Miami Homestead General Aviation Airport (X51)

Airport Layout Plans Set Narrative Report

PREPARED FOR:

Miami-Dade Aviation Department

PREPARED BY:

RICONDO & ASSOCIATES, INC.

IN ASSOCIATION WITH:

Jacobsen/Daniels Associates, LLC

RICONDO & ASSOCIATES

December 2017

Table of Contents

List of Appendices

List of Tables

List of Exhibits

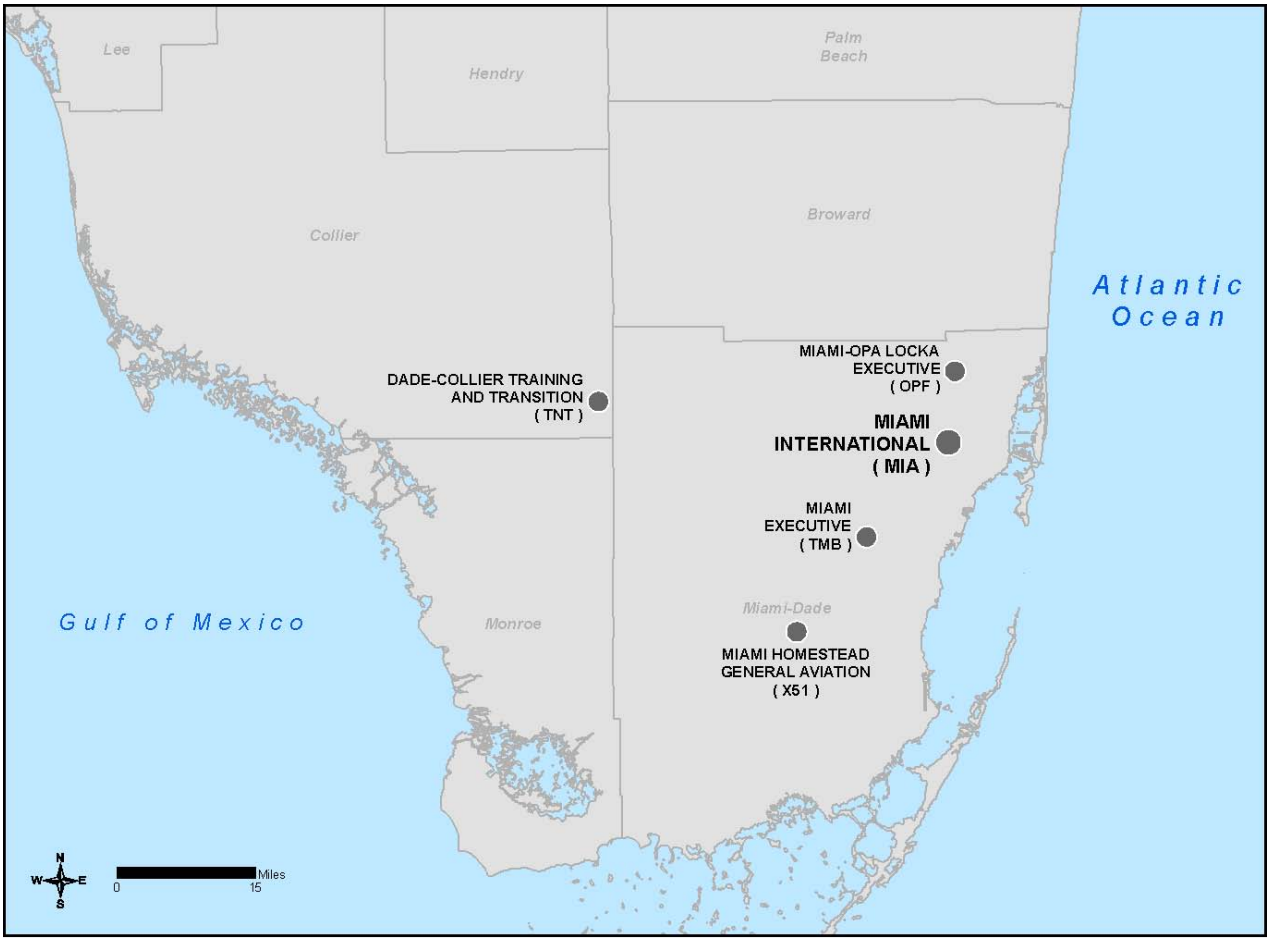
A. Executive Summary

In 2008, the Miami-Dade Aviation Department (MDAD) initiated the Miami Dade Strategic Airport Master Plan (SMP), which serves as an update to the airport master plans for Miami International Airport and its four general aviation airports. These four airports comprise of Miami-Opa Locka Executive Airport (OPF), Miami Executive Airport (TMB), Miami Homestead General Aviation Airport (X51) and Dade-Collier Training and Transition Airport (TNT). The SMP defines Miami-Dade County's overall approach to serving the long-term capital needs for its system of five airports to continue providing a high level of service for the surrounding communities. Rather than preparing a comprehensive Master Plan document for each of the five airports, MDAD elected to document the individual analyses in a series of PowerPoint presentations. In lieu of a comprehensive airport master plan report, MDAD has elected to submit stand-alone Aeronautical Forecast documents and Airport Layout Plan (ALP) packages to the Federal Aviation Administration (FAA) for review and approval. The activity forecasts for the four general aviation airports were formerly approved by the FAA on August 6, 2012.

This document serves as the ALP Narrative Report for the Miami-Homestead General Aviation Airport (X51 or the Airport) that accompanies the ALP package that is reflective of the SMP's final recommendations for the Airport. The proposed development contained on the ALP for X51 would satisfy the Airport's operational demand levels projected through 2035 by the SMP Aeronautical Forecasts. In accordance with the FAA Airports Division's Standard Operating Procedure 2.00 (ARP SOP 2.00), *Standard Procedure for FAA Review and Approval of Airport Layout Plans*, the structure of this ALP Narrative Report is consistent with that of the ALP Review Checklist contained in **Appendix A** of SOP 2.00.

Exhibit A-1 illustrates the location of the five airports operated by MDAD. X51 is located in the southeast portion of Miami-Dade County approximately three miles northwest of the City of Homestead. The Airport is central to several Florida attractions and is approximately 25 minutes from Biscayne National Park and Key Largo with east access to US-1, US-27 and I-75.

Exhibit A-1: Miami-Dade Airport Location Map



SOURCE: Airport Master Planning Study General Aviation Activity Forecasts, URS Corporation, January 2015.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

The Airport primarily accommodates general aviation activity that includes: recreational use, flight training, sport aviation use (parachute operations), government use (firefighting) and an increasing amount of business-related aviation activity. Because of seasonal and other event-driven factors affecting the volume and use of the Airport, the range of aircraft types and sizes vary from the large turboprop aircraft such as the Cessna Caravan to the smaller recreational/sport aircraft, including ultra-light aircraft. It is anticipated that the year-over-year rate of growth of aviation activity at X51 will be lower than aviation activity across the State. This is due to the high concentration of piston aircraft operations and the lack of proximity to major economic centers within the County.

The current airfield at X51 has three runways. Two of the runways, Runways 10-28 and 18-36, are paved and configured to accommodate ADG II aircraft (wingspans less than 79 feet). The third runway, Runway 9U-27U, is a turf runway that is parallel to Runway 10-28. Runway 10-28 is the only runway with published instrument

approach procedures; Area Navigation (RNAV) approaches are available to both runway ends. **Table A-1** summarizes the predominant characteristics of the runways at X51.

Table A-1: Miami Homestead General Aviation Airport - Runway Characteristics

CHARACTERISTIC	9U-27U	10-28	18-36
Length	2,500 feet	3,000 feet	3,999 feet
Width	150 feet	75 feet	100 feet
Runway Design Code	A/II/VIS	B/II/4000	B/II/VIS
Approach Capability	Visual	Non-precision	Visual
Lowest Visibility Minimums	3-Miles	7/8-Mile	3-Miles

SOURCES: X51 Airport Layout Plan, July 2006; FAA Advisory Circular 150/5300-13A (Change 1), Airport Design, February 26, 2014; FAA Terminal Instrument Approach Procedures, December 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

This ALP Narrative Report describes the planning and rational that resulted in identification of a preferred development plan for X51 and summarizes the set of drawings that make up the ALP set. The purpose of the ALP set is to provide airport management with a scaled, graphic presentation of the airport's 20 year development program represented in the SMP by the 2015 – 2035 planning horizon. The ALP set also provides information such as specific Airport data (i.e., runway coordinates, design aircraft), a graphical depiction of airspace surfaces (i.e., Title 14 Code of Federal Regulations Part 77 [14 CFR Part 77] imaginary surfaces, *United States Standard for Terminal Instrument Procedures* [TERPS] departure surfaces, threshold siting surfaces), land use information, and property boundaries. These drawing sheets identify areas for future aviation related development, as well as available land, which can be used for revenue to support the Airport. The ultimate configuration of airport facilities demonstrates a feasible improvement plan that provides for safe, compatible, and efficient airport operations.

The dimensional information provided in the drawings demonstrates compliance with minimum airport design standards established by federal, state, and local authorities. This ALP set was developed in accordance with the guidance outlined in FAA Advisory Circulars (ACs) 150/5070-6B (Change 2), *Airport Master Plans*, and 150/5300-13A (Change 1), *Airport Design*, and the Florida Department of Transportation's (FDOT's) *Guidebook for Airport Master Planning*. Furthermore, the ALP set was reviewed for compliance with the FAA's ALP Checklist-ARP SOP 2.00 which is provided in Appendix A of this document**.** The ALP set will be revised over time to reflect new facility and infrastructure development and proposed changes to planned development at X51 so that the FAA and FDOT will be continually updated regarding current conditions.

The aeronautical forecasts for X51 include annual and peak period aircraft operations that would be accommodated at the Airport for the 2009 Base Year and for two additional planning periods, referred to as planning activity levels (PALs):

- PAL 1 – reflective of the demand level projected for 2025 under the SMP's Baseline Forecast

- PAL 2 – reflective of the demand level projected for 2035 under the SMP's Baseline Forecast

For long range planning and assisting MDAD with long-range strategic planning, the demand levels associated with PAL 3 were estimated during the preparation of the aeronautical forecasts. Since these forecasts exceed the 20-year planning horizon, the facility required to serve PAL 3 are not depicted on the ALP and therefore not presented herein.

The aeronautical forecasts for X51 represent unconstrained conditions for future general aviation activity without consideration of existing or potential capacity constraints and provide justification for planning and development recommendations contained within the SMP. The various forecast metrics such as annual general aviation aircraft operations, annual itinerant operation by all aircraft, annual itinerant operation by current and future critical aircraft (Cessna 208 Caravan) and the forecast of based aircraft at X51 are summarized in **Table A-2.**

Table A-2: Miami Homestead General Aviation Airport - SMP General Aviation Forecasts

FORECAST METRIC	2010 (ACTUAL)	PAL 1 (2025)	PAL 2 (2035)
Annual General Aviation Aircraft Operations	70,600	77,800	87,000
Annual Itinerant Operation by all Aircraft	50,084	54,460	57,590
Annual Itinerant Operation by Current Critical Aircraft (Cessna 208 Caravan)	754	860	930
Annual Itinerant Operation by Future Critical Aircraft (Cessna 208 Caravan)	754	860	930
Based Aircraft	52	50	51
Annual Instrument Approaches	N/A	N/A	N/A
Annual Enplanements	N/A	N/A	N/A

SOURCES: URS Corporation, SMP General Aviation Forecasts, March 2012; Ricondo & Associates, Inc. August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

A demand-capacity assessment of both the airfield and tenant/support facilities that serve aeronautical purposes was performed for X51. The airfield demand-capacity assessment concluded that X51 will have adequate capacity to accommodate demand forecast beyond PAL 2 (2035). Tenant and support facility requirements include consideration for aircraft parking and storage, automobile parking, aircraft fueling facilities, and airport support functions were also assessed. The future facility requirements to meet the PAL 2 demand levels forecasted for X51 include the following facilities and infrastructure:

- Proposed GA Site (2 acres)
- Proposed T-Hangar Site (2 acres)

Consistent with the previously approved ALP for X51, MDAD Aviation Department has elected to provide consideration for the future extension of Runway 18-36 to the south to allow for the accommodation of corporate jet operations in the future, should demand materialize. This would result in the following airfield modifications:

- Runway 18-36 Extension
- Taxiway B Connector
- Relocated Road
- Demolished Road (Dirt)

Using the gross facility requirements derived for X51, a development scenario was generated for the Airport. In an effort to demonstrate the general location of future facility development, this scenario was developed at a land use level of detail (i.e., detailed facility layouts were not developed). The areas designated for future tenant facilities coincide with the facility requirements projected for PAL 2 (2035) and serve the basis for generating an engineer's estimate of probable cost. These costs include consideration of construction costs, and soft costs associated with design, permitting, bidding, construction and program management.

For capital planning purposes, the facility and infrastructure development initiatives associated with the preferred development scenario was categorized into one of four development phases. Each phase reflects a 5-year period, as follows:

- Phase 1 (2016 - 2020)
- Phase 2 (2021 – 2025)
- Phase 3 (2026 – 2030)
- Phase 4 (2031 – 2035)

Table A-3 presents the total implementation costs for each of the capital improvement development needs identified in the SMP for X51. These projects are summarized in accordance with the four development phases.

Table A-3: Miami Homestead General Aviation Airport - Summary of Development Costs (in rounded Figures)

PROJECT DESCRIPTION	TOTAL COST
Phase 1	
T-Hangars	$10,564,000
Phase 2	
Runway 18-36 Exit Taxiway	$1,265,000
Conventional Hangar	$6,078,000
Subtotal (Phase 2)	$7,343,000
Phase 3	
Conventional Hangar	$7,056,000
Phase 4	
Runway 18-36 Extension	$37,855,000
Total	**$62,818,000**

NOTES:

1/ Project funding sources were established in accordance with current funding eligibility guidelines and do not reflect a commitment by the FAA or FDOT to provide funds at this time.

2/ Costs are reflective of 2014 US dollars and include consideration for both hard (construction) and soft costs (design, permitting, and construction administration).

SOURCES: URS Corporation, Construction Costs, April 2014; Ricondo & Associates, Inc., SMP Technical Analyses, August, 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

In order to clearly present the existing conditions and recommended airport improvements, the ALP set includes a number of individual drawing sheets. The ALP Sheet is essential in the process to apply for federal or state assistance for any individual development project and also serves as the mechanism for projects to undergo airspace review by the FAA. For X51, the ALP set is presented on the following drawing sheets:

- Cover (1 of 16)
- Airport Data Sheet (2 of 16)
- Existing Airport Layout Plan Drawing (3 of 16)
- Future Airport Layout Plan Drawing (4 of 16)
- Airport Airspace Plan (5 of 16)
- Airport Airspace Plan & Profile (6 of 16)
- Existing & Future Runway 10 Inner Portion of the Approach Surface Drawing (7 of 16)
- Existing & Future Runway 28 Inner Portion of the Approach Surface Drawing (8 of 16)
- Existing & Future Runway 18 Inner Portion of the Approach Surface Drawing (9 of 16)

- Existing & Future Runway 36 Inner Portion of the Approach Surface Drawing (10 of 16)
- Existing & Future Runway 9U Inner Portion of the Approach Surface Drawing (11 of 16)
- Existing & Future Runway 27U Inner Portion of the Approach Surface Drawing (12 of 16)
- Existing & Future Runway 10-28 Departure Drawing (13 of 16)
- Existing & Future Runway 18-36 Departure Drawing (14 of 16)
- Airport Land Use Drawing (15 of 16)
- Airport Property Map (16 of 16) - Pending

Reduced reproductions of these drawings are included in this report in **Appendix B** for illustration purposes. A full-size set of the drawings is also being submitted along with this report to the FAA and FDOT for review and acceptance.

B. Basic Aeronautical Forecasts

The Aeronautical forecasts were developed for future aviation demand at the Airport. Forecasts of aviation demand are important in the planning process as they provide the basis for determining the orderly development of the Airport including:

- Documentation of the role of the Airport and determination of the type of aircraft to be accommodated in the 10 and 20 year planning horizons.
- Evaluation of the capacity of existing Airport facilities and their ability to accommodate required expansion.
- Determination of the extent of airside and landside facilities required to accommodate forecast demand through the 20-year planning horizon.

A detailed *SMP General Aviation Activity Forecasts* (Aeronautical Forecast) report was developed for MDAD in June 2012 and subsequently approved by the FAA in August 2012. The FAA approval letter is included as **Appendix C** of this document. The section below summarizes the findings from that report.

The Aeronautical Forecast for X51 includes projections of future annual and peak general aviation aircraft operations (i.e., an aircraft take-off or a landing), as well as the number of based general aviation aircraft that will be accommodated at the Airport for the 2010 "Base Year" and at two additional forecast horizon periods, referred to as Planning Activity Levels (PALs):

- PAL 1 (2025)
- PAL 2 (2035)

The forecasts represent unconstrained conditions of future general aviation activity without consideration of existing or potential capacity constraints and provide justification for planning and development recommendations contained within the SMP. When considered and approved by the FAA as being consistent with the most current FAA Terminal Area Forecast (TAF) [1] data for the Airport available at the time FAA reviewed these forecasts, these forecasts provide justification for planning and development recommendations contained within the SMP.

[1] The most current FAA TAF available at the time the X51 Forecasts were prepared are dated FY 2012.

The approach to forecasting future general aviation activity for MDAD's general aviation airports, including X51, differs from the approach used to forecast air carrier activity at MIA. This is due to unique operational characteristics and role of each airport. Due to the diversity of the level of service and facilities offered at X51, as well as the recognition of limited availability of historical aircraft operations and based aircraft data, data reported in the FAA's Air Traffic Activity Data System (ATADS) and the Terminal Area Forecast (TAF) were used to forecast annual aircraft operations and based aircraft for all four general aviation airports. This approach reflects a "top-down" market share approach to forecasting in which current activity at an airport is calculated as a static share (percentage or ratio) of some other more aggregate external measure for which forecasts have already been produced. Then, an assumption is made about the airport's future share of that activity.

Using general aviation-specific data, as contained in Table 28, "Active General Aviation and Air Taxi Aircraft," published in the FAA's *Aerospace Forecasts, FY 2012-2032*[2], forecasts of future year-over-year growth trends of the various types of active general aviation aircraft were developed. These trends served as the basis for the forecasts of general aviation activity by aircraft type for X51, as well as the forecasts of based aircraft.

B.1 Total Annual Operations

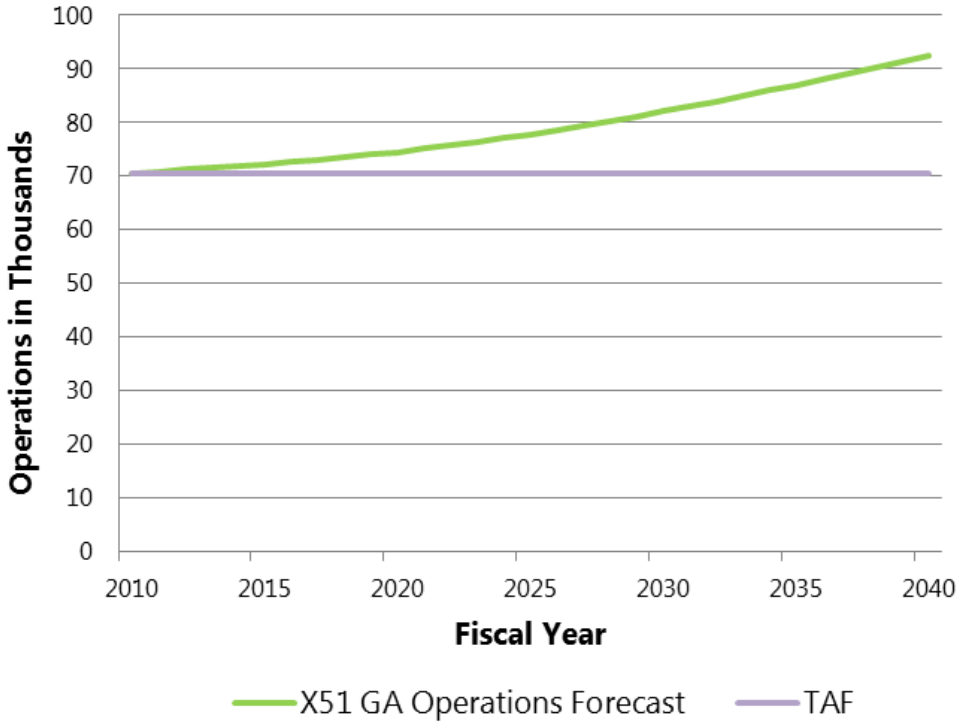
As presented on **Exhibit B-1**, total annual general aviation aircraft operations at X51 is forecasted to increase from 70,600 in 2010 to 77,800 in 2025 and to 87,000 by 2035, at an average annual compound growth rate of 0.84 percent. The forecast year-over-year growth rate in the FAA TAF remains constant at 70,600 from 2010 through 2035.

B.2 Annual Itinerant Operations by all Aircraft

For the purpose of this Narrative Report, the SMP's annual growth rate for total annual aircraft operations was applied to the actual number of annual itinerant aircraft operations for 2010, as contained in the FAA's TAF. As presented on **Exhibit B-2**, applying these growth rates would cause itinerant aircraft operations to increase from 50,084 (2010) to 54,460 at PAL 1 (2025) and 57,590 at PAL 2 (2035).

[2] The FAA's fiscal year (FY) is from October 1 through September 30.

Exhibit B-1: Miami Homestead General Aviation Airport - Forecast of General Aviation Aircraft Operations



FISCAL YEAR	SMP GENERAL AVIATION OPERATIONS FORECAST FOR X51	FAA TERMINAL AREA FORECAST
2010 (ACTUAL)	70,600	70,600
PAL 1 (2025)	77,800	70,600
PAL 2 (2035)	87,000	70,600
AACGR (2010 – 2035)	0.84%	0.00%

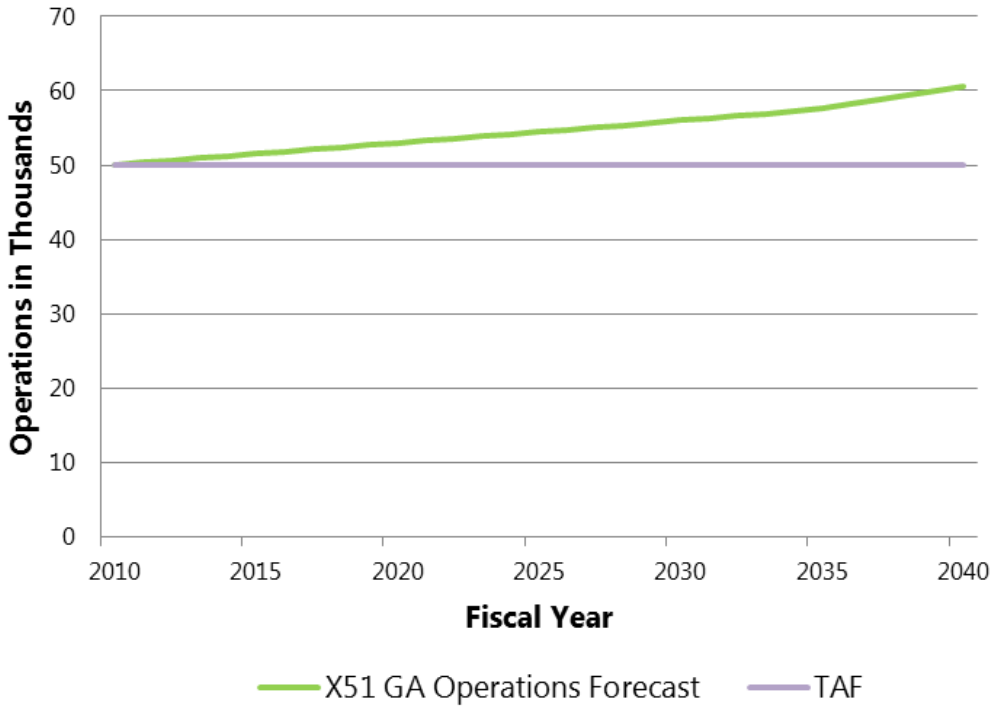
NOTES:

Fiscal year = October 1 through September 30

AACGR = Average Annual Compound Growth Rate

SOURCES: URS Corporation, SMP General Aviation Forecasts, March 2012; FAA *Terminal Area Forecast*, January 2012.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

Exhibit B-2: Miami Homestead General Aviation Airport - Annual Itinerant Operations by all Aircraft



FISCAL YEAR	SMP GENERAL AVIATION OPERATIONS FORECAST[1/] FOR X51	FAA TERMINAL AREA FORECAST
2010 (ACTUAL)	50,084	50,084
PAL 1 (2025)	54,460	50,084
PAL 2 (2035)	57,590	50,084
AACGR (2010 – 2035)	0.84%	0.00%

NOTES:

1/ Taking the TAF total annual itinerant operation by all aircraft in 2010 as the starting point for the SMP General Aviation Forecasts values were calculated by applying the same average annual compound growth rate of 0.84% as for the growth in total aircraft operations.

Fiscal year = October 1 through September 30

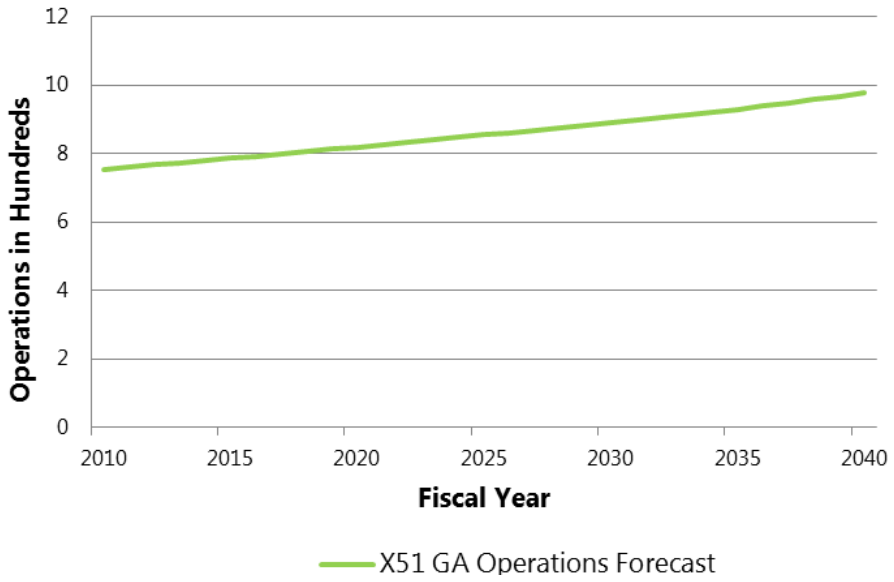
AACGR = Average Annual Compound Growth Rate

SOURCES: URS Corporation, SMP General Aviation Forecasts, March 2012; FAA *Terminal Area Forecast*, January 2012.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

B.3 Annual Itinerant Operations by Current Critical Aircraft

Exhibit B-3 presents the total annual itinerant operations by current critical aircraft at X51. In accordance with operational data obtained from MDAD's Aircraft Noise and Monitoring System (ANOMS) the current critical aircraft at X51 is the Cessna 208 Caravan with 754 operations in 2010. The growth in annual itinerant operations by the current critical aircraft was calculated by applying the same average annual compound growth rate of 0.84 percent as for the growth in total aircraft operations. At this growth rate, the annual itinerant operation by current critical aircraft are expected to increase from 754 in 2010 to 860 at PAL 1 (2025) and ultimately to 930 at PAL 2 (2035).

Exhibit B-3: Miami Homestead General Aviation Airport - Annual Itinerant Operations by Current Critical Aircraft



FISCAL YEAR	SMP GENERAL AVIATION OPERATIONS FORECAST[1/]	FAA TERMINAL AREA FORECAST
2010 (ACTUAL)	754	Not Available
PAL 1 (2025)	860	Not Available
PAL 2 (2035)	930	Not Available
AACGR (2010 – 2035)	0.84%	Not Available

NOTES:

1/ Taking the critical aircraft operations in 2010 as the starting point, the SMP General Aviation Forecasts values were calculated by applying the same average annual compound growth rate of 0.84% as for the growth in total aircraft operations.

Fiscal year = October 1 through September 30

AACGR = Average Annual Compound Growth Rate

SOURCES: URS Corporation, SMP General Aviation Forecasts, March 2012; FAA *Terminal Area Forecast*, January 2012.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

B.4 Annual Itinerant Operations by Future Critical Aircraft

An evaluation of the 2010 aircraft fleet mix did not identify a more demanding aircraft that would be likely to exceed 500 annual operations at X51 during the planning horizon. Therefore, the future critical aircraft at X51 is expected to remain unchanged; the Cessna 208 Caravan. The total annual itinerant operation by future critical aircraft will be the same as that of the current critical aircraft shown in Exhibit B-3.

B.5 Number of Based Aircraft

The forecast of based aircraft at X51 is presented on **Exhibit B-4**. Using information and data provided by MDAD, an inventory of the numbers and types of aircraft permanently based at X51 was developed and analyzed. Using these data, forecast of future based aircraft by type were developed by referencing the FAA *Aerospace Forecasts, FY 2012-2032*, Table 28, "Active General Aviation and Air Taxi Aircraft." The forecast of based aircraft for X51 is presented by PAL and graphically shown on Exhibit B-4.

B.6 Annual Instrument Approaches

X51 is a non-towered airport with no ground based instrument approach procedures. While Runway 10-28 is served with RNAV/GPS approaches, the actual number of annual instrument operations is uncertain. Furthermore, the level of instrument operations is not anticipated to increase to a level that would justify the need for additional instrument approach capability or trigger other capacity enhancement needs at the Airport.

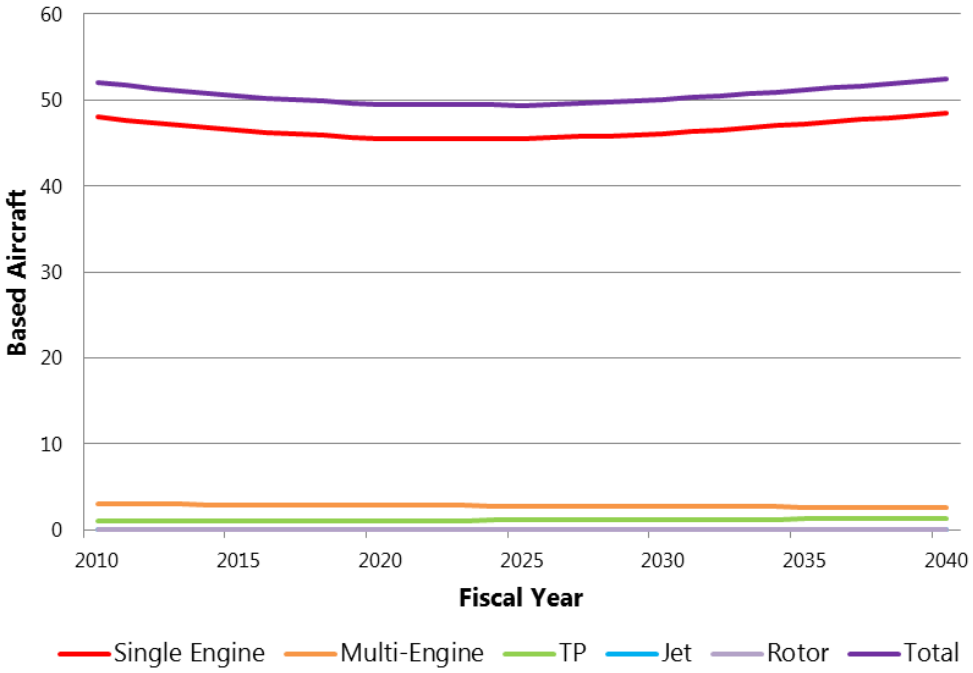
B.7 Number of Enplanements

X51 is a general aviation airport with no scheduled or charter air carrier or cargo service. Furthermore, the Airport is not expected to introduce air carrier service during the planning horizon. Therefore, the forecasting of passenger or cargo enplanements is not warranted or applicable.

B.8 Critical Aircraft

The current critical aircraft at X51 is the Cessna 208 Caravan with 754 operations in 2010. It is anticipated that this aircraft would remain the critical aircraft throughout the planning horizon.

Exhibit B-4: Miami Homestead General Aviation Airport - Forecasts of Based Aircraft



FISCAL YEAR	SINGLE ENGINE	MULTI-ENGINE	TURBO-PROP	JET	ROTOR	TOTAL
2010 (ACTUAL)	48	3	1	0	0	52
PAL 1 (2025)	46	3	1	0	0	50
PAL 2 (2035)	47	3	1	0	0	51
AACGR (2010 – 2035)	-0.08%	0.00%	0.00%	N/A	N/A	-0.08%

NOTES:

Fiscal year = October 1 through September 30

AACGR = Average Annual Compound Growth Rate

N/A = Not applicable

SOURCES: URS Corporation, SMP General Aviation Forecasts, March 2012; FAA *Terminal Area Forecast*, January 2012.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

B.9 Runway Design Code

The Runway Design Code (RDC) is a coding system outlined in FAA Advisory Circular (AC) 150/5300-13A, Change 1, *Airport Design*, as the basis for specifying applicable runway design standards. The intent of the RDC is to provide a simple method for compiling the numerous dimensional and performance specifications of aircraft operating at or forecast to operate at the Airport, into criteria that will define the dimensional and design standards for a given runway. The RDC consists of three parameters; Aircraft Approach Category (AAC), Airplane Design Group (ADG), and the approach visibility minimums.

X51 is composed of three runways: two paved runways (Runway 10-28 and Runway 18-36), and one turf runway (Runway 9U-27U). The following describes the RDC for each of the runway ends.

B.9.1 RUNWAY 10-28

- Airplane Approach Category – From an approach speed standpoint, the Cessna 208 Caravan is the critical aircraft; this aircraft falls within the Approach B category.
- Airplane Design Group – Based on wingspan, the Cessna 208 Caravan is the critical aircraft; this aircraft falls within the ADG II category.
- Visibility Minimums - The Runway 10 end is equipped with an RNAV approach, providing a visibility minimum of a ⅞ statute mile (4000 RVR). The Runway 28 end is equipped with an RNAV approach, providing a visibility minimum of a 1 statute mile (5000 RVR).

B.9.2 RUNWAY 18-36

- Airplane Approach Category – From an approach speed standpoint, the Cessna 208 Caravan is the critical aircraft; this aircraft falls within the Approach B category.
- Airplane Design Group – Based on wingspan, the Cessna 208 Caravan is the critical aircraft; this aircraft falls within the ADG II category.
- Visibility Minimums – Currently, neither Runway end is equipped with any instrument approach procedure and therefore has visual approach visibility minimums. However, with the proposed addition of a non-precision instrument (NPI) approach, the visibility minimum is expected to be reduced to 1 statute mile (5000 RVR).

B.9.3 RUNWAY 9U-27U

- Airplane Approach Category – The runway is limited to ultralight aircraft, which is limited to Aircraft Approach Category A.
- Airplane Design Group – Based on wingspan, the critical aircraft falls within the ADG II category.
- Visibility Minimums – Neither runway end is equipped with any instrument approach procedure and therefore has visual approach visibility minimums.

Combined, these three parameters result in an RDC of B/II/4000 for Runway 10, B/II/5000 for Runway 28, B/II/VIS existing Runway 18 and Runway 36, B/II/5000 future Runway 18 and 36, and A/II/VIS for Runway 9U and Runway 27U. The RDC's for X51 are also summarized in **Table B-1**. The Airport's existing Airport Reference Code (ARC) is designated as B-II on the existing ALP, dated July 27, 2006 and no reconfiguration or resizing of any airfield element is warranted.

Table B-1: Miami Homestead General Aviation Airport – Runway Design Code

	AIRPLANE APPROACH CATEGORY		AIRPLANE DESIGN GROUP		VISIBILITY MINIMUMS	
RUNWAYS	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**
Runway 18	B	Same	II	Same	VIS	5,000
Runway 36	B	Same	II	Same	VIS	5,000
Runway 10	B	Same	II	Same	4,000	Same
Runway 28	B	Same	II	Same	5,000	Same
Runway 9U	A	Same	II	Same	VIS	Same
Runway 27U	A	Same	II	Same	VIS	Same

SOURCES: Airport Layout Plan, Homestead General Aviation Airport, August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

B.10 Runway Reference Codes

The Runway Reference Code (RRC) or the Approach and Departure Reference Codes (APRC and DPRC) describe the current operational capabilities of a runway and adjacent taxiways where no special operating procedures are necessary. The APRC consist of the same three parameters as the RDC (AAC, ADG, and Visibility Minimums) whereas the DPRC consists of the AAC and ADG only. The APRC and DPRC coding system is outlined in FAA AC 150/5300-13a (Change 1), *Airport Design*. The APRC and DPRC differ from the RDC as the RDC is based on planned development and has no operational application. The APRC and DPRC may change over time as improvements are made to the runway, taxiway, and NAVAIDs.

The APRC is determined based on the existing runway to taxiway separation and visibility minimums. At X51, 250′ separates the runway centerlines from their associated full length parallel taxiway centerline. The runway to taxiway separation combined with the visibility minimums discussed in Table B-1 result in an APRC of B/II/4000 for Runway 10, B/II/5000 for Runway 28, B/II/VIS existing Runway 18 and Runway 36, B/II/5000 future Runway 18 and 36, and A/II/VIS for Runway 9U and Runway 27U.

The DPRC is determined based on the existing runway to taxiway separation. With 250′ separation between the runway centerlines and their associated full length parallel taxiway centerline, the DPRC for Runways 10,

28, 18, and 36 are B/II while Runways 9U and 27U are A/II. **Table B-2** summarizes the Approach and Departure Reference Codes for X51.

Table B-2: Miami Homestead General Aviation Airport – Approach and Departure Reference Codes

	APRC		DPRC	
RUNWAYS	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**
Runway 18	B/II/VIS	B/II/5,000	B/II	Same
Runway 36	B/II/VIS	B/II/5,000	B/II	Same
Runway 10	B/II/4,000	Same	B/II	Same
Runway 28	B/II/5,000	Same	B/II	Same
Runway 9U	A/II/VIS	Same	A/II	Same
Runway 27U	A/II/VIS	Same	A/II	Same

SOURCES: Airport Layout Plan, Homestead General Aviation Airport, August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

C. Alternatives/Proposed Development

C.1 Proposed Development Items

A demand-capacity assessment of both the airfield and tenant/support facilities that serve aeronautical purposes was performed for X51. The purpose of these assessments was to compare the capacity of existing facilities and infrastructure with current and future operational demand to determine when additional capital improvements would be required. When deficiencies were identified, future facility requirements were projected and quantified. A demand-capacity assessment was performed for the following facilities:

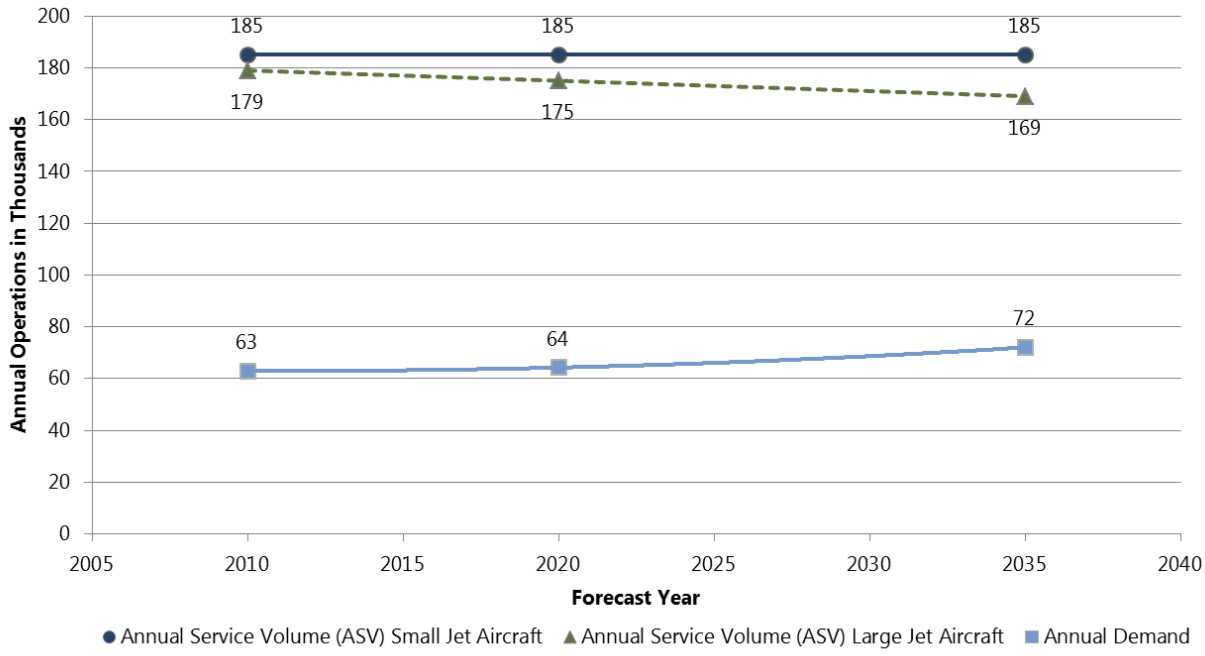
- Airfield
- Tenant/Support Facilities
  - Aircraft hangars, Fixed Base Operator (FBO) terminals, and shops
  - Automobile parking facilities
  - Aircraft fuel storage facilities
  - Airport administration offices and maintenance
  - Aircraft rescue and fire-fighting (ARFF) facilities

C.1.1 AIRFIELD

Exhibit C-1 graphically represents the airfield demand-capacity assessments for X51. More specifically, the exhibit demonstrates the estimated operational demand at which the Annual Service Volume (ASV) is projected to be reached. ASV represents the airfield's annual capacity given seasonal and daily fluctuations in demand.

From the airfield demand-capacity assessments, it was concluded that X51 would have adequate capacity to accommodate demand forecast beyond PAL 2 (2035). Although the forecast does not demonstrate a need for any airfield capacity improvements, MDAD has elected to maintain the potential extension of Runway 18-36 as shown on the current (FAA approved) ALP, should the demand for higher performance aircraft materialize at the Airport. Its depiction on the current ALP is intended to ensure preservation of the land and protection of its airspace.

Exhibit C-1: Miami Homestead General Aviation Airport - Airfield Demand-Capacity Comparison



NOTE:

The original analysis considers that all future jet activity at X51 would be conducted exclusively by small aircraft (<12,500 lbs.) To cover all scenarios, a sensitivity analysis was performed to consider large jet aircraft operations (12,500 lbs. to 300,000 lbs.). Under both fleet mixes, X51 will not reach capacity within the planning period.

SOURCES: FAA Advisory Circular 150/5060-5A (Change 1), *Airport Capacity and Delay,* September 23, 1983; Ricondo & Associates, Inc., July 2012.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

C.1.2 TENANT/SUPPORT FACILITIES

Table C-1 summarizes the facility requirements for X51 to satisfy the demand associated with PAL 2 (2035). These facility requirements include consideration for aircraft parking and storage, automobile parking, aircraft fueling facilities, and airport support functions. To translate these requirements into gross acreage, a contingency for aircraft circulation and drainage/landscaping features was added.[3] Aircraft circulation includes areas dedicated to hangar egress and taxiway/taxilane circulation.

[3] A total contingency of 1.86 acres is added for Aircraft Circulation (0.75 acres) and Drainage and Landscaping (1.1 acres).

Table C-1: Miami Homestead General Aviation Airport – Tenant/Support Facility Needs

FACILITY TYPE	EXISTING	PAL 2 (2035) GROSS FACILITY REQUIREMENTS	ADDITIONAL FACILITIES TO SERVE PAL 2 (2035)
Aircraft Parking/Storage			
T-Hangars	23,500	35,500	12,000
Conventional Hangars	12,750	33,600	20,850
Apron/Ramp[1/]	353,000	425,600	72,600
Automobile Parking	27,600	26,800[2/]	0
Aviation Fuel			
100 LL	1,550	1,550	0
Jet A	1,550	1,550	0
Airport Support			
MDAD Maintenance Yard	1,500	1,500	0
MDAD Administration	1,700	1,700	0
MDAD Covered Parking	1,000	1,000	0
Aircraft Rescue and Fire-fighting Facilities	N/A	N/A	N/A
Total Facilities	**424,150**	**528,800**	**105,450**
		Aircraft Circulation Adjustment	32,850
		Drainage and Landscape Adjustment	48,400
		Total Adjusted PAL 2 Requirements	**186,700**
		Acreage	**4.3 acres**

NOTES:

N/A = Not Applicable

Unless noted otherwise, all values are expressed in square feet.

1/ Excludes apron area needed for hangar access and egress.

2/ Existing vehicular parking facilities exceed the parking requirement s for PAL 2 resulting in a surplus of 800 square feet.

SOURCES: Ricondo & Associates, Inc., and Jacobsen Daniels Associates, LLC SMP Technical Analyses, March 2013.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

Two development projects were identified during the demand/capacity analysis in order to meet existing and/or forecasted demand. These two projects include the following:

- Proposed GA Site (2 acres)
- Proposed T-Hangar Site (2 acres)

Consistent with the previously approved ALP, MDAD has elected to provide consideration for the potential extension of Runway 18-36 to the south to allow for the accommodation of corporate jet operations in the future. The runway extension is intended to ensure preservation of the land and protection of airspace. This results in the following four projects:

- Runway 18-36 Extension
- Taxiway B Connector
- Relocated Road
- Demolished Road (Dirt)

C.2 Near-Term and Future Approach Procedures Requirements

Consistent with the previous ALP for X51, the following non-precision instrument approach procedure improvements are proposed:

- Runway 18 Non-Precision Instrument Approach – The ALP reflects the proposed addition of a Non-Precision Instrument Approach (NPI) to Runway 18. It is assumed that the NPI approach would be in the form of an Area Navigation (RNAV)/ Global Positioning System (GPS) approach.
- Runway 36 Non-Precision Instrument Approach – The ALP reflects the proposed addition of a NPI to Runway 36. It is assumed that the NPI approach would be in the form of an RNAV/GPS approach.

C.3 Navigational Aids

X51 has both Visual and Instrument Approach Aids. **Table C-2** summarizes the various approach aids at X51

Table C-2: Miami Homestead General Aviation Airport – Navigational Aids

	RUNWAY LIGHTS		RUNWAY MARKING		VISUAL APPROACH AIDS		INSTRUMENT APPROACH AIDS	
RUNWAYS	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**	**EXISTING**	**FUTURE**
Runway 18	MIRL	Same	Visual	Non-Precision	None	PAPI (4R), NP-GPS	N/A	NP-GPS
Runway 36	MIRL	Same	Visual	Non-Precision	PAPI (4R)	PAPI (4R), NP-GPS	N/A	NP-GPS
Runway 10	MIRL	Same	Non-Precision	Same	PAPI (2L), NP-GPS	Same	NP-GPS	Same
Runway 28	MIRL	Same	Non-Precision	Same	NP-GPS	Same	NP-GPS	Same
Runway 9U	None	Same	N/A	Same	None	Same	N/A	Same
Runway 27U	None	Same	N/A	Same	None	Same	N/A	Same

SOURCES: Airport Layout Plan, Homestead General Aviation Airport, August 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

C.4 Wind Coverage

Table C-3 summarizes the wind coverage's associated with each runway at X51. As shown, all three runways provide a combined all weather wind coverage of 99.56 percent. As the wind coverage associated with the existing runway configuration at X51 exceeds 95 percent, no additional runways are required to provide adequate wind coverage.

Table C-3: Runway Wind Coverage

RUNWAY	RUNWAY DESIGN CODE	MAXIMUM CROSSWIND COMPONENT	ALL WEATHER WIND COVERAGE
10-28	B-II	13 knots	98.92%
9U-27U	A-II	10.5 knots	89.15%
18-36	B-II	13 knots	96.97%
		Combined	**99.86%**

SOURCES: Jacobsen Daniels Associates, LLC, September 2015; Ricondo & Associates, Inc., September 2015.
PREPARED BY: Ricondo & Associates, Inc., September 2015

D. Modification to Standards

There are currently no modifications to standards for X51. It is anticipated that with the future development to accommodate the demands through PAL 2, there would still be no need for any modifications to standards.

E. Obstruction Surfaces

There are currently no threshold siting surface penetrations and no obstructions to 14 CFR Part 77 that have been identified.

F. Runway Protection Zone

The existing RPZ for Runways 18, 36, 9U and 27U are all within the airport boundary. The existing RPZ for Runway 10-28 extends beyond the airport boundary. Also with planned expansion of Runway 36 the future RPZ for RW 36 will extend beyond the airport boundary. There are currently no incompatible land uses within the existing RPZs, nor are any anticipated in the future.

G. Development Summary

In consultation with MDAD staff, a preferred development scenario was identified for the Airport. The preferred development scenario for X51 was limited to GA development only. In addition to the development and expansion of general aviation facilities, MDAD also provide consideration for the potential extension of Runway 18-36 to protect for potential change in the aircraft fleet mix composition. As a result, the following development is depicted on the Future ALP:

- Proposed GA Site (2 acres)
- Proposed T-Hangar Site (2 acres)
- Runway 18-36 Extension
- Taxiway B Connector
- Relocated Road
- Demolished Road (Dirt)

To demonstrate the general location of future facility development, this scenario was developed at a land use level of detail (i.e., detailed facility layouts were not developed). The areas designated for future tenant facilities coincide with the facility requirements projected for PAL 2. **Exhibits G-1** illustrates the proposed development scenario for the X51.

Exhibit G-1: Miami Homestead General Aviation Airport – Development Scenario

Order-of-Magnitude Cost Estimates

For the development scenario, an engineer's estimate of probable costs was prepared. The areas designated for future tenant facilities coincide with the facility requirements projected for PAL 2 and serve the basis for generating and engineer's estimate of probable cost. These costs include consideration of construction costs, and soft costs associated with design, permitting, bidding, construction and program management. **Table G-1** summarizes the estimated costs and projected funding sources for implementation at X51, expressed in 2013 dollars.

Table G-1: Preliminary Capital Funding Plan (in rounded Figures)

	FAA AIRPORT IMPROVEMENT PROGRAM FUNDS	FDOT GRANTS	MIAMI DADE COUNTY FUNDS	THIRD PARTY INVESTOR	TOTAL
Phase 1					
T-Hangars	$5,746,000	$2,409,000	$2,409,000	$0	$10,564,000
Phase 2					
Runway 18-36 Exit Taxiway	$1,137,000	$ 64,000	$ 64,000	$0	$1,265,000
Conventional Hangar	$3,492,000	$1,293,000	$1,293,000	$0	$6,078,000
Subtotal (Phase 2)	$4,629,000	$1,357,000	$1,357,000	$0	$7,343,000
Phase 3					
Conventional Hangar	$4,054,000	$1,501,000	$1,501,000	$0	$7,056,000
Phase 4				$0	
Runway 18-36 Extension (If Necessary)	$34,069,000	$1,893,000	$1,893,000	$0	$37,855,000
Total	**$48,498,000**	**$7,160,000**	**$7,160,000**	**$0**	**$62,818,000**

NOTES:

1/ Project funding sources were established in accordance with current funding eligibility guidelines and do not reflect a commitment by the FAA or FDOT to provide funds at this time.

2/ Costs are reflective of 2014 US dollars and include consideration for both hard (construction) and soft costs (design, permitting, and construction administration).

SOURCES: URS Corporation, Construction Costs, April 2014; Ricondo & Associates, Inc., SMP Technical Analyses, August, 2014.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

G.1 Development Projects Completed Since Last ALP

No new development projects have been undertaken and completed at X51 since the last approved ALP dated July 27, 2006.

G.2 Implementation Plan

For capital improvement planning considerations, the facility and infrastructure development initiatives associated with the preferred development scenarios was categorized into one of four development phases. Each phase reflects a 5-year period, as follows:

- Phase 1 (2016 - 2020)
- Phase 2 (2021 – 2025)
- Phase 3 (2026 – 2030)
- Phase 4 (2031 – 2035)

Exhibit G-2 illustrates the sequencing of facility development for X51, in accordance with the four development phases listed above. The sequencing of proposed capital development outlined in the SMP is summarized in **Table G-2**.

Table G-2: Miami Homestead General Aviation Airport - Capital Development Needs by Phase

	PHASE 1	PHASE 2	PHASE 3	PHASE 4
Airfield:				
Runway 18-36 Exit Taxiway		X		
Runway 18-36 Extension				If Necessary
Tenant Facilities:				
T-Hangars	X			
Conventional Hangars		X	X	

NOTE: The Miami-Dade Aviation Department has elected to provide consideration for the potential extension of Runway 18-36 to the south to allow for the potential accommodation of corporate jet operations in the future.

SOURCE: Ricondo & Associates, Inc., and Jacobsen Daniels Associates, LLC SMP Technical Analyses, March 2013.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

Exhibit G-2: Miami Homestead General Aviation Airport - Implementation Sequencing for Preferred X51 Development Scenario

H. Shadow or Line-of-Sight Study

There is currently no operational air traffic control tower at X51 and therefore no shadow or line-of-sight studies for X51.

I. Letters of Coordination

This section does not apply to this ALP Narrative as no coordination with outside agencies was conducted.

J. Wildlife Hazard Management

A wildlife hazard assessment has not been performed for X51. The Airport has no based jets and therefore falls into Airport Group 4 of the FAA's Wildlife Hazard Assessment Implementation Schedule. In accordance with the FAA's implementation schedule, MDAD intends on completing a wildlife hazard assessment prior to 2020.

K. Preliminary Identification of Environmental Features

Exhibits K-1 through **K-7** illustrate the various environmental features at X51 and within the surrounding environs. **Table K-1** summarizes the potential environmental impacts associated with the proposed development depicted on the Future ALP and the proposed mitigation approach for those areas that may be directly impacted. As shown, these impacts are limited to construction within Zone AH flood zones, should Runway 18-36 be extended. The proposed development of general aviation facilities would also encroach the Zone AH flood zones. Flood Zone AH corresponds to the areas of the 100-year shallow flooding with a constant water-surface elevation where average depths between 1 and 3 feet. Mandatory flood insurance purchase requirements apply.

Table K-1: Summary of Potential Environmental Impacts

ENVIRONMENTAL FEATURE	DESCRIPTION OF POTENTIAL IMPACTS	MITIGATION APPROACH
Major Drainage Ditches	Taxiway R Relocation Aircraft Hardstand Expansion	Convert Canal to Box Culvert Convert Canal to Box Culvert
Wetlands	No Direct Impacts	N/A
Flood Zones	Cargo Expansion (Zone AH)	Grading and Drainage as Required
Historical or Cultural Resources	No Direct Impacts	N/A
DOT Section 4(f) Features	No Direct Impacts	N/A
Flora/Fauna	No Direct Impacts	N/A
Natural Resources	No Direct Impacts	N/A
Other Features	None Identified	N/A

Notes:
N/A = Not Applicable
Flood Zone AH – Zone that corresponds to the areas of the 100-year shallow flooding with a constant water-surface elevation where average depths are between 1 and 3 feet. Mandatory flood insurance purchase requirements apply.
Sources: Miami-Dade Aviation Department; ESRI Database: Esri, DigitalGlobe, GeoEYE, i-cubed, United States Department of Agriculture, AEX, Getmapping, Aerogrid, IGN, swisstopo, and the GIS User Community (Aerial Photography), 2015; Florida Geographic Data Library, GIS Metadata Explorer; GIS Data, http://www.fgdl.org/metadataexplorer/explorer.jsp (accessed September 29, 2015); United States Geological Survey, GIS Data: Hydrography, http://nhd.usgs.gov/data.html (accessed September 25, 2015; Miami-Dade County GIS Data;
Prepared by: Ricondo & Associates, Inc., September 2015

Exhibit K-1: Environmental Features - Major Drainage Ditches

Exhibit K-2: Environmental Features - Wetlands

Exhibit K-3: Environmental Features – Flood Zones

Exhibit K-4: Environmental Features – Historical or Cultural Resources

Exhibit K-5: Environmental Features – DOT Section 4(f)

Exhibit K-6: Environmental Features – Flora/Fauna

Exhibit K-7: Environmental Features – Natural Resources

L. Action Items from Runway Safety Program Office

This section is Not Applicable as there are currently no action items from the Runway Safety Program office. All safety areas are in compliance with FAA standards.

M. Declared Distances

The declared distances table is used to aid in identifying the maximum distances available and suitable for meeting takeoff, rejected takeoff, and landing distances performance requirements for turbine powered aircraft. X51 does not have displaced thresholds, stopways, or clearways, and has standard Runway Safety Areas (RSA), Runway Object Free Areas (ROFA), Runway Projection Zones (RPZ), and Threshold Siting Surface (TSS) as a result of this the Takeoff Run Available (TORA), Takeoff Distance Available (TODA), Accelerate-Stop Distance Available (ASDA), and Landing Distance Available (LDA) will be equal to the runway length. **Table M-1** identifies the TORA, TODA, ASDA, and LDA for the three runways.

Table M-1: Miami Homestead General Aviation Airport – Declared Distances

	TORA		TODA		ASDA		LDA	
	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE	EXISTING	FUTURE
Runway 18	3,999	5,500	3,999	5,500	3,999	5,500	3,999	5,500
Runway 36	3,999	5,500	3,999	5,500	3,999	5,500	3,999	5,500
Runway 10	3,000	Same	3,000	Same	3,000	Same	3,000	Same
Runway 28	3,000	Same	3,000	Same	3,000	Same	3,000	Same
Runway 9U	2,500	Same	2,500	Same	2,500	Same	2,500	Same
Runway 27U	2,500	Same	2,500	Same	2,500	Same	2,500	Same

NOTE: Unless noted otherwise, all values are expressed in square feet.

SOURCES: ALP Homestead General Aviation Airport, July 27, 2006.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

N. Airport Layout Plan Drawings

The following sections provide a brief description of the information specific to each of the drawing sheets that comprise the ALP set. These drawings were developed and produced as a set on 36 inches by 24 inches sheets using AutoCAD MAP 3D 2013 software. To provide vertical and horizontal accuracy for the ALP set, a digitized map was flown in April 2008 by I.F. Rooks and Associates and was used as a base for all the drawings. The aerial image was flown in 2014 and provided by MDAD. The coordinates, elevations, and aerial photogrammetry are in U.S. Survey Feet. The horizontal datum is Florida State Plane Coordinate System, East Zone, North American Datum of 1983/1990 adjustment (NAD 83/90). The vertical datum is the North American Vertical Datum of 1988 (NAVD 88).

Reduced reproductions of these drawings are included in this report in **Appendix B** for illustration purposes. A full-size set of the drawings will be submitted to the FAA and FDOT for review and acceptance. An ALP set provides guidance on the direction for future development possibilities on the airport property.

N.1 Cover Sheet

Sheet one, the Cover/Title Sheet, lists the subsequent drawings within the ALP set. It also provides the reader a location and vicinity map. The location map is a scaled representation of location of the airport in the State of Florida, and a vicinity map shows the approximate location of the airport, its boundary, and major roadways. The vicinity map also depicts the roadway system serving the airport and the local community.

N.2 Data Sheet

This sheet contains six data tables.

- **Airport Data Table** - This table lists existing and future information specific to the Airport, such as Airport elevation, service level, role, reference code, design aircraft, owner, Airport Reference Point, temperature information, and available navigational aids.
- **Runway Data Table** - This table is a compiled tabulation of information relating specifically to runways at the Airport. Various specifications are listed for each existing and future runway, including, but not limited to, runway location, dimensions, design group, available lighting and navigational aids, as well as safety areas as defined in AC 150/5300-13A.

- **Declared Distances Table** - Existing and future declared distances for each runway end are shown.
- **Taxiway Data Table** – This table provides information associated with the existing and future taxiways including but not limited to, taxiway width, shoulder width, and taxiway safety area and object free area size.
- **Modifications of Design Standards (MOS) Table** - This table lists any approved modifications to applicable design standards or any non-standard conditions that may be depicted on the ALP or present at the Airport.
- **Wind Rose and Wind Coverage Table -** The sheet also includes the Airport wind roses. The wind data depicted on this sheet was obtained from the National Oceanic and Atmosphere Administration's (NOAA) National Climatic Data Center. The wind data information is provided for all weather conditions, visual metrological conditions (ceiling at or above 1,000 feet and visibility greater than or equal to 3 miles), and instrument metrological conditions (ceiling below 1,000 feet and /or visibility less than 3 miles). These components detail the percentage of time a runway end or combination of ends or runways are available for arrivals. When combined, the coverage is intended to be as near as possible to 100 percent. The Wind Rose depicts the runway orientation and percentages over which winds from a given direction occur. The box width varies based on the crosswind component desired and is intended to graphically portray the information displayed in the Wind Coverage Table. The wind coverage is summarized for each runway ends and grouping of runway ends. The historic wind data was obtained for X51 for the ten-year period beginning on January 1, 2004 and ending on December 31, 2013.

N.3 Existing Airport Layout Plan

The Existing ALP sheet depicts the existing conditions at the airport. It is provided as both a reference document to identify existing facilities (including runways, taxiways, buildings, and other structures) and a presentation document to identify a starting point to this study. The ALP sheet illustrates the airport in its entirety at a scale of 1 inch = 500 feet. The Existing ALP sheet is a graphic presentation of the actual layout of the existing facilities at X51. Major features of the ALP drawing include runways, taxiways, aprons, navigational aids, existing facilities, the roadway system, and non-airport facilities surrounding the perimeter of the airport property. This drawing also includes information from the data sheet for runway approaches, runway end elevations, runway high and low points, true azimuths for each runway, and the angle of declination (magnetic north) including the annual rate of change for the magnetic declination. It also includes pertinent clearance and dimensional information associated with the runways and taxiways such as runway safety areas, RPZs. Imaginary elements are included on the drawing sheet including airport reference point (existing/future), ground contours, and other dimensional data recommended by the FAA. The Existing ALP sheet also demonstrates the Airport's compliance with standards set forth in AC 150/5300-13A (Change 1) or necessary modifications to those standards.

N.4 Future Airport Layout Plan

The Future ALP depicts the proposed Airport development projects that will be necessary to meet the forecast demand over the next 20 year period. The proposed development that is presented graphically on the ALP is consistent with those projects recommended under Section G. Proposed developments include the following.

- T-Hangars – The ALP reflects the construction of a proposed set of 12 T-Hangars totaling 12,000 square feet in floor area on the eastern end of Taxiway A. The site for the T-Hangars is approximately 4 acres and includes a set of T-hangars and an associated apron and taxilane.
- Conventional Hangar – The ALP reflects the construction of a proposed conventional box hangar (20,850 square feet) south of Taxiway A and west of Taxiway A2. The site for the hangar is approximately 1 acre and includes a hangar and apron space.
- Runway Exit Taxiway – A new Runway 18-36 exit located approximately 750' south of the Runway 18 threshold is proposed.
- Runway 18-36 and Taxiway B Extension – A 1,501' extension to Runway 18-36 and Taxiway B is proposed. The extension would relocate the Runway 36 threshold south requiring the relocation of a service road and Precision Approach Path Indicator (PAPI).
- Runway 18 Non-Precision Instrument Approach – The ALP reflects the proposed addition of a Non-Precision Instrument Approach (NPI) to Runway 18. It is assumed that the NPI approach would be in the form of an Area Navigation (RNAV)/ Global Positioning System (GPS) approach.
- Runway 36 Non-Precision Instrument Approach – The ALP reflects the proposed addition of a NPI to Runway 36. It is assumed that the NPI approach would be in the form of an RNAV/GPS approach.

N.5 Airport Airspace Plan

To enhance the safe operation of aircraft in the airspace around the airport, the FAA has adopted FAR Part 77 "Safe, Efficient Use, and Preservation of the Navigable Airspace." Subpart C of FAR Part 77 establishes imaginary surfaces for determining obstructions to air navigation. FAR Part 77 surfaces are utilized in zoning and land use planning adjacent to the airport to protect the navigable airspace from encroachment by hazards, which could potentially affect the safety of airport operations.

The Airport Airspace sheet is a set of two (2) drawings depicting the 14 CFR Part 77 imaginary airspace surfaces for the Airport. The Airport Airspace Drawing (Sheet 5) and Airport Airspace Plan & Profile (Sheet 6) illustrate physical features on and around the airport, including any existing obstructions that penetrate the FAR Part 77 imaginary surfaces. These imaginary surfaces are intended to provide airports and sponsors with a mechanism to evaluate existing and proposed objects as part of the 7460 process for determining hazards to air navigation. FAR Part 77 surfaces correspond to available navigational aids and types of approaches available to a runway end. The specific imaginary surfaces depicted on these drawing include:

- **Primary Surfaces** – Longitudinally centered on each runway, this surface extends 200 feet beyond each end of the runway and has an elevation equal to that of the runway centerline. The width of the primary surface is that prescribed for the most precise instrument approach procedure, existing or planned, for either end of the runway. The primary surface for X51's runway is 500 feet wide for Runway 10-28 and 18-36 and 250 feet wide for Runway 9U-27U.
- **Approach Surfaces** - These surfaces are longitudinally centered along the extended centerline and extend outward and upward from each end of the primary surface. The size and slope of the approach surface is based upon the type of approach, existing or planned, for that runway end. The inner edge of the approach surface is the same width as the primary surface. However, its overall length, slope, and outermost width may vary. **Table N-1** summarizes the characteristics of the future approach surfaces at the Airport.
- **Transitional Surfaces** - These surfaces extend outward and upward from the lateral edges of all primary and approach surfaces with a slope of 7 to 1. The overall width of the transitional surfaces for the portions of the precision approach surfaces is 5,000 feet which is measured perpendicular from the runway centerline.
- **Horizontal Surface** – This surface is a plane located 150 feet above the established airport elevation. Its perimeter is composed of arcs of specific radii connected by lines tangent to the arcs. The arcs are centered on the midpoint of the ends of all the primary surfaces.
- **Conical Surface** – This surface extends outward and upward from the periphery of the horizontal surface at a slope of 20:1, for a horizontal distance of 4,000 feet.

Table N-1: Miami Homestead General Aviation Airport - CFR Part 77 Approach Surface Characteristics

RUNWAY END	OVERALL LENGTH (IN FEET)	OUTERMOST WIDTH (IN FEET)	SLOPE
Runway 10	10,000	3,500	34:1
Runway 28	10,000	3,500	34:1
Runway 18 Existing	5,000	1,500	20:1
Runway 18 Future	10,000	3,500	34:1
Runway 36 Existing	5,000	1,500	20:1
Runway 36 Future	10,000	3,500	34:1
Runway 9U	5,000	1,250	20:1
Runway 27U	5,000	1,250	20:1

SOURCE: 14 CFR Part 77, Safe, efficient use, and preservation of navigable airspace, September 2008.
PREPARED BY: Ricondo & Associates, Inc., August 2015.

NAVAIDS that have frangible mounts are fixed-by-function and were not included in the obstruction analysis at X51, per FAR Part 77. Obstacle and obstruction data was used from the 2007 ALP. The obstruction data was obtained from the National Aeronautical Charting Office (NACO) in August 2005.

N.6 Existing & Future Inner Portion of the Approach Surface Drawings

The Inner Approach Surface Drawings (Sheets 7 to 12) are prepared for each of the runway approaches and consists of scaled drawings of the area immediately beyond the existing and proposed runway ends at X51, including but not limited to the RPZs off each runway end. It is recommended by the FAA that the area within each RPZ should be kept free of obstacles that could constitute a hazard to aircraft approaching or departing the airport. These drawings depict the location of roadways, structures, natural ground elevations, and other man-made or natural features within the limits of each RPZ or out to where the ultimate approach surface slope is 100 feet above the threshold elevation, whichever is further. The drawings also detail objects that penetrate existing and proposed approach surfaces or violate the primary surface criteria. No penetrating obstructions were identified on any of the inner portions of the approach surfaces at X51.

All obstacle and obstruction data was used from the 2007 ALP. The survey was completed in the National Geodetic Vertical Datum of 1929 (NGVD29), no additional obstruction surveys have been performed since. Therefore, the original obstruction data in NGVD29 is reflected. The obstruction data was obtained from NACO in August 2005, and all obstacle data was obtained from NOAA and National Geodetic Survey (NGS) in February 2005.

N.7 Departure Surface Drawings

The Departure Surface Drawings (Sheets 13 and 14) are prepared for each runway end with an existing or future instrument departure procedure. The sheets consist of scaled plan and profile drawings of the area within the 40:1 Departure Surface. These drawings depict the location of potential obstructions. The sheets also include obstruction tables detailing objects, departure surface penetrations, object top elevation, and disposition. No penetrating obstructions were identified on any of the departure surface drawings.

All obstacle and obstruction data was used from the 2007 ALP. The survey was completed in the National Geodetic Vertical Datum of 1929 (NGVD29), no additional obstruction surveys have been performed since. Therefore, the original obstruction data in NGVD29 is reflected.

N.8 Airport Land Use Drawing

Land use planning allows coordinating use of the airport property in a manner compatible with the functional design of the airport facility. Airport land use planning is important for the orderly development and efficient use of available space. There are two primary considerations for airport land use planning: first, to secure those areas essential for the safe and efficient operation of the airport; and second, to determine compatible land uses for the balance of the property that would be most advantageous to the airport and community.

The Airport Land Use Drawing illustrates the proposed utilization of property within the existing boundary of the Airport. This drawing identifies various land use designations for airport owned property ranging from Airport Operations Areas covering portions of the airport utilized by aircraft or those areas required to meet FAA design and safety requirements, to Everglades National Park / natural resources. The land use areas, and their location on and around the airfield, are described below and are depicted using various patterns of hatching on the sheet.

- General / Corporate Aviation – This land use is intended for existing and future general aviation-related development, such as aircraft hangars, fixed based operators, and aprons. This land identifies those portions of the airport that are undeveloped or underdeveloped with the potential for the development of one or more forms of aviation.
- Airport Operation Area (AOA) – This consists of the land area reserved for activities supporting and sustaining the safe and efficient operation of aircraft including land devoted to airfield facilities such as runways and taxiways and property within the limits of the RPZ, runway object free areas, and taxiway object free areas.
- Aviation Related Use – This area is intended for long-term aviation related development.
- Aviation and/or non-Aviation Development – This area is intended to represent development that is compatible with and may encourage aviation growth. Development may or may not be directly related to the aviation industry.
- Natural Resource / Vacant & Everglades National Park – This consists of the land area managed and operated by the Florida Game and Freshwater Fish Commission.
- Agriculture – This consists of the land area reserved for agricultural purposes.

N.9 Airport Property Map

The Airport Property Map presents a historical chronology of all land conveyances associated with the Airport that are available from public records. It illustrates the property boundary and identifies the various parcels that were acquired in the 1960s to create this boundary. This sheet identifies the parcel information such as the grantor, record data, acreage, date, etc. The Airport Property Map serves as a method of tracking current Airport property and as a place in which to depict and identify future property acquisition or easements that may be necessary for future Airport development. The Airport Property map drawing is pending receipt of available information from MDAD.

Appendix A ALP Narrative Report Checklist from ALP Checklist-ARP SOP 2.0

Appendix B 2017 Airport Layout Plan Set

Appendix C FAA Approval Letter for MDAD SMP Study GA Forecast Report