Appendix I
Aeronautical Market Assessment

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North Perry Airport

Aeronautical Market Assessment

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1. INTRODUCTION

This aeronautical market assessment focuses on the light general aviation (GA) markets that are served at the North Perry Airport (HWO or the Airport). The light GA market consists of service offerings provided to aircraft with a maximum takeoff weight of 12,500 pounds or less. The market primarily consists of piston, small turboprop, and small jet aircraft, as well as helicopters and blimps. Larger corporate GA aircraft, such as long-range business jets are not included in the light GA market.

This assessment also demonstrates HWO's market position relative to six additional GA airports throughout Broward County, Palm Beach County, and Miami-Dade County. **Table 1-1** lists the local GA airports that are included in this market assessment, the three-letter airport identifiers, proximity to HWO, and the counties in which they are located. For the purposes of this assessment, the local GA market is comprised of HWO and the six airports described herein.

TABLE 1-1 LOCAL MARKET GENERAL AVIATION AIRPORTS

AIRPORT			
Boca Raton Airport	BCT	23.7	Palm Beach
Fort Lauderdale Executive Airport	FXE	12.4	Broward
Pompano Beach Airpark	PMP	16.3	Broward
Miami-Opa Locka Executive Airport	OPF	6.0	Miami-Dade
Miami Executive Airport	TMB	23.6	Miami-Dade
Palm Beach County Park Airport	LNA	36.2	Palm Beach

SOURCE: AirNav.com, www.airnav.com (accessed February 8, 2019).

Except for Palm Beach County Park Airport (LNA), each of the local GA airports are located within 25 nautical miles of HWO. Therefore, these airports could serve markets that overlap with HWO. Although LNA is not likely to serve markets that overlap with HWO, its inclusion will assist in determining potential market shifts as a result of temporary flight restrictions (TFRs) due to the increased use of Palm Beach International Airport (PBI) by Air Force One since 2017.

1.1 MARKET ASSESSMENT GOALS

Because HWO only serves light GA aircraft with a takeoff weight of 12,500 pounds or less, this market assessment focuses on the light GA market characteristics present in the local region. The goals of this market assessment include the following:

- Document national and regional GA market trends
- Define and characterize the light GA market segments served by HWO and each of the local airports.
- Identify potential underserved and emerging light GA market segments that could be served by HWO.
- Compare HWO's role relative to those of other local GA airports.

1.2 APPROACH AND METHODOLOGY

The information presented herein was obtained from a variety of sources, which include:

- **Publicly Available Sources** – Global, national, and regional market statistics and data were obtained to understand overall GA market conditions within the United States and South Florida. This includes historical trends, industry initiatives, market outlooks, and projections and forecasts published by:
  - Aircraft Owners and Pilots Association
  - Florida Department of Transportation (FDOT)
  - General Aviation Manufacturers Association (GAMA)
  - select light GA aircraft manufacturers
  - US Department of Transportation / Federal Aviation Administration (FAA)
- **Airport Staff and Tenant Interviews** – With the exception of LNA, which is operated by its sole fixed-base operator (FBO), airport management staff from each of the local airports were interviewed. The primary tenants at HWO were also interviewed. The objective of these interviews was to document the following:
  - the various markets served by each airport/tenant
  - potential emerging or underserved markets at HWO
  - the various factors that may be influencing aeronautical demand at each airport
  - current or planned development initiatives and facility constraints
  - levels of nonaeronautical revenues
- **State of Florida Airport Rates and Charges Survey** – For over a decade, Slack, Johnston & Magenheimer, Inc. (SJM) has conducted a rates and charges survey for GA airports throughout the state of Florida. In addition to obtaining leasehold rates for land, hangars, and other facilities, SJM has also collected annual historical data pertaining to:
  - airport operations
  - based aircraft
  - fuel flowage
  - pilot certificate holders

The FAA's National Aerospace Forecast, GAMA Annual Report, and FDOT Aviation Forecasts were assessed to create a standard under which to compare the airports. Understanding the forecast changes for the GA industry allowed for a focused review of the local GA market. Interviews with HWO tenants and local airport administrators further defined the aircraft operations and supporting services provided at the airports. Opportunities for potential markets that could develop at HWO were identified through the comparison of these markets served. A review of the current trends for the local GA airports was also performed to determine a potential departure from national trends and forecast activity.

1.3 SUMMARY OF RESULTS

The market assessment evaluated the national, regional, and local conditions of the overall GA market. This includes independent industry outlooks, historical GA activity trends, and demand forecasts at both the national and state level. This assessment also considered HWO's drivers of aviation demand, its position in the local GA market, and how it compares to the market segments served throughout the local market. Based on these factors, the HWO market outlook can be characterized as the following:

- Nationally, the FAA forecasts that future growth in GA activity will primarily be driven by continued growth in the corporate GA segments, whereas the light GA market is expected to remain weak, with declines in aircraft ownership, flight hours and the number of private pilots expected nationwide.
- In contrast to national trends, the light GA market in Florida, and particularly South Florida, remains strong and will continue to grow:
  - With continued shortages of Air Transport and Commercial pilots anticipated, the demand for flight training activity is expected to remain strong in South Florida.
  - As nearby constrained airports, such as Boca Raton Airport (BCT) and Fort Lauderdale Executive Airport (FXE) near/exceed airport capacity, light GA activity is likely to relocate/expand at other GA airports.
  - Developers at nearby Miami-Opa Locka Executive Airport (OPF) and FXE are focusing their service offerings and facilities on corporate GA markets.
  - As new facilities are constructed at HWO, the ability to attract users from nearby airports should improve.
- The primary driver of light GA activity within the local GA market is flight training, which comprises over 50 percent of the total activity associated within the local GA airport market. Notably since 2017, flight training has comprised more than 64 percent of HWO's overall activity.
- While the pilot population throughout the United States has declined over the last 10 years, the pilot population has actually increased 33.6 percent in Broward County and 19.4 percent in Miami-Dade County between 2013 and 2018.
- Furthermore, HWO's share of the local light GA market has increased from 15.1 percent of total operations in 2014 to 19.0 percent of total operations in 2018.

1.3.1 NATIONAL MARKET OUTLOOK

According to the FAA's 2019 National Aerospace Forecast and the 2018 GAMA Annual Report, the future GA aircraft fleet will continue to evolve to include more corporate or business jet aircraft. Due to the weight restrictions imposed by Broward County, HWO primarily serves piston aircraft. While the active fleet for most GA aircraft types are expected to grow, the piston aircraft fleet is projected to continue to decline. The decline in piston aircraft is due to the retirement of older aircraft as they become more costly to maintain and operate. As a result, aircraft utilization, measured in hours flown per aircraft, for piston aircraft is also projected to decline. This is also supported by the fact that the demand for AvGas has been declining, while fuel flowage for Jet A fuel has been increasing.

The decline in the piston aircraft fleet will be partially offset by the manufacturing of new training aircraft. In fact, recent aircraft production by GA aircraft manufacturers such as Cessna, Cirrus and Piper are focusing on a new generation of training aircraft. This is due to the anticipated shortages in certificated pilots, which is expected to fuel growth in professional flight training activities throughout the U.S. and the rest of the world. However, the anticipated growth in flight training activities is not anticipated to increase leisure flying, as the cost to operate and

maintain piston aircraft is expected to remain cost prohibitive. Chapter 2 of this report provides more information regarding the national outlook for the general aviation market.

1.3.2 LOCAL MARKET AIRPORT RANKINGS

Table 1-2 provides the ranking of local GA airports by annual operations and non-jet based aircraft. Based aircraft refers to the number of operational aircraft stored at an airport for most of the year. This data set was assembled as part of SJM's 2018 Florida Airport Rates and Charges Survey. As shown, HWO ranks second in both aircraft operations and non-jet based aircraft. According to the SJM State of Florida Airport Rates and Charges Survey, HWO has been increasing its market share in both annual operations and based aircraft since 2014.

TABLE 1-2 LOCAL GENERAL AVIATION AIRPORT RANKINGS (FISCAL YEAR 2017)

	ANNUAL OPERATIONS			BASED (NON-JET) AIRCRAFT		
RANKING	AIRPORT	QUANTITY	SHARE	AIRPORT	BASED AIRCRAFT	SHARE
1.	TMB	284,679	25.8 %	FXE	681	30.9 %
2.	**HWO**	**210,243**	**19.0 %**	**HWO**	**410**	**18.6 %**
3.	FXE	171,335	15.5 %	TMB	356	16.2 %
4.	OPF	125,439	11.4 %	LNA	253	11.5 %
5.	PMP	130,234	11.8 %	PMP	221	10.0 %
6.	LNA	117,050	10.6 %	BCT	142	6.4 %
7.	BCT	66,209	6.0 %	OPF	139	6.3 %
	Subtotals	**1,105,189**	**100.0 %**		**2,202**	**100.0 %**

NOTES:
Totals may not add due to rounding.
The 2017 fiscal year spans October 1, 2016 to September 30, 2017.
BCT = Boca Raton Airport
FXE = Fort Lauderdale Executive Airport
HWO = North Perry Airport
LNA = Palm Beach County Park Airport
OPF = Miami-Opa Locka Executive Airport
PMP = Pompano Beach Airpark
TMB = Miami Executive Airport
SOURCES: Slack, Johnston & Magenheimer, Inc., *Florida Airport Rates and Charges Survey*, 2018; Federal Aviation Administration, *Terminal Area Forecast*, February 2018. Federal Aviation Administration, *Current Airport Master Record Form 5010-1*, May 2018.

1.3.3 FDOT STATE AND REGIONAL FORECASTS

In 2017, the FDOT's Aviation and Spaceports Office published the Florida Aviation System Plan (FASP) 2035. This document contains growth forecasts for annual aircraft operations and based aircraft for each public-use airport within the state of Florida. It also summarizes airport data for each of the nine aviation activity centers throughout the state, known as the Continuing Florida Aviation System Planning Process (CFASPP) regions or Metropolitan Area (MA). The local GA airports included in this market assessment are associated with the Southeast MA, which consists of Broward, Miami-Dade, Palm Beach, and Monroe Counties. Airports within the Southeast MA accommodated approximately 1.9 million GA operations and 3,684 based aircraft in 2014. This represents 29 percent of the overall aircraft operations and based aircraft within the state of Florida, which is by far the largest share of any CFASPP region.

The forecasts contained in the FASP 2035 estimate total aircraft operations in the local GA market increasing annually at 1.33 percent and based aircraft increasing annually at 1.57 percent. These growth rates are slightly higher than the statewide growth rates of 1.13 percent and 1.49 percent, respectively, through 2035. In accordance with these growth rates, the airports that comprise the local GA market are expected to accommodate approximately 1.3 million annual operations and 3,069 total based aircraft in 2035.

It should be noted that the FASP does not differentiate between jet and non-jet based aircraft. Given the limited growth projected for piston aircraft by the FAA and GAMA, it is reasonable to expect that most, if not all, of the projected growth in based aircraft within the local market would be attributed to non-piston aircraft (e.g., jets, turboprops, and helicopters). Therefore, future growth in these based aircraft would most likely occur at airports that serve corporate GA activity, such as FXE, OPF, TMB, and BCT. However, as these airports continue to prioritize the corporate GA market, the potential shift of light GA to other airports, such as HWO and LNA, is likely.

1.3.4 HISTORICAL TRENDS

This market assessment evaluated HWO's position within the local GA market to determine potential areas of growth. HWO's market position is reflective of recent aviation activity trends and current segmentation of the local GA market. These trends include aircraft operations, based aircraft and fuel flowage at each airport. This information demonstrates recent shifts in the local GA market and potential opportunities for expansion of existing or introduction of new aeronautical service offerings at HWO.

To understand the recent trends in the local GA market, historical operational data from 2014 to 2017 were assembled and evaluated for each of the local GA airports. Due to incomplete data, historical operational data for 2018 were not included. These data consist of based aircraft counts (total and non-jet), aircraft operations (itinerant and local), and fuel flowage (Jet A and Avgas) records. This data is summarized in **Table 1-3**.

TABLE 1-3 NORTH PERRY AIRPORT MARKET SHARE COMPARISON (2014 AND 2017)

	2014			2017		
ACTIVITY METRIC	HWO	OTHER[1]	HWO SHARE	HWO	OTHER[1]	HWO SHARE
Based Aircraft						
Total	398	2,690	14.80%	411	2,775	14.80%
Non-Jet	397	2,199	18.10%	410	2,202	18.60%
Operations						
Local	102,614	507,134	20.20%	140,097	515.485	26.70%
Itinerant	52,194	519,072	10.10%	70,146	579,704	12.10%
Total	154,808	1,026,206	15.10%	210,243	1,105,189	19.00%
Fuel Flowage [2]						
Jet A	97,739	26.1 Mil.	0.37%	101,113	31.4 Mil.	0.32%
AvGas	272,939	3.3 Mil.	7.62%	378,094	3.6 Mil.	9.43%
Total	370,678	29.4 Mil.	1.3%	479,207	34.5 Mil.	1.4%

NOTES:
1 Other airports include BCT, FXE, LNA, OFP, PMP, and TMB. LNA is not included.
2 The breakdown of fuel flowage between Jet A and AvGas is based on actual records or estimated breakdowns provided by FBOs.
SOURCES: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018; Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Activity Demand Projections*, September 2018.

As shown, HWO increased its share of the local market in terms of aircraft operations during this period from 15.1 percent in 2014 to 19.0 percent in 2017. During that same period, the share of based aircraft and total fuel flowage at HWO has remained constant. However, HWO's share of Avgas fuel flowage, which is primarily utilized by piston engine aircraft, increased from 7.6 percent to 9.4 percent during that period. Other observations from the historical trend data include the following:

- Based Aircraft:
  - The number of based aircraft at HWO has increased from 398 in 2014 to 411 in 2017, reflecting an increase of 3.3 percent.
  - During that period, HWO's based aircraft market share remained at 14.8 percent.
  - If the number of jet aircraft are discounted, then HWO's market share of non-jet based aircraft has increased slightly from 18.1 percent to 18.6 percent.
  - HWO's increase in based aircraft since 2014 is partially attributed to the recent relocation of Wayman Aviation from OPF to HWO.
- Aircraft Operations:
  - Total aircraft operations at HWO increased from 154,808 to 210,243 between 2014 and 2017, an increase of 35.8 percent.
  - HWO's local market share of aircraft operations increased from 20.2 percent in 2014 to 26.7 percent in 2017, reflecting an increase in market share of the local flight training activities.
  - Since the growth rate for both local and itinerant aircraft operations at HWO exceeds the growth in based aircraft, the utilization of based aircraft appears to have increased as well. This indicates that most, if not all, of the operational growth at HWO has been driven by increases in flight training activities.
- Fuel Flowage:
  - Between 2014 and 2017, total fuel sales at HWO have increased from 370,678 gallons to 479,207 gallons, an increase of 29.3 percent.
  - Much of this growth was attributed to increases in Avgas fuel sales, which increased from 272,939 gallons to 378,094 gallons during this period, while Jet A fuel sales have remained relatively constant at approximately 100,000 gallons.
  - Due to the limited demand for Jet A fuel at HWO, total fuel demand at HWO corresponded to approximately 1.4 percent in 2017 of the overall fuel sales in the local GA market.
  - Although the split between Jet A and Avgas fuel flowage within the local market is not known, discussions with some fuel service providers at each of the local airports led to an estimate that HWO sells approximately 10 percent of the overall Avgas fuel flowage within the local GA market.

1.3.5 AIRPORT REVENUES

Of the airports within the local GA market, HWOs revenue generation is relatively low. During FY 2018, the Airport generated $1.48 million in total revenues. With the exception of PMP, which had total revenues of $1.28 million in revenues, HWO produced the lowest revenues in the local GA market. As a comparison, OFP and FXE generated the highest revenues during FY 2018, with total annual revenues of $4.45 million and $5.0 million, respectively.

HWO also generates the lowest amount of revenues through non-aeronautical leases. With approximately 28 acres of Airport property dedicated to nonaeronautical facilities, HWO also has the least amount of property dedicated nonaeronautical uses. In comparison, OPF and FXE have 315 acres and 275 acres, respectively. Approximately 28 percent of the annual revenues at HWO were generated through non-aeronautical leaseholds.

1.3.6 LOCAL CERTIFICATED PILOTS

The number of certificated pilots throughout Broward, Palm Beach and Miami-Dade County is another metric that demonstrates the propensity of potential growth within the local GA market. Since 2013, all three counties have seen growth in the number of certificated pilots, with particularly strong growth in student pilots and certified flight instructors. During that period, Broward County has seen a 45 percent increase in student pilots and nearly a 12 percent growth in certified flight instructors. The private pilot population in Broward county has seen a modest 2.1 percent growth in private pilots. These trends validate the recent growth in flight training activities, with nominal growth in recreational flying throughout the tri county area.

1.3.7 LOCAL GENERAL AVIATION MARKET SEGMENTATION

The interviews with airport staff and tenants revealed the various aeronautical markets that are currently served at HWO and at the local GA airports. The segmentation of the aeronautical service offerings offered at HWO and the other local GA airports is presented in **Section 4.1.1** of this report. The information derived from these interviews identified several markets that are currently underserved at HWO, as well as potential new markets that could be served in the future. **Table 1-4** lists the potential new and/or underserved markets that could trigger additional business opportunities at HWO.

Consideration of the underserved markets was provided in the ongoing Master Plan Update for HWO. However, the potential new markets could induce additional development opportunities, thereby enhancing the Airport's revenue-generating capabilities and increasing the overall economic impact to the surrounding community.

TABLE 1-4 NORTH PERRY AIRPORT MARKET EXPANSION OPPORTUNITIES

UNDERSERVED MARKETS	POTENTIAL NEW MARKETS
Aircraft Storage:	Aircraft Sales/Leasing
Conventional and T-hangars	Medical Transport Services
Aircraft Parking Aprons	Aircraft Wash Rack
Aircraft Maintenance and Repair	Insurance Broker
Avionic/ Automatic Dependent Surveillance—Broadcast (ADS-B) Integration	Charter Aircraft Broker
	Aircraft Parts Sales and Distribution

SOURCE: Individual HWO Tenant Interviews; Ricondo & Associates, Inc., March 2019.

2. CURRENT GENERAL AVIATION MARKET OUTLOOK

There are a variety of organizations that publish publicly available data and reports on current and projected GA market conditions throughout the United States. This includes information on historical trends, industry initiatives, market outlooks, and projections/forecasts. This chapter summarizes the current perspective of the overall GA market as reported by the following organizations:

- US Department of Transportation / Federal Aviation Administration (FAA)
- General Aviation Manufacturers Association (GAMA)
- select GA aircraft manufacturers
- Florida Department of Transportation (FDOT)

In reviewing the information contained herein, it is important to note that this market assessment focuses on the local light GA market. The light GA market consists of aircraft weighing 12,500 pounds or less which primarily consists of piston, small turboprops, and helicopter operations. This is due to the fact that in 1987, Broward County passed an ordinance that prohibits the operation of aircraft at HWO that exceed 12,500 pounds. Coincidently, the FAA defines light GA as aircraft with a maximum takeoff weight of 12,500 pounds or less. This ordinance currently remains in effect and Broward County currently has no plans to amend or rescind the weight restrictions imposed at HWO.

Although a small portion of GA jet fleet are classified as light GA, these aircraft typically are not served at HWO. Currently, there is one light jet aircraft is based at HWO. In addition to the weight restrictions imposed at HWO, the airfield is not configured to support larger and/or high-performance aircraft. Therefore, this market assessment excludes the corporate jet component of the GA market.

2.1 FAA NATIONAL AEROSPACE FORECAST

The FAA publishes its annual National Aerospace Forecast. Based on input from various stakeholders, including aircraft manufacturers and industry trade organizations, forecasts and projections for multiple segments of the aviation industry are derived for the next 20 years. Relevant to this light GA market assessment are the FAA-assessed trends and projections of the GA aircraft fleet composition and utilization. **Exhibit 2-1** graphically depicts the projected average annual changes in the various segments of the GA aircraft fleet and the corresponding changes in aircraft utilization rates through 2039.

2.1.1 GENERAL AVIATION AIRCRAFT FLEET PROJECTIONS

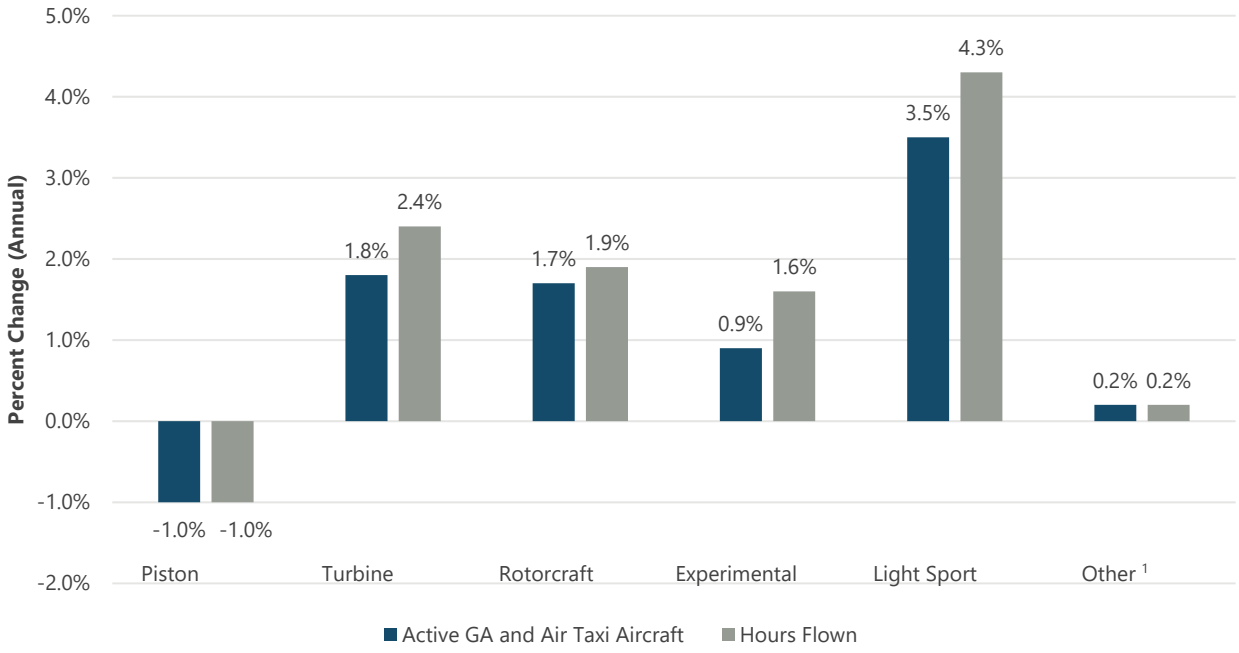
According to the FAA National Aerospace Forecast, the active GA fleet remained relatively constant from 2016 to 2017. Relatedly, the overall fleet is expected to remain stable through 2039, with a moderate decrease of 0.6 percent. As depicted in Exhibit 2-1, yearly increases are expected for rotorcraft, turbine/jet, experimental, and light sport aircraft due to growth in the US economy and corporate profits. These figures are projected to offset an FAA expected 0.9 percent decrease in fixed-wing piston aircraft.

2.1.2 GENERAL AVIATION AIRCRAFT UTILIZATION

Per the latest National Aerospace Forecast, total hours flown for GA aircraft increased 1.5 percent from 2016 to 2017. The total hours flown is expected to increase at an average rate of 0.8 percent per year through 2039. Rotorcraft, turbine/jet, and light sport aircraft hours will continue to grow due to expected increases in each aircraft

type's total hours flown. As a direct result of the increases in aircraft fleets, total hours flown for business jet (3.1 percent per year) and light sport (4.4 percent per year) aircraft will account for most of the increases in total hours flown. The fixed-wing piston aircraft's hours flown, however, are expected to decrease an average of 0.9 percent each year of the forecast period. This is in line with the expected fleet changes projected.

EXHIBIT 2-1 PROJECTED ANNUAL CHANGES IN GENERAL AVIATION AIRCRAFT FLEET AND UTILIZATION RATES (2019–2039)



NOTES:
GA = General Aviation
1 Other includes all active general aviation aircraft with a current registration (as of March 2019) that do not fall into the other categories and were flown at least one hour during the last calendar year.
SOURCE: Federal Aviation Administration, *Aerospace Forecast (FY 2019-2039)*, Tables 28 and 29, March 2019.

2.2 GENERAL AVIATION MANUFACTURERS ASSOCIATION INDUSTRY OUTLOOK

Similar to the FAA Aerospace Forecast, GAMA predicts the future GA fleet will contain less piston and more business jet aircraft. This is particularly important to HWO's market potential, as the Airport primarily serves piston and turboprop aircraft but cannot serve large business jet aircraft due to the County's imposed weight restriction and other physical limitations of the airfield. The report's information on aircraft use and deliveries echoes similar business activity trends. Pilot demographic trends provide favorable projections for flight training—a notably light GA market segment.

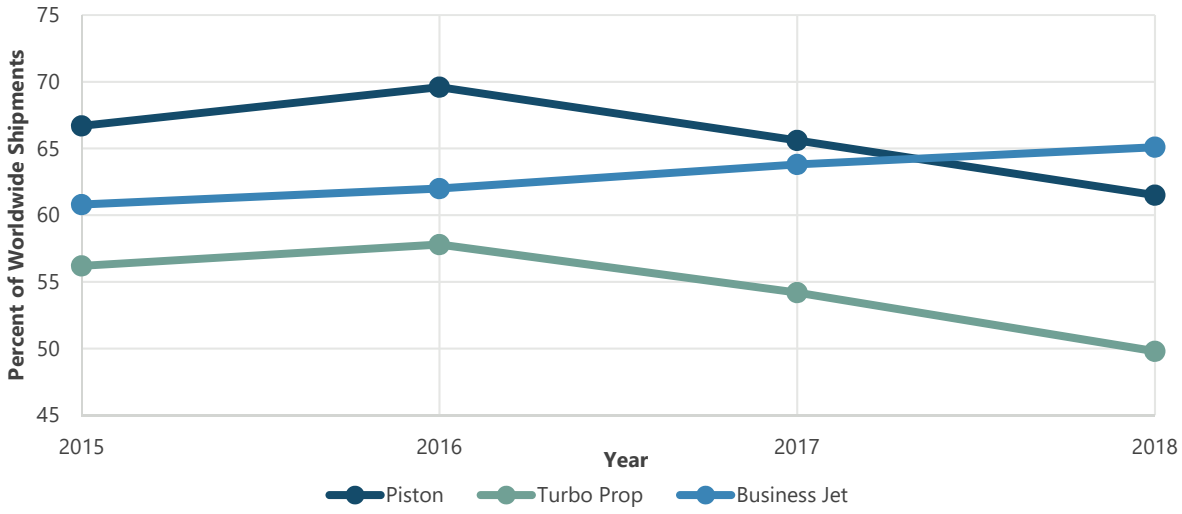
2.2.1 AIRCRAFT DELIVERIES

In 2018, worldwide piston aircraft deliveries increased by 5 percent. Turbine aircraft also experienced increases with turboprop increasing 5.2 percent and business jet aircraft increasing 3.8 percent. Of the total GA aircraft deliveries, North America had the largest share of the business jet market. Despite the global increase in piston aircraft in 2018, North America GA shipments included less piston aircraft and more business jets than in previous years.

2.2.2 PROJECTED FLEET

GAMA reports a slight change in the worldwide active GA fleet for the forecast period from 2018 to 2027. Increases in business jet, rotorcraft, experimental, and light sport aircraft will offset the average projected 0.7 percent per year decrease in piston and 0.3 percent per year decrease in turboprop aircraft. As shown on **Exhibit 2-2**, these projections continue the 2016 to 2017 trend of piston aircraft shipments declining and business jet shipments increasing.

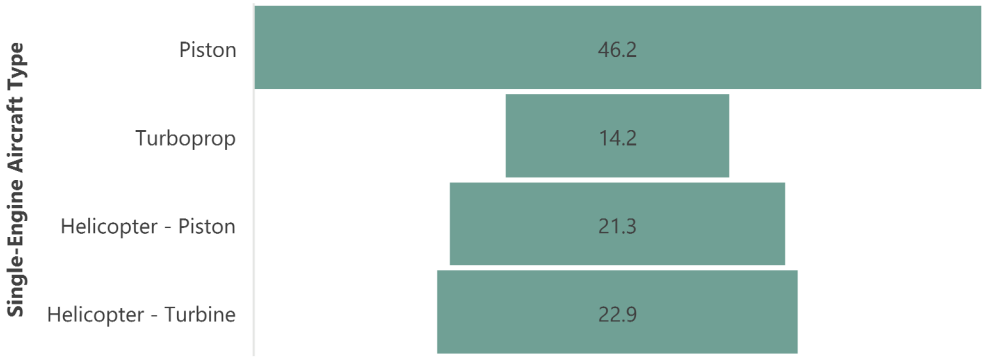
EXHIBIT 2-2 PERCENT OF TOTAL WORLDWIDE SHIPMENTS FOR NORTH AMERICA (2015–2018)



SOURCE: General Aviation Manufacturers Association, 2018 Annual Report, 2019.

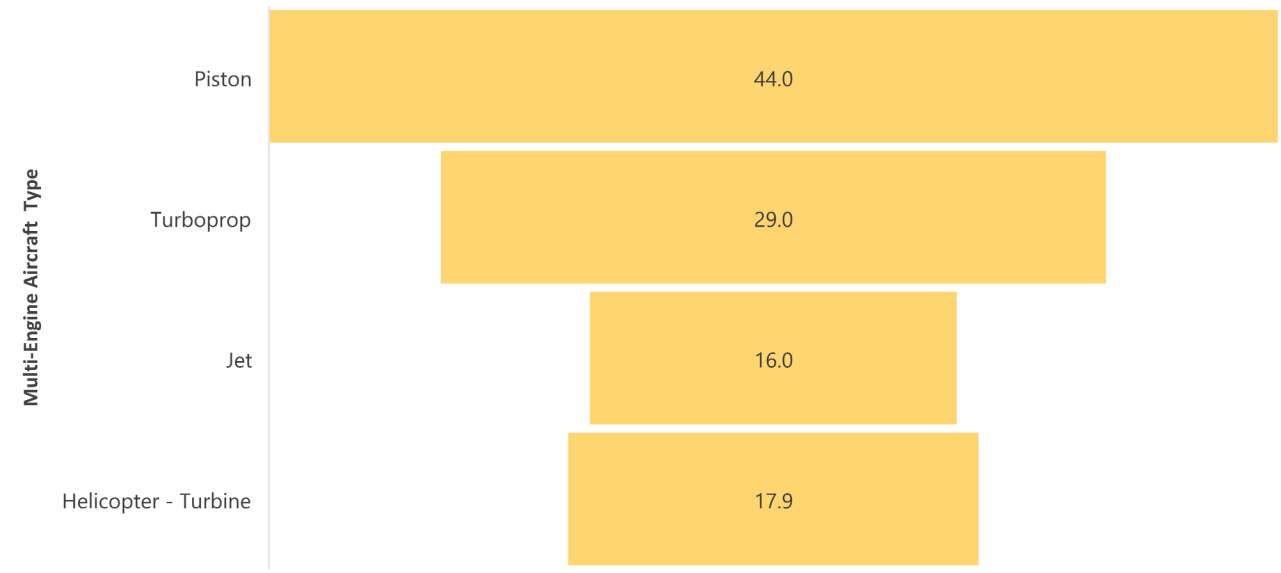
In addition to piston sales decreasing in the United States, the existing piston fleet is older than the other aircraft types. This means piston aircraft owners will likely retire their current aircraft in higher numbers. **Exhibit 2-3** and **Exhibit 2-4** show the 2017 piston fleet in the United States is 46.2 years for single-engine pistons and 44.0 years for multi-engine piston aircraft. The single-engine piston is the oldest GA aircraft type averaging 46.2 years, followed by multi-engine pistons averaging 44.0 years, and multi-engine turboprops averaging 29.0 years.

EXHIBIT 2-3 US AVERAGE AGE (IN YEARS) OF REGISTERED SINGLE-ENGINE AIRCRAFT IN 2017



SOURCE: General Aviation Manufacturers Association, 2018 Annual Report, 2019.

EXHIBIT 2-4 US AVERAGE AGE (IN YEARS) OF REGISTERED MULTI-ENGINE AIRCRAFT IN 2017



SOURCE: General Aviation Manufacturers Association, 2018 Annual Report, 2019.

2.2.3 AIRCRAFT UTILIZATION

GAMA data on hours flown and fuel consumed provide additional insight into the future GA market. The distribution of hours flown and the type of fuel consumed in recent years indicate which aircraft are being used most often. Understandably, the change in fleet determines the use of the aircraft; therefore, GAMA data indicate piston aircraft are decreasing in hours flown, which also correlates to decreases in its fuel sold.

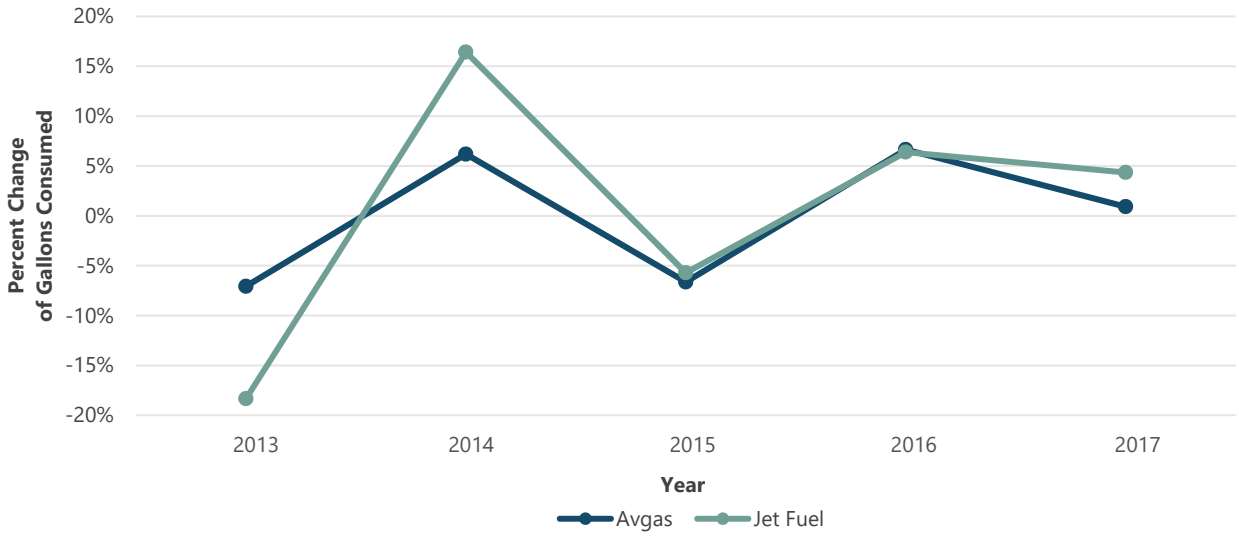
2.2.3.1 HOURS FLOWN

GAMA projects total GA aircraft hours flown will grow an average 0.6 percent from 2018 to 2027, with piston aircraft hours decreasing 1.5 percent and business jet hours increasing 4.3 percent on average per year. In 2017, 43.4 percent of total piston hours flown were for recreational purposes and 31.0 percent were for instructional purposes. Because of the expected decreases in fleet, these GA segments may experience a decline in the coming years. Alternatively, business with a crew (49.6 percent) and air taxi (25.3 percent) operations constitute most business jet hours.

2.2.3.2 FUEL CONSUMPTION

Avgas and Jet A are the fuel types used in general aviation; Avgas is used for piston powered aircraft and Jet A is used for turbine aircraft, including jets, turboprops and most helicopters. Even though the two fuel types have followed similar consumption trends in recent years, Jet A is growing at a higher rate than Avgas. From 2013 to 2017, Jet A fuel consumption in the United States grew at an average annual growth rate of 0.62 percent, and Avgas grew at an average annual growth rate of 0.01 percent. If the projected business jet fleet changes materialize, then jet fuel will continue to grow at a higher rate. **Exhibit 2-5** shows the percent change of both fuel types from 2013 to 2017. As shown, since 2013, Jet A fuel consumption has increased more rapidly than Avgas.

EXHIBIT 2-5 US GENERAL AVIATION FUEL CONSUMPTION (2013–2017)



SOURCE: General Aviation Manufacturers Association, *2018 Annual Report*, 2019.

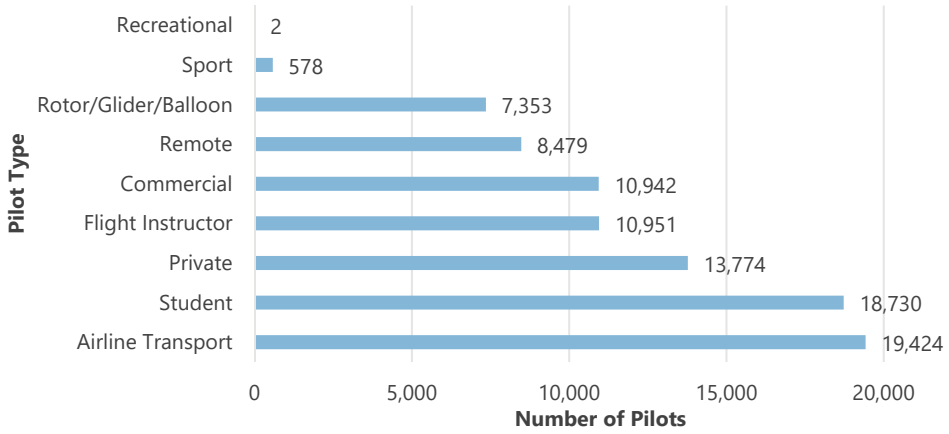
2.2.4 CERTIFICATED PILOTS

Although the shift in GA is transitioning towards more corporate GA, many pilots are trained at GA airports in piston and turboprop aircraft. As such, student pilot and Certified Flight Instructor (CFI) numbers are indicators of the current and future GA market. The takeoff weight restriction of the light GA market also results in less jet and more piston aircraft operations. Since most piston hours are spent for recreational and flight training purposes, student and private pilot trends are significant measures of future light GA growth.

The outlook for student pilots in the United States is favorable. The US pilot population grew 4 percent in 2018, and the increase is largely attributed to the 12 percent growth in student pilot certificate holders. However, despite the positive 39.5 percent increase from 2013 to 2018 in student pilots, CFI numbers have only increased by 9.8 percent.

Exhibit 2-6 presents GAMA's Florida pilot distribution which reveals student pilots, private pilots, and CFIs comprise the top three GA pilot types. Together, these three categories equal 13,089 more pilots than the airline transport and commercial pilot numbers in the state. Therefore, the flight training segment of the GA market is important to the Florida aviation industry. The light GA market has the potential for experiencing continued growth through flight training operations.

EXHIBIT 2-6 ACTIVE FEDERAL AVIATION ADMINISTRATION CERTIFICATED PILOTS AND FLIGHT INSTRUCTORS IN FLORIDA

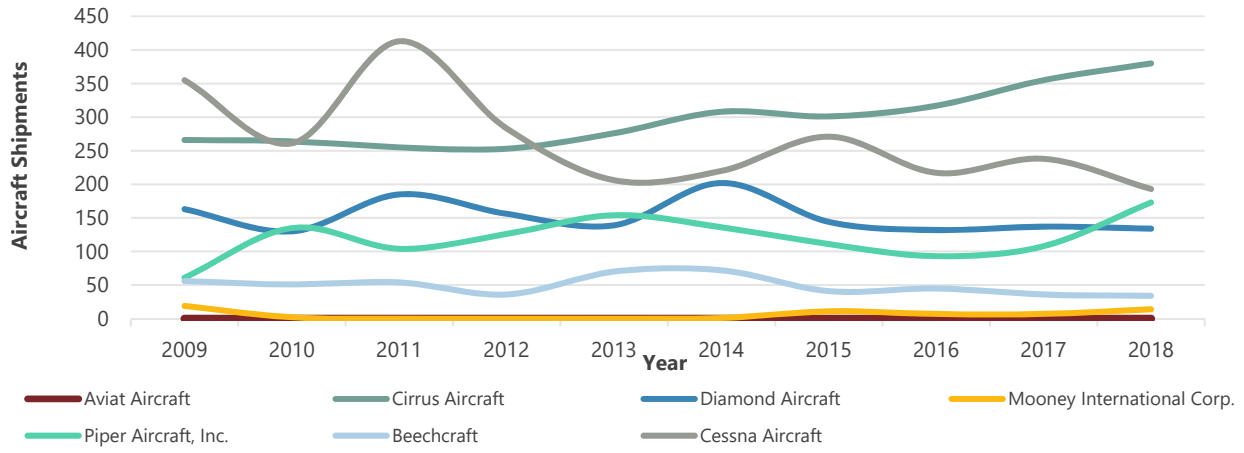


SOURCE: General Aviation Manufacturers Association, *2018 Annual Report*, 2019.

2.3 AIRCRAFT MANUFACTURERS PRODUCTION

Another factor of the light GA market is the degree to which specific light GA aircraft are sold. Piston aircraft shipments by light GA aircraft manufacturers have been relatively stable since 2009. **Exhibit 2-7** shows light GA aircraft manufacturers increased their worldwide piston shipments 0.66 percent from 2009 to 2018. Trends indicate light GA aircraft manufacturers with other aircraft offerings are providing a jet option, and those specializing in piston aircraft are increasing service and jet fleet offerings. The general outlook for GA aircraft is positive, but evidence suggests this growth will include more personal jet and flight training aircraft.

EXHIBIT 2-7 LIGHT GENERAL AVIATION MANUFACTURER WORLDWIDE PISTON AIRCRAFT SHIPMENTS (2009–2018)



NOTE: Textron Inc. owns the Beechcraft and Cessna brands.
SOURCE: General Aviation Manufacturers Association, *2018 Annual Report*, 2019.

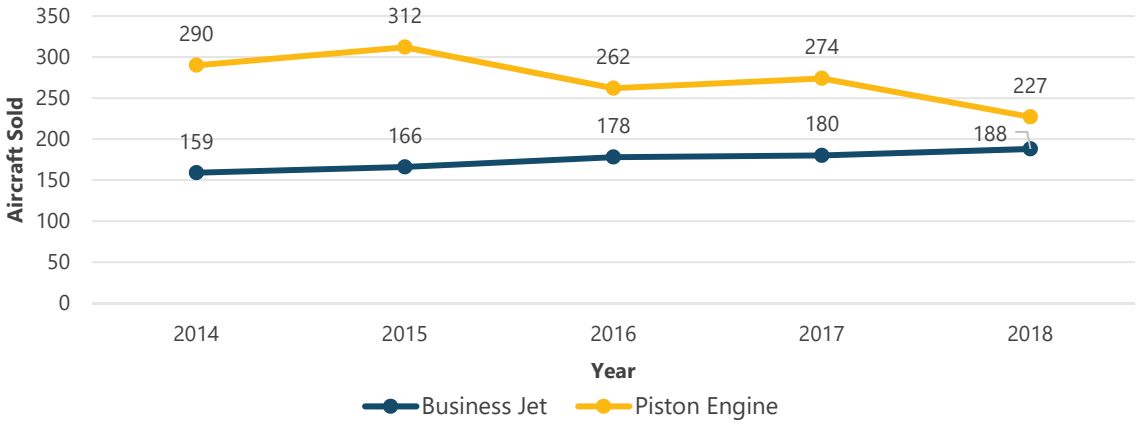
The following subsections summarize some pertinent information pertaining to the manufacturers of light GA aircraft.

2.3.1 BEECHCRAFT AND CESSNA

Textron Inc. (Textron) is the owner of the Beechcraft and Cessna aircraft brands, which are housed under their Textron Aviation subsidiary. The two brands are investing in aircraft development for more jet aircraft sales. This supports the business jet increase projections. Jet aircraft have been and are expected to be profitable for the company, although piston aircraft sales are decreasing. In its 2018 Annual Report, Textron reported that its total aircraft revenue increased $323 million from 2017 to 2018. Jet aircraft sale increases in the last four years attributed to this change. Partnerships with NetJets Inc. to purchase up to 175 Citation Longitude aircraft and up to 150 Citation Hemisphere aircraft (two business jet models) make the company optimistic about future jet sales. On the other hand, in 2018, piston aircraft deliveries decreased by 47 aircraft.[1]. **Exhibit 2-8** presents Textron's piston aircraft deliveries decreasing and its business jet sales increasing from 2014 to 2018.

[1] Textron Inc., *2018 Annual Report*, 2019.

EXHIBIT 2-8 TEXTRON INC. AVIATION AIRCRAFT DELIVERIES (2014–2018)



SOURCE: Textron Inc., *2018 Fact Book*, 2019.

2.3.2 CIRRUS AIRCRAFT

Cirrus Aircraft primarily sells light-weight piston aircraft (SR Series) and has recently added light jets (Vision Jet) to its fleet. In 2018, the company declared a 7 percent increase from 2017 in its piston trainer SR Series aircraft deliveries. This is the fifth year in a row for the company to sell more than 300 SR Series aircraft.[2] The Vision Jet, the first single-engine personal jet to be certified by the FAA, is also expected to continue increasing in deliveries. This jet has a maximum takeoff weight of 6,000 pounds, which qualifies it for a light GA aircraft designation. Recent partnerships, infrastructure development, and employment levels position the aircraft manufacturer to maintain similar sale trends. In early 2019, Cirrus Aircraft signed with Japan Civil Aviation College for 20 SR22 aircraft and with Oklahoma State University for 5 SR20 aircraft.[3] The company also invested in a new flight training center, a factory service center, and a nearly 30,000-square-foot expansion of one North Dakota facility.

2.3.3 PIPER AIRCRAFT, INC.

Another specialist in trainer aircraft, Piper Aircraft, Inc., had a very successful year in 2018 in terms of sales, product development, and company growth. In 2018, the Florida-based light GA aircraft manufacturer reported an increase in total aircraft billings of $263 million, which is a 38 percent increase from 2017. Piper Aircraft, Inc., also had a 48 percent increase in aircraft deliveries in 2018.[4]

Similar to Cirrus Aircraft, recent product development, relationships with flight training programs, and expanded facilities are strong indicators of expected growth for Piper Aircraft, Inc. In 2019, the company added two new trainer aircraft models (Piper Pilot 100 and Pilot 100i).[5] Fanmei Aviation Technologies and L3 Commercial Aviation helped the company achieve its largest orders in company history for pilot training aircraft. The orders consisted of up to

[2] Cirrus Aircraft, *Cirrus Aircraft Reports Strongest Deliveries in a Decade, Highlighted by Vision Jet Growth*, February 2019, https://cirrusaircraft.com/cirrus-aircraft-reports-strongest-deliveries-in-a-decade-highlighted-by-vision-jet-growth/ (accessed May 2019).

[3] Cirrus Aircraft, *Cirrus Aircraft Reports Strongest Deliveries in a Decade, Highlighted by Vision Jet Growth*, February 2019, https://cirrusaircraft.com/cirrus-aircraft-reports-strongest-deliveries-in-a-decade-highlighted-by-vision-jet-growth/ (accessed May 2018).

[4] Piper Aircraft, Inc., Press Releases, 2019, https://www.piper.com/news/ (accessed May 2018).

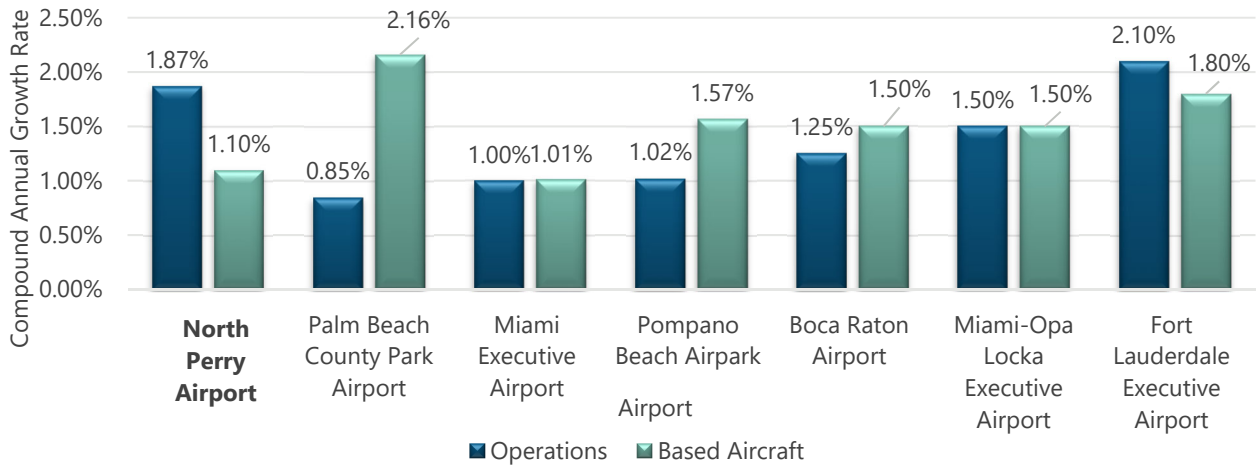
[5] Piper Aircraft, Inc., Press Releases, 2019, https://www.piper.com/news/ (accessed May 2018).

125 and 240 aircraft, respectively. Also, the addition of three new US dealer locations is intended to expand the company's aircraft sales force.

2.4 FLORIDA DEPARTMENT OF TRANSPORTATION'S FLORIDA AVIATION SYSTEM PLAN FORECASTS

The FDOT's FASP 2035 aviation activity forecasts for Florida's airport system identify future aeronautical needs. The projections of based aircraft and the forecasts of operations for the seven airports surveyed in this assessment facilitate an improved understanding of the local GA market aeronautical activity. Overall, all seven airports are forecast to grow in annual aircraft operations and in based aircraft through 2035. **Exhibit 2-9** shows the average growth rates projected by the FDOT from 2016 to 2035 for the airports in this market. FXE and HWO are forecast to experience the largest growth in aircraft operations. In terms of based aircraft, LNA and FXE are projected to experience the largest growth.

EXHIBIT 2-9 FLORIDA DEPARTMENT OF TRANSPORTATION BASED AIRCRAFT AND OPERATION AVERAGE ANNUAL GROWTH RATE FOR LOCAL GENERAL AVIATION AIRPORTS (2016–2035)



SOURCES: Florida Department of Transportation, Aviation and Spaceports Office: General Aviation Based Aircraft Forecast, 2016; Florida Department of Transportation, Aviation and Spaceports Office: General Aviation Operations Forecast, 2016.

3. LOCAL GENERAL AVIATION MARKET DEFINITION

The specific GA market analyzed for this assessment has distinct characteristics. Selection criteria for determining the analyzed airports included size, function, and location. This section describes the unique traits of HWO and those that qualified the other local GA airports for inclusion in this market assessment.

3.1 LOCAL GA AIRPORT MARKET DEFINITION

The FAA National Plan of Integrated Airport Systems (NPIAS) is used to categorize airports, their roles and future development. HWO is classified as a General Aviation Reliever Airport in the NPIAS. The federal government uses this classification to determine Airport Improvement Program (AIP) funding allocations. The NPIAS further defines General Aviation airports as public-use airports without scheduled service or less than 2,500 annual passenger boardings.[6] The reliever designation of HWO refers to the Airport's proximity to a commercial service airport (Fort Lauderdale–Hollywood International Airport [FLL], Miami International Airport [MIA], and Palm Beach International Airport [PBI]) and its role in relieving congestion. HWO is also designated as a Regional Airport Asset by the FAA, meaning it serves regional markets and has a high level of activity.[7]

This market assessment focuses on local public-use airports that serve light GA aircraft. These airports consist of the GA airports that are located within 25 nautical miles of HWO. Any NPIAS-categorized Commercial Service Airport, such as FLL, MIA, and PBI, were not considered for this market assessment, as they provide few amenities for the light GA market. Although LNA is located beyond 25 nautical miles from HWO, this airport was also included in the market assessment. LNA was included to determine of there were potential market impacts associated with Temporary Flight Restrictions (TFRs) due to operations of Air Force One at PBI.

Table 3-1 lists the local GA airports that are included in this market assessment, the three-letter airport identifiers, proximity to HWO, and the counties in which they are located. For the purposes of this assessment, the local GA market is comprised of HWO and the six airports described herein. **Exhibit 3-1** presents a location map of the airports within the Palm Beach, Broward, and Miami-Dade Counties. For purposes of this market assessment, only the GA airports shown were considered and are collectively referred to as the local GA airport market.

TABLE 3-1 LOCAL MARKET GENERAL AVIATION AIRPORTS

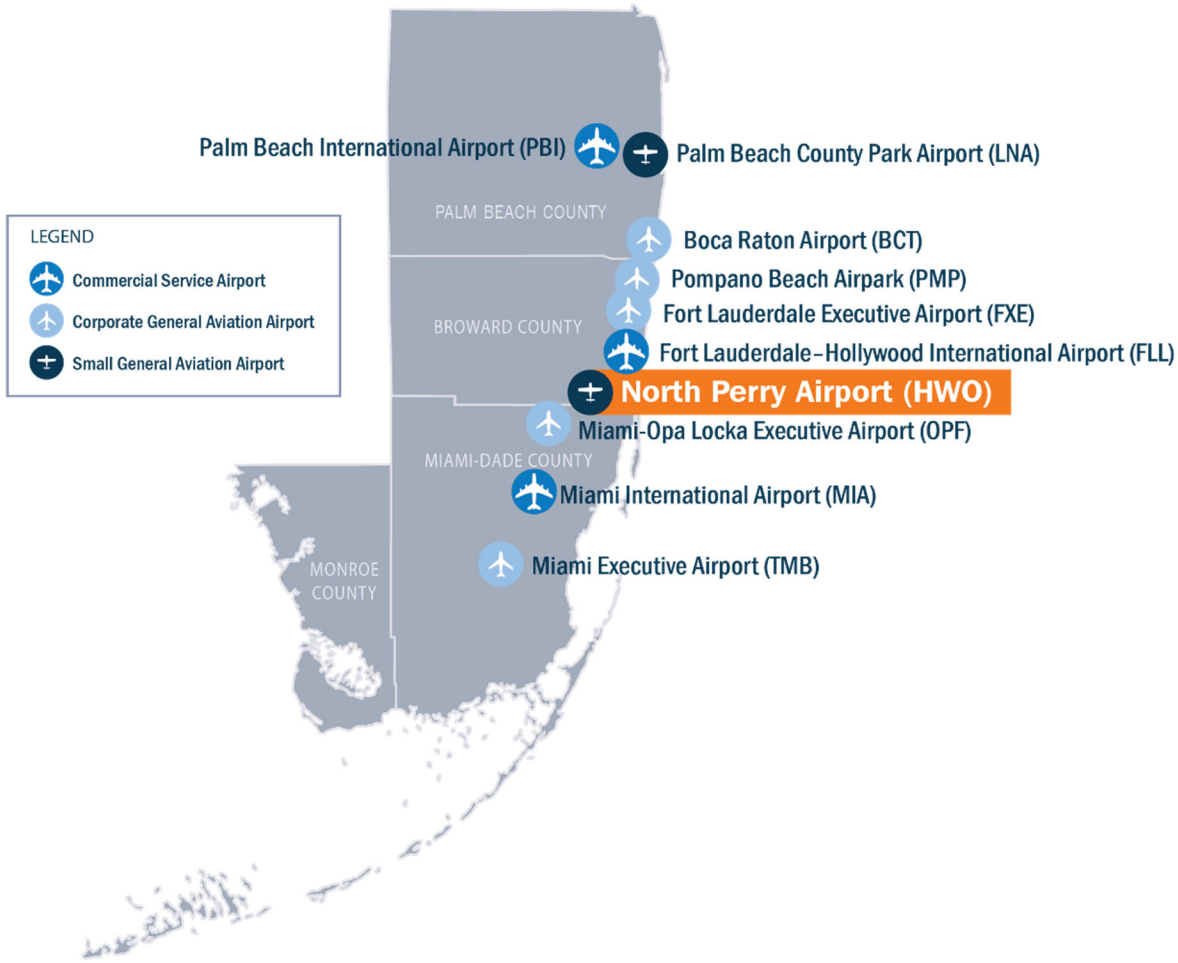
AIRPORT	3-LETTER IDENTIFIER	DISTANCE FROM HWO (NAUTICAL MILES)	COUNTY
Boca Raton Airport	BCT	23.7	Palm Beach
Fort Lauderdale Executive Airport	FXE	12.4	Broward
Pompano Beach Airpark	PMP	16.3	Broward
Miami-Opa Locka Executive Airport	OPF	6.0	Miami-Dade
Miami Executive Airport	TMB	23.6	Miami-Dade
Palm Beach County Park Airport	LNA	36.2	Palm Beach

SOURCE: AirNav.com, www.airnav.com (accessed February 8, 2019).

[6] Federal Aviation Administration, National Plan of Integrated Airport Systems, October 2018.

[7] Federal Aviation Administration, *General Aviation Airports: A National Asset*, May 2012.

EXHIBIT 3-1 LOCAL GENERAL AVIATION AIRPORT MARKET



NOTE: Commercial service airports are shown for proximity purposes only.
SOURCE: Ricondo & Associates, Inc., *HWO Aeronautical Market Assessment Presentation*, April 10, 2019.

3.2 LOCAL GENERAL AVIATION AIRPORT CHARACTERISTICS

Except for PMP, the local airports are designated as GA Reliever Airports within the NPIAS. According to the FASP, the local airports serve recreational flying, business activity, and flight training operations. In addition, BCT provides flight charters; FXE serves law enforcement and medical transport aviation needs; and OPF serves medical transport needs. However, most of the airport operations are flight training or business related in nature. This is particularly true for HWO.

Table 3-2 presents information including, but not limited to airport size, tower status, airfield characteristics, and runway instrumentation to more fully compare all airports. Comparison of these variables results in the following conclusions:

- While each airport serves the light GA market, BCT, FXE, TMB, OPF, and PMP also serve corporate GA, while HWO and LNA have more recreational and flight training focused operations.

TABLE 3-2 SURVEYED AIRPORT CHARACTERISTICS

AIRPORT	NPIAS DESIGNATION	PRIMARY OPERATION TYPE	TOTAL ACRES	TOWER STATUS	NUMBER OF RUNWAYS	RUNWAY LENGTH(S) (LIN FT)	VISUAL APPROACH		INSTRUMENT APPROACHES AVAILABLE	APPROACH LIGHTING SYSTEM	AIRFIELD RESTRICTIONS
North Perry Airport (HWO)	**Reliever**	**Flight Training**	**522**	**Yes**	**4**	**3,350 / 3,260 / 3,241/ 3,255**	**P2L/P2L; P2L/P2L; P2L/P2L; P4L/P2L**	**PAPI**	**RNAV (GPS)**	**REIL**	**Takeoff weight must be less than 12,500 pounds.**
Boca Raton Airport (BCT)	Reliever	Corporate GA	214	Yes	1	6,276	P4R/P4L	PAPI	RNAV (RNP) / RNAV (GPS) / VOR-A	REIL	
Fort Lauderdale Executive Airport (FXE)	Reliever	Corporate GA	1,050	Yes	2	6,002 / 4,000	P4L/P4L; P2L/P2L	PAPI	ILS or LOC / RNAV (GPS)	MALSR	
Miami Executive Airport (TMB)	Reliever	Corporate GA/ Flight Training	1,380	Yes	3	5,003 / 6,000/ 4,001	P4L/P2L; P4R/P4L; P4L	PAPI	ILS or LOC / RNAV (GPS)	MALSR	
Miami-Opa Locka Executive Airport (OPF)	Reliever	Corporate GA	1,880	Yes	3	8,002 / 4,309/ 6,800	V4L/V4L; V4L/P4L; P4L/P4L	PAPI; VASI (9L)	ILS or LOC / RNAV (GPS)	MALSR/MALS	
Palm Beach County Park Airport (LNA)	Reliever	Flight Training	304	No	3	3256 / 3489/ 3421	P2L/P2L for all	PAPI	RNAV (GPS)	No Lights	Closed to jet and aircraft over 12,500 pounds; POTUS arrival results in TFRs.
Pompano Beach Airpark (PMP)	General Aviation	Corporate GA/ Flight Training	650	Yes	3	4,001 / 3,502 / 4,918	Two P2L/ P2L and one 4L/P4L	PAPI	RNAV (GPS) / LOC	REIL/MALS	Aircraft with gross weight more than 30,000 pounds are prohibited on Runway 15/33.

NOTES:
Operation type was derived from analyzing the itinerant and local operation distribution for each airport.
PAPI = Precision Approach Indicator
VASI = Visual Approach Slope Indicator
NPIAS = National Plan of Integrated Airport Systems
ILS = Instrument Landing System
LOC = Localizer
VOR = Very High Frequency Omni-Directional Range
RNAV = Area Navigation
REIL = Runway End Indicator Lights
MALSR = Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
GPS = Global Positioning System
MALS = Medium Intensity Approach Lighting System
POTUS = President of the United States
TFR = Temporary Flight Restriction

SOURCES: Florida Department of Transportation, *Florida Aviation System Plan 2025 Airport Profiles*, 2005; Federal Aviation Administration, *Current Airport Master Record Form 5010-1*, May 2018; AirNav.com, 2019; Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

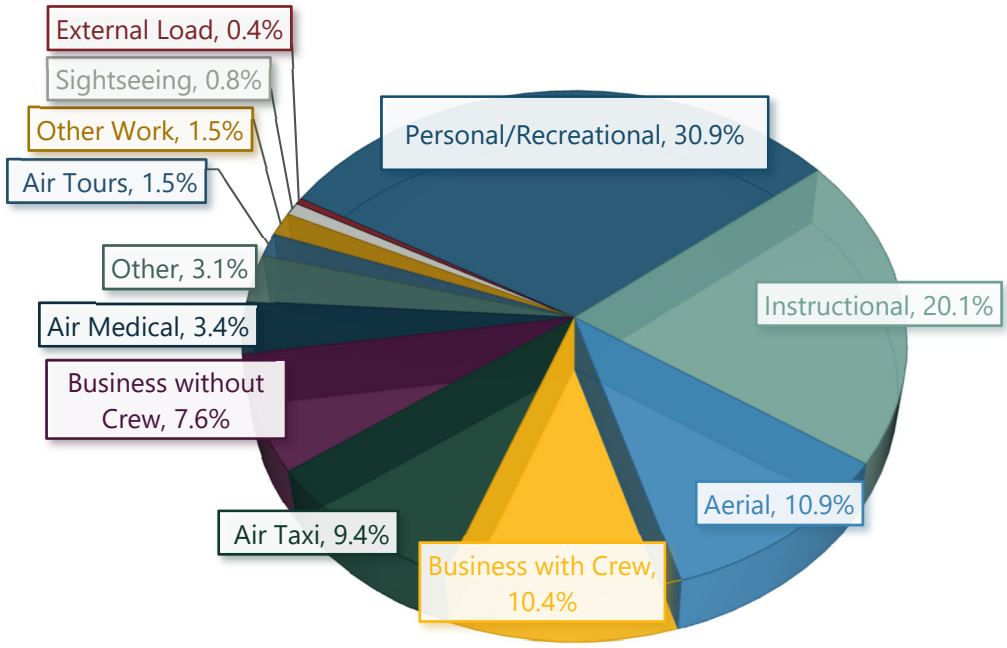
- The largest airport is OPF with 1,880 acres, followed by TMB with 1,380 acres and FXE with 1,050 acres. In comparison, HWO has a total land area of 522 acres.
- Except for LNA, each airport has an active air traffic control tower.
- BCT is the only airport with only one runway, and HWO has the most with four runways.
- In terms of runway length, OPF has the longest two runways in the area, measuring 8,002 feet and 6,800 feet. In comparison, HWO's runways range from 3,241 feet to 3,350 feet in length.
- Each airport has instrument approach and departure procedures with at least one area navigation (RNAV) enabled approach runway.
- LNA and HWO both have an aircraft takeoff weight restriction of 12,500 pounds. The other airports can serve most of the corporate jet aircraft fleet. PMP does, however, have a takeoff weight restriction of 30,000 pounds on one of its runways

3.3 TYPICAL GENERAL AVIATION MARKET SEGMENTS

Each of the local GA airports consist of tenants that provide a variety of aeronautical service offerings. Collectively, these service offerings create the niche market segments associated with each airport. In addition, there are other airport tenants provide indirect services and/or nonaeronautical services that support aeronautical users and tenants. These also contribute to the distinct market that one airport serves. The network of local GA airports gives many nonaviation businesses and public services access to air travel. Some examples include airplane-facilitated medical transport, charter service, and aerial applications, such as land surveying and agriculture crop spraying.

GA operations can be measured by the number of hours flown for each type of aircraft activity. The distribution of GA hours flown for 2017, as depicted on **Exhibit 3-2**, reveals that recreational and instructional hours comprise 51 percent of the total GA aircraft activity in the United States. The remaining 49 percent of the GA hours flown are associated with more commercial activities such as corporate flight departments, fractional ownership, charters, aerial surveys, medical transport, and air taxis.

EXHIBIT 3-2 ESTIMATED 2017 U.S. GENERAL AVIATION FLEET UTILIZATION



SOURCE: General Aviation Manufacturers Association, *2018 Annual Report*, 2019.

4. NORTH PERRY AIRPORT MARKET POSITION AND TRENDS

HWO's tenants and staff, as well as airport managers or operators at the other local airports were interviewed in March 2019 to determine the current and potential light GA service offerings within the local GA market. With the exception of LNA, staff from each of the local GA airports were interviewed either in person or via conference call. In addition, the following tenants at HWO were interviewed in person:

- Bobby's Landing
- Diversified
- Hollywood Aviation
- Wayman Aviation
- North Perry Aerospace
- Van Wagner Aerial
- Helicopters Inc.
- Broward College
- North Perry Aviation
- North Perry Central
- Pelican Flight Training

These service offerings, along with additional potential markets HWO may consider developing, are discussed in this section. The interviewees served an essential role in identification of existing and emerging markets that could be served within the local light GA airport market.

4.1 CURRENT MARKET POSITION

HWO's current market position can be demonstrated by comparing HWO's aeronautical service offering, based aircraft fleet mix composition, aircraft operational demand levels, and fuel flowage rates with the local GA airports. The following subsections summarize HWO's current market position relative to its peer airports throughout the local GA market.

4.1.1 AERONAUTICAL SERVICE OFFERINGS

Tenant interviews at HWO allowed for an improved understanding of the specific aeronautical services offered at the Airport. In total, eleven HWO tenant interviews were conducted via phone or in person. Some of the tenants had subtenants that provided additional insight into HWO's specific service offerings.

Table 4-1 compares the aeronautical services that are currently being provided by each of the primary tenants and their subtenants at HWO. As shown, these services include flight training, charter service, sightseeing tours, and banner towing. These operators are the primary drivers of fueling, aircraft and helicopter storage, aircraft maintenance, and aircraft refurbishment services provided by HWO tenants.

In addition to providing a measure of the current HWO aeronautical services, many participants described emerging markets that could potentially be served at the Airport. Tenants identified that aircraft storage and tie-downs are in short supply. In addition, there are not enough aircraft maintenance hangars at HWO, thereby causing some aircraft operators to obtain these services at nearby airports. The lack of aircraft maintenance offerings at HWO is believed to be a direct result of the lack of conventional aircraft maintenance hangars.

TABLE 4-1 NORTH PERRY AIRPORT TENANT SERVICE OFFERINGS

TENANT/ OPERATOR	HELICOPTER STORAGE/ SERVICING	FUELING SERVICES	FLIGHT TRAINING	AIRCRAFT MAINTENANCE AND REPAIR	AIRCRAFT STORAGE	CHARTER SERVICE	SIGHTSEEING TOURS	AIRCRAFT REFURBISHMENT	BANNER TOWING	OTHER[1]
Bobby's Landing [2]	✈	✈	✈	✈	✈		✈	✈	✈	✈
Diversified [2]	✈	✈		✈	✈	✈	✈	✈		
Hollywood Aviation [2]	✈	✈	✈	✈	✈		✈			
Wayman Aviation			✈	✈	✈					✈
North Perry Aerospace					✈					
Van Wagner Aerial									✈	
Helicopters Inc.	✈									
Broward College			✈							
North Perry Aviation					✈					
North Perry Central		✈	✈	✈	✈		✈			✈
Pelican Flight Training			✈							

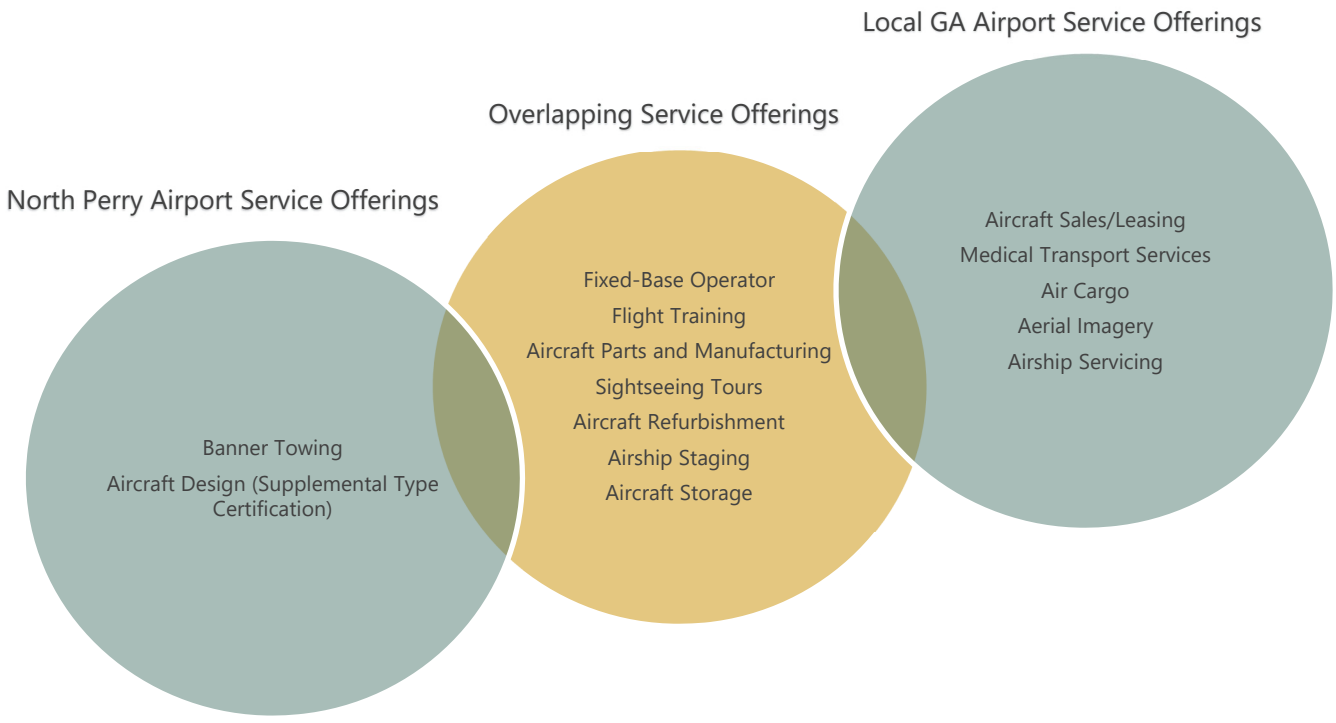
NOTES:
Aeronautical markets not served at HWO include aircraft parts and manufacturing, aircraft sales and leasing, and medical transport services.
1 Other includes flight shops, FAA testing center, flying club, and aircraft design.
2 Services provided by Bobby's Landing, Hollywood Aviation, Diversified, and North Perry Aviation are inclusive of subtenants.
SOURCE: Individual HWO Tenant Interviews; Ricondo & Associates, Inc., March 2019.

The surveyed local GA airport managers/operators helped identify the remaining aircraft operations and supporting services found in the assessed region. Many similarities were found within the local GA market. The airports all had at least one tenant that provided flight training aircraft operations. In terms of supporting services, each airport had at least one tenant that provided aircraft fueling services and aircraft storage. Five airports offer aircraft parts and manufacturing services.

Table 4-2 compares the aeronautical services that are currently being provided throughout the local GA market. As shown, many services at HWO are also provided by other local GA airports. HWO is one of two airports to provide banner towing and airship staging. Unique to HWO and classified in the "Other" category is the aircraft design service identified by one tenant. This tenant possesses a supplemental type certificate for an aircraft it services. Markets served at two other local airports that are not served at HWO include aircraft sales and leasing centers (FXE and PMP) and medical transport services (FXE and OPF).

The comparison of HWO's service offerings to those of the other airports led to the identification of other potential service offering that could be established at HWO. Considering the light GA aircraft distinction, these service offerings are provided at other airports within the local GA market and therefore could be provided at HWO as well. **Exhibit 4-1** graphically depicts the service offerings unique to HWO and the local GA airports. It also depicts the overlapping services that are served by both HWO and at least one of the local GA airports. Except for air cargo, the other four services that are not offered at HWO could be served by current or future tenants.

EXHIBIT 4-1 LOCAL AIRPORT AERONAUTICAL SERVICE OFFERINGS COMPARISON



NOTES:
GA = General Aviation
Excludes Palm Beach County Park Airport.
Aircraft operations, such as charter services, that are not provided by light GA aircraft were not included in this assessment.
SOURCE: Individual Airport Operator Interviews, Ricondo & Associates, Inc., March 18, 2019.

TABLE 4-2 LOCAL GENERAL AVIATION AERONAUTICAL SERVICE OFFERINGS

AIRPORT	FBO SERVICES[1]	FLIGHT TRAINING	AIRCRAFT STORAGE	SIGHTSEEING TOURS	AIRCRAFT REFURBISHMENT	BANNER TOWING	AIRSHIP STAGING AND SERVICING[2]	AIRCRAFT PARTS AND MANUFACTURING	AIRCRAFT SALES/ LEASING[3]	MEDICAL TRANSPORT SERVICES	OTHER[4, 5]
North Perry Airport (HWO)	✈	✈	✈	✈	✈	✈	✈	✈			✈
Boca Raton Airport (BCT)	✈	✈	✈		✈						
Fort Lauderdale Executive Airport (FXE)	✈	✈	✈					✈	✈	✈	✈
Miami Executive Airport (TMB)	✈	✈	✈					✈			✈
Miami-Opa Locka Executive Airport (OPF)	✈	✈	✈	✈				✈		✈	✈
Palm Beach County Park Airport (LNA)	✈	✈	✈			✈					
Pompano Beach Airpark (PMP)	✈	✈	✈	✈	✈		✈	✈	✈		

NOTES:
1 FBO Services include aircraft storage, fueling, and aircraft maintenance for based transient aircraft.
2 HWO does provide airship staging but not servicing.
3 Aircraft Sales/Leasing includes aircraft brokers located on- airport.
4 Other includes flight shops, charter service, FAA testing center, flying club, aircraft design, flight attendant training, cargo, and aerial imagery.
5 Charter services considered were only those provided by light GA aircraft.
SOURCE: Individual Airport Operator Interviews, Ricondo & Associates, Inc., March 18, 2019.

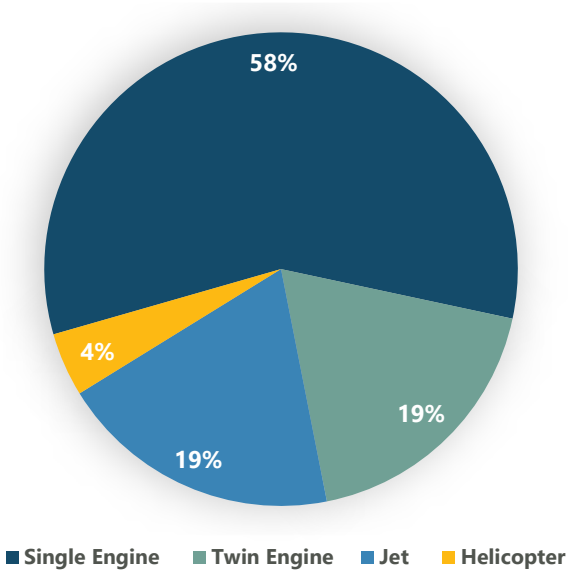
4.1.2 LOCAL GA AIRPORT MARKET SHARE

The public reports included in this assessment provided trends describing patterns in the GA industry anticipated for the future. A review of these same trends for the airports surveyed provided similar anticipated patterns for the future local GA market. What follows is a summary of these aviation measures to further determine the local GA market in relation to national GA trends. A yearly survey conducted by SJM contributed much of the information for this part of the assessment. Each airport's based aircraft, aircraft operations, fuel flowage, and revenue quantified the market share that each airport holds.

4.1.2.1 BASED AIRCRAFT

In terms of based aircraft counts, the local market primarily consists of single-engine piston aircraft. **Exhibit 4-2** summarizes the based aircraft fleet composition for the local airports for 2014 to 2017. On average, single-engine piston made up 58 percent of the fleet. This means that operations performed at these airports were conducted by smaller aircraft. Twin engine and jet aircraft make up the next largest portion of aircraft in this market, with each comprising 19 percent of the total based aircraft.

EXHIBIT 4-2 LOCAL GENERAL AVIATION AIRCRAFT FLEET COMPOSITION (2014–2017)

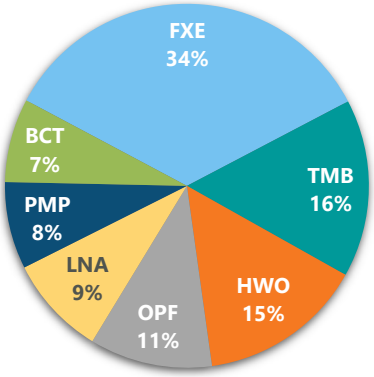


NOTE: Airports included in this data set are BCT, FXE, HWO, LNA, OPF, PMP, and TMB.
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

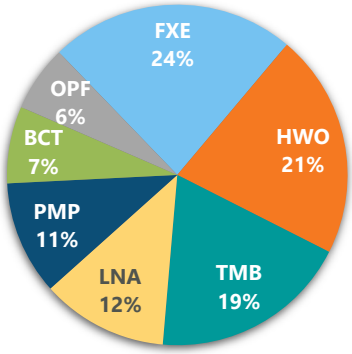
Exhibit 4-3 depicts based aircraft shares per aircraft type for each of the local GA airports. As shown, HWO serves 15 percent of the overall locally based aircraft. Only FXE and TMB have a larger portion of the average total based aircraft and individual aircraft types. In fact, FXE has the largest share of single engine, twin engine, jet and helicopters. HWO has the second largest share of based single engine and helicopters, with a local market share of 21 percent and 18 percent respectively. It also ranks 4th in twin engine based aircraft, with a market share of 8 percent.

EXHIBIT 4-3 LOCAL GENERAL AVIATION AIRPORTS – BASED AIRCRAFT DISTRIBUTION

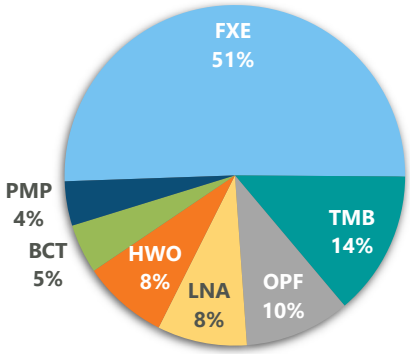
Average Share of Total Based Aircraft (2014–2017)



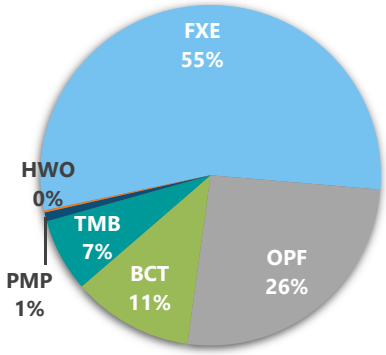
Average Share of Single-Engine Based Aircraft (2014–2017)



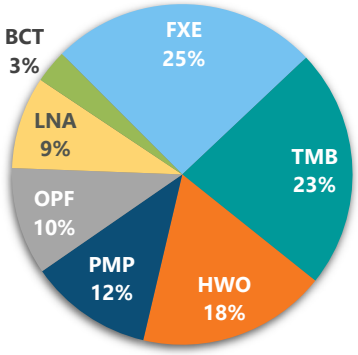
Average Share of Twin-Engine Based Aircraft (2014–2017)



Average Share of Jet Based Aircraft (2014–2017)[1]



Average Share of Helicopter Based Aircraft (2014–2017)



NOTES:

1 LNA does not have any based jet aircraft. HWO has one based jet aircraft.

BCT = Boca Raton Airport
FXE = Fort Lauderdale Executive Airport
HWO = North Perry Airport
LNA = Palm Beach County Park Airport
PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport

SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

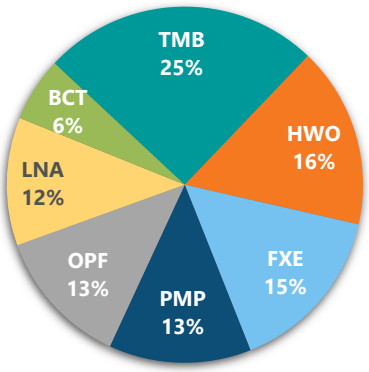
4.1.2.2 AIRCRAFT OPERATIONS

In addition to better understanding HWO's market share within the local GA market, a review of the total, local, and itinerant operations for the local GA market can provide insight into what type of services are provided. In particular, airports with a greater share of local operations typically have a larger share of flight training activities that occur at the airport.

Total Aircraft operations

Exhibit 4-4 shows the average share of total operations for each of the local GA airports from 2014 to 2017. As shown, HWO's 16 percent share of total aircraft operations ranked second only to TMB's 25 percent share in total aircraft operations. This is reflective of the fact that both of these airports have a high concentration of flight training activity, which results in high levels of touch and go activity.

EXHIBIT 4-4 AVERAGE SHARE OF TOTAL OPERATIONS (2014–2017)



NOTES:
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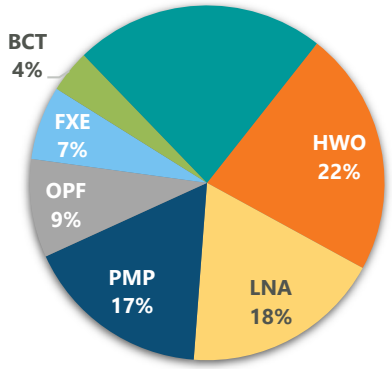
FXE = Fort Lauderdale Executive Airport
HWO = North Perry Airport
LNA = Palm Beach County Park Airport
PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport

SOURCES: Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Master Plan Update*, September 2018 (forecast chapter); Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

LOCAL OPERATIONS

Exhibit 4-5 provides a breakdown of the share of local operations per airport for the 2014 to 2017 period. TMB has the most local operations with an average of 23 percent and HWO has the second most with an average of 22 percent. Review of the 2018 distribution reveals that HWO has the most share of local operations with 31 percent followed by TMB with 21 percent. Local operations at HWO increased from 140,097 in 2017 to 190,672 in 2018. Since HWO has a significant flight training component, this majority in local operations and the competitive share of single-engine based aircraft show that the Airport is competitive in the operation it serves.

EXHIBIT 4-5 AVERAGE SHARE OF LOCAL OPERATIONS (2014–2017)



NOTES:
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HWO = North Perry Airport
PMP = Pompano Beach Airpark
TMB = Miami Executive Airport
FXE = Fort Lauderdale Executive Airport
LNA = Palm Beach County Park Airport
OPF = Miami-Opa Locka Executive Airport
SOURCES: Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Master Plan Update*, September 2018 (forecast chapter); Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

Table 4-3 summarizes each airport's primary GA operation type from its specific local and itinerant operation split. To demonstrate the relative share of flight training activity associated with each airport, the data is sorted according to each airport's local share. Due to the nature of how operations are tracked, the airports with more local operations have a flight training focus and those with more itinerant operations have a corporate focus. As shown, FXE, TMB, and BCT have a corporate aviation focus. TMB's local and itinerant operation split reveals that it serves both operation types with 58.16 percent focused mainly on corporate aviation and 41.84 percent on flight training. Flight training airports are PMP, HWO, and LNA.

TABLE 4-3 OPERATION FOCUS FOR LOCAL GENERAL AVIATION AIRPORTS

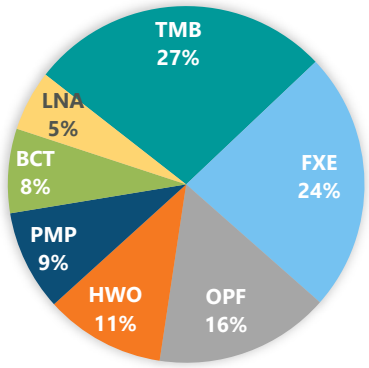
AIRPORT	2017 ANNUAL OPERATIONS		LOCAL SHARE	AIRPORT OPERATION FOCUS
	TOTAL	LOCAL		
Palm Beach County Park Airport (LNA)	117,050	90,000	76.89%	Flight Training
North Perry Airport (HWO)	**210,243**	**140,097**	**66.64%**	**Flight Training**
Pompano Beach Airpark (PMP)	130,234	79,416	60.98%	Corporate/Flight Training
Miami Executive Airport (TMB)	284,679	119,122	41.84%	Corporate/Flight Training
Boca Raton Airport (BCT)	66,209	22,036	33.28%	Corporate
Miami-Opa Locka Executive Airport (OPF)	125,439	35,119	28.00%	Corporate
Fort Lauderdale Executive Airport (FXE)	171,335	39,695	23.17%	Corporate

NOTE: The 2017 fiscal year spans October 1, 2016 to September 30, 2017.
SOURCES: Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

ITINERANT OPERATIONS

Since business operations, such as charters, involve the transport of individuals from one area to another, itinerant operations are a useful indicator of business operations. If an airport focuses on catering to more business services, then this kind of operation will occur more frequently than local operations. As shown on **Exhibit 4-6**, HWO ranks fourth with a market share of 11 percent. The airports with the most itinerant operations from 2014 to 2017 were TMB with 27 percent, FXE with 24 percent, and OPF with 16 percent.

EXHIBIT 4-6 AVERAGE SHARE OF ITINERANT OPERATIONS AT LOCAL GENERAL AVIATION AIRPORTS (2014–2017)



NOTES:
LNA numbers for 2017 and 2018 were derived from the FAA's *Terminal Area Forecast*.
BCT = Boca Raton Airport
FXE = Fort Lauderdale Executive Airport
HWO = North Perry Airport
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PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
SOURCES: Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Master Plan Update*, September 2018 (forecast chapter); Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

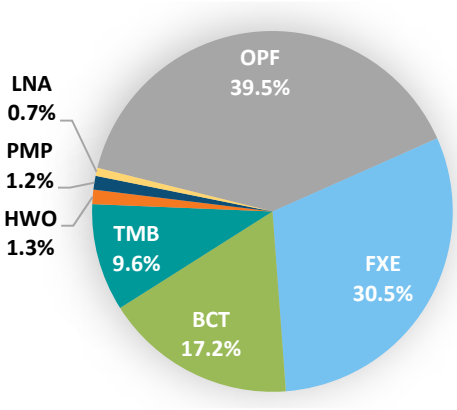
4.1.2.3 FUEL FLOWAGE

Fuel flowage is another measure that correlates with aircraft operational demand and aircraft fleet mix composition. Since fuel flowage fees are levied on each gallon pumped at airports they are well tracked. Therefore, fuel flowage numbers are adequate indicators of the amount of fuel sold on airport property, typically by fixed-base operators (FBOs).

The two predominant types of fuel used in general aviation are Avgas and Jet A fuel. Avgas is used for piston powered aircraft and Jet A is used for turbine aircraft, such as turboprops, jets, and helicopters. However, some airports do not segregate fuel flowage between Jet A and Avgas. For those airports that do not track the fuel flowage for Jet A and Avgas separately, the FBOs were contacted to obtain an estimate of their respective shares.

Exhibit 4-7 shows the total breakdown of fuel sales from 2014 to 2017. As shown, HWO's share of fuel sales is 1.3 percent, which is the third lowest share in the local market. Only LNA and PMP have a lower share of fuel sales. The low share of fuel sales at HWO is directly attributed to the lack of corporate GA aircraft operations. Corporate GA aircraft have a much greater fuel capacity and burn rate than piston aircraft.

EXHIBIT 4-7 AVERAGE SHARE OF TOTAL FUEL SALES (2014–2017)



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OPF = Miami-Opa Locka Executive Airport
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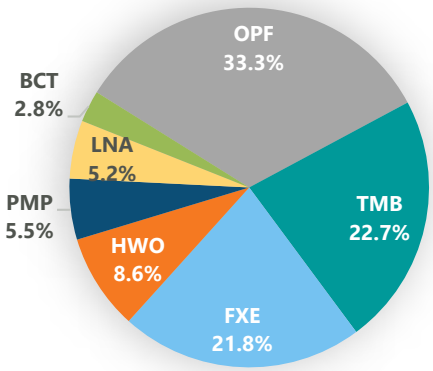
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

AVGAS FUEL SALES

Exhibit 4-8 presents the estimated distribution of Avgas sold per airport throughout the local GA market between 2014 and 2017. As shown, HWO sold 8.6 percent of the Avgas, which ranks fourth in the local GA market behind OPF, TMB, and FXE.

EXHIBIT 4-8 AVERAGE SHARE OF AVGAS FUEL SALES (2014–2017)



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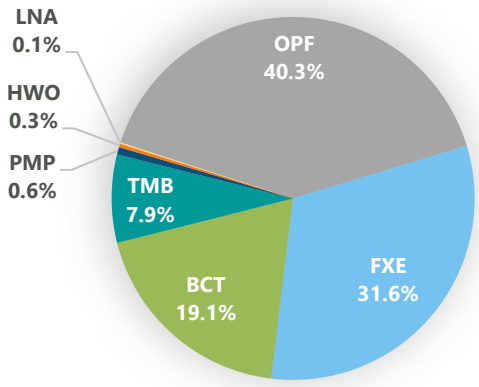
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

JET A FUEL SALES

The Jet A fuel sales mirror the total operations number, revealing that OPF and FXE have the most Jet A fuel sold. Of all Jet A fuel sold on average, OPF sells the most at 40.3 percent, and FXE has the second most at 31.6 percent. **Exhibit 4-9** presents the estimated distribution of Jet A fuel sold at each of the local GA airports. As shown, HWO sold 0.3 percent of the Jet A fuel, which ranks second to last in the local GA market.

EXHIBIT 4-9 AVERAGE SHARE OF JET A FUEL (2014–2017)



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PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

4.2 LOCAL GENERAL AVIATION AIRPORT MARKET TRENDS

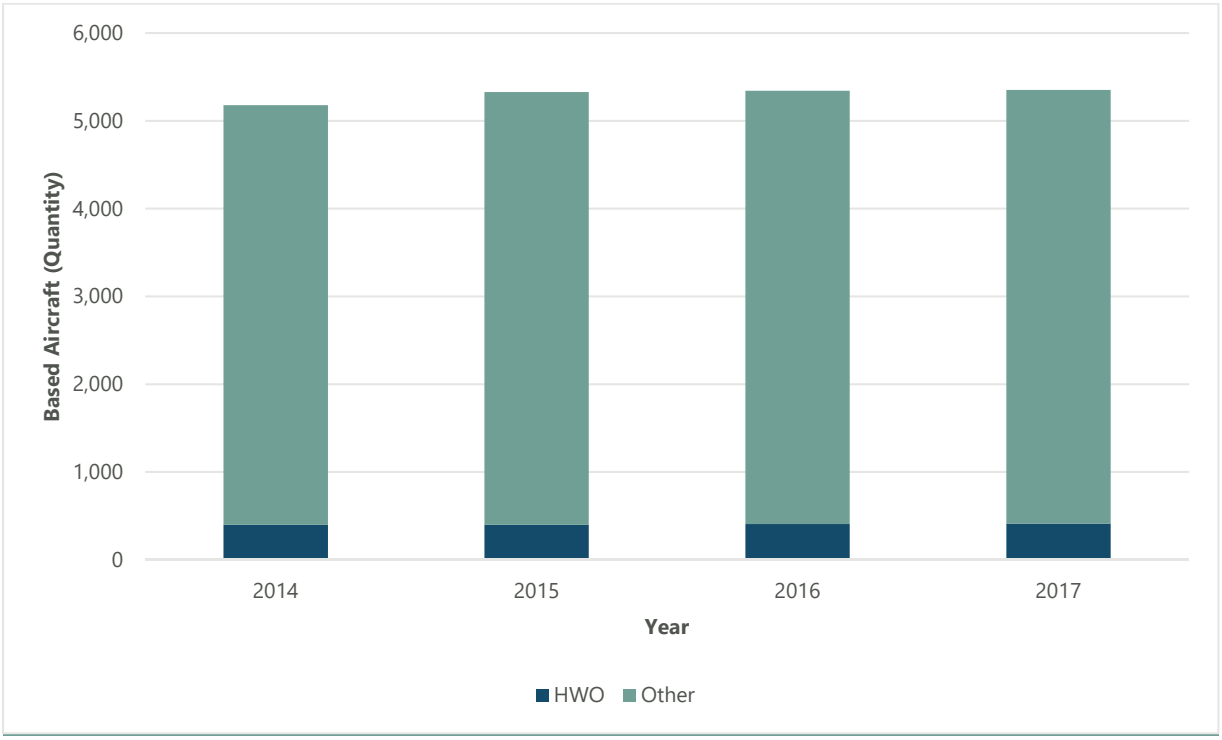
The following subsections present the historical trends among the local GA airports regarding based aircraft, operations, and fuel flowage from 2014 to 2017. These trends provide an insight to recent shifts in the local GA market. While these recent trends are no guarantee of future market demands, they do provide some insight if HWO's local market share is currently strengthening or weakening.

4.2.1 BASED AIRCRAFT

Exhibit 4-11 graphically depicts the distribution of total based aircraft at the local GA airports from 2014 through 2017. During this period, the total based aircraft counts have increased from 2,690 to 2,775, reflecting an average annual increase of 1.05 percent. This growth rate is more than the 0.6 percent national growth rate in GA fleet projected in the FAA Aerospace Forecast from 2010 to 2018.[8] Furthermore, HWO's share of based aircraft has remained relatively constant at 14.7 percent of the local GA market. During that time, HWO's based aircraft count increased from 398 to 411 aircraft.

[8] Federal Aviation Administration, Aerospace Forecast (FY 2019-2039), March 2019.

EXHIBIT 4-11 LOCAL GENERAL AVIATION AIRPORTS – BASED AIRCRAFT COUNTS (2014–2017)

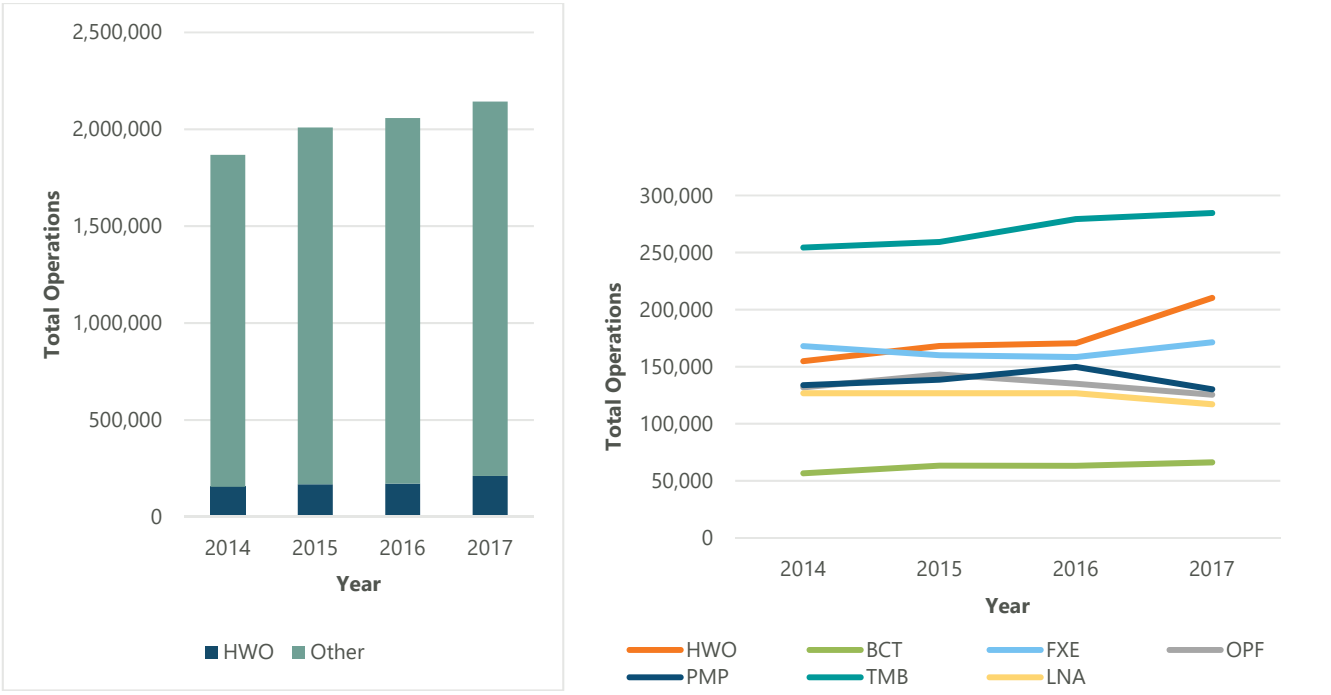


NOTES:
HWO = North Perry Airport
Other includes Boca Raton Airport, Fort Lauderdale Executive Airport, Palm Beach County Park Airport, Pompano Beach Airpark, Miami-Opa Locka Executive Airport, and Miami Executive Airport.
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

4.2.2 TOTAL AIRCRAFT OPERATIONS

The total GA operations within the local market have also increased. **Exhibit 4-12** graphically presents the distribution of total operations at the local GA airports per year from 2014 through 2017. During this period, annual aircraft operations have increased from 1,026,206 to 1,105,189 reflecting an average annual change rate of 1.9 percent. Furthermore, HWO's share of total GA operations increased from 15.1 percent to 19.0 percent during that period. This is due to HWO experiencing an average annual growth rate of 8.95 percent during that period. During that time, HWO's total aircraft operations increased from 154,808 to 210,858 operations.

EXHIBIT 4-12 LOCAL GENERAL AVIATION AIRPORT MARKET SHARE – TOTAL AIRCRAFT OPERATIONS (2014–2017)



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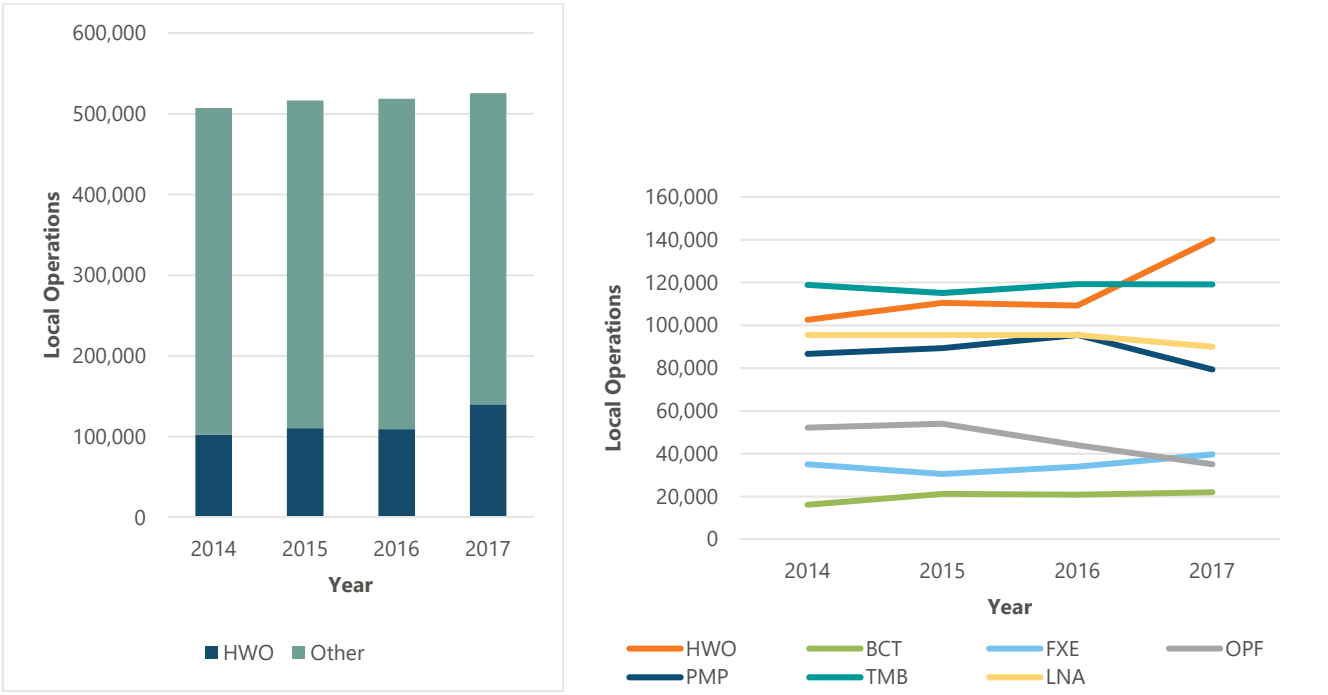
PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
Other = BCT, FXE, LNA, PMP, OPF, and TMB.
SOURCES: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018; Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Activity Demand Projections*, September 2018.

Exhibit 4-13 shows the local operation changes within this market from 2014 to 2017. With an average annual growth rate of 3.6 percent, local operations have increased from 507,134 in 2014 to 525,485 in 2017. Like total aircraft operations, HWO experienced the strongest growth in local operations of all airports reviewed. During this period, HWO increased its local operations by 36.5 percent from 102,614 in 2014 to 140,097 in 2017, resulting in an annual average growth rate of 9.1 percent. This has caused HWO to increase its market share for local operations from 20.2 percent in 2014 to 26.7 percent in 2017. The significant increases in local operations throughout the local GA market, and particularly for HWO, indicate flight training activity is a catalyst for this growth. Similarly, HWO has increased its share of itinerant operations from 10.1 percent in 2014 to 12.1 percent in 2017. It is likely that this growth is also mostly attributed to the increase in flight training activity at the Airport.

EXHIBIT 4-13 LOCAL GENERAL AVIATION AIRPORT MARKET SHARE – LOCAL OPERATIONS (2014–2017)



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OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
Other = BCT, FXE, LNA, PMP, OPF, and TMB.
SOURCES: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018; Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Activity Demand Projections*, September 2018.

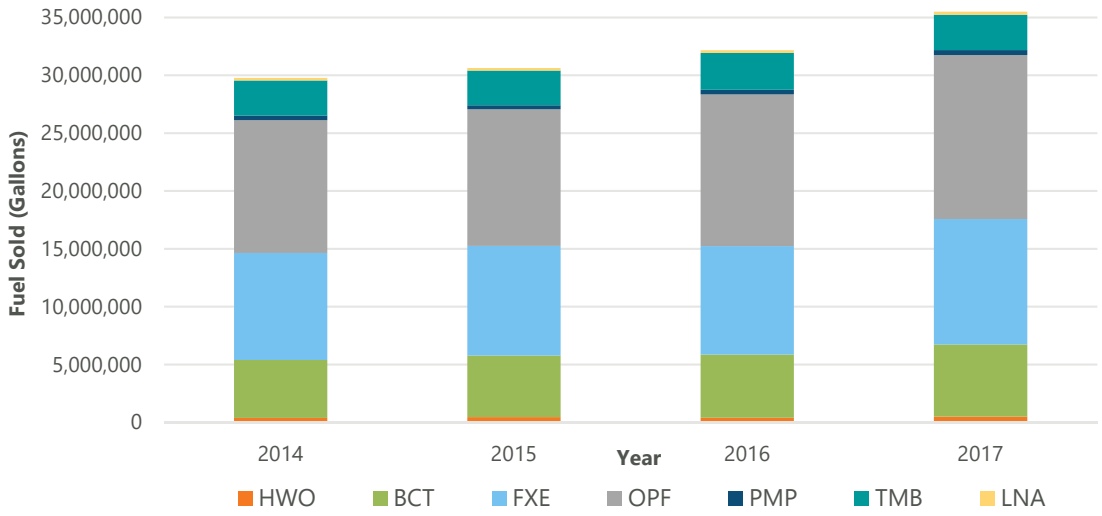
4.2.3 FUEL FLOWAGE

Fuel flowage is concentrated at two airports that are focused on serving the corporate GA market, OPF and FXE. FXE with 31.6 percent and OPF with 40.3 percent sold most of the fuel from 2014 to 2017. These two airports also averaged the most sales in jet fuel, which is reflective of the corporate GA market served. On the other hand, LNA, with 0.7 percent, and HWO, with 1.3 percent, averaged the smallest percentage of total fuel sold. Despite this, HWO has increased its Avgas fuel sales by 38.5 percent within this period. **Exhibit 4-14** shows the fuel flowage fluctuations from 2014 to 2017 for each airport.

Since the airports range in aircraft operation size, the average quantity of fuel sold per operation was quantified. **Exhibit 4-15** graphically compares the average fuel per operation in 2014 and 2017 for each of the local GA airports. This demonstrates that LNA, PMP, FXE, OPF, and BCT have experienced growth in their sales per operation. Conversely, HWO and TMB have experienced decreases in their fuel sold per operation during that period. Except for LNA, HWO generates the lowest ratio of gallons of fuel sold per aircraft operation. This highlights the significance of corporate GA activity to support fuel sales. This presents a unique challenge to HWO's FBOs that rely on aircraft

fuel sales to remain profitable. However, the high concentration of flight training activity at the Airport enables HWO's FBOs to be profitable.

EXHIBIT 4-14 LOCAL GENERAL AVIATION AIRPORT FUEL FLOWAGE FLUCTUATIONS (2014–2017)



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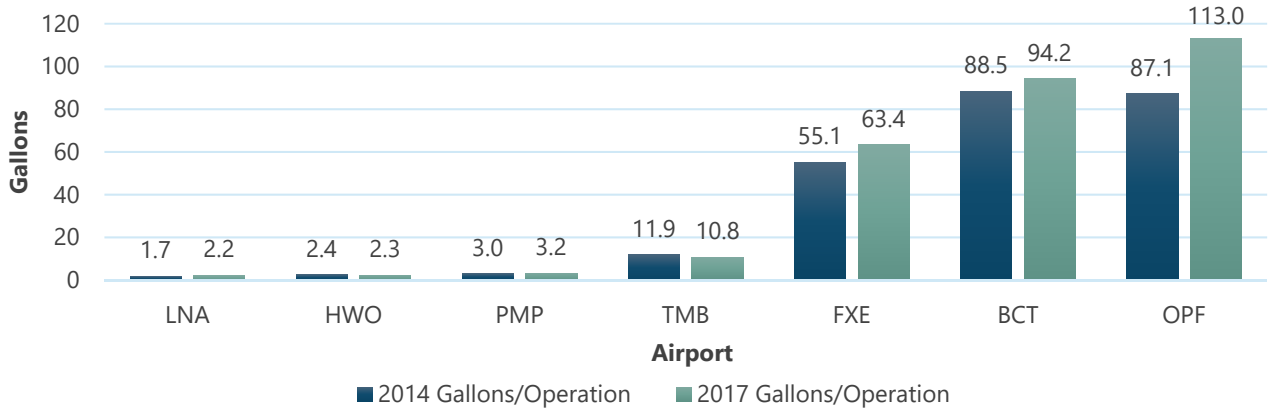
OPF = Miami-Opa Locka Executive Airport
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

EXHIBIT 4-15 FUEL FLOWAGE PER OPERATION (2014–2017)



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OPF = Miami-Opa Locka Executive Airport
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

4.3 REVENUES

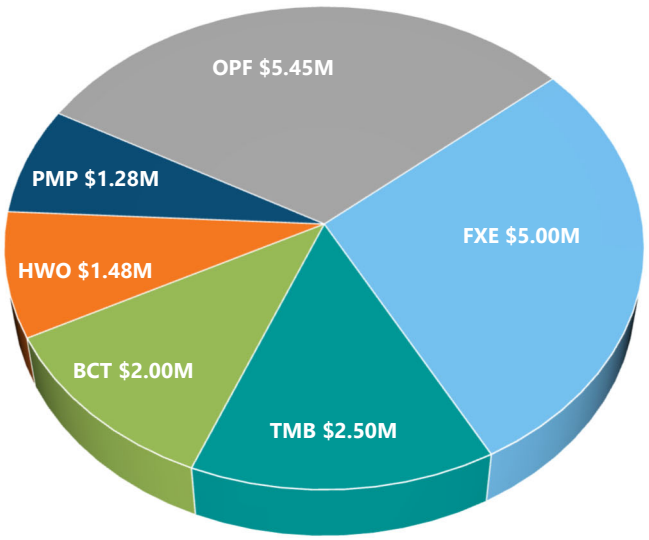
Airport owners typically generate revenues from the leasing of land to tenants. Many GA airports, however, do not generate enough revenue from the aeronautical activities to cover the operating costs. Therefore, many airport owners will allow certain tenants to lease airport property for the development of nonaeronautical facilities to subsidize the airport's operating costs. In order to do so, the airport owner must demonstrate that the land is not required for aeronautical purposes and go through a land release process with the FAA.

This section provides a comparison of annual revenues generated at HWO with the other local airports. Based on conversations with the various airport operators during the interview process, the share of revenues generated by nonaeronautical leases is also presented. This information is intended to demonstrate how HWO compares with the other local airports.

4.3.1 AIRPORT REVENUES

Revenues of six of the airports (LNA revenue was not available), as shown on **Exhibit 4-10**, reveals that airport revenues at the local GA airports from 2018 vary significantly. HWO generated the second lowest revenue at $1,476,071 compared to the highest revenue generator, OPF, at $5.45 million. This is primarily due to the weight restrictions imposed at HWO, as well as the limited revenue generated by nonaeronautical development on the Airport. OPF also sells the most fuel in the region, which likely correlates with its large share of total revenues.

EXHIBIT 4-10 AIRPORT REVENUES OF LOCAL GENERAL AVIATION AIRPORTS (FISCAL YEAR 2018)



NOTES:
LNA revenue was not available.
BCT = Boca Raton Airport
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HWO = North Perry Airport
LNA = Palm Beach County Park Airport
PMP = Pompano Beach Airpark
OPF = Miami-Opa Locka Executive Airport
TMB = Miami Executive Airport
SOURCES: Individual Airport Operator Interviews, Ricondo & Associates, Inc., March 18, 2019; Miami-Dade Aviation Department, *FY 2019 Adopted Budget*, 2019.

4.3.2 NONAERONAUTICAL REVENUES

The nonaeronautical revenue was used to determine the extent to which the airports have diversified their revenue base. Nonaeronautical revenue is generally made from land leased for nonaviation uses. **Table 4-4** presents the available nonaeronautical revenue information, and it shows that approximately two-thirds of the revenue for BCT and FXE is being provided by nonaeronautical revenue. HWO and PMP nonaeronautical revenue provides 28 percent and 32 percent, respectively, of their total annual revenue. OPF leases the most land to nonaviation tenants (315 acres). FXE leased out the second largest amount of nonaeronautical land (275 acres), followed by PMP (202 acres).

TABLE 4-4 LOCAL GENERAL AVIATION AIRPORTS – NONAERONAUTICAL REVENUE SHARE (FISCAL YEAR 2018)

AIRPORT	NONAERONAUTICAL ACRES	ESTIMATED NONAERONAUTICAL REVENUE SHARE	TOTAL REVENUES (ESTIMATED)
Boca Raton Airport (BCT)	32.5	66%	$2.0 Million
Fort Lauderdale Executive Airport (FXE)	275.0	66%	$5.0 Million
Miami Executive Airport (TMB)	40.0	N/A[1]	$2.5 Million
Miami-Opa Locka Executive Airport (OPF)	315.0	N/A[1]	$5.5 Million
North Perry Airport (HWO)	**28.0**	**28%**	**$1.48 Million**
Pompano Beach Airpark (PMP)	202.0	32%	$1.3 Million

NOTE:
LNA information was not available.
Nonaeronautical revenue shares were estimated by airport staff. Actual values of nonaeronautical revenues were not available for all airports.
1 Nonaeronautical revenue was not available.
SOURCES: Ricondo & Associates, Inc., March 18, 2019 (interviews with airport authorities); Miami-Dade Aviation Department, *FY 2019 Adopted Budget*, 2019.

4.4 LOCAL MARKET OUTLOOK

This assessment of the local GA market demonstrates that the projected piston engine aircraft fleet will decrease, as forecasted in the FAA Aerospace Forecast and the GAMA Annual Report. In general, the future GA market continues to consist of more turboprop and corporate jet aircraft. However, the local GA market is experiencing robust growth in aircraft activity, which is driven by flight training activity. This is causing an increased utilization of the flight training fleet, thereby increasing fuel sales at HWO and the need to conduct aircraft maintenance and repair activities.

Itinerant operations increased more than local operations between 2014 to 2017. The heavy itinerant or business focused airports are TMB and FXE. The heavy local or flight training airports are HWO and TMB. With a 36.5 percent change from 2014 to 2017 in local operations and consistent growth in market share of this operation, HWO is expected to maintain its role as a flight training center.

Revenue for the region is propelled by jet fuel sales. Jet aircraft operations also contribute the most revenue in fuel sales. In this market, FXE and OPF have the largest share of fuel sales, and they naturally produce the most revenue. Without robust flight training activity occurring at HWO, sustaining the current fuel service providers at the Airport would prove difficult.

Table 4-5 summarizes the activity levels in the local GA market for 2014 and 2017. As shown, HWO has increased its total market share in all operational measures, remained the same in the market for non-jet based aircraft, decreased its share of the Jet A fuel sales, and increased its share of the AvGas fuel sales.

TABLE 4-5 NORTH PERRY AIRPORT MARKET SHARE COMPARISON (2014 AND 2017)

	2014			2017		
ACTIVITY METRIC	HWO	OTHER[1]	HWO SHARE	HWO	OTHER[1]	HWO SHARE
Operations						
Local	102,614	507,134	20.20%	140,097	515,485	26.70%
Itinerant	52,194	519,072	10.10%	70,146	579,704	12.10%
Total	154,808	1,026,206	15.10%	210,243	1,105,189	19.00%
Based Aircraft						
Total	398	2,690	14.80%	411	2,775	14.80%
Non-Jet	397	2,199	18.10%	410	2,202	18.60%
Fuel Flowage [2]						
Jet A	97,739	26.1 Mil.	0.37%	101,113	31.4 Mil.	0.32%
AvGas	272,939	3.3 Mil.	7.62%	378,094	3.6 Mil.	9.43%
Total	370,678	29.4 Mil.	1.3%	479,207	34.5 Mil.	1.4%

NOTES:

1 Other airports include BCT, FXE, LNA, OFP, PMP, and TMB. LNA is not included.

2 The breakdown of fuel flowage between Jet A and AvGas is based on actual records or estimated breakdowns provided by FBOs.

SOURCES: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018; Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Activity Demand Projections*, September 2018.

Based on the local market, the light GA market will likely experience some challenges in the coming years due to the shift towards business operations. Still, flight training will continue to be a necessary segment of GA. HWO, PMP, and LNA's focus on flight training / local operations means these airports should continue seeking to expand their revenue base by expanding aeronautical service offerings and/or optimizing revenues from nonaeronautical sources.

5. OTHER LOCAL MARKET FACTORS

There are several other factors that may affect how the local GA market evolves. The number of locally based certificated pilots, as well as student pilots, typically drives aeronautical demand throughout the local GA market. Also, as airports become more constrained due to airfield capacity limitations and land availability, a redistribution of GA market segments among the local airports may occur. This redistribution of aeronautical activity may generate opportunities for HWO's tenants to expand their service offerings. It may also allow BCAD to attract new entrants into the market. The following subsections provides an overview of the local certification pilot population, potential airport capacity constraints, and potential opportunities that may arise from anticipated shifts in aeronautical demand among the local GA airports.

5.1 LOCAL CERTIFICATED PILOT POPULATION

Since airports tend to focus on a certain type of aircraft operation, pilot certificate numbers can determine future airport operation trends and market opportunities. Recent changes in the type and number of pilot certificates are a key indicator of the GA user population.

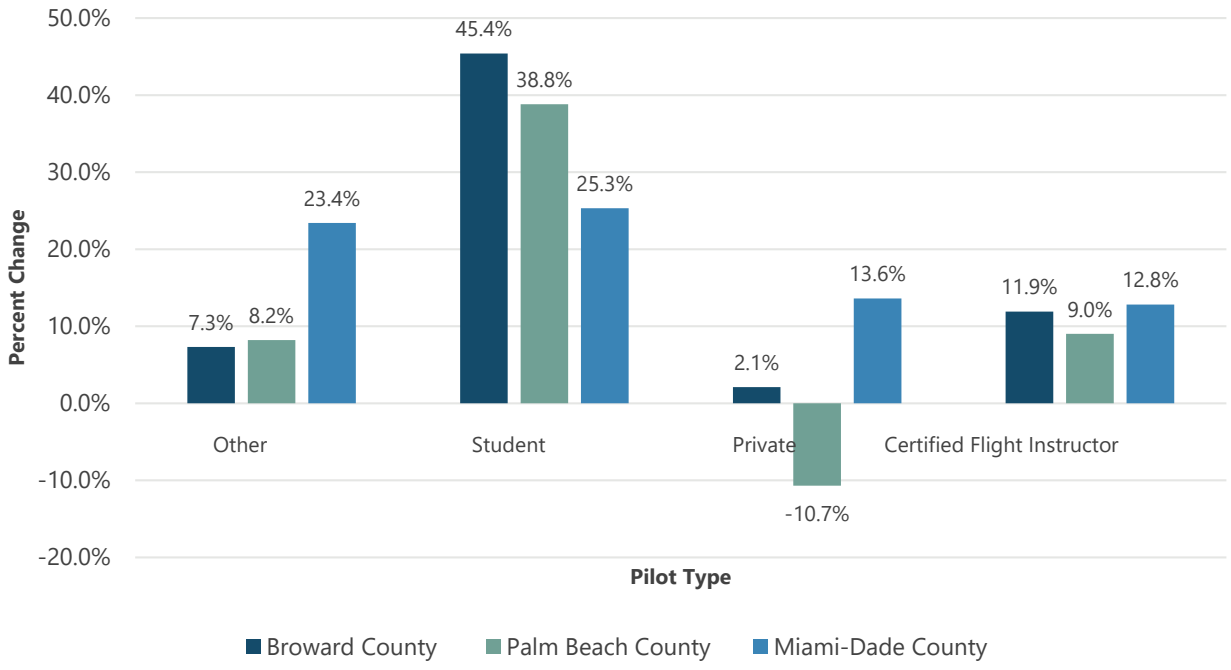
5.1.1 TRENDS

Because flight training is significant to the local GA market, changes to number of student pilots and CFIs are indicators of flight training activity at airports. Data on student and CFI pilots were available for each county associated with the local tri-county area (Broward, Miami-Dade, and Palm Beach). Broward County experienced a 45.4 percent increase in student pilots from 2013 to 2017 and an 11.9 percent increase in CFIs. Broward County experienced the most growth in student pilots when compared to the other counties. The figures for these two pilot types also match a similar distribution found in the GAMA 2018 Annual Report, which showed student pilots increased at a substantially higher rate than CFIs. **Exhibit 5-1** shows the distribution of pilot types across the three counties assessed.

5.1.2 FLIGHT TRAINING IMPACTS

Exhibit 5-1 also highlights the role that flight training has on the local tri-county region; student pilots comprise the largest group of pilots for all counties. Despite some measures of the local market showing the expansion of the business fleet, flight training is and will continue to be an influential segment of the tri-county region. Additionally, since HWO accommodates the largest share of local operations (31.1 percent in 2017), the Airport is in a good position to benefit from continued increases in student pilots. While other airports focus on expanding business operation offerings, HWO may also see its share of the local operations and flight training segments of the GA market shift from nearby airports.

EXHIBIT 5-1 CHANGE IN LOCAL GENERAL AVIATION AIRPORT PILOTS PER COUNTY (2013–2017)



SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

5.2 AIRPORT CONSTRAINTS

The individual characteristics of airports and their location also play a role in the types of operations airports support. Airfield constraints, land availability, development costs, and business and leasing policies are examples of airport-specific factors that affect airport development.

5.2.1 AIRPORT CAPACITY CONSTRAINTS

Most of the local airports tend to be land constrained due to growth and demand for development on adjacent properties. The existing airfield area for airports tends to change very little in size. Though airfields may be reconfigured or expanded to add additional runways or to better utilize the existing airfield area, this is a cumbersome process that requires substantial financial support and environmental review that is difficult to attain for GA airports.

Table 5-1 and **Table 5-2** provide a comparison of the airport demand and estimated capacity relationships for each of the local GA airports, based in actual (2017) and forecast (2035) demand levels, respectively. The actual and forecast demand levels coincide with those contained in the current Terminal Area Forecasts derived by the FAA. The capacity estimates were derived utilizing the Annual Service Volume (ASV) metrics contained in Chapter 2 of FAA Advisory Circular 150/5060-5 (Change 2), *Airport Capacity and Delay*. For those airports that have land constraints (BCT, FXE, PMP and LNA), the airport capacity estimates were reduced.

TABLE 5-1 LOCAL GENERAL AVIATION AIRPORT 2017 DEMAND/CAPACITY COMPARISON

AIRPORT	AIRPORT CODE	ESTIMATED AIRPORT CAPACITY[1, 2]	FISCAL YEAR 2017 DEMAND[1, 3]	SURPLUS
North Perry Airport	**HWO**	**355,000**	**210,243**	**144,757**
Boca Raton Airport	BCT	80,000 [4]	66,209	13,791
Fort Lauderdale Executive Airport	FXE	200,000 [4]	171,335	28,665
Miami Executive Airport	TMB	355,000	284,679	70,321
Miami-Opa Locka Executive Airport	OPF	270,000	125,439	144,561
Palm Beach County Park Airport	LNA	175,000 [4]	117,050	57,950
Pompano Beach Airpark	PMP	160,000 [4]	130,234	29,766
Total		**1,595,000**	**1,105,189**	**489,811**

NOTES:
1 All values reflect annual aircraft operations.
2 Estimated capacity is based on either existing airfield capacity (annual service volume) or current land constraints based on a review of existing Airport Layout Plans.
3 Fiscal Year 2017 demand levels are actuals as reported in the FAA's *Terminal Area Forecast*.
4 Airport capacities for Boca Raton Airport, Fort Lauderdale Executive Airport, Palm Beach County Park Airport, and Pompano Beach Airpark are estimated and reflective of current land constraints.

SOURCES: Ricondo & Associates, Inc., March 18, 2019 (interviews with airport operators); Federal Aviation Administration, *Terminal Area Forecast*, February 2019; Federal Aviation Administration, Advisory Circular 150/5060-5 (Change 2), *Airport Capacity and Delay*, September 23, 1983; Kimley-Horn and Associates, Inc., *Pompano Beach Airpark Master Plan Update*, 2018 (forecast chapter); Miami-Dade Aviation Department, *Miami Executive Airport (TMB) 2018 End of Year Report*, 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Master Plan Update*, September 2018 (forecast chapter).

TABLE 5-2 LOCAL GENERAL AVIATION AIRPORT 2035 FORECAST DEMAND/CAPACITY COMPARISON

AIRPORT	AIRPORT CODE	ESTIMATED AIRPORT CAPACITY[1, 2]	FORECAST FISCAL YEAR 2035 DEMAND[1, 3]	SURPLUS/ (DEFICIT)
North Perry Airport	**HWO**	**355,000**	**255,000**	**100,000**
Boca Raton Airport	BCT	80,000 [4]	80,400	**(400)**
Fort Lauderdale Executive Airport	FXE	200,000 [4]	201,900	**(1,900)**
Miami Executive Airport	TMB	355,000	314,100	40,900
Miami-Opa Locka Executive Airport	OPF	270,000	167,400	102,600
Palm Beach County Park Airport	LNA	175,000 [4]	172,000	3,000
Pompano Beach Airpark	PMP	160,000 [4]	149,500	10,500
Total		**1,595,000**	**1,340,300**	**254,700**

NOTES:
1 All values reflect annual aircraft operations.
2 Estimated capacity is based on either existing airfield capacity (annual service volume) or current land constraints based on a review of existing Airport Layout Plans.
3 With the exception of North Perry Airport, all Fiscal Year 2035 demand levels are in accordance with the FAA's Terminal Area Forecast.
4 Airport capacities for Boca Raton Airport, Fort Lauderdale Executive Airport, Palm Beach County Park Airport, and Pompano Beach Airpark are reflective of current land constraints.

SOURCES: Ricondo & Associates, Inc., March 18, 2019 (interviews with airport authorities); Federal Aviation Administration, Terminal Area Forecast, February 2019; Federal Aviation Administration, Advisory Circular 150/5060-5 (Change 2), Airport Capacity and Delay, September 23, 1983; Kimley-Horn and Associates, Inc., *Pompano Beach Airpark Master Plan Update*, 2018 (forecast chapter); Miami-Dade Aviation Department, *Miami Executive Airport (TMB) 2018 End of Year Report*, 2019; Palm Beach County Department of Airports, *Palm Beach County Park Airport Master Plan Update*, September 2018 (forecast chapter).

It should be noted that ASV calculations are sensitive to changes due to a variety of factors, including but not limited to: changes in operational demand characteristics, aircraft fleet mix and air traffic control procedures. These estimates are intended to demonstrate the ability of these airports to serve existing and forecast demand levels. Therefore, the ASV estimates presented herein are for relative comparison purposes and should not be utilized for other purposes.

The comparisons presented in these two tables reveal that the combined capacity of the local airports is adequate to serve the operational demand projected through 2035. However, two airports (BCT and FXE) may experience a deficit at or before the 2035 demand levels are reached. Both deficits are due to land constraints and therefore, could be overcome with redevelopment of existing facilities or the acquisition of adjacent property. Regardless, this confirms the fact that forecast demand at these airports could shift to other local GA airports sometime in the foreseeable future. Since operational demand levels at HWO are not forecast to exceed the capacity of its airfield, it appears that HWO has adequate capacity to absorb the additional capacity that may be shifted from other local GA airports.

5.2.2 AIRPORT RATES AND CHARGES COMPARISON

The latest GA Airport Rates and Charges Survey for the State of Florida was published in 2018. This survey included the collection of annual and monthly rental rates for land and aircraft storage/maintenance hangars. The following subsections provide a comparison of the rates and charges information that was published for the local GA airports.

5.2.2.1 LAND LEASE RATES

Table 5-3 lists the annual land rents that were charged by the local GA airports in 2018 for aeronautical related leaseholds. As shown, the annual land rents for the local GA airports range from $0.15 to $0.40 per square foot. BCT, however, has not executed an aeronautical land lease since 2011. With a land rent of $0.21, HWO charges the second lowest land rent of the local GA airports, with only LNA being lower. The highest airport rent was at FXE with a $0.40/square foot rent. The concentration of operations at FXE make the demand for the available land competitive. Therefore, FXE's tenants are likely willing to pay more.

TABLE 5-3 LOCAL GENERAL AVIATION AIRPORT AERONAUTICAL LAND RENT (2018)

AIRPORT	AIRPORT CODE	ANNUAL LAND LEASE RATES ($/SQ FT)
Boca Raton Airport	BCT	N/A [1]
Fort Lauderdale Executive Airport	FXE	$0.40
Miami-Opa Locka Executive Airport	OPF	$0.26
Miami Executive Airport	TMB	$0.23
Pompano Beach Airpark	PMP	$0.23
North Perry Airport	**HWO**	**$0.21**
Palm Beach County Park Airport	LNA	$0.15

NOTE:
Does not consider BCT's new lease with Atlantic Aviation which were under negotiations at the time this assessment was undertaken.
1 BCT has not executed an aeronautical land lease since 2011.
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

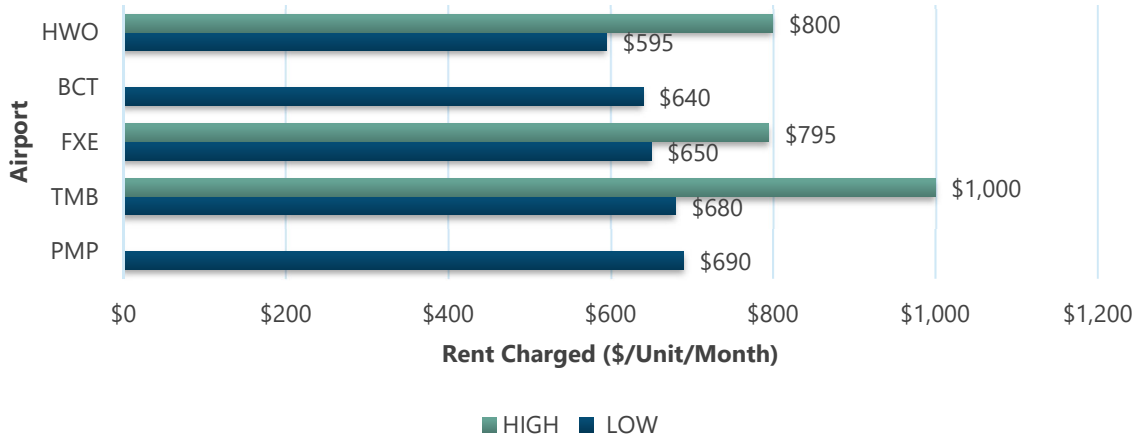
The rent distribution also depends on the type of aircraft operations primarily conducted at airports. The corporate aviation focused airports surveyed (BCT, FXE, TMB, and OPF) had the highest land lease rates, while the airports that primarily serve light GA (HWO, LNA, and PMP) had the lowest land lease rates.

5.2.2.2 T-HANGAR RENTAL RATES

Aircraft hangar rental rates can vary drastically among airports and tenants. Conventional hangar rents are difficult to compare, as these rates can vary significantly among aircraft sizes and types. T-hangar rental rates, however, provide a good metric to compare the aircraft storage rental rates among the local GA airports.

Exhibit 5-2 presents the monthly T-hangar rents for the local GA airports from 2018. Since some of the local GA airports have multiple tenants offering T-hangars, the rental rates at each airport can vary. The rental rates can vary depending on the condition of the hangar facilities and market conditions. Therefore, the lowest and highest reported rental rates are presented. As shown, the monthly T-hangar rental rates at HWO range from $595.00 to $800.00 per unit. Except for TMB which has monthly rental rates as high as $1,000.00 per month, some tenants at HWO charge the highest rental rates for T-hangars. This is likely due to the current shortage of aircraft storage hangars at HWO, as reported by several tenants during the interview process. BCAD is currently considering aeronautical tenant development proposals that were submitted as part of a solicitation conducted in 2019.

EXHIBIT 5-2 SINGLE-ENGINE T-HANGAR RENTAL FOR LOCAL GENERAL AVIATION AIRPORTS (2018)



NOTES:
No T-hangars at OPF and LNA for single-engine aircraft.
Some airports have a range of the rent charged for the T-hangars rented out. The monthly rent charged for airports with just one rent are reflected in the low category.
BCT = Boca Raton Airport
FXE = Fort Lauderdale Executive Airport
HWO = North Perry Airport
PMP = Pompano Beach Airpark
TMB = Miami Executive Airport
SOURCE: Slack, Johnston & Magenheimer, Inc., *Rates and Charges Survey for Florida Airports*, 2018.

5.3 AERONAUTICAL MARKET EXPANSION OPPORTUNITIES

HWO could develop new aeronautical markets and more flight training focused services. Markets found at other airports, but not available at HWO include: aircraft sales and leasing, medical transport services, cargo, aerial

imagery, and airship servicing. Because of the light GA aircraft weight restriction, cargo is not a good market for HWO to develop.

The tenants provided insight regarding current services that would be utilized if expanded at HWO. These were aircraft storage as additional hangar space and tie-downs, aircraft maintenance and repair shop(s), and avionics shops.

Although future activity forecasts highlight the growth of the jet market as a key component in the local GA market, it would be advantageous to develop and focus on incorporating recreational and flight training–geared services at HWO. This is because flight training will continue to be a need for the local market, and as local airports further develop their business-geared services, the light GA markets would likely relocate to other nearby airports. As such, the targeted light GA market segments that were identified by the tenants at HWO include, but are not limited to:

- aircraft storage,
- aircraft maintenance and repair,
- avionics shops,
- the provision of aircraft wash racks, and
- aircraft parts and sales distribution.

While maintaining flight training services at HWO should be a priority, recent initiatives by several of the light GA aircraft manufactures to produce light jet aircraft could produce new aeronautical market opportunities at HWO. As demonstrated by the light GA manufacturers that have been developing light GA jets weighing less than 12,500 pounds, HWO could accommodate the light jets that are inevitably going to comprise more of the GA fleet.

As other airports within the local GA market focus on serving the corporate GA market, the relocation or redistribution of services associated with light GA to HWO could occur. This could provide HWO's tenants with an opportunity to provide new light GA offerings/sectors not currently served. Some of these light GA offerings/sectors expected to grow include in the local market, but are not limited to:

- aircraft sales and leasing,
- aircraft insurance brokers,
- charter aircraft brokers,
- medical transport services.

The tenant interviews also resulted in a list of markets currently served by the other airports that could potentially be developed or expanded at HWO:

- airship staging and servicing, and
- aerial imagery

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