D
Aviation Activity Forecasts

FDOT | 2043 FASP FLORIDA AVIATION SYSTEM PLAN

Appendix D

Aviation Activity Forecasts

Forecasting aviation activity across the state of Florida is crucial for understanding the potential strains and demands that the Florida aviation system may face in the future. The forecasts referred to in this chapter will be used to address future functionality of the airport system in the state and to ensure that every airport can serve appropriately in their role. The Florida Department of Transportation's (FDOT) seven regional districts will use these projections to assess the need for development of aviation facilities that service general and commercial aviation activity. These forecasts include 106 airports that are both publicly owned and available for public use. This group of airports is generally recognized as the Florida Aviation System of Airports.

The forecasts evaluate historical growth and trends using several methodologies. The methodologies being used are trend analysis, regression analysis, and market share analysis. The multiple, Florida systemwide forecasts developed address aircraft operations, enplanements, and based aircraft for both commercial service and general aviation airports.

In addition, the fleet mix analysis and critical aircraft review conducted in association with the forecasting effort assist with identifying potential shortfalls in aviation facilities across the Florida aviation system.

The following sections document projections of aviation demand developed for the Florida Aviation System Plan (FASP) 2043:

- Data Collection.
- FDOT Transportation Districts.
- Aviation Trends.
- Socioeconomic Trends.
- Historic Aviation Activity.
- Projections of Aviation Demand.
- Summary of Forecast Scenarios and Comparison to Terminal Area Forecast (TAF).
- Aircraft Fleet Mix.
- Critical Aircraft Analysis.
- Recommended Forecast.

Data Collection

The following resources were collected to assist with documenting existing and projecting forecasted levels of aviation activity within the state of Florida.

Airport Master Plans

Fifteen airport master plans that have been completed since 2018 were reviewed as part of the data collection effort. The comparison of aviation activity levels as projected in the master plans against existing data collected by the FDOT Aviation Office (FDOT AO) yields a fuller picture of activity levels.

FDOT Forecasts

The FDOT AO provided historical numbers regarding the total commercial enplanements of all commercial airports in the state from 2002 to 2021. In addition, the FDOT AO also provided their projected number of enplanements from 2022 to 2041.

Federal Aviation Administration (FAA) Terminal Area Forecast

The Terminal Area Forecast (TAF) is the official FAA forecast of aviation activity for United States (U.S.) airports. It contains active airports in the National Plan of Integrated Airport Systems (NPIAS) including FAA-towered airports, federal contract-towered airports, non-federal towered airports, and non-towered airports. Forecasts are prepared for major users of the National Airspace System including air carrier, air taxi/commuter, general aviation, and military. The TAFs used for this forecasting effort were issued by the FAA in February 2023. TAFs for each airport, the Southern Region of the FAA, and the Florida airport system were extracted to provide historical operations data from 2012 to 2021 and forecasted operations data through 2043.

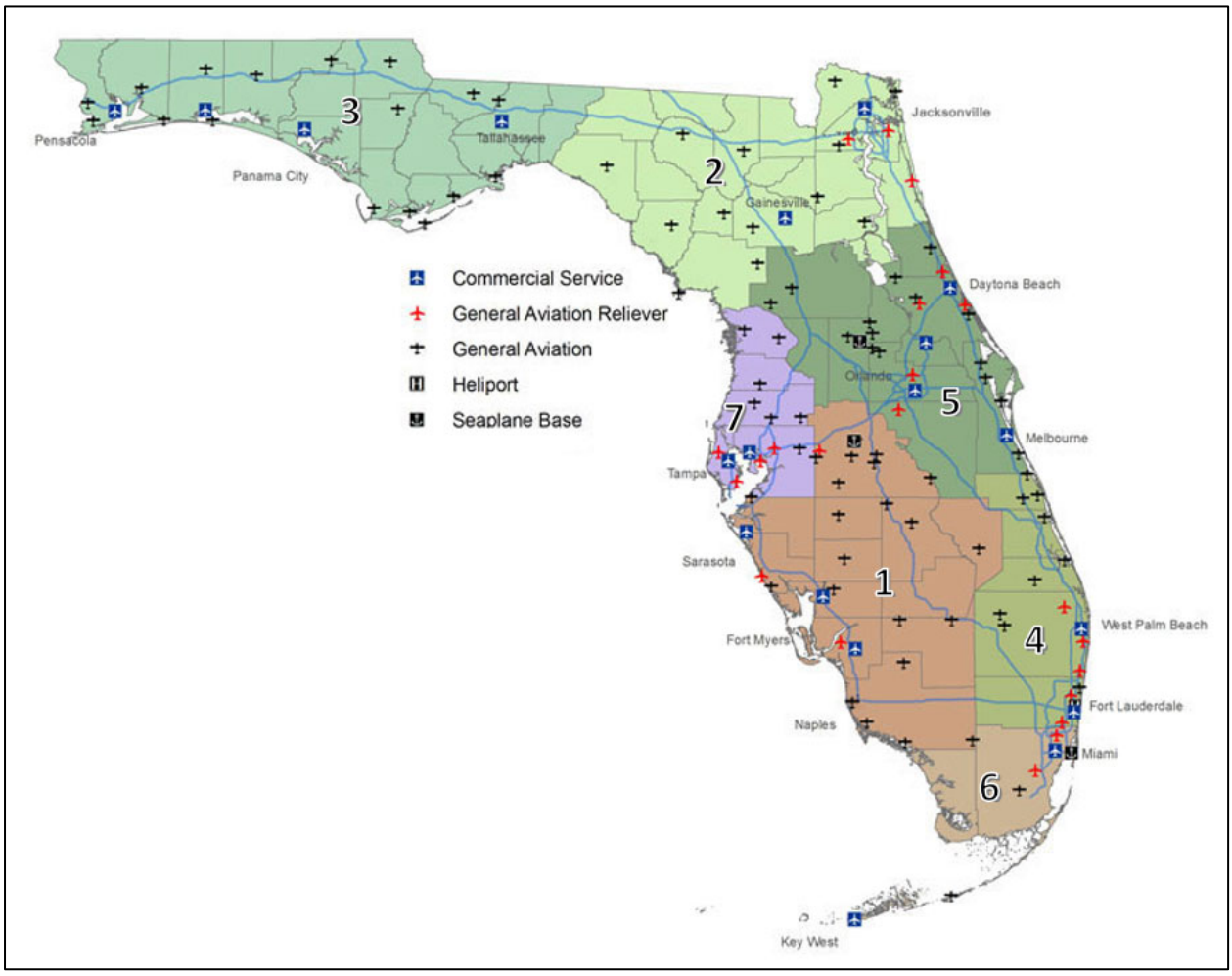
FAA Aerospace Forecasts 2023-2043

The FAA Aerospace Forecasts presents trends in all aspects of aviation in the United States. The latest document published by the FAA forecasts national aviation activity from 2023-2043. The FAA develops forecasts by using historical data to identify potential trends that include predicted growth and/or decay rates of several segments of aviation, including operations, enplanements, based aircraft, and general aviation activity.

FDOT Transportation Districts

FDOT governs its transportation system by separating the state into seven districts (**Figure 1**). Every district has a District Secretary and divisions for Operations, Production, Administration, and Planning. District Aviation Coordinators oversee the FDOT AO's grant management and other responsibilities for the Florida Aviation System airports within their respective districts. Additional information regarding each of FDOT's seven transportation districts is provided in the following sections.

Figure 1. Florida District Map



Source: FDOT 2023

District 1 (Southwest Florida)

This district is roughly 12,000 square miles and contains 12 counties. District 1 provides grant funds to 21 of the 27 public-use airports located in the district, including three commercial service airports. In addition, it is home to approximately 106 private-use aviation facilities, one military aviation facility, and one deep-water seaport. Sarasota, Fort Myers, and Naples are major cities located in this district.

- **Population:** 3.0 million
- **Airports:** 134 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Punta Gorda Airport, Sarasota-Bradenton International, and Southwest Florida International

District 2 (Northeast Florida)

Eighteen counties and their associated cities including Jacksonville and St. Augustine make up this district. District 2 provides grant funds to 16 of the 18 public-use airports located in the district, including two commercial service airports. In addition, it is home to approximately 95 private-use aviation facilities, and four military aviation facilities. Estimates here indicate roughly 43.2 million miles are driven every day. This region contains two deep-water ports, three major rail lines, and two major transit authorities.

- **Population:** 2.2 million
- **Airports:** 117 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Jacksonville International, and Gainesville Regional

District 3 (Northwest Florida)

District 3 is located entirely in the Florida Panhandle spanning over 11,500 square miles and 16 counties. District 3 provides grant funds to 15 of the 19 public-use airports located in the district, including four commercial service airports. In addition, it is home to approximately 69 private-use aviation facilities, and 15 military aviation facilities. Major urban centers located in this district include Pensacola and Tallahassee. The district has three deep-water ports, four rail lines, and more than 26.1 million miles are driven daily.

- **Population:** 1.4 million
- **Airports:** 103 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Northwest Florida Beaches International, Pensacola International, Tallahassee International, and Destin-Ft. Walton Beach

District 4 (Southeast Florida)

District 4 is a bit smaller compared to its counterparts, with it occupying 5,000 square miles and comprising four counties. District 4 provides grant funds to 15 of the 17 public-use airports located in the district, including two commercial service airports. In addition, it is home to approximately 60 private-use aviation facilities, and no military aviation facilities. This region sees travel totaling 52.4 million miles driven daily. It is home to three deep-water seaports, two railroads, a commuter rail

line, and two transit authorities. The largest cities in this district are Fort Lauderdale, Hollywood, and West Palm Beach.

- **Population:** 4.0 million
- **Airports:** 70 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Fort Lauderdale/Hollywood International, and Palm Beach International

District 5 (Central Florida)

Nine counties and 9,000 square miles make up the fastest growing region in Florida. District 5 provides grant funds to 21 of the 26 public-use airports located in the district, including four commercial service airports. In addition, it is home to approximately 121 private-use aviation facilities, and two military aviation facilities. A total of 125.9 million miles are driven daily, and seven transit authorities, four railroads, one passenger rail line, and one deep-water seaport serve the district. Unlike anywhere else in the state, the Central Florida region also hosts Space Florida, a spaceport used by NASA, SpaceX, and the United States Space Force. Major cities in the region include Orlando, Daytona Beach, and Palm Bay.

- **Population:** 4.4 million
- **Airports:** 149 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Daytona Beach International, Orlando International, Melbourne Orlando International, and Orlando Stanford International

District 6 (South Florida)

This district is home to two counties, Miami-Dade and Monroe. District 6 provides grant funds to 7 of the 8 public-use airports located in the district, including two commercial service airports. In addition, it is home to approximately 34 private-use aviation facilities, and two military aviation facilities. Miles driven daily total 56.7 million on roads in the region, and the district is served by two transit authorities, two rail lines, and two deep-water ports. Florida's largest metropolitan area is located here with Miami being the largest city. Other cities in this region are Homestead and Key West.

- **Population:** 2.9 million
- **Airports:** 44 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** Key West International, and Miami International

District 7 (West Central Florida)

This district has a land area of 3,322 square miles and represents five counties. District 7 provides grant funds to 11 of the 13 public-use airports located in the district, including two commercial service airports. In addition, it is home to approximately 56 private-use aviation facilities, and one military aviation facility. Miles driven daily total 33.6 million miles, and the region has access to three transit authorities, one rail line, and two deep-water ports. Major cities in this district are Tampa, St. Petersburg, and Clearwater.

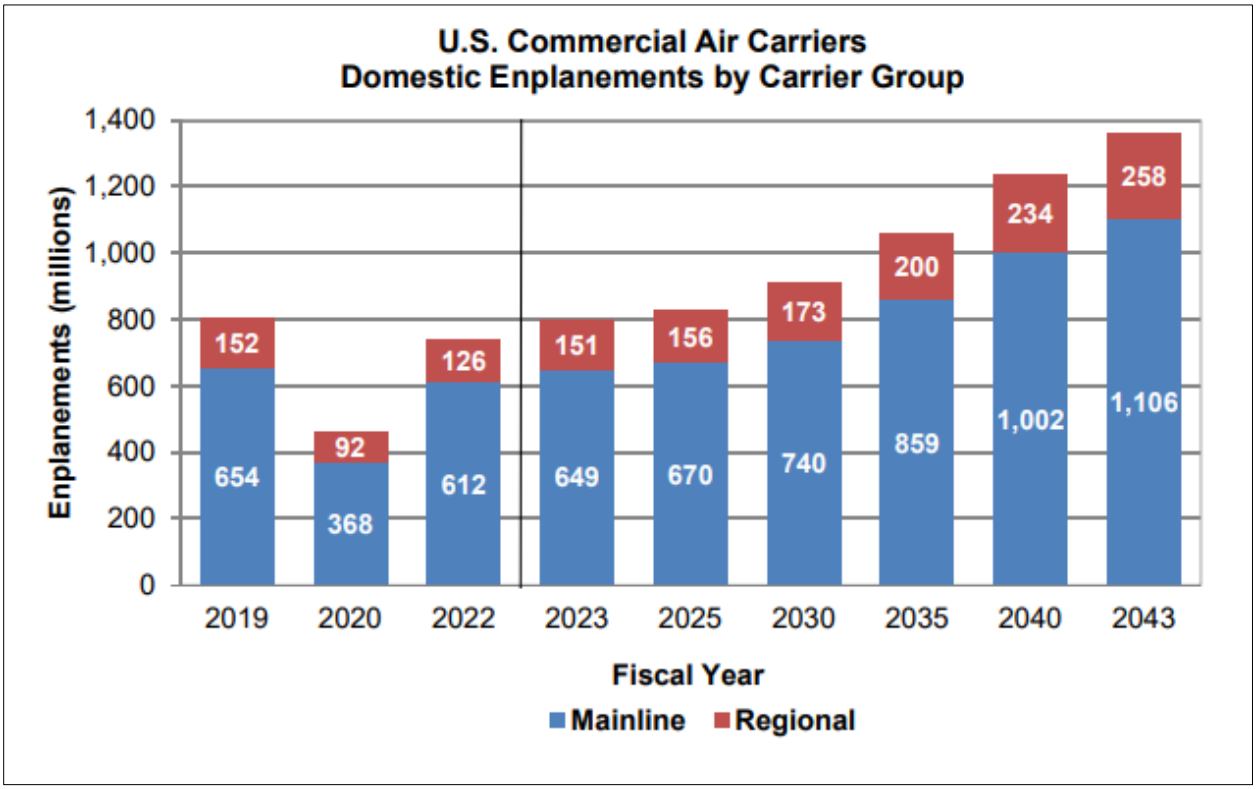
- **Population:** 3.3 million

- **Airports:** 70 *(privately owned and military airports are not included in forecast)*
- **Busiest Airports:** St. Petersburg-Clearwater International, and Tampa International

Aviation Trends

During the COVID-19 Pandemic, enplanements saw a sharp decline, whether travel was domestic or international. Since then, enplanement numbers have recovered to similar rates that were occurring in 2019. The *FAA Aerospace Forecast 2023-2043* predicts that enplanement numbers will rise through 2043 (**Figure 2**). As of 2023, domestic airlines are projected to reach 800 million enplanements with 649 million passengers taking main line carriers and 151 million passengers using regional carriers. The FAA forecast indicates that by 2043 passenger enplanements will rise to 1.364 billion passengers, with regional airlines taking on 258 million passengers and main line carriers transporting 1.106 billion passengers. Enplanements in the U.S. are forecasted to increase by more than 68 percent between 2023 and 2043.

Figure 2. Domestic Enplanements



Source: FAA Aerospace Forecast 2023-2043

Likewise, the FAA Aerospace Forecast also projects international enplanements to increase annually by 3.9 percent through 2043. In 2023, 241 million enplanements are projected to be conducted on U.S. and international air carriers travelling to and from the U.S. In 2043, it is predicted that 482 million enplanements will occur among all air carriers for international travel to and from the U.S.

Commercial Operations Growth Through 2043

Like enplanements, air carrier operations are returning to pre-pandemic levels. Demand for leisure travel has never been higher, and demand for air service for business purposes continues to rise as well. As demand is expected to grow through 2043, it is believed that carriers may struggle with capacity. A pilot shortage has hindered airline operations since before the pandemic. Many airlines had to furlough or lay off pilots, making it difficult for airlines today to meet the demands of American passengers. The forecasts published by the FAA indicate operational growth that is optimistic; however, the concern is that if the pilot shortage continues to be an issue, airlines will not be able to keep up.

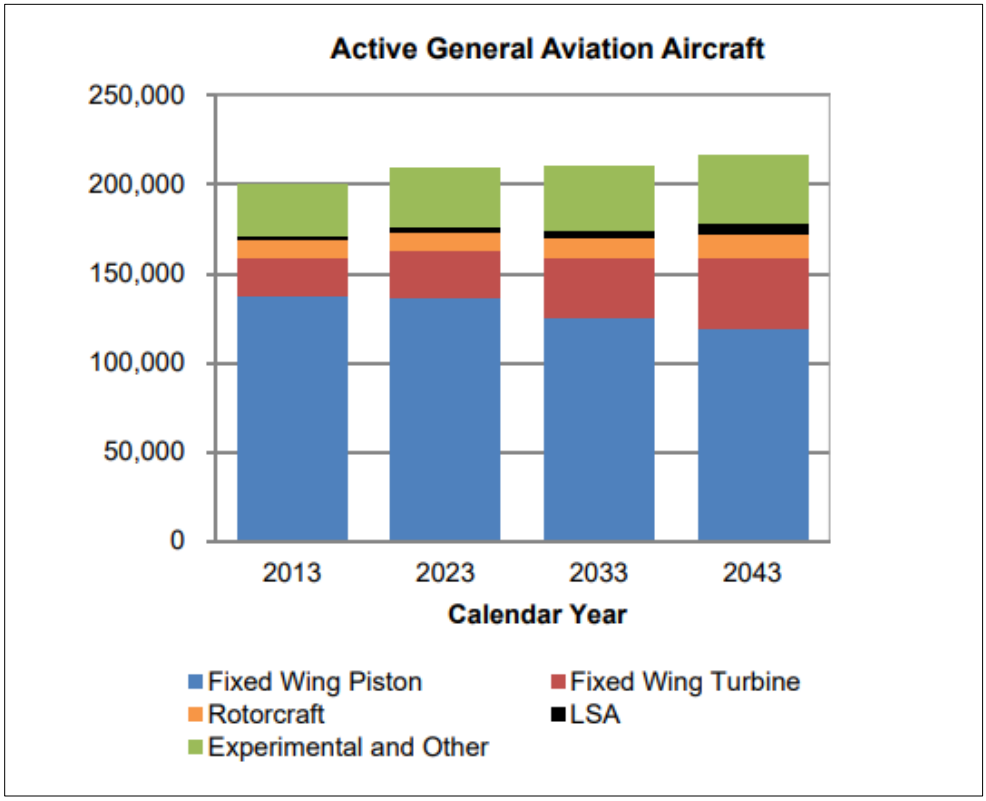
General Aviation Operations Through 2043

Like other trends in aviation, general aviation (GA) operations are expected to increase through 2043. The increase in GA operations results from the impact that the growth in the projected GA aircraft fleet has on GA operations. Active aircraft totals in the U.S. are projected to increase from 209,195 aircraft in 2023 to 216,395 in 2043. With this increase, the total number of fixed-winged piston aircraft is expected to decrease; however, turbine and light sport/experimental aircraft are expected to offset that decrease and drive the overall increase in aircraft in 2043 (**Figure 3**).

Another forecast published by the FAA indicates that hours flown by GA aircraft is expected to increase by 0.7 percent per year through 2043. Like active GA aircraft, fixed-winged piston aircraft operations are expected to see a decrease in hours flown. This decrease is again offset by turbine and light sport/experimental aircraft as these types of operation are expected to grow (**Figure 4**).

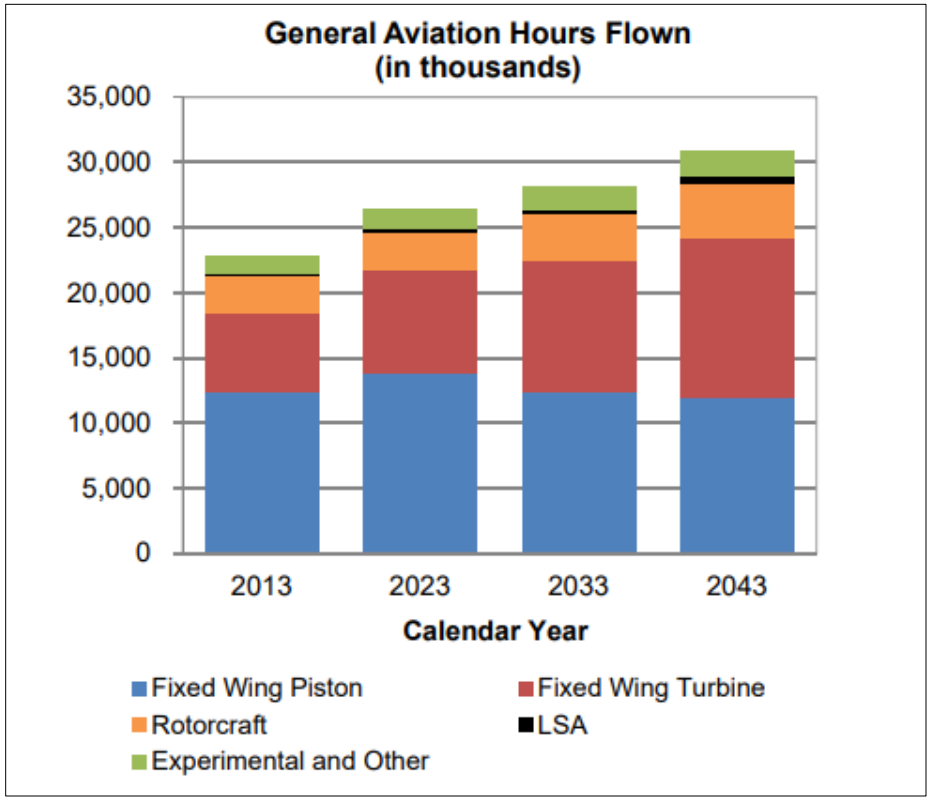
In comparison to other aspects in aviation, GA operations are also expected to grow over the next 20 years. Specifically, GA turbine and light sport/experimental aircraft usage is what will be driving the growth in GA operations through 2043.

Figure 3. Aircraft Totals



Source: FAA Aerospace Forecast 2023-2043

Figure 4. Hours Flown



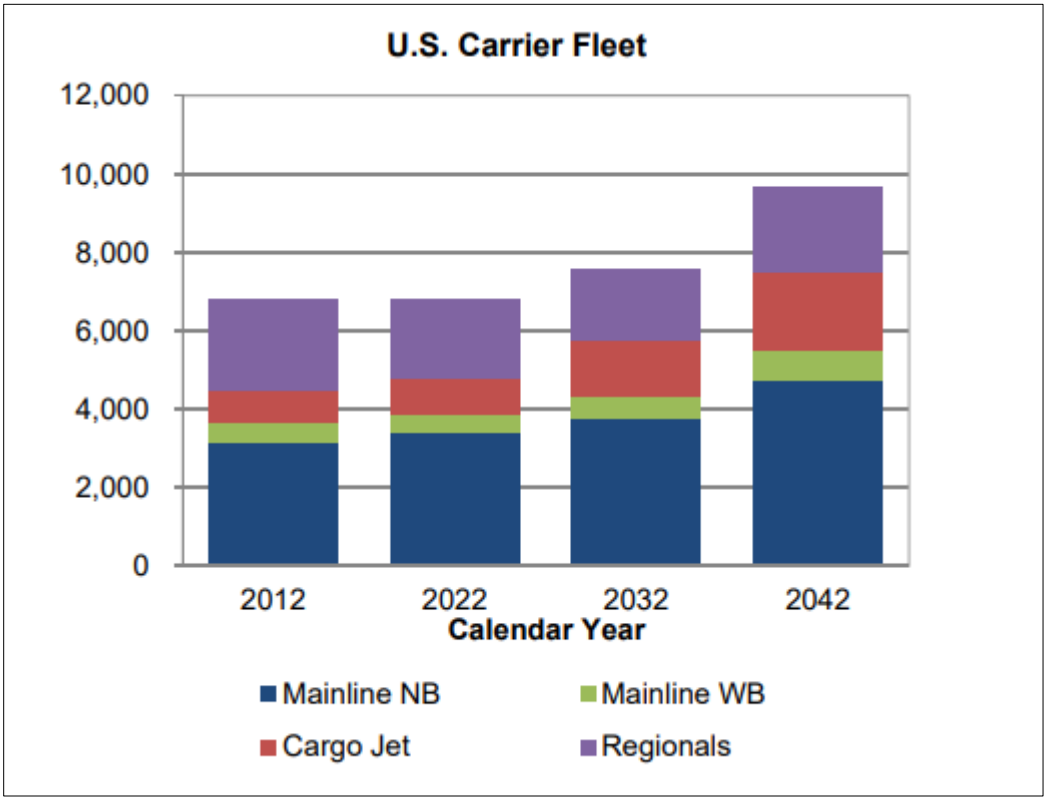
Source: FAA Aersopace Forecast 2023-2043

Based Aircraft Through 2043

As mentioned previously, the inventory of GA aircraft is expected to grow from 209,195 aircraft to 216,395 aircraft between 2023 and 2043. FAA forecasts that the based fleet will see decrease in fixed-winged piston aircraft and an increase in turbine and light sport/experimental aircraft.

Commercial aircraft based in the U.S. are predicted to increase to approximately 10,000 aircraft in 2043 from the 2022 total of 6,852 aircraft. This would result in a 2.0 percent annual growth rate between 2022 and 2043. Mainline commercial aircraft are expected to make up most of the commercial fleet based in America; however, cargo fleets are expected to see the largest increase (**Figure 5**).

Figure 5. Commercial Based Fleet



Source: FAA Aerospace Forecast 2023-2043

In light of the previously mentioned forecasts, it is expected that the total number of based aircraft in the U.S. is going to increase through 2043.

Socioeconomic Trends

Socioeconomic characteristics are often collected during the airport planning process and examined to derive an understanding of the dynamics of historic and projected growth within an airport system's market area. The socioeconomic factors play a vital role and have a direct impact on the long-term passenger and operational demand on Florida's aviation system. In general, there is a correlation among areas of greater populations, employment, personal income per capita, and a strong aviation service demand. Specifically, these key socioeconomic indicators or drivers tend to have an influence on passenger enplanements and their future projections.

The COVID-19 pandemic, which began in the U.S. in March 2020, has led to a prolonged economic recovery. Nearly every industry was impacted by the pandemic, including manufacturing, healthcare, education, finance, hospitality and tourism, and research and development. The following section analyzes the historic growth patterns of the socioeconomic variables for the Florida aviation system. The projections were derived from the most recent edition of Woods & Poole Economics' Complete Economic and Demographic Data Source (CEDDS) and Bureau of Economic and Business Research (University of Florida).

The Bureau of Economic and Business Research anticipates that Florida population will grow by nearly 30 percent between the years 2023 and 2043. **Table 1** identifies populations for each district as well as Florida as a whole from the 2010 and 2020 censuses and the forecasted years of 2023, 2028, 2033, and 2043. The forecasted population was calculated using straight-line interpolation from the forecasted years presented by the Bureau of Economic and Business Research.

Table 1. Florida Population by District

District	Population					
	2010 Census	2020 Census	2023 Forecast	2028 Forecast	2033 Forecast	2043 Forecast
1	2,658,027	3,119,200	*3,257,551*	*3,527,040*	*3,727,780*	*4,052,980*
2	1,960,058	2,229,000	*2,325,900*	*2,470,180*	*2,589,780*	*2,778,700*
3	1,366,092	1,495,300	*1,543,720*	*1,615,180*	*1,673,040*	*1,764,580*
4	3,630,335	4,040,400	*4,177,320*	*4,381,220*	*4,551,040*	*4,824,560*
5	3,692,794	4,408,300	*4,660,720*	*5,038,160*	*5,349,620*	*5,855,840*
6	2,569,525	2,926,200	*3,029,940*	*3,186,460*	*3,320,960*	*3,531,200*
7	2,924,479	3,337,400	*3,479,960*	*3,689,900*	*3,856,980*	*4,124,140*
FL Total	**18,801,310**	**21,555,800**	***22,475,111***	***23,908,140***	***25,069,200***	***26,932,000***

Source: Bureau of Economic and Business Research, 2023

Between the years 2012 and 2020, Florida experienced a compounded annual growth rate (CAGR) of 2.1 percent in employment. Employment rates steadily grew throughout the period, with the exception being between 2019 and 2020. All districts witnessed a minor decline in employment rates most likely resulting

from the loss of jobs due to the COVID-19 Pandemic. The historical employment numbers in Florida are identified in **Table 2**.

Forecasted employment numbers, as produced by Woods & Poole, are presented in **Table 3**. Similar to population, employment numbers in Florida are anticipated to grow by more than 36 percent over the forecast period.

Table 2. Historical Employment by District

District	Employment (thousands)								
	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	1,267	1,308	1,368	1,424	1,459	1,511	1,566	1,595	1,542
2	1,051	1,070	1,100	1,134	1,169	1,220	1,255	1,278	1,240
3	732	744	760	774	795	816	836	842	819
4	2,059	2,128	2,222	2,321	2,376	2,451	2,546	2,570	2,432
5	2,010	2,061	2,143	2,229	2,314	2,417	2,528	2,588	2,420
6	1,567	1,622	1,693	1,773	1,811	1,859	1,936	1,962	1,837
7	1,564	1,605	1,652	1,712	1,758	1,823	1,888	1,926	1,860
Florida Total	**10,249**	**10,539**	**10,937**	**11,367**	**11,682**	**12,098**	**12,556**	**12,762**	**12,149**

Source: Woods & Poole, 2023

Table 3. Forecasted Employment by District

District	Employment (thousands)			
	2023	2028	2033	2043
1	1,704	1,845	1,984	2,258
2	1,370	1,493	1,617	1,874
3	891	953	1,016	1,144
4	2,784	3,068	3,361	3,987
5	2,807	3,097	3,394	4,016
6	2,099	2,276	2,453	2,814
7	2,037	2,187	2,330	2,608
Florida Total	**13,693**	**14,918**	**16,155**	**18,701**

Source: Woods & Poole, 2023

During the 2012-2020 period, all districts achieved modest year over year growth in per capita income (**Table 4**).

Similar to population and employment, per capita income (**Table 5**) is also forecasted to grow throughout the forecast period. The average per capita income among all districts is estimated to exceed $64,000 in 2023 and grow to more than $164,000 by 2043.

Table 4. Historical Per Capita Income by District

District	Per Capita Income								
	2012	2013	2014	2015	2016	2017	2018	2019	2020
1	$35,781	$35,908	$38,365	$40,658	$41,030	$43,087	$44,754	$46,537	$49,270
2	$30,894	$31,118	$32,593	$34,012	$34,383	$36,159	$37,429	$38,330	$41,054
3	$32,297	$31,992	$33,375	$34,639	$35,757	$37,276	$38,878	$40,858	$43,819
4	$57,843	$56,384	$61,322	$64,475	$66,521	$70,865	$74,570	$77,520	$79,685
5	$35,665	$35,839	$37,348	$38,938	$40,244	$42,202	$44,052	$46,093	$48,392
6	$54,648	$51,656	$55,633	$57,087	$59,707	$64,878	$71,502	$74,370	$76,322
7	$37,044	$36,974	$38,541	$40,056	$40,877	$42,260	$43,884	$45,596	$48,567
FL Average	$40,596	$39,981	$42,454	$44,266	$45,503	$48,104	$50,724	$52,758	$55,301

Source: Woods & Poole, 2023

Table 5. Forecasted Per Capita Income by District

District	Per Capita Income			
	2023	2028	2033	2043
1	$57,306	$72,768	$92,649	$149,695
2	$46,789	$58,795	$74,134	$117,610
3	$49,903	$62,716	$79,057	$125,243
4	$86,639	$109,438	$138,438	$220,331
5	$56,455	$71,550	$90,918	$146,418
6	$95,411	$121,260	$154,258	$248,197
7	$55,932	$70,608	$89,341	$142,455
FL Average	$64,062	$81,019	$102,685	$164,278

Source: Woods & Poole, 2023

Historical Aviation Activity

Historical data was gathered for each of Florida's airports within the seven transportation districts. Data from 2012 to 2022 regarding based aircraft, GA operations, commercial operations, and enplanements was used to develop forecasts from 2023 to 2043. It is necessary to identify trends in historical data to formulate an accurate forecast for the FASP. This information can help contribute to the appropriate development of Florida's aviation infrastructure in the coming years.

Historical Based Aircraft

Based aircraft are those that are operational and airworthy, which are typically based at a facility for a majority of the year (*Source: BasedAircraft.com, User Guide, page 14, 10/29/2012*). Historical based aircraft counts were retrieved for each airport from the FAA's TAF, published in February 2023. **Figure 6** illustrates the historical aircraft trends by district. **Table 6** specifies the historical based aircraft counts by district for the years 2012-2022.

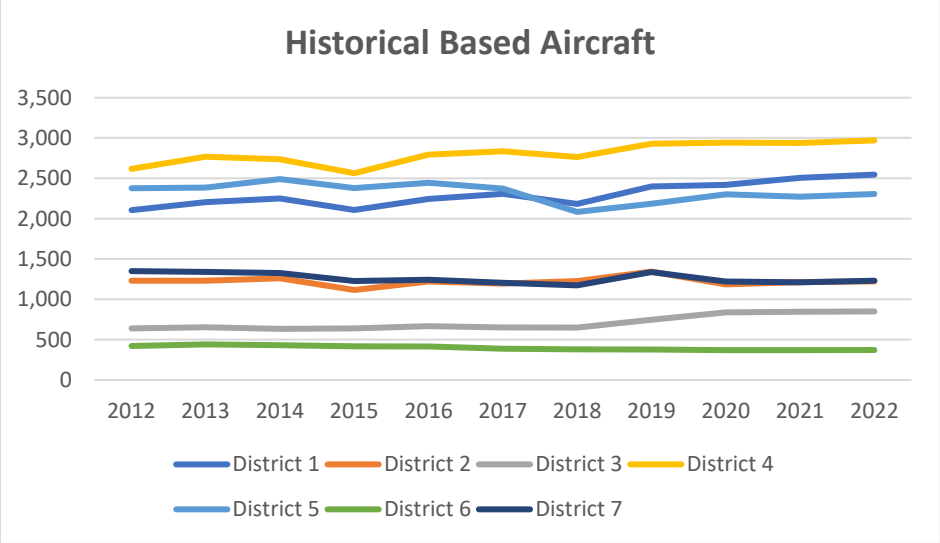
Historical General Aviation Operations

According to the 2023 FAA TAF, GA operations (both local and itinerant) have experienced steady, modest growth in Florida since 2012. However, a downturn in GA operations occurred in 2020 for most districts, except for Districts 2 and 7, due to the impact of the COVID-19 Pandemic. Between 2019 and 2020, GA operations across the state were down by 6 percent. Since 2020, they have rebounded to reach near pre-pandemic levels by the end of 2023. **Figure 7** and **Table 7** demonstrate the historical change in GA operations by district for the years 2012-2022.

Historical Commercial Operations

Likewise, the FAA's TAF demonstrated that, commercial service operations (which include air carrier, air cargo, and air taxi/commuter operations) have experienced year-over-year growth since 2012. However, much like general aviation operations, commercial operations witnessed a significant loss due to the impacts of the COVID-19 Pandemic. Between 2019 and 2020, commercial operations in Florida decreased by 33 percent. By 2021, they had started to regain and by 2022 were recovered to 90 percent of their pre-pandemic levels. **Figure 8** and **Table 8** show the downturn and recovery of the historical commercial/air taxi operations in Florida.

Figure 6. Historical Based Aircraft



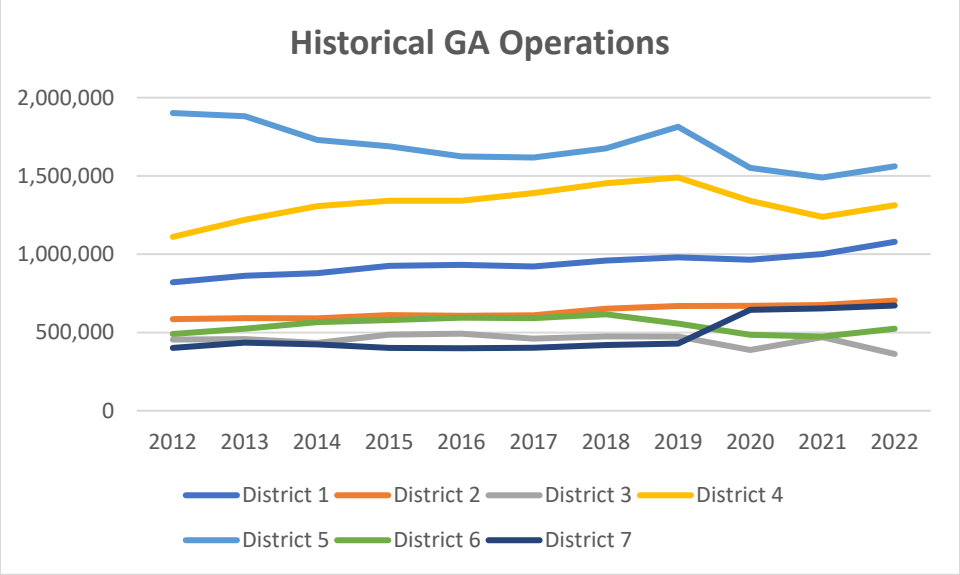
Source: FAA TAF, 2/2023

Table 6. Historical Based Aircraft

District	Historical Based Aircraft										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	2,106	2,203	2,250	2,107	2,244	2,306	2,181	2,399	2,418	2,506	2,546
2	1,231	1,231	1,260	1,116	1,221	1,194	1,227	1,344	1,184	1,212	1,223
3	639	654	634	639	667	652	649	746	838	846	851
4	2,617	2,766	2,735	2,563	2,793	2,835	2,762	2,927	2,941	2,938	2,970
5	2,377	2,384	2,490	2,378	2,443	2,373	2,083	2,183	2,300	2,271	2,305
6	421	442	432	418	416	388	380	378	370	370	372
7	1,351	1,340	1,325	1,227	1,242	1,205	1,174	1,337	1,220	1,211	1,231
Total	**10,742**	**11,020**	**11,126**	**10,448**	**11,026**	**10,953**	**10,456**	**11,314**	**11,271**	**11,354**	**11,498**

Source: FAA TAF, 2/2023

Figure 7. Historical General Aviation Operations



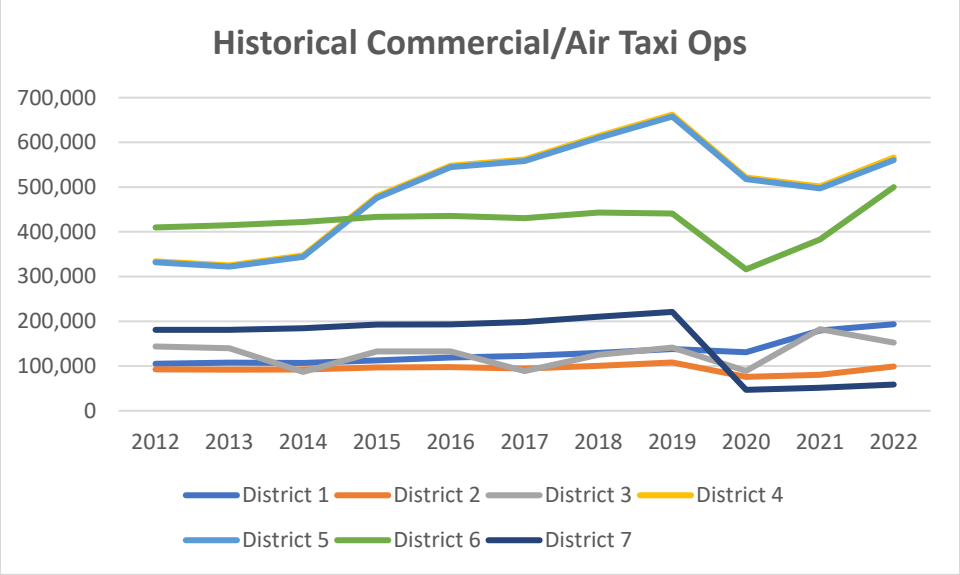
Source: FAA TAF, 2/2023

Table 7. Historical General Aviation Operations

District	Historical General Aviation Operations										
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	820,944	861,831	878,159	925,554	932,161	921,807	958,777	979,430	964,412	1,001,016	1,079,680
2	585,351	591,310	590,096	610,670	607,201	609,401	652,172	668,932	670,558	674,943	704,383
3	454,204	457,295	433,414	486,068	493,129	460,358	474,621	473,946	388,531	470,368	363,233
4	1,111,171	1,219,577	1,306,777	1,341,576	1,341,535	1,389,986	1,452,611	1,490,106	1,339,917	1,238,295	1,312,813
5	1,901,545	1,880,647	1,729,756	1,688,893	1,624,792	1,616,959	1,675,661	1,813,520	1,550,492	1,489,512	1,560,762
6	490,323	524,464	565,931	579,418	594,986	591,869	616,147	557,155	485,143	474,767	523,993
7	401,236	435,334	424,014	401,095	399,418	402,241	419,573	429,347	644,881	654,270	672,824
Total	**5,764,774**	**5,970,458**	**5,928,147**	**6,033,274**	**5,993,222**	**5,992,621**	**6,249,562**	**6,412,436**	**6,043,934**	**6,003,171**	**6,217,688**

Source: FAA TAF, 2/2023

Figure 8. Historical Commercial/Air Taxi Operations



Source: FAA TAF, 2/2023

Table 8. Historical Commercial/Air Taxi Operations

District	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	105,111	107,660	106,912	112,678	118,988	122,724	129,477	137,905	130,951	179,619	193,748
2	92,475	91,728	92,333	97,030	97,591	94,417	100,431	108,008	75,781	80,573	98,895
3	143,591	139,828	86,908	132,486	132,733	88,720	125,207	141,081	89,157	182,442	152,322
4	334,057	325,315	347,038	479,402	547,721	561,593	613,757	661,898	521,432	501,295	566,080
5	331,736	322,292	344,049	476,066	544,484	557,967	609,909	657,579	517,726	496,920	560,228
6	409,748	414,600	421,734	433,338	435,506	430,582	442,992	440,999	316,412	382,909	500,121
7	180,782	180,854	184,580	192,704	192,893	198,302	210,312	221,175	46,816	51,480	58,729
Totals	**1,597,500**	**1,582,277**	**1,583,554**	**1,923,704**	**2,069,916**	**2,054,305**	**2,232,085**	**2,368,645**	**1,698,275**	**1,875,238**	**2,130,123**

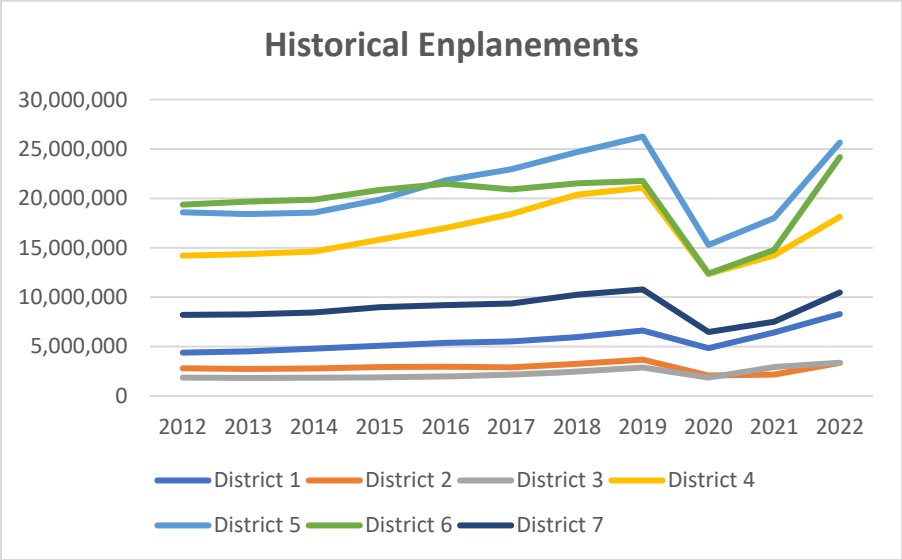
Source: FAA TAF, 2/2023

Historical Enplanements

The FAA's TAF classifies passenger enplanements as the total number of revenue passengers boarding an aircraft, including both origin and transfer passengers. The enplanement counts do not include pilots, flight attendants, and non-revenue airline crew members. The FAA classifies passenger enplanements based on the type of carrier operating the flight. Air carrier enplanements refer to enplanements on mainline air carriers that provide service using aircraft with 60 or more seats. Commuter enplanements typically occur on airlines whose primary function is feeding passengers to mainline carriers. Commuter airlines primarily operate aircraft with 60 or fewer seats. The split by operation type will shift from a commuter/air taxi dominance from historical years to air carrier operations holding a majority share of commercial operations in future years. This is due to the evolution of the aircraft fleet mix, which will see the retirement of 50-seat aircraft and the replacement of smaller aircraft with larger, more fuel-efficient equipment. For the purposes of this forecast, air carrier and commuter enplanements are combined to show total enplanements.

After suffering through an extreme loss (approximately 40 percent) in enplanements between 2019 and 2020, passenger enplanements in Florida not only recovered, but exceeded their pre-pandemic level by the year 2022. **Figure 9** and **Table 9** show the recovery, including overall totals.

Figure 9. Historical Enplanements



Source: FAA TAF, 2/2023

Table 9. Historical Enplanements

District	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
1	4,401,721	4,516,509	4,796,334	5,088,663	5,371,864	5,513,823	5,959,066	6,615,458	4,838,463	6,432,913	8,299,921
2	2,802,278	2,742,000	2,787,845	2,925,377	2,961,194	2,903,334	3,257,439	3,686,753	2,075,211	2,167,793	3,352,633
3	1,860,658	1,837,615	1,844,777	1,898,439	1,973,131	2,169,207	2,481,249	2,879,981	1,864,369	2,922,188	3,367,441
4	14,198,534	14,354,280	14,621,492	15,813,801	16,994,184	18,416,637	20,365,370	21,091,122	12,357,052	14,228,994	18,135,917
5	18,583,995	18,415,814	18,555,169	19,874,170	21,829,270	22,938,694	24,678,021	26,255,263	15,288,446	18,005,152	25,647,469
6	19,365,556	19,667,703	19,873,888	20,854,508	21,477,714	20,908,680	21,522,047	21,763,289	12,402,003	14,789,013	24,182,844
7	8,206,805	8,250,952	8,448,779	8,988,634	9,197,382	9,353,895	10,248,150	10,787,303	6,483,333	7,519,175	10,475,549
Total	**69,419,547**	**69,784,873**	**70,928,284**	**75,443,592**	**79,804,739**	**82,204,270**	**88,511,342**	**93,079,169**	**55,308,877**	**66,065,228**	**93,461,774**

Source: FAA TAF, 2/2023

Projections of Aviation Demand

Projections of aviation demand for the 20-year planning period are typically presented by comparing various methodologies and choosing a preferred projection based on historical trends in operations, passenger enplanements, and based aircraft. The trends are correlated with socioeconomic data such as population, employment, and income. In addition, market share analysis was also performed to forecast Florida aviation activity as it relates to the Southern Region as the FAA defines it. The projections of demand have been developed for the years 2023, 2028, 2033, and 2043.

Forecast Methodologies

The most reliable and acceptable approach to forecasting future aviation demand is to use a variety of analytical techniques. The forecasts prepared for the FASP 2043 were developed using widely accepted methodologies including trendline analysis, regression analysis, and market share analysis.

Trendline Analysis

Trendline analysis examines historical growth trends in activity and applies them to current demand levels to produce projections of future activity. This methodology assumes that aviation activity and the factors which have historically affected it will continue to influence demand levels at similar rates over an extended period of time.

Regression Analysis

The demographic and economic elements of the community and its corresponding economy directly influence forecasting future aviation activity levels. For the purposes of this forecast, socioeconomic factors with the strongest correlation to aviation activity included employment, per capita income, and population.

Market Share Analysis

Market share analysis projects future aviation activity by comparing it to a higher-level forecast. For the purposes of this forecasting effort, market share forecasts were developed for the state of Florida based upon the FAA's forecast of future activity for the entire Southern Region of the FAA. This is considered a "top-down" approach method of forecasting since forecasts of much larger systems are used to generate forecasts for the seven transportation districts within the State of Florida.

Historical Trendline Analysis

The future aviation operations and enplanements displayed in this section were developed using trends found in the previously presented historical data. The purpose of analyzing historical aviation data on a state level and using it to develop a forecast is to prepare the state with an accurate expectation of the growth or decline of aviation operations across Florida. These forecasts were separated into seven transportation districts that assist in analyzing specific regions and their demands for improved aviation infrastructure.

Trendline Forecast for Based Aircraft, and General Aviation and Commercial-Air Taxi Operations

Using historical data from the TAF, based aircraft trendline forecasts were developed for the years 2023, 2028, 2033, and 2043. Results of this analysis indicate that the number of based aircraft are projected to increase by more than 11 percent throughout the state of Florida by 2043. These forecasts also indicate that Districts 5, 6, and 7 may experience a slight decline in the number of based aircraft over the time period. **Figure 10** and corresponding **Table 10** illustrate the trendlines of the forecast and detail the projected number of based aircraft to be housed within the State.

Based upon historical data, GA operations are expected to significantly increase throughout the state of Florida. Every district is anticipated to grow in GA operations throughout the forecast period except for District 5. **Figure 11** and **Table 11** depict details of the GA operations trendline forecast.

Commercial/air taxi operations are expected to significantly increase across the state. Florida is the second most visited state in the U.S., and its tourist industry is expected to continue to grow, which will likely drive increases in commercial/air taxi operations. **Figure 12** and **Table 12** present the trendline forecast for commercial/air taxi operations by district, as well as by state.

Figure 10. Trendline Forecast of Based Aircraft

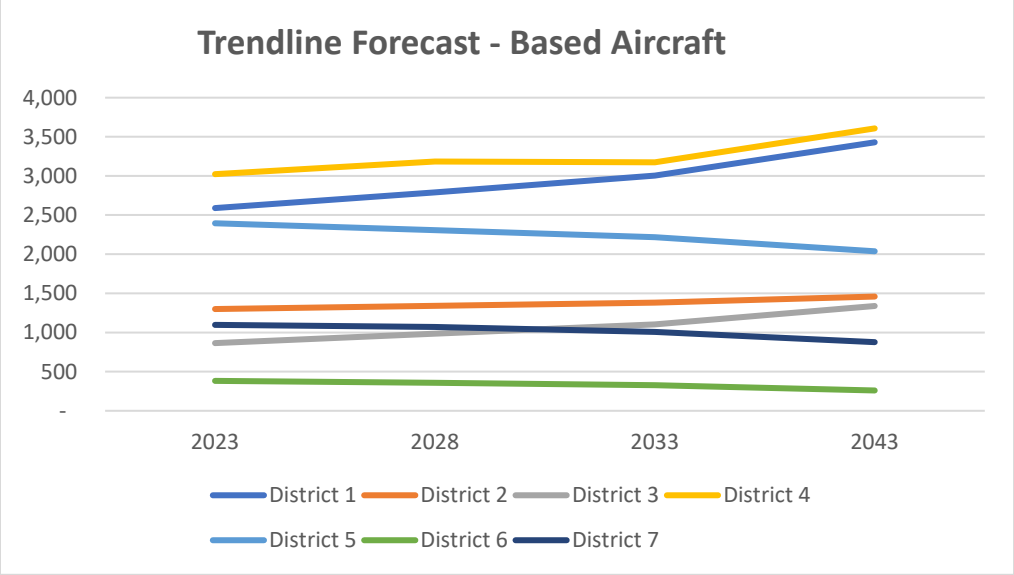


Table 10. Trendline Forecast of Based Aircraft

District	2023	2028	2033	2043
1	2,590	2,790	3,003	3,430
2	1,301	1,341	1,380	1,459
3	866	984	1,102	1,339
4	3,022	3,182	3,172	3,608
5	2,396	2,306	2,216	2,038
6	383	357	326	260
7	1,099	1,071	1,007	877
Totals	**11,657**	**12,031**	**12,208**	**13,012**

Figure 11. Trendline Forecast of GA Operations

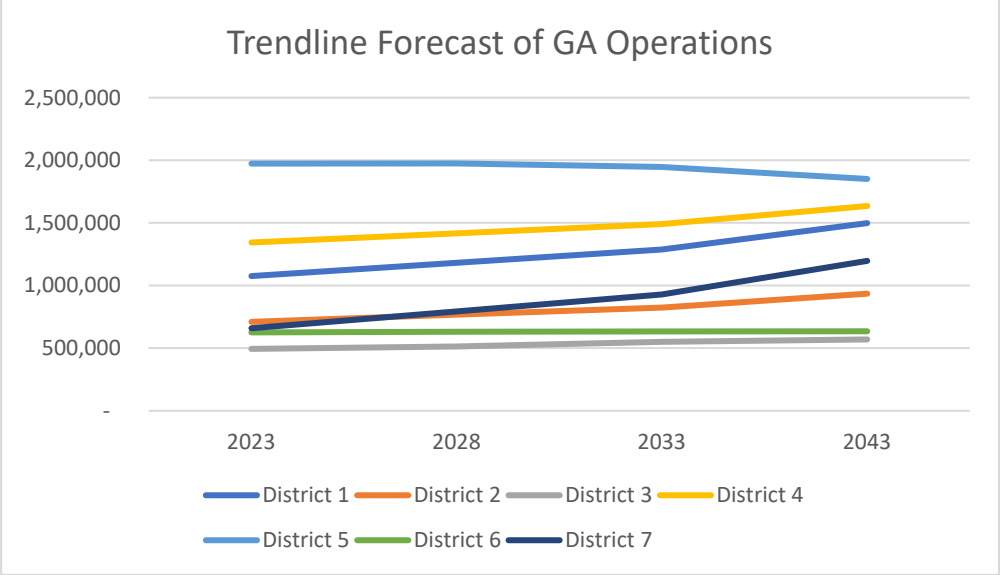


Table 11. Trendline Forecast of GA Operations

District	2023	2028	2033	2043
1	1,075,939	1,181,664	1,287,389	1,498,840
2	710,721	766,914	823,106	935,491
3	495,111	513,701	550,883	569,473
4	1,343,596	1,416,603	1,489,609	1,635,622
5	1,973,109	1,974,988	1,946,543	1,851,038
6	626,724	630,433	632,824	635,070
7	659,115	793,500	927,886	1,196,656
Totals	**6,884,315**	**7,277,803**	**7,658,240**	**8,322,191**

Figure 12. Trendline Forecast of Commercial/Air Taxi Operations

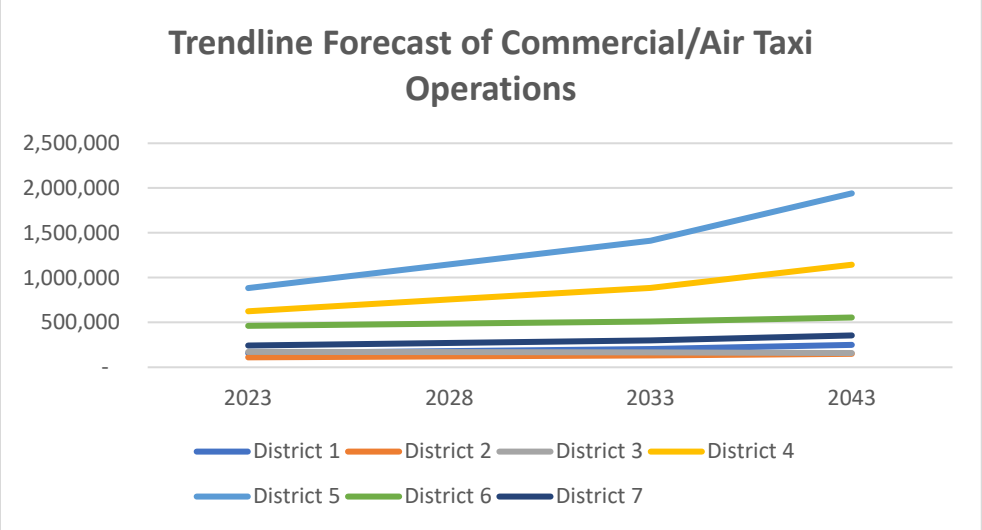


Table 12. Trendline Forecast of Commercial/Air Taxi Operations

District	2023	2028	2033	2043
1	156,193	179,548	202,903	249,613
2	111,426	120,858	130,290	149,153
3	171,962	168,549	165,209	158,734
4	625,412	755,129	884,846	1,144,279
5	883,648	1,147,836	1,412,024	1,940,401
6	462,570	485,818	509,066	555,562
7	243,036	271,098	299,161	355,286
Totals	**2,654,246**	**3,128,836**	**3,603,498**	**4,553,028**

Trendline Forecast of Enplanements

The trendline forecast of enplanements illustrates that the numbers have recovered from the impacts of the pandemic and will continue to increase through 2043 across Florida. Enplanement levels are projected to increase by more than 67 percent (**Figure 13** and **Table 13**).

Figure 13. Trendline Forecast of Enplanements

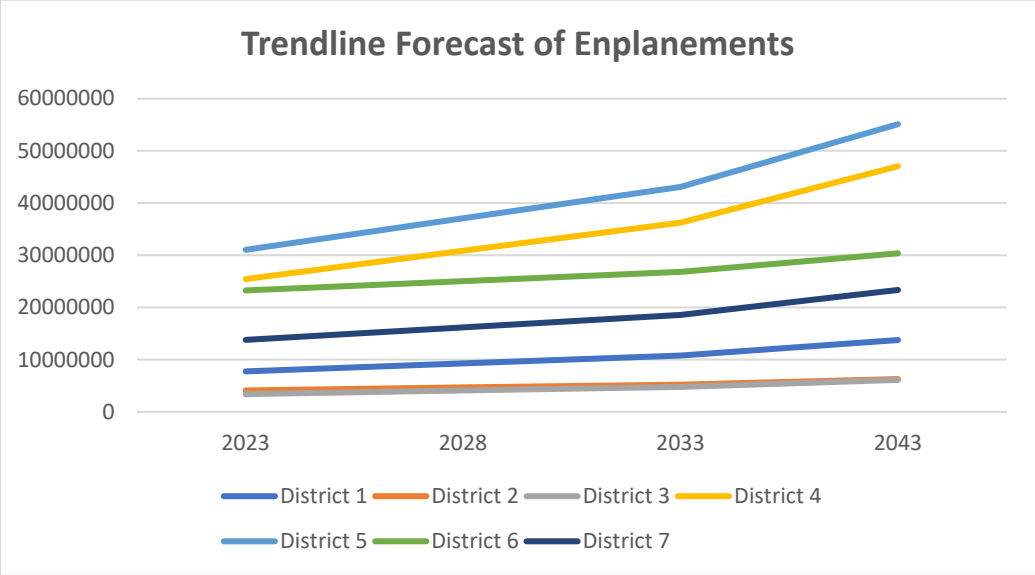


Table 13. Trendline Forecast of Enplanements

District	2023	2028	2033	2043
1	7,776,152	9,273,315	10,770,479	13,764,806
2	4,122,506	4,667,196	5,211,887	6,301,268
3	3,422,905	4,101,561	4,780,217	6,137,528
4	25,441,818	30,847,082	36,252,346	47,062,874
5	31,062,148	37,071,799	43,081,450	55,100,752
6	23,271,238	25,046,928	26,822,619	30,374,000
7	13,788,130	16,183,721	18,579,312	23,370,493
Total	**108,884,896**	**127,191,602**	**145,498,308**	**182,111,721**

Socioeconomic Forecast of Aviation Activity

The level of confidence in a regression analysis is high if there is a high correlation between the two sets of data used for the analysis. In this case, the known data is the projection of employment, per capita income, and population for the state, which was used to extrapolate aviation activity. Correlation is expressed in terms of the correlation coefficient, of which a value of one is perfect correlation, while a value of zero indicates no correlation at all. A value above 0.8 shows a reasonable level of confidence in the correlation and resulting projection. Only scenarios where there was a correlation value of 0.8 or higher between the socioeconomic data set and based aircraft, operations, or enplanements were used for the purposes of the socioeconomic based forecasts.

Aviation Activity vs. Employment

Regression analysis was conducted to determine whether a statistical relationship exists between general aviation operations and employment. The correlation coefficient for this relationship was only 0.63, so it was determined that the correlation between these two data sets is not statistically significant enough to use the relationship in a forecast model. Likewise, there was no significant statistical correlation between employment levels and based aircraft. The correlation coefficient value between these two data sets was only 0.2. No further analysis or forecast models for GA operations or based aircraft were performed based on the low correlation factor.

However, regression analysis was conducted between Florida rates of employment and commercial and air taxi operations. Under this scenario, the correlation coefficient was high, at 0.80, indicating a strong correlation between the two data sets. Historically, commercial and air taxi operations have averaged .17 commercial/air taxi operation per one employment. **Figure 14** and **Table 14** present the resultant commercial/air taxi operations forecast derived from calculating operations against the employment forecast for the years 2023, 2028, 2033, and 2043.

Likewise, regression analysis was run between employment levels and historical enplanements. The correlation factor was extremely high, at 0.95. Historically, Florida has witnessed approximately six annual enplanements per one employment. **Figure 15** and **Table 15** present results of this regression analysis between enplanements and employments.

Figure 14. Commercial/Air Taxi Operations by Employment Forecast

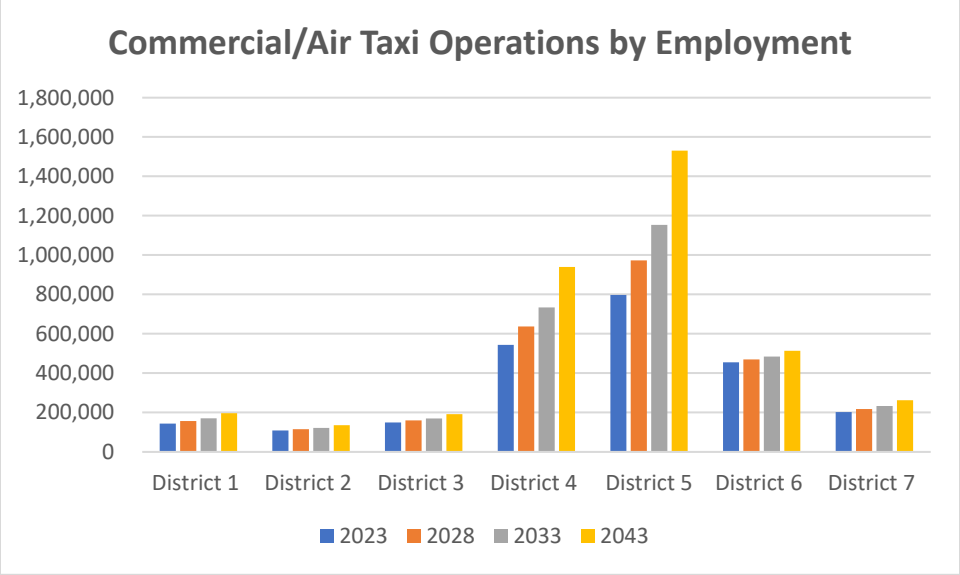


Table 14. Commercial-Air Taxi Operations/Employment Forecast

District	2023	2028	2033	2043
1	143,164	156,559	169,796	195,979
2	107,996	114,551	121,199	134,940
3	148,714	159,144	169,623	191,128
4	543,243	636,731	733,433	939,334
5	796,648	972,558	1,152,863	1,529,936
6	454,971	469,419	483,890	513,388
7	201,888	217,636	232,673	261,839
Total	**2,396,624**	**2,726,598**	**3,063,478**	**3,766,544**

Figure 15. Enplanements by Employment Forecast

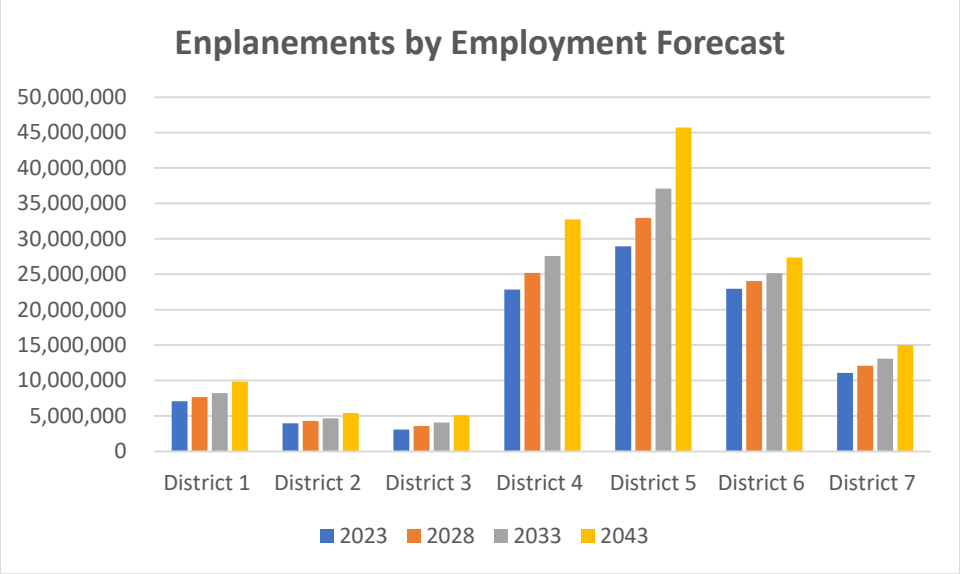


Table 15. Enplanement/Employment Forecast

District	2023	2028	2033	2043
1	7,068,143	7,650,381	8,225,728	9,848,301
2	3,952,969	4,306,714	4,665,512	5,407,055
3	3,075,937	3,572,188	4,070,800	5,094,030
4	22,844,685	25,176,138	27,587,732	32,722,581
5	28,943,564	32,964,986	37,086,890	45,707,032
6	22,953,397	24,043,585	25,135,451	27,361,295
7	11,060,919	12,095,053	13,082,602	14,997,926
Total	**99,899,614**	**109,809,045**	**119,854,715**	**141,138,221**

Aviation Activity vs. Per Capita Income

Regression analysis was conducted between per capita income and commercial and air taxi operations. This analysis demonstrated a high R^2 value at 0.80 between per capita income and commercial/air taxi operations. Since 2012, Florida airports typically experience nearly 35 commercial/air carrier operations per $1 of per capita income. The resultant commercial/air taxi operations forecast derived from per capita income forecasts as projected by Woods & Poole throughout the forecast period. **Figure 16** and **Table 16** present the resultant data.

Figure 16. Commercial/Air Taxi Operations by Per Capita Income Forecast

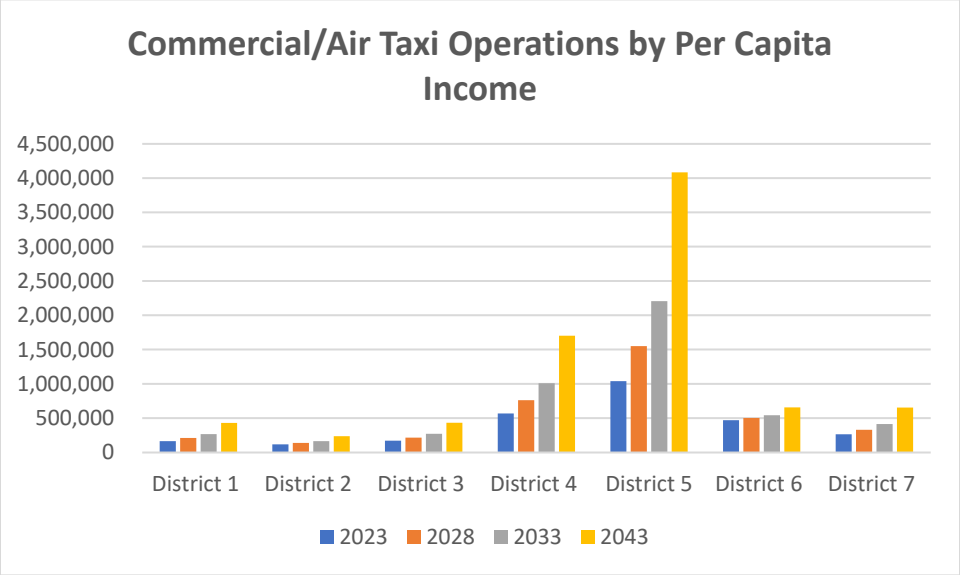


Table 16. Commercial Air/Taxi Operation by Per Capita Income Forecast

District	2023	2028	2033	2043
1	165,309	209,830	267,075	431,333
2	117,532	137,611	163,265	235,980
3	172,166	216,371	272,746	432,088
4	568,717	762,070	1,007,998	1,702,495
5	1,038,910	1,549,597	2,204,821	4,082,449
6	470,594	502,246	542,653	657,681
7	264,046	330,184	414,601	653,955
Total	**2,797,274**	**3,707,910**	**4,873,159**	**8,195,982**

Similar to the commercial/air taxi operations, enplanements when compared to per capita income had an extremely high correlation factor at 0.98. The range of enplanements per capita income varied greatly among the districts. Specifically, District 5 is forecasted to nearly triple enplanements throughout the forecast period because the per capita income forecasted by Woods and Poole for this District is anticipated to grow similarly. **Figure 17** and **Table 17** present the results of this regression analysis.

Figure 17. Enplanements by Per Capita Income Forecast

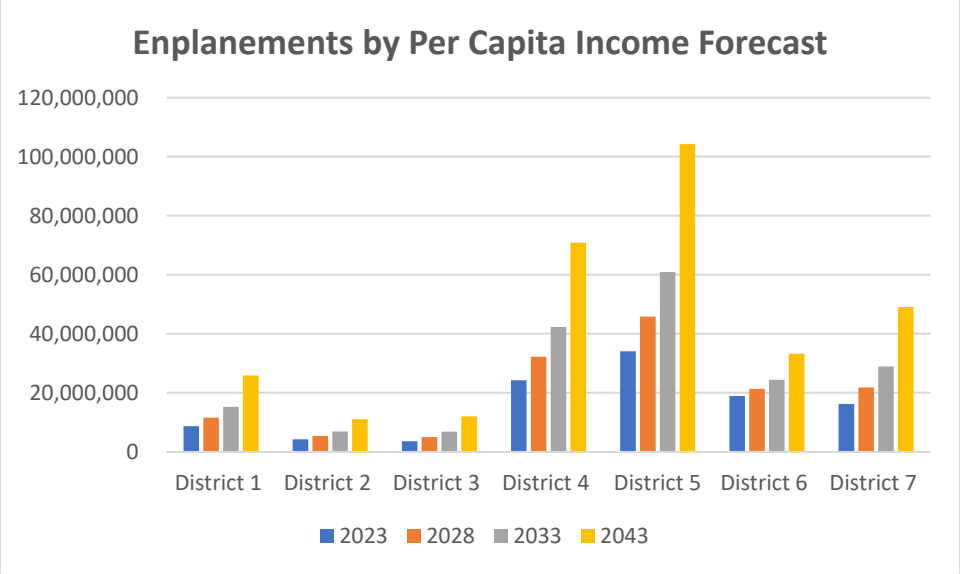


Table 17. Enplanements by Per Capita Income Forecast

District	2023	2028	2033	2043
1	8,657,754	11,533,393	15,230,815	25,840,230
2	4,215,352	5,381,722	6,871,930	11,095,835
3	3,577,166	5,009,168	6,835,403	11,997,151
4	24,230,807	32,186,341	42,305,032	70,880,096
5	34,058,524	45,839,138	60,953,965	104,267,449
6	18,923,172	21,340,673	24,426,825	33,212,376
7	16,221,568	21,790,087	28,897,686	49,050,276
Total	**109,884,343**	**143,080,522**	**185,521,657**	**306,343,412**

Aviation Activity vs. Population

Population numbers have a strong correlation between all activity data sets. As a result, regression analysis was completed for population vs. based aircraft, GA operations, commercial/air taxi operations, and enplanements. The results of these regression forecasts are presented in **Figures 18-21** and **Tables 18-21** on the following pages.

Based aircraft numbers (**Figure 18** and **Table 18**), forecasted as a result of population growth, are likely to increase by nearly 3,500 aircraft during the 20-year forecast period.

Figure 18. Based Aircraft per Population

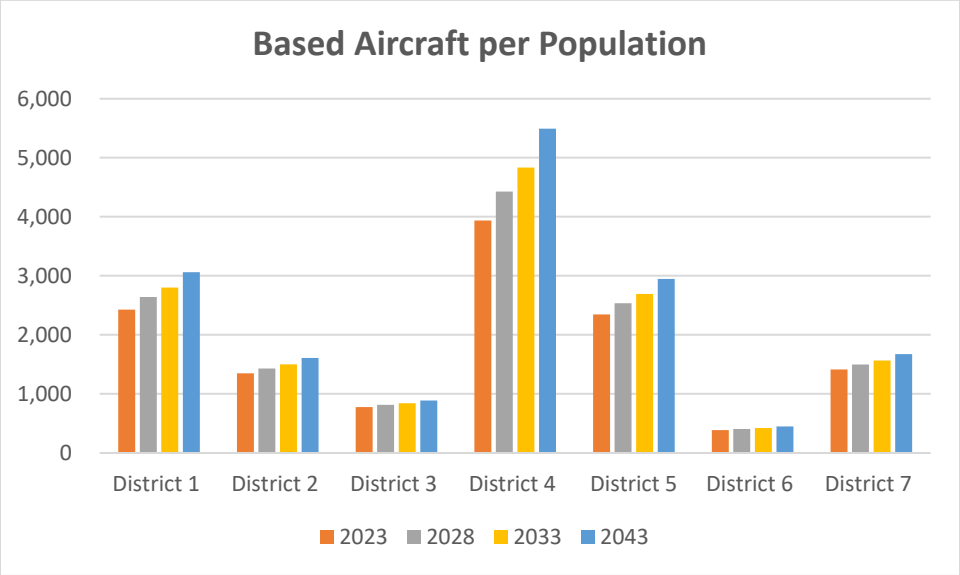


Table 18. Based Aircraft per Population

District	2023	2028	2033	2043
1	2,425	2,641	2,801	3,062
2	1,347	1,430	1,500	1,609
3	777	813	842	888
4	3,937	4,427	4,834	5,491
5	2,346	2,536	2,692	2,947
6	385	405	422	449
7	1,412	1,497	1,565	1,673
Total	**12,629**	**13,748**	**14,656**	**16,118**

Likewise, the anticipated population growth over the next 20 years (**Figure 19** and **Table 19**) may result in a direct increase to general aviation operations by nearly 16 percent.

Figure 19. General Aviation Operations per Population

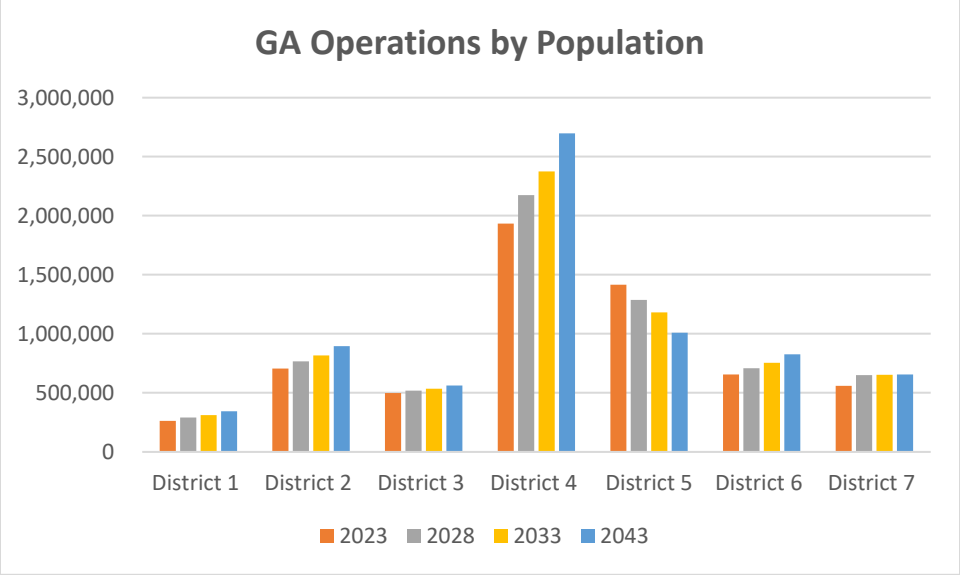


Table 19. General Aviation Operations/Population Forecast

District	2023	2028	2033	2043
1	262,513	289,812	310,147	343,090
2	705,472	765,752	815,721	894,652
3	497,293	517,880	534,550	560,922
4	1,932,579	2,173,345	2,373,868	2,696,840
5	1,415,355	1,287,026	1,181,129	1,009,014
6	654,905	708,168	753,939	825,483
7	558,956	650,013	652,135	655,528
Total	**6,027,072**	**6,391,996**	**6,621,489**	**6,985,530**

When commercial/air taxi operations are correlated against population (**Figure 20** and **Table 20**), it is anticipated that their level of activity will increase for each district and for the state as a whole by more than 35 percent over the forecast period.

Figure 20. Commercial/Air Taxi Operations per Population

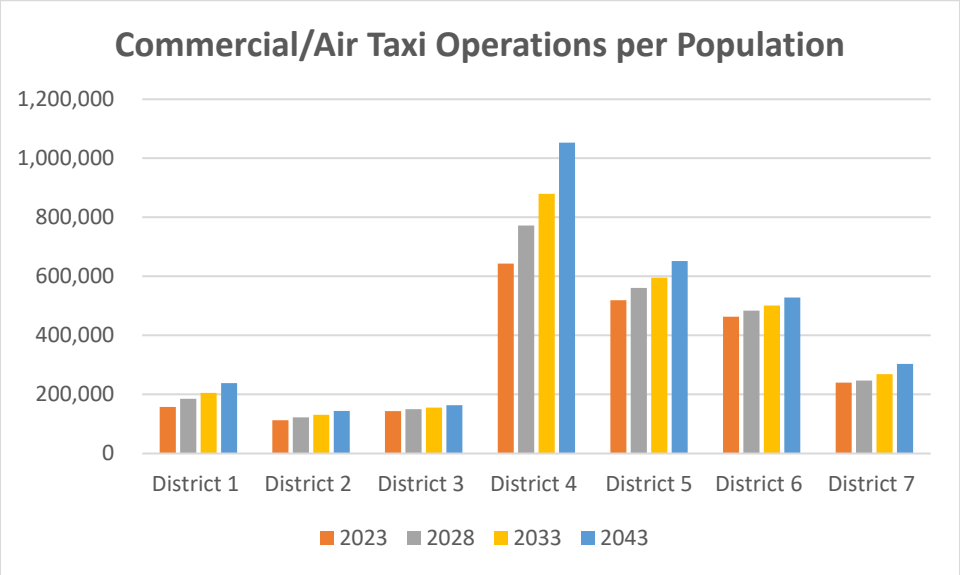


Table 20. Commercial Air Taxi Operation per Population Forecast

District	2023	2028	2033	2043
1	157,415	184,714	205,049	237,992
2	112,077	122,235	130,655	143,954
3	142,964	149,581	154,940	163,417
4	642,990	771,998	879,443	1,052,499
5	518,553	560,547	595,201	651,523
6	463,094	483,442	500,927	528,258
7	239,807	246,567	268,287	303,018
Total	**2,276,900**	**2,519,084**	**2,734,501**	**3,080,662**

Much like commercial/air taxi operations, when enplanement levels are based on population levels, they are also expected to increase over the forecast period (**Figure 21** and **Table 21**). In fact, based on population growth, enplanements are anticipated to grow by more than 50 percent over the forecast period.

Figure 21. Enplanements per Population

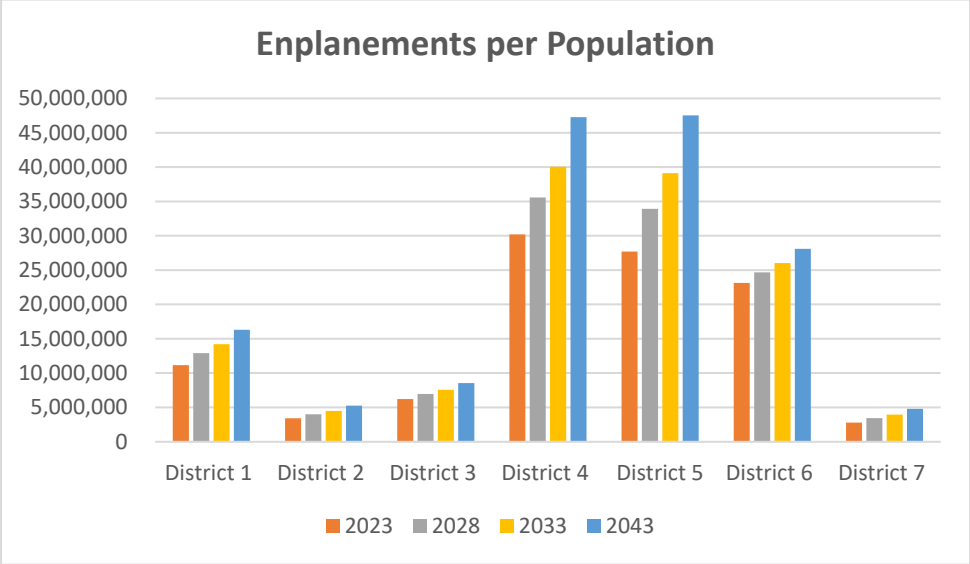


Table 21. Enplanement/Population Forecast

District	2023	2028	2033	2043
1	11,144,438	12,893,664	14,196,647	16,307,488
2	3,421,291	4,005,711	4,490,163	5,255,402
3	6,216,779	6,967,466	7,575,285	8,536,913
4	30,201,879	35,580,965	40,060,986	47,276,717
5	27,694,202	33,920,631	39,108,620	47,540,727
6	23,120,028	24,675,962	26,012,999	28,102,953
7	2,785,092	3,435,738	3,953,552	4,781,535
Total	**104,583,708**	**121,480,137**	**135,398,253**	**157,801,735**

Market Share Analysis

A market share or top-down analysis compares the State of Florida's historical market share relative to the overall Southern Region of the FAA (**Figure 22**) and projects future market share trends. The Southern Region of the FAA includes the states of Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, South Carolina, Puerto Rico, and the U.S. Virgin Islands.

Figure 22: FAA Southern Region

Source: www.faa.gov, 09/2023

Market share analysis forecasts present Florida's forecasted aviation activity in comparison to the Southeastern U.S. aviation market. This type of forecast presents the importance of Florida's role in this region of the U.S.

Based Aircraft

Since 2012, Florida, on average, has held 35 percent of the regional market share. Historically, Districts 4, 7, and 1 represent the highest market share in based aircraft at levels of 9.5, 7.5, and 7 percent, respectively. **Figure 23** and **Table 22** illustrate the based aircraft forecast per district and Florida, as a whole, as a derivative of the Southeastern regional forecast developed by the FAA.

Figure 23. Historical Based Aircraft per Regional Market Share

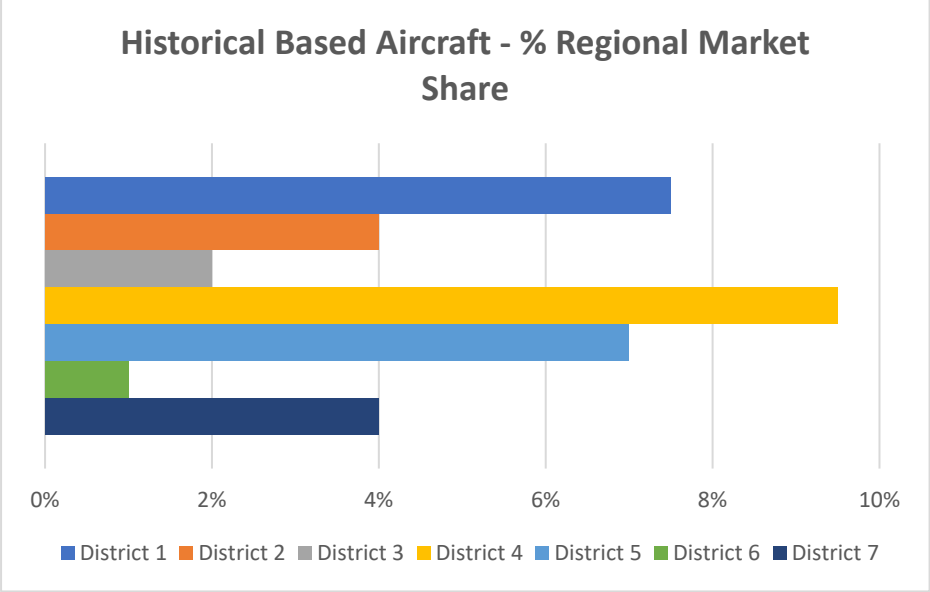


Table 22. Based Aircraft Forecast as Percentage of Regional Market Share

District	2023	2028	2033	2043
1	2,590	2,507	2,611	2,767
2	1,163	1,337	1,393	1,476
3	875	669	931	738
4	2,797	3,176	3,307	3,505
5	2,300	2,340	2,437	2,583
6	376	395	415	459
7	1,284	1,337	1,393	1,476
Total	**11,385**	**11,761**	**12,487**	**13,003**

General Aviation Operations

In contrast to based aircraft per market share, District 5 leads GA operations as determined by market share of the Southeast Region. In 2022, Florida held approximately 38 percent of the regional market share in GA operations. Under this forecast scenario, GA operations are anticipated to grow by more than 10 percent by the year 2043. **Figure 24** and **Table 23** further detail the market share forecast of GA operations by district through the forecast period.

Figure 24. Historical General Aviation Operations per Regional Market Share

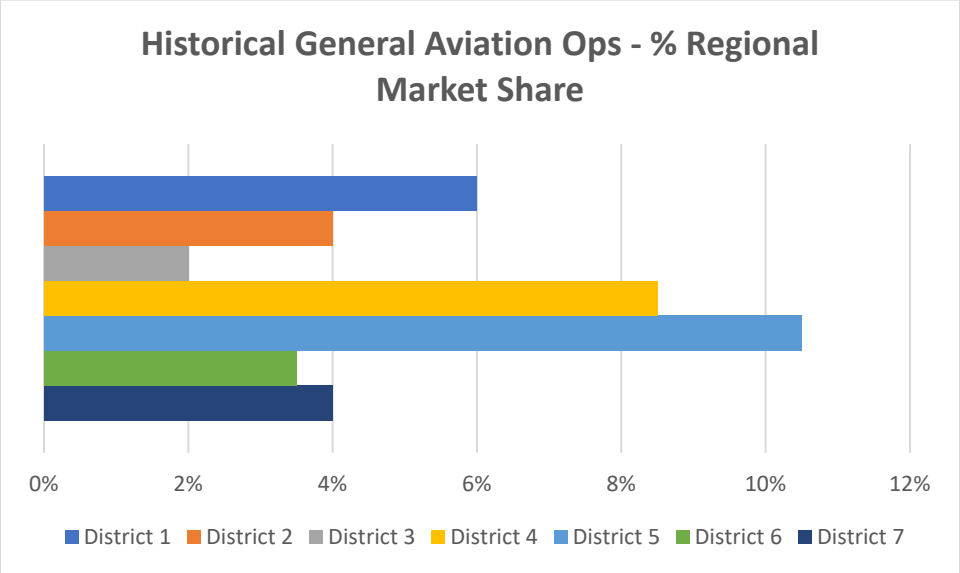


Table 23. GA Operations Forecast as Percentage of Regional Market Share

District	2023	2028	2033	2043
1	989,503	1,031,310	1,050,648	1,093,371
2	659,669	687,540	700,432	728,914
3	329,834	343,770	350,216	364,457
4	1,401,796	1,461,023	1,488,418	1,548,943
5	1,731,630	1,804,793	1,838,634	1,913,400
6	577,210	601,598	612,878	637,800
7	659,669	687,540	700,432	728,914
Total	**6,349,310**	**6,617,576**	**6,741,660**	**7,015,799**

Commercial Operations

Like the other forecasts, commercial/air taxi operations are also expected to grow by more than 1 million operations by 2043. The total market share that Florida's commercial/air taxi operation holds in the region is 33.5 percent.

Figure 25 and **Table 24** illustrate the market share forecast impacts to commercial operations for the years 2023, 2028, 2033, and 2043.

Figure 25. Historical Commercial/Air Taxi Operations per Regional Market Share

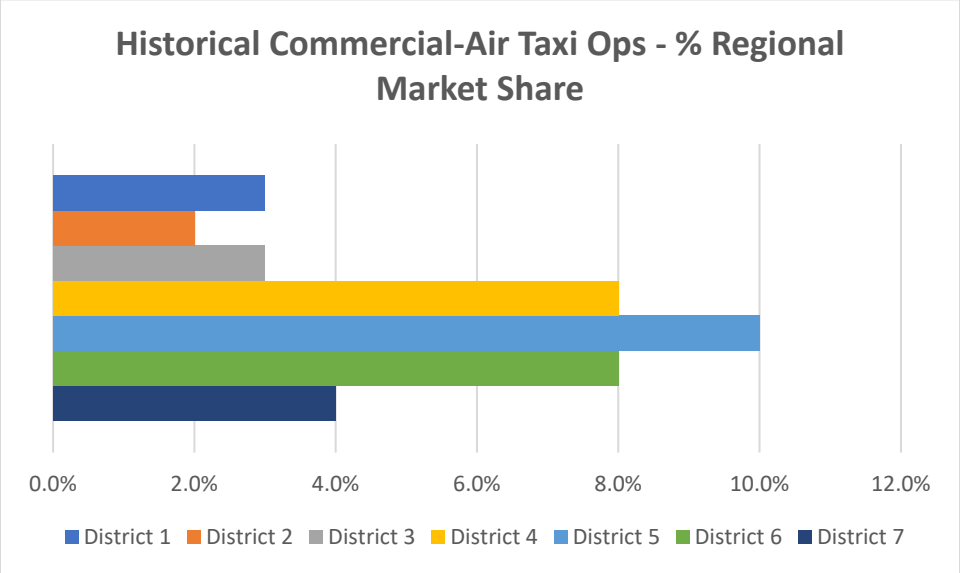


Table 24. Commercial-Air Taxi Operations Forecast as Percentage of Regional Market Share

District	2023	2028	2033	2043
1	166,484	196,115	213,911	294,664
2	110,989	130,743	142,607	168,799
3	166,484	196,115	213,911	253,199
4	443,958	522,974	570,429	675,198
5	554,947	653,717	713,037	843,997
6	443,958	522,974	570,429	675,198
7	221,979	261,487	285,215	337,599
Total	**2,108,798**	**2,484,125**	**2,709,540**	**3,248,654**

Enplanements

Since 2012, enplanements have represented more than 40 percent of the market share in the Southern Region. The market share forecast predicts that enplanements are going to grow to exceed 166 million in the State of Florida by 2043. **Figure 26** illustrates the historical percentage of regional market share by district and **Table 25** provides details of the enplanement forecast numbers throughout the forecast period.

Figure 26. Historical Enplanements per Regional Market Share

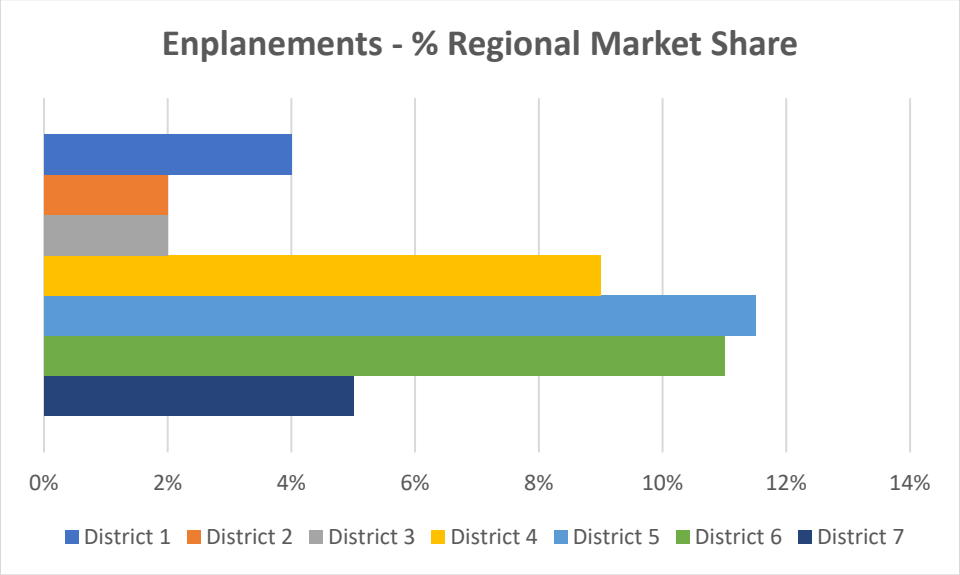


Table 25. Enplanements Forecast as Percentage of Regional Market Share

District	2023	2028	2033	2043
1	9,026,016	10,738,675	12,035,859	14,926,042
2	4,513,008	5,369,337	6,017,929	7,463,021
3	4,513,008	5,369,337	6,017,929	7,463,021
4	20,308,535	24,162,018	27,080,682	33,583,595
5	25,949,795	30,873,690	34,603,094	42,912,372
6	24,821,543	29,531,355	33,098,611	41,046,616
7	11,282,519	13,423,343	15,044,823	18,657,553
Total	**100,414,423**	**119,467,756**	**133,898,928**	**166,052,220**

Summary of Forecast Scenarios

Table 26 summarizes the forecast scenarios presented in the previous sections, along with comparison to The FAA's TAF for the years 2023, 2028, 2033, and 2043.

Table 26. Summary of Forecast Scenarios

	Scenarios	2023	2028	2033	2043
Based Aircraft	Historical Trendline	11,287	11,007	10,438	9,193
	Regional Market Share	11,385	11,594	12,313	12,819
	Economic-Population	12,629	13,748	14,656	16,118
	TAF	11,635	12,392	13,197	15,017
	Scenarios	**2023**	**2028**	**2033**	**2043**
GA Operations	Historical Trendline	6,884,315	7,277,803	7,658,240	8,322,191
	Regional Market Share	6,349,310	6,617,576	6,741,660	7,015,799
	Economic-Population	5,979,445	6,344,369	6,573,862	6,937,903
	TAF	6,704,703	7,286,087	7,531,358	8,078,515
	Scenarios	**2023**	**2028**	**2033**	**2043**
Commercial/Air Taxi Ops	Historical Trendline	2,654,246	3,128,836	3,603,498	4,553,028
	Regional Market Share	2,108,798	2,484,125	2,709,540	3,248,654
	Economic-Population	2,276,900	2,519,084	2,734,501	3,080,662
	Economic-Per Capita Income	2,797,274	3,707,910	4,873,159	8,195,982
	Economic-Employment	2,396,624	2,726,598	3,063,478	3,766,544
	TAF	2,233,413	2,622,319	2,859,028	3,399,001
	Scenarios	**2023**	**2028**	**2033**	**2043**
Enplanements	Historical Trendline	108,884,896	127,191,602	145,498,308	182,111,721
	Regional Market Share	100,414,423	119,467,756	133,898,928	166,052,220
	Economic-Population	104,583,708	121,480,137	135,398,253	157,801,735
	Economic-Per Capita Income	109,884,343	143,080,522	185,521,657	306,343,412
	Economic-Employment	99,899,614	109,809,045	119,854,715	141,138,221
	TAF	100,394,115	118,069,071	133,517,517	167,574,724

Figures 27-30 present visual comparisons of the statewide forecasts.

Figure 27. Statewide Based Aircraft Forecast Scenarios

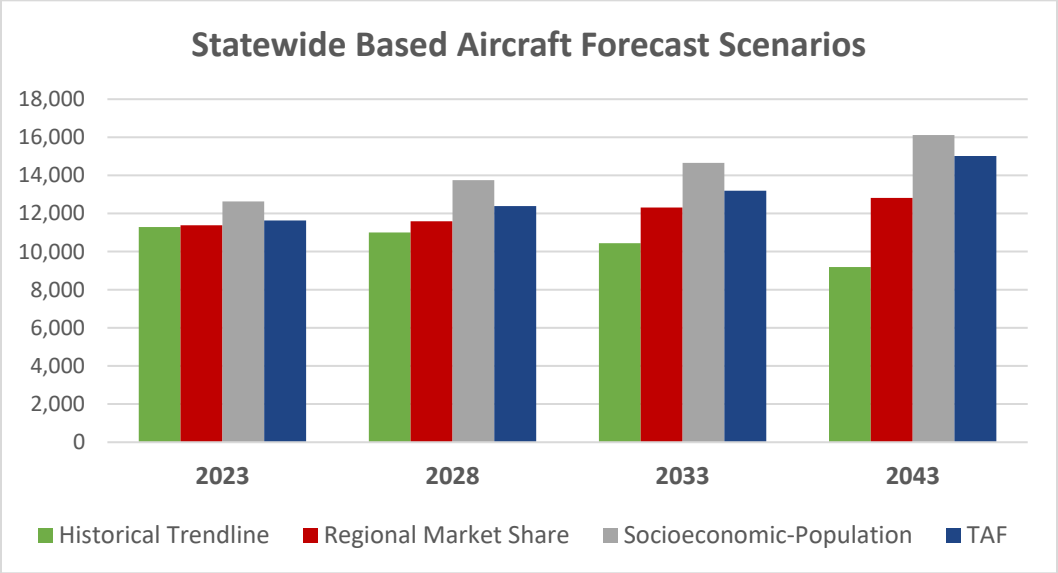


Figure 28. Statewide General Aviation Operations Forecast Scenarios

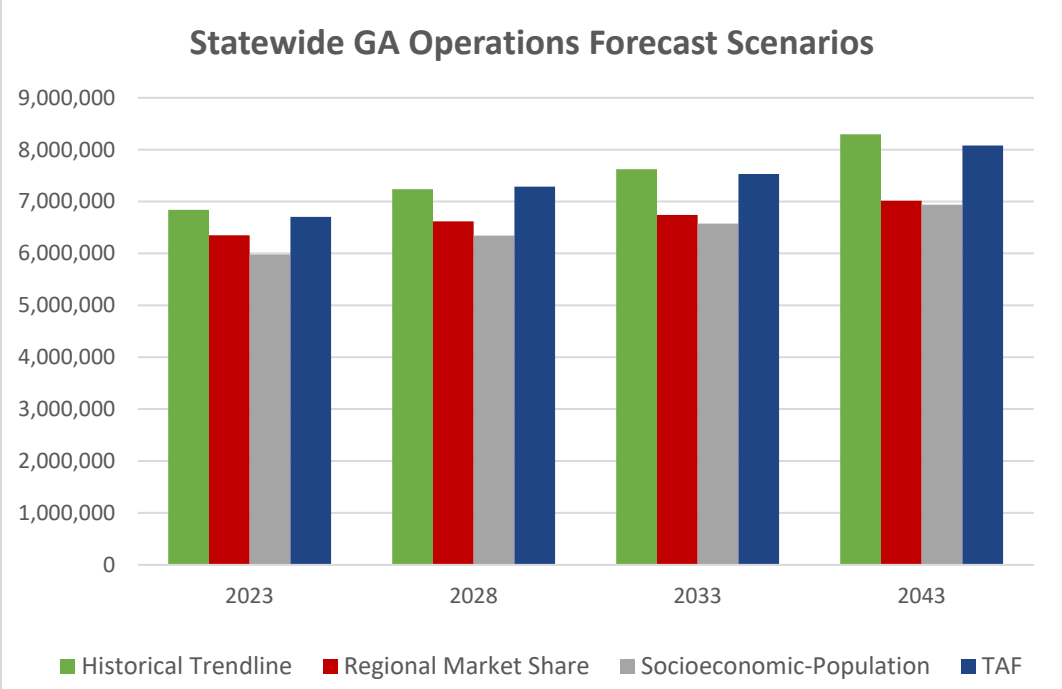


Figure 29. Statewide Commercial/Air Taxi Operations Forecast Scenarios

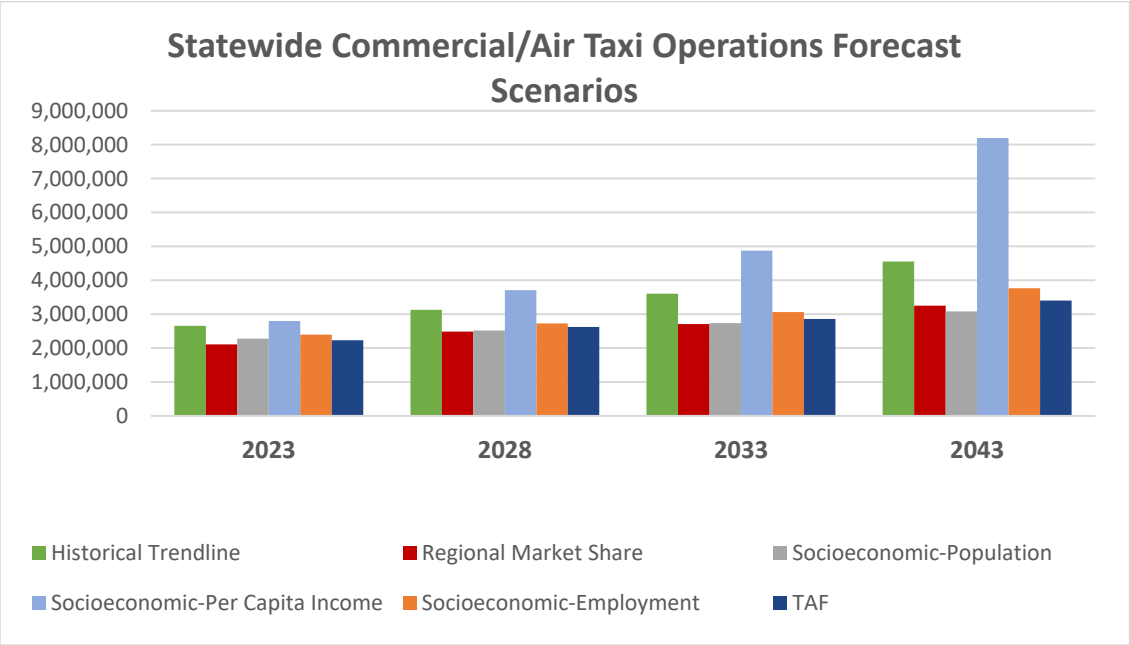
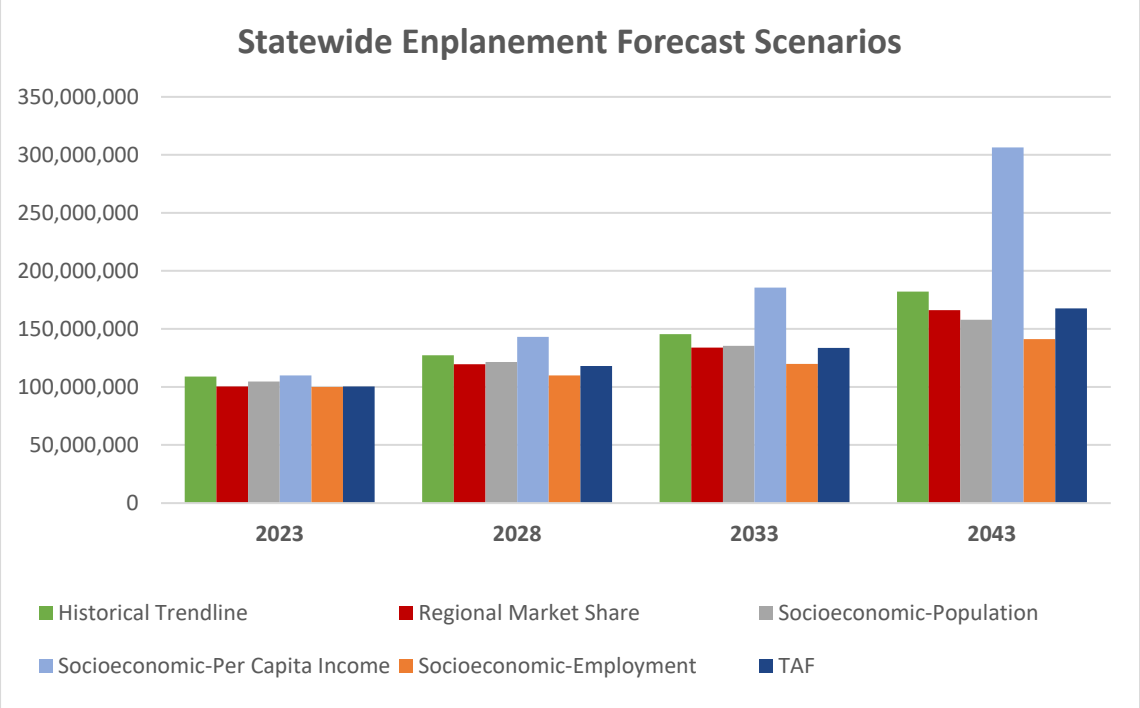


Figure 30. Statewide Enplanement Forecast Scenario



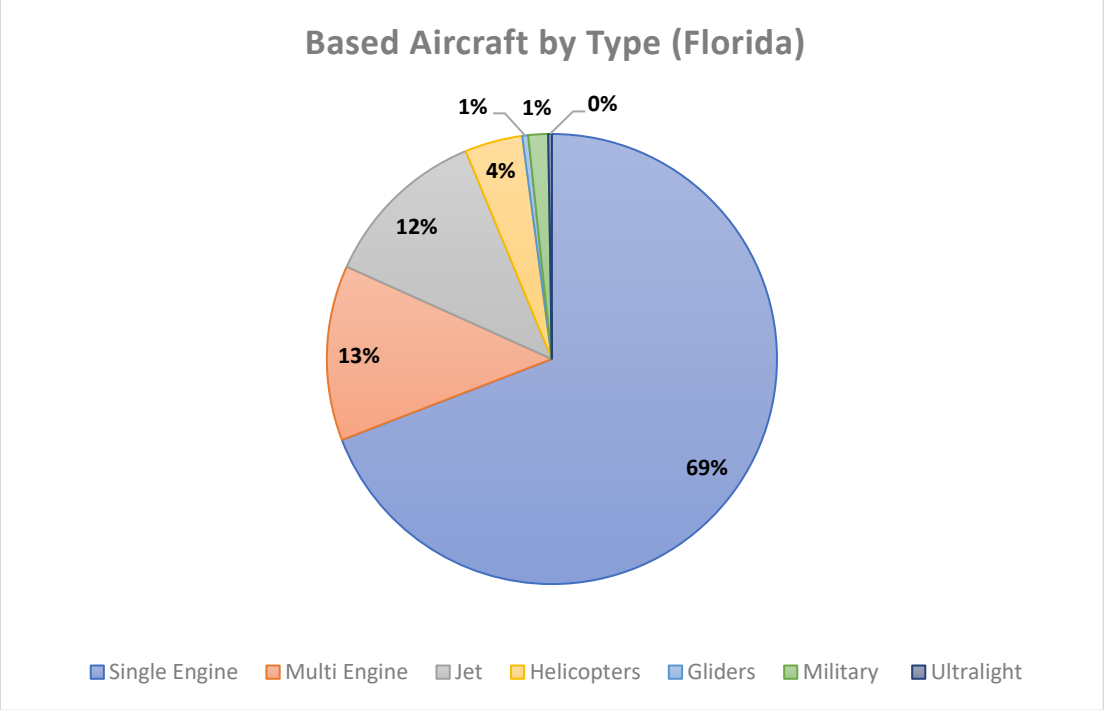
Aircraft Fleet Mix

The aircraft fleet mix examines the percentage of aircraft by type that operate or are based at an airport. This section examines based aircraft by type at Florida airports as well as critical aircraft that operate in and out of Florida airports.

Based Aircraft by Type

The based aircraft were examined further across all seven districts by determining the number of each aircraft type based at the districts' respective airports. The diversity of based aircraft types is important to understand the demands an airport can face. **Figure 31** groups the percentage of based aircraft by type in each district.

Figure 31. Based Aircraft by Type



In **Table 27**, the total number of based aircraft, along with the aircraft type, can be found for the state of Florida.

Table 27. Based Aircraft Type Totals (2023)

District	Aircraft Types							District Totals
	Single-Engine	Multi-Engine	Jet	Helicopter	Gliders	Military	Ultralight	
1	1,916	288	263	100	14	0	9	2,590
2	800	147	134	31	10	129	1	1,252
3	754	65	65	33	3	0	5	925
4	1,660	450	563	114	7	0	3	2,797
5	1,862	318	207	138	5	3	7	2,540
6	244	64	34	22	5	5	2	376
7	823	135	134	46	5	28	4	1,175
Florida Totals	**8,059**	**1,467**	**1,400**	**484**	**49**	**165**	**31**	**11,655**

Source: FAA 5010, September 2023

Critical Aircraft Analysis

Types of aircraft currently using airports in Florida provides insight into the facility needs of airports throughout the State. As defined by FAA Advisory Circular 150/5000-17, *Critical Aircraft and Regular Use Determination*, the critical aircraft can be a single aircraft type or a group of aircraft with similar operational and physical characteristics.

The combination of the Aircraft Approach Category (AAC) and the Airplane Design Group (ADG) yields the Runway Design Code (RDC). Specifications of the AAC and ADG from AC 150/5300-13B, *Airport Design*, are identified in **Tables 28** and **29**.

Table 28. Aircraft Approach Category (AAC)

AAC	Approach Speed
A	< 90 knots
B	91 to < 121 knots
C	121 to < 141 knots
D	141 to < 166 knots
E	166 knots or more

Table 29. Airplane Design Group (ADG)

ADG	Tail Height	Wing Span
I	< 20 feet	< 49 feet
II	> 20 feet, but < 30 feet	> 49 feet, but < 79 feet
III	> 30 feet, but < 45 feet	> 79 feet, but < 118 feet
IV	> 45 feet, but < 60 feet	> 118 feet, but < 171 feet
V	> 60 feet, but < 66 feet	> 171 feet, but < 214 feet
VI	> 66 feet, but < 80 feet	> 214 feet, but < 262 feet

Operations data by aircraft operating under FAA Instrument Flight Rules (IFR) for the Districts of Florida were obtained for fiscal year 2023 to determine the most recent aircraft usage within the State of Florida. The FAA's Traffic Flow Management System Count (TFMSC) data separates aircraft operations by AAC and ADG. The results of the TFMSC query are presented in **Table 30**.

Table 30. Traffic Flow Management System Count (TFMSC) Data, FY 2023

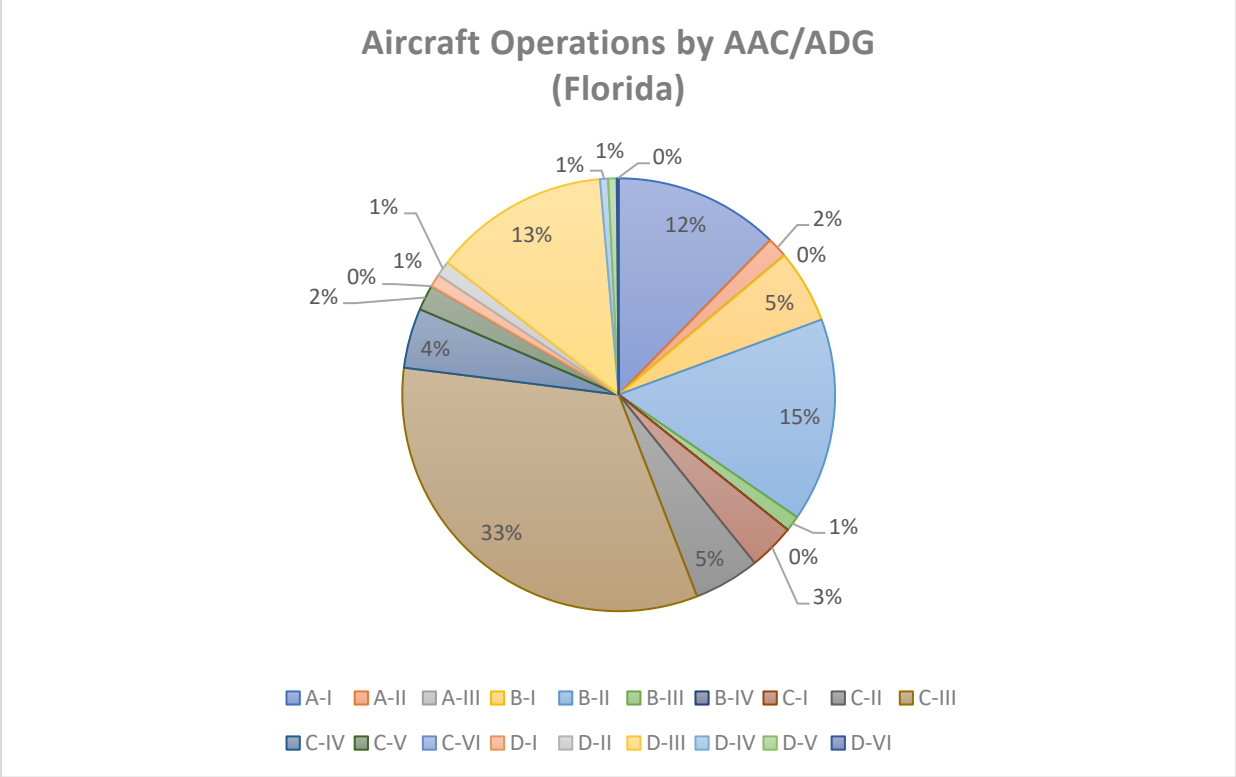
Airplane Approach Category (AAC)	Airplane Design Group (ADG)	District 1	District 2	District 3	District 4	District 5	District 6	District 7	Florida Total
A	I	49,554	37,211	21,097	57,302	67,058	17,085	24,816	**274,123**
A	II	5,429	4,043	3,867	8,256	4,732	3,210	4,286	**33,823**
A	III	1	2	0	3	5	43	2	**56**
B	I	23,673	12,221	15,407	32,485	15,941	15,886	6,286	**121,899**
B	II	64,146	25,023	24,216	112,974	40,501	58,654	12,642	**338,156**
B	III	537	931	2,685	9,080	4,098	8,159	37	**25,527**
B	IV	32	68	93	21	40	15	6	**275**
C	I	15,056	3,970	3,711	31,055	6,082	13,382	3,106	**76,362**
C	II	15,429	9,279	8,783	41,507	9,180	22,109	3,040	**109,327**
C	III	73,779	45,356	47,614	175,730	212,310	160,311	15,735	**730,835**
C	IV	11,240	11,092	4,249	13,275	16,501	41,626	1,112	**99,095**
C	V	199	14	3	2,223	7,492	32,107	0	**42,038**
C	VI	0	0	0	10	10	0	0	**20**
D	I	667	2,471	8,707	4,216	1,820	1,373	2,420	**21,674**
D	II	3,117	663	531	10,391	2,286	7,756	477	**25,221**
D	III	33,944	9,656	11,248	49,411	70,553	116,482	975	**292,269**
D	IV	1,188	240	28	2,242	7,931	1,651	4	**13,284**
D	V	22	52	4	56	1,578	12,433	0	**14,145**
D	VI	2	0	0	1	16	3,037	0	**3,056**

Source: FAA TFMSC Data, FY 2023

From the TFMSC data counts, it is clear that the most frequent aircraft AAC/ADG is a C-III aircraft with more than 700,000 operations over the course of the year. Common aircraft types with a RDC of C-III include the Airbus 320, Bombardier CRJ-900, and a Boeing 737-400. The C-III was followed in frequency by aircraft with an RDC of B-II and D-III. Common B-II aircraft include the Cessna Citation, and common D-III aircraft include the Gulfstream V and Boeing 737-800.

A breakout of aircraft operations by AAC/ADG, as reported in the TFMSC report, is illustrated in **Figure 32.**

Figure 32. Aircraft Operations by AAC/ADG



Recommended Forecast Scenarios

Figures 33-36 illustrate visual comparisons of the forecasts. Accompanying these figures, **Tables 31-34** provide the forecast scenario data results for the years 2023, 2028, 2033, and 2043. In addition, the compounded annual growth rate for the 20-year period is presented in the tables for each of the forecast scenarios. The recommended forecast scenario is highlighted for each forecast presented and is described in further detail below.

Recommended Based Aircraft Forecast

The recommended based aircraft forecast is the socioeconomic-population scenario. It yields the most aggressive growth rate when compared to the alternative forecast scenarios. Likewise, there has been a strong correlation between based aircraft and population over the past ten years. The socioeconomic-population forecast scenario for based aircraft results in a CAGR of 1.2 percent annually over the course of the forecast period. **Figure 33** and **Table 31** highlight the recommended forecast and compare it to the other forecast scenarios.

Figure 33. Statewide Based Aircraft Forecast Scenarios

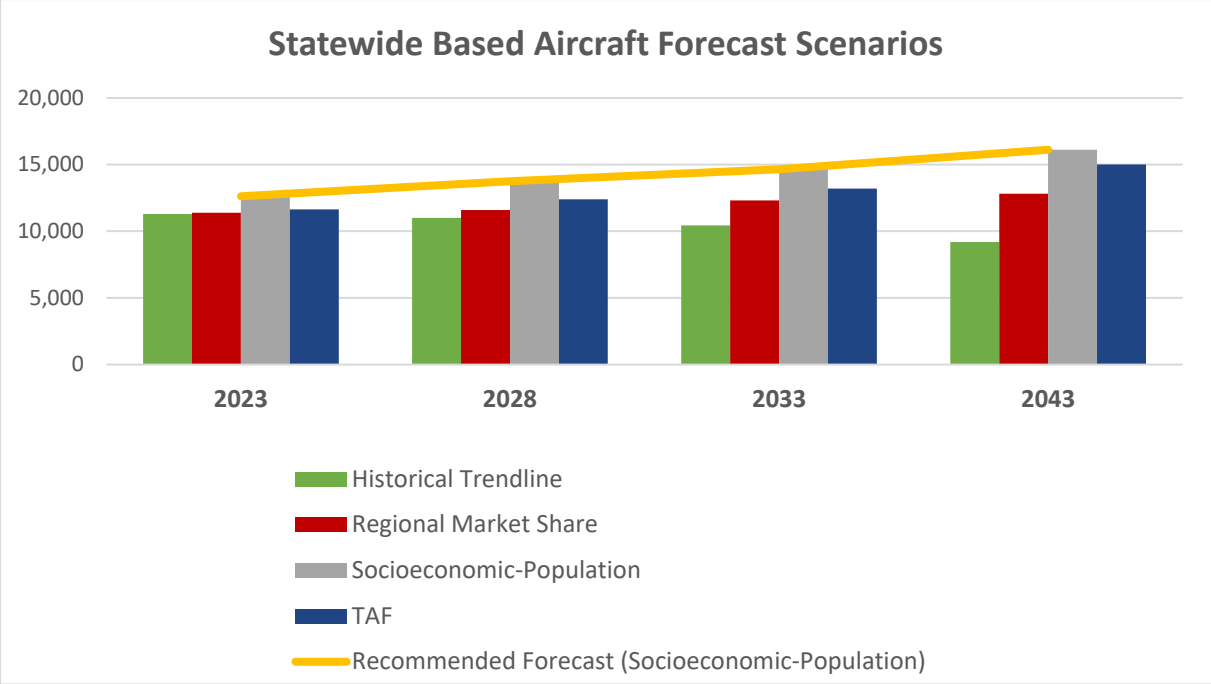


Table 31. Statewide Based Aircraft Forecast Scenarios

	Forecast Scenarios	2023	2028	2033	2043	CAGR
Based Aircraft	Historical Trendline	11,287	11,007	10,438	9,193	-1.0%
	Regional Market Share	11,385	11,594	12,313	12,819	0.6%
	Socioeconomic-Population	**12,629**	**13,748**	**14,656**	**16,118**	**1.2%**
	TAF	11,635	12,392	13,197	15,017	1.3%

Recommended GA Operations Forecast

Historical trendline forecast is the recommended forecast for GA operations. It is the most aggressive forecast of the four scenarios presented but represents consistent growth in GA operations within the state of Florida over the past decade. This recommended forecast results in a CAGR of 1.0 percent annually over the 20-year forecast period. **Figure 34** and **Table 32** provide a comparative display of the GA operations forecast.

Figure 34. Statewide GA Operations Forecast Scenarios

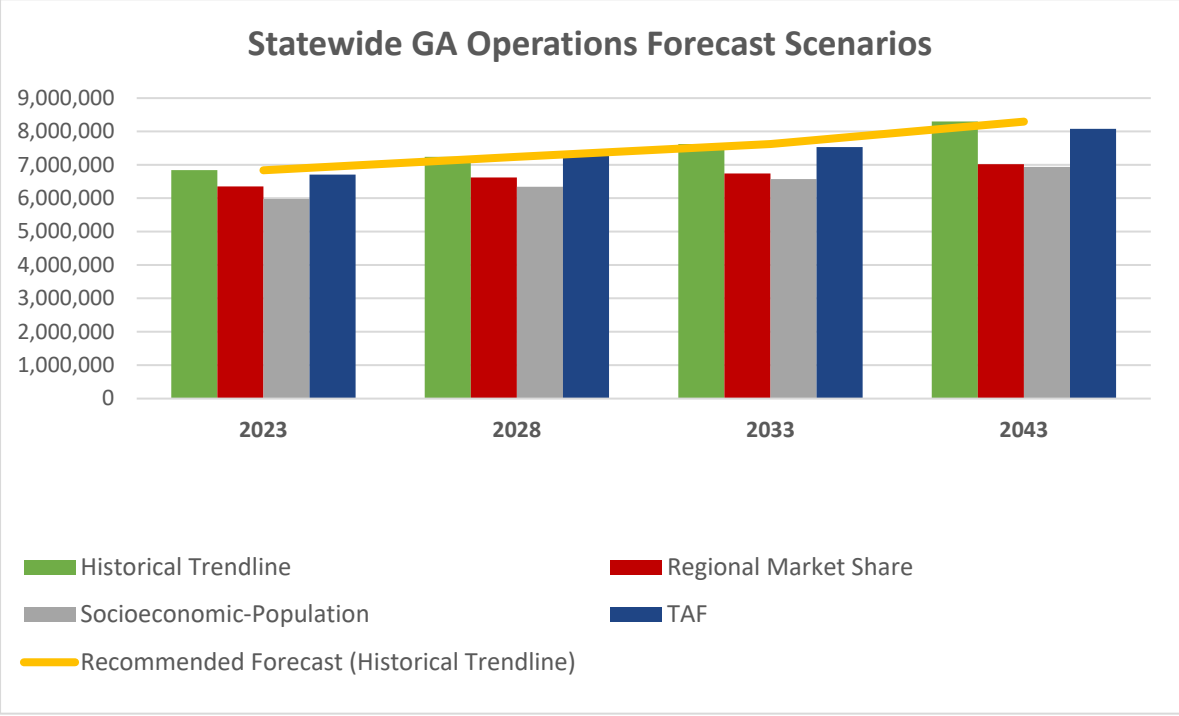


Table 32. Statewide GA Operations Forecast Scenarios

	Forecast Scenarios	2023	2028	2033	2043	CAGR
GA Operations	**Historical Trendline**	6,884,315	7,277,803	7,658,240	8,322,191	**1.0%**
	Regional Market Share	6,349,310	6,617,576	6,741,660	7,015,799	0.5%
	Socioeconomic-Population	5,979,445	6,344,369	6,573,862	6,937,903	0.8%
	TAF	6,704,703	7,286,087	7,531,358	8,078,515	0.9%

Recommended Commercial/Air Taxi Operations Forecast

Out of the six forecast scenarios presented for the commercial/air taxi operations forecast, the socioeconomic-employment based forecast is the recommended forecast. The correlation between employment and commercial/air taxi operations is .93, providing a high-level of confidence in this recommendation. This forecast does not yield the highest or the lowest annual growth rate but is moderate with a CAGR of 2.3 percent.

Figure 35. Statewide Commercial/Air Taxi Operations Forecast Scenarios

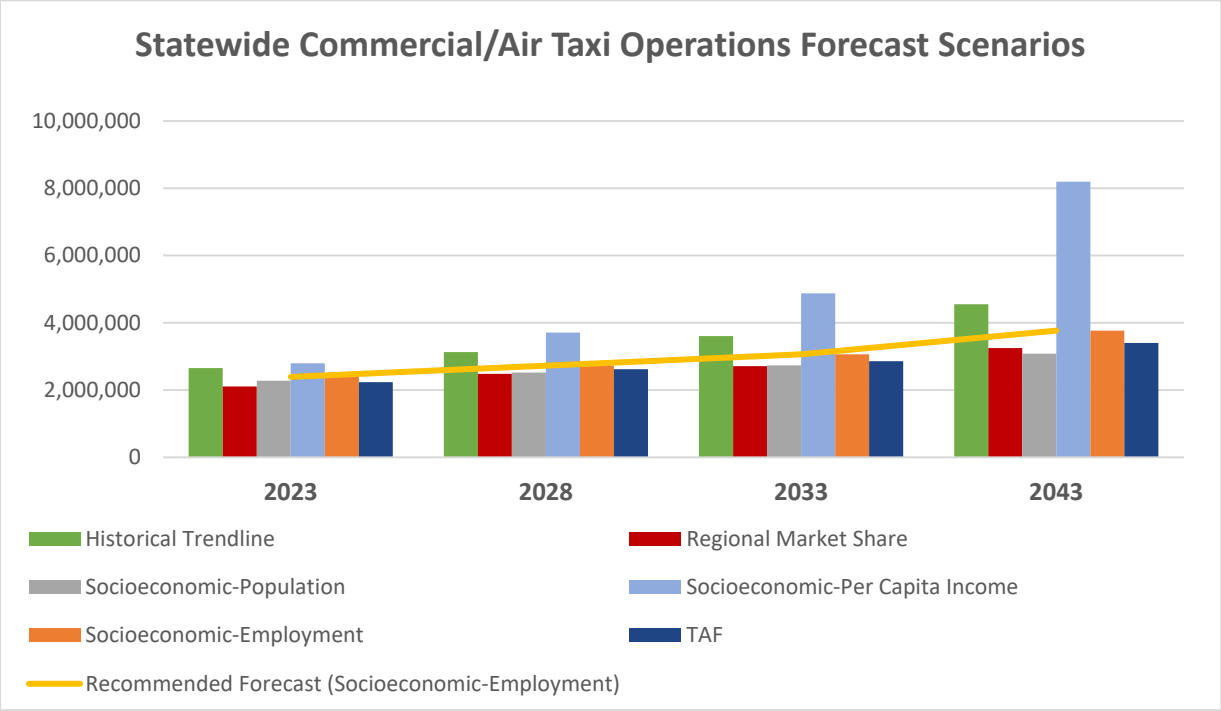


Table 33. Statewide Commercial/Air Taxi Operations Forecast Scenarios

	Forecast Scenarios	2023	2028	2033	2043	CAGR
Commercial/Air Taxi Ops	Historical Trendline	2,654,246	3,128,836	3,603,498	4,553,028	2.7%
	Regional Market Share	2,108,798	2,484,125	2,709,540	3,248,654	2.2%
	Socioeconomic-Population	2,276,900	2,519,084	2,734,501	3,080,662	1.5%
	Socioeconomic-Per Capita Income	2,797,274	3,707,910	4,873,159	8,195,982	5.5%
	Socioeconomic-Employment	**2,396,624**	**2,726,598**	**3,063,478**	**3,766,544**	**2.3%**
	TAF	2,233,413	2,622,319	2,859,028	3,399,001	2.1%

Recommended Enplanement Forecast

Like commercial/air taxi operations forecast, six forecast scenarios are also presented for enplanements. Regional market share forecast for enplanements is the recommended enplanement forecast for the FASP 2043. Since 2012, enplanements have consistently represented more than 40 percent of the market share in the Southern Region. The market share forecast predicts that enplanements are going to grow to exceed 166 million in the State of Florida by 2043, yielding a CAGR of 2.6 percent. **Figure 36** and **Table 34** present enplanement forecast scenarios and the resultant recommended forecast.

Figure 36. Enplanement Forecast Scenario

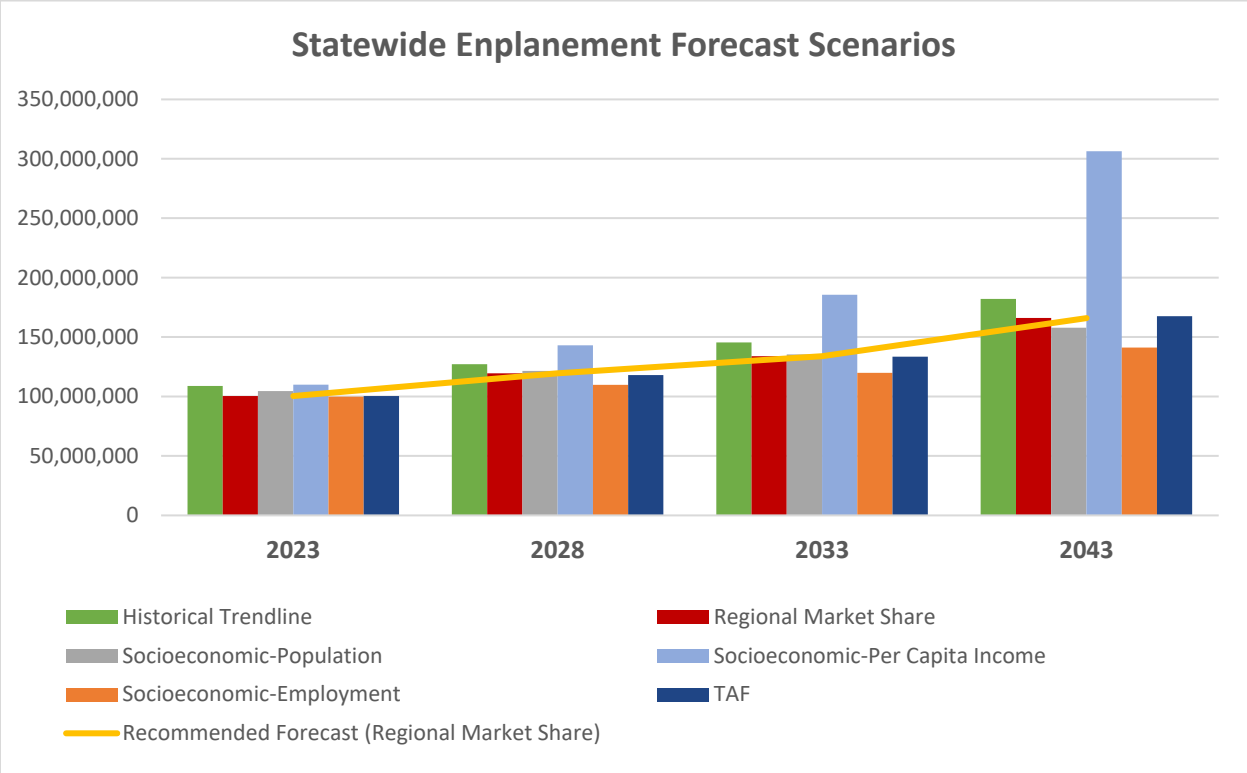


Table 34. Statewide Enplanement Forecast Scenarios

	Forecast Scenarios	2023	2028	2033	2043	CAGR
Enplanements	Historical Trendline	108,884,896	127,191,602	145,498,308	182,111,721	2.6%
	Regional Market Share	**100,414,423**	**119,467,756**	**133,898,928**	**166,052,220**	**2.6%**
	Socioeconomic-Population	104,583,708	121,480,137	135,398,253	157,801,735	2.1%
	Socioeconomic-Per Capita Income	109,884,343	143,080,522	185,521,657	306,343,412	5.3%
	Socioeconomic-Employment	99,899,614	109,809,045	119,854,715	141,138,221	1.7%
	TAF	100,394,115	118,069,071	133,517,517	167,574,724	2.6%

FASP 2043 Forecast Summary

Table 35 presents the forecast summary for aviation activity in the State of Florida through 2043.

Table 35. FASP 2043 Forecast Summary

Aviation Activity	2023	2028	2033	2043	CAGR
Based Aircraft	12,629	13,748	14,656	16,118	1.2%
GA Operations	6,884,315	7,277,803	7,658,240	8,322,191	1.0%
Commercial/Air Taxi Operations	2,396,624	2,726,598	3,063,478	3,766,544	2.3%
Enplanements	100,414,423	119,467,756	133,898,928	166,052,220	2.6%