Appendix A

Runway Extension Justification Study

U.S. Department
of Transportation
**Federal Aviation
Administration**

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January 23, 2019

Mr. Gary Sypek
Director of Planning
Palm Beach County Department of Airports
846 Palm Beach International Airports
West Palm Beach, Florida 33406-1470

Dear Mr. Sypek:

RE: North Palm Beach County General Aviation Airport (F45)
Runway Extension Justification Report

The Federal Aviation Administration (FAA) has reviewed the North Palm Beach County General Aviation Airport Runway Extension Justification Report. We have determined that it establishes the purpose and need for extending the primary Runway 14/32 1,700 feet for a total of 6,000 feet in runway length. This information should be used moving forward in the environmental assessment.

This recommended runway length was determined using FAA Advisory Circular 150/5325-4B, "*Runway Length Requirements For Airport Design.*" Based on the information provided we have determined that based on the aircraft family, the most critical aircraft at F45 can be classified as small airplanes within a maximum certificated takeoff weight of more than 12,500 pounds up to and including 60,000 pounds. Using Table 3-2 and Figure 3-2 in the Advisory Circular and applying the airport's elevation and mean daily maximum temperature and 60% and 90% useful load results in a recommended runway length of 5,650 and 9,100 feet, respectively.

Based on user surveys and existing tenant letters a useful load between 60 percent and 90 percent is preferred which requires approximately 6,000 feet of runway length. Additionally, the current critical aircraft category is BII with the Falcon 50 demanding longer landing runway length then the current 4,300 feet. The critical aircraft category is projected to be CII within the next five years.

Although there is justification to extend the runway to 6,000 feet this letter is not a commitment of federal discretionary funding for this project. Please do not hesitate to call us if you have any questions.

Sincerely,

Marisol C. Elliott
Community Planner

cc: Laurie McDermott, FDOT/4

RUNWAY EXTENSION JUSTIFICATION STUDY

Environmental Assessment for the Extension of Runway 14-32

North Palm Beach County General Aviation Airport (F45)

Prepared for

Palm Beach County, Department of Airports
846, Palm Beach International Airport
West Palm Beach, FL 33406

December 6, 2018

by

ENVIRONMENTAL SCIENCE ASSOCIATES
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RUNWAY EXTENSION JUSTIFICATION STUDY

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RUNWAY EXTENSION JUSTIFICATION STUDY

North Palm Beach County General Aviation Airport Environmental Assessment

1.1 Introduction

The North Palm Beach County General Aviation Airport (F45) is located in north Palm Beach County, west of Palm Beach Gardens. Situated between Palm Beach International Airport (PBI) to the south and Witham Field/Martin County Airport to the north, the airport primarily serves the general aviation needs of northern Palm Beach and southern Martin Counties. As a Reliever for PBI, F45 is classified as a Regional General Aviation Airport in the National Plan of Integrated Airport Systems (NPIAS) (2019-2023). In order for the airport to fully serve its intended role and meet the demands of general aviation aircraft operators, a runway extension is required.

The Palm Beach County Department of Airports (PBDOA) is presently preparing an update to the F45 Master Plan. The Master Plan update evaluates facility needs at F45 and identifies long-range development objectives. This study was initiated as a stand-alone document in coordination with the Master Plan update and, if accepted by the Federal Aviation Administration (FAA), will provide the basis for moving forward with environmental studies related to extending Runway 14-32 at the airport. This report documents that there is sufficient aviation demand for additional runway length at F45. The objectives of this study were to:

- Document the types of aircraft and approximate number of aircraft operations[1] at F45 by business jets and large turboprop aircraft,
- Review runway length needs of the jet aircraft that use the airport and provide a recommendation for runway length, and
- Document the justification, if warranted, for pursuing environmental approval for the development of a runway extension at F45.

The following sections of this report discuss the runway justification process undertaken for this study; presents the results of the airport use surveys; summarizes the results of runway length analyses specific to F45; identifies the potential shift of operations to F45 if additional runway length were available; and provides a summary of findings and recommendations.

[1] An aircraft operation is defined as a take-off or a landing.

1.2 Runway Extension Project Background

F45 presently has three runways which serve a variety of general aviation aircraft, including turboprop and turbine business aircraft. Runway 9R-27L, is 4,300 feet long and 100 feet wide while Runway 9L-27R is 3,679 feet long, 75 feet wide, and unpaved. Runway 14-32 is 4,300 feet long and 75 feet wide. Many users have expressed the need for additional runway length to allow their aircraft to take on more passengers and/or fuel when departing F45.

Palm Beach County is the third most populous county in Florida and northern Palm Beach County is one of the fastest growing areas of the county. Just east of F45 is Palm Beach Gardens, home to PGA of America and the Honda Classic. Dubbed the "Prosperity Coast" northern Palm Beach County provides access to more than a dozen top golf courses and a number of prominent communities including Hobe Sound, Jupiter, and Tequesta. Northern Palm Beach County is not only well established as a premier destination for recreational activities, but is a premier corridor for business innovation. Personal income in northern Palm Beach County is 30 percent greater that the state average and nearly one in eight workers is self-employed. F45 has been identified as a critical asset that plays a vital role in driving the economic and business development in the region. Due to operational limitations of the existing runway system, larger more sophisticated business aircraft are either operationally constrained or forced to utilize PBI located 22 miles to the south or Witham Field/Martin County Airport located 30 miles to the north.

F45 opened in 1994, and shortly thereafter, planning efforts were initiated for a potential runway extension to allow the airport to better accommodate both the needs of existing users and larger corporate jet aircraft. The Airport Layout Plan (ALP) for F45 has shown a future extension and improvements to Runway 14-32 since 2006. The current FAA approved ALP depicts a planned extension of Runway 14-32 by 1,700 feet to the northwest and a widening from 75 to 100 feet. The resulting 6,000 foot runway, as well as the critical design aircraft included on the current ALP, are within the limitations of the North County Airport Interlocal Agreement between Palm Beach County and the City of Palm Beach Gardens (**Appendix A**).

1.3 Evaluation of Runway Length Needs

The process for determining runway length requirements at F45 involved documenting the types of aircraft that use the airport and what issues, if any, may be associated with the lengths of the existing runways. This included gathering statements and information from aircraft operators that use F45 with operational restrictions and from aircraft operators that would prefer to use F45, but cannot due to the existing runway length. This information was reviewed to determine the present demand for additional runway length and to also determine if the demand was indeed substantial enough to justify the extension of Runway 14-32. This evaluation was conducted in accordance with FAA guidance regarding "substantial use" found in Advisory Circular (AC) 150/5325-4B, *Runway Length for Airport Design*[2]. Paragraph 102(a)(8) of AC 150/5325-4B states:

> *"**Substantial Use Threshold.** Federally funded projects require that critical design airplanes have at least 500 or more annual itinerant operations at the airport (landings*

2 Federal Aviation Administration. Advisory Circular 150/5325-4B, Runway Length for Airport Design. July 1, 2005.

and takeoffs are considered as separate operations) for an individual airplane or a family grouping of airplanes…"

1.4 Airport Use Documentation Methods

1.4.1 Runway Use Documentation and Survey

Beginning in the Fall of 2017, ESA began coordination with the FBO and airport management to gather information regarding the frequency of airport use by business jet and large turboprop aircraft operators requesting additional runway length. This information was gathered through a number of outlets. Airport management provided ESA with tenant and customer contact and operational information and ESA sought input from users, operators, and registered pilots.

A customized runway use survey was used to capture information regarding specific aircraft types used at F45, number of annual visits, and typical trip length when operating into and out of the airport. During the 2017 winter holiday season, the FBO distributed the runway use survey to tenants and itinerant customers who purchased fuel at F45. The FBO also collected a number of operator letters from existing tenants and itinerant users describing their operations. These letters contained two main categories of information. The first is related to small jet and turboprop aircraft operators who currently operate at F45, but requested some amount of additional runway length to operate their existing aircraft with greater capability. The second being operators who can presently operate smaller aircraft in their fleet with only some restriction, but are unable to operate larger aircraft that they may own due to F45's inability to accommodate the operational needs of the larger aircraft.

In an effort to capture additional operational information from large jet owners located in proximity to F45, a distribution list was derived from multiple sources. In February of 2018, the runway use survey was distributed to another 74 owners and operators to gather additional information. The sources for developing this list included:

- FAA's Civil Aviation Registry database of registered aircraft owners for Palm Beach and Broward Counties.
- FlightAware™ Flight History Report for F45

The aircraft operators identified through the above resources were mailed a letter requesting information regarding the use of their large business jet aircraft and inquired as to why operators may or may not choose to operate at F45. As a follow-up to the survey responses and letters submitted, many aircraft operators were contacted directly to obtain additional information, or in some cases, clarification, regarding their use or potential for use of F45 based upon responses to the survey and additional letters.

Of the surveys distributed and those solicited for responses a total of 13 survey forms were collected. The survey respondents operated a variety of business jet and large turboprop aircraft. In addition to the submitted survey forms, four users submitted letters describing both current and potential operational levels at the airport. These letters demonstrate both existing demand for a runway extension as well as a certain latent demand from which additional runway length would reasonably benefit. Copies of returned Airport Runway Use Survey forms and letters from interested airport users are provided in **Appendix B**.

The runway use documentation and data collection methods described above identified existing operations by aircraft which may need additional runway length to operate safely and effectively at F45. It can be reasonably inferred that the operations by the same type of aircraft identified using the methods in the following two sections of this report (1.4.2 and 1.4.3) experience many if not all of the same limitations as those reported by users who contacted the airport and consultant team using the above methods.

1.4.2 FlightAware™ Flight History Report

FlightAware™, Inc. provides private aviation flight tracking services over North America and 55 other countries. Among other products, the company provides airport-specific traffic reports for defined periods of time. The activity reports include a number of data points including aircraft types, aircraft registration numbers, aircraft ownership information, origin and destination airports/cities, and arrival/departure dates and times[3].

FlightAware's databases were queried to determine the level of turbine and large turboprop aircraft activity at F45 over a recent 12-month period (December 2016 - November 2017). The database provided information on Instrument Flight Rules (IFR) arrivals and departures at F45.

FlightAware reported 5,014 IFR arrivals and departures at F45 during the 12-month period. Of these IFR operations, 249 had aircraft type and owner information as "blocked" and 32 listed no aircraft type. For those 32 operations which had no aircraft type listed, ESA queried the FAA Aircraft Registration database using N-numbers to help determine aircraft type. Blocked aircraft tend to be well known owners seeking to protect their privacy. While these users tend to favor larger more operationally demanding jet aircraft, information about specific aircraft types for these users is not available.

1.4.3 FAA Traffic Flow Management System Count

The FAA's Traffic Flow Management System Counts (TFMSC) provide information on traffic counts by airport or by city pair. There are a number of groupings of data which can be gleaned from this system. The TFMSC data is generated when pilots file flight plans or when flights are detected by the National Airspace System (NAS), usually via radar. While TFMSC does capture the majority of IFR traffic and some Visual Flight Rules (VFR) traffic, it is largely limited to those aircraft that file flight plans.

For the purposes of this study, a report was generated for a twelve-month period beginning December 2016 and ending November 2017 to parallel the timeline of data used from FlightAware. This data reported 5,839 operations during this period.

While evaluating aircraft operational trends, ESA has coordinated with the County's consultant team who is presently completing the airport master plan and using similar historical TFMSC data for portions of that effort. Reviewing historical TFMSC data revealed that the business jet and large turboprop activity identified in the recent data period have also existed historically.

3 FlightAwareTM only tracks flights with filed IFR flight plans. Use of FlightAware™ datasets should not be interpreted as a definitive record of all flights into and out of F45. However, because many large aircraft operators file and complete IFR flight plans, use of this data provides a relatively accurate representation of turboprop and turbine aircraft operations at the airport during the 12-month period.

1.4.4 Study Method Limitations and Assumptions

Those business jet and large turboprop aircraft operators who elected to fill out a survey form or submit a letter only reflect a portion of activity by those categories of aircraft at F45. Similarly, the FlightAware Flight History Report for F45 does not provide complete information on all recorded IFR operations (some information is blocked) and does not document all traffic in and out of F45 (only IFR). Additionally, this information does not document those users that cannot currently use the airport due to the operational limitations of the existing runway system. Therefore, it is reasonable to assume that the number of aircraft operations, both existing and potential, that would benefit from a runway extension would be greater than that documented by the methods used in this report.

1.5 Analysis of Documented Airport Use

1.5.1 Runway Use Documentation and Survey Responses

The survey responses and stakeholder letters provided information regarding current use of F45, operational restrictions experienced by current and potential airport users, and requested minimum runway lengths. The survey responses indicate a continued strong demand for a longer runway at the airport. **Figure 1** shows the number of operations reported by survey respondents. Additionally, Figure 1 depicts the number of operations anticipated by users with extended runway, referred to as latent demand. **Figure 2** depicts approximate takeoff distances for the corresponding aircraft.

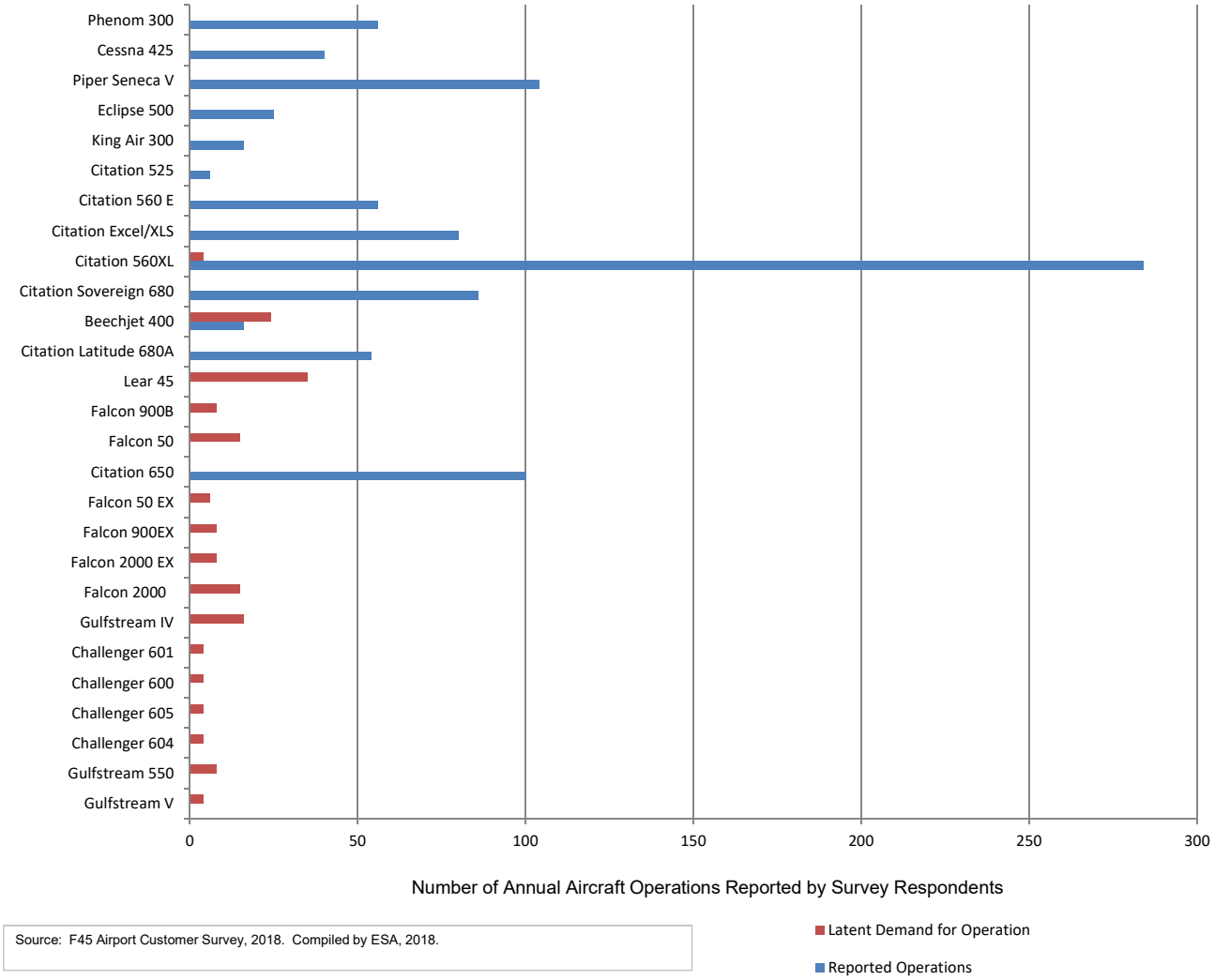
A large number of the aircraft operations identified through the survey were business jets or large turboprop aircraft. Over 70 percent of the current operations identified in the Airport Runway Use Survey were conducted by jet aircraft. Smaller business jet aircraft such as the Citation Encore, XL, and XLS account for almost 50 percent of business jet operations identified by submitted surveys. These smaller aircraft, under ideal conditions were determined to be able to operate with minimal restriction on the existing 4,300-foot runway. However, many operators noted that their operational capability is often impacted on hot days or when runways were wet. The orange band on Figure 2 roughly identifies an example of the effective runway length reduction that occurs during hot days or wet runway operating conditions.

Medium-sized business jets include aircraft such as the Hawker/Beechjet 400, Hawker 800, Citation Latitude and Sovereign, and Citation III. Published MTOW take-off distances for the medium and large aircraft listed in **Table 1**, when adjusted for conditions at F45, show that these aircraft require more runway length than presently available at the airport. While a few respondents indicated little or no restrictions when operating in and out of F45, these were limited to those operating small turboprop and piston aircraft (**Table 2**). Conversely, those operating large turboprop and business jet aircraft did report operating under restricted conditions.

Figure 1

North Palm Beach County
General Aviation Airport

Number of Annual Jet and TurboProp Aircraft Operations Reported by Airport Customer Survey Respondents

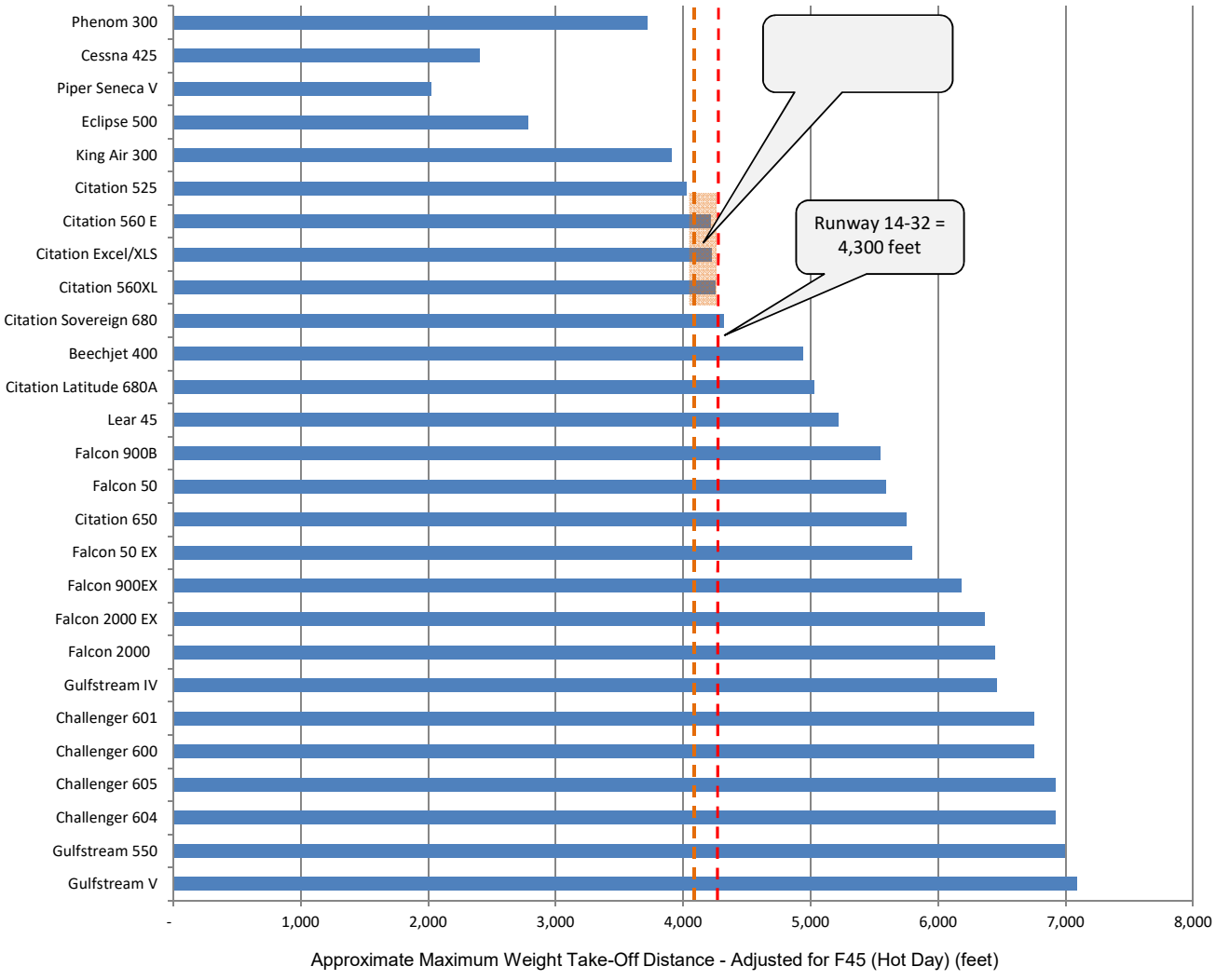


Source: F45 Airport Customer Survey, 2018. Compiled by ESA, 2018.

Figure 2

North Palm Beach County
General Aviation Airport

Approximate Takeoff Distances of Jet and Turboprop Aircraft Operated by F45 Airport Customer Survey Respondents



Source: F45 Airport Customer Survey, 2018. Compiled by ESA, 2018.

Table 1
Airport User Runway Length Needs (Turbine Aircraft)

May 21, 2018

TURBINE AIRCRAFT									
Aircraft Operator	**Aircraft Type**	**ARC**	**Standard Take-Off Distance (ft)**	**Adjusted Take-Off Distance[1]** (Approximate)	**Requested Runway Length**	**Number of Current Annual Operations at F45**	**Number of Current Operations that would Benefit from Additional Runway Length**	**Number of Additional Operations if a Longer Runway was Available Extended[2]**	**Total**
Cheney Brothers, Inc.	Citation Excel (CE-560XL)	B-II	3,590	4,253	5,500	250	**250**	0	**250**
Golf Air	Citation Encore (CE-560E)	B-II	3,560	4,218	5,000	28	**6**	**6**	**12**
Victor Girgenti	Eclipse EA 500	A-I	2,345	2,779	4,680	25	**25**	0	**25**
River Farms Aviation	Citation CJ4 (CE-525C)	B-II	3,400	4,028	4,000	6	0	0	0
	Gulfstream G-IV	D-II	5,450	6,457	--	0	0	**10**	**10**
Gate Precast	Citation Excel (CE-560XL)	B-II	3,590	4,253	5,500	--	**8**	**4**	**12**
Airport Development and Consulting LLC	Beechjet 400A	C-I	3,950	4,939	5,000	0	0	**24**	**24**
Quicksilver Airshows	Lear 45	C-I	4,405	5,219	--	0	0	**35**	**35**
Sherman Aircraft Sales Inc.	Cessna 650 (owned)	C-II	4,850	5,746	6,000	100	**100**	0	**100**
	Gulfstream - GIV	D-II	5,450	6,457	6,000	0	0	**6**	**6**
	Gulfstream - GV	D-III	5,990	7,085	6,000	0	0	**4**	**4**
	Gulfstream - G550	D-III	5,910	6,991	6,000	0	0	**4**	**4**
	Dassault Falcon 50EX	B-II	4,890	5,794	6,000	0	0	**6**	**6**
	Dassault Falcon 2000EX	C-II	5,375	6,368	6,000	0	0	**8**	**8**
	Dassault Falcon 900EX	C-II	5,215	6,179	6,000	0	0	**8**	**8**
	Dassault Falcon 900B	B-II	4,680	5,545	6,000	0	0	**8**	**8**
	Challenger 600	B-II	5,700	6,753	6,000	0	0	**4**	**4**
	Challenger 601	B-II	5,700	6,753	6,000	0	0	**4**	**4**
	Challenger 604	B-III	5,840	6,919	6,000	0	0	**4**	**4**
	Challenger 605	B-II	5,840	6,919	6,000	0	0	**4**	**4**
Sky One Holdings, DBA Privaira	Hawker 400A	C-I	3,950	4,939	5,500	16	**14**	0	**14**
	Hawker 850	C-III	5,032	5,962	5,500	16	**14**	**10**	**24**
	Falcon 50	C-III	4,715	5,586	--	0	0	**15**	**15**
	Falcon 2000	D-II	5,440	6,445	--	0	0	**15**	**15**
GTW Corporation	Gulfstream G550	D-III	5,910	6,991	7,500	0	0	**4**	**4**
NetJets	Citation Encore (CE-560E)	B-II	3,560	4,218	--	12	0		**0**
	Citation Encore Plus (CE-560EP)	B-II	4,387	5,198	--	16	0	0	**0**
	Citation Excel (CE-560XL)	B-II	3,590	4,253	--	26	26	0	**26**
	Citation Excel S (CE-560XLS)	B-II	3,945	4,054	--	80	0	0	**0**
	Citation Sovereign (CE-680)	B-II	3,640	4,313	--	32	32	0	**32**
	Citation Latitude (CE-680AS)	B-II	4,245	5,029	--	54	54	0	**54**
	Embraer Phenom 300		3,138	3,718	--	56	0	0	**0**
					TOTAL:	**717**	**529**	**183**	**712**

1. Adjusted for F45 mean maximum temperature, airfield elevation, and runway gradient.

2. The aircraft operator indicated more frequent use of F45 with current or larger aircraft if a longer runway was available.

Table 2
Airport User Runway Length Needs (Piston and Turboprop Aircraft)

May 21, 2018

PISTON AND TURBO-PROP AIRCRAFT									
Aircraft Operator	**Aircraft Type**	**ARC**	**Standard Take-Off Distance (ft)**	**Adjusted Take-Off Distance[1]** (Approximate)	**Requested Runway Length**	**Number of Current Annual Operations at F45**	**Number of Current Operations that would Benefit from Additional Runway Length**	**Number of Additional Operations if a Longer Runway was Available Extended[2]**	**Total**
Phil Air LLC	Piper Malibu Mirage (PA-46-350)	A-I	2,090	2,476	4,000	24	0	**4**	4
Kings Wings	Cessna 401	A-I	2,300	2,725	3,000	--	--	--	--
	Beech Baron	A-I	1,600	1,896	3,000	--	--	--	--
	Piper Cherokee B	A-I	1,150	1,363	1,500	--	--	--	--
George Pech MD	Piper (PA-34) Seneca V	A-I	1,707	2,023	5,000	104	0	--	0
	MU-2 B	A-I	2,170	2,571	5,000	12	0	--	0
Quicksilver Airshows (Scott Yoak)	NA P-51		2,500	2,962	--	14	0	--	0
Sky One Holdings DBA-Privaira	King Air 300	B-II	3,300	3,910	5,500	16	0	0	0
Richard Chevrolet Inc.	Cessna 425	B-II	2,400	2,844	2,500	40	0	0	0
NetJets	Pilatus PC-12	A-II	2,300	2,725	--	18	0	0	0
					TOTAL:	**228**	**0**	**4**	**4**

1. Adjusted for F45 mean maximum temperature, airfield elevation, and runway gradient.
2. The aircraft operator indicated more frequent use of F45 with current or larger aircraft if a longer runway was available.

1.5.2 FlightAware™ Database Results

Of the 5,014 IFR arrivals recorded between December 2016 and November 2017, 1,279 (26 percent) were operations by business jets or large turboprop aircraft. These operations, as shown in **Figure 3,** represent a wide variety of medium-sized to large general aviation, business aircraft. A review of take-off distance requirements indicates that many of the recorded IFR business aircraft were conducted by aircraft that have runway length requirement greater than the existing 4,300-foot Runway 14-32 at F45.

The FlightAware dataset documented that a wide-variety of large turboprop and business jet aircraft types use F45. The Citation V Ultra represents the greatest number of operations by jet aircraft, while the King Air 200 and Pilatus PC-12 represent the highest number of operations by large turboprop aircraft.

The Flight Aware data also confirms the findings of the customer survey responses and identifies recent operations by existing medium to large business jet aircraft that would benefit from additional runway length.

1.5.3 FAA Traffic Flow Management System Count

While there is a significant overlap of data, the TFMSC information for the same period confirmed the findings the FlightAware analysis. The TFMSC recorded 5,839 operations during the 12-month period. Of these, 956 (16 percent) were performed by jet and 631 (11 percent) by large turboprop aircraft, which are shown in **Figure 4**.

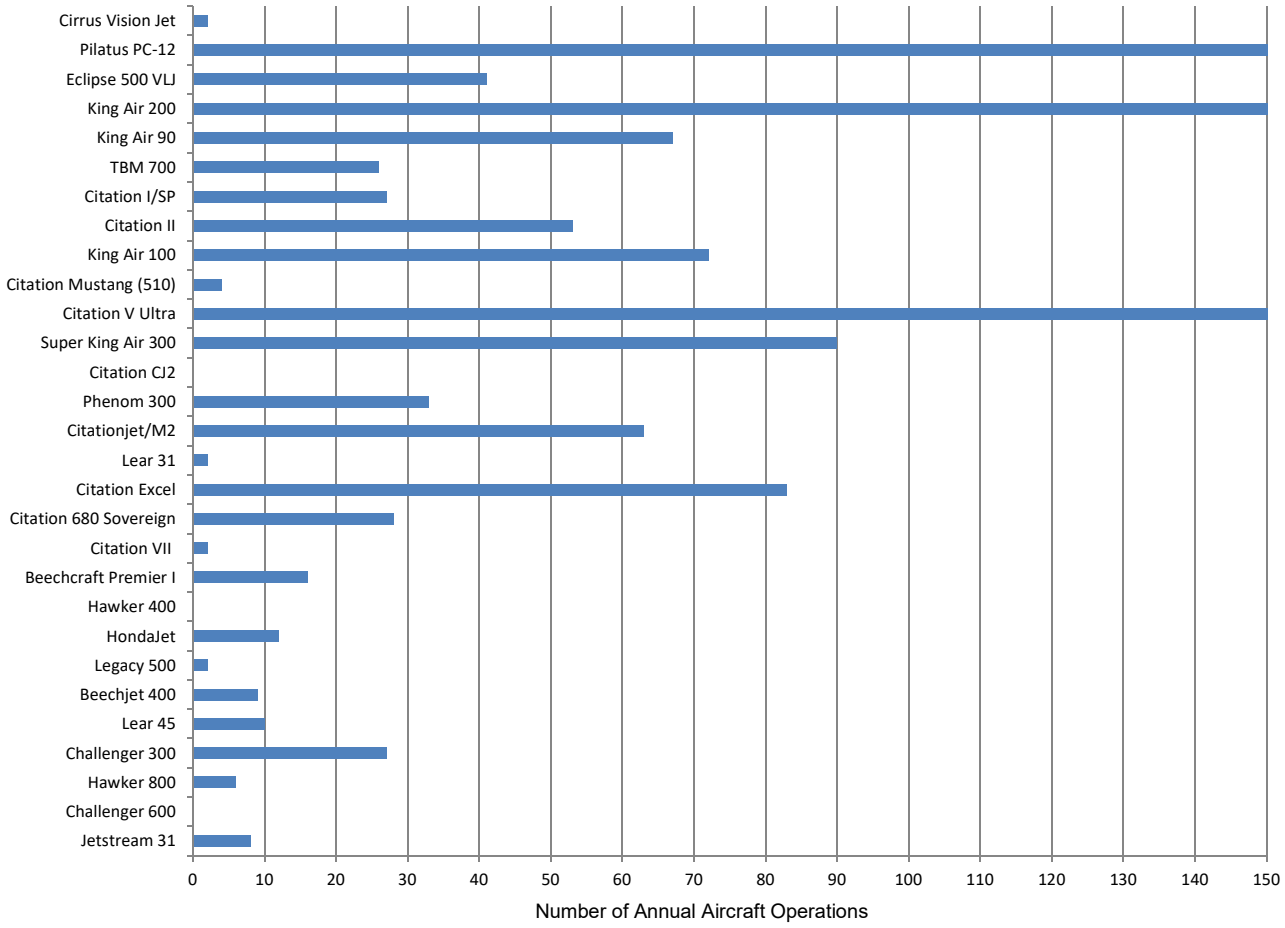
While the TFMSC reports many operations by the Citation V Ultra, the largest level of jet aircraft operations recorded are performed by the Citation Excel/XLS. Both of these aircraft are at their operational limits with the existing runway length and would benefit from additional runway length during hot weather and/or wet runway conditions. Additionally, occasional use by large business jet aircraft such as the Global Express was noted. For the large turboprop aircraft, again the King Air 200 and Pilatus PC-12 operate at similar levels and are representative of the activity by this type of aircraft.

Figure 3

North Palm Beach County General Aviation Airport

Number of Operations by Business Jet Aircraft at F45

FlightAware™ F45 Airport Report
(December 2016 - November 2017)

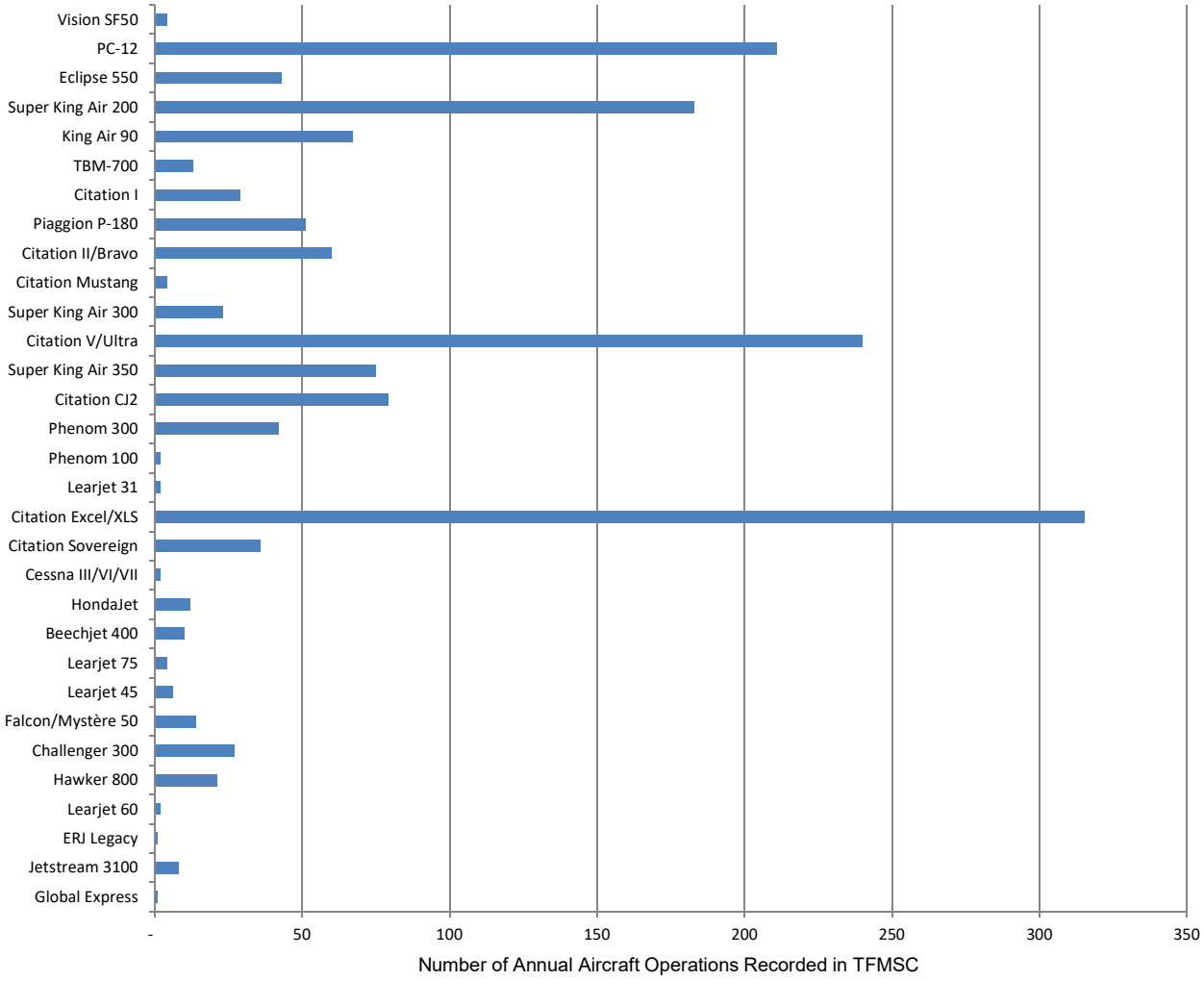


Source: FlightAware Airport Activity Report, F45, December 2016 - November 2017. Adapted by ESA, 2018.

Figure 4
North Palm Beach County
General Aviation Airport

Number of Annual Jet and Turboprop Aircraft Operations Recorded in TFMSC

December 2016 - November 2017



Source: FAA Traffic Flow Management System Count system, 2018.
Compiled by ESA, 2018.

1.5.4 Presidential TFR

While F45 is intended to serve as a reliever for PBI, the current runway length limits its ability to effectively perform that role. An ongoing example of this is F45's limited ability to support activity relocating from PBI during the frequent presidential Temporary Flight Restrictions (TFR's). During the presidential TFRs, business aircraft often shift their activity to Witham Field/Martin County or Boca Raton Airports, or airports outside the 10 nautical mile (nm) TFR inner core. In some cases, aircraft operators are deferring or canceling flights altogether.

While F45 is located outside the 10 nm inner core TFR ring, it does not have the current runway length required to support many of the high performance aircraft being impacted. Although it is located well to the north, Witham Field/Martin County provides three runways longer than 4,600 feet in length with the longest being 5,828 feet. To the south, Boca Raton provides a single runway that is 6,276 feet in length. Improving the operational capabilities of F45 not only provides more direct access for many of the users traveling to or from northern Palm Beach County, but improves the resilience of the growing region to significant events such as the presidential TFR's, major storms, and other factors affecting the area.

1.5.5 Summary of Aircraft Operations Requiring Additional Runway Length

Based on the results of the Runway Use Survey, and as confirmed by FlightAware and the FAA's TFMSC datasets, business jet operators at F45 currently generate around 1,000 annual aircraft operations. The F45 user survey, identified:

- 529 existing annual business jet operations that would benefit from a runway extension
- 183 additional business jet operations that would use F45 if the runway were extended.

Because F45's runways are considerably shorter than other regional airports serving larger business jet aircraft it is difficult to identify the number of additional aircraft that would operate at the airport if the runway were extended. However, given the proximity of the airport to many of the communities and businesses that drive regional business jet aviation demand, it would be reasonable to expect these larger jet aircraft would utilize the airport if it could support them. It is important to note that the 2018 FAA Aerospace Forecasts project national growth in the business jet fleet to outpace every other sector of fixed wing aircraft. These turbine aircraft projections are supported by figures in the FAA's monthly Business Jet Reports which shows that operations conducted by general aviation jet aircraft have consistently increased since the low in 2009.

1.6 Runway Length Analysis

1.6.1 Runway Length Analysis Using FAA Methodology

FAA guidance contained in Advisory Circular (AC) 150/5325-4B was used to prepare additional justification for this report. An initial step is to define the category of aircraft considered in the analysis. The AC divides aircraft into three primary categories:

- Small Airplanes with maximum certified takeoff weights of 12,500 pounds of less,

- Airplanes with maximum certificated takeoff weights greater than 12,500 pounds and up to 60,000 pounds, and

- Airplanes with maximum certificated takeoff weights greater than 60,000 pounds.

A majority of the business jets and large turboprop aircraft that use, or would like to use, F45 fall into the second category of aircraft, which are covered by Chapter 3 of AC 150/5325-4B. The design procedures for this airplane weight category require the following information: airport elevation above mean sea level (21.5 feet MSL), mean daily maximum temperature on the hottest month (95.5 degrees Fahrenheit), and the design aircraft under evaluation with their respective useful loads. Based on the types of aircraft documented as using F45, Figure 3-2 of the Advisory Circular was applied to obtain a recommended runway length for the entire group of aircraft under evaluation. The FAA guidelines then apply takeoff adjustments to the resulting runway length to obtain the recommended runway length.

Percentage of Fleet

AC 150/5325-4B provides two Percentage of Fleet guidelines: 75 percent of fleet (found in Table 3-1 of the AC) and 100 percent of fleet (found in Table 3-2 of the AC). Most of the jet aircraft under evaluation in this report fall within AC Table 3-1; however, several larger aircraft including the Hawker 800, Falcon 900EX and 2000, and Challenger 600, 601 and 604 aircraft models are found in AC Table 3-2. For such instances, the AC stipulates that if some of the aircraft are found in AC Table 3-2, then AC Figure 3-2 should be used for the purposes of determining runway length.

Once the figures in the AC have been applied, the next step is to adjust runway length independently for runway gradient and wet runway conditions with the largest calculation being counted toward the recommended runway length. Runway gradient increases the runway length for takeoff operations at a rate of 10 feet for each foot of elevation between the high and low points of the runway. The elevation difference end-to-end for Runway 14-32 is less than a foot; therefore, no adjustment was made for runway gradient.

The other adjustment is for wet or slippery pavement during jet aircraft landing operations. The adjusted runway length is increased by 15 percent with "not to exceed" lengths of 5,500 feet for the 60 percent useful load factor and 7,000 feet for the 90 percent useful load factor.

Table 3 below provides the recommended runway lengths as determined by the methods prescribed in AC 150/5325-4B.

TABLE 3
RECOMMENDED RUNWAY LENGTH[1]

FAA AC 150/5325-4B Reference	60% Useful Load	90% Useful Load
Figure 3-1 (75% of fleet)	5,400 feet[2]	7,200 feet
Figure 3-2 (100% of fleet)	5,650 feet	9,100 feet

NOTES:
1. Runway lengths account for local temperature (95.5° F) and elevation (21.5 feet above mean sea level).
2. 4,700 feet before adjustment for wet runway landing conditions.

SOURCE: FAA Advisory Circular 150/5325-4B, *Runway Length for Airport Design*.

Useful Load

The recommended runway length for 60 to 90 percent of useful load for 75 percent of the fleet ranges between 5,400 feet and 7,200 feet w5ith a midpoint 6,300 feet. The recommended runway length for 60 to 90 percent of useful load for 100 percent of the fleet ranges between 5,650 feet and 9,100 feet with a midpoint 7,375 feet.

1.6.2 Runway Length Needs Based on Survey Responses

Through the user survey, operators identified a range of runway lengths required to support existing and future business jet activities. The lengths ranged from as short as 4,000 feet for small Citation CJ4 business jet to as long as 7,500 for the Gulfstream G550; however, the majority of the lengths requested were either 5,500 or 6,000 feet. Aircraft for which 6,000 feet was requested include the Gulfstream G550, GIV and GV, the Falcon 2000 EX and 900EX and the Challenger 600, 601, 604 and 605. Notably, while 6,000 feet was requested to allow F45 to support activity for each of these aircraft types, all would benefit from some level of additional runway length (beyond 6,000 feet) to operate at their maximum payload and range.

1.6.3 Recommended Runway Length

Based on the survey responses and the runway length analysis using the FAA methodology, the recommended runway length for at least one runway at F45 is 6,000 feet. This length would provide reasonable operational capabilities of between 60 and 90 percent of payload for 75 percent of the general aviation business jet fleet. It is also consistent with the needs of the users as outlined in the surveys.

1.7 Potential Shift of Business Jet Operations

If additional runway length were available, it is reasonable to assume a portion of the current business jet activity conducted at PBI would shift over to F45. Therefore, the Airport Noise and Operations Monitoring System (ANOMS) data from PBI was obtained in order to analyze the annual business jet activity occurring at the commercial airport to which F45 is designated as a reliever[4].

While the ANOMS totals are a little less than the official count of aircraft operations (average 91 percent for PBI over the last three years), they do offer the most complete representation of PBI's annual operational fleet mix. **Table 4** provides a summary of the January 2015 through December 2017 operations captured by the PBI ANOMS. The table also includes a breakout of three medium-sized business jet groups, categorized by their FAA Airport Reference Code (ARC), which are key for the analyses of this section.

4 The term "reliever" is defined in the FAA's authorizing statute at Title 49 United States Code, section 47102, as "an airport the Secretary designates to relieve congestion at a commercial service airport and to provide more general aviation access to the overall community."

TABLE 4
PALM BEACH INTERNATIONAL AIRPORT ANOMS DATA

	Total Annual Operations Captured by ANOMS	Total Business Jets Operations Captured by ANOMS	Medium-Sized Business Jet Operations by ARC[1]		
			B-II	C-I	C-II
2015	127,409	44,720	19,193	5,029	9,334
2016	136,967	49,045	21,589	4,857	10,797
2017	127,814	45,791	20,825	4,052	10,051

NOTES:
1. The Airport Reference Code (ARC) represents the combined Aircraft Approach Category and Airplane Design Group.

SOURCE: Palm Beach International Airport (PBI) Airport Noise and Operations Monitoring System (ANOM) data between January 1, 2015 and December 31, 2017 and ESA analysis, 2018.

1.7.1 Lengths Required for Medium-Sized Business Jets

Between 2015 and 2017, 39 different types of medium-sized business jets within the B-II, C-I, and C-II categories were recorded as conducting the operations shown in Table 4. Performance data from the aircraft manufacturers was applied to analyze the runway lengths required for these specific business jets, which are listed in **Table 5** based on their ARC, along with their maximum certificated takeoff weight (MTOW), and corresponding runway length requirements.

Two different runway lengths have been shown for each aircraft. The first is the Balanced Field Takeoff Length. This is published by the aircraft manufacturers as the length required for takeoffs on a flat and dry runway, with the aircraft at its MTOW and operating under standard atmospheric conditions (59 degrees Fahrenheit at sea level).

The second number is the Required Takeoff Length which is calculated using the Balanced Field Takeoff Length for each aircraft adjusted for conditions specific to F45 (airfield elevation, mean daily maximum temperature of the hottest month, and maximum difference in runway centerline elevation) per the accepted FAA methodology. In all cases these lengths are longer due to the climate of the local area.

TABLE 5
RUNWAY LENGTHS FOR MEDIUM-SIZED BUSINESS JETS
OPERATING IN PALM BEACH COUNTY

Aircraft Type	Aircraft Reference Code	Maximum Takeoff Weight (pounds)	Balanced Field Takeoff Length	Required Takeoff Length at F45
Cessna Citation CJ2	B-II	12,500	3,910	4,633
Cessna Citation CJ3	B-II	13,870	3,714	4,400
Cessna Citation IISP	B-II	14,100	3,450	4,088
Cessna Citation Bravo	B-II	14,800	3,600	4,265
Cessna Citation V	B-II	16,300	3,812	4,517
Embraer Phenom 300	B-II	17,968	3,060	3,626
Dassault Falcon 10	B-II	18,300	4,339	5,141

Table continued on next page

TABLE 5
RUNWAY LENGTHS FOR MEDIUM-SIZED BUSINESS JETS
OPERATING IN PALM BEACH COUNTY (CONT.)

AIRCRAFT TYPE	Aircraft Reference Code	Maximum Takeoff Weight (pounds)	Balanced Field Takeoff Length	Required Takeoff Length at F45
Cessna Citation Excel	B-II	18,700	3,415	4,046
Cessna Citation III	B-II	22,000	5,030	5,959
Dassault Falcon 20	B-II	28,660	5,168	6,123
Cessna Citation Sovereign	B-II	30,300	3,714	4,400
Cessna Citation Latitude	B-II	30,800	3,580	4,242
Dassault Falcon 50	B-II	38,800	4,875	5,776
Bombardier Challenger 300	B-II	38,850	4,810	5,699
Dassault Falcon 2000	B-II	41,000	5,304	6,284
Dassault Falcon 900	B-II	49,000	5,015	5,942
Dassault Falcon 7X	B-II	70,000	5,460	6,469
Bombardier Learjet 24	C-I	13,000	4,193	4,968
Bombardier Learjet 25	C-I	15,000	4,485	5,314
Bombardier Learjet 31	C-I	15,500	4,485	5,314
Bombardier Learjet 35	C-I	18,000	6,143	7,278
Bombardier Learjet 55	C-I	19,500	4,875	5,776
Bombardier Learjet 40	C-I	21,000	4,222	5,002
Bombardier Learjet 45	C-I	21,500	4,241	5,025
Bombardier Learjet 70	C-I	21,500	4,124	4,886
Bombardier Learjet 75	C-I	21,500	4,329	5,129
Bombardier Learjet 60	C-I	22,750	5,314	6,296
Hawker Siddeley HS-125	C-I	23,300	6,134	7,267
IAI 1124 Westwind	C-I	23,500	6,045	7,162
Gulfstream G100	C-II	24,650	5,395	6,392
Hawker 800	C-II	28,000	5,499	6,515
Hawker 800 / HS-125	C-II	31,100	6,143	7,278
Hawker 1000	C-II	31,100	5,850	6,931
Cessna Citation X	C-II	36,600	5,250	6,220
Gulfstream G280	C-II	39,600	4,631	5,487
Bombardier Challenger 350	C-II	40,600	4,835	5,728
Bombardier Challenger 601	C-II	41,100	6,050	7,168
Lockheed Jetstar	C-II	44,500	7,020	8,317
Gulfstream III	C-II	69,700	5,100	6,042

SOURCE: Aircraft manufacturers, industry databases, aircraft performance manuals, and ESA analysis, 2018.

1.7.2 Annual Operations by Required Takeoff Length

Table 5 documents the medium-sized business jet aircraft currently operating at PBI including popular models from the Bombardier Challenger, Bombardier Learjet, Cessna Citation, Dassault Falcon, Embraer, and Hawker series, as well as a few of the smaller Gulfstream aircraft. As documented previously, some of these business jet aircraft currently operate at F45, but with operational restrictions due to the runway length of 4,300 feet. Likewise, operators of aircraft documented in Table 5 expressed their preference to use F45, but could not due to the existing runway length limitation.

In order to demonstrate the potential of medium-sized business jets that could utilize F45 if additional runway length were available, the ANOMS activity data was combined with the runway takeoff lengths required at F45 for each specific aircraft. The annual operations from this collective dataset is shown in **Table 6** for three runway length ranges at F45. The first is based on the existing length available (4,300 feet), the second if up to 5,500 feet were available (a frequent request by aircraft operators at F45), and the last if 6,000 feet were provided (another frequent request and the recommended runway length for F45).

TABLE 6
ANNUAL OPERATIONS OF MEDIUM-SIZED BUSINESS JETS BY RUNWAY LENGTH

	Annual Operations[1] Categorized by Runway Takeoff Length at F45		
	< 4,300'	**4,300' to 5,500'**	**5,501' to 6,000'**
2015	6,304	7,292	6,107
2016	7,108	7,805	7,489
2017	7,782	6,850	6,949

NOTES:
1. Annual operations by Airport Reference Code B-II, C-I, and C-II medium-sized business jets based on their individual runway takeoff length calculated for local conditions at F45.

SOURCE: Palm Beach International Airport (PBI) Airport Noise and Operations Monitoring System (ANOM) data between January 1, 2015 and December 31, 2017, aircraft manufacturers, industry databases, aircraft performance manuals, and ESA analysis, 2018.

The medium-sized business jets requiring between 5,501 and 6,000 feet of runway length currently conduct just under 7,000 annual operations at PBI. Less than 10 percent of those operations would need to shift to F45 in order to meet the FAA's substantial use threshold of 500 annual operations to justify 6,000 feet of runway.

The collective dataset was also utilized to evaluate the levels of activity for the individual FAA aircraft approach and design group categories, of the medium-sized business jets requiring between 5,501 and 6,000 feet of runway length. The annual operations associated with each are included in **Table 7**.

TABLE 7
ANNUAL OPERATIONS[1] OF AIRCRAFT NEEDING 5,501 TO 6,000 FEET BY DESIGN CODES

	Aircraft Approach Category		Airplane Design Group	
	B	C	I	II
2015	5,547	560	457	5,650
2016	6,152	1,337	418	7,071
2017	5,461	1,488	246	6,703

NOTES:
1. Annual operations by Airport Reference Code B-II, C-I, and C-II medium-sized business jets based on their individual runway takeoff length calculated for local conditions at F45.

SOURCE: Palm Beach International Airport (PBI) Airport Noise and Operations Monitoring System (ANOM) data between January 1, 2015 and December 31, 2017, aircraft manufacturers, industry databases, aircraft performance manuals, and ESA analysis, 2018.

The breakout in Table 7 shows that if 6,000 feet of runway becomes available at F45, it would need to be able to accommodate the requirements for C-II aircraft, which are within the limitations of the North County Airport Interlocal Agreement between Palm Beach County and the City of Palm Beach Gardens (Appendix A).

1.8 Summary of Findings

This report identified aircraft operators that currently use the airport with operational restrictions imposed by runway length, cannot use the airport, or would increase use of the airport if a longer runway was available. Specific findings include:

1. The study documented 712 annual business jet operations (existing and latent in Table 1) that need, and would benefit from, a longer runway at F45.

2. The substantial use threshold in FAA AC 150/5325-4B for determining runway design length is at least 500 forecasted annual operations by aircraft requiring additional runway length. The 712 annual aircraft operations identified in this report meet and exceed this substantial use threshold criterion. Therefore, a runway extension at the F45 is justified.

3. The methods prescribed in FAA AC 150/5325-4B identify a runway design length between 5,400 feet and 9,100 feet for F45.

4. Extending Runway 14-32 from its present length of 4,300 feet to at least 6,000 feet would eliminate or substantially reduce operational restrictions experienced by business jet operators at F45.

5. Less than 10 percent of the business jets operations at PBI requiring between 5,501 and 6,000 feet of runway length would need to shift to F45 in order to meet the FAA's substantial use threshold of 500 annual operations for a 6,000 foot runway.

6. The study confirmed the continued validity of the proposed 6,000 foot runway identified in the F45 Master Plan and depicted on the current Airport Layout Plan.

1.9 Recommendations

The runway length analysis confirms the previous planning efforts and plans to extend Runway 14-32 at F45. Recommended next steps relative to the extension of Runway 14-32 are provided below:

1. Submit this Runway Extension Justification Report to FAA and FDOT for review and acceptance.

2. Upon receiving FAA and FDOT acceptance, the County should initiate a runway extension program, including a request for formal FAA Airspace Evaluation (if not yet completed) and preparation of an Environmental Assessment.

APPENDIX A

North County Airport Interlocal Agreement

R2016 0468

FIRST ADDENDUM TO THE NORTH COUNTY AIRPORT INTERLOCAL AGREEMENT (R-90-194D)

This First Addendum to the North County Airport Interlocal Agreement (this "First Addendum"), is hereby made and entered into this _____ day of APR 05 2016 2015, by and between PALM BEACH COUNTY, a political subdivision of the State of Florida, hereinafter referred to as "COUNTY," and the City of Palm Beach ~~Gardens,~~ a municipal corporation existing under the laws of the State of Florida, hereinafter referred to as "CITY", both separately constituting a public agency as defined in Part I of Chapter 163, Florida Statutes.

WITNESSETH:

WHEREAS, Section 163.01 of the Florida Statutes, known as the Florida Interlocal Cooperation Act of 1969, authorized local governmental units to make the most efficient use of their powers by enabling them to cooperate with other localities on a basis of mutual advantage and thereby to provide services and facilities in a manner and pursuant to forms of governmental organization that will accord best with geographic, economic, population and other factors influencing the needs and development of local communities, and

WHEREAS, the COUNTY and CITY previously entered into that certain Interlocal Agreement dated February 6, 1990 (R-90-194D) (the "Agreement") in order to coordinate, control, and minimize developmental and operational impact of the North Palm Beach County Airport on the neighboring residential developments while providing a more effective service delivery method in order to precipitate an overall savings to the taxpayers of the COUNTY and the State of Florida; and

WHEREAS, the COUNTY and CITY, in accordance with Paragraph 16 of the Agreement, do hereby amend certain provisions of the Agreement for the benefit of the health, safety, and welfare of the residents of Palm Beach County and the public at large.

NOW, THEREFORE, in conjunction with the mutual covenants, promises and representations contained herein, the parties hereto agree as follows:

SECTION 1: Exhibit "B" to the Agreement is hereby amended to strike the last sentence of Paragraph 1 in its entirety and replace it with the following:

> THE CROSSWIND RUNWAY WILL BE LIMITED TO 6,000 FEET IN LENGTH. THE AIRCRAFT APPROACH CATEGORY FOR RUNWAY 13/31 WILL BE A CATEGORY C (APPROACH SPEED 121 KNOTS OR MORE, BUT LESS THAN 141 KNOTS), AND THE AIRPLANE DESIGN GROUP WILL BE GROUP II (WINGSPAN OF 49 FEET OR MORE, BUT LESS THAN 79 FEET).

SECTION 2: Upon completion of an extension of the crosswind runway to 6,000 feet, the COUNTY, by and through its Department of Airports, shall submit all necessary and appropriate applications to the Federal Aviation Administration (FAA) for the construction and funding of an air traffic control tower at the North County Airport pursuant to 49 U.S.C. §47124 ("ATC Contract Program") and diligently pursue FAA approval through completion. Upon receipt of the aforementioned approval and funding, the COUNTY will cause an air traffic control tower to be constructed in accordance with the ATC Contract Program and applicable federal regulations. The CITY agrees that the COUNTY's obligations under this SECTION 2 shall be subject to and contingent upon the FAA's agreement to provide for the operation of the air traffic control tower at no cost to the COUNTY. The COUNTY specifically acknowledges that the CITY is expressly relying upon the terms, conditions, and covenants set forth in this SECTION 2, and the COUNTY's compliance herewith as the consideration for which the CITY grants its consent to allow the COUNTY to increase the length of the crosswind runway to 6,000 feet.

SECTION 3: It is further understood and acknowledged by the COUNTY and the CITY that it is the intent of the parties that the Agreement, as may be amended from time to time by mutual written consent of the parties, shall remain in full force and effect so long as the North County Airport remains in operation as an aviation facility.

SECTION 4: Paragraph 12 of the Agreement is hereby stricken in its entirety and is replaced such that new Paragraph 12 shall hereafter read as follows:

> **12.** Any notice given pursuant to the terms of this Agreement shall be in writing and sent via Federal Express, or other similar delivery service, signature required upon delivery or via hand delivery. The effective date of such notice shall be the date of upon which delivery was achieved as evidenced by the signature of the recipient or authorized agent thereof. All notices shall be addressed to the following:
>
> As to the COUNTY:
>
> Palm Beach County Department of Airports
> Attn: Director of Airports
> 846 Palm Beach International Airport
> West Palm Beach, FL 33406-1470
>
> With copy to:
>
> Palm Beach County
> Attn: County Attorney
> 301 North Olive Avenue
> West Palm Beach, FL 33401

As to the CITY:

City of Palm Beach Gardens
Attn: City Manager
10500 N. Military Trail
Palm Beach Gardens, FL 33410

With copy to:

City of Palm Beach Gardens
Attn: City Attorney
10500 N. Military Trail
Palm Beach Gardens, FL 33410

SECTION 5: This First Addendum shall be governed and interpreted by the laws of the State of Florida without respect to any conflict of laws principle. Should any litigation arise from this First Addendum, venue shall lie in Palm Beach County, Florida. It is hereby understood and agreed that in the event any lawsuit in the judicial system, federal or state, is brought to enforce compliance with this Agreement or interpret same, or if any administrative proceeding is brought for the same purposes, the non-prevailing party shall pay to the prevailing party reasonable attorney's fees and costs, including appellate fees and costs.

SECTION 6: An executed copy of this First Addendum shall be filed with the Clerk of the Circuit Court in and for Palm Beach County, Florida at which point it shall become effective.

SECTION 7: The COUNTY has established the Office of the Inspector General in Palm Beach County Code, Section 2-421 - 2-440, as may be amended. The Inspector General's authority includes but is not limited to the power to review past, present and proposed COUNTY contracts, transactions, accounts and records, to require the production of records, and to audit, investigate, monitor, and inspect the activities of the CITY, its officers, agents, employees and lobbyists in order to ensure compliance with contract requirements and detect corruption and fraud. Failure to cooperate with the Inspector General or interfering with or impeding any investigation shall be in violation of Palm Beach County Code, Section 2-421 - 2-440, and punished pursuant to Section 125.69, Florida Statutes, in the same manner as a second degree misdemeanor.

SECTION 8: This First Addendum shall become a part of the Agreement as if fully set forth therein. To the extent not specifically amended herein, all other exhibits, terms, conditions, and provisions of the Agreement shall remain in full force and effect.

SECTION 9: Except as herein otherwise provided, no subsequent alteration, waiver, change or addition to this First Addendum shall be binding upon COUNTY or CITY unless reduced to writing and signed by them.

IN WITNESS WHEREOF, the parties have executed this First Addendum on the date first above written. R 2016 0468

APR 0 5 2016

Palm Beach County, Florida, by its Board of County Commissioners

By: _____
Mary Lou Berger Mayor

City of Palm Beach Gardens, by its City Council

By: _____
Eric Jablin, Mayor

Attest:

Sharon R. Bock, Palm Beach County Clerk & Comptroller

By: _____
Deputy Clerk

BOARD OF COUNTY COMMISSIONERS PALM BEACH COUNTY FLORIDA

Attest:

By: _____
Patricia Snider, CMC, City Clerk

Approved as to Terms and Conditions

By: _____
Department Director

Approved as to Form and Legal Sufficiency

By: _____
County Attorney

Approved as to Form and Legal Sufficiency

By: _____
R. Max Lohman, City Attorney

GPS:lw:10/26:PBG Interlocal Agmt

Item 3D-2

R90 1940 FEB - 6 1990

This Interlocal Agreement made and entered into this ___ day of _____, 1988, by and between the City of Palm Beach Gardens, a political subdivision of the State of Florida (hereinafter referred to as the "City") and Palm Beach County, a political subdivision of the State of Florida (hereinafter referred to as "County").

W I T N E S S E T H

WHEREAS, Palm Beach County has determined that it is in the best interest of the public health, safety and welfare that general aviation operations be substantially reduced at its Palm Beach International Airport; and

WHEREAS, Palm Beach County, after many years of thorough research, study and public comment, has determined that it is in the best interest of the public health, safety and welfare to construct and operate a new general aviation airport to be located at the site setforth on Exhibit "A" attached hereto and made a part hereof (hereinafter the "Property"); and

WHEREAS, Palm Beach County and the City of Palm Beach Gardens have worked together to make the aforementioned general aviation airport site as safe and compatible with the interests of the surrounding municipalities as is possible; and

WHEREAS, the County, with input from an advising citizens' group and the City, has developed certain restrictions and guidelines relative to the construction and operation of said Airport for the benefit and general welfare of the public, the City and residents living near the Property and now desire to embody such restrictions in a binding agreement between the parties hereto; and

WHEREAS, Palm Beach Gardens has agreed not to object to nor in any way oppose the County in the DRI and related governmental approval process relative to the development and construction of the aforesaid general aviation facility provided that the aforesaid restrictions and agreement are entered into between the parties; and

WHEREAS, the City and County wish to document their understanding that the County will enforce the restrictions (as hereinafter defined) and that the City and County will otherwise comply with the terms and provisions of this Agreement; and,

WHEREAS, the City and County believe that it is in the public's best interest to enter into this Interlocal Agreement.

NOW THEREFORE, in consideration of the premises and the mutual covenants herein contained, and for such other good and valuable consideration, the receipt of which the parties hereby expressly acknowledge, the parties hereto covenant and agree to the following terms and conditions.

1. Restrictions. The County hereby represents and warrants to City and covenants and agrees that County will implement and enforce the restrictions set forth on Exhibit "B" hereof, (hereinafter referred to as "Restrictions"), relative to the construction, operation, maintenance and use of the airport and all improvements which may be constructed on the Property.

2. Modification. County hereby represents, warrants, covenants and agrees that it shall not in any way modify, amend, eliminate or otherwise reduce or fail to implement or enforce the Restrictions without the prior written consent of City, which consent may be withheld in the sole and absolute discretion of the City. Any written consent shall be in the form of Resolution passed by the City Council. In the event the County proposes any changes to said Restrictions, or enforcement thereof, it shall promptly provide written notice of same to City for City's review and comments, at least ninety (90) days prior to any action being taken by the County Board of County Commissioners. In this regard, any attempt by the County to unilaterally modify, amend, eliminate, or otherwise reduce, or fail to implement or enforce the Restrictions without the prior written concurrence of the City, shall be deemed a breach and violation of this Agreement by the County and shall entitle the City to any and all remedies available to it in law or in equity, including, without limitation, injunctive or other equitable relief to enforce this Agreement.

3. Further Agreements of County. The County agrees to require, at the appropriate time, its staff of the Department of Airports to create and implement rules and regulations which adopt the Restrictions for all persons having business on or relating to the Airport and will incorporate such rules and regulations and the Restrictions into the requirements and lease agreements with any tenants,

fixed base operators or other persons dealing with the County. County further covenants and agrees that the proposed general aviation airport shall be built in accordance with the airport layout plan attached hereto as Exhibit "C" and that no substantial changes thereto shall occur without the mutual consent of the parties hereto.

4. Agreements of City. CITY covenants and agrees that no residential development or other development inconsistent with the proposed airport facility shall be permitted inside the projected 65 Ldn contour area as shown on the map in the Application for Development Approval dated 3/13/89 (hereinafter referred to as the "application"), which is attached hereto as Exhibit "D" and made a part hereof.

5. Further Agreements of City. City hereby represents and warrants to County and covenants and agrees that City shall not institute nor join in any litigation against County nor, in any way, object to, nor, in any way, attempt to prejudicially influence any governmental entities having jurisdiction over the permitting, licensing and operation of this general aviation airport provided that County is not in violation the terms of this Agreement, and, provided further, however, that the operation of said airport by the County is conducted in a safe manner, and that the scope of said operation does not substanitally change from the plans as contemplated and publically documented by the County on the effective date hereof including but not limited to the application. Failure of the City to abide by the covenants setforth in this paragraph 5 shall be deemed a breach of this Agreement and shall entitle County in its sole discretion either (1) to assert whatever remedies are available to it in law and/or equity, or (2) to treat this Agreement as null and void and thereafter to proceed as if this Agreement had never been executed. In this regard City acknowledges that County is expressly relying upon the covenants setforth in this paragraph 5 and in paragraph 4 above in its implementation of the restrictions setforth in the attached Exhibit "B".

6. Nothing in this Agreement shall preclude either party from litigating against the other on matters completely unrelated to and not contemplated by this Agreement.

7. This Agreement shall take effect upon execution.

8. The invalidity of any portion, article, paragraph, provision, clause or any portion thereof of this Agreement shall have no affect upon the validity of any other part or portion hereof.

9. To the extent allowed by law, the venue for any action arising from this Agreement shall be in Palm Beach County, Florida.

10. This Agreement shall be governed by and in accordance with the laws of the State of Florida.

11. In any action brought by either party for the enforcement of the obligations of the other party, the prevailing party shall be entitled to recover reasonable attorney's fees.

12. Any notice given under the provisions of this Agreement shall be in writing and shall be delivered personally or sent by certified or registered mail, postage prepaid to:

COUNTY:
Palm Beach County
Board of County Commissioners
301 North Olive Avenue
West Palm Beach, Florida 33401

WITH A
COPY TO:
County Attorney
301 North Olive Avenue, Suite 601
West Palm Beach, Florida 33401

CITY:
City of Palm Beach Gardens
City Council
10500 North Military Trail
Palm Beach Gardens, Florida 33410

WITH A
COPY TO:
City Attorney
City of Palm Beach Gardens
10500 North Military Trail
Palm Beach Gardens, Florida 33410

or to such other respective addresses as the parties may designate to each other in writing from time to time. Notice by certified or registered mail, return receipt requested, shall be deemed given on the date that such notice is deposited in a United States Post Office.

13. The parties expressly agree that time is of the essence in this Agreement and the failure by a party to complete performance within the time specified, or within a reasonable time if no time is specified herein, shall, at the option of the other party without liability, in addition to any other rights or remedies, relieve the other party of any obligation to accept such performance.

14. The headings of the various articles and sections of this Agreement are for convenience and ease of reference only, and shall not be construed to define, limit, augment or describe the scope, context or intent of this Agreement or any part or parts of this Agreement.

15. The parties hereto expressly covenant and agree that in the event either party is in default of its obligations herein, the party not in default shall provide to the party in default thirty (30) days written notice to cure said default before exercising any of its rights as provided for in this Agreement.

16. The parties agree that this Agreement sets forth the entire agreement between the parties, and there are no promises or understandings other than those stated herein. None of the provisions, terms and conditions contained in this Agreement may be added to, modified, superseded or otherwise altered except by written instrument executed by the parties hereto.

(Remainder of page left intentionally blank)

IN WITNESS WHEREOF, the COUNTY has caused this Agreement to be signed by the Chair of the Board of County Commissioners and the seal of said Board to be affixed hereto and attested by the Clerk of said Board, pursuant to the authority granted by said Board, and the City has caused these presents to be signed by its Mayor, acting on behalf of said City Council of Palm Beach Gardens and the seal of said Council to be affixed hereto and attested by the Clerk of said Council, pursuant to the authority granted by said Council, the day and year first written above.

CITY OF PALM BEACH GARDENS

ATTEST:

LINDA V. KOSIER, CITY CLERK

BY: Michael Martino
MAYOR

By: Linda V. Kosier

DATED: 11-2-89

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

BY: William Brantley
City Attorney

PALM BEACH COUNTY, FLORIDA, BY ITS
BOARD OF COUNTY COMMISSIONERS

ATTEST:
JOHN B. DUNKLE, Clerk

BY: Carol Elmquist
CHAIR

By: Kerry Lee Kunkel
Deputy Clerk

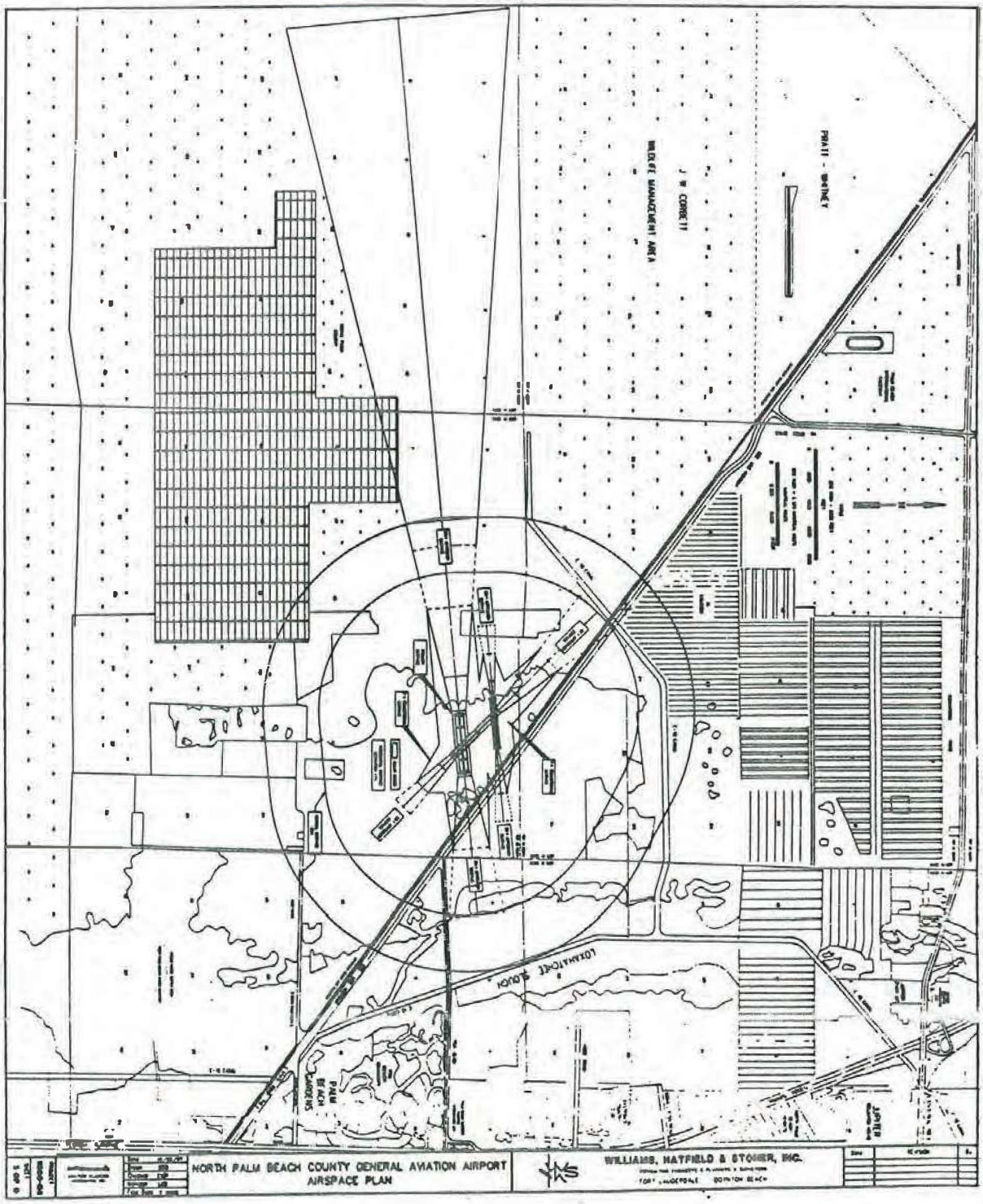
DATED: FEB - 6 1990

R90 1940

APPROVED AS TO FORM
AND LEGAL SUFFICIENCY

BY: Leslie P. Gillespie
County Attorney

EXHIBIT "A" - PAGE 1 OF 3 TO
INTERLOCAL AGMT. BETWEEN PBC
AND PBC



Description

All that portion of the Northwest One-Quarter (NW 1/4) of Section 1, Township 42 South, Range 41 East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

TOGETHER WITH all that portion of the Southwest One-Quarter (SW 1/4) of Section 1, Township 42 South, Range 41 East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

TOGETHER WITH all that portion of the Southeast One-Quarter (SE 1/4) of Section 1, Township 42 South, Range 41, East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

TOGETHER WITH all that portion of Section 2, Township 42 South, Range 41 East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

TOGETHER WITH all of Section 3, Township 42 South, Range 41 East;

TOGETHER WITH all that portion of the Northeast One-Quarter (NE 1/4) of Section 11, Township 42 South, Range 41 East, being more particularly described as follows:

COMMENCE at the Northeast corner of the said Northeast One-Quarter (NE 1/4);

THENCE on a grid bearing of N 89°35'37" W along the North line of the said Northeast One-Quarter (NE 1/4) a distance of 500.00 feet to the POINT OF BEGINNING;

THENCE S 45°24'23" W a distance of 1350.00 feet;

THENCE N 44°35'37" a distance of 1350.00 feet to a point on the North line of the said Northeast One-Quarter (NE 1/4);

559r/0273P/062988

THENCE S 89°35'37" E along said North line a distance of 1909.19 feet to the POINT OF BEGINNING;

TOGETHER WITH all that portion of Section 34, Township 41 South, Range 41 East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

TOGETHER WITH all that portion of the Southwest One-Quarter (SW 1/4) of Section 35, Township 41 South, Range 41 East, lying Southwesterly of the Southwesterly right-of-way line of the Seaboard Airline Railroad;

Said land situate within Palm Beach County, Florida, containing 1832.31 Acres, more or less.

559r/0273P/062988

NORTH COUNTY GENERAL AVIATION FACILITY USE RESTRICTIONS

1. CONSTRUCTED IN ACCORDANCE WITH THE FAA STANDARDS, THE SOUTHERN EAST-WEST RUNWAY WILL BE LIMITED TO 4,300 FEET IN LENGTH WITH A MAXIMUME 12,500 POUND LIMITATION. THE NORTHERN EAST-WEST RUNWAY WILL BE LIMITEDE TO 3,700 FEET IN LENGTH. THE CROSSWIND RUNWAY WILL BE LIMITED TO 4,300 FEET IN LENGTH.

2.E IN ACCORDANCE WITH THE FAA AIRSPACE DETERMINATION, RUNWAY ALIGNMENT FOR THE EAST-WEST RUNWAYS WILL BE 08-26. RUNWAY ALIGNMENT FOR THE CROSSWIND RUNWAY WILL BE 13-31.

3.E THE PALM BEACH COUNTY DEPARTMENT OF AIRPORTS, IN THEIR PROPRIETARYE CAPACITY OF OPERATING THE NORTH COUNTY AIRPORT, WILL RESTRICT FLIGHTE TRAINING ACTIVITIES TO NON-POPULATED AREAS BY INCLUDING IN ITS LEASESE WITH EACH RESIDENT FIXED BASE OPERATOR WHO CONDUCTS FLIGHT TRAINING AE REQUIREMENT THAT FLIGHT TRAINING PROCEDURES WILL BE DESIGNED TO KEEP THE FLIGHT TRAINING ACTIVITIES AWAY FROM THE POPULATED PORTIONS OF PALM BEACHE GARDENS.E

4. AIRCRAFT ALLOWED TO USE THE AIRPORT WILL BE THOSE SPECIFICALLY IDENTIFIED IN FAA ADVISORY CIRCULAR 36-3E THAT COMPLY WITH THE FAA COMPUTER MODEL DETERMINATIONS USING A 65 dba NOISE LEVEL UPON DESIGNATEDE MONITORING SITES IN THE RESIDENTIAL AREA EXISTING AS OF FEBRUARY 1988 IN THE CITY OF PALM BEACH GARDENS AND OTHER RESIDENTIAL COMMUNITIES, INCLUDING P.G.A. NATIONAL RESORT COMMUNITY, WHILE USING NOISE ABATEMENT FLIGHT TRACKS AND NOISE ABATEMENT PROFILES DEVELOPED, IMPLEMENTED, MONITORED AND ENFORCED BY PALM BEACH COUNTY.

5. NIGHTTIME OPERATIONS - NIGHTTIME OPERATIONAL PROCEDURES SHALL BE IN EFFECT BETWEEN 10:00 P.M. AND 6:00 A.M. DURING THOSE HOURS THE NORTHWEST-SOUTHEAST RUNWAY WILL BE THE PREFERRED RUNWAY UTILIZED, EXCEPT WHEN CONDITIONS DO NOT ALLOW A NORTHWEST-SOUTHEAST OPERATION. IN SUCH AN EVENT, WESTERLY DEPARTURES WILL BE THE PREFERRED RUNWAY UTILIZED UNLESS WIND CONDITIONS ARE PROHIBITIVE; AND, IN THAT EVENT ONLY EASTERLY DEPARTURES MAY BE CONDUCTED BY AIRCRAFT IDENTIFIED IN RULE NO. 4 ABOVE.

6. REMOTE NOISE MONITORING STATIONS WILL BE INSTALLED BY THE COUNTY AT THE NORTHWEST CORNER AND SOUTHWEST CORNER OF P.G.A. NATIONAL RESORT COMMUNITY AND AT THE WESTERN EDGE OF EASTPOINT. THESE STATIONS WILL BE INSTALLED, MAINTAINED AND OPERATED BY PALM BEACH COUNTY WITH ADEQUATE REPORTING OF NOISE LEVELS.

7. AIRCRAFT NOISE EMISSION LEVEL OF AIRCRAFT USING THE AIRPORT WILL NOT EXCEED 65 dba MAXIMUM WITHIN THE PRESENT RESIDENTIAL AREAS OF THEE CITY OF PAL BEACH GARDENS AS DETERMINED AND IDENTIFIED IN RULE NO. 4 ABOVE.

8. INSTRUMENT LANDING SYSTEM (ILS), IF INSTALLED, WILL PERTAIN TO LANDINGS FROM THE WEST ONLY.

9.E PALM BEACH COUNTY WILL PROHIBIT ALL REGULARLY SCHEDULED COMMERCIALE AIR CARRIER PASSENGER FLIGHTS.E

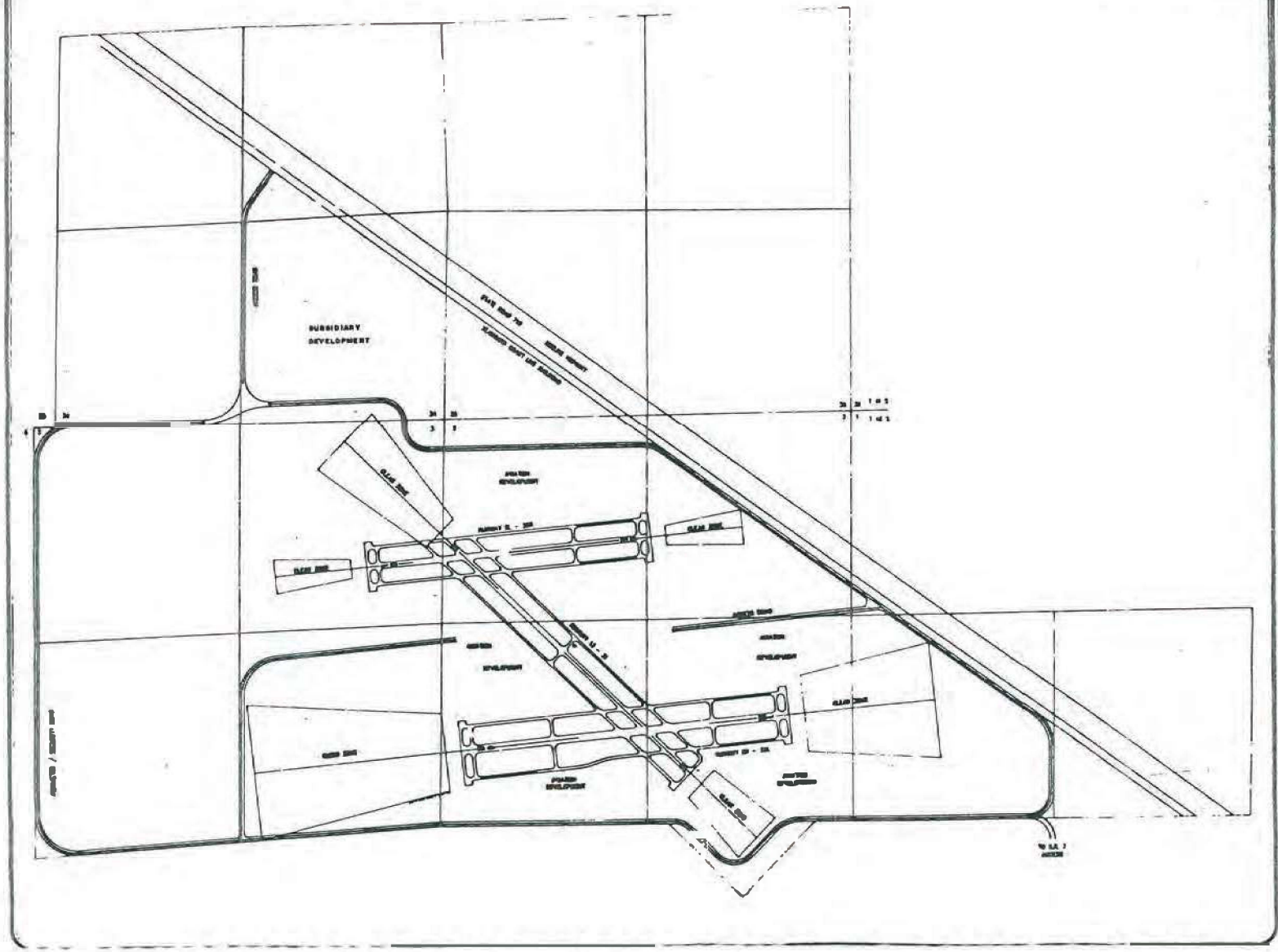
10. A FINE SYSTEM FOR AIRCRAFT USING THE AIRPORT IN VIOLATION OF THESEE RULES OF PALM BEACH COUNTY DEPARTMENT OF AIRPORTS SHALL BE AS FOLLOWS:E

FIRST OFFENSE:	WARNING
SECOND OFFENSE:	$100 FOR EACH SUCH SECOND OFFENSE AND $100.00 FOR EACH DECIBEL OVER THAT DETERMINED UNDER RULE NO. 4 ABOVE.
THIRD OFFENSE:	SUSPEND USE OF AIRPORT FACILITIES

11. PALM BEACH COUNTY AND THE COMMUNITY OF PALM BEACH GARDENS WILL ACT TO KEEP THOSE AREAS BETWEEN THE P.G.A. NATIONAL RESORT COMMUNITY AND THE PROPOSED AVIATION FACILITY IN A LAND USE CATEGORY COMPATIBLE WITH AIRCRAFT OPERATIONS.

12. AN AIRPORT MANAGER WILL BE EMPLOYED TO ASSIST IN ENFORCEMENT OF RESTRICTIONS.

EXHIBIT "C" TO INTERLOCAL A
BETWEEN PALM BEACH GARDENS /
PALM BEACH COUNTY



north palm beach county general aviation airport

MASTER DEVELOPMENT PLAN

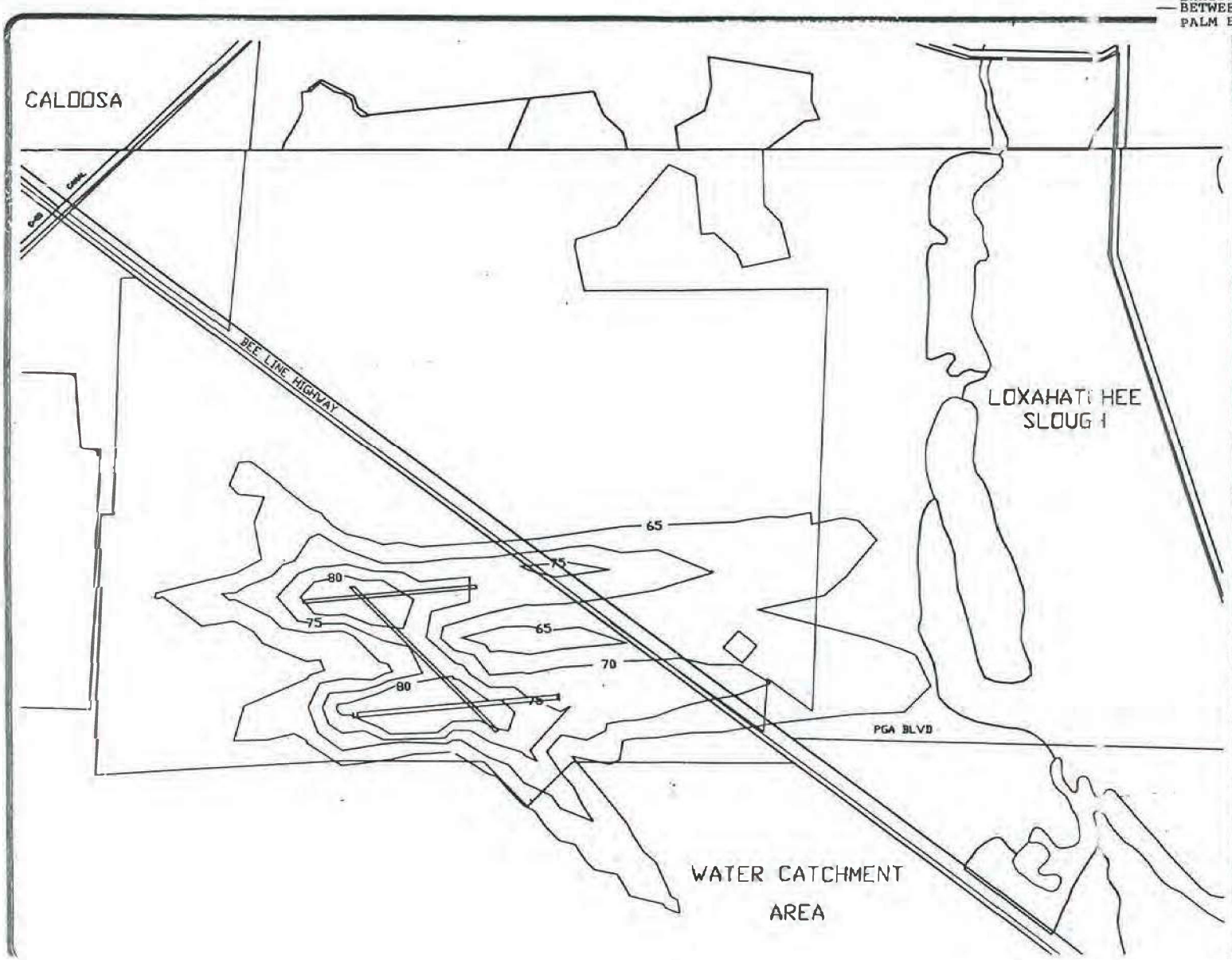
north

SCALE: 1" = 1250'

WILLIAMS, HATFIELD & STONER, INC.
Consulting Engineers
Planners
Land Surveyors

MAP
H

EXHIBIT "D" TO INTERLOCAL A
BETWEEN PALM BEACH GARDENS
PALM BEACH COUNTY



north palm beach county general aviation airport

NOISE EXPOSURE FORECASTS 2005

north

SCALE: 1"=2000'

Dr. Lewis Cohn &
Dr. Al Harris
University of Louisville, KY

WILLIAMS, GAYFIELD & CRONIN, INC.

FIG. 33-1B

APPENDIX B

Airport Use Documentation

B1 - Operator & Owner Letters
B2 - Submitted Airport Use Surveys

Appendix B1 – Operator & Owner Letters

December 4, 2017

Bruce V. Pelly
Director
Palm Beach County Department of Airports
846 Palm Beach International Airport
West Palm Beach FL, 33406

RE: NEED FOR ADDITIONAL RUNWAY LENGTH
NORTH PALM BEACH COUNTY GENERAL AVIATION AIRPORT

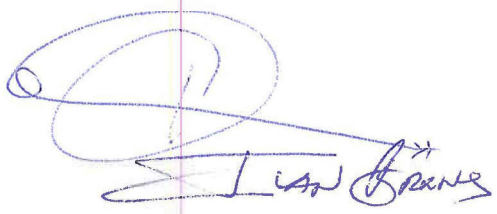
Dear Mr. Pelly:

We are glad to see that Palm Beach County is considering the extension of Runway 13/31 at the North Palm Beach County General Aviation Airport (F45).t CheneytBrothers, frequently uses F45 because of its proximity to our company personnel. Currently, our operations at F45 are restricted by runway length especially when the runway is wet and or during reduced visibility operations. Among the airpotts we use on a regular basis, F45 has the shortest runway.

We fly into F45 approximately 125+ times per year. However, during peak periods we can fly into F45 approximately 5-6 times per week. When we visit F45, we typically use the following aircraft: Citation Jet 560XL. Due to the limited runway length at the airport, we often have to limit passengers and/or cannot take on enough fuel to reach our destination without an intermediate stop. Hot days and/or wet runway conditions further exacerbate our operational restrictions. For these aircraft we need at least 5,500 feet of runway at F45 to meet our operational needs with minimal restrictions.

In many cases, we would prefer to fly our Jet into F45, but do not do so because of the short runways (wet /night operations). Our Jet requires 5200-5500 feet of runway length at F45 to meet our operational needs during those conditions, which are often in the summer and late fall seasons. If the runway was extended to at least 5,500 feet we would use this aircraft more often when visiting the North Palm Beach County Airport. Longer runways will provide an enhanced safety to all aircraft operations.

Sincerely, Ivan W Brenes



Chief Pilot of Flight Operations
Cheney Brothers, Inc.
Ivanb@cheneybrothers.com

November 28, 2017

Bruce V. Pelly
Director
Palm Beach County Department of Airports
846 Palm Beach International Airport
West Palm Beach FL, 33406

RE: NEED FOR ADDITIONAL RUNWAY LENGTH
NORTH PALM BEACH COUNTY GENERAL AVIATION AIRPORT

Dear Mr. Pelly:

We are glad to see that Palm Beach County is considering the extension of Runway 13/31 at the North Palm Beach County General Aviation Airport (F45). During the winter months I frequently uses F45 because of its proximity to the Palm Beach area and my home in Ibis. Currently, our operations at F45 are restricted by runway length. Among the airports we use on a regular basis, F45 has the shortest runway.

We fly into F45 10-15 times per year. When we visit F45, we typically use the following aircraft: N58VL which is an Eclipse twin engine jet. Because of the limited runway length at the airport, we often have to limit passengers and/or cannot take on enough fuel to reach our destination without an intermediate stop. Hot days and/or wet runway conditions further exacerbate our operational restrictions. For this aircraft we are most safe with at least 4800 feet of runway at F45 to meet our operational needs with minimal restrictions.

This year like last we realize that flying into PBI with the Presidential TFR's in place each weekend will be a major headache as well so please consider turning F45 into the safest airport it can be.

Sincerely,

Victor Girgenti
2 Forest Drive
Sands Point, NY 11050
516.944.8791
N58VL

Peter Green

From: Terry Sherman <terry@shermanaircraft.com>
Sent: Wednesday, February 28, 2018 12:50 PM
To: Peter Green
Subject: F45 Airport Operations

Dear Mr. Green,

We are a family owned business that buys, sells, and brokers business aircraft. We were at the Palm Beach Int'l Airport from 1967-1999 and moved to F45 then. We love the airport, but the short runways keep many of our clients from flying here and many of our business jets that we either own or broker need to be kept at airports (many times at PBI) with runways that can accommodate the jets that require longer runways. If the runway is extended to 6000 feet, we will be able to have Gulfstreams (GIV, GV, G550), Challengers (600, 601, 604, 605), and Falcons (2000, 900B, 900EX, 50EX) operate from here, which would improve the efficiency of our business and help alleviate the overcrowding at PBI and SUA. If you go to visit either of those airports, you will see that roughly 75% of the aircraft on the ramps are these larger aircraft that require longer runways.

This airport is ideally located in the affluent northern Palm Beach County area where many residents would prefer to use these facilities than PBI or SUA because of the location and ease of flying in and out of this uncongested airport.

Thank you very much for your time.

Terry Sherman

Sherman Aircraft Sales, Inc.
11610 Aviation Blvd., Suite A-4
West Palm Beach, FL 33412
561-799-1919 Office
561-799-1920 Fax
www.shermanaircraft.com
terry@shermanaircraft.com
Since 1959

NetJets Inc.
4111 Bridgeway Avenue
Columbus OH 43219

T +1 614 239 5500

NETJETS®

April 9, 2018

Environmental Science Associates
4200 W. Cypress Street, Suite 450
Tampa, Florida 33607

Dear Mr. Green,

NetJets Aviation, Inc. and sister companies Executive Jet Management and NetJets Europe have used North Palm Beach County airport to support the travel needs of their clients. NetJets has learned of the possibility of a runway extension to runway 14/32 and would like to use this letter to indicate growing use of North Palm Beach airport and support for the proposed extension.

Since 2013 NetJets operated aircraft have conducted 503 operations at F45

- 2013 – 52 operations
- 2014 – 75 operations
- 2015 – 85 operations
- 2016 – 111 operations
- 2017 – 132 operations
- 2018 – 48 operations to date

NetJets flight activity data is as follows:

Aircraft Information		Takeoff length Req'mts*		Annual Visits						
		Dry	Wet	2013	2014	2015	2016	2017	2018	Totals
CE-560E	Cessna Citation Encore**				6	8	6			20
CE-560EP	Cessna Citation Encore Plus	4387	5395		2	16	4	8	4	34
CE-560XL	Cessna Citation Excel	4111	4235	20	32	22	28	13	4	119
CE-560XLS	Cessna Citation Excel S	3945	4054	23	25	18	28	40	12	146
CE-680	Cessna Citation Sovereign	4128	4449	7	4	5	4	16	2	38
CE-680AS	Cessna Citation Latitude	4245	4628				4	27	10	41
EMB-505S	Embraer Phenom 300	4371	4371	2	6	12	19	28	16	83
PC-12	Pilatus PC 12**					4	18			22
				52	75	85	111	132	48	503

* 30°, MTOW, elevation 20 feet
** No performance data available

NETJETS®

Representative occupied trip departure data as follows:

	Longest block time	Destination	Average block time
CE-560E	3.1 Hrs	TKPK	1.9 Hrs
CE-560EP	3 Hrs	TKPK	1.8 Hrs
CE-560XL	3 Hrs	TKPK	1.6 Hrs
CE-560XLS	3.1 Hrs	KSAT	1.5 Hrs
CE-680	2.8 Hrs	KHOU, KASG	1.5 Hrs
CE-680AS	3.2 Hrs	KICT	1.9 Hrs
EMB-505S	3 Hrs	TQPF	1.3 Hrs
PC-12	0.4 Hrs	KPBI, KPHK	0.4 Hrs

The existing 4300 foot runway (and a maximum, approved weight of 30000 pounds) does prohibit some medium cabin and all large cabin NetJets fleets from using North Palm Beach. NetJets Flight Operations establishes minimum runway lengths for each of the business jets within our fleet. The aircraft that require a minimum of 4500 feet of runway include the Hawker 900XP, Falcon 2000 and Falcon 2EASy, Challenger 650, Gulfstream 450, 550, IV-SP, and Bombardier Global 5000 and 6000. If operated within the 4500 to 5000 foot range, many of these medium/large cabin fleets have additional risk mitigations assigned to the flight to insure that each operation is conducted within a more controlled environment. The remaining medium cabin aircraft within our fleet, the Cessna Citation X, requires a minimum of 4600 feet of runway.

If both 4300 foot runways are out of service, the 3700 foot runway is not suitable due to the runway weight bearing of 12500 pounds. 12.5 does not provide suitable weight to carry any payload for any of our small cabin fleets.

If you were to ask what the minimum acceptable runway length would be, NetJets would have five different answers based upon our different fleet performance. As mentioned above, NetJets assigns minimum runway lengths to each fleet. If weight bearing is adequate, the fleet has access to the geographic location and NetJets has been able to deliver the client to the location where they have requested. Departures may require a fuel stop with a shorter runway length or where weight bearing of the runway was designed to a lighter critical aircraft.

When evaluating the runway requirements on a hot (35°) day, maximum landing weight, and a wet runway, naturally, the runway lengths vary greatly. Applying 60% landing distances for each fleet, the range of requirements goes from a minimum length of 5011 feet (CE-680) to 7041 feet (CE-750). As technology has advanced, it is amazing to note that the better performers are also the heaviest aircraft, e.g. the Bombardier Global requires about 5200 feet for hot, wet, landings.

NETJETS®

For departures evaluated with maximum takeoff weight on a hot day with wet runway, the answers vary as well. Aircraft requiring a longer runway (7-9000 feet) include CL-650, GIV-SP, G-450/550, and the GL-6000. Those requiring the shortest amounts are some of the small/medium cabin aircraft including CE-XL/XLS, CE-680/680A, and EMB-505. Their requirements are in the range of 4400 – 5200 feet of runway.

In a practical sense, a runway length of 5500 feet that has adequate weight bearing and taxiway/apron infrastructure is very suitable for NetJets' needs. The length exceeds our minimum runway requirements and allows each of our fleets the ability to fulfill at least the average stage length requirements of our clients. For the long range trip requirements, there is always West Palm Beach (KPBI) a few miles away.

With NetJets' existing documentation process, there is no way for me to immediately determine whether a proposed flight could not be conducted and/or had to plan for an alternate departure from West Palm Beach. From a performance and runway available perspective, it is important for our clients to be able to depart and complete the mission without a fuel stop. In the last five years, out of 111 occupied departures from F45, approximately 49 (about 44%) of them fully utilized the existing runway length. (My assumption: Aircraft fueled for a stage length of at least 2.3 hours flight and alternate time and up to six passengers on board.)

If F45's runway was extended and weight bearing remained the same (Palm Beach Airports management allows NetJets up to 30000 pounds dual wheel), flight activity would remain on the same trajectory which is increasing approximately 15% annually. For 2018, this projects to about 152 total operations.

If F45's runway was extended to 5500 feet and weight bearing increased to accommodate medium and large cabin fleets, e.g. up to 66000 pounds dual wheel capability, based upon other similar market airports in the state of Florida, I would expect an increase of flight activity of between 30 and 40%. Under these assumptions, if this runway were *currently* in place at F45, between 45 and 60 medium/large cabin aircraft would be utilizing the airport in 2018. Out of the NetJets fleets, these additional aircraft types would have access to F45: Challenger 350 and 650, Falcon 2000 and 2EASy, Citation X (Ten), Gulfstream IV-SP, 450, 550, and Global 5000 and 6000.

As mentioned above, NetJets supports the proposed extension to runway 14/32. North Palm Beach has proven to be a valuable asset during Presidential TFRs. North Palm Beach provides access to this geographical location that is growing in demand for use by our clients and we would welcome the opportunity to provide service to our medium and large cabin clientele.

NETJETS®

Please contact me if you have any questions resulting from this assessment.

Al Ball
Aeronautical Data Manager
614 239 4873
ball@netjets.com

Appendix B2 – Submitted Airport Use Surveys

AIRPORT USE SURVEY

North Palm Beach County
General Aviation Airport (F45)
West Palm Beach, Florida

Palm Beach County is working to provide additional runway length at the North Palm Beach County General Aviation Airport. It is important that we document the runway length needs of our existing and potential customers. If you presently use the airport, but have restrictions, or would prefer to use the airport, but cannot due to inadequate runway length, we would like to hear from you! Please take a few minutes and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey! (Please print clearly.)

Aircraft Owner/Company Name	SKY ONE HOLDINGS LLC DBA PRIVAIRA
Address	3690 AIRPORT ROAD BOCA RATON FL 33431 HANGAR #9
Phone Number	561-886-0382
Point of Contact / Title	MARK ROBINSON
Date	2/27/2018

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? YES

2. If yes, approximately how many times do you visit F45 per year? 1-2 PER MONTH

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
BE 40A	N982AR	5000	ON DEMAND
KING AIR 300	N637JL	5000	"
HAWKER 850	N230CB	5000	"

4. What is your longest non-stop trip and destination airport when departing from F45? 100 NM

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. IT RESTRICTS WHICH TYPE OF AIRCRAFT WE CAN SEND INTO THAT AIRPORT & THE PAYLOAD AVAILABLE TO CARRY SAT FOR A DIRECT OPTION OF MORE THAN 100 NM ALSO ALLOWS FOR DRY CONDITIONS ONLY

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
5500 FEET X 100 FEET WOULD BE GOOD.

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 12-14 AVERAGE

8. If a longer runway was available, how many *additional* visits per year would you make at F45? AVERAGE - 20
(not including those estimated in Question #7)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with thise aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? YES, MORE USE OF OUR FALCON 50, FALCON 2000 AS WELL AS HAWKER 850 IN ANY CONDITION

Your participation and information is greatly appreciated!

Return survey form to: Peter Green
Environmental Science Associates
E-mail: pgreen@esassoc.com
Mail: 4200 W. Cypress Street
Tampa, Florida 33607

AIRPORT USE SURVEY

North Palm Beach County
General Aviation Airport (F45)
West Palm Beach, Florida

Palm Beach County is working to provide additional runway length at the North Palm Beach County General Aviation Airport. It is important that we document the runway length needs of our existing and potential customers. If you presently use the airport, but have restrictions, or would prefer to use the airport, but cannot due to inadequate runway length, we would like to hear from you! Please take a few minutes and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey! (Please print clearly.)

Aircraft Owner/Company Name	GTW Corp
Address	145 Soundings Ave. Ste 200 Jupiter, FL 33477-5099
Phone Number	561-310-8670
Point of Contact / Title	Mark Johnson
Date	2/25/18

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? No

2. If yes, approximately how many times do you visit F45 per year? _____

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
G550	N517GS	7500	0

4. What is your longest non-stop trip and destination airport when departing from F45? ESSA

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. YES MAX T.O. WEIGHT 91,000 #
MIN. LANDING DIST. REQUIRED 5000'
T.O. DIST - APPROX. 7500'

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
SEE ABOVE

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? _____

8. If a longer runway was available, how many *additional* visits per year would you make at F45? Possibly 1 or 2
(not including those estimated in Question #7)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? _____

Your participation and information is greatly appreciated!

Return survey form to: Peter Green
Environmental Science Associates
E-mail: pgreen@esassoc.com
Mail: 4200 W. Cypress Street
Tampa, Florida 33607

AIRPORT CUSTOMER RUNWAY USE SURVEY

North Palm Beach County Airport
West Palm Beach, Florida

Palm Beach County is working to improve the North Palm Beach County General Aviation Airport. On behalf of the County, we would like to know more about your visits to our airport and what restrictions, if any, are imposed by the current runway lengths at the airport. To help the County identify and document any need for a longer runway, please take a few minutes of your time and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey!

Aircraft Owner/Company Name	RIVER FARM AVIATION
Address	LEESBURG, VA
Phone Number	703-887-4263
Point of Contact / Title	GARY GALLAGHER / PILOT
Date	2/4/18

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? yes

2. If yes, approximately how many times do you visit F45 per year? 3

3.a What aircraft do you regularly use when you visit F45?a

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
CJ4	627RL	3000	3

4.a What is your longest non-stop trip and destination airport when departing from F45? 2.5 Hrs

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. Not a yet

6.a What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or a contaminated (wet) runway conditions?a 4000

7.a If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 3

8. If a longer runway was available, how many *additional* visits per year would you make at F45? ϕ
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? yes
Gulfstreams

Your participation and information is greatly appreciated!

Return survey form to: Peter Green
Environmental Science Associates
E-mail: pgreen@esassoc,com
Mail: 4200 W. Cypress Street, Suite 450a
Tampa, Florida 33607

AIRPORT CUSTOMER RUNWAY USE SURVEY

North Palm Beach County Airport
West Palm Beach, Florida

Palm Beach County is working to improve the North Palm Beach County General Aviation Airport. On behalf of the County, we would like to know more about your visits to our airport and what restrictions, if any, are imposed by the current runway lengths at the airport. To help the County identify and document any need for a longer runway, please take a few minutes of your time and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey!

Aircraft Owner/Company Name	GATF Recast
Address	JAX. FL.
Phone Number	
Point of Contact / Title	Dean Friedman
Date	

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? yes

2.a If yes, approximately how many times do you visit F45 per year? 2X a

3.a What aircraft do you regularly use when you visit F45?a 72XL

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45a (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
C56X	N72XL	5500	2

4.a What is your longest non-stop trip and destination airport when departing from F45? MONTGOMERY a

5.a Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weightsa restricted for departures? If yes, please describe. a

6.a What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/ora contaminated (wet) runway conditions?a

7.a If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 4 a

8.a If a longer runway was available, how many *additional* visits per year would you make at F45? 2 a a
(*not including those estimated in Question #7*)

9.a If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with thisa aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? a

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Aircraft Owner/Company Name	George Peck MD
Address	11967 Turtle Beach Rd NPB, FL 33408
Phone Number	561-512-0032
Point of Contact / Title	
Date	1-21-18

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? Yes

2. If yes, approximately how many times do you visit F45 per year? Weekly

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
Seneca V	4142V		

4.a What is your longest non-stop trip and destination airport when departing from F45? a Lincoln Park, NJ.

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. I operate the Seneca but I need 4,000 for our MU-2

6.a What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or a contaminated (wet) runway conditions?a

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? All

8. If a longer runway was available, how many *additional* visits per year would you make at F45? _____
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft?a

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AIRPORT CUSTOMER RUNWAY USE SURVEY

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West Palm Beach, Florida

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Aircraft Owner/Company Name	Airport Development Consultants, LLC
Address	425 Beaverbrook Rd 07035
Phone Number	973-960-4400
Point of Contact / Title	Peter DeRosa
Date	1-21-14

1.a Do you or your company use the North Palm Beach County General Aviation Airport (F45)?a Yes

2.a If yes, approximately how many times do you visit F45 per year? 12+

3. What aircraft do you regularly use when you visit F45?a

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
Mitsubishi MU2-B	N200G		
Piper Seneca V	N4142V		

4.a What is your longest non-stop trip and destination airport when departing from F45? NØ7 NJ a

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe.

6.a What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/ora contaminated (wet) runway conditions? 5000

7.a If you currently use F45, how many of your visits (per year) would benefit from a longer runway? All

8. If a longer runway was available, how many *additional* visits per year would you make at F45? 12
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? Beech Jet 400

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AIRPORT CUSTOMER RUNWAY USE SURVEY

North Palm Beach County Airport
West Palm Beach, Florida

Palm Beach County is working to improve the North Palm Beach County General Aviation Airport. On behalf of the County, we would like to know more about your visits to our airport and what restrictions, if any, are imposed by the current runway lengths at the airport. To help the County identify and document any need for a longer runway, please take a few minutes of your time and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey!

Aircraft Owner/Company Name	Quick Silver Airshows
Address	4730 FT Apache RD Las Vegas NV
Phone Number	386 846 7577
Point of Contact / Title	Scott York CEO
Date	

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? Yes

2. If yes, approximately how many times do you visit F45 per year? 6-7

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
North American P-51	51HY	4000+	6-7

4. What is your longest non-stop trip and destination airport when departing from F45? 1100 nm

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. a 3700 does if x wind more than 17 Knots then (when using 14/32) I have to divert elsewhere

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
4000

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 12-14

8. If a longer runway was available, how many ***additional*** visits per year would you make at F45? 6-7
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? Yes Lear 45 15-20a

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AIRPORT USE SURVEY

North Palm Beach County
General Aviation Airport (F45)
West Palm Beach, Florida

Palm Beach County is working to provide additional runway length at the North Palm Beach County General Aviation Airport. It is important that we document the runway length needs of our existing and potential customers. If you presently use the airport, but have restrictions, or would prefer to use the airport, but cannot due to inadequate runway length, we would like to hear from you! Please take a few minutes and complete the following survey. Feel free to attach additional documentation. Thank you for participating in this survey! (Please print clearly.)

Aircraft Owner/Company Name	Sherman Aircraft Sales, Inc.
Address	11610 Aviation Blvd. Suite A-4 W. Palm Beach, FL 33412
Phone Number	561-799-1919
Point of Contact / Title	Terry Sherman / Pres.
Date	2-23-18

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? Yes

2. If yes, approximately how many times do you visit F45 per year? our business is located here

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
We buy and sell, so inventory is constantly changing. We keep our large aircraft at PBI.			

4. What is your longest non-stop trip and destination airport when departing from F45? 1500 miles

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. Yes. Many of the corporate jets we deal with are not able to come to FLL because the runways are too short.

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
6,000 feet

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 50 + More clients could come here.

8. If a longer runway was available, how many *additional* visits per year would you make at F45? 20-30 a
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? a a a a a a

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AIRPORT CUSTOMER RUNWAY USE SURVEY

North Palm Beach County Airport
West Palm Beach, Florida

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Aircraft Owner/Company Name	GOLF AIR
Address	6150 HIGHLAND RD WATERFORD MI 48327
Phone Number	1-7-2018
Point of Contact / Title	AIRCRAFT MANAGER
Date	1-7-2018

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? YES

2. If yes, approximately how many times do you visit F45 per year? 14

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
C560	N555WF	5000 / WET	14

4. What is your longest non-stop trip and destination airport when departing from F45? 960 NM KPTK

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. YES, WE ARE WEIGHT RESTRICTED WHEN THE RUNWAY IS WET

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
5000 FT

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 3

8. If a longer runway was available, how many *additional* visits per year would you make at F45? 3
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? NO

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Aircraft Owner/Company Name	Phil Air LLC
Address	4825 Kettle River Pt Suwanee GA 30024
Phone Number	770 4081036
Point of Contact / Title	Phil DiTullio
Date	1/7/19

1.a Do you or your company use the North Palm Beach County General Aviation Airport (F45)? Yes

2. If yes, approximately how many times do you visit F45 per year? 12

3.a What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
PA 46	124ED	2500	12

4.a What is your longest non-stop trip and destination airport when departing from F45? Houston

5.a Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. Yes limits Fuel

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?
4000

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? 2

8. If a longer runway was available, how many *additional* visits per year would you make at F45? 2
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? Yes 6

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Aircraft Owner/Company Name	Kings Wings
Address	2885 Jupiter Park Dr Ste 1600a Jupiter FL 33458
Phone Number	423-737-1204
Point of Contact / Title	Mike England Pilot/Mechanic
Date	

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? Yes

2. If yes, approximately how many times do you visit F45 per year? Based at F45

3.aWhat aircraft do you regularly use when you visit F45?a

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
Cessna 401	N9094A	3000	
Beech Baron	N925PG	3000	
Piper Cherokee 6	N15961	1500	

4.aWhat is your longest non-stop trip and destination airport when departing from F45? Belize City, Belize

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. NO

6.a What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions?a

7.aIf you currently use F45, how many of your visits (per year) would benefitfrom a longer runway?a

8.aIf a longer runway was available, how many *additional* visits per year would you make at F45? (*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with thisa aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? Longer runway would provide more safety if we lost an engine on take-off

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Aircraft Owner/Company Name	Richard Chevrolet Inc
Address	189 Hupi Road POB 281 Monterey MA 01245
Phone Number	203-430-1502
Point of Contact / Title	Richard Jaffe, Pres.
Date	3/5/18

1. Do you or your company use the North Palm Beach County General Aviation Airport (F45)? YES

2. If yes, approximately how many times do you visit F45 per year? 20 plus

3. What aircraft do you regularly use when you visit F45?

Aircraft Make & Model	"N" Number	Runway Take-Off Length Needed for Departures at F45 (Hot Day, Max. Take-Off Weight, Wet Runway)	Number of Annual Visits to F45 with this Aircraft
Cessna 425	628MA	2500	20 plus

4. What is your longest non-stop trip and destination airport when departing from F45? 1300 S.M.

5. Do the 4,300-foot and 3,700-foot runways at F45 prohibit or limit your use of the airport? When you visit F45, are payload and/or fuel weights restricted for departures? If yes, please describe. NO

6. What minimum runway length is required at F45 to accommodate your aircraft's departures (or landings) during hottest day and/or contaminated (wet) runway conditions? 3000 FT

7. If you currently use F45, how many of your visits (per year) would benefit from a longer runway? -0-

8. If a longer runway was available, how many *additional* visits per year would you make at F45? -0-
(*not including those estimated in Question #7*)

9. If the runway was extended, would you use other (e.g., larger) aircraft for your visits to F45? If so, what type and how many visits with this aircraft (*not including those estimated in Questions #7 and #8*) with this aircraft? NO

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ESA