GA and Air Taxi/Commuter Operations Forecast Comparison	56
Table 3-27: GA and Air Taxi Operations Forecast	59
Table 3-28: GA Operations – Historical Itinerant and Local Shares	61
Table 3-29: GA Operations – Itinerant and Local Forecast	62
Table 3-30: Military Operations Forecast	63
Table 3-31: Peak Activity Forecast	64
Table 3-32: Master Plan Forecasts Comparison to TAF	67
Table 3-33: Enplanements and Operations Summary	68

Figures

Figure 3-1: Market Area Map	5
Figure 3-2: Historic Annual Growth of GDP (CY 1997-2017)	6
Figure 3-3: Historic Annual Growth of Population (CY 1997-2017)	8
Figure 3-4: Market Area Employment by Industry	11
Figure 3-5: Historic Annual Growth of Employment (CY 1997-2017)	12
Figure 3-6: Historical GA and Air Taxi/Commuter Operations	46

3. Aviation Demand Forecasts

3.1. Introduction

This report describes the forecasts of future aviation activity at Orlando Sanford International Airport (SFB) that were developed to guide the Master Plan Update (Master Plan) process. Activity forecasts represent critical inputs to the Master Plan as they are used to determine the required level of airport facility development needed to accommodate expected levels of future demand. The forecasts for this Master Plan have been prepared using the base fiscal year of 2017 and cover a 20-year planning horizon. Key activities measured in the forecast include commercial airline passenger enplanements, commercial aircraft operations, cargo, based aircraft, and general aviation (GA), air taxi/commuter, and military operations.

SFB serves international and domestic carriers in the Orlando metropolitan area. The National Plan of Integrated Airport Systems (NPIAS) classifies SFB as a small hub airport¹. In the 2017 calendar year, SFB's passenger enplanement activity represented 0.16 percent of the total U.S. activity.

3.2. Socioeconomic Review of the Market Area

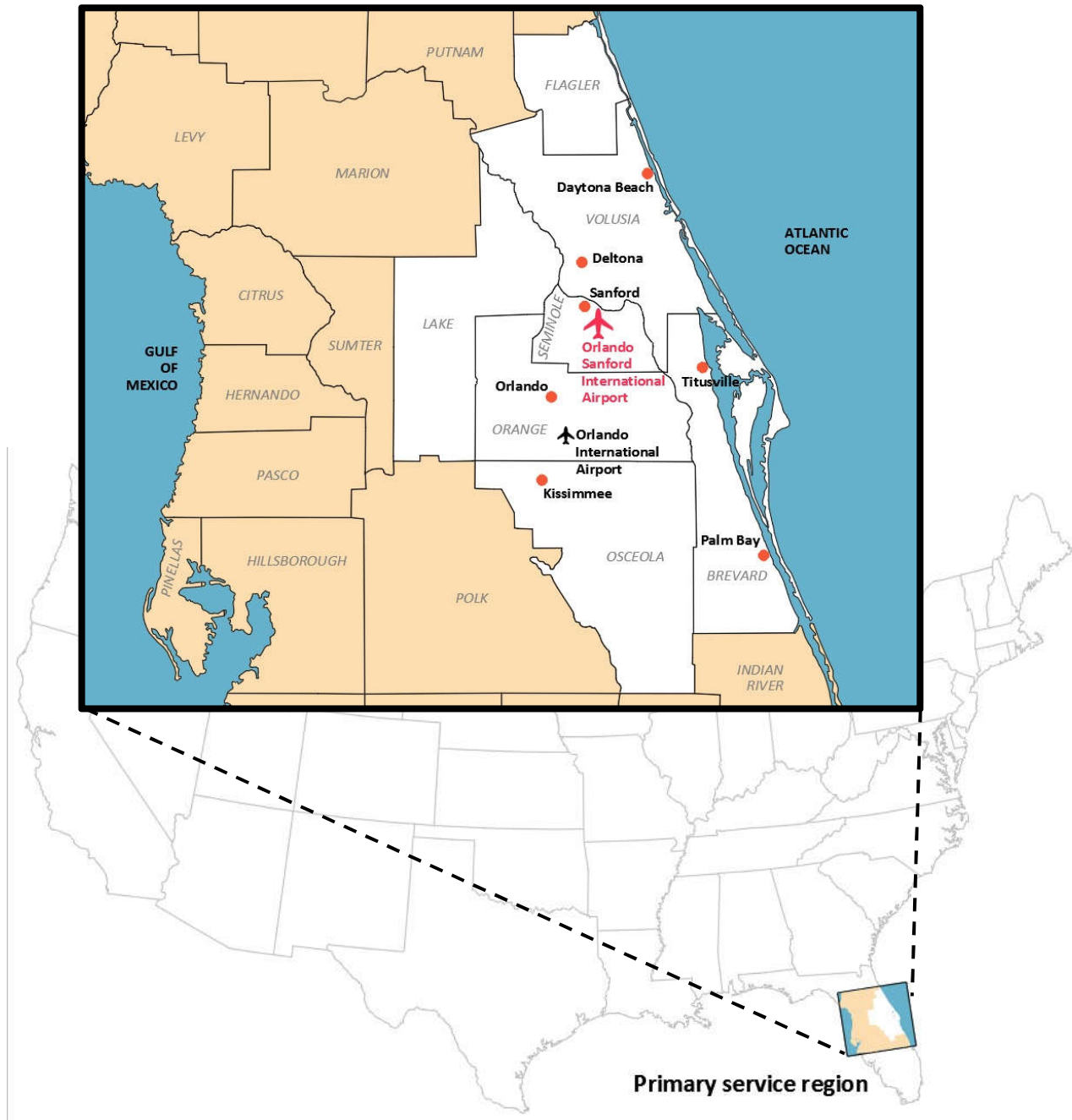
This section describes historical and forecasted socioeconomic activity in the SFB service region. For the purposes of the forecast analysis, the SFB service region (Market Area) consists of the following metropolitan statistical areas: 1) Orlando-Kissimmee; 2) Deltona-Daytona Beach-Ormond Beach; and 3) Palm Bay-Melbourne-Titusville. This area is located in central Florida and includes the principal cities of Orlando, Kissimmee, Sanford, Palm Bay, Titusville, Deltona, and Daytona Beach. According to the U.S. Office of Management and Budget, the Market Area consists of the Lake, Orange, Osceola, Seminole, Volusia, Flagler, and Brevard counties.

The closest major cities to SFB are Sanford, located approximately 4 miles northwest; Orlando, approximately 23 miles southwest; and Kissimmee, approximately 48 miles southwest. **Figure 3-1: Market Area Map** shows the counties within the Market Area along with SFB's location.

SFB is a hub for national carrier Allegiant Air and also provides a base for international and domestic charters. SFB is home to L3 Harris Airline Academy, a major pilot training school for prospective regional airline and international pilots. In addition, Propellerhead Aviation offers flight training, aircraft rentals and other services at SFB.

¹ A small hub airport is defined by the FAA as an airport that enplanes less than 0.25 percent of total U.S. air passenger traffic.

Figure 3-1: Market Area Map



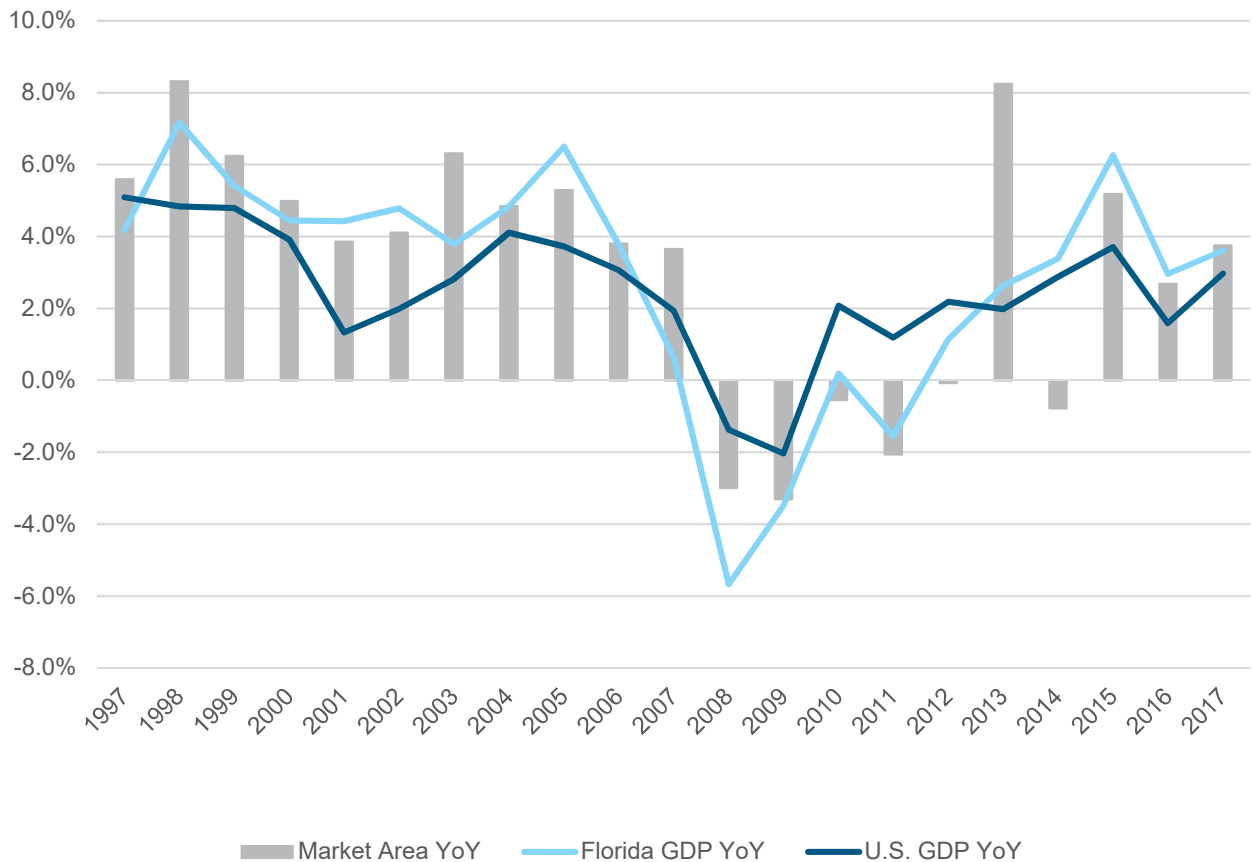
Source: Jacobsen|Daniels, 2019

3.2.1. Gross Domestic Product Trends and Outlook

Air travel demand and airport passenger traffic are strongly linked to the economic characteristics of a region. Metro Orlando is a popular tourist destination due to the many theme parks in the area. Famous attractions include Walt Disney World, SeaWorld Orlando, and Universal Orlando. Millions of tourists visit these and other attractions every year. The citrus industry historically dominated the Orlando area economy but has declined over the past 100 years. Orlando is also a major food-processing center.

Figure 3-2: Historic Annual Growth of GDP (CY 1997-2017) shows historical year-over-year (YoY) Gross Domestic Product (GDP) growth for the Market Area, the State of Florida, and the United States between 1997 and 2017. GDP growth within the Market Area historically out-performed the nation in 14 of the last 20 years. Over the next 10 and 20 years, Woods and Poole Economics projects that the Market Area GDP will grow at rates above the national average. The GDP is expected to grow by 2.5 percent between 2017 and 2027 and by 2.3 percent between 2017 and 2037³ (see **Table 3-1: Historical and Forecast GDP Growth (CY 1997-2037)**).

Figure 3-2: Historic Annual Growth of GDP (CY 1997-2017)



Source: Woods and Poole Economics, 2018

³ Source: Woods and Poole Economics, 2018

Table 3-1: Historical and Forecast GDP Growth (CY 1997-2037)

	Historical			Forecast	
	1997	2007	2017	2027	2037
GDP (US\$)					
Market Area	84,639	139,648	153,483	197,378	243,476
Florida	507,192	792,792	866,025	1,093,569	1,327,712
United States	10,768,753	14,820,650	17,204,393	20,671,067	24,206,857
Market Area Share					
% of Florida	16.7%	17.6%	17.7%	18.0%	18.3%
% of United States	0.8%	0.9%	0.9%	1.0%	1.0%
Compound Annual Growth Rate		10 Year	20 Year	10 Year	20 Year
		(2007-2017)	2007-2027)	(2017-2027)	(2017-2037)
Market Area		0.9%	3.0%	2.5%	2.3%
Florida		0.9%	2.7%	2.4%	2.2%
United States		1.5%	2.4%	1.9%	1.7%

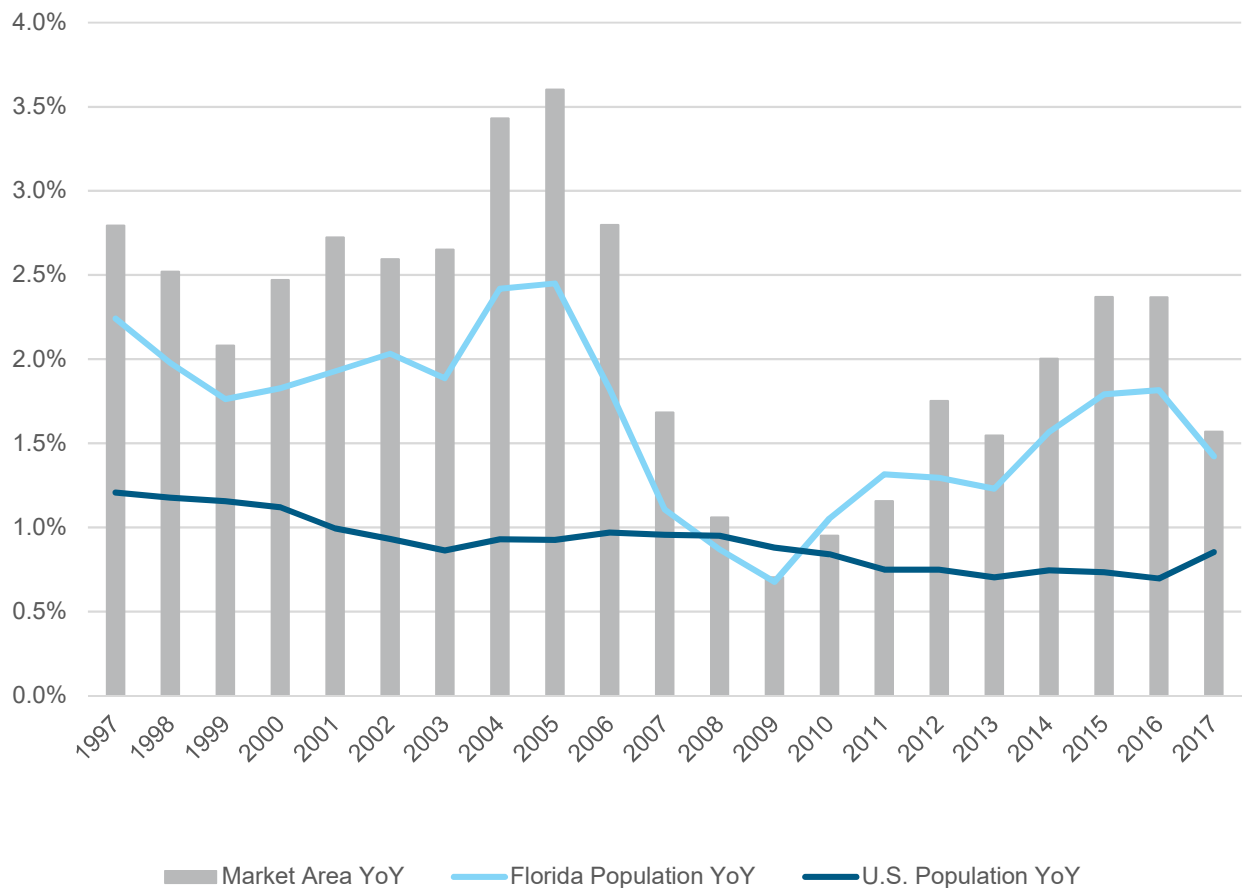
Source: Woods and Poole Economics, 2018

3.2.2. Population

As of 2017, the population of the Market Area represents 17.8 percent of the Florida population and 1.1 percent of the total U.S. population. According to Woods and Poole’s 2018 estimates, the Market Area has a population of approximately 3.7 million. Between 2007 and 2017, the Market Area population increased an average of 1.5 percent per year and has been growing faster than the rest of Florida and the U.S., which grew 1.3 percent and 0.8 percent per year respectively during the same period (see **Figure 3-3: Historic Annual Growth of Population (CY 1997-2017)**).

Over the next ten years, population growth in the Market Area is forecast by Woods and Poole to increase by approximately 1.6 percent annually, which outpaces the anticipated U.S. growth rate of 0.9 percent. On the state level, Florida’s population is forecast to grow an average of 1.4 percent annually from 2017 to 2037. By 2037, the Market Area’s share of the total state population is expected to increase slightly from 18.0 percent today to 18.3 percent by 2037 (see **Table 3-2: Historical and Forecast Population Growth (CY 1997-2017)**).

Figure 3-3: Historic Annual Growth of Population (CY 1997-2017)



Source: Woods and Poole Economics, 2018

Table 3-2: Historical and Forecast Population Growth (CY 1997-2017)

	Historical			Forecast	
	1997	2007	2017	2027	2037
Population (in millions)					
Market Area	2,453	3,187	3,715	4,368	5,085
Florida	15,186	18,368	20,906	24,232	27,820
United States	272,647	301,231	325,888	357,430	389,046
Market Area Share					
% of Florida	16.2%	17.4%	17.8%	18.0%	18.3%
% of United States	0.9%	1.1%	1.1%	1.2%	1.3%
Compound Annual Growth Rate		10 Year	20 Year	10 Year	20 Year
		(2007-2017)	2007-2027)	(2017-2027)	(2017-2037)
Market Area		1.5%	2.1%	1.6%	1.6%
Florida		1.3%	1.6%	1.5%	1.4%
United States		0.8%	0.9%	0.9%	0.9%

Source: Woods and Poole Economics, 2018

3.2.3. Employment Trends

In terms of non-farm employment, Florida ranks 1st among all states in the U.S. South as defined by the Bureau of Labor Statistics (BLS), with a workforce of over 10.2 million employees as of June 2018. The BLS Establishment, or Payroll Data, is estimated from a survey of approximately 400,000 business establishments that account for about one-third of all jobs in the country (excluding agricultural sector jobs) and is frequently used to analyze labor market and economic conditions. Non-farm payroll employment is utilized because it provides accurately reported data, which gauges the economic health of the nation, and helps calculate unemployment rates.

Florida's total employment is up 1.3 percent since June 2017 (see **Table 3-3: Non-Agriculture Employment (June 2017 to June 2018)**), making it the fourth fastest growing state in the South in terms of the number of non-farm employees. In addition, the Florida labor force grew faster than the U.S. average over the past 12 months. The Florida non-farm labor force represents about 6.3 percent of the total U.S. labor force as of June 2018.

Table 3-3: Non-Agriculture Employment (June 2017 to June 2018)

Rank	State	Non-Farm Employees (in millions)		Net Change	% Change	Rank by % Change
		June 2018	June 2017			
1	Florida	10,232.6	10,103.1	129.5	1.3%	4
2	Georgia	5,155.4	5,057.8	97.6	1.9%	1
3	North Carolina	4,997.5	4,938.0	59.5	1.2%	5
4	Virginia	4,348.9	4,310.8	38.1	0.9%	8
5	Tennessee	3,245.9	3,193.6	52.3	1.6%	2
6	Maryland	3,233.3	3,223.2	10.1	0.3%	9
7	South Carolina	2,313.1	2,310.5	2.6	0.1%	11
8	Alabama	2,187.7	2,167.8	19.9	0.9%	7
9	Kentucky	2,063.0	2,058.3	4.7	0.2%	10
10	Mississippi	1,281.6	1,280.9	0.7	0.1%	12
11	West Virginia	785.1	776.5	8.6	1.1%	6
12	Delaware	484.5	477.6	6.9	1.4%	3
-	United States	162,140.0	160,214.0	1,926.0	1.2%	-

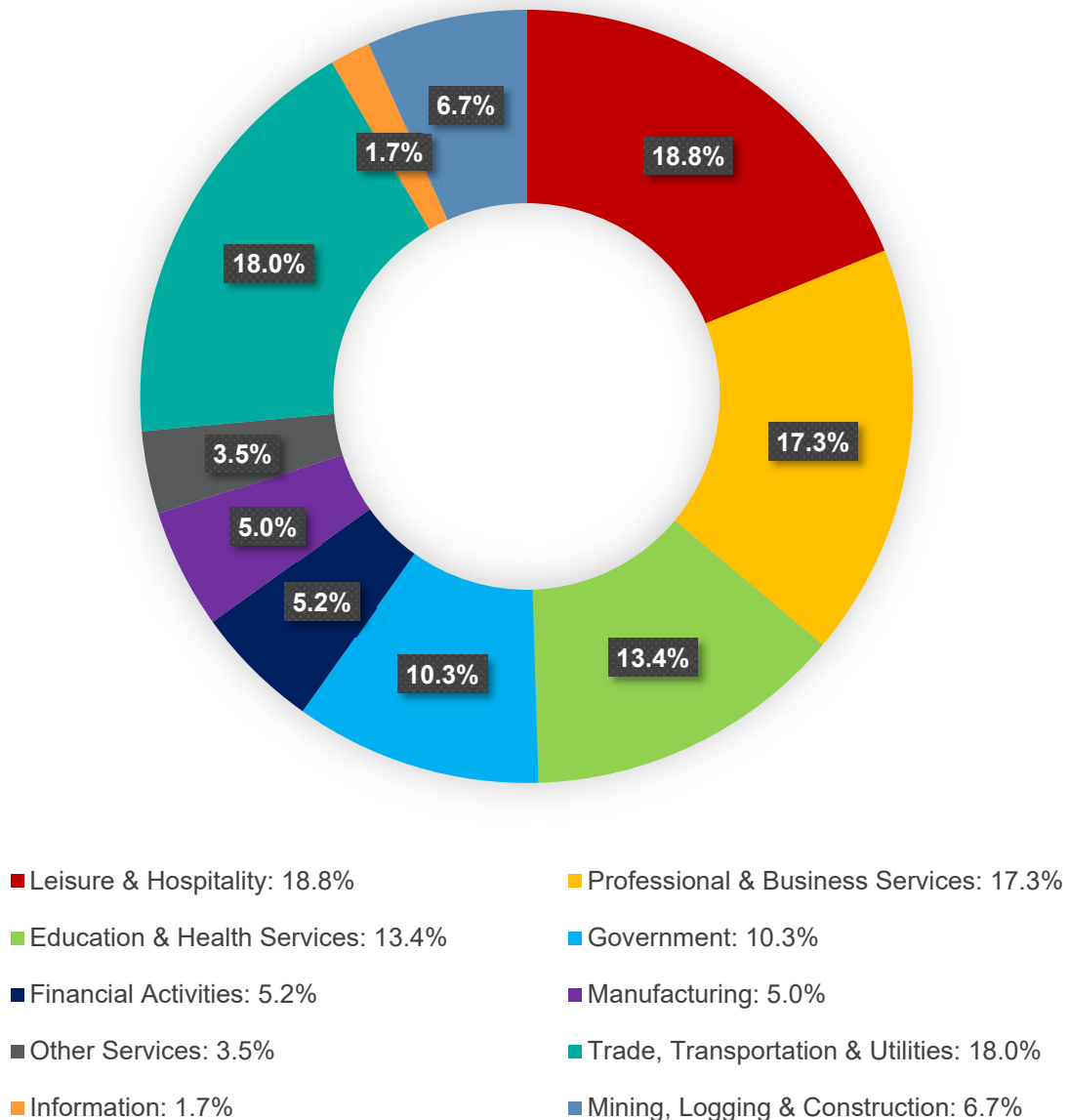
Note: June 2018 are preliminary numbers; seasonally adjusted by BLS reporting

Source: U.S. Department of Commerce, Bureau of Labor Statistics (BLS)

In 2019, the leading industries for employment in the Market Area were Leisure and Hospitality; Trade, Transport and Utilities; Professional and Business Services; Education and Health Services; and Government. As reflected in **Figure 3-4: Market Area Employment by Industry**, data for November 2019 show that Leisure and Hospitality accounts for 18.8 percent of the Market Area’s non-farm employees; Trade, Transport and Utilities accounts for 18.0 percent; Professional and Business Services accounts for 17.3 percent; Education and Health Services accounts for 13.4 percent; and Government represents 10.3 percent of non-farm employees.

The Market Area has a diversified employment base, which is a strength of its economy. The top five industry sectors make up more than 77 percent of its non-farm employee total.

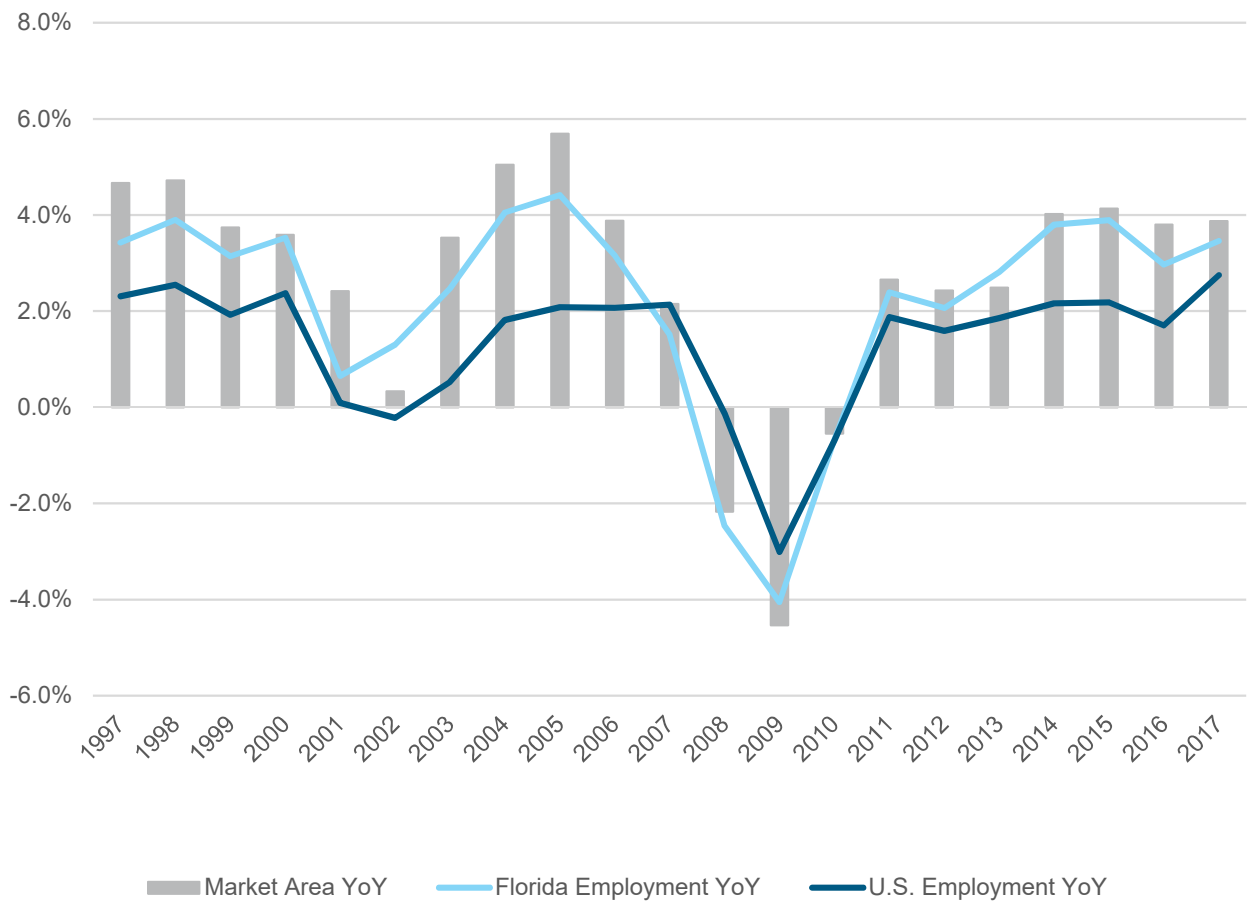
Figure 3-4: Market Area Employment by Industry



Source: U.S. Bureau of Labor Statistics, November 2019

Between 2007 and 2017, the Market Area’s employment increased an average of 1.6 percent per year and has been growing at a faster rate than the State of Florida and the U.S., which grew 1.4 percent and 1.0 percent per year, respectively, during the same ten-year period. Over the next ten years, employment growth in the Market Area is forecast by Woods and Poole to increase by approximately 2.0 percent annually, which outpaces the anticipated U.S. compound annual growth rate of 1.4 percent and the state’s expected compound annual growth rate of 1.9 percent. (See **Figure 3-5: Historic Annual Growth of Employment (CY 1997-2017)**). From 2017 to 2037, Florida’s employment is forecast to grow an average of 1.7 percent annually compared to an expected 1.8 percent compound growth rate within the Market Area. By 2037, the Market Area’s share of the total state employment is expected to increase slightly from 18.2 percent today, to 18.7 percent (see **Table 3-4: Historical and Forecast Employment Growth (CY 1997-2017)**).

Figure 3-5: Historic Annual Growth of Employment (CY 1997-2017)



Source: Woods and Poole Economics, 2018

Table 3-4: Historical and Forecast Employment Growth (CY 1997-2017)

	Historical		Forecast		
	1997	2007	2017	2027	2037
Employment (in thousands)					
Market Area	1,338	1,888	2,207	2,694	3,155
Florida	8,005	10,557	12,114	14,566	16,880
United States	154,543	179,886	198,990	229,158	256,759
Market Area Share					
% of Florida	16.7%	17.9%	18.2%	18.5%	18.7%
% of United States	0.9%	1.0%	1.1%	1.2%	1.2%
Compound Annual Growth		10 Year	20 Year	10 Year	20 Year
		(2007-2017)	2007-2027)	(2017-2027)	(2017-2037)
Market Area		1.6%	2.5%	2.0%	1.8%
Florida		1.4%	2.1%	1.9%	1.7%
United States		1.0%	1.3%	1.4%	1.3%

Source: Woods and Poole Economics, 2018

3.2.4. Major Employers in the Region

The major employment industries in the Market Area include trade, transportation, and utilities; professional and business services; government; and leisure and hospitality. In 2017, Walt Disney World accounted for 73,000 employees in the Market Area and Universal Studios accounted for 23,000. Adventist Health System/Florida Hospital accounted for 21,815 employees. A list of the area’s major employers in 2017/2018 is provided in **Table 3-5: Market Area Leading Employers**.

Table 3-5: Market Area Leading Employers

Company	Industry	Employment
Walt Disney World Resort	Leisure and Hospitality	73,000
Universal Orlando Resort (Comcast)	Leisure and Hospitality	23,000
Adventist Health System/Florida Hospital	Education and Health Services	21,815
Publix	Trade, Transportation, and Utilities	19,783
Orlando Health	Education and Health Services	19,032
University of Central Florida	Education and Health Services	9,134
Lockheed Martin	Professional and Business Services	9,000
Kennedy Space Center (NASA)	Government	8,500
Seminole County Public Schools	Education and Health Services	7,687
Volusia County Schools	Education and Health Services	7,443

Sources: Orlando Economic Partnership; Orlando Sentinel; Orlando Business Journal, 2017; North Brevard Economic Development Zone Summer 2018 Report; County of Volusia, Division of Economic Development, January 2017

3.2.5. Tourism and Visitor Industry

The Market Area has long been a strong tourist market drawing in vacationers from all over the U.S. and abroad by marketing its unique location and attractions. With these local attractions, the SFB’s passengers are mostly beginning or ending their trip at SFB rather than connecting to another city, with the recent 2018 Catchment Area Study estimating approximately 70 percent of Origin and Destination (O/D) passenger traffic is from visitors to the area. Passengers at SFB are also primarily domestic, with a 92 to 8 percent split between domestic and international passengers in fiscal year (FY) 2018 based on SFB records.

SFB benefits from a blend of local government and private investment through the operation of a public/private partnership between the Sanford Airport Authority (SAA) and Orlando Sanford International, Inc. (OSI, Inc.). OSI, Inc. was contracted by SAA to manage both the international and domestic terminals and parking facilities; develop additional air service; and provide ground handling and cargo services. This public/private partnership is making large efforts to attract new service to SFB⁴.

According to Allegiant Air,⁵ the Airport’s primary domestic passenger service carrier, 73 destination airports are available for connection to/from SFB as of February 2020. Allegiant’s connections have historically accounted for over 90 percent of the Airport’s enplanements⁴. SFB has historically been successful catering to European charter operators bringing tourists to the Orlando area. SFB has international service through Thomson Airways (United Kingdom), TUI Airlines (Amsterdam), and Surinam (seasonal).

International traffic has been declining at SFB since the early 2000s, which can largely be attributed to the global economic recession beginning in late 2007. Prior to 2007, SFB had close to 500,000 international enplanements per year. The number has now stabilized at an average of 135,000 annual international enplanements for the last

⁴ Source: 2017 SFB Annual Report

⁵ Source: <https://www.allegiantair.com/> February 2020

five years (FY 2014-2018 based on SFB records). That level of international traffic highlights the importance and potential opportunity SFB has for growth and continued success. SFB is positioning to continue increasing its market share of Orlando area passenger traffic by maintaining relationships with air carriers and highlighting SFB's strengths of convenience and low costs. In addition, SAA recently developed ground transportation services that offer easy access to local attractions.

3.3. Forecast Methodology

Projecting aviation demand is a critical step in the overall airport master planning process, as it informs the magnitude and general timing of future facility needs. Aviation activity is influenced by many factors at the local, regional, and national levels. The forecasts in this section consider these factors, utilizing multiple forecasting techniques based on the historical activity statistics through FY 2017, while also incorporating near-term plans from key airport stakeholders.

The Federal Aviation Administration (FAA) Terminal Area Forecast (TAF) for SFB for 2018 – 2045 assumes an unconstrained demand for aviation services based upon local and national economic conditions, as well as aviation industry trends. In other words, for purposes of estimating future demand, the forecasts assume airport facilities and airspace can be provided to meet the expected demand.

The Master Plan forecasts utilize historical relationships between activity measures (enplanements, operations, and based aircraft), as well as local and national factors that influence aviation activity. Forecasts for each element are reviewed for reasonableness and in the context of specific historical events that may have influenced airport activity. If a specific forecast technique deviated significantly from the other techniques due to known anomalies in the historical data, then that particular forecast was not included in the determination of the preferred forecast. In addition, once a long-term forecasted growth rate was determined, the year-to-year growth rates were adjusted (not constant throughout) to reflect specific known near-term growth plans, while maintaining the overall AAGR for the 20-year period.

The methods utilized to forecast each activity measure included trend line analysis, regression analysis, and market share analysis. These FAA-supported methods have been applied to develop the most accurate long-term forecasts possible for SFB through FY 2037 and are discussed in detail below.

3.4. Passenger Enplanements

The future level of passenger enplanements at SFB will help to define airside, terminal, and landside facility needs. Passenger aircraft operations are determined by the expected enplanement demand and aircraft fleet characteristics, including average seating capacities and assumed load factors.

The FAA's TAF separates enplanements for air carriers and commuters. Air carrier enplanements include scheduled and non-scheduled domestic and international passengers on U.S. commercial and foreign flag carriers. Commuter enplanements include connecting passenger enplanements carried by regional airlines to feed mainline carriers. The total number of enplanements was forecasted for air carriers, as this is the majority of passenger traffic generated at SFB.

As outlined in the 2018 SFB Gate Needs Study⁶, the TAF has understated enplanements when compared to detailed monthly airport operational reports:

- 2018 SFB Gate Needs Study – enplanements in the detailed airport operational reports were, on average, 5.0 percent higher than the 2017 TAF for FY 2012-2016
- 2018 TAF and SAA Statistics – enplanements in the detailed airport operational reports were, on average, 4.1 percent higher than the 2018 TAF for FY 2013-2017

According to the SAA, the FAA had recently reviewed the 2018 Gate Needs Study and had accepted the SAA enplanement counts, which are higher than the TAF. This was confirmed by the FAA staff in the kick-off meeting for the Master Plan. To account for this understatement, all of the Master Plan enplanement forecasts utilize the latest 2018 TAF enplanement actuals from FY 2007 through FY 2017 with an adjustment of +4.1 percent, based on the latest five-year average difference from the detailed airport reports (see **Table 3-6: TAF vs. SAA Historical Enplanements – Five Year Average Difference**). The various analytical techniques applied to forecast total enplanements are described below.

⁶ Source: *Orlando Sanford International Airport Gate Needs Study, August 2018*

Table 3-6: TAF vs. SAA Historical Enplanements – Five Year Average Difference

Year	SAA Domestic	SAA International	SAA Total Enplanements	TAF Enplanements	Difference vs. TAF
2013	775,471	213,427	988,898	944,086	4.7%
2014	894,980	137,346	1,032,326	979,332	5.4%
2015	1,063,603	129,228	1,192,831	1,134,834	5.1%
2016	1,194,994	140,885	1,335,879	1,296,262	3.1%
2017	1,264,237	144,895	1,409,132	1,379,787	2.1%
Five Year Average Difference (2013-2017)					4.1%

Sources: FAA Terminal Area Forecast dated February 2019 (FY 2007-2017), SAA published statistics; analysis by Jacobsen|Daniels, 2019

3.4.1. Enplanement Trend Line Analysis

Trend line analysis examines historical growth trends in activity and applies these trends to current demand levels to produce future activity projections. This forecast methodology assumes that the factors that influence aviation activity in the past will remain the same in the future. Linear trend projections are typically used to provide baseline forecasts that reflect stable market conditions. The two historical time periods used for this forecast approach are as follows:

- Five-year historical data from FY 2012 to 2017
- Ten-year historical data from FY 2007 to 2017

As shown in **Table 3-7: Enplanement Trend Analysis**, the enplanement trend analysis uses the compound annual growth rates based on the five and ten-year historical periods and projects enplanements forward to FY 2037 at the respective rates. The compound annual growth rate for the five-year period from FY 2012 through FY 2017 is 10.6 percent. This growth rate was projected into the future resulting in passenger enplanements growing to 10,783,572 enplanements by FY 2037. The compound annual growth rate for the last ten years, FY 2007 to FY 2017, is 3.6 percent. Projected forward, this compound annual growth rate would result in 2,885,896 passenger enplanements in FY 2037. Based on discussion with SFB and OSI, Inc., the five-year trend is not representative of long-term growth as it followed a period in which commercial service by Allegiant was reinstated and experienced several years of rapid growth.

Table 3-7: Enplanement Trend Analysis

Year	Adjusted TAF Enplanements	5-Year Trend Analysis	10-Year Trend Analysis
2007	1,013,195	-	-
2008	1,018,048	-	-
2009	853,536	-	-
2010	618,359	-	-
2011	722,735	-	-
2012	867,635	-	-
2013	982,702	-	-
2014	1,019,390	-	-
2015	1,181,252	-	-
2016	1,349,283	-	-
2017	1,436,224	-	-
2018	-	1,588,544	1,487,220
2019	-	1,757,018	1,540,026
2020	-	1,943,360	1,594,708
2021	-	2,149,465	1,651,330
2022	-	2,377,428	1,709,964
2023	-	2,629,568	1,770,679
2024	-	2,908,449	1,833,550
2025	-	3,216,906	1,898,653
2026	-	3,558,078	1,966,068
2027	-	3,935,432	2,035,877
2028	-	4,352,808	2,108,164
2029	-	4,814,448	2,183,018
2030	-	5,325,048	2,260,530
2031	-	5,889,800	2,340,794
2032	-	6,514,447	2,423,908
2033	-	7,205,341	2,509,973
2034	-	7,969,509	2,599,094
2035	-	8,814,721	2,691,379
2036	-	9,749,573	2,786,941
2037	-	10,783,572	2,885,896
Compound Annual Growth Rates (2017-2037)		10.6%	3.6%
5-Year CAGR (2012-2017)		10.6%	-
10-Year CAGR (2007-2017)		3.6%	-

Source: FAA Terminal Area Forecast dated February 2019 (FY 2007-2017); analysis by Jacobsen|Daniels, 2019

3.4.2. Enplanement Regression Analysis

Regression analysis is a statistical technique for estimating relationships between variables. It determines correlations between independent, or known, variables and dependent variables. The coefficient of determination (r^2) is a statistical measure showing the extent to which there is a relationship between the two variables. The closer the r^2 value is to 1.0, the higher the confidence is that a change in the independent variable will translate into a change in the dependent variable. As a rule of thumb, an r^2 value over 0.90 carries a strong statistical correlation.

The socioeconomic trends of the surrounding community are factors that can affect expected aviation activity at an airport. Population, employment and earnings statistics provide indications of the community's ability to support aviation activities and of the underlying level of demand for aviation services. The regression analysis examines the relationship between the independent variables of population, employment, and per capita income and the dependent variable of enplanements. Future enplanements are projected based upon the actual and projected correlation between historical enplanements and the socioeconomic statistics for the Market Area.

The historical and forecast of socioeconomic data were obtained from Woods and Poole Economics, Inc. The results of the various regression analyses are described below and shown in **Table 3-8: Enplanement Regression Analysis**.

- **Population Regression:** Using population as the basis for the regression analysis, total enplaned passengers are forecast to increase from 1,436,224 in FY 2017 to 3,120,670 in FY 2037 resulting in a compound annual growth rate of 4.0 percent. The r^2 value for this regression analysis is 0.75.
- **Employment Regression:** Using employment as the basis for the regression analysis, total enplaned passengers are forecast to increase from 1,436,224 in FY 2017 to 2,951,037 in FY 2037 resulting in a compound annual growth rate of 3.7 percent. The r^2 value for this regression analysis is 0.91.
- **Per Capita Income Regression:** Using per capita income as the basis for the regression analysis, total enplaned passengers are forecast to increase from 1,436,224 in FY 2017 to 6,436,970 in FY 2037 resulting in a compound annual growth rate of 7.8 percent. The r^2 value for this regression analysis is 0.80.

Overall, the regression analysis methodology resulted in correlations at or below 0.90, with the employment regression at the highest correlation. Therefore, the results of the regression analysis were not considered for the preferred forecast.

Table 3-8: Enplanement Regression Analysis

Year	Adjusted TAF Enplanements	Population (thousands)	Employment (thousands)	Per Capita Income	Enplanements – Population	Enplanements – Employment	Enplanements – Per Capita
2008	1,018,048	3,221	1,847	34,759	-	-	-
2009	853,536	3,243	1,763	32,828	-	-	-
2010	618,359	3,274	1,753	33,844	-	-	-
2011	722,735	3,312	1,800	35,297	-	-	-
2012	867,635	3,370	1,844	35,647	-	-	-
2013	982,702	3,422	1,889	35,919	-	-	-
2014	1,019,390	3,491	1,965	37,476	-	-	-
2015	1,181,252	3,573	2,047	39,478	-	-	-
2016	1,349,283	3,658	2,125	40,220	-	-	-
2017	1,436,224	3,715	2,207	41,766	-	-	-
2018	-	3,776	2,264	43,342	1,449,897	1,542,509	1,531,173
2019	-	3,838	2,314	44,951	1,529,092	1,620,585	1,659,067
2020	-	3,901	2,359	46,660	1,609,500	1,692,571	1,794,994
2021	-	3,965	2,407	48,506	1,691,140	1,768,193	1,941,778
2022	-	4,030	2,456	50,560	1,774,024	1,846,061	2,105,125
2023	-	4,096	2,502	52,809	1,858,106	1,918,749	2,283,905
2024	-	4,163	2,549	55,249	1,943,431	1,992,659	2,477,925
2025	-	4,231	2,597	57,913	2,029,846	2,068,170	2,689,749
2026	-	4,299	2,645	60,772	2,117,296	2,145,016	2,917,061
2027	-	4,368	2,694	63,818	2,205,774	2,221,706	3,159,246
2028	-	4,438	2,742	67,068	2,295,161	2,297,708	3,417,638
2029	-	4,509	2,790	70,521	2,385,555	2,373,745	3,692,265
2030	-	4,581	2,838	74,158	2,476,906	2,449,526	3,981,389

Year	Adjusted TAF Enplanements	Population (thousands)	Employment (thousands)	Per Capita Income	Enplanements – Population	Enplanements – Employment	Enplanements – Per Capita
2031	-	4,652	2,886	77,943	2,568,456	2,524,581	4,282,329
2032	-	4,724	2,932	81,903	2,660,012	2,598,303	4,597,228
2033	-	4,796	2,978	86,067	2,751,749	2,670,753	4,928,358
2034	-	4,868	3,023	90,454	2,843,649	2,742,223	5,277,114
2035	-	4,940	3,068	95,122	2,935,728	2,812,707	5,648,329
2036	-	5,012	3,112	100,000	3,028,060	2,882,217	6,036,148
2037	-	5,085	3,155	105,041	3,120,670	2,951,037	6,436,970
Compound Annual Growth Rates							
-	-	-	-	-	4.0%	3.7%	7.8%
Coefficient of Determination							
-	-	0.75	0.91	0.80	-	-	-

Source: FAA Terminal Area Forecast dated February 2019 (FY 2007-2017), Woods and Poole Economics 2018; analysis by Jacobsen|Daniels, 2019

3.4.3. Enplanement Market Share Analysis

The market share analysis methodology is a top-down approach to forecast aviation activity based on SFB’s historical share of the state, region, and national markets. This approach assumes the growth in activity at SFB will be proportionate to the growth in activity of the state, region, and nation. As market shares are held constant over the forecast period, the resulting increases in the activity will be in line with the growth rates established in the FAA’s Aerospace Forecasts and TAF for each market. Once a market share projection is developed, the share can increase or decrease to reflect more recent historical trends, resulting in growth rates for SFB that are either higher or lower than the FAA’s forecasts for each market. For this forecast, the 2017 market share percentage was applied and then we adjusted the market share to reflect the 10-year historical trend projected out for the 20-year planning period. The results of the market share analysis are shown in **Table 3-9: Enplanement Market Share Analysis** and described below.

- **SFB and the State of Florida:** The historical SFB’s share of enplaned passengers for the State of Florida has increased slightly over the past 10 years, from 1.5 percent in FY 2007 to 1.7 percent in FY 2017. Applying the FY 2017 market share (1.7 percent), total enplanements are projected to reach 2,433,872 in FY 2037, for a compound annual growth rate of 2.7 percent. Considering the 10-year historical increase in market share of 0.26 percentage points and projecting that out for 20 years, suggests the market share would increase by 0.51 percentage points to 2.2 percent. Applying the increased share (2.2 percent), yields total enplanements in 2037 of 3,157,750 and a compound annual growth rate of 4.0 percent.
- **SFB and the Southern Region:** The historical SFB’s share of enplaned passengers for the Southern Region⁷ has increased slightly over the past 10 years, from 0.6 percent in FY 2007 to 0.7 percent in FY 2017. Applying the FY 2017 market share (0.7 percent), total enplanements are projected to reach 2,295,440 in FY 2037, a compound annual growth rate of 2.4 percent. Considering the 10-year historical increase in market share of 0.15 percentage points and projecting that out for 20 years suggests that the market share would increase by 0.30 percentage points to 1.0 percent. Applying the increased market share (1.0 percent) yields a total enplanement level of 3,217,421 in 2037 and a compound annual growth rate of 4.1 percent.
- **SFB and the U.S.:** The historical SFB’s share of enplaned passengers for the United States has increased slightly over the past 10 years, from 0.13 percent in FY 2007 to 0.17 percent in FY 2017. Applying the FY 2017 market share (0.17 percent), total enplanements are projected to reach 2,222,520 in FY 2037, a compound annual growth rate of 2.2 percent. Considering the 10-year historical increase in share of 0.04 percent and projecting that out for 20 years suggests that the market share would increase by 0.07 percent to 0.24 percent. Applying the increased market share (0.24 percent) yields a total enplanement level of to 3,158,595 in 2037 and a compound annual growth rate of 4.0 percent.

⁷ The Southern Region includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Puerto Rico, South Carolina, Tennessee, and the U.S. Virgin Islands.

Table 3-9: Enplanement Market Share Analysis

Year	Adjusted TAF Enplanements	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	State of Florida		Southern Region		U.S.	
								Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								1.7%	1.7% to 2.2%	0.7%	0.7% to 1.0%	0.17%	0.17% to 0.24%
2007	1,013,195	68,926,255	172,000,918	756,525,464	1.5%	0.6%	0.13%	-	-	-	-	-	-
2008	1,018,048	69,414,686	173,150,595	747,466,798	1.5%	0.6%	0.14%	-	-	-	-	-	-
2009	853,536	64,741,807	162,630,578	695,488,533	1.3%	0.5%	0.12%	-	-	-	-	-	-
2010	618,359	65,366,623	162,913,063	702,818,621	0.9%	0.4%	0.09%	-	-	-	-	-	-
2011	722,735	69,094,117	169,095,789	722,926,202	1.0%	0.4%	0.10%	-	-	-	-	-	-
2012	867,635	69,848,049	170,789,344	731,053,513	1.2%	0.5%	0.12%	-	-	-	-	-	-
2013	982,702	70,267,688	170,889,088	734,336,521	1.4%	0.6%	0.13%	-	-	-	-	-	-
2014	1,019,390	71,564,866	173,781,263	753,529,877	1.4%	0.6%	0.14%	-	-	-	-	-	-
2015	1,181,252	76,216,675	181,837,100	786,384,586	1.5%	0.6%	0.15%	-	-	-	-	-	-
2016	1,349,283	80,699,802	190,462,825	822,586,152	1.7%	0.7%	0.16%	-	-	-	-	-	-
2017	1,436,224	83,174,825	194,849,675	846,556,739	1.7%	0.7%	0.17%	-	-	-	-	-	-
2018	-	88,613,565	204,273,808	887,027,038	-	-	-	1,530,138	1,552,893	1,505,689	1,535,928	1,504,884	1,536,575
2019	-	94,025,879	216,942,841	927,374,941	-	-	-	1,623,595	1,671,884	1,599,072	1,663,300	1,573,336	1,639,602
2020	-	96,785,487	222,607,396	951,340,881	-	-	-	1,671,247	1,745,806	1,640,825	1,739,682	1,613,996	1,715,963
2021	-	99,461,185	227,952,572	973,596,970	-	-	-	1,717,450	1,819,610	1,680,224	1,815,199	1,651,754	1,790,891
2022	-	102,036,319	233,037,697	995,029,034	-	-	-	1,761,916	1,892,922	1,717,706	1,890,188	1,688,115	1,865,864
2023	-	104,547,880	237,989,622	1,015,797,464	-	-	-	1,805,284	1,966,362	1,754,206	1,965,583	1,723,349	1,941,100
2024	-	106,958,003	242,722,430	1,035,068,887	-	-	-	1,846,901	2,039,157	1,789,091	2,040,602	1,756,044	2,014,907
2025	-	109,339,992	247,416,821	1,054,043,471	-	-	-	1,888,032	2,112,646	1,823,693	2,116,694	1,788,236	2,089,501
2026	-	111,709,202	252,114,698	1,073,017,630	-	-	-	1,928,943	2,187,109	1,858,321	2,194,205	1,820,426	2,165,451
2027	-	114,165,732	257,002,543	1,092,560,588	-	-	-	1,971,361	2,264,520	1,894,349	2,274,789	1,853,582	2,243,925
2028	-	116,641,652	261,995,137	1,112,650,527	-	-	-	2,014,114	2,343,583	1,931,149	2,357,763	1,887,665	2,324,938
2029	-	119,189,062	267,145,661	1,133,320,175	-	-	-	2,058,102	2,425,371	1,969,113	2,443,659	1,922,732	2,408,619
2030	-	121,770,168	272,406,671	1,154,378,676	-	-	-	2,102,671	2,509,163	2,007,892	2,532,108	1,958,459	2,494,617
2031	-	124,440,111	277,821,287	1,175,949,046	-	-	-	2,148,774	2,596,133	2,047,803	2,623,564	1,995,054	2,583,245
2032	-	127,177,131	283,336,698	1,197,790,347	-	-	-	2,196,036	2,685,891	2,088,457	2,717,590	2,032,109	2,674,018
2033	-	129,918,933	288,868,822	1,219,740,641	-	-	-	2,243,380	2,777,157	2,129,233	2,813,412	2,069,349	2,766,599
2034	-	132,672,925	294,470,996	1,242,112,645	-	-	-	2,290,935	2,870,095	2,170,527	2,911,565	2,107,304	2,861,721
2035	-	135,412,005	300,066,191	1,264,545,129	-	-	-	2,338,232	2,964,121	2,211,769	3,011,305	2,145,362	2,958,582
2036	-	138,187,989	305,738,029	1,287,208,236	-	-	-	2,386,166	3,060,371	2,253,575	3,113,483	2,183,811	3,057,594
2037	-	140,950,756	311,417,713	1,310,024,370	-	-	-	2,433,872	3,157,750	2,295,440	3,217,421	2,222,520	3,158,595

Year	Adjusted TAF Enplanements	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	State of Florida		Southern Region		U.S.	
								Current Share	Increase Share	Current Share	Current Share	Increase Share	Current Share
								1.7%	1.7% to 2.2%	0.7%	1.7%	1.7% to 2.2%	0.7%
Compound Annual Growth Rates (2017-2037)													
-	-	2.7%	2.4%	2.2%	-	-	-	2.7%	4.0%	2.4%	4.1%	2.2%	4.0%
10-Yr Change in SFB Share (2007-2017)													
-	-	-	-	-	0.26%	0.15%	0.04%	-	-	-	-	-	-
Assumed 20-Yr Change in SFB Share (2017-2037)													
-	-	-	-	-	0.51%	0.30%	0.07%	-	-	-	-	-	-
SFB % Share													
-	-	-	-	-	-	-	-	1.7%	2.2%	0.7%	1.0%	0.17%	0.24%

Source: FAA Terminal Area Forecast dated February 2019, SAA records; analysis by Jacobsen|Daniels, 2019

3.4.4. Comparison of Enplaned Passenger Forecasts

Enplaned passenger forecasts developed using each of the methodologies described above are presented in **Table 3-10: Enplanement Forecast Comparison**.

Table 3-10: Enplanement Forecast Comparison

Year	Adjusted TAF Enplanements	Trend Analysis		Regression Analysis			Market Share - State of Florida		Market Share - Southern Region		Market Share -U.S.	
		5-Year Trend	10-Year Trend	Population	Employment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
							Florida	Florida	Southern	Southern	U.S.	U.S.
2007	1,013,195	-	-	-	-	-	-	-	-	-	-	-
2008	1,018,048	-	-	-	-	-	-	-	-	-	-	-
2009	853,536	-	-	-	-	-	-	-	-	-	-	-
2010	618,359	-	-	-	-	-	-	-	-	-	-	-
2011	722,735	-	-	-	-	-	-	-	-	-	-	-
2012	867,635	-	-	-	-	-	-	-	-	-	-	-
2013	982,702	-	-	-	-	-	-	-	-	-	-	-
2014	1,019,390	-	-	-	-	-	-	-	-	-	-	-
2015	1,181,252	-	-	-	-	-	-	-	-	-	-	-
2016	1,349,283	-	-	-	-	-	-	-	-	-	-	-
2017	1,436,224	-	-	-	-	-	-	-	-	-	-	-
2018	-	1,588,544	1,487,220	1,449,897	1,542,509	1,531,173	1,530,138	1,552,893	1,505,689	1,535,928	1,504,884	1,536,575
2019	-	1,757,018	1,540,026	1,529,092	1,620,585	1,659,067	1,623,595	1,671,884	1,599,072	1,663,300	1,573,336	1,639,602
2020	-	1,943,360	1,594,708	1,609,500	1,692,571	1,794,994	1,671,247	1,745,806	1,640,825	1,739,682	1,613,996	1,715,963
2021	-	2,149,465	1,651,330	1,691,140	1,768,193	1,941,778	1,717,450	1,819,610	1,680,224	1,815,199	1,651,754	1,790,891
2022	-	2,377,428	1,709,964	1,774,024	1,846,061	2,105,125	1,761,916	1,892,922	1,717,706	1,890,188	1,688,115	1,865,864
2023	-	2,629,568	1,770,679	1,858,106	1,918,749	2,283,905	1,805,284	1,966,362	1,754,206	1,965,583	1,723,349	1,941,100
2024	-	2,908,449	1,833,550	1,943,431	1,992,659	2,477,925	1,846,901	2,039,157	1,789,091	2,040,602	1,756,044	2,014,907
2025	-	3,216,906	1,898,653	2,029,846	2,068,170	2,689,749	1,888,032	2,112,646	1,823,693	2,116,694	1,788,236	2,089,501
2026	-	3,558,078	1,966,068	2,117,296	2,145,016	2,917,061	1,928,943	2,187,109	1,858,321	2,194,205	1,820,426	2,165,451
2027	-	3,935,432	2,035,877	2,205,774	2,221,706	3,159,246	1,971,361	2,264,520	1,894,349	2,274,789	1,853,582	2,243,925
2028	-	4,352,808	2,108,164	2,295,161	2,297,708	3,417,638	2,014,114	2,343,583	1,931,149	2,357,763	1,887,665	2,324,938
2029	-	4,814,448	2,183,018	2,385,555	2,373,745	3,692,265	2,058,102	2,425,371	1,969,113	2,443,659	1,922,732	2,408,619
2030	-	5,325,048	2,260,530	2,476,906	2,449,526	3,981,389	2,102,671	2,509,163	2,007,892	2,532,108	1,958,459	2,494,617
2031	-	5,889,800	2,340,794	2,568,456	2,524,581	4,282,329	2,148,774	2,596,133	2,047,803	2,623,564	1,995,054	2,583,245
2032	-	6,514,447	2,423,908	2,660,012	2,598,303	4,597,228	2,196,036	2,685,891	2,088,457	2,717,590	2,032,109	2,674,018
2033	-	7,205,341	2,509,973	2,751,749	2,670,753	4,928,358	2,243,380	2,777,157	2,129,233	2,813,412	2,069,349	2,766,599
2034	-	7,969,509	2,599,094	2,843,649	2,742,223	5,277,114	2,290,935	2,870,095	2,170,527	2,911,565	2,107,304	2,861,721
2035	-	8,814,721	2,691,379	2,935,728	2,812,707	5,648,329	2,338,232	2,964,121	2,211,769	3,011,305	2,145,362	2,958,582

Year	Adjusted TAF Enplanements	Trend Analysis		Regression Analysis			Market Share - State of Florida		Market Share - Southern Region		Market Share -U.S.		
		5-Year Trend	10-Year Trend	Population	Employment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share	
							Florida	Florida	Southern	Southern	U.S.	U.S.	
2036	-	9,749,573	2,786,941	3,028,060	2,882,217	6,036,148	2,386,166	3,060,371	2,253,575	3,113,483	2,183,811	3,057,594	
2037	-	10,783,572	2,885,896	3,120,670	2,951,037	6,436,970	2,433,872	3,157,750	2,295,440	3,217,421	2,222,520	3,158,595	
Compound Annual Growth Rates (2017-2037)													
-	-	10.6%	3.6%	4.0%	3.7%	7.8%	2.7%	4.0%	2.4%	4.1%	2.2%	4.0%	
											Average of All Forecast Techniques		4.5%
											Average of 10-Year Trend and Market Share Analysis		3.3%

Source: Jacobsen|Daniels, 2019

3.4.5. Preferred Enplanement Forecasts

The forecasts outlined in the previous sections detail multiple growth scenarios based on trend, market share and regression analysis. This section identifies a preferred enplaned passenger forecast to be used in further analysis of operations and peak activity forecast components.

Table 3-11: Preferred Enplanement Forecast Comparison – Domestic and International Split presents the preferred enplanement forecast for SFB. The preferred forecast is a composite forecast based on the average of the 10-year trend analysis and market share analysis forecasts. The 5-year trend was not included as part of the composite forecast as it is not representative of long-term growth given commercial service was quickly reinstated from a temporary reduction. This is largely attributed to Allegiant returning operations to SFB after moving to Orlando International for a few years. The regression analysis forecasts were not included as correlations were below 0.90.

This composite forecast provides a long-term growth rate for enplanements at SFB of 3.3 percent from FY 2017 to 2037, which is slightly higher than the 2018 FAA TAF growth rate of 2.4 percent, although within the five- and ten-year variance thresholds of 10 percent and 15 percent, respectively. Total enplanements are projected to reach 2,747,325 in FY 2037.

In addition, based on discussion with the SAA, it was assumed that the enplanements would not grow at a constant rate but would grow faster in the near-term and slightly slower in the long-term. To reflect this, the proposed forecast applies an assumed 5.0 percent near-term enplanement growth rate for FY 2017-2020 based on guidance received regarding expected air carrier growth. A 3.0 percent growth rate is then applied from 2020-2037. This results in the overall compound annual growth rate of 3.3 percent over the 20-year period. The utilization of a higher annual growth rate in the near-term aligns with the 2018 FAA TAF forecast, which shows a 4.5 percent compound annual growth rate for FY 2017-2020 and a 2.0 percent compound annual growth rate for FY 2020-37.

The determination of domestic and international enplanements is based on the five-year historical average for domestic vs. international percentages sourced from the SAA enplanement records. The breakdown is presented in **Table 3-11: Preferred Enplanement Forecast Comparison – Domestic and International Split**.

Table 3-11: Preferred Enplanement Forecast Comparison – Domestic and International Split

Year	Domestic	International	Total Enplanements	2018 FAA TAF	% Difference vs TAF
2017	1,283,646	152,578	1,436,224	1,379,787	4.1%
2018	1,347,829	160,207	1,508,036	1,486,519	1.4%
2019	1,415,220	168,217	1,583,437	1,546,129	2.4%
2020	1,485,981	176,628	1,662,609	1,575,023	5.6%
2021	1,530,537	181,924	1,712,461	1,606,000	6.6%
2022	1,576,429	187,379	1,763,808	1,639,456	7.6%
2023	1,623,697	192,997	1,816,695	1,672,425	8.6%
2024	1,672,382	198,784	1,871,167	1,704,590	9.8%
2025	1,722,528	204,745	1,927,272	1,736,221	11.0%
2026	1,774,176	210,884	1,985,060	1,768,045	12.3%
2027	1,827,374	217,207	2,044,581	1,802,115	13.5%
2028	1,882,166	223,720	2,105,886	1,837,192	14.6%
2029	1,938,601	230,428	2,169,029	1,874,670	15.7%
2030	1,996,729	237,337	2,234,066	1,912,733	16.8%
2031	2,056,599	244,453	2,301,053	1,952,796	17.8%
2032	2,118,265	251,783	2,370,048	1,994,221	18.8%
2033	2,181,779	259,333	2,441,112	2,035,943	19.9%
2034	2,247,198	267,109	2,514,307	2,077,965	21.0%
2035	2,314,579	275,118	2,589,697	2,119,783	22.2%
2036	2,383,980	283,367	2,667,347	2,162,459	23.3%
2037	2,455,462	291,863	2,747,325	2,204,897	24.6%
Compound Annual Growth Rates					
2017-2020	-	-	5.0%	4.5%	-
2020-2037	-	-	3.0%	2.0%	-
2017-2037	-	-	3.3%	2.4%	-

Notes: Difference in enplanements for FY 2017 accounts for the 4.1 percent discrepancy in 2017 discussed in previous sections. Domestic and International enplanements split based on five-year historical average of 89.4 percent domestic and 10.6 percent international

Source: FAA Terminal Area Forecast dated February 2019, SAA records, analysis by Jacobsen|Daniels, 2019

3.5. Based Aircraft Forecast and Fleet Mix

Typically, the number of based aircraft are related to the GA activity in the area, the local demand for aircraft storage facilities, the amenities provided by SFB, and the capacity of other airports in the vicinity with comparable facilities. A projection of GA aircraft that will be based at SFB is required for the proper planning of future airside and landside requirements, such as runway usage, aircraft parking apron, and the number of hangars needed.

Table 3-12: Historical Based Aircraft presents historical based aircraft at SFB. The historical based aircraft data was obtained from the FAA’s 2018 TAF. As shown, the number of based aircraft at SFB fluctuated from a low of 309 in FY 2007, peaking in 2009 at 380 before dropping again then rising to 350 in FY 2017. Similar to the enplanement forecast, three types of forecasts were developed for the based aircraft including trend line, regression and market share analyses, and are summarized in the following sections.

Table 3-12: Historical Based Aircraft

Year	Based Aircraft
2007	309
2008	372
2009	380
2010	368
2011	364
2012	333
2013	330
2014	344
2015	323
2016	350
2017	350

Source: *FAA Terminal Area Forecast* dated February 2019; analysis by Jacobsen|Daniels, 2019

3.5.1. Based Aircraft Trend Line Analysis

As shown in **Table 3-13: Based Aircraft Trend Analysis**, based aircraft at SFB grew at a compound annual growth rate of 1.3 percent from FY 2007 to FY 2017 and 1.0 percent from FY 2012 to FY 2017. Projecting these trends throughout the planning period results in total based aircraft in FY 2037 of 427 and 449 based on the 5-year and 10-year growth trends, respectively.

Table 3-13: Based Aircraft Trend Analysis

Year	2018 TAF Based Aircraft	5-Year Trend Analysis	10-Year Trend Analysis
2007	309	-	-
2008	372	-	-
2009	380	-	-
2010	368	-	-
2011	364	-	-
2012	333	-	-
2013	330	-	-
2014	344	-	-
2015	323	-	-
2016	350	-	-
2017	350	-	-
2018	354	354	354
2019	359	357	359
2020	364	361	363
2021	368	364	368
2022	373	368	372
2023	378	372	377
2024	382	375	382
2025	387	379	387
2026	392	383	392
2027	398	387	396
2028	404	391	401
2029	410	394	406
2030	416	398	412
2031	422	402	417
2032	428	406	422
2033	434	410	427
2034	440	415	433
2035	446	419	438
2036	452	423	443
2037	459	427	449
Compound Annual Growth Rates (2017-2037)		1.0%	1.3%
5-Year CAGR (2012-2017)		1.0%	-
10-Year CAGR (2007-2017)		1.3%	-

Source: FAA Terminal Area Forecast dated February 2019 and analysis by Jacobsen|Daniels, 2019

3.5.2. Based Aircraft Regression Analysis

The regression modelling is based on demographic elements from the SFB Market Area discussed earlier in this chapter. This analysis regressed individual elements of population, employment, earnings, and per capita income from historical data compared to the number of based aircraft to determine if a positive relationship existed that could serve as the basis for a forecast. The socioeconomic variables of population, employment, and per capital income, produced r^2 values of 0.34, 0.22 and 0.30, respectively. Overall, the regression methodology resulted in low correlation coefficients across all categories and was not selected as the preferred forecast for based aircraft.

Table 3-14: Based Aircraft Regression Analysis depicts the forecast of based aircraft resulting from the regression analysis.

Table 3-14: Based Aircraft Regression Analysis

Year	Based Aircraft	Population	Employment	Per Capita Income	Based Aircraft – Population	Based Aircraft – Employment	Based Aircraft – Per Capita Income
2008	372	3,221	1,847	34,759	-	-	-
2009	380	3,243	1,763	32,828	-	-	-
2010	368	3,274	1,753	33,844	-	-	-
2011	364	3,312	1,800	35,297	-	-	-
2012	333	3,370	1,844	35,647	-	-	-
2013	330	3,422	1,889	35,919	-	-	-
2014	344	3,491	1,965	37,476	-	-	-
2015	323	3,573	2,047	39,478	-	-	-
2016	350	3,658	2,125	40,220	-	-	-
2017	350	3,715	2,207	41,766	-	-	-
2018	-	3,776	2,264	43,342	329	332	328
2019	-	3,838	2,314	44,951	325	329	322
2020	-	3,901	2,359	46,660	321	326	316
2021	-	3,965	2,407	48,506	317	323	309
2022	-	4,030	2,456	50,560	313	320	302
2023	-	4,096	2,502	52,809	309	318	294
2024	-	4,163	2,549	55,249	305	315	285
2025	-	4,231	2,597	57,913	300	312	275
2026	-	4,299	2,645	60,772	296	309	265
2027	-	4,368	2,694	63,818	292	307	254
2028	-	4,438	2,742	67,068	287	304	242
2029	-	4,509	2,790	70,521	283	301	230
2030	-	4,581	2,838	74,158	278	298	217

Year	Based Aircraft	Population	Employment	Per Capita Income	Based Aircraft – Population	Based Aircraft – Employment	Based Aircraft – Per Capita Income
2031	-	4,652	2,886	77,943	274	296	203
2032	-	4,724	2,932	81,903	269	293	189
2033	-	4,796	2,978	86,067	264	290	174
2034	-	4,868	3,023	90,454	260	288	158
2035	-	4,940	3,068	95,122	255	285	142
2036	-	5,012	3,112	100,000	251	282	124
2037	-	5,085	3,155	105,041	246	280	106
Compound Annual Growth Rates (2017-2037)		-	-	-	-1.7%	-1.1%	-5.8%
Coefficient of Determination		0.34	0.22	0.30	-	-	-

Source: FAA Terminal Area Forecast dated February 2019, Woods and Poole Economics 2018; analysis by Jacobsen|Daniels, 2019

3.5.3. Based Aircraft Market Share Analysis

Two market share percentages were applied for the based aircraft market share forecast including the 2017 market share percentage and the market share percentage reflecting the 10-year historical trend projected out for 20 years. The results of the market share analysis are shown in **Table 3-15: Based Aircraft Market Share Analysis** and is described in the following paragraphs.

- **SFB and the State of Florida:** SFB's historical share of based aircraft for the State of Florida has fluctuated during the past 10 years. Applying the FY 2017 ratio (3.0 percent) to the State of Florida TAF based aircraft projections yields a total based aircraft projection of 457 for SFB by FY 2037. This results in a compound annual growth rate of 1.3 percent. Considering the 10-year historical increase in market share of 0.7 percent and projecting that out for 20 years, suggests the market share would increase by 1.4 percentage points to 4.4 percent. Applying the increased market share (4.4 percent) results in a total based aircraft projection of 662 by FY 2037 and a compound annual growth rate of 3.2 percent.
- **SFB and the Southern Region:** SFB's historical share of based aircraft for the Southern Region has fluctuated slightly during the past 10 years. Applying the FY 2017 ratio (1.1 percent) yields a total based aircraft at SFB projection of 415 by FY 2037, and a compound annual growth rate of 0.9 percent. Considering the 10-year historical increase in market share of 0.25 percent and projecting that out for 20 years, suggests the market share would increase by 0.5 percentage points to 1.6 percent. Applying the increased market share (1.6 percent) to the 2018 TAF for the Southern Region yields a total based aircraft projection of 601 by FY 2037. This suggests a compound annual growth rate of 2.7 percent.
- **SFB and the U.S.:** SFB's historical share of based aircraft for the entire U.S. has also fluctuated during the last 10 years. Applying the FY 2017 ratio (0.21 percent) generates an SFB based aircraft total of 411 by FY 2037, a compound annual growth rate of 0.8 percent. Considering the historical 10-year increase in market share of 0.05 percent and projecting that out for 20 years, suggests the market share will increase by 0.11 percentage points to 0.32 percent. Applying this increased market share (0.32 percent) to the 2018 TAF for the U.S. yields a based aircraft projection of 624 by FY 2037, with a compound annual growth rate of 2.9 percent.

Table 3-15: Based Aircraft Market Share Analysis

Year	SFB TAF and SAA Stats	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	State of Florida		Southern Region		U.S.	
								Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								3.0%	3.0% to 4.4%	1.1%	1.1% to 1.6%	0.21%	0.21% to 0.32%
2007	309	13,170	36,262	199,461	2.3%	0.9%	0.15%	-	-	-	-	-	-
2008	372	11,238	32,448	175,453	3.3%	1.1%	0.21%	-	-	-	-	-	-
2009	380	10,624	32,639	177,310	3.6%	1.2%	0.21%	-	-	-	-	-	-
2010	368	10,931	30,834	165,396	3.4%	1.2%	0.22%	-	-	-	-	-	-
2011	364	10,832	29,258	160,333	3.4%	1.2%	0.23%	-	-	-	-	-	-
2012	333	11,292	30,175	163,260	2.9%	1.1%	0.20%	-	-	-	-	-	-
2013	330	11,554	31,136	166,878	2.9%	1.1%	0.20%	-	-	-	-	-	-
2014	344	11,838	32,163	170,313	2.9%	1.1%	0.20%	-	-	-	-	-	-
2015	323	11,360	30,798	163,959	2.8%	1.0%	0.20%	-	-	-	-	-	-
2016	350	11,998	33,047	173,860	2.9%	1.1%	0.20%	-	-	-	-	-	-
2017	350	11,570	31,875	167,140	3.0%	1.1%	0.21%	-	-	-	-	-	-
2018	-	11,722	32,141	168,615	-	-	-	355	363	353	361	353	362
2019	-	11,884	32,436	169,988	-	-	-	359	376	356	372	356	374
2020	-	12,044	32,692	171,326	-	-	-	364	389	359	383	359	387
2021	-	12,213	32,972	172,784	-	-	-	369	403	362	394	362	399
2022	-	12,391	33,262	174,212	-	-	-	375	417	365	406	365	412
2023	-	12,575	33,564	175,758	-	-	-	380	432	369	418	368	426
2024	-	12,750	33,880	177,194	-	-	-	386	446	372	430	371	439
2025	-	12,919	34,152	178,582	-	-	-	391	461	375	442	374	452
2026	-	13,090	34,427	179,958	-	-	-	396	476	378	454	377	465
2027	-	13,265	34,712	181,373	-	-	-	401	491	381	467	380	479
2028	-	13,439	35,004	182,784	-	-	-	407	507	384	479	383	492
2029	-	13,620	35,305	184,218	-	-	-	412	523	388	492	386	506
2030	-	13,802	35,603	185,681	-	-	-	418	539	391	505	389	520
2031	-	13,982	35,925	187,129	-	-	-	423	556	394	518	392	535
2032	-	14,163	36,222	188,578	-	-	-	428	573	398	531	395	549
2033	-	14,347	36,519	190,035	-	-	-	434	590	401	545	398	564
2034	-	14,534	36,832	191,531	-	-	-	440	607	404	558	401	578
2035	-	14,725	37,136	193,033	-	-	-	445	625	408	572	404	594
2036	-	14,916	37,484	194,592	-	-	-	451	644	412	587	407	609
2037	-	15,116	37,800	196,134	-	-	-	457	662	415	601	411	624

Year	SFB TAF and SAA Stats	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	State of Florida		Southern Region		U.S.	
								Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								3.0%	3.0% to 4.4%	1.1%	1.1% to 1.6%	0.21%	0.21% to 0.32%
Compound Annual Growth Rates (2017-2037)													
-	-	1.1%	0.6%	0.6%	-	-	-	1.3%	3.2%	0.9%	2.7%	0.8%	2.9%
10-Yr Change in SFB Share (2007-2017)													
-	-	-	-	-	0.7%	0.25%	0.05%	-	-	-	-	-	-
Assumed 20-Yr Change in SFB Share (2017-2037)													
-	-	-	-	-	1.4%	0.5%	0.11%	-	-	-	-	-	-
SFB % Share													
-	-	-	-	-	-	-	-	3.0%	4.4%	1.1%	1.6%	0.21%	0.32%

Source: FAA Terminal Area Forecast dated February 2019; analysis by Jacobsen|Daniels, 2019

3.5.4. Comparison of Based Aircraft Forecasts

The based aircraft forecasts developed using each of the methodologies described above are presented in **Table 3-16: Based Aircraft Forecast Comparison**.

Table 3-16: Based Aircraft Forecast Comparison

Year	2018 FAA TAF	Trend Analysis		Regression Analysis			Market Share of State of Florida		Market Share of Southern Region		Market Share of U.S.	
		5-Year Trend	10-Year Trend	Popula- tion	Employ- ment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
							Florida	Florida	Southern	Southern	U.S.	U.S.
2007	309	-	-	-	-	-	-	-	-	-	-	-
2008	372	-	-	-	-	-	-	-	-	-	-	-
2009	380	-	-	-	-	-	-	-	-	-	-	-
2010	368	-	-	-	-	-	-	-	-	-	-	-
2011	364	-	-	-	-	-	-	-	-	-	-	-
2012	333	-	-	-	-	-	-	-	-	-	-	-
2013	330	-	-	-	-	-	-	-	-	-	-	-
2014	344	-	-	-	-	-	-	-	-	-	-	-
2015	323	-	-	-	-	-	-	-	-	-	-	-
2016	350	-	-	-	-	-	-	-	-	-	-	-
2017	350	-	-	-	-	-	-	-	-	-	-	-
2018	354	354	354	329	332	328	355	363	353	361	353	362
2019	359	357	359	325	329	322	359	376	356	372	356	374
2020	364	361	363	321	326	316	364	389	359	383	359	387
2021	368	364	368	317	323	309	369	403	362	394	362	399
2022	373	368	372	313	320	302	375	417	365	406	365	412
2023	378	372	377	309	318	294	380	432	369	418	368	426
2024	382	375	382	305	315	285	386	446	372	430	371	439

Year	2018 FAA TAF	Trend Analysis		Regression Analysis			Market Share of State of Florida		Market Share of Southern Region		Market Share of U.S.	
		5-Year Trend	10-Year Trend	Popula- tion	Employ- ment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
							Florida	Florida	Southern	Southern	U.S.	U.S.
2025	387	379	387	300	312	275	391	461	375	442	374	452
2026	392	383	392	296	309	265	396	476	378	454	377	465
2027	398	387	396	292	307	254	401	491	381	467	380	479
2028	404	391	401	287	304	242	407	507	384	479	383	492
2029	410	394	406	283	301	230	412	523	388	492	386	506
2030	416	398	412	278	298	217	418	539	391	505	389	520
2031	422	402	417	274	296	203	423	556	394	518	392	535
2032	428	406	422	269	293	189	428	573	398	531	395	549
2033	434	410	427	264	290	174	434	590	401	545	398	564
2034	440	415	433	260	288	158	440	607	404	558	401	578
2035	446	419	438	255	285	142	445	625	408	572	404	594
2036	452	423	443	251	282	124	451	644	412	587	407	609
2037	459	427	449	246	280	106	457	662	415	601	411	624
Compound Annual Growth Rates (2017-2037)												
-	1.4%	1.0%	1.3%	-1.7%	-1.1%	-5.8%	1.3%	3.2%	0.9%	2.7%	0.8%	2.9%
Average of All Forecast Techniques												0.5%
Average of All Forecast Techniques excluding Regression Analysis												1.8%

Source: Jacobsen|Daniels, 2019

3.5.5. Preferred Based Aircraft Forecast

To select the preferred forecast of based aircraft, the various forecasts were reviewed and evaluated to determine how they compare to the expected growth at SFB. The selected based aircraft forecast is the best representation of what is expected to occur at SFB.

The preferred forecast, as presented in **Table 3-17: Preferred Based Aircraft Forecast**, is a composite forecast based on the average of all forecast techniques except the regression analysis due to the low correlations. This results in a long-term growth rate (FY 2017-2037) for based aircraft of 1.8 percent, slightly higher than the 2018 FAA TAF growth rate of 1.4 percent for the same period. The preferred forecast accounts for the anticipated growth from L3 Harris Airline Academy. By taking the SFB's current based aircraft counts and increasing L3 Harris Airline Academy's count to 125 as planned for 2019, the result is 361 based aircraft, which is in line with the forecast's 362 based aircraft for 2019.

Table 3-18: Preferred Based Aircraft Fleet Mix Forecast presents SFB's current based aircraft counts by aircraft type, and the forecast of based aircraft by type. The expected fleet mix (FY 2019) is identified by aircraft class: single-engine piston, multi-engine piston, jet aircraft, helicopters, and turbo-prop. This information is also sourced from SFB tenants. The estimated distribution of based aircraft for the base year is assumed to be constant through the planning period.

Table 3-17: Preferred Based Aircraft Forecast

Year	Total	2018 TAF	% Difference vs TAF
2017	350	350	-
2018	356	354	0.6%
2019	362	359	0.8%
2020	368	364	1.1%
2021	375	368	1.9%
2022	382	373	2.4%
2023	389	378	2.9%
2024	396	382	3.7%
2025	403	387	4.1%
2026	410	392	4.6%
2027	417	398	4.8%
2028	424	404	5.0%
2029	432	410	5.4%
2030	440	416	5.8%
2031	448	422	6.2%
2032	456	428	6.5%
2033	464	434	6.9%
2034	472	440	7.3%
2035	480	446	7.6%
2036	489	452	8.2%
2037	498	459	8.5%
AAGR (2017-2037)	1.8%	1.4%	-

Source: FAA Terminal Area Forecast dated February 2019, SAA records, and analysis by Jacobsen|Daniels, 2019.

Table 3-18: Preferred Based Aircraft Fleet Mix Forecast

Year	Single-Engine	Multi-Engine	TurboProp	Helicopter	Jet	Total
2017	223	47	14	6	60	350
2018	227	48	14	6	61	356
2019	231	49	15	6	61	362
2020	235	50	15	6	62	368
2021	239	51	15	6	64	375
2022	244	52	15	7	64	382
2023	248	53	16	7	65	389
2024	253	53	16	7	67	396
2025	257	54	16	7	69	403
2026	262	55	16	7	70	410
2027	266	56	17	7	71	417
2028	270	57	17	7	73	424
2029	276	58	17	7	74	432
2030	281	59	18	8	74	440
2031	286	61	18	8	75	448
2032	291	62	18	8	77	456
2033	296	63	19	8	78	464
2034	301	64	19	8	80	472
2035	306	65	19	8	82	480
2036	312	66	20	8	83	489
2037	318	67	20	9	84	498
% of Fleet	63.8%	13.5%	4.0%	1.7%	17.0%	100%

Source: FAA Terminal Area Forecast dated February 2019, SAA records; analysis by Jacobsen|Daniels, 2019

3.6. Aircraft Operations and Fleet Mix

This section presents operations and fleet mix projections for air carrier, air cargo, air taxi/commuter, GA, and military activity at SFB.

3.6.1. Air Carrier Operations and Fleet Mix

The air carrier operations forecast is based on the preferred enplaned passenger forecast presented earlier, combined with historical and expected trends in load factors and average aircraft seats-per-departure. To generate the operations forecast, the following methodology was followed. Air carrier enplanements were divided by an assumed load factor to calculate the number of seats required to transport the forecasted enplanements. The number of seats was divided by the expected average seats-per departure to calculate the number of departures. The number of departures was assumed to equal the number of arrivals. Therefore, the number of departures was then multiplied by two in order to calculate the total number of operations. Total operations at SFB are presented in **Table 3-19: Total Operations Forecast by Year** and forecast of air carrier operations by fleet in **Table 3-20: Air Carrier Operations and Fleet Mix Forecast**.

The following points highlight the key assumptions that were used to derive the air carrier aircraft operations forecast for SFB.

- **Seats-per-departure:** The average number of seats-per-departure for the air carrier airlines, including domestic and international, was calculated to be 167.0 based on schedule data through October 2019, excluding Via Air operations which have ceased operation. The schedule reflects the 2018 completion of Allegiant Air's transition from the MD-80 fleet type to the Airbus A319 and A320 (A320 family of aircraft). The seats-per-departure are assumed constant throughout the planning period.
- **Load Factor:** The load factors for SFB's air carrier airlines are typically higher than the national average given Allegiant Air makes up over 90 percent of air carrier operations and Allegiant Air's revenue management strategy is to adjust air fares as needed to achieve a 90 percent load factor target (in contrast to other airlines that use a mix of both air fare and load factor in order to optimize revenue). Based on 2018 T100 data, SFB had an overall load factor of 87.9 percent. Taking into account Allegiant Air's transition from MD-80 aircraft to the A320 Family of aircraft, which brings the airline's average seats per departure down by about 3 percent, the 2018 load factor would have been 90.5 percent taking into account Allegiant Air's slightly lower seats per departure. Therefore, an air carrier load factor of 90.0 percent was applied and held constant throughout the planning period.
- **Fleet Mix:** The air carrier operations fleet mix at SFB consists of wide body (Boeing 787), and narrow body (A320 family of aircraft). Fleet mix projections reflect Allegiant Air's recent full transition into the A320 family of aircraft with the retirement of the MD-80 fleet. Projections assume the existing fleet mix will remain constant through the planning period. The fleet mix was then applied to the total operations forecast to generate operations by fleet mix forecast summarized in **Table 3-20: Air Carrier Operations and Fleet Mix Forecast**.

Table 3-19: Total Operations Forecast by Year

Year	Total Enplanements	Average Seats per Departure	Load Factor	Departures	Operations
2018	1,508,036	167	90%	10,034	20,068
2019	1,583,437	167	90%	10,535	21,070
2020	1,662,609	167	90%	11,062	22,124
2021	1,712,461	167	90%	11,394	22,788
2022	1,763,808	167	90%	11,735	23,470
2023	1,816,695	167	90%	12,087	24,174
2024	1,871,167	167	90%	12,450	24,900
2025	1,927,272	167	90%	12,823	25,646
2026	1,985,060	167	90%	13,207	26,414
2027	2,044,581	167	90%	13,603	27,206
2028	2,105,886	167	90%	14,011	28,022
2029	2,169,029	167	90%	14,431	28,862
2030	2,234,066	167	90%	14,864	29,728
2031	2,301,053	167	90%	15,310	30,620
2032	2,370,048	167	90%	15,769	31,538
2033	2,441,112	167	90%	16,242	32,484
2034	2,514,307	167	90%	16,729	33,458
2035	2,589,697	167	90%	17,230	34,460
2036	2,667,347	167	90%	17,747	35,494
2037	2,747,325	167	90%	18,279	36,558

Source: Sabre 2019 schedule data; analysis by Jacobsen|Daniels, 2019

Table 3-20: Air Carrier Operations and Fleet Mix Forecast

Fleet Type	Seats Per Departure	2022		2027		2032		2037	
		Operations	%	Operations	%	Operations	%	Operations	%
A319	156	12,720	54.2%	14,745	54.2%	17,092	54.2%	19,813	54.2%
A320	177	10,420	44.4%	12,079	44.4%	14,003	44.4%	16,231	44.4%
B787	307	330	1.4%	382	1.4%	443	1.4%	514	1.4%
	Total	23,470		27,206		31,538		36,558	
Forecasted Enplanements		1,763,808		2,044,581		2,370,048		2,747,325	
Average Seats per Departure		167.0		167.0		167.0		167.0	
Assumed Load Factor		90%		90%		90%		90%	
Departures		11,735		13,603		15,769		18,279	
Operations		23,470		27,206		31,538		36,558	

Note: The assumed fleet mix is based on the 2019 schedule data excluding Via's operations as these were discontinued in late 2019

Source: Sabre 2019 schedule data; analysis by Jacobsen|Daniels, 2019

3.6.2. Air Cargo Tonnage

Air cargo operations and fleet mix are included in the air carrier category described above. Air cargo at SFB is tied directly to “belly” cargo transported by airlines serving SFB. Air freight ranges from perishables such as food and flowers, to cars, mechanical parts, electrical equipment, etc.

It is important to determine the forecast for total air cargo tonnage because it affects airline belly cargo facilities. Data for the cargo tonnage forecast was obtained from the SFB activity records. These records document the weight of cargo moving through SFB between FY 2007 and FY 2017. Comparing the weight of the cargo with the recorded operations at SFB, an average ratio of tons of cargo per aircraft operation was also obtained. Total air cargo tons have declined in recent years. Considering this trend, the forecast assumes tons per operation of 0.04 based on the three-year average ratio from FY 2015-2017. The three-year average was used since it is more reflective of recent trends that show a decline in air cargo tonnage. By multiplying this average ratio by the annual operations projected for SFB, the weight of air cargo is projected through the year FY 2037 as shown in **Table 3-21: Air Cargo Tonnage Forecast**.

Table 3-21: Air Cargo Tonnage Forecast

Year	Air Cargo Tons	Air Carrier Operations	Tons Per Operation
2007	7,496	9,810	0.76
2008	5,370	11,705	0.46
2009	2,215	13,248	0.17
2010	3,491	8,984	0.39
2011	2,939	10,235	0.29
2012	3,179	12,468	0.25
2013	3,112	12,733	0.24
2014	1,627	13,594	0.12
2015	1,316	16,045	0.08
2016	610	18,293	0.03
2017	332	19,760	0.02
Forecast			
2018	917	20,814	0.04
2019	963	21,856	0.04
2020	1,011	22,948	0.04
2021	1,041	23,636	0.04
2022	1,073	24,346	0.04
2023	1,105	25,076	0.04
2024	1,138	25,828	0.04
2025	1,172	26,602	0.04
2026	1,207	27,400	0.04
2027	1,243	28,220	0.04
2028	1,281	29,066	0.04
2029	1,319	29,938	0.04
2030	1,359	30,836	0.04
2031	1,399	31,760	0.04
2032	1,441	32,712	0.04
2033	1,484	33,694	0.04
2034	1,529	34,704	0.04
2035	1,575	35,744	0.04
2036	1,622	36,816	0.04
2037	1,671	37,920	0.04
3-Year Average Tons Per Operation (2015-2017)			0.04
5-Year Average Tons Per Operation (2013-2017)			0.10
10-Year Average Tons Per Operation (2008-2017)			0.21

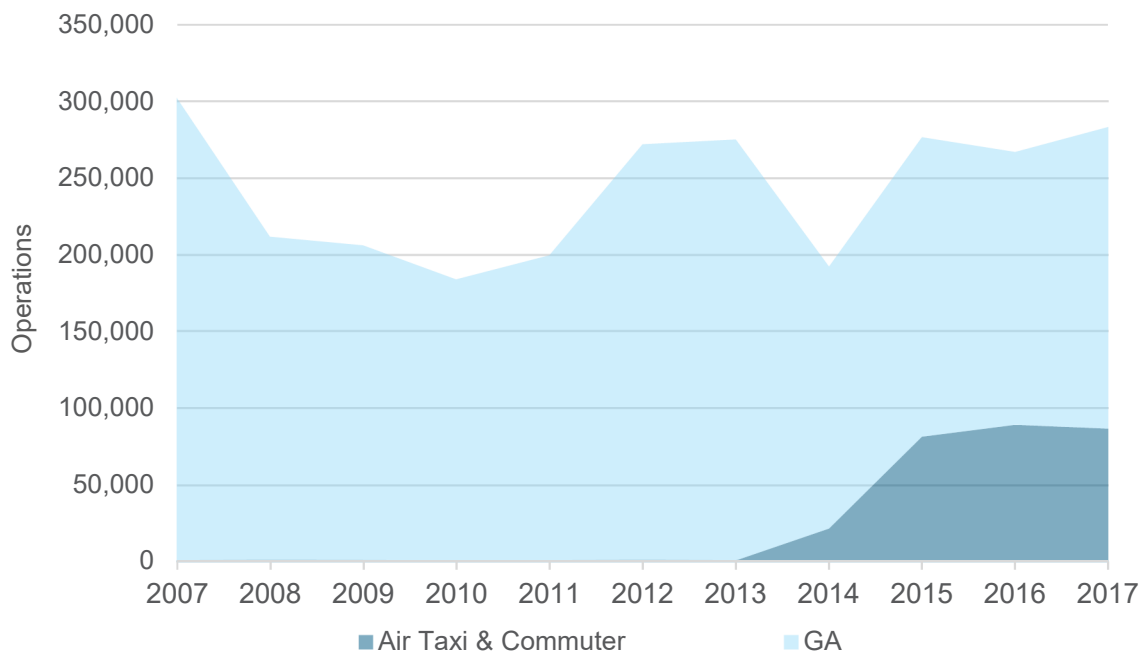
Source: FAA Terminal Area Forecast dated February 2019; Cargo Tons sourced from SFB website March 2019; analysis by Jacobsen|Daniels, 2019

3.6.3. General Aviation and Air Taxi/Commuter Aircraft Operations

The following section provides a forecast of GA and Air Taxi/Commuter aircraft operations for SFB. The forecast will assist in determining the need for GA facilities.

Since L3 Harris Airline Academy acquired Aerosim Flight Academy in 2016, some operations that were previously categorized as GA are now counted as air taxi/commuter in the TAF reporting (see **Figure 3-6: Historical GA and Air Taxi/Commuter Operations**). From FY 2015 to FY 2017, the split between GA and air taxi/commuter has maintained close to a 70 percent/30 percent mix, with overall operations for the combined categories around 275,000 operations per year. To address this shift in the historical data, GA and air taxi/commuter operations are forecast together in total. The total forecast is then split between the two categories based on the annual percentage mix forecast in the 2018 FAA TAF.

Figure 3-6: Historical GA and Air Taxi/Commuter Operations



Sources: FAA Terminal Area Forecast dated February 2019; analysis by Jacobsen|Daniels, 2019

In addition to the trend, regression, and market share approaches, the GA and air taxi/commuter operations forecasting also utilize operations per based aircraft (OPBA). The methodologies and underlying assumptions that are used to prepare the forecasts of SFB’s GA and air taxi/commuter aircraft operations are discussed in the following sections.

3.6.3.1. Operations per Based Aircraft Analysis

The forecast of total GA and air taxi/commuter operations are prepared using a ratio of operations per based aircraft (OPBA) from historical data. The OPBA is then applied to the forecast of based aircraft to develop estimates of future operations.

As shown in **Table 3-22: GA and Air Taxi Operations OPBA Forecast**, the historical OPBA has fluctuated from a 10-year average of 680 OPBA, to a 5-year average of 764 OPBA, to a 3-year average of 809 OPBA. This analysis assumes an OPBA value of 764 based on the FY 2013-2017 average. Applying this average OPBA to the preferred based aircraft forecast projected total annual GA and air taxi/commuter operations of 380,442 by FY 2037, with a compound annual growth rate of 1.5 percent over the 20-year period.

Table 3-22: GA and Air Taxi Operations OPBA Forecast

Year	Based Aircraft	GA + Air Taxi/ Commuter Ops	OPBA
2007	309	302,099	978
2008	372	211,795	569
2009	380	206,153	543
2010	368	184,047	500
2011	364	199,706	549
2012	333	271,735	816
2013	330	274,920	833
2014	344	192,402	559
2015	323	276,501	856
2016	350	266,848	762
2017	350	283,092	809
Forecast			
2018	356	271,962	764
2019	362	276,546	764
2020	368	281,130	764
2021	375	286,477	764
2022	382	291,825	764
2023	389	297,172	764
2024	396	302,520	764
2025	403	307,868	764
2026	410	313,215	764
2027	417	318,563	764
2028	424	323,910	764
2029	432	330,022	764
2030	440	336,133	764
2031	448	342,245	764
2032	456	348,356	764
2033	464	354,468	764
2034	472	360,579	764
2035	480	366,691	764
2036	489	373,566	764
2037	498	380,442	764
OPBA			
3-Year Average (2015-2017)		-	809
5-Year Average (2013-2017)		-	764
10-Year Average (2008-2017)		-	680
Compound Annual Growth Rate (2017 - 2037)		1.5%	-

Source: FAA Terminal Area Forecast dated February 2019; analysis by Jacobsen|Daniels, 2019

3.6.4. GA and Air Taxi/Commuter Trend Line Analysis

As shown in **Table 3-23: GA and Air Taxi/Commuter Trend Analysis**, the GA and air taxi/commuter trend analysis uses the compound annual growth rates based on the five and ten-year historical periods and projects operations forward to FY 2037 based on those historical linear trends. The compound annual growth rate for the five-year period from FY 2012 through FY 2017 is 0.8 percent. This growth rate is projected into the future with GA and air taxi/commuter operations growing to 333,469 operations by FY 2037. The compound annual growth rate for the last ten years, FY 2007 to FY 2017, is -0.6 percent. Projecting this rate forward results in 248,590 operations in FY 2037. The 10-year trend is not representative of long-term growth as the base year of FY 2007 was peak for activity followed by a significant drop in 2008. Since 2008, the activity has not reached the 2007 peak level, therefore is not included as part of the preferred forecast.

Table 3-23: GA and Air Taxi/Commuter Trend Analysis

Year	GA + Air Taxi/ Commuter Ops	5-Year Trend Analysis	10-Year Trend Analysis
2007	302,099	-	-
2008	211,795	-	-
2009	206,153	-	-
2010	184,047	-	-
2011	199,706	-	-
2012	271,735	-	-
2013	274,920	-	-
2014	192,402	-	-
2015	276,501	-	-
2016	266,848	-	-
2017	283,092	-	-
2018	-	285,420	281,258
2019	-	287,767	279,437
2020	-	290,133	277,627
2021	-	292,518	275,828
2022	-	294,924	274,042
2023	-	297,349	272,267
2024	-	299,794	270,503
2025	-	302,259	268,751
2026	-	304,744	267,010
2027	-	307,250	265,281
2028	-	309,776	263,563
2029	-	312,323	261,855
2030	-	314,891	260,159
2031	-	317,481	258,474
2032	-	320,091	256,800
2033	-	322,723	255,137
2034	-	325,377	253,484
2035	-	328,052	251,842
2036	-	330,750	250,211
2037	-	333,469	248,590
Compound Annual Growth Rates (2017-2037)		0.8%	-0.6%
5-Year CAGR (2012-2017)		0.8%	-
10-Year CAGR (2007-2017)		-0.6%	-

Source: FAA Terminal Area Forecast dated February 2019 (FY 2007-2017); analysis by Jacobsen|Daniels, 2019

3.6.4.1. GA and Air Taxi/Commuter Regression Analysis

Regression modeling is based on demographic elements from the Market Area as discussed earlier in this chapter. The socioeconomic variables of population, employment, and per capita income produced r^2 values of 0.47, 0.45, and 0.45, respectively. Overall, the regression methodology resulted in low correlation coefficients across all categories. Therefore, the projections based on these regressions is not included in the preferred forecast. Results of the regression analysis are detailed in **Table 3-24: GA and Air Taxi Operations Regression Analysis**.

Table 3-24: GA and Air Taxi Operations Regression Analysis

Year	GA + Air Taxi/ Commuter	Population (thousands)	Employment (thousands)	Per Capita Income	GA Ops + Air Taxi – Population	GA Ops + Air Taxi – Employment	GA Ops + Air Taxi – Per Capita Income
2008	211,795	3,221	1,847	34,759	-	-	-
2009	206,153	3,243	1,763	32,828	-	-	-
2010	184,047	3,274	1,753	33,844	-	-	-
2011	199,706	3,312	1,800	35,297	-	-	-
2012	271,735	3,370	1,844	35,647	-	-	-
2013	274,920	3,422	1,889	35,919	-	-	-
2014	192,402	3,491	1,965	37,476	-	-	-
2015	276,501	3,573	2,047	39,478	-	-	-
2016	266,848	3,658	2,125	40,220	-	-	-
2017	283,092	3,715	2,207	41,766	-	-	-
2018	-	3,776	2,264	43,342	292,110	295,948	298,582
2019	-	3,838	2,314	44,951	301,968	304,549	313,616
2020	-	3,901	2,359	46,660	311,977	312,480	329,595
2021	-	3,965	2,407	48,506	322,139	320,812	346,849
2022	-	4,030	2,456	50,560	332,457	329,390	366,051
2023	-	4,096	2,502	52,809	342,923	337,399	387,067
2024	-	4,163	2,549	55,249	353,544	345,541	409,874
2025	-	4,231	2,597	57,913	364,301	353,861	434,774
2026	-	4,299	2,645	60,772	375,186	362,327	461,495
2027	-	4,368	2,694	63,818	386,200	370,776	489,964
2028	-	4,438	2,742	67,068	397,326	379,149	520,339
2029	-	4,509	2,790	70,521	408,578	387,526	552,621

Year	GA + Air Taxi/ Commuter	Population (thousands)	Employment (thousands)	Per Capita Income	GA Ops + Air Taxi – Population	GA Ops + Air Taxi – Employment	GA Ops + Air Taxi – Per Capita Income
2030	-	4,581	2,838	74,158	419,950	395,875	586,608
2031	-	4,652	2,886	77,943	431,345	404,144	621,984
2032	-	4,724	2,932	81,903	442,742	412,266	659,001
2033	-	4,796	2,978	86,067	454,161	420,248	697,926
2034	-	4,868	3,023	90,454	465,601	428,122	738,923
2035	-	4,940	3,068	95,122	477,062	435,888	782,560
2036	-	5,012	3,112	100,000	488,556	443,546	828,148
2037	-	5,085	3,155	105,041	500,084	451,128	875,265
Compound Annual Growth Rates (2017-2037)		-	-	-	3.2%	2.7%	6.1%
Coefficient of Determination		0.47	0.45	0.45	-	-	-

Source: FAA Terminal Area Forecast dated January 2019, Woods and Poole Economics 2018; analysis by Jacobsen|Daniels, 2019

3.6.4.2. GA and Air Traffic/Commuter Market Share Analysis

The results of the market share analysis are shown in **Table 3-25: GA Operations and Air Taxi/Commuter Market Share Analysis** and described in the following paragraphs. Two market share percentages for each market were applied. First, the 2017 historical percentage was applied over the 20-year period and the second market share was based on the 10-year historical increase in market share from 2007 to 2017.

- **SFB and the State of Florida:** The historical SFB's share of GA and air taxi/commuter operations for the State of Florida has increased slightly over the past 10 years, from 4.0 percent in FY 2007 to 4.2 percent in FY 2017. Applying the FY 2017 market share (4.2 percent), GA and air taxi/commuter operations are projected to reach 342,047 in FY 2037, a compound annual growth rate of 1.0 percent. Increasing SFB's share to 4.6 percent, an increase of 0.38 percentage points over 20 years based on the 10-year historical increase in share of 0.19 percentage points, GA and air taxi/commuter operations are projected to reach 373,153 in 2037, a compound annual growth rate of 1.4 percent.
- **SFB and the Southern Region:** The historical SFB's share of GA and air taxi/commuter operations for the Southern Region has increased slightly over the past 10 years, from 1.5 percent in FY 2007 to 1.7 percent in FY 2017. Applying the FY 2017 market share (1.7 percent), GA and air taxi/commuter operations are projected to reach 306,642 in FY 2037, a compound annual growth rate of 0.4 percent. Increasing SFB's share to 2.0 percent, an increase of 0.31 percentage points over 20 years based on the 10-year historical increase in share of 0.15 percentage points, GA and air taxi/commuter operations are projected to reach 363,514 in 2037, a compound annual growth rate of 1.3 percent.
- **SFB and the U.S.:** The historical SFB's share of GA and air taxi/commuter operations for the United States has increased slightly over the past 10 years, from 0.32 percent in FY 2007 to 0.37 percent in FY 2017. Applying the FY 2017 market share (0.37 percent), GA and air taxi/commuter operations are projected to reach 303,384 in FY 2037, a compound annual growth rate of 0.3 percent. Increasing SFB's share to 0.46 percent, an increase of 0.09 percentage points over 20 years based on the 10-year historical increase in share of 0.05 percentage points, total enplanements are projected to reach 383,084 in 2037, a compound annual growth rate of 1.5 percent.

Table 3-25: GA Operations and Air Taxi/Commuter Market Share Analysis

Year	SFB TAF	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	Share of State of Florida		Share of Southern Region		Share of U.S.	
								Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								4.2%	4.2% to 4.6%	1.7%	1.7% to 2.0%	0.37%	0.37% to 0.46%
2007	302,099	7,477,733	20,165,155	94,687,558	4.0%	1.5%	0.32%	-	-	-	-	-	-
2008	211,795	7,267,921	19,765,676	91,755,553	2.9%	1.1%	0.23%	-	-	-	-	-	-
2009	206,153	6,692,338	18,313,485	85,801,027	3.1%	1.1%	0.24%	-	-	-	-	-	-
2010	184,047	6,176,988	17,696,054	83,291,027	3.0%	1.0%	0.22%	-	-	-	-	-	-
2011	199,706	6,238,364	17,682,729	81,763,284	3.2%	1.1%	0.24%	-	-	-	-	-	-
2012	271,735	6,317,732	17,595,954	81,194,956	4.3%	1.5%	0.33%	-	-	-	-	-	-
2013	274,920	6,499,470	17,675,626	80,245,301	4.2%	1.6%	0.34%	-	-	-	-	-	-
2014	192,402	6,486,913	17,505,217	79,180,935	3.0%	1.1%	0.24%	-	-	-	-	-	-
2015	276,501	6,637,652	17,631,458	78,752,565	4.2%	1.6%	0.35%	-	-	-	-	-	-
2016	266,848	6,626,686	17,048,588	77,636,583	4.0%	1.6%	0.34%	-	-	-	-	-	-
2017	283,092	6,688,632	17,144,097	77,075,271	4.2%	1.7%	0.37%	-	-	-	-	-	-
2018	-	7,040,192	17,479,481	78,041,313	-	-	-	297,972	299,326	288,630	291,307	286,640	290,405
2019	-	7,200,242	17,671,097	78,687,100	-	-	-	304,746	307,517	291,794	297,206	289,012	296,605
2020	-	7,232,792	17,620,385	78,370,241	-	-	-	306,123	310,299	290,957	299,051	287,848	299,191
2021	-	7,273,687	17,638,530	78,425,289	-	-	-	307,854	313,453	291,256	302,060	288,051	303,185
2022	-	7,311,310	17,620,589	78,291,823	-	-	-	309,446	316,482	290,960	304,451	287,560	306,446
2023	-	7,346,467	17,579,433	78,034,445	-	-	-	310,934	319,418	290,280	306,432	286,615	309,203
2024	-	7,391,124	17,619,845	78,195,135	-	-	-	312,825	322,782	290,948	309,834	287,205	313,613
2025	-	7,439,794	17,686,976	78,502,670	-	-	-	314,884	326,339	292,056	313,723	288,335	318,633
2026	-	7,489,126	17,754,933	78,815,758	-	-	-	316,972	329,944	293,178	317,647	289,485	323,707
2027	-	7,539,152	17,824,119	79,134,205	-	-	-	319,090	333,599	294,321	321,614	290,654	328,832
2028	-	7,589,885	17,894,236	79,457,869	-	-	-	321,237	337,305	295,479	325,620	291,843	334,011
2029	-	7,641,363	17,965,351	79,785,991	-	-	-	323,416	341,063	296,653	329,665	293,048	339,239
2030	-	7,693,604	18,037,496	80,119,041	-	-	-	325,627	344,875	297,844	333,751	294,272	344,521
2031	-	7,746,653	18,110,661	80,457,472	-	-	-	327,872	348,744	299,052	337,878	295,515	349,858
2032	-	7,800,488	18,184,788	80,800,978	-	-	-	330,151	352,669	300,276	342,045	296,776	355,249
2033	-	7,855,101	18,259,879	81,149,758	-	-	-	332,462	356,650	301,516	346,254	298,057	360,698
2034	-	7,910,493	18,335,958	81,504,089	-	-	-	334,806	360,687	302,773	350,504	299,359	366,205
2035	-	7,966,688	18,413,019	81,863,779	-	-	-	337,185	364,783	304,045	354,797	300,680	371,771
2036	-	8,023,722	18,491,136	82,229,082	-	-	-	339,599	368,939	305,335	359,133	302,022	377,397
2037	-	8,081,559	18,570,263	82,599,972	-	-	-	342,047	373,153	306,642	363,514	303,384	383,084

Year	SFB TAF	State of Florida TAF	Southern Region TAF	U.S. TAF	% of Florida	% of Southern Region	% of U.S.	Share of State of Florida		Share of Southern Region		Share of U.S.	
								Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								4.2%	4.2% to 4.6%	1.7%	1.7% to 2.0%	0.37%	0.37% to 0.46%
Compound Annual Growth Rates (2017-2037)													
-	1.0%	0.4%	0.3%	-	-	-	1.0%	1.4%	0.4%	1.3%	0.3%	1.5%	
10-Yr Change in SFB Share (2007-2017)													
-	-	-	-	0.19%	0.15%	0.05%	-	-	-	-	-	-	
Assumed 20-Yr Change in SFB Share (2017-2037)													
-	-	-	-	0.38%	0.31%	0.10%	-	-	-	-	-	-	
SFB % Share													
-	-	-	-	-	-	-	4.2%	4.6%	1.7%	2.0%	0.37%	0.46%	

Source: FAA Terminal Area Forecast dated February 2019; analysis by Jacobsen|Daniels, 2019

3.6.5. Comparison of GA and Air Taxi/Commuter Operations Forecast

GA and air taxi/commuter operations forecasts developed using each of the methodologies described earlier in this section are presented in **Table 3-26: GA and Air Taxi/Commuter Operations Forecast Comparison**. Error! Not a valid bookmark self-reference..

Table 3-26: GA and Air Taxi/Commuter Operations Forecast Comparison

Year	TAF	OPBA	Trend Analysis		Regression Analysis			Market Share of State of Florida		Market Share of Southern Region		Market Share of U.S.	
			5-Year Trend	10-Year Trend	Population	Employment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								Florida	Florida	Southern	Southern	U.S.	U.S.
2007	302,099	-	-	-	-	-	-	-	-	-	-	-	-
2008	211,795	-	-	-	-	-	-	-	-	-	-	-	-
2009	206,153	-	-	-	-	-	-	-	-	-	-	-	-
2010	184,047	-	-	-	-	-	-	-	-	-	-	-	-
2011	199,706	-	-	-	-	-	-	-	-	-	-	-	-
2012	271,735	-	-	-	-	-	-	-	-	-	-	-	-
2013	274,920	-	-	-	-	-	-	-	-	-	-	-	-
2014	192,402	-	-	-	-	-	-	-	-	-	-	-	-
2015	276,501	-	-	-	-	-	-	-	-	-	-	-	-
2016	266,848	-	-	-	-	-	-	-	-	-	-	-	-
2017	283,092	-	-	-	-	-	-	-	-	-	-	-	-
2018	300,613	271,962	285,420	281,258	292,110	295,948	298,582	297,972	299,326	288,630	291,307	286,640	290,405
2019	306,226	276,546	287,767	279,437	301,968	304,549	313,616	304,746	307,517	291,794	297,206	289,012	296,605
2020	308,003	281,130	290,133	277,627	311,977	312,480	329,595	306,123	310,299	290,957	299,051	287,848	299,191
2021	309,907	286,477	292,518	275,828	322,139	320,812	346,849	307,854	313,453	291,256	302,060	288,051	303,185
2022	311,771	291,825	294,924	274,042	332,457	329,390	366,051	309,446	316,482	290,960	304,451	287,560	306,446
2023	313,618	297,172	297,349	272,267	342,923	337,399	387,067	310,934	319,418	290,280	306,432	286,615	309,203
2024	315,604	302,520	299,794	270,503	353,544	345,541	409,874	312,825	322,782	290,948	309,834	287,205	313,613
2025	317,643	307,868	302,259	268,751	364,301	353,861	434,774	314,884	326,339	292,056	313,723	288,335	318,633
2026	319,696	313,215	304,744	267,010	375,186	362,327	461,495	316,972	329,944	293,178	317,647	289,485	323,707
2027	321,763	318,563	307,250	265,281	386,200	370,776	489,964	319,090	333,599	294,321	321,614	290,654	328,832
2028	323,845	323,910	309,776	263,563	397,326	379,149	520,339	321,237	337,305	295,479	325,620	291,843	334,011
2029	325,941	330,022	312,323	261,855	408,578	387,526	552,621	323,416	341,063	296,653	329,665	293,048	339,239
2030	328,052	336,133	314,891	260,159	419,950	395,875	586,608	325,627	344,875	297,844	333,751	294,272	344,521
2031	330,179	342,245	317,481	258,474	431,345	404,144	621,984	327,872	348,744	299,052	337,878	295,515	349,858
2032	332,321	348,356	320,091	256,800	442,742	412,266	659,001	330,151	352,669	300,276	342,045	296,776	355,249
2033	334,478	354,468	322,723	255,137	454,161	420,248	697,926	332,462	356,650	301,516	346,254	298,057	360,698
2034	336,649	360,579	325,377	253,484	465,601	428,122	738,923	334,806	360,687	302,773	350,504	299,359	366,205
2035	338,837	366,691	328,052	251,842	477,062	435,888	782,560	337,185	364,783	304,045	354,797	300,680	371,771

Year	TAF	OPBA	Trend Analysis		Regression Analysis			Market Share of State of Florida		Market Share of Southern Region		Market Share of U.S.	
			5-Year Trend	10-Year Trend	Population	Employment	Per Capita Income	Current Share	Increase Share	Current Share	Increase Share	Current Share	Increase Share
								Florida	Florida	Southern	Southern	U.S.	U.S.
2036	341,041	373,566	330,750	250,211	488,556	443,546	828,148	339,599	368,939	305,335	359,133	302,022	377,397
2037	343,260	380,442	333,469	248,590	500,084	451,128	875,265	342,047	373,153	306,642	363,514	303,384	383,084

Compound Annual Growth Rates (2017-2037)

-	1.0%	1.5%	0.8%	-0.6%	2.9%	2.4%	5.8%	1.0%	1.4%	0.4%	1.3%	0.3%	1.5%
Average of All Forecast Techniques													1.5%
Average of OPBA, 5-Year Trend and Market Share Analysis													1.0%

Source: Jacobsen|Daniels, 2019

3.6.5.1. Preferred GA and Air Taxi/Commuter Operations Forecast

Table 3-27: GA and Air Taxi Operations Forecast presents the preferred GA and air taxi/commuter operations forecast for SFB. The preferred forecast is a composite forecast based on the average of the operations per based aircraft (OPBA), 5-year trend analysis, and market share analysis forecasts. This composite forecast provides a long-term growth rate for GA and air taxi/commuter operations at SFB. The result is a 1.0 percent compound annual growth from FY 2017 to 2037, which is in line with the 2018 FAA TAF.

In addition, the proposed forecast applies an assumed 8.8 percent near-term growth rate for FY 2017-2019 based on guidance from SFB and tenants regarding expected growth and is representative of YTD 2019 actuals. To align with the overall 20-year compound annual growth rate of 1.0 percent, a 0.2 percent growth rate is then applied from 2020-2037. The utilization of a higher annual growth rate in the near-term aligns with the 2018 FAA TAF, which shows a 4.0 percent compound annual growth rate for FY 2017-2019 and a 0.6 percent compound annual growth rate for FY 2019-2037.

The preferred forecast is then split into GA and air taxi/commuter operations based on the percentage mix outlined in the 2018 FAA TAF.

Table 3-27: GA and Air Taxi Operations Forecast

Year	GA and Air Taxi/Commuter	TAF - GA and Air Taxi/Commuter	% Difference vs TAF	GA	GA (TAF)	% Difference vs TAF	Air Taxi/Commuter	TAF - Air Taxi/Commuter	% Difference vs TAF
2017	283,092	283,092	0.0%	196,592	196,592	0.0%	86,500	86,500	0.0%
2018	307,932	300,613	2.4%	213,842	204,270	4.7%	94,090	96,343	-2.3%
2019	334,951	306,226	9.4%	232,605	205,514	13.2%	102,346	100,712	1.6%
2020	335,524	308,003	8.9%	233,003	206,443	12.9%	102,521	101,560	0.9%
2021	336,098	309,907	8.5%	233,402	207,376	12.6%	102,696	102,531	0.2%
2022	336,673	311,771	8.0%	233,801	208,313	12.2%	102,872	103,458	-0.6%
2023	337,249	313,618	7.5%	234,201	209,256	11.9%	103,048	104,362	-1.3%
2024	337,826	315,604	7.0%	234,602	210,203	11.6%	103,224	105,401	-2.1%
2025	338,404	317,643	6.5%	235,003	211,155	11.3%	103,401	106,488	-2.9%
2026	338,983	319,696	6.0%	235,405	212,111	11.0%	103,578	107,585	-3.7%
2027	339,563	321,763	5.5%	235,808	213,072	10.7%	103,755	108,691	-4.5%
2028	340,144	323,845	5.0%	236,212	214,038	10.4%	103,932	109,807	-5.4%
2029	340,726	325,941	4.5%	236,616	215,008	10.0%	104,110	110,933	-6.2%
2030	341,309	328,052	4.0%	237,021	215,983	9.7%	104,288	112,069	-6.9%
2031	341,893	330,179	3.5%	237,426	216,964	9.4%	104,467	113,215	-7.7%
2032	342,478	332,321	3.1%	237,832	217,949	9.1%	104,646	114,372	-8.5%
2033	343,064	334,478	2.6%	238,239	218,939	8.8%	104,825	115,539	-9.3%
2034	343,651	336,649	2.1%	238,647	219,933	8.5%	105,004	116,716	-10.0%
2035	344,239	338,837	1.6%	239,055	220,933	8.2%	105,184	117,904	-10.8%
2036	344,828	341,041	1.1%	239,464	221,938	7.9%	105,364	119,103	-11.5%
2037	345,418	343,260	0.6%	239,874	222,947	7.6%	105,544	120,313	-12.3%

Year	GA and Air Taxi/Commuter	TAF - GA and Air Taxi/Commuter	% Difference vs TAF	GA	GA (TAF)	% Difference vs TAF	Air Taxi/Commuter	TAF - Air Taxi/Commuter	% Difference vs TAF
Compound Annual Growth Rates									
2017-2019	8.8%	4.0%	-	8.8%	2.2%	-	8.8%	7.9%	-
2019-2037	0.2%	0.6%	-	0.2%	0.5%	-	0.2%	1.0%	-
2017-2037	1.0%	1.0%	-	1.0%	0.6%	-	1.0%	1.7%	-

Note: GA and Air Taxi/Commuter split based on TAF annual % split

Source: FAA Terminal Area Forecast, February 2019; analysis by Jacobsen|Daniels, 2019

3.6.5.2. Forecast of GA Itinerant and Local Operations

GA operations are classified as either local or itinerant. As defined by the FAA TAF, local operations are performed by aircraft that:

- Remain in the local traffic pattern;
- Execute simulated instrument approaches or low passes at the airport; and/or,
- Operates to or from the same airport within a designated practice area within a 20-mile radius of the airport.

Itinerant operations are those performed by aircraft with a specific origin or destination away from SFB. As shown in **Table 3-28: GA Operations – Historical Itinerant and Local Shares**, the itinerant share of GA operations has decreased from approximately 40 percent prior to FY 2015 and has ranged from 12 to 14 percent between FY 2015 and 2017.

Table 3-28: GA Operations – Historical Itinerant and Local Shares

Year	Itinerant	Local	Total GA Ops	Itinerant Share	Local Share
2007	122,593	178,352	300,945	41%	59%
2008	101,421	108,930	210,351	48%	52%
2009	89,056	115,828	204,884	43%	57%
2010	72,775	110,299	183,074	40%	60%
2011	74,997	123,686	198,683	38%	62%
2012	99,785	170,484	270,269	37%	63%
2013	109,295	164,470	273,765	40%	60%
2014	57,609	113,056	170,665	34%	66%
2015	25,957	169,366	195,323	13%	87%
2016	25,096	152,790	177,886	14%	86%
2017	23,897	172,695	196,592	12%	88%

Source: FAA Terminal Area Forecast, February 2019

For this analysis, the distribution of itinerant and local share of GA operations was based on FY 2017 actuals and held constant throughout the planning period. The results are shown in **Table 3-29: GA Operations – Itinerant and Local Forecast**.

Table 3-29: GA Operations – Itinerant and Local Forecast

Year	Itinerant	Local	Total GA Ops	Share	Share
2017	23,897	172,695	196,592	12%	88%
2018	25,994	187,848	213,842	12%	88%
2019	28,275	204,330	232,605	12%	88%
2020	28,323	204,680	233,003	12%	88%
2021	28,371	205,031	233,402	12%	88%
2022	28,420	205,381	233,801	12%	88%
2023	28,469	205,732	234,201	12%	88%
2024	28,517	206,085	234,602	12%	88%
2025	28,566	206,437	235,003	12%	88%
2026	28,615	206,790	235,405	12%	88%
2027	28,664	207,144	235,808	12%	88%
2028	28,713	207,499	236,212	12%	88%
2029	28,762	207,854	236,616	12%	88%
2030	28,811	208,210	237,021	12%	88%
2031	28,861	208,565	237,426	12%	88%
2032	28,910	208,922	237,832	12%	88%
2033	28,959	209,280	238,239	12%	88%
2034	29,009	209,638	238,647	12%	88%
2035	29,059	209,996	239,055	12%	88%
2036	29,108	210,356	239,464	12%	88%
2037	29,158	210,716	239,874	12%	88%
Compound Annual Growth Rates					
2017-2019	5.8%	5.8%	5.8%	-	-
2019-2037	0.2%	0.2%	0.2%	-	-
2017-2037	1.0%	1.0%	1.0%	-	-

Note: Local vs Itinerant split based on 2017 percentage split

Source: Jacobsen|Daniels, 2019

3.6.6. Military Operations

Military operations are difficult to forecast at any airfield, because military activity is heavily dependent on each year’s available federal military budget and the status of events on a regional or worldwide basis. The 2018 FAA TAF forecast kept the total military operations constant. For the purposes of this analysis, it is forecast that military operations at SFB will be held at 191 operations during the planning period, in accordance with the TAF, as shown in **Table 3-30: Military Operations Forecast**.

Table 3-30: Military Operations Forecast

Year	Itinerant	Local	Total Operations
2017	158	34	192
2018	149	42	191
2019	149	42	191
2020	149	42	191
2021	149	42	191
2022	149	42	191
2023	149	42	191
2024	149	42	191
2025	149	42	191
2026	149	42	191
2027	149	42	191
2028	149	42	191
2029	149	42	191
2030	149	42	191
2031	149	42	191
2032	149	42	191
2033	149	42	191
2034	149	42	191
2035	149	42	191
2036	149	42	191
2037	149	42	191

Source: FAA Terminal Area Forecast, February 2019; analysis by Jacobsen|Daniels, 2019

3.7. Peak Activity Forecasts

The traffic demand patterns imposed upon an airport are subject to seasonal, monthly, daily, and hourly variations. These variations result in peak periods when the greatest amount of demand is placed upon facilities required to accommodate passenger and aircraft movements. Peaking characteristics are critical in the assessment of existing facilities to determine their ability to accommodate forecast increases in passenger and operational activity throughout the study period. The objective of developing peak period forecasts is to provide a design level that sizes facilities so they are neither underutilized nor overcrowded too often.

To evaluate the peaking patterns at an airport, the annual enplanements and aircraft operations forecasts are converted to monthly, daily, and hourly equivalents. The SFB average day peak month (ADPM) approximates activity levels that occur on an average day in the peak month. SAA monthly activity reports from January to December 2018 were used to identify the peak month (July) and associated peak percentages for each forecast element. The peak hour percentages for enplanements and air carrier operations were based on data included in the 2018 Gate Needs Study. For air taxi/commuter, GA, and military operations, the peak hour percentages were based on SFB’s prior master plan assumptions.

Table 3-31: Peak Activity Forecast shows the peak month (PM), ADPM, and peak hour percentages used to develop the peak period forecasts for each of the key operations segments at SFB, as well as the forecasted peak activity levels.

Table 3-31: Peak Activity Forecast

Enplanements	2017	2022	2027	2032	2037
Annual Enplanements	1,436,224	1,763,808	2,044,581	2,370,048	2,747,325
Peak Month (10.6%)	152,000	186,669	216,384	250,829	290,757
ADPM (Peak Month/31)	4,904	6,022	6,981	8,092	9,380
Peak Hour (33.9% of ADPM)	1,662	2,041	2,366	2,742	3,178
Air Carrier Operations	2017	2022	2027	2032	2037
Annual Operations	19,760	23,470	27,206	31,538	36,558
Peak Month (10.3%)	2,035	2,417	2,802	3,248	3,765
ADPM (Peak Month/31)	66	78	91	105	122
Peak Hour (21.8% of ADPM)	15	18	20	23	27
Air Taxi/Commuter Operations	2017	2022	2027	2032	2037
Annual Operations	86,500	102,872	103,755	104,646	105,544
Peak Month (8.3%)	7,153	8,507	8,580	8,653	8,728
ADPM (Peak Month/31)	231	275	277	280	282
Peak Hour (20.0% of ADPM)	47	55	56	56	57
General Aviation Operations	2017	2022	2027	2032	2037
Annual Operations	196,592	233,801	235,808	237,832	239,874
Peak Month (8.7% of Annual)	17,120	20,361	20,536	20,712	20,890
ADPM (Peak Month/31)	553	657	663	669	674
Peak Hour (20.0% of ADPM)	111	132	133	134	135
Military Operations	2017	2022	2027	2032	2037
Annual Operations	192	191	191	191	191

Military Operations	2017	2022	2027	2032	2037
Peak Month (2.8% of Annual)	6	6	6	6	6
ADPM (Peak Month/31)	1	1	1	1	1
Peak Hour (50.0% of ADPM)	1	1	1	1	1
Total Operations	2017	2022	2027	2032	2037
Annual Operations	303,044	360,334	366,960	374,207	382,167
Peak Month	26,314	31,291	31,924	32,619	33,389
ADPM (Peak Month/31)	851	1,011	1,032	1,055	1,079
Peak Hour	174	206	210	214	220

Note: Air Taxi peak hour assumed to be the same as GA given changes in reporting for a portion of L3 Harris Airline Academy operations from GA to Air Taxi

Sources: Peak Month - SAA Monthly Activity Reports dated January-December 2018, Peak Hour - 2018 Gate Needs Study for Enplanements and Air Carrier Operations, 2012 SFB Master Plan for GA, Air Taxi, and Military Operations. Analysis by Jacobsen|Daniels, 2019

3.8. Enplanements and Aircraft Operations Summary

Table 3-32: Master Plan Forecasts Comparison to TAF presents a comparison of key SFB Forecast elements to the TAF, illustrating that all forecast metrics are within the allowable variance from the TAF. **Table 3-33: Enplanements and Operations Summary**, presents the annual activity forecast. These forecasts, along with the peak activity data, will be utilized to develop facility requirements for SFB as part of the Airport Master Plan process. The forecast is within 10 percent of the TAF in the first five years and within 15 percent of the TAF in the first ten years.

Table 3-32: Master Plan Forecasts Comparison to TAF

Enplanements	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	1,443,531	1,379,787	4.6%
Base Year + 5 Years (FY 2022)	1,763,808	1,639,456	7.6%
Base Year + 10 Years (FY 2027)	2,044,581	1,802,115	13.5%
Air Carrier Operations	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	19,760	19,760	-
Base Year + 5 Years (FY 2022)	23,470	22,935	2.3%
Base Year + 10 Years (FY 2027)	27,206	25,226	7.8%
Air Taxi/Commuter Operations	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	86,500	86,500	-
Base Year + 5 Years (FY 2022)	102,872	103,458	-0.6%
Base Year + 10 Years (FY 2027)	103,755	108,691	-4.5%
General Aviation Operations	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	196,592	196,592	-
Base Year + 5 Years (FY 2022)	233,801	208,313	12.2%
Base Year + 10 Years (FY 2027)	235,808	213,072	10.7%
Military Operations	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	192	192	-
Base Year + 5 Years (FY 2022)	191	191	0%
Base Year + 10 Years (FY 2027)	191	191	0%
Total Operations	Master Plan	2018 TAF	% Difference
Base Year (FY 2017)	303,044	303,044	-
Base Year + 5 Years (FY 2022)	360,334	334,897	7.6%
Base Year + 10 Years (FY 2027)	366,960	347,180	5.7%

Note: Difference in enplanements for FY 2017 due to the 3.9 percent adjustment to the base year given historical understatement of TAF enplanements

Source: FAA Terminal Area Forecast, February 2019 and analysis by Jacobsen|Daniels, 2019

Table 3-33: Enplanements and Operations Summary

Year	Enplanements			Itinerant Operations					Local Operations			Total Operations	Total Based Aircraft
	Air Carrier	Commuter	Total Enplanements	Air Carrier	Air Taxi/Commuter	General Aviation	Military	Total Itinerant	Civil	Military	Total Local		
2007	1,013,195	1,720	1,014,915	9,810	1,154	122,593	650	134,207	178,352	74	178,426	312,633	309
2008	1,018,048	85	1,018,133	11,705	1,444	101,421	491	115,061	108,930	1,281	110,211	225,272	372
2009	853,536	804	854,340	13,248	1,269	89,056	190	103,763	115,828	616	116,444	220,207	380
2010	618,359	1,622	619,981	8,984	973	72,775	379	83,111	110,299	565	110,864	193,975	368
2011	722,735	30,177	752,912	10,235	1,023	74,997	161	86,416	123,686	37	123,723	210,139	364
2012	867,635	725	868,360	12,468	1,466	99,785	290	114,009	170,484	83	170,567	284,576	333
2013	982,702	1,600	984,302	12,733	1,155	109,295	229	123,412	164,470	137	164,607	288,019	330
2014	1,019,390	1,890	1,021,280	13,594	21,737	57,609	191	93,131	113,056	59	113,115	206,246	344
2015	1,181,252	1,237	1,182,489	16,045	81,178	25,957	248	123,428	169,366	14	169,380	292,808	323
2016	1,349,283	466	1,349,749	18,293	88,962	25,096	169	132,520	152,790	1	152,791	285,311	350
2017	1,436,224	7,307	1,443,531	19,760	86,500	23,897	158	130,315	172,695	34	172,729	303,044	350
Forecast													
2018	1,508,036	0	1,508,036	20,068	94,090	25,994	149	140,543	187,848	42	187,890	328,191	356
2019	1,583,437	0	1,583,437	21,070	102,346	28,275	149	152,096	204,330	42	204,372	356,212	362
2020	1,662,609	0	1,662,609	22,124	102,521	28,323	149	153,385	204,680	42	204,722	357,839	368
2021	1,712,461	0	1,712,461	22,788	102,696	28,371	149	154,280	205,031	42	205,073	359,077	375
2022	1,763,808	0	1,763,808	23,470	102,872	28,420	149	155,195	205,381	42	205,423	360,334	382
2023	1,816,695	0	1,816,695	24,174	103,048	28,469	149	156,134	205,732	42	205,774	361,614	389
2024	1,871,167	0	1,871,167	24,900	103,224	28,517	149	157,090	206,085	42	206,127	362,917	396
2025	1,927,272	0	1,927,272	25,646	103,401	28,566	149	158,072	206,437	42	206,479	364,241	403
2026	1,985,060	0	1,985,060	26,414	103,578	28,615	149	159,076	206,790	42	206,832	365,588	410
2027	2,044,581	0	2,044,581	27,206	103,755	28,664	149	160,104	207,144	42	207,186	366,960	417
2028	2,105,886	0	2,105,886	28,022	103,932	28,713	149	161,156	207,499	42	207,541	368,357	424
2029	2,169,029	0	2,169,029	28,862	104,110	28,762	149	162,233	207,854	42	207,896	369,779	432
2030	2,234,066	0	2,234,066	29,728	104,288	28,811	149	163,336	208,210	42	208,252	371,228	440
2031	2,301,053	0	2,301,053	30,620	104,467	28,861	149	164,467	208,565	42	208,607	372,704	448
2032	2,370,048	0	2,370,048	31,538	104,646	28,910	149	165,625	208,922	42	208,964	374,207	456
2033	2,441,112	0	2,441,112	32,484	104,825	28,959	149	166,809	209,280	42	209,322	375,739	464
2034	2,514,307	0	2,514,307	33,458	105,004	29,009	149	168,024	209,638	42	209,680	377,300	472
2035	2,589,697	0	2,589,697	34,460	105,184	29,059	149	169,270	209,996	42	210,038	378,890	480
2036	2,667,347	0	2,667,347	35,494	105,364	29,108	149	170,545	210,356	42	210,398	380,513	489
2037	2,747,325	0	2,747,325	36,558	105,544	29,158	149	171,853	210,716	42	210,758	382,167	498

Year	Enplanements			Itinerant Operations					Local Operations			Total Operations	Total Based Aircraft
	Air Carrier	Commuter	Total Enplanements	Air Carrier	Air Taxi/Commuter	General Aviation	Military	Total Itinerant	Civil	Military	Total Local		
Compound Annual Growth Rates													
2007-2017	3.6%	-	3.6%	7.3%	54.0%	-15.1%	-13.2%	-0.3%	-0.3%	-7.5%	-0.3%	-0.3%	1.3%
2017-2037	3.3%	-	3.3%	3.1%	1.0%	1.0%	-0.3%	1.4%	1.0%	1.1%	1.0%	1.2%	1.8%

Source: Analysis by Jacobsen|Daniels, 2019

Jacobsen|Daniels

121 Pearl Street
Ypsilanti, MI 48197
(734) 961-3200
Jennifer.Dermody@jacobsendaniels.com

Atkins

482 South Keller Road
Orlando, FL 32810-6101
Jonathan.Hand@atkinsglobal.com

© WS Atkins, Inc. except where stated otherwise