City of Wauchula, Florida
Wauchula Municipal Airport

AIRPORT MASTER PLAN UPDATE

FINAL REPORT

Prepared By:

5555 E. Michigan Street, Suite 200
Orlando, FL 32822

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TABLE OF CONTENTS

APPENDICES

TABLE OF FIGURES

TABLE OF TABLES

1. INTRODUCTION

1.1 INTRODUCTION

This Airport Master Plan Update was prepared for the City of Wauchula (City) and the Wauchula Municipal Airport Authority (Authority) to provide long-range airport improvement strategies that respond to the projected future demand for aviation and aviation-related services at the Wauchula Municipal Airport (Airport). Funding for this project has been received from the Federal Aviation Administration's (FAA) Airport Improvement Program (AIP), the Florida Department of Transportation (FDOT), and the City of Wauchula.

This study considers future airport improvements for a 20-year period of 2012 to 2031. This period will be broken into three phases over which airport improvement projects will be undertaken: Short-term (2012-2016), Mid-term (2017-2021), and Long-term (2022-2031). This project provides an update to the previous Master Plan Update completed in November 2007. The previous Master Plan Update study provided a basis for some information in this study. Use of the current versions of FAA Advisory Circular (AC) 150/5070-6B *Airport Master Plans*, AC 150/5300-13, *Airport Design*, FDOT regulations, and local laws provided guidance in decision making during this study. Local, state, and federal agencies have been coordinated with throughout this Master Plan Process.

1.2 MASTER PLAN GOALS AND PROCESSES

The Master Plan Update process identifies the existing facilities and their condition. Current and future aviation activity demands are also identified. Facility requirements are developed to meet the aviation demands. The facility requirements are compared to the existing conditions to determine where new and/or additional facilities will be required to meet the aviation activity demands. This Master Plan Update provides guidance for future development over the planning period that will satisfy the demand in an efficient, safe, and financially feasible manner. The Master Plan Update serves as a guide for the City, the Authority, and the funding agencies. This Master Plan Update addresses the following:

- Updates the 2007 Master Plan Update
- Identifies the location and types of facility improvements needed
- Provides a capital improvement plan that addresses project phasing and financial needs
- Develops an Airport Layout Plan (ALP), graphically depicting existing and future developments

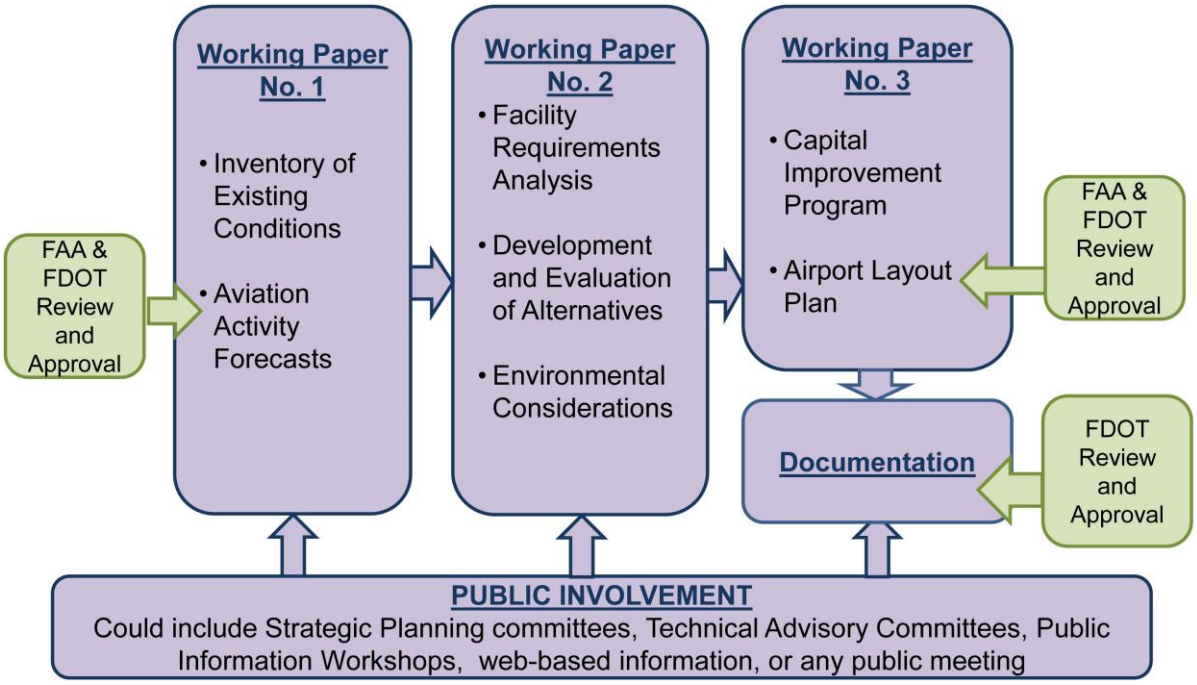
The steps in the typical master planning process are shown in **Figure 1-1** and are briefly described below:

- **Inventory of Existing Conditions:** The existing Airport facilities are catalogued and an evaluation is made as to their condition. State of Florida Statutes and Local Comprehensive Plans are searched for Airport related information. Additionally, information related to the area demographics is also collected.
- **Aviation Activities Forecasts:** Current and future levels of based aircraft and aircraft operations are determined in this study phase. These forecasts are further broken out into various categories, such as aircraft type and instrument operations.

Forecasts are generally developed for the same Short-term, Mid-term, and Long-Term periods as described above throughout the 20-year planning period. The aviation activity forecasts are the basis and the justification for the Master Plan Update. As such, both the FAA and FDOT require that the aviation activity forecasts be reviewed and approved by them before developing the remainder of the Master Plan Update. If the forecasts are not approved by the FAA and FDOT, projects identified as a result are not eligible for funding.

- **Facility Requirements Analysis:** An assessment of the airfield operational capacity is conducted to determine if unacceptable operational delays would be expected over the planning period. Various analyses are conducted to project future demand for facilities based on the aviation activity forecasts, including airfield infrastructure, hangars, apron, terminal space, and vehicle parking spaces. These future facility demands are then compared to the existing facilities to identify any shortfalls. Additionally, a review is conducted to identify any existing facilities that do not meet federal, state, or local regulations, codes, or standards.

Figure 1-1
WAUCHULA MASTER PLANNING PROCESS



- **Development and Evaluation of Alternatives:** Alternatives are developed to meet the shortfall in facilities identified in the previous task. These alternatives are then evaluated using a number of criteria including the ability to meet the demand, cost, environmental impacts, and other relevant criteria. These alternatives could consider airside and landside facilities and any needed access improvements. From the evaluation, a preferred development plan will result. A brief overview of environmental impacts of the selected development plan will be completed as a part of this study phase.

- **Environmental Considerations:** Environmental factors are assessed to provide enough information to evaluate airport development alternatives and to provide information that will assist in the expediting of subsequent environmental process, typically resulting in an overview of the airport's environmental setting, the identification of environmentally related permits that may be required for the recommended development projects.
- **Capital Improvement Program:** Cost estimates and a development timeline are determined for the preferred development plan. This information makes up the Capital Improvement Program (CIP), which is utilized by FAA, FDOT, and the Authority in determining funding and development priorities.
- **Airport Layout Plan Production:** A set of engineering-type drawings, referred to as the ALP, is created showing existing facilities and the selected development plan. The ALP also includes airspace and runway approach drawings, a terminal area map, a land use map, and a property map showing the existing and proposed boundaries. These maps and drawings assist Airport management in the planning and maintenance of Airport boundaries and airspace.
- **Documentation:** All of the analyses will be documented and consolidated into Working Papers as shown in **Figure 1-1**. Each working paper will be submitted to the City of Wauchula, the Authority and the Airport management as the sections within that working paper are completed. At the completion of the three working papers, they will be consolidated into one draft document and submitted to City of Wauchula, the Authority, the Airport management and FDOT for review and comment. These comments will be addressed and the final document will be submitted to the City, the Authority, and the Airport management.

These steps build upon one another to identify a clear action plan that can be used by the City, the Authority, and Airport management to guide financial and development decisions. This process leads to the production of two key documents -- the ALP and the Master Plan Update report. The development of an approved ALP is a requirement for public-use airports that receive federal AIP funding and FDOT aviation development funds. The Master Plan Update report describes and justifies the proposed improvement concepts included in the ALP.

2. INVENTORY OF EXISTING CONDITIONS

2.1 GENERAL

This chapter presents a description of the existing conditions and facilities at Wauchula Municipal Airport (Airport). The description of these facilities will help assess the overall condition of the Airport, including the non-conformance of any infrastructure to FAA standards. This information will be the basis of comparison for the facility requirements analysis to be developed later in this Master Plan Update. The assessment of the existing facilities includes the description of the airside facilities including the runway, taxiway, apron, and navigational aids. Landside facilities including T-Hangars, a fuel farm, a pilot's lounge, and vehicular facilities are also discussed. A field visit was conducted in October 2012 and included a visual assessment of each facility's condition.

2.2 LOCATION

The City of Wauchula is located in northern Hardee County, Florida. **Figure 2-1** presents the location of the City of Wauchula to the State of Florida. Major cities in the vicinity of Wauchula are Tampa (40 miles northwest) and Orlando (62 miles northeast).

Figure 2-1
VICINITY MAP

Source: Google Maps

Wauchula Municipal Airport is located approximately five miles southwest of the City of Wauchula as shown in **Figure 2-2**. Although owned and operated by the City, Wauchula Municipal Airport is not located within City limits. Access to the Airport is provided only by Vandolah Road, which intersects County Road 64A leading into the City.

Figure 2-2
AIRPORT LOCATION MAP

Source: Google Maps

2.3 HISTORY

The Florida Southern Railway named Wauchula in 1886 when it extended its route and set up a depot. The name was derived from the Miccosoukee Indian word Wa-tu-la-ha-kee, meaning *"call of the sand hill crane"*. Wauchula was incorporated in 1902, and the Wauchula Municipal Airport opened to the public in September of 1983 and was activated in November of 1983. Prior to this time, an airport with a turf runway was located east of the City. However, the beginnings of the Airport can be traced back to June 1978 when the City purchased approximately 220 acres to be used for the development of the Airport. In March 1980, the City of Wauchula and the FDOT entered into a Joint Participation Agreement (JPA) to develop the runway, roads, and fencing at the Airport. In addition, another JPA was entered into by the City and FDOT to develop electrical power, runway lighting, and an airport administration facility. In the subsequent years, many landmarks were reached including:

- The execution of the first Airport lease with B & B Aircraft Services in December 1985
- Paving Runway 18-36 to 4,000 feet in 1990
- Constructing a paved, parallel taxiway to the west of Runway 18-36 in 1994
- The installation in the year 2000 of a non-directional radio beacon (NDB) to support an instrument approach to Runway 36

2.4 AIRPORT ADMINISTRATION

The Wauchula Municipal Airport is owned by the City of Wauchula and is operated by the Wauchula Municipal Airport Authority as an agency of the City. The Authority consists of seven members appointed by the City Commission, each serving three-year terms. The current Airport Manager is Mr. Jim Hay. The purposes of the Authority are to:

- Efficiently operate the Airport
- To be responsive to the needs of the flying public
- To appoint and employ services required to operate the Airport
- To receive and manage grants for airport improvements as agents for the City.

2.5 ROLE OF THE AIRPORT

The U.S. Secretary of Transportation is required to publish every two years a national plan to Congress that presents data, forecasts and development plans of all public-use airports in the United States. This plan is referred to as the National Plan of Integrated Airport Systems (NPIAS). One of the main outcomes of the NPIAS is a listing of infrastructure that will be eligible for federal grants. A General Aviation (GA) airport is characterized in the NPIAS as an airport not receiving scheduled commercial passenger or cargo service. To be included in the NPIAS, these airports should have at least 10 based aircraft and be spaced a minimum of 20 miles from other NPIAS airports. Airports located closer than 20 miles from another NPIAS airport can also be included based upon several exception criteria. Meeting these requirements, the Wauchula Municipal Airport is included in the NPIAS and is classified as a GA airport.

Within the United States, the FAA assigns location identifiers to airports. These are then adopted by the International Air Transport Association (IATA) which has airport codes or location indicators for each airport around the world. The airport code is a three-character alphanumeric code. The International Civil Aviation Organization (ICAO) also uses and publishes a similar system. The assigned codes by each organization often bear little resemblance to one another. The ICAO designations are published in ICAO Document 7910: *Location Indicators*. In general IATA codes are usually derived from the name of the airport or the city it serves, while ICAO codes are distributed by region and country. Wauchula Municipal Airport has the IATA designation of CHN and the ICAO designation of KCHN.

As a general aviation airport, Wauchula Municipal Airport serves an important role in the national and state aviation systems. Facilities for limited aircraft repair, aircraft storage and

fueling are all offered at the Airport. In addition to the recreational services offered, businesses including crop duster operations for the local agriculture industry have the ability to make use of the Airport's facilities by operating and storing their aircraft at the Airport.

2.6 METEOROLOGICAL CONDITIONS

Aircraft operations are sensitive to climatological conditions, especially to prevailing winds. This is due to the fact that aircraft land and takeoff into the wind. The smaller an aircraft is the more important wind speeds and direction become. According to FAA requirements stated in AC 150/5300-13, *Airport Design*, the runway or runways at an airport should provide adequate wind coverage for the aircraft types regularly operating there. The FAA states that the desirable minimum wind coverage for an airport is 95 percent, based on the recorded weather observations over a 10-year period. This means that the prevailing winds will allow the aircraft regularly operating at the airport to land on at least one of the runways 95 percent of the time.

No historical onsite weather data is available for Wauchula Municipal Airport, as the Airport is not currently equipped with a weather-recording device. To determine the weather conditions, particularly the prevailing winds, weather stations at other airports had to be used. Bartow Municipal Airport located 26.2 nautical miles to the north, Punta Gorda Airport located 36.2 nautical miles to the south and Sarasota/Bradenton International Airport located 36.6 nautical miles to the southwest were chosen because of their location in reference to the Airport and the fact that they have recorded weather data. The data received from these stations show that in all weather conditions, the existing Runway 18-36 would provide an average of 90.99 percent coverage for 10.5-knot winds and an average 95.55 percent coverage for 13-knot winds.

Visual Flight Rules (VFR)are a set of regulations under which a pilot operates an aircraft in weather conditions generally clear enough to allow the pilot to see where the aircraft is going; the pilot must be able to operate the aircraft with visual reference to the ground, and by visually avoiding obstructions and other aircraft. For VFR conditions, Runway 18-36 would average 90.76 percent coverage for 10.5-knot winds and 95.16 percent coverage for 13-knot winds. **Figure 2-3** presents the historic All Weather and VFR wind data and its coverage for Bartow Municipal Airport, **Figure 2-4** presents the same information for Punta Gorda Airport, and **Figure 2-5** presents the All Weather and VFR data for Sarasota Bradenton International Airport. Wauchula does not meet the 95 percent coverage for 10.5-knot winds, but it does meet the 95 percent wind coverage for 13-knot winds.

Instrument Flight Rules (IFR) are rules and regulations established by the FAA to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight depends upon flying by reference to instruments in the flight deck, and navigation is accomplished by reference to electronic signals. Wauchula currently does not have IFR procedures for the Airport. **Appendix A** presents the IFR wind data and its coverage from the same three airports. Wauchula would not meet the 95 percent criteria for IFR conditions where the visibility is greater than 0.5 miles with 10.5-knot winds; however, it would meet the criteria for conditions with visibility greater than 0.5 miles and 13-knot winds. For IFR conditions with visibility of less than 0.5 miles, the Airport does have sufficient coverage for both 10.5- and 13-knot winds.

All data for the wind roses was purchased from the National Climatic Data Center, Information Services Division of the National Oceanographic and Atmospheric

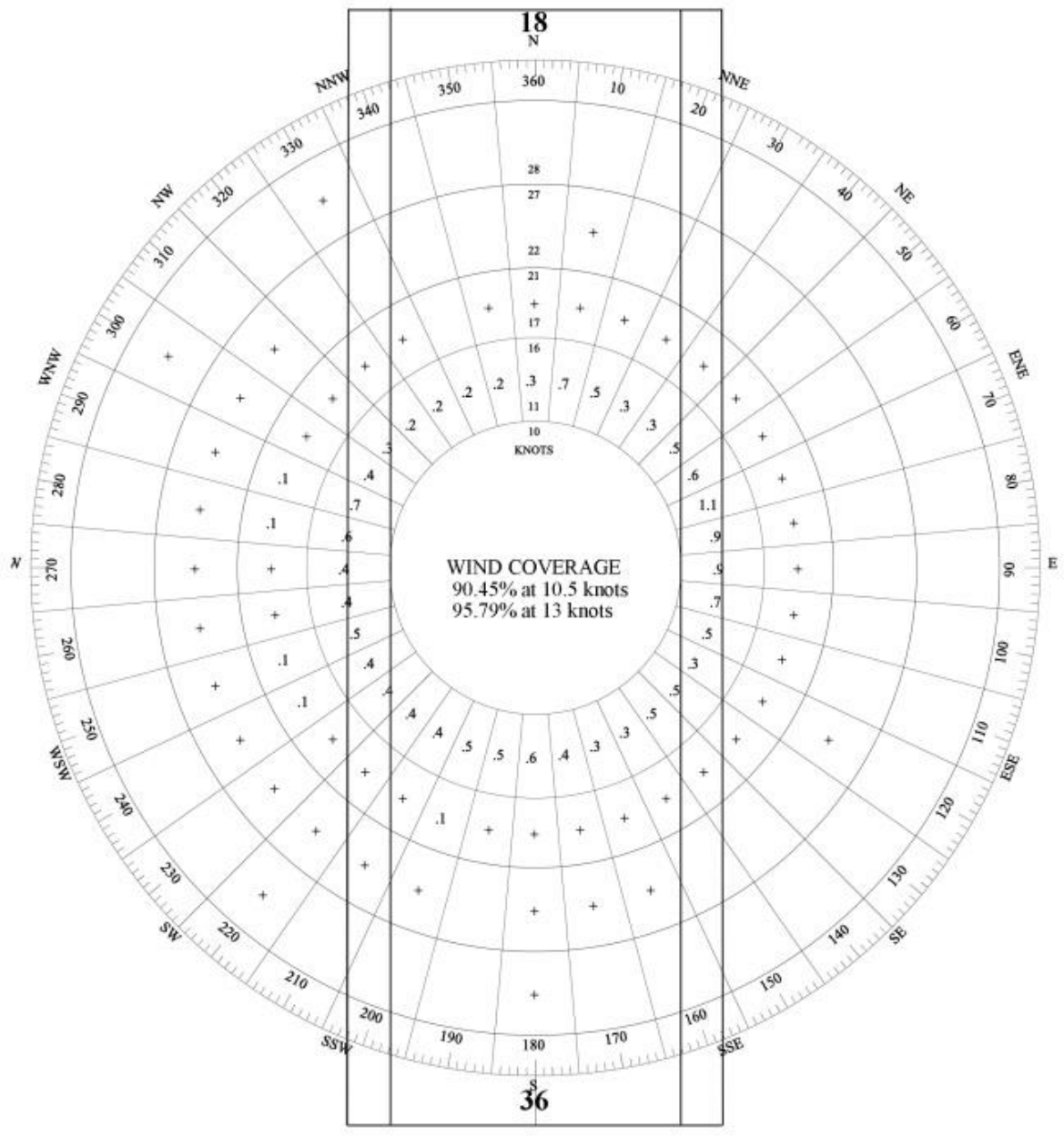
Administration (NOAA). The period in which the data was collected for all three airports was from January 2000 through December 2009. The obtained wind data is then compared with the runway orientation of Wauchula Municipal Airport. The results indicate whether or not the wind data from each of the other three airports would result in the FAA acceptable wind coverage at 95 percent of Wauchula's runway.

Located in the Central Florida region, Wauchula's weather consists of hot humid summers and warm mild winters. Wauchula's hottest months are July and August where the average maximum temperature is 92° F. The average maximum temperature throughout the year is 83° F. Maximum rainfall is collected during the months of June and July averaging nearly eight inches per month. The average annual rainfall is 52.4 inches. The chance of snow is nearly nonexistent in Wauchula. The coldest average month, January, only averages a low temperature of 49° F, which is not suitable to snowy conditions.

Figure 2-3
BARTOW MUNICIPAL AIRPORT ALL WEATHER AND VFR WIND ROSES

Bartow Municipal Airport
All Weather Wind Coverage by Runway (%)

Runway	10.5 Knots (12 MPH)	13 Knots (18 MPH)
18-36	90.45	95.76



Bartow Municipal Airport
VFR Wind Coverage by Runway (%)

Runway	10.5 Knots (12 MPH)	13 Knots (18 MPH)
18-36	90.15	94.81

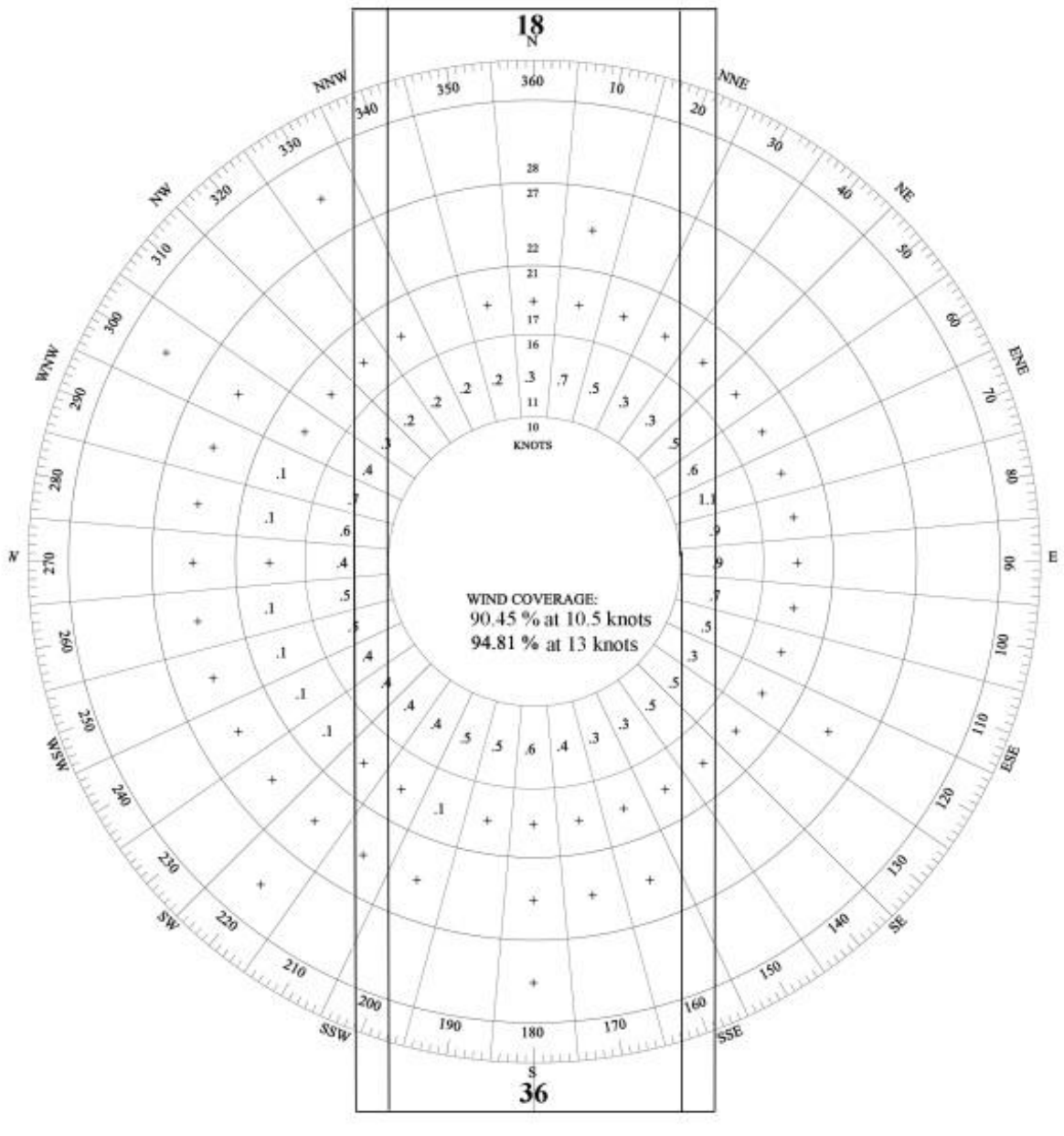
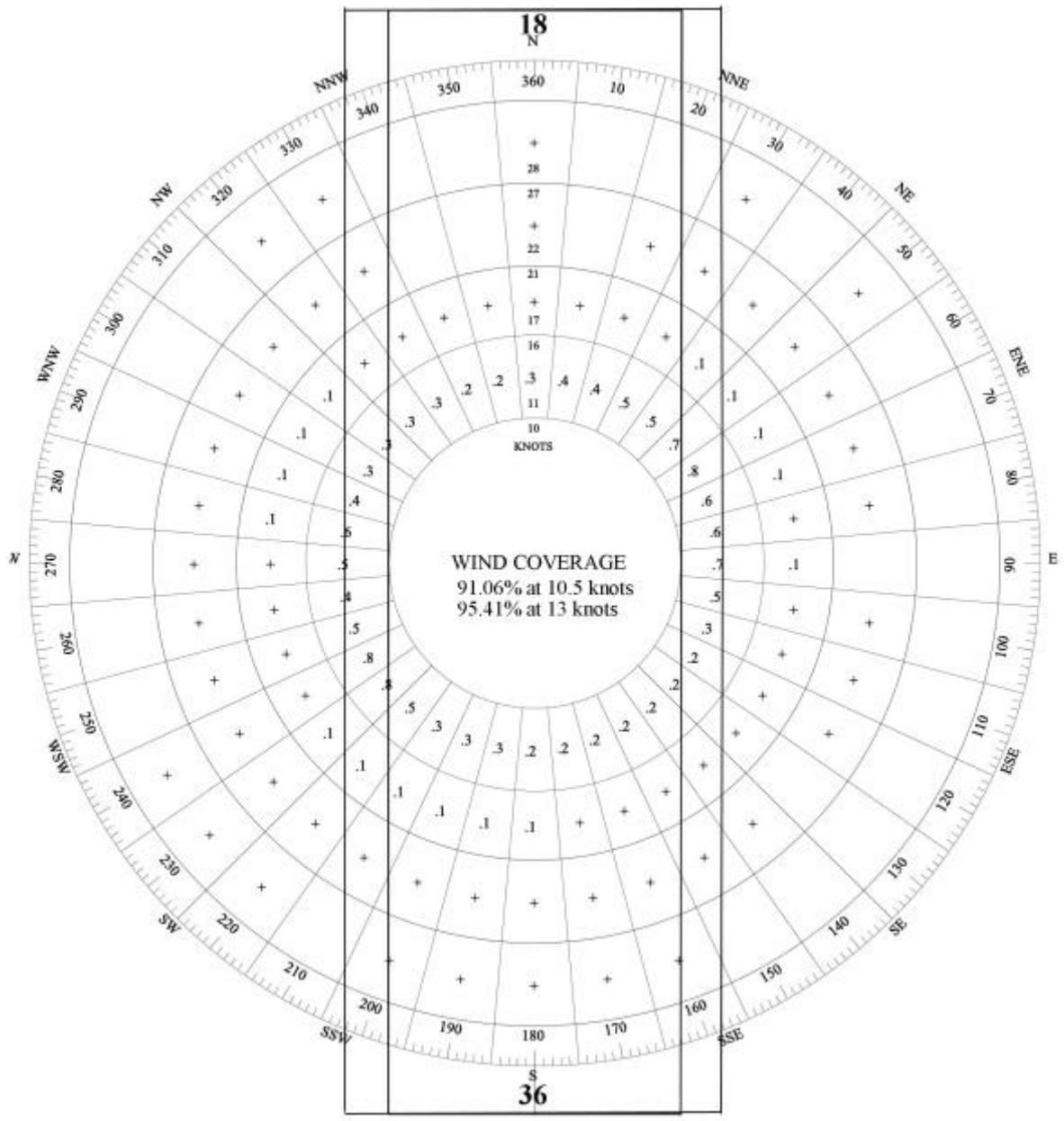


Figure 2-4
PUNTA GORDA AIRPORT ALL WEATHER AND VFR WIND ROSES

Punta Gorda Airport
All Weather Coverage by Runway (%)

Runway	10.5 Knots (12 MPH	13 Knots (18 MPH)
18-36	91.06	95.41



Punta Gorda Airport
VFR Wind Coverage by Runway (%)

Runway	10.5 Knots (12 MPH)	13 Knots (18 MPH)
18-36	90.8	95.29

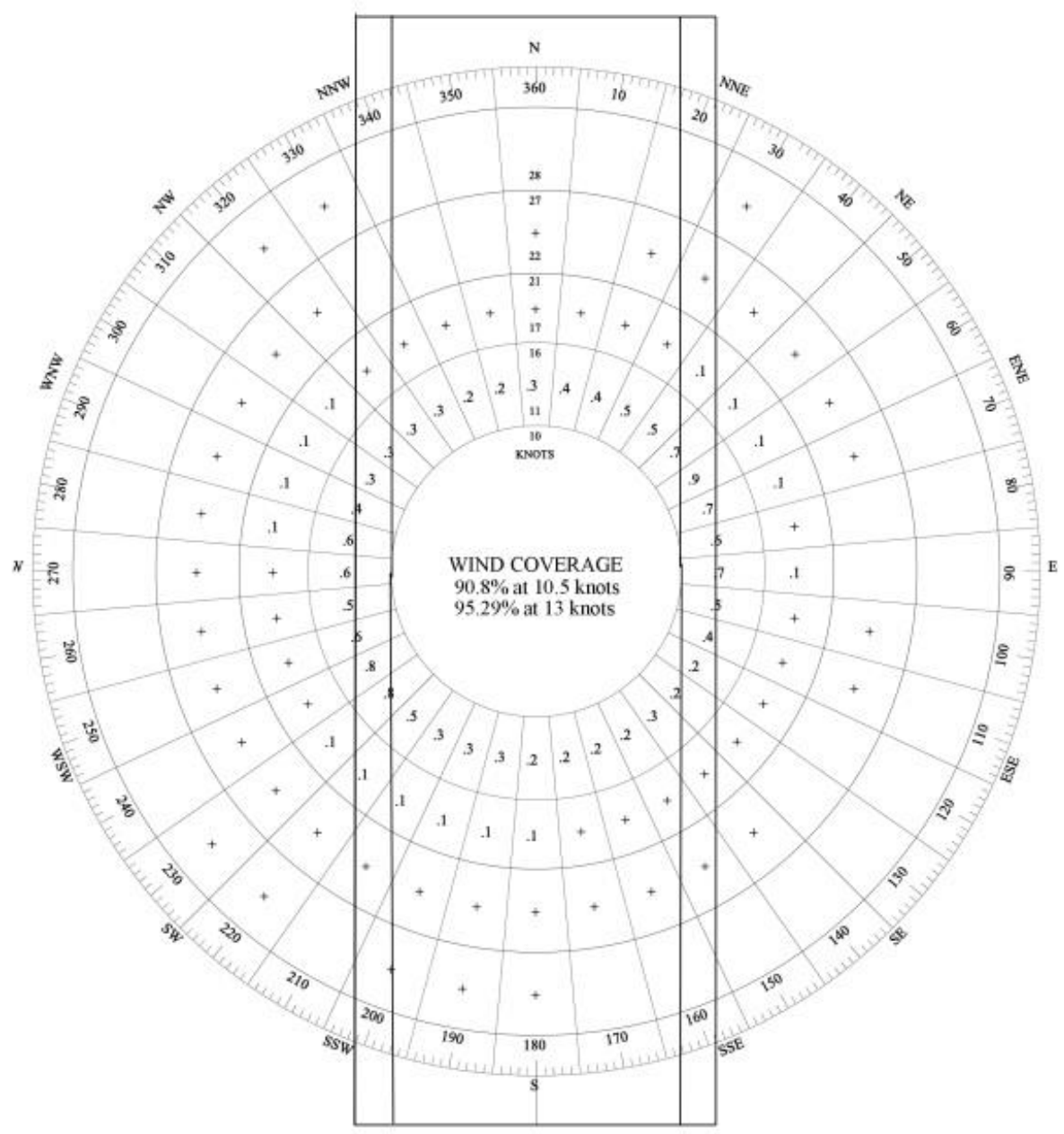
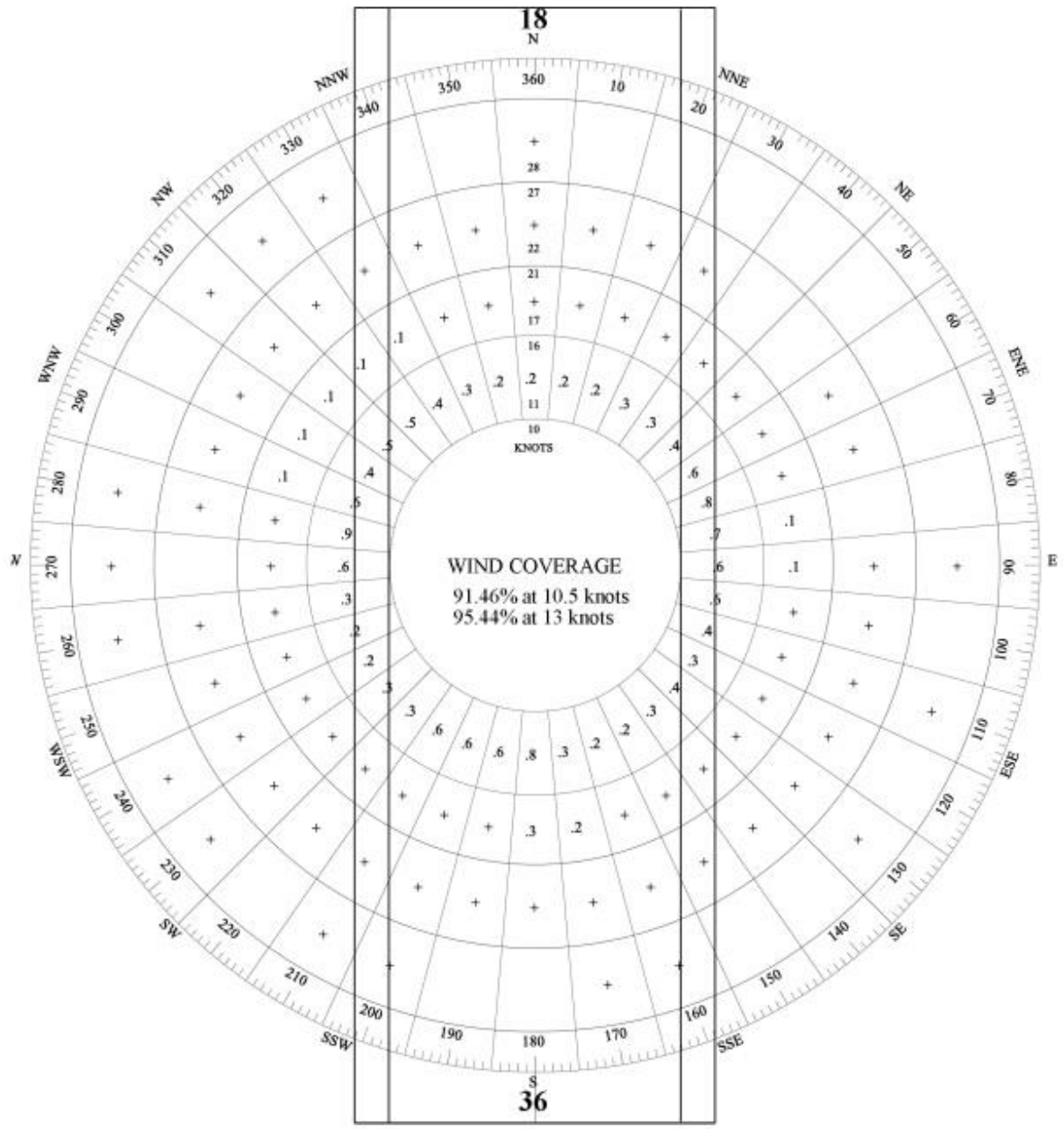


Figure 2-5
SARASOTA-BRADENTON INTERNATIONAL AIRPORT ALL WEATHER AND VFR WIND COVERAGE

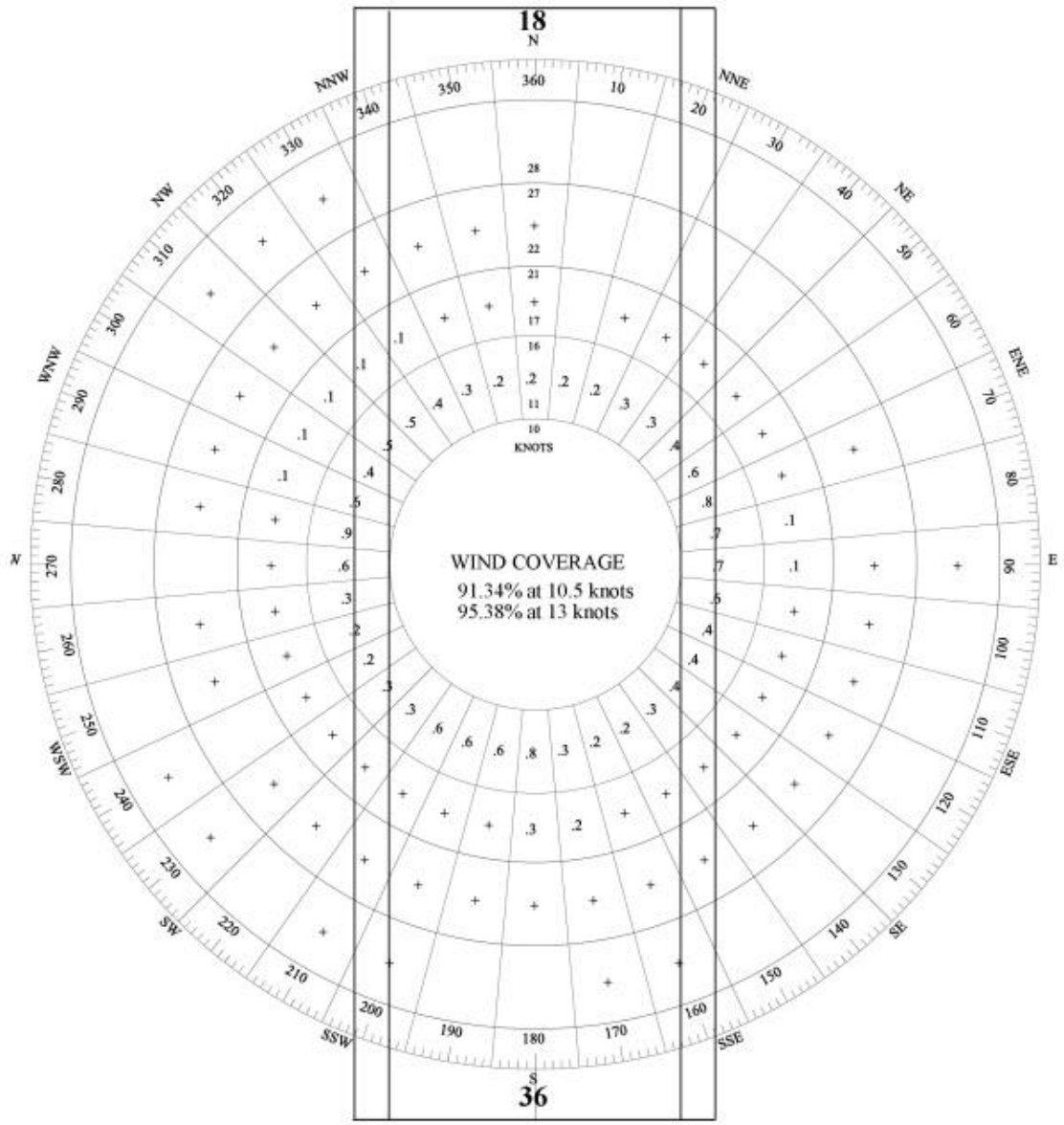
Sarasota-Bradenton International Airport
All Weather Wind Coverage by Runway (%)

Runway	10.5 Knots (12 MPH)	13 Knots (18 MPH)
18-36	91.46	95.44



Sarasota-Bradenton International Airport
VFR Wind Coverage by Runway (%)

Runway	10.5 Knots (12 MPH)	13 Knots (18 MPH)
18-36	90.15	94.81

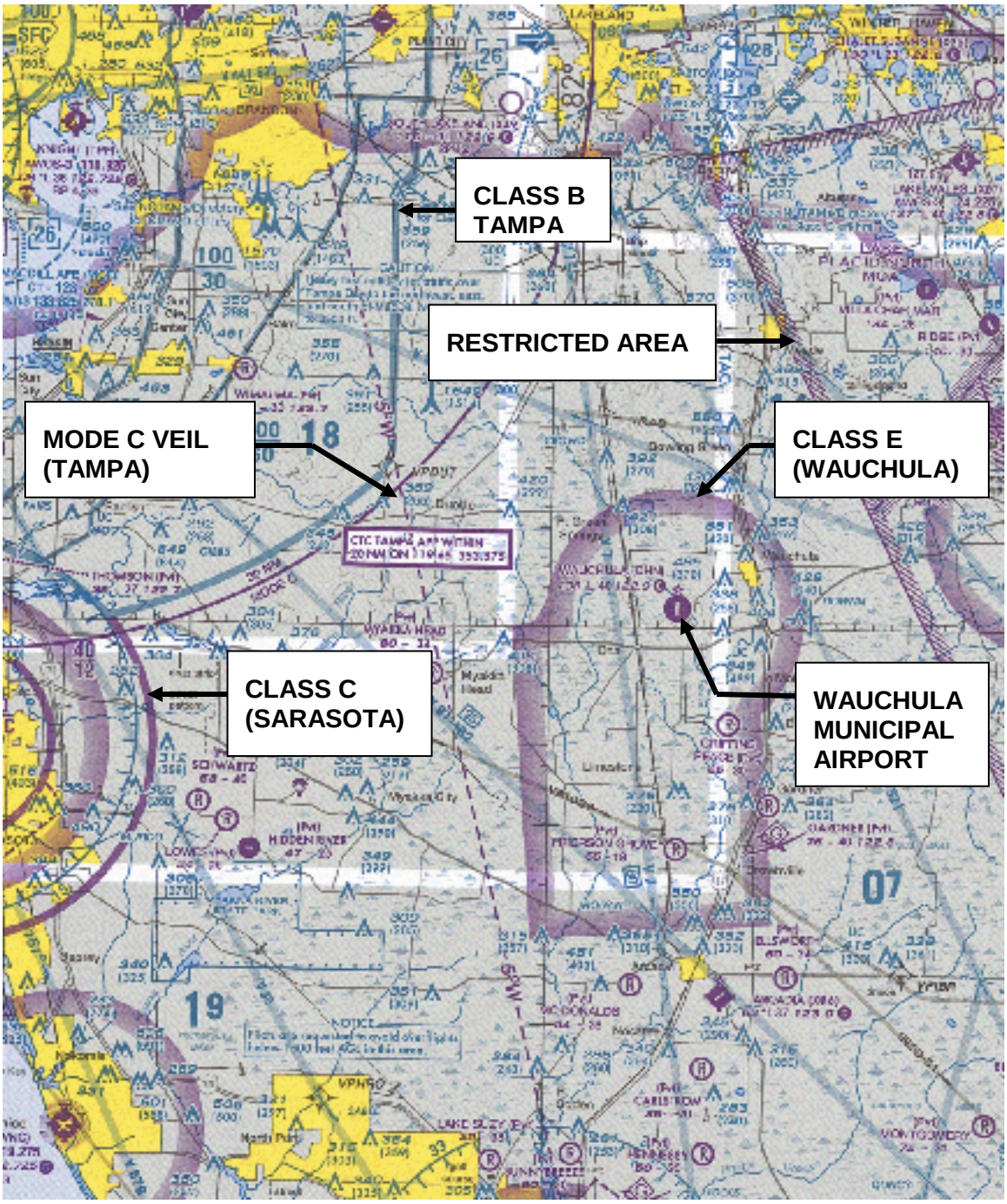


2.7 AIRSPACE

The Federal Aviation Administration (FAA) has regulatory control over flight routes whether enroute, on approach, or departure from an airport. The Wauchula Municipal Airport currently lies within Class E airspace. Class E airspace has no defined vertical limit but rather it extends upward from either the surface or a designated altitude to the overlying or adjacent controlled airspace. This airspace also requires no specific pilot certification and no specific aircraft equipment.

There are other various types of airspace located around the Airport as shown in **Figure 2-6**. Some of these airspace classifications include a Restricted Area to the east and a Mode C Veil, which is a kind of airspace which surrounds most of primary Class B airports within United States. This airspace extends horizontally to a circle of 30 nautical miles radius centered on the airport and extends vertically from the surface up to 10,000 feet Mean Sea Level (MSL). It also includes Class B airspace related to Tampa International's Airspace to the northwest, and Sarasota/Bradenton International's Class C airspace to the west. Prior to entering these areas, a pilot must make contact with the local Air Traffic Control.

Figure 2-6
MIAMI VFR SECTIONAL



Source: FAA Miami Sectional Aeronautical Chart, 91st Edition, August 23, 2012.

2.7.1 Approach Procedures

Wauchula Municipal Airport features a non-precision GPS approach for both Runways 18 and 36. **Table 2-1** shows the required approach minima for Runways 18 and 36. The approach plates current to the Airport as of October 2012 are included in **Appendix B.**

Table 2-1
AIRPORT INSTRUMENT APPROACH PROCEDURES

Procedure Name	Minimum Visibility	Minimum Descent Altitude Mean Sea Level
RNAV (GPS) RWY 18	Aircraft Groups A and B: 1 mile Aircraft Group C: 1 3/8 miles	540 feet
RNAV (GPS) RWY 36	Aircraft Groups A and B: 1 mile Aircraft Group C: 1 1/8 miles	520 feet

Source: FAA Southeast Terminal Procedures, September 20, 2012

2.7.2 Vicinity Airports

Pilots who use the Airport can travel to a large variety of airports within a short distance. Commercial, general aviation and private airports surround the region and provide many different services to the flying public. **Table 2-2** presents a list of airports within the vicinity of Wauchula Municipal Airport.

Table 2-2
VICINITY AIRPORTS

Type of Airport	Distance (Nautical Miles)
Commercial Service (within 50 nautical miles)	
Sarasota-Bradenton International	36.6 west
St. Petersburg/Clearwater International	49.0 northwest
Tampa International	44.3 northwest
Punta Gorda Airport	36.2 south
Lakeland Linder Regional	29.4 north
General Aviation (within 50 nautical miles)	
Airport Manatee	34.9 northwest
Albert Whitted Airport	42.4 northwest
Arcadia Municipal	19.5 south
Avon Park Executive	19.3 east
Bartow Municipal	26.2 north
Lake Wales Municipal	26.6 northeast
Plant City Municipal Airport	32.8 northwest
Sebring Regional	28.9 east
Vandenberg Airport	38.8 northwest
Venice Municipal Airport	40.0 southwest
Winter Haven – Gilbert Field	33.6 north
Private Airports (within 20 nautical miles)	
Crews	16 northeast
Ellsworth	18 south
Gardner	10 southeast
Griffins	7 south
McDonald	19 south
Myakka Head	13 west
Southfork	18 northwest

2.8 AIRSIDE FACILITIES

The airside of an airport can be described as the area in which aircraft conduct operations. Facilities included on the airside of an airport include runways, taxiways, aprons, and the airspace surrounding the Airport. Discussed in this section are Wauchula Municipal Airport's runway, taxiways, and apron facilities. **Figure 2-7** provides an aerial layout of the facilities at the Airport.

2.8.1 Runway 18-36

Wauchula Municipal Airport features one active runway, Runway 18-36, oriented in a north-south direction. It handles all of the aircraft that use the Airport and its facilities. Runway 18-36 meets the design criteria for an Airport Reference Code (ARC) of B-II Small Aircraft Only. The classification of B-II means Runway 18-36 accommodates aircraft with a wingspan of 49 feet and up to, but not including, 79 feet, and having approach speeds of 91 to 121 knots. The "Small Aircraft Only" classification includes aircraft having a maximum takeoff weight up to 12,500 pounds.

Runway 18-36 is a 4,005-foot long by 75-foot wide, asphalt runway. At the approach end of Runway 18 there is a displaced threshold necessary to provide vertical clearance over obstructions identified in FAA records as trees. The threshold is displaced 500 feet providing pilots 3,500 feet available for landing when using Runway 18. The pavement prior to the displaced threshold is available for pilots to use for takeoff from either runway end as well as landing from Runway 36.

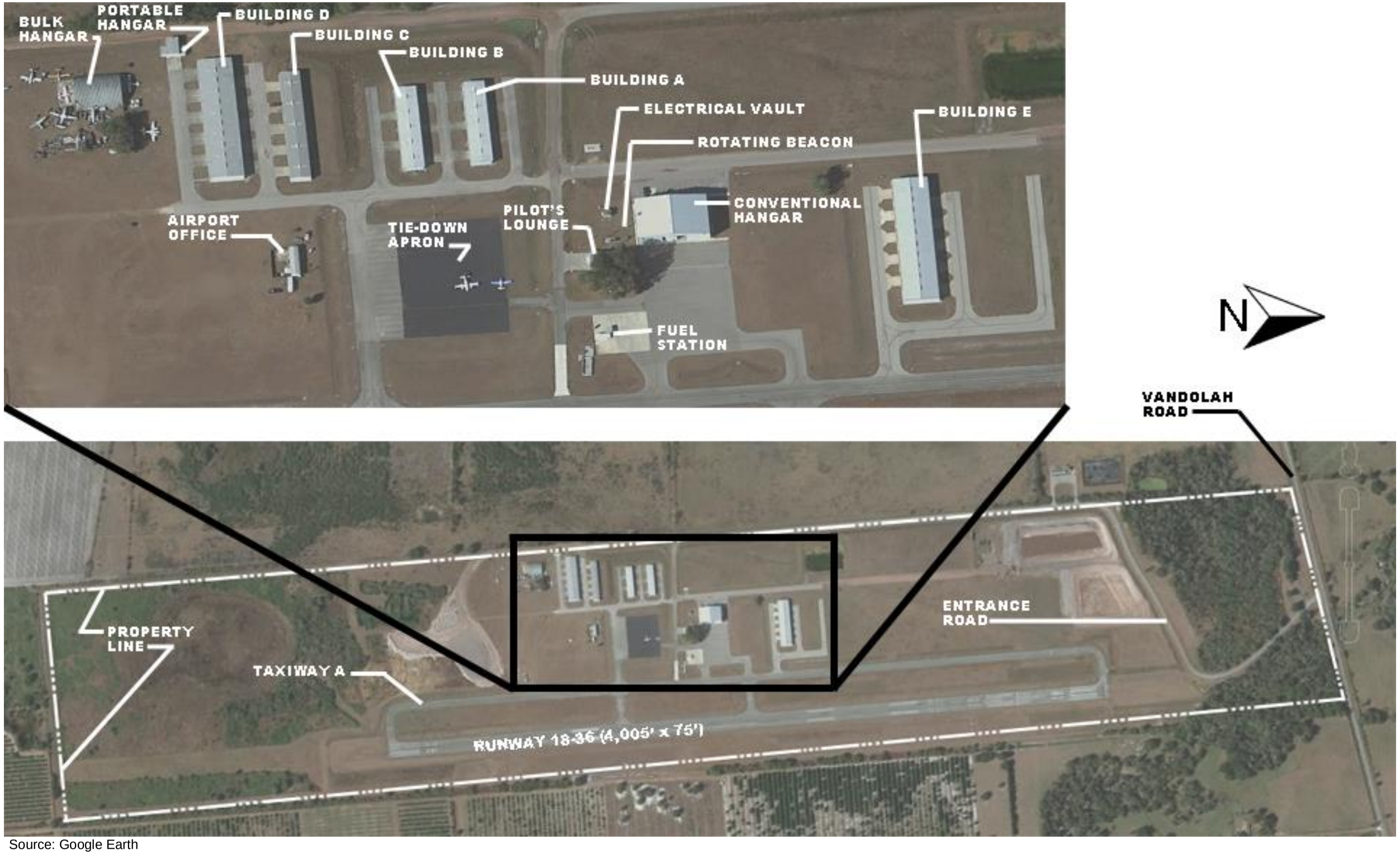
The condition of the pavement for Runway 18-36 is determined to be good. However, several areas showed the initial signs of pavement weathering.

2.8.1.1 FAA Safety Criteria

The FAA has developed various safety standards to provide an adequate safety margin for aircraft operators and for others in the general vicinity of a runway. For runways, these standards vary based upon the aircraft wingspan and approach speed as well as the approved approach procedures to each runway end. The following provides a brief description of the runway safety criteria set by the FAA:

- **Runway Safety Area (RSA)**: These areas are centered upon the runway centerline and run along the sides and ends of each runway. The terrain within the RSA must be able to support maintenance and emergency response vehicles as well as the occasional passage of an aircraft. These areas must be smoothly graded and be free of any objects (except those needed to support aircraft operations) including aircraft and vehicles while an operation is occurring on the active runway. The purpose of an RSA is to minimize damage to aircraft and injuries to passengers in the event an aircraft leaves the runway. The RSA dimensions depend on the aircraft approach category and on the physical characteristics of the critical aircraft identified for the runway.
- **Runway Object Free Area (OFA)**: This safety criterion provides a defined area, which runs along the sides of and beyond the runway end, which must be free of any permanent objects. It is permissible to taxi and hold aircraft in an OFA, but not to park them in this area.

Figure 2-7
EXISTING AIRPORT CONDITIONS



Source: Google Earth

- **Runway Obstacle Free Zone (OFZ)**: Very similar to the OFA, the OFZ is centered on the runway centerline and extends beyond each runway end by 200 feet. The OFZ width is dependent on the runway utilization and approved approaches. This area must remain free of all objects during any aircraft operation.
- **Runway Protection Zones (RPZ)**: Airport operators should have legal control over the defined RPZ at each runway end. The RPZ is designed to protect property and people on the ground off the end of a runway. This area is statistically where most aircraft accidents are likely to occur. The shape of the area is a trapezoid with the shorter end located 200 feet beyond the runway end. The RPZs at opposite runway ends may have different dimensions determined by the approved approach procedure to that specific runway end.

Table 2-3 provides a listing of the design standards for each of these safety criteria for Runway 18-36.

Table 2-3
RUNWAY SAFETY AREA CRITERIA

Safety Criteria		Runway 18-36 (in feet)
Runway Safety Area (RSA) Width		150
RSA Length Beyond Runway End		300
Object Free Area (OFA) Width		500
OFA Length Beyond Runway End		300
Obstacle Free Zone (OFZ) Width		400
OFZ Length Beyond Runway End		200
Runway Protection Zone (RPZ)	Runway 18	1,000 x 500 x 700
	Runway 36	1,000 x 500 x 700

Note: RPZ dimensions given as length x inner width x outer width
Source: Wauchula Airport Layout Plan, 2007

2.8.1.2 Runway Designation

Runway designation markings are provided on each end of a runway and are used by pilots to properly identify the runway. The designation identifies a runway according to the inbound compass heading and consists of a number. The designation number represents the whole number nearest the compass heading when viewed from the direction of approach. For example, where the compass heading is 183-degrees, the runway designation would be 18, and for a compass heading of 87 degrees, the runway designation would be 9.

Compass readings are affected by the earth's magnetic field and by large magnetic objects in the vicinity. The effect of magnetic objects in the vicinity is called "deviation". The effect of the earth's magnetic field is called "variation". Compass headings corrected for nearby objects (deviation) are "magnetic" directions. Correcting for the Earth's magnetic field (variation) gives us "true" direction. When on land, "variation" is referred to as "magnetic declination" or sometimes "deviation."

The compass heading is determined by correcting the runway's true bearing for magnetic declination. To accomplish this modification, westerly magnetic declination values are added to a runway's true bearing, while easterly magnetic declination values are subtracted. The magnetic declination for the Wauchula Municipal Airport is 04° 00' 00" West. Since the magnetic declination is westerly, the compass headings associated with the runways at the Airport are determined by adding the declination value to the true bearing values. The true bearing of Runway 18 is 179º 56' 08.12". Therefore, the compass heading of Runway 18 is 183° 56' 08.12" and the designation of the Runway should be 18. The reciprocal end of the runway is always 180 degrees, so the opposite end of runway 18 is 36.

2.8.1.3 Markings and Lighting

Runway 18-36 features non-precision markings at both ends of the runway, which is appropriate as each runway is served by a non-precision approach. Non-precision markings consist of a runway centerline, aiming points, and threshold bars. These markings are white in color. The current runway markings are in good condition.

The lighting on Runway 18-36 consists of incandescent threshold lights and runway edge lights. The edge lights of Runway 18-36 are a system of medium intensity runway edge lights (MIRL). The MIRL system brightness can be adjusted by a pilot while in flight to meet their needs. The runway lighting condition can be described as good.

2.8.2 Taxiway/Taxilanes

Taxiways provide access to runways, aircraft parking aprons, and other facilities on the airfield. At airports where air traffic control (ATC) is present, movement on taxiways is dictated by a controller. Taxilanes provide basically the same function as a taxiway, by providing a way to maneuver around the airfield. Taxilanes are not controlled by ATC and are often only used by local traffic because they are the paths that connect hangar areas with taxiways.

2.8.2.1 Taxiway A

Runway 18-36 is served by Taxiway A, which runs the full length and parallel to Runway 18-36. It connects to the runway at both runway ends. Taxiway A is paved and lighted. It provides a connection to the apron and T-hangars via taxilanes. Taxiway A's pavement and markings are in good condition. The taxiway edge lighting, similar to that on Runway 18-36, can be described as in good condition.

This 35-foot wide taxiway is marked with a six-inch, yellow centerline. Runway hold line markings are also located at each runway end offset 190 feet from the runway centerline.

2.8.2.2 Taxiway – Runway Connectors

There are two 35-foot wide runway connectors connecting Taxiway A with Runway 18-36, located towards the middle of the runway. The pavement at these connectors is in good condition. The hold lines are offset 190 feet from the runway centerline. Each connector is marked with a centerline and runway hold line markings, all of which are in good condition. In addition there is taxiway edge lighting on the runway connectors, which is also in good condition.

2.8.2.3 Taxilanes

The taxilanes at the Airport provide access from the hangars and apron to Taxiway A. The taxilane located along the south edge of the apron is 25 feet wide. The taxilane oriented

north to south leading into the hangar rows is also 25 feet in width. The taxilanes associated with Hangars A and B are 20 feet wide whereas those serving Hangars C and D are 25 feet wide. The taxilanes pavement is in fair condition.

2.8.3 Apron

Located west of Taxiway A, the apron at the Airport provides tie-down parking for based or transient aircraft. With a 227-foot width and 237-foot length, the Airport's apron allows for parking of up to 13 aircraft. Currently the apron pavement is in good condition. A seal coat was applied in recent years, and is slightly weathered. The pavement markings are in poor condition.

2.8.4 Navigational Aids

Navigational Aids (NAVAIDS), provide a level of safety for the flying public. NAVAIDS assist pilots while in flight from point-to-point or on approach to an airport. NAVAIDS provide assistance either visually to the pilot or via aircraft instrumentation for approaches. NAVAIDS can provide vertical and/or horizontal guidance. The use of NAVAIDS helps to lower approach minima for a runway allowing pilots to land under worse weather conditions than they would be able to without the NAVAIDS. The Airport has several visual and instrument NAVAIDS, as described in the following sections.

2.8.4.1 Airport Rotating Beacon

A green and white rotating beacon, shown in **Figure 2-8**, operates during hours of darkness providing pilots with guidance to the Airport. These colors reflect that Wauchula Municipal Airport is a civil use airport. It is located north of the apron and is 70 feet in height. The beacon is currently in good condition.

Figure 2-8
AIRPORT ROTATING BEACON

2.8.4.2 Wind Cones

To indicate the direction of the wind, there are two wind cones along Runway 18-36. One wind cone is located towards the approach of Runway 18 at the north end of the airfield and

to the west of the runway. The second wind cone is at the approach of Runway 36 to the south and on the east side of the runway. Both wind cones are lighted to provide pilots the direction of the wind at night. The north wind cone is in poor condition due to weathering, while the south wind cone is in good condition, but is starting to show some signs of weathering.

2.8.4.3 Precision Approach Path Indicator

A Precision Approach Path Indicator (PAPI) is a system of light units at a runway edge that provides pilots approach guidance to a runway's end. The Airport features a four-box PAPI system at both Runway 18 and 36 ends. They are located to the left of the runway as an aircraft approaches the runway threshold. Thus, at the 18 end the PAPI is east of the runway whereas at the 36 end it is to the west. The PAPI at the Runway 36 end is located 604 feet from the threshold and the 18 end PAPI is 400 feet from the threshold. The PAPI systems at the Airport were manufactured by Siemens Airfield Solutions, Inc. and are in good working order.

2.8.4.4 Non-directional Radio Beacon

The Airport's Non-directional Radio Beacon (NDB) facility consists of two towers and an equipment shelter and is located on the southwest end of the airfield. Through an instrument located on the aircraft, it provides pilots with horizontal guidance when landing. The NDB also provides pilots assistance in navigation while in flight. It was installed in 2000 and is in good condition.

2.9 LANDSIDE FACILITIES

This section describes the landside and support facilities at the Wauchula Municipal Airport, including hangar facilities, electrical vault, fuel farm, pilot's lounge, and vehicular access facilities. **Figure 2-7** identifies the location of these facilities.

2.9.1 Hangar Facilities

The T-hangar facilities at the Airport have grown to include five buildings containing 35 T-hangar units and five box hangar units. The layout of the T-hangar buildings can be seen in **Figure 2-7**. Hangar capacity varies by building with Buildings A and B housing five units each, two on one side and three on the other. Buildings A and B are similar in design and construction. Building B is shown in **Figure 2-9.** Building C houses five units all located on the south side and is shown in **Figure 2-10**. Building D houses ten units with five on each side. Building E houses ten units, five on each side and is shown in **Figure 2-11**. Buildings A and B are in good condition with some wear, while the newer Buildings C and D are in excellent condition. Building E, the newest T-hangar is also in excellent condition.

Figure 2-9
T-HANGAR BUILDING B

Figure 2-10
T-HANGAR BUILDING C

Figure 2-11
T-HANGAR BUILDING E

In addition to the T-hangars, there is bulk hangar, a conventional hangar, and one portable hangar. The bulk hangar and the portable hangar are located south of Hangar D. Both of these hangars are in poor condition. The bulk hangar is used by B & B Aircraft Services and is shown in **Figure 2-12**. The conventional hangar is used by Harvest Aviation, is in excellent condition, and is shown in **Figure 2-13**.

Figure 2-12
B&B AIRCRAFT SERVICES BULK HANGAR

Figure 2-13
HARVEST AVIATION CONVENTIONAL HANGAR

2.9.2 Airfield Electrical Vault

The airfield electrical vault contains the Power control center for the airfield's lights and NAVAIDS. In addition, the electrical vault provides a sheltered environment for all of the electrical equipment including four regulators, one being a spare, to operate the airfield's lighting system. Three of the regulators are 7.5 kilowatts in size, including the spare, and the other regulator is 4 kilowatts in size. This building and the equipment is maintained by the City of Wauchula. The vault also stores necessary spare parts to maintain the existing airfield lighting and NAVAIDS. The electrical vault is shown in **Figure 2-14**.

Figure 2-14
ELECTRICAL VAULT

2.9.3 Fuel Farm

The fuel farm at the Airport consists of one 5,000-gallon AvGas tank that is connected to a self-service pump. The current fuel farm is approximately five years old. The tanks from the previous fuel farm have been removed, but at least one pump and the fuel spill containment wall remain. The eastern side of retaining wall is only 60 feet from the Taxiway A centerline. FAA design standards dictate that no object should be closer than 65.5 feet from the taxiway centerline. The modification to standard notes that operations should be limited to aircraft with a wingspan of 50 feet or less until the fuel spill retaining wall is removed. Both the new fuel farm and the remains of the old fuel farm are shown in **Figure 2-15**.

Figure 2-15
NEW AND OLD FUEL FARMS

2.9.4 Pilot's Lounge

The pilot's lounge is an approximately 1,450-square foot building designed for pilots to use before, after, and in between flights for flight planning, resting, and other purposes. It consists of a men and women's restroom and a large room with a table and areas to sit. It is also used for the Wauchula Airport Authority meetings. This facility is shown in **Figure 2-16**.

Figure 2-16
PILOT'S LOUNGE

2.9.5 Vehicular Facilities

Vehicular access to the Airport is made via a paved, two-lane road, which provides access from the Airport's central facilities to Vandolah Road. This entrance road leads to a vehicular entrance for the hangar area and also connects with Maurice "Sonny" Clavel Road, a small road that leads directly to Taxiway A. Vandolah Road and the entrance road are identified on **Figure 2-7**. There are no designated or paved parking areas for automobiles at the Airport except in front of the Harvest Aviation hangar and the Pilot's Lounge. Most traffic entering the Airport is related to based aircraft users. Therefore, they proceed directly to a hangar and park in or near them.

2.9.6 Perimeter Fence

Encompassing the entire property is a fence, consisting of five strands of barbed wire between wooden posts. This perimeter fences serves to keep wildlife from entering the Airport property. The perimeter fence encloses the Airport's property, but does not enclose the airfield once inside the fence. The Airport has begun to replace the five-strand fence with a six-foot tall security chain-link fence with a security surveillance system to properly enclose and monitor the Airfield Operating Area (AOA).

2.9.7 Utilities

The Airport is equipped with necessary utilities to support current activities. The following sections describe the primary utility infrastructure currently located at the Airport.

2.9.7.1 Power

Power for the Airport is supplied by the City, which purchases electricity from Florida Power and Light and then provides it to the Airport. The electricity enters the Airport property from the southeast end of the airfield via underground lines. These lines run underground along the eastern edge of the airfield and cross under the runway and taxiway at approximately the midpoint of the runway. The lines then turn back south and lead to the airfield electrical vault. It also connects with the different facilities on the Airport property. The electricity currently operates on a one-phase system. Plans to install a three-phase system are part of the planned T-hangar development east of Maurice Clavel Road. A three-phase system is generally more efficient and would more effectively support future developments.

2.9.7.2 Water

Currently, the Airport uses well water to supply its potable water needs. The well pump is located next to the airfield electrical vault. A package treatment system provides basic disinfection of the well water. Currently, there is no municipal water line conveniently located near the Airport.

2.9.7.3 Sanitary Sewer

At this time, most of the buildings with restroom facilities at the Airport use septic tanks to meet their sanitary sewer needs. In 2007, a wastewater treatment plant as shown in **Figure 2-17** was built adjacent to the Airport and has the potential to supply the Airport with sanitary sewer service. The Vandolah Waste Water Treatment Plant (WWTP) has a permitted capacity of 50,000 gallons per day and is owned by Hardee County. Desiring to provide wastewater service to the Harvest Aviation hangar constructed in 2009, and for future continued development of the west side area of the Airport, the City constructed a master lift station and 2,250 linear feet of four-inch force main with a connection to the Vandolah WWTP. Both the Harvest Aviation hangar and the Airport office are now connected to the lift

station. The City also constructed 535 linear feet of gravity sewer with manholes to connect the Harvest Aviation hangar plus one other planned hangar. The gravity system is designed to be extended to serve the entire west side area of the Airport with transmission to the WWTP by the lift station that has a design capacity of 125 gallons per minute. The current permitted flow from the Airport is 150 gallons per day. However, that capacity may be increased by permitting future building connections in the west side area of the Airport.

Figure 2-17
HARDEE COUNTY-VANDOLAH WASTE WATER TREATMENT PLANT

2.9.8 Stormwater Management

The City utilizes a system of ditches and ponds to control the drainage of stormwater in the different stormwater basins on the property. Stormwater runoff on the Airport property goes in two different directions. A break in the topography that runs along Maurice “Sonny” Clavel Road generally divides flow of stormwater to either the north or south.

There are four major basin areas at the Airport:

- Storm water runoff collected to the north in Basins A and B flow to the north and discharges into Troublesome Creek via ditches and swales. Basins A and B are divided by the runway centerline with Basin A being to the east.
- Basin B is located to the west of the runway. Located in Basin B are dry retention ponds between the runway and Taxiway A. The banks of these ponds were observed to be higher than the runway and taxiway in some areas. The Airport’s master west side development area is also included in Basin B. This area is bordered by Taxiway A and the Airport entrance road. Established for aviation related development such as hangars, aprons, and other supporting businesses, the west side area has a master stormwater permit issued by the Southwest Florida Water Management District (SFWMD) with stormwater treatment and attenuation provided in three wet detention ponds. The system is sized for the complete build-out of the area, however individual projects require SFWMD permit modifications to ensure the maximum aggregate impervious area does not exceed the design limits. After treatment, excess stormwater is discharged through control structures into the Airport entrance road ditch that eventually flows into Troublesome Creek. Because the stormwater ponds are permanently wet, the Airport has to monitor them closely as potential hazardous wild life attractants, and mitigate this as required.

Additionally, an anti-bird wire grid system is proposed for the two largest ponds located at the north end of the west side area. The anti-bird wire system will be bid and constructed at the same time as the security fencing project, which is currently under design.

- To the south of Basins A and B lies Basin C. Basin C encompasses the area along Taxiway A and the runway south of the break line along Maurice Clavel Road. Water collected in this basin flows to the south.
- Basin D also lays to the south of Maurice Clavel Road's centerline and west of Taxiway A centerline to include the apron and hangar buildings. The stormwater in this basin flows and gathers in the dry retention pond near the hangar buildings. It then is transferred via an outlet pipe under the road and flows to the north in a ditch along the Airport entrance road into Troublesome Creek.

2.10 AREA DEMOGRAPHICS

Aviation activity levels have traditionally been linked to several key socioeconomic indicators. The connection is related to the relatively high cost of operating an aircraft and that in some cases, the percent of population using these services remains constant. This section presents data on population, employment and per capita personal income for Florida and the Hardee County area.

Hardee County is located in an area designated by the State of Florida as a Rural Area of Critical Economic Concern (RACEC). RACEC's are defined as:

> Rural communities or a region composed of rural communities that have been adversely affected by extraordinary economic events or natural disasters. The Governor by executive order may designate up to three RACECs, which establishes each region as a priority assignment for Regional Economic Development Inc. (REDI) agencies and allows the Governor to waive criteria of any economic development incentive including, but not limited to: the Qualified Target Industry Tax Refund Program under section 288.106 F.S., the Quick Response Training Program and the Quick Response Training Program for participants in the welfare transition program under section 288.047 F.S., transportation projects under section 288.063 F.S., the brownfield redevelopment bonus refund under section 288.107 F.S., and the rural job tax credit program under section 212.098 F.S. and section 220.1895 F.S.

Hardee County is located in the South Central Rural Area of Critical Economic Concern along with DeSoto, Glades, Hendry, Highlands, and Okeechobee counties, and the cities of Pahokee, Belle Glade, and South Bay (Palm Beach County), and Immokalee (Collier County).

2.10.1 Population

Population growth in Hardee County had a Compounded Annual Growth Rate (CAGR) of 0.4 percent in the period of 2000 through 2010. This rate was slower than the rate for the State of Florida which averaged 1.6 percent CAGR during the same period.

For the next 21 years, the population of Hardee County is forecast by Woods & Poole Economics to grow at a CAGR of 0.9 percent. The population of the State of Florida is forecast to grow at a CAGR of 1.4 percent. This means that while the rate of growth for the State of Florida is slowing somewhat, the rate of growth for Hardee County will accelerate, as shown in **Figure 2-18** and **Table 2-4**.

Figure 2-18
HISTORICAL AND PROJECTED
COMPOUNDED ANNUAL GROWTH RATE FOR POPULATION

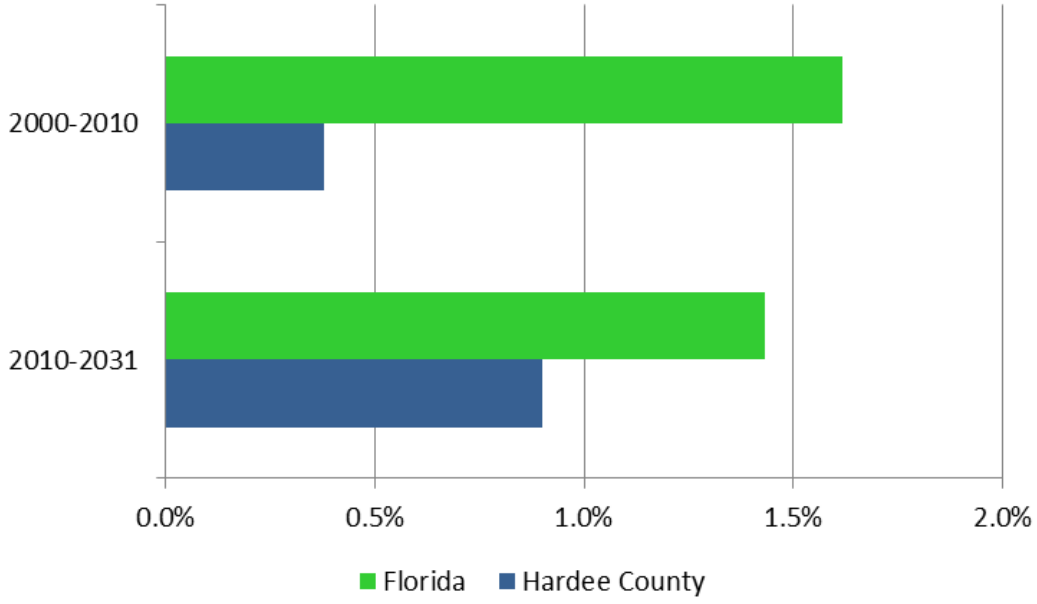


Table 2-4
POPULATION

Year	Florida	Hardee County
2000	16,047,520	26,769
2001	16,356,970	26,378
2002	16,689,370	26,787
2003	17,004,090	26,765
2004	17,415,320	26,847
2005	17,842,040	26,874
2006	18,166,990	27,049
2007	18,367,840	27,489
2008	18,527,310	27,603
2009	18,652,640	27,661
2010	18,843,330	27,801
Historical CAGR	1.6%	0.4%
2016	20,672,930	29,363
2021	22,241,600	30,745
2026	23,822,430	32,156
2031	25,392,370	33,561
Forecast CAGR	1.4%	0.9%

Source: Woods & Poole Economics

2.10.2 Employment

At 0.3 percent, the CAGR for in employment in Hardee County was below that of the State of Florida, which had a CAGR in employment of 1.0 percent for the period of 2000 through 2010. In the future, for the period between 2010 and 2031, Hardee County is expected to outpace the current CAGR in employment for the State of Florida. The County is forecast to have a 1.7 percent CAGR of employment in the period between 2010 and 2031. The State of Florida is anticipated to enjoy a CAGR in employment of 1.7 percent during the same period, as shown in **Figure 2-19** and **Table 2-5.**

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Figure 2-19
HISTORICAL AND PROJECTED
COMPOUNDED ANNUAL GROWTH RATE FOR EMPLOYMENT

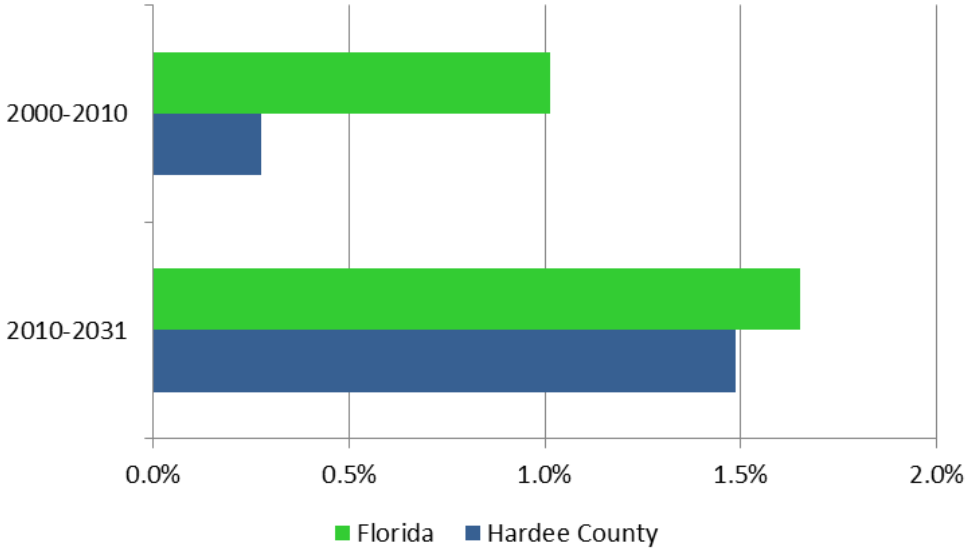


Table 2-5
EMPLOYMENT

Year	Florida	Hardee County
2000	8,841,604	11,029
2001	8,917,154	10,883
2002	9,055,999	10,403
2003	9,286,029	10,682
2004	9,661,601	10,859
2005	10,087,922	11,275
2006	10,407,354	11,196
2007	10,577,329	11,502
2008	10,304,803	11,566
2009	9,840,251	11,012
2010	9,780,200	11,335
Historical CAGR	1.0%	0.3%
2016	10,701,884	12,440
2021	11,660,040	13,383
2026	12,689,335	14,387
2031	13,794,447	15,452
Forecast CAGR	1.65%	1.49%

Source: Woods & Poole Economics

As in most other regions of the country, service industries dominate the employment statistics. However, both the State of Florida and Hardee County also have diverse employment, including manufacturing and mining, as shown in **Table 2-6**. A list of the major employers in Hardee County is shown in **Table 2-7**.

Table 2-6
PERCENTAGE OF EMPLOYMENT BY BUSINESS TYPE

Business Type	Percent in Hardee County	Percent in Florida
Education and Health Services	15.1	22.0
Public Administration	12.2	6.6
Transportation, Trade, and Utilities	12.0	21.2
Natural Resources and Mining	6.1	n/a
Leisure and Hospitality	5.0	13.2
Manufacturing	3.7	4.3
Financial Activities	3.4	6.6
Construction	2.6	5.0
Professional and Business Services	1.5	14.8
Other Services	1.1	3.3
Information	0.5	1.9
Unclassified	n/a	n/a

Source: Enterprise Florida

Table 2-7
MAJOR HARDEE COUNTY EMPLOYERS

Employer	Business	Number of Employees
Florida Institute of Neurological Rehabilitation	Healthcare	550
WalMart	Retail	288
Mosaic	Phosphate	277
C.F. Industries	Phosphate	175
Peace River Electric Cooperative	Electric Service	137
Wauchula State Bank	Banking	121
Florida Hospital Heartland Division	Healthcare	111
Old Castle Mulch	Manufacturing	60
Pacer Marine	Manufacturing	60
First National Bank	Banking	38

Source: Enterprise Florida

2.10.3 Per Capita Personal Income

The average annual rate of growth for Per Capita Personal Income (PCPI) in Hardee County was at 0.4 percent for the years 2000 through 2010. This compared to the State of Florida, which had an average annual rate of growth of 1.6 percent during the same time period, as shown in **Figure 2-20** and **Table 2-8**.

Hardee County is projected to continue to trail the State of Florida in average annual rate of growth for the period of 2010 through 2031. Hardee County is anticipated to have an average annual rate of growth of 0.9 percent, while the State of Florida is projected to have and average annual rate of growth of 1.4 percent.

Figure 2-20
HISTORICAL AND PROJECTED
COMPOUNDED ANNUAL GROWTH RATE FOR PER CAPITA PERSONAL INCOME

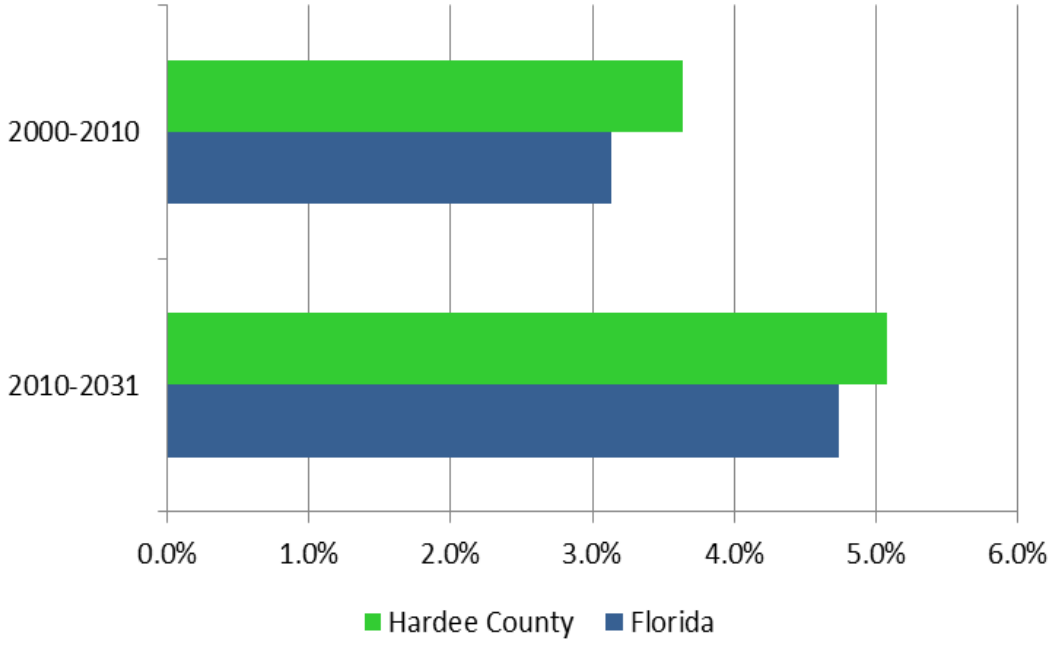


Table 2-8
PER CAPITA PERSONAL INCOME

Year	Florida	Hardee County
2000	$ 29,079	$ 17,600
2001	$ 29,804	$ 18,729
2002	$ 30,463	$ 18,435
2003	$ 31,241	$ 18,848
2004	$ 33,463	$ 20,199
2005	$ 35,489	$ 22,045
2006	$ 37,996	$ 22,361
2007	$ 39,256	$ 22,705
2008	$ 39,909	$ 23,597
2009	$ 38,725	$ 23,535
2010	$ 39,579	$ 25,151
Historical CAGR	3.1%	3.6%
2016	$ 48,834	$ 32,577
2021	$ 61,828	$ 41,662
2026	$ 75,880	$ 51,385
2031	$ 104,656	$ 71,224
Forecast CAGR	4.7%	5.1%

Source: Woods & Poole Economics

2.11 LAND USE/COMMUNITY CHARACTERISTICS

The information regarding the land use surrounding the Airport is important as it is necessary to ensure that the Airport is compatible with the surrounding community. It is equally essential that the surrounding community does not encroach upon the operations of the Airport. This section will explore the land use planning surrounding the Airport.

2.11.1 Florida Statutes Chapter 333

Local government regulation of land uses in areas surrounding airports is generally the primary method of protecting airports from incompatible development. Florida Statutes Chapter 333 requires local governments to exercise their land use planning and regulation authority to protect airports from incompatible development and loss of navigable airspace. Protecting the surrounding land and airspace of an airport is important so that future developments will not hinder future airport activities. All local governments with an airport hazard area within its territorial limits are required to adopt, administer, and enforce airport zoning. An airport hazard as defined by Chapter 333 is any structure, tree, or land use which would exceed federal obstruction standards contained in 14 CFR Part 77, *Objects Affecting Navigable Airspace*, (Part 77) and which obstructs the airspace required for the flight of an aircraft in taking off, maneuvering, or landing or is otherwise hazardous to such activities. The deadline for adopting such zoning was October 1, 1977.

Development within 10-nautical miles from the Airport Reference Point (ARP) may also require an FDOT Airspace Obstruction Permit. A permit is required if the development is taking place in an area that does not have airport zoning and if the height of the development exceeds federal obstruction standards contained in Part 77.

2.11.1.1 Landfill Restrictions

Chapter 333 also requires communities to consider airport zoning regulations that regulate the location of sanitary landfills with respect to airports. Landfills tend to attract birds and bird strikes pose a serious risk to the aircraft and the individuals on the aircraft. Sanitary landfills should be:

- 10,000 feet from the nearest point on the runways used by turboprop or jet aircraft
- 5,000 feet from the nearest point on runways used by piston aircraft
- Ideally located outside the lateral limits of the airport's Part 77 surfaces.

Figure 2-21 shows the areas around the Wauchula Municipal Airport that would be restricted from having a landfill. No known landfills currently exist within these limits.

2.11.1.2 Educational Facilities Restrictions

Chapter 333 also restricts the development of educational facilities within specified areas adjoining an airport. Educational facilities are prohibited within rectangular areas extending from each runway end, beginning at the physical end of the runway. The length of the rectangle extends out five statute miles from the end of the runway. The width of the rectangle is one half of the length of the runway. **Figure 2-22** indicates the educational restrictive limits of Statute with respect to the Airport.

2.11.1.3 Residential Restrictions

Residential development is also restricted within the vicinity of an airport. Additional residential units are prohibited within an oval area centered on each runway. The width of the oval is equal to the length of the longest runway at the airport and is centered on the centerline of the runway. The oval extends out from each runway end a distance of one half the length of the longest runway. **Figure 2-23** shows the extent of the residential restrictions with respect to the Wauchula Municipal Airport.

Figure 2-21
LANDFILL RESTRICTED AREAS

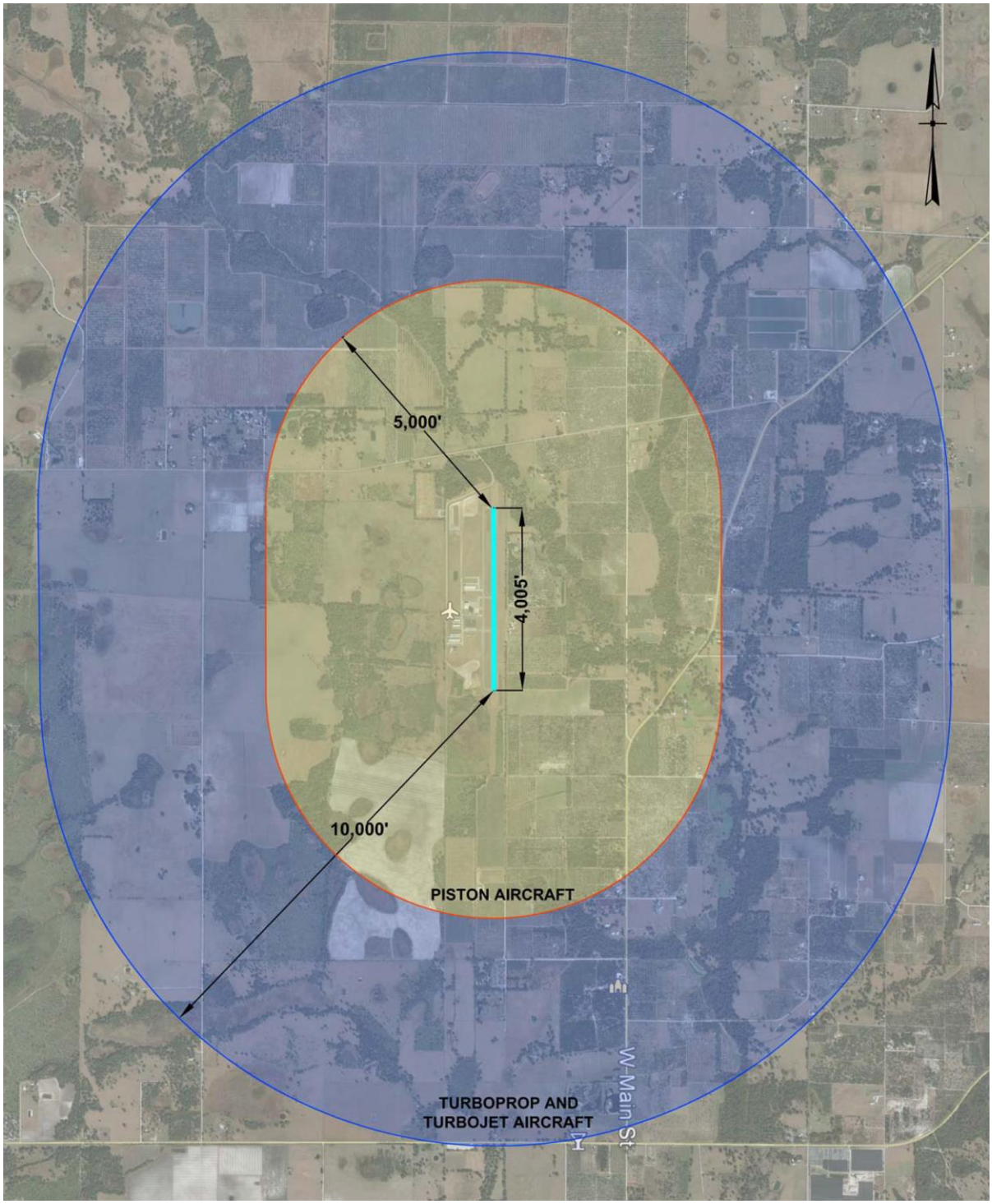


Figure 2-22
EDUCATIONAL RESTRICTED AREAS

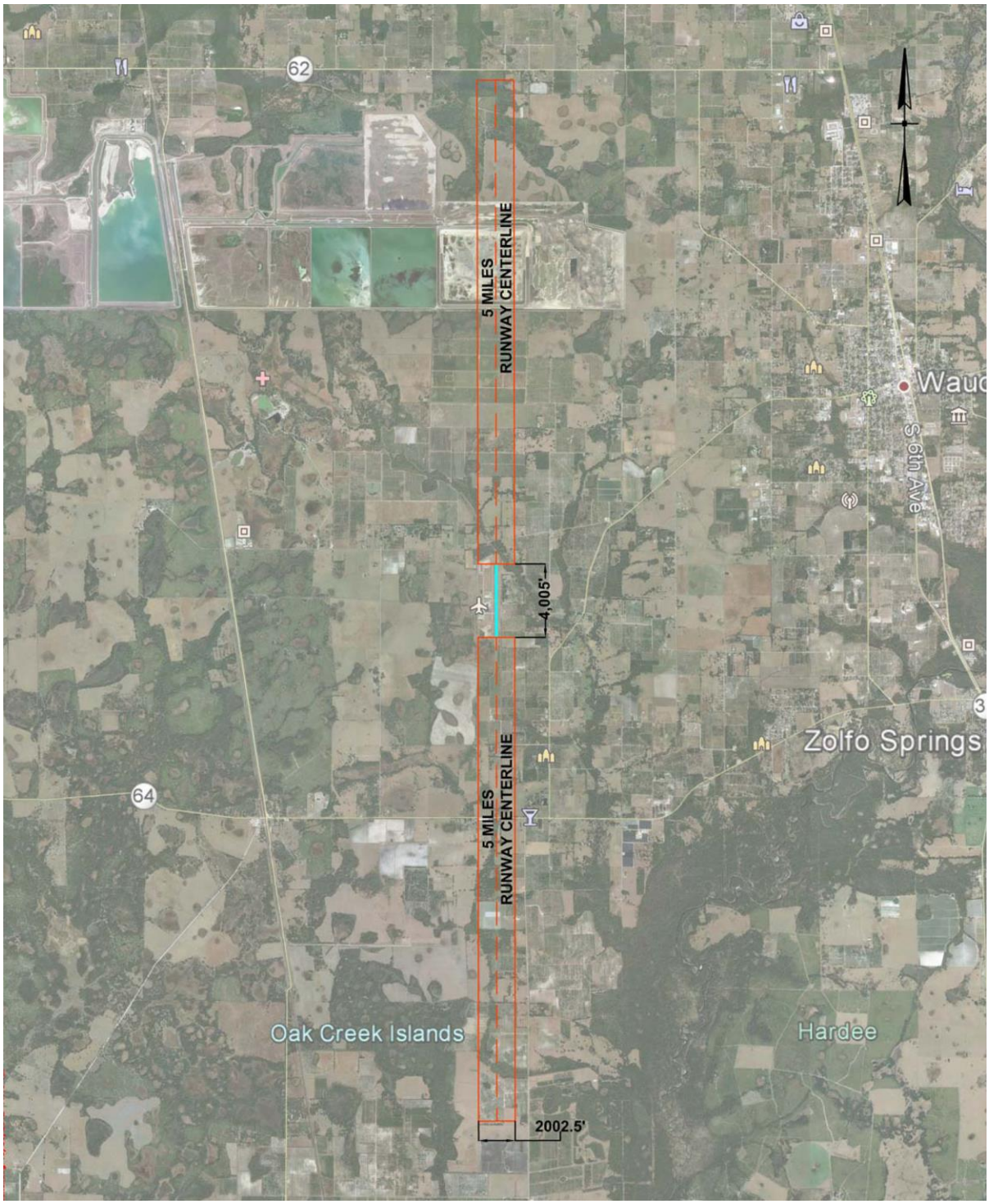
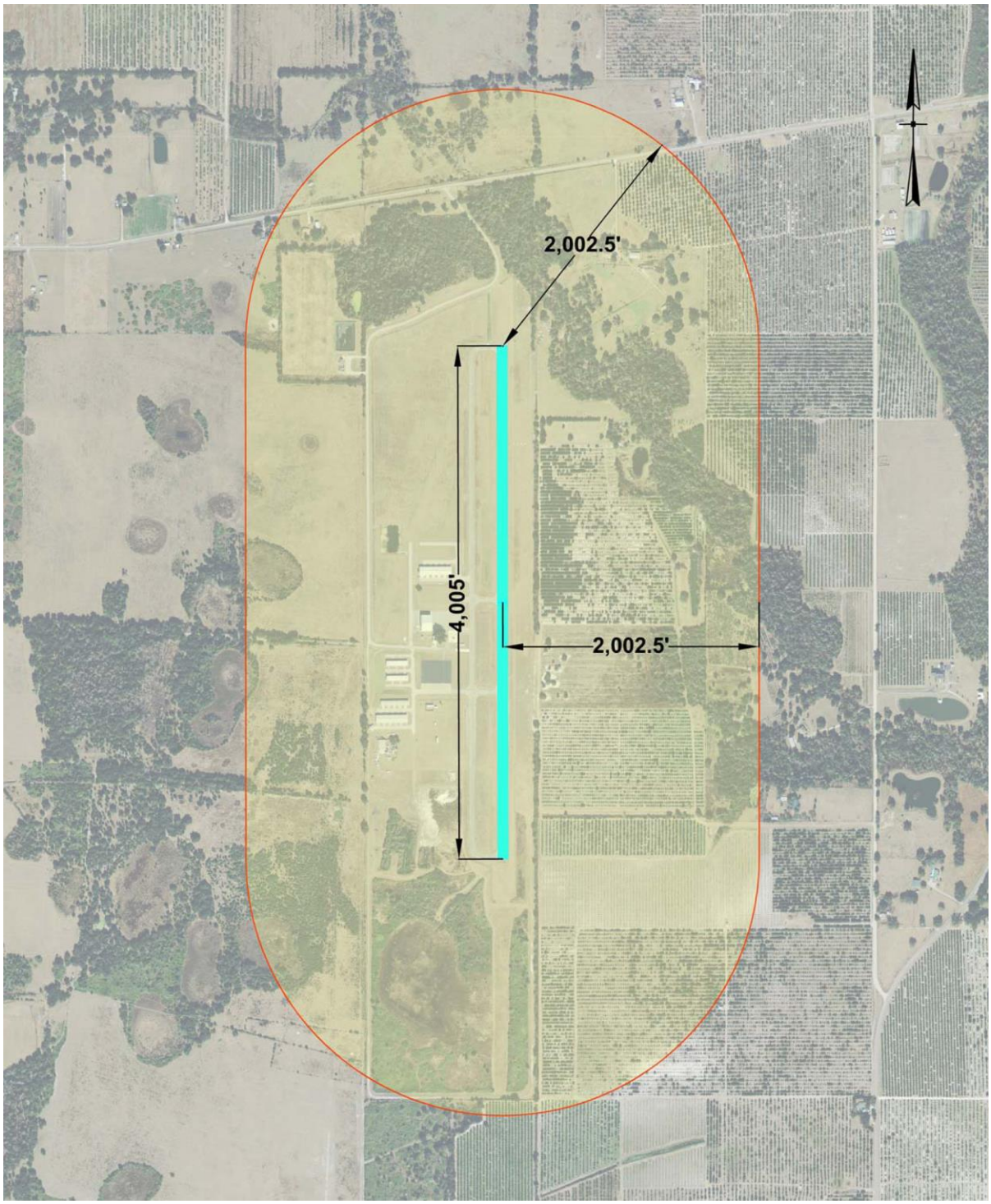


Figure 2-23
RESIDENTIAL RESTRICTED AREAS



2.11.2 Local Government Comprehensive Plans

Florida Statute Chapter 163, Intergovernmental Programs, generally known as the Growth Management Act, requires all counties and cities to adopt a Local Government Comprehensive Plan. These are intended to guide the future growth and development of the respective governments.

Development projects within an FAA-approved master plan for licensed, publicly operated airports are exempt from oversight by the local community with respect to the Local Government Comprehensive Plan. However, there should be coordination between an airport, the local government, and, where applicable, the Metropolitan Planning Organization (MPO). Hardee County is not located within an MPO. Projects developed as a result of this Master Plan Update are allowed to be inconsistent with the Local Government Comprehensive Plans; however, such projects must be thoroughly documented in the master plan update. Regardless, unless they are consistent with the Local Government Comprehensive Plan they will not be eligible for FDOT funding.

2.11.2.1 2030 Hardee County Comprehensive Plan

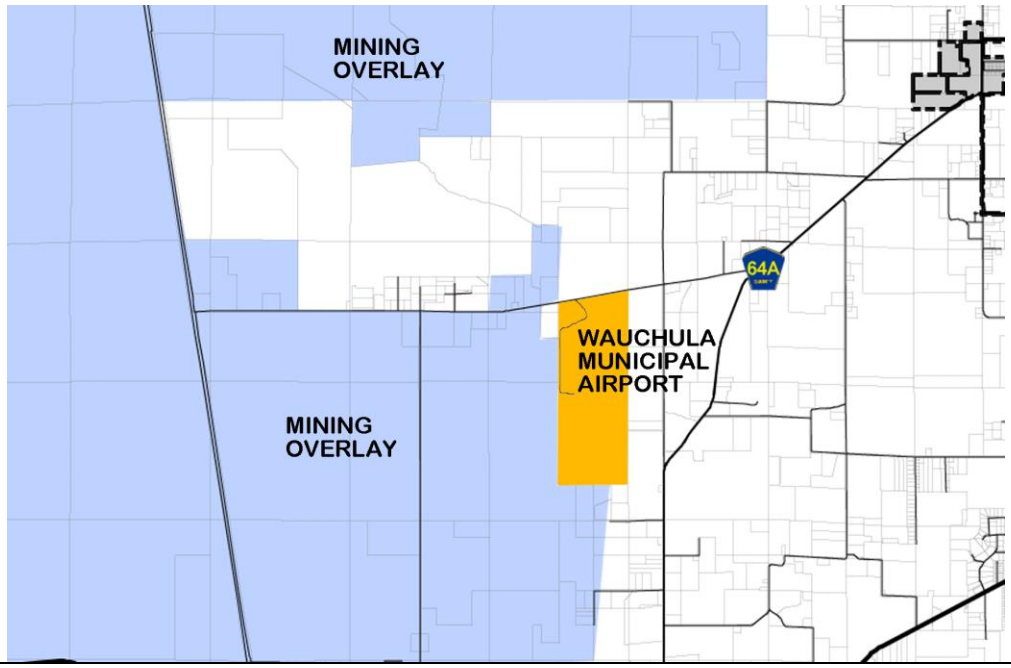
The Hardee County Comprehensive Plan was last updated in October of 2010. Within the document are several references to the Wauchula Municipal Airport and a potentially new airport within Hardee County:

- Future Land Use Element, Objective 1, Policy L1.24: The County shall strictly enforce building height requirements around the Wauchula Municipal Airport pursuant to FAA regulations and the County zoning ordinance.
- Future Land Use Element, Objective 1, Policy L1.25: The County shall protect the Wauchula Municipal Airport from encroachment of incompatible land uses through appropriate zoning and other land development regulations.
- Transportation Element, Objective 5, Policy T5.1: Hardee County shall investigate ways to serve as an intermodal hub for people and goods throughout the surrounding region. Possibilities include, but are not limited to, a new airport/intermodal hub.
- Economic Development Element, Objective 3, Policy E3.1: Hardee County shall work with the City of Wauchula to improve infrastructure at the existing airport for industrial development.
- Economic Development Element, Objective 3, Policy E3.3: The area bounded by the northern County boundary with Polk County south to S.R. 62 and from the western County boundary with Manatee County east to C.R. 663 in northwest Hardee County shall be designated as the potential location for the development of a new airport to serve as an intermodal hub for transportation of goods and people throughout the region. Further study and analysis will be completed to determine specific site suitability and appropriateness. At such time when a specific site is identified the County shall amend the Future Land Use Map to designate the potential airport location.

Within the Hardee County Comprehensive Plan, the Airport is designated Public Institutional land. The land surrounding the Airport is designated as Agricultural. However, the land immediately to the west and south of the Airport is also shown as a “mining overlay” as shown in **Figure 2-24**. The Hardee County Comprehensive Plan also shows minor wetland

on and in the vicinity of the Airport as shown in **Figure 2-25** and floodplains as shown in **Figure 2-26**.

Figure 2-24
MINING OVERLAY

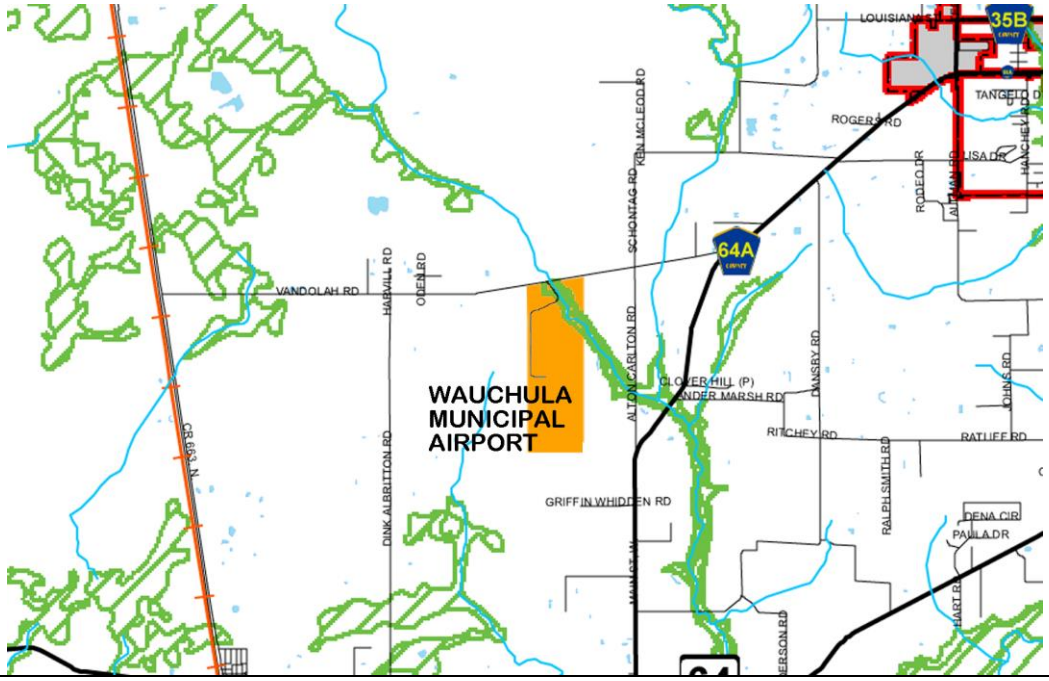


Source: 2030 Hardee County Comprehensive Plan

Figure 2-25
WETLANDS

Source: 2030 Hardee County Comprehensive Plan

Figure 2-26
FLOODPLAINS



Source: 2030 Hardee County Comprehensive Plan

2.11.2.2 City of Wauchula 2030 Comprehensive Plan

The City of Wauchula's 2030 Comprehensive Plan was adopted on June 13, 2011. There are several references to the Airport in the Plan including:

- **Traffic Circulation Element, Objective 2 – Coordination With Future Land Uses, Policy 2.7:** The City shall promote the surface transportation corridor that connects its industrial areas to the airport for shipment of goods and products; the City will work with Hardee County and FDOT to ensure that there is an adequate network for ease of goods movement and truck routes.
- **Traffic Circulation Element, Objective 6 – Preservation of Rights-of Way, Policy 6.2:** The City will protect airports and other transportation facilities and routes connecting or linking facilities from encroachment of incompatible land uses through implementation of the Future Land use and Conservation Elements of the Comprehensive Plan.
- **Traffic Circulation Element, Objective 8 – Airway Systems:** The City shall enforce regulations to protect the airways approach to airports in a manner consistent with DOT and FAA requirements, so that communication towers, antennas, water towers, industrial uses, multi-story residential uses, and church steeples are not erected in the flight path of the Wauchula airport.
    - Measurable Targets: Maintain attendance on airport board; protect approach to airport zone by enforcing land development regulations.
    - Policy 8.1: The City shall enforce its development regulations in compliance with the FDOT model navigable airspace system, and revise as necessary.
    - Policy 8.2: The City shall maintain representation on the airport board in order to coordinate multi-model transportation systems through the City and county.

2.11.3 Hardee County Airport Zoning

Zoning authority around the Wauchula Municipal Airport belongs to Hardee County. There are three references to airport zoning in the Hardee County Land Development Code:

- **2.11.00. - Building Height Limitations:** Building height regulations in the individual zoning districts may be exceeded in the case of some structures, including, but not limited to, church steeples, industrial structures, communication towers and airport structures. Where the height limit is exceeded, the setback from all property lines to the structure shall be one foot for every foot of height with the exception of a provision for a 50% to 99% of height setback from communication towers allowed by Special Exception in F-R, I-1, I-2, A-1 and P-I-zoned districts.
- **3.17.04. Light Industry: Airports and Aviation Uses:** Major Special Exception Use approval is required in I-1-, I-2-, A-1- and P-I-zoned districts.
    (A) Landing strips and heliports, accessory hangars and sheds are subject to the intensity class performance criteria applicable to the underlying zoning district.

(B) The area proposed for this use shall be sufficient and the site otherwise adequate to meet the standards of the FAA.

(C) Any proposed runway or landing strip shall be situated so that any structures, high voltage power lines, towers, chimneys, and natural obstructions within the approach zones shall comply with regulations for height restrictions in airport approach zones of the FAA.

(D) There shall be sufficient distance between the end of each usable landing strip and the airport boundary to satisfy the requirements of the FAA. If air rights or easements have been acquired from the owners of abutting properties in which approach zones fall, proof thereof shall be submitted with the application.

(E) No existing or planned approach areas shall be permitted over existing residential areas or over vacant areas zoned for future residential development; however, approach areas may be allowed over such vacant areas if deed restrictions or other mechanisms ensure that they will not be developed for residential uses.

(F) Off-street parking required: one space for every plane space within the hangers plus one space for every tie-down space plus one space for every two employees.

(G) Building setback: All hangers or structures other than administration buildings shall be at least 100 feet from any street or lot line.

(H) All repair of airplanes and machinery shall be done at least 100 feet from any street or lot line.

(I) Residential uses shall not be located within the approach path or the noise zone.

- **7.12.00. - Major Special Exception Use Permit, 7.12.01. Purpose and Intent:** Certain large-scale uses, because of their size, character or unique combination of impacts on public facilities and environmental resources, require extraordinary review when proposed for a particular location within the County. Such uses may be private or public, high density or low density, and may involve extreme lot coverage or open space. Examples of these uses include: junkyards, airports, phosphate mining operations, race track, power plant, wellfield or sewer treatment plant. The distinction between Major Special Exception Uses and Special Exception Uses is one of scale; but more so, one of undefined impacts associated with the Major Special Exception Use, and simple land use compatibility in the case of Special Exceptions, where no more than one lot or building site is involved. As a result, a Major Special Exception Use is subjected to a higher standard of review, and combines the analysis and considerations required for rezoning, review of a Site Development Plan, and other standards detailed in this Article 7. Before a Major Special Exception Use permit can be issued, a comprehensive plan amendment may be required. If so, the plan amendment must be completed prior to the Major Special Exception application being accepted. It is the purpose of this Section to identify the standards and the review process for a Major Special Exception Use Permit.

2.12 INVENTORY OF EXISTING CONDITIONS SUMMARY

This inventory discussion has focused on the existing conditions and facilities located at and around the Wauchula Municipal Airport. As noted, many of the Airport's facilities are in good condition, whereas others are in need of some repair, rehabilitation, or replacement. The information in this chapter will serve as the basis of comparison for the Facility Requirements Analysis.

3. FORECASTS OF AVIATION ACTIVITY

3.1 INTRODUCTION

The forecast of aviation activity forms the basis and justification for all planning and development on an airport. The forecast is the basis for determining how many and what type of facilities will be needed within designated periods. The periods are typically divided into three groups. The first period is the short-term period and usually occurs within the first five years of the forecast. The second period is the medium-term period and usually takes place within the second five years of a forecast. The third or long-term period usually takes place within the last ten years of the forecast.

To adequately forecast the future needs of the Airport, specific forecasts or projections are necessary for an airport with the characteristics of Wauchula Municipal Airport. These forecasts include:

- Based Aircraft
  - Single Engine
  - Multi-engine
  - Turbine (turboprop and turbojet)
  - Rotorcraft
  - Experimental, Sport, and Other
- Aircraft Operations
  - Annual Operations
  - Local Versus Itinerant Activity
  - Fleet Mix
- Peak Period Activity
  - Peak Month
  - Average Day of the Peak Month
  - Peak Hour

The forecasts in this chapter include a review of forecasts previously developed for the Airport. New forecasts have also been developed. From these forecasts, selected based aircraft and annual operations forecasts are recommended.

3.2 HISTORICAL ACTIVITY

The historical aviation activity data for the Airport was taken from a number of sources, including the FAA, FDOT, and the 2007 Master Plan Update. The based aircraft data for the Airport varies by source and there is no clear indication as to the cause of the discrepancies, as the data obtained from the FAA Terminal Area Forecast (TAF) and FDOT are reported to them by the Airport. **Table 3-1** shows these discrepancies.

Table 3-1
HISTORICAL BASED AIRCRAFT

Year	FAA 2012 TAF	FDOT	2007 Master Plan Update
1996	No Data	53	53
1997	No Data	53	54
1998	No Data	53	55
1999	No Data	43	56
2000	No Data	43	57
2001	44	44	58
2002	44	44	60
2003	44	45	61
2004	44	46	63
2005	44	47	64
2006	44	47	
2007	44	46	
2008	45	47	
2009	41	47	
2010	44	48	

Without knowing which data was correct, the most conservative data was selected to be shown as the historical data. This data was found in the FAA 2012 TAF, a forecast developed annually by the FAA for each of the airports in the National Plan of Integrated Airport Systems (NPIAS). The FAA 2012 TAF was released in January 2012 and is based on data received by the FAA through the end of their fiscal year on September 30, 2011.

The history of based aircraft at the Airport is briefly shown in **Table 3-1**. Historical based aircraft has remained stable at the Airport from the 44 based aircraft in 2001 to the 44 based aircraft in 2010.

A similar concern was found with respect to the historical data for annual operations. Again, FAA, FDOT and the 2007 Master Plan Update data were not consistent. This is shown in **Table 3-2.** The most conservative data was selected to be representational of the historical annual operations at the Airport. This was found in the data of the FAA 2012 TAF.

Table 3-2
HISTORICAL ANNUAL OPERATIONS

Year	FAA 2012 TAF	FDOT	2007 Master Plan Update
1996	No Data	7,620	7,620
1997	No Data	7,773	7,761
1998	No Data	7,773	7,905
1999	No Data	8,100	8,051
2000	9,100	8,200	8,200
2001	8,200	8,200	8,391
2002	8.200	8,200	8,586
2003	8,200	8,282	8,786
2004	8,200	8,365	8,991
2005	8,200	8,448	9,200
2006	13,025		
2007	13,259		
2008	13,498		
2009	13,741	8,200	
2010	8,200	8,274	

The Airport experienced 9,100 annual operations in 2000. By the year 2009, the number of annual operations had grown to 13,741. However, the number annual operations at the Airport declined to 8,200 in the year 2010.

3.3 PREVIOUS AVIATION ACTIVITY FORECASTS

Four forecasts of aviation activity have been developed within the last six years for Wauchula Municipal Airport. The first of these was developed in 2007 as a part of the last Master Plan Update for the Airport. The second was completed as part of the Florida Aviation System Plan (FASP) and was updated in July of 2011. The third was developed as part of the Florida Aviation Database (FAD). The fourth and most recent forecast was developed by the Federal Aviation Administration (FAA) in their annual Terminal Area Forecast (TAF).

3.3.1 2007 Master Plan Update

The 2007 Master Plan Update is the current official planning document for the Wauchula Municipal Airport. Once the recommended forecast within this report is approved by the City of Wauchula and the FAA, this forecast will replace the 2007 Master Plan Update forecast. The based aircraft projected in the 2007 Master Plan Update are shown in **Table 3-3**.

Table 3-3
2007 MASTER PLAN UPDATE BASED AIRCRAFT FORECAST

Year	Single Engine	Multi-engine	Jet	Rotor	Other	Total
2005	22	10	0	1	3	36
2010	29	12	0	1	5	47
2015	35	14	1	1	8	59
2020	37	15	2	2	10	66
2025	42	16	3	2	12	75
CAGR	3.29%	2.38%	5.65%	3.53%	7.18%	3.74%

The total number of based aircraft was projected to increase from the base year of 2005 to the year 2010 by a Compounded Average Growth Rate (CAGR) of 5.48 percent per year. After that initial period, the average annual growth rate was projected to slow to 4.65 percent per year for the next five years and then to 2.27 percent for the next five years and then to 2.59 percent for the remaining five years of the forecast. The CAGR rate for the 20-year period was predicted to be 3.29 percent. The 36 based aircraft on the Airport in 2005 were projected to grow to 47 in the year 2010, 59 by the year 2015, and 66 in the year 2020.

The CAGR for single engine aircraft was projected to be 3.29 percent over the twenty-year forecast period resulting in 42 single engine aircraft in 2025. The CAGR for multi-engine aircraft was projected at 2.38 percent for the same period, resulting in 16 multi-engine aircraft in 2025. Jets were forecast to be based on the Airport by 2015. Based rotorcraft would increase from one in 2005 to two by the year 2020. The CAGR for jets and rotorcraft was forecast to be 5.65 and 3.53 percent respectively for the 20-year forecast period between 2005 and 2025, resulting in three and two aircraft respectively on the Airport in 2025. There were three aircraft on the Airport classified as “Other” in the year 2005. These were expected to grow at a CAGR of 7.18 percent for a total of 12 in the year 2025. There was a total of 36 based aircraft on the Airport in 2005. In 2010, there was a total of 36 based aircraft. These are projected to grow at a CAGR of 3.74 percent over the next 15 years to a total of 75 aircraft based on the Airport.

The forecast for annual operations contained in the 2007 Master Plan Update is shown in **Table 3-4**. This table also shows the distribution of local operations to itinerant operations for each of the planning periods. Local operations are those arrivals and departures performed by aircraft that remain in an airport’s traffic pattern and are within sight of the airport; are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport; or is executing simulated instrument approaches or low passes at the airport. All other operations are considered to be itinerant operations.

Table 3-4
2007 MASTER PLAN UPDATE ANNUAL OPERATIONS FORECAST

Year	Local	Itinerant	Total
2005	7,500	5,000	12,500
2010	8,313	5,543	13,855
2015	9,214	6,144	15,357
2020	9,976	6,650	16,626
2025	10,800	7,199	17,999
CAGR	1.84%	1.84%	1.84%

In 2005 there were 12,500 annual operations reported by Airport management on the FAA Form 5010. The 2007 Master Plan Update projected that the annual operations would increase at a CAGR of 2.08 percent per year for the period between 2005 and 2015. After 2015, the CAGR was reduced to 1.6 percent per year for the remaining 10 years. This achieves a CAGR of 1.84 percent per year for the 20-year planning period. The local and itinerant operations were projected to increase at the same CAGR for each of the periods.

The 2007 Master Plan Update also included forecasts for peak activity. These forecasts breakdown the annual enplaned forecasts into forecasts of peak month activity, the average day of the peak month, and the peak hour of the average day as shown in **Table 3-5**.

Table 3-5
2007 MASTER PLAN UPDATE
PEAK OPERATIONS ACTIVITY FORECAST

Year	Annual	Peak Month	Average Day	Peak Hour
2005	12,500	1,250	42	6
2010	13,855	1,386	46	7
2015	15,357	1,536	51	8
2020	16,626	1,663	55	8
2025	17,999	1,800	60	9

The peak activity forecasts increased at the same CAGR as the annual operations forecasts. It estimated that 1,250 operations were handled at the Airport in the peak month of 2005. The average day of that peak month had 42 operations, and the peak hour of that day had six operations. In 2025, it was projected that there would be 1,800 operations in the peak month, 60 operations on the average day of the peak month, and nine operations in the peak hour of that day.

3.3.2 Florida Aviation System Plan

The Florida Aviation System Plan (FASP) is a plan that incorporates the traditional aviation system planning elements provided for in most state aviation system plans. The FASP is,

however, innovative in that it is continually monitored through the Continuing Florida Aviation Systems Planning Process (CFASPP), established by the FAA and the Florida Department of Transportation (FDOT). The forecast of aviation activity for Wauchula Municipal Airport was updated as part of the CFASPP in July 2011. A summary of that forecast is shown in **Table 3-6**.

Table 3-6
FLORIDA AVIATION SYSTEM PLAN
FORECAST FOR BASED AIRCRAFT AND ANNUAL OPERATIONS

Year	Based Aircraft	Annual Operations
2009	47	8,200
2014	53	8,576
2019	60	8,969
2029	76	9,809

The FASP forecast shows that the Airport had 47 based aircraft in 2009. It projects that there would be 53 based aircraft on the Airport in 2014 and 76 based aircraft in 2029. This indicates a CAGR of 2.4 percent between 2009 and 2014 and a CAGR of 2.5 percent between 2014 and 2019. It projected a CAGR of 2.4 percent for the remainder of the planning period.

The annual operations shown in the FASP for 2009 are 8,200. For 2014, this was projected to grow to 8,576 annual operations, and in 2029, 9,809 annual operations were projected. This indicates a CAGR of 0.9 percent for the entire planning period.

3.3.3 Florida Aviation Database

The Florida Aviation Database (FAD) is developed and maintained by the Florida Department of Transportation, in cooperation with the Federal Aviation Administration, Florida Airports Council and Florida's Public Airport Sponsors. FAD is the central repository for Florida aviation system data. The FAD developed a forecast of annual operations for the Wauchula Municipal Airport using 2000 through 2011 data. The results are shown in **Table 3-7**.

Table 3-7
FLORIDA AVIATION DATABASE
FORECAST OF ANNUAL OPERATIONS

Year	Annual Operations
2012	8,348
2020	8,969
2025	9,380
2030	9,809

3.3.4 FAA Terminal Area Forecasts

Each year, the FAA prepares detailed forecasts for the airports contained in the National Plan of Integrated Airport Systems (NPIAS). These forecasts are called the Terminal Area Forecast or TAF. Wauchula Municipal Airport is included in the NPIAS and the latest TAF was released by the FAA in early January 2012. In addition to forecasting aviation activity for the Airport, the TAF also contains detailed historical activity figures for the last twelve years as reported by Airport management. The current TAF lists as its historical data only that information through 2010. It projects the forecasts for the years 2011 through 2040. A summary of the data contained in the FAA 2012 TAF is shown in **Table 3-8**.

Table 3-8
FAA 2012 TERMINAL AREA FORECAST
FOR BASED AIRCRAFT AND ANNUAL OPERATIONS

Year	Based Aircraft	Local Operations	Itinerant Operations	Total Operations
Base Year				
2010	41	3,360	4,840	8,200
Forecast Year				
2015	42	3,674	5,291	8,965
2020	48	4,017	5,784	9,801
2025	48	4,391	6,324	10,715
2030	48	4,798	6,914	11,712
CAGR				
2010-2015	0.5%	1.8%	1.8%	1.8%
2015-2020	2.7%	1.8%	1.8%	1.8%
2010-2030	0.8%	1.8%	1.8%	1.8%

The FAA 2012 TAF shows that in 2010, the Airport had 41 based aircraft and reported 8,200 annual operations. The FAA projects that the based aircraft would increase by a CAGR of 0.5

percent between 2010 and 2015. The number of based aircraft is then forecast to increase by a CAGR of 2.7 percent per year through 2020. The FAA is projecting that the 41 based aircraft of 2010 would increase to 48 based aircraft in 2030.

The total annual operations are forecast to increase by a CAGR of 1.8 percent for the entire planning period. The 8,200 annual operations of 2010 are forecast to increase to 11,712 annual operations in 2030.

3.3.5 Comparison of Previous Forecasts

This section compares the forecasts previously completed for the Wauchula Municipal Airport. **Figure 3-1** shows a graphic representation of each of the previous based aircraft forecasts. **Table 3-9** is a summary of the based aircraft forecasts previously completed. Both also show the historical based aircraft for the last 12 years as presented in the FAA TAF.

Figure 3-1
COMPARISON OF PREVIOUS FORECASTS OF BASED AIRCRAFT

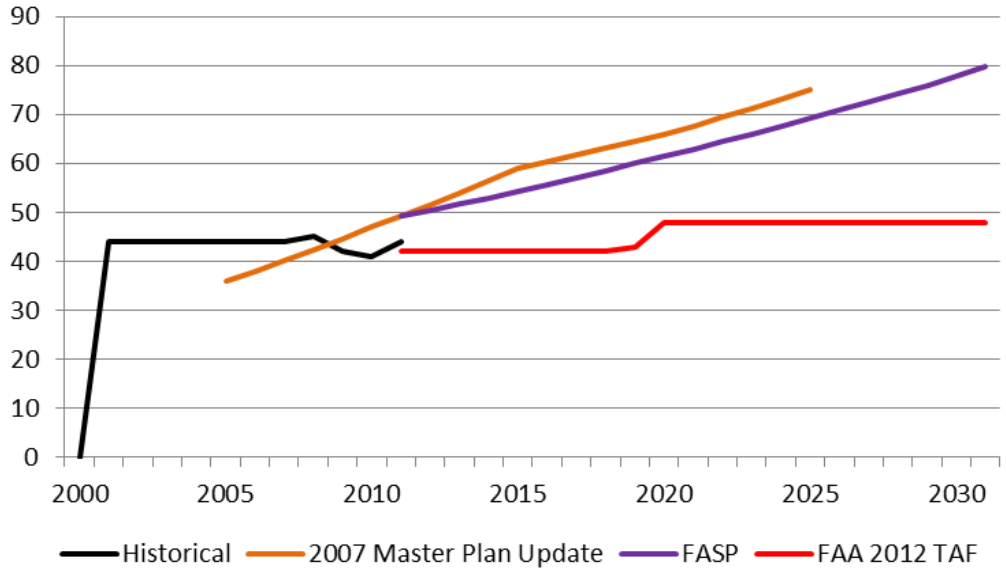


Table 3-9
COMPARISON OF PREVIOUS FORECASTS OF BASED AIRCRAFT

Year	2007 Master Plan Update	2011 FASP	FAA 2012 TAF
Base Year			
2010	47	48	41
Forecast			
2015	59	54	42
2020	66	61	48
2025	75	69	48
2030	n/a	78	48
CAGR			
2010-2015	4.7%	2.4%	0.5%
2015-2020	2.3%	2.5%	2.7%
2010-2030	n/a	2.4%	0.8%

Figure 3-1 and **Table 3-9** show that the 2007 Master Plan Update forecast 47 aircraft at the Airport in 2010 and the 2011 FASP forecast that there would be 48 aircraft at the Airport. The TAF indicates that there were actually 41 based aircraft at the Airport in 2010. The FAA 2012 TAF begins with a lower number of based aircraft than the other two forecasts and the CAGR appears to be at a much lower rate of growth.

Figure 3-2 is a graphic representation of each of the annual operations forecasts. **Table 3-10** shows the summary of the annual operation forecasts previously completed. Both also show the historical annual enplanements for the last 12 years as presented in the FAA 2012 TAF.

Figure 3-2
COMPARISON OF PREVIOUS FORECASTS OF ANNUAL OPERATIONS

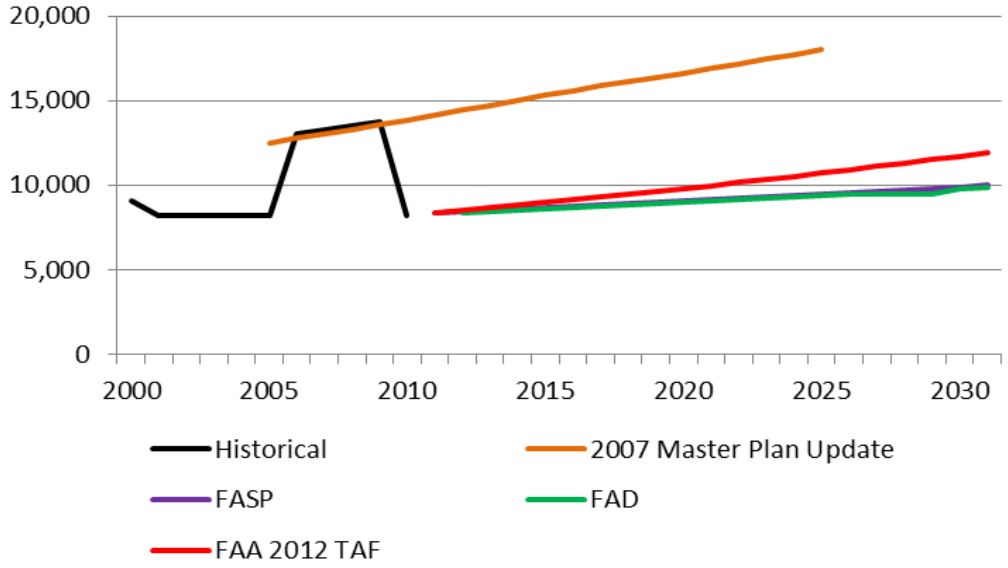


Table 3-10
COMPARISON OF PREVIOUS FORECASTS OF ANNUAL OPERATIONS

Year	2007 Master Plan Update	2011 FASP	FAD	FAA 2012 TAF
Base Year				
2010	13,855	8,274	8,200	8,200
Forecast				
2015	15,357	8,653	8,576	8,965
2020	16,626	9,050	8,969	9,801
2025	17,999	9,464	9,380	10,715
2030	n/a	9,897	9,809	11,712
CAGR				
2010-2015	2.1%	0.9%	0.9%	1.8%
2015-2020	1.6%	0.9%	0.9%	1.8%
2010-2030	n/a	0.9%	0.9%	1.8%

The 2007 Master Plan Update forecast does not appear to be close to either the historical data for the years since the Master Plan Update was completed, to the 2011 FASP, the FAD, or the FAA 2012 TAF. The CAGR for the 2007 Master Plan Update is also higher than the other three

forecasts. The 2011 FASP and the FAD have identical CAGR. The CAGR for the FAA 2012 TAF is twice that of the 2011 FASP and the FAD.

3.4 FORECAST OF AVIATION ACTIVITY

Building upon the forecasts previously developed and presented, this section will develop forecasts that will project the aviation activity at Wauchula Municipal based on historical aviation activity and some industry trends.

3.4.1 Forecast of Based Aircraft

The Wauchula Municipal Airport has served general aviation since the airfield was opened in 1983 by the City of Wauchula. The Airport has been serving exclusively general aviation aircraft since that time. There has never been any air carrier or regularly scheduled service at the Airport.

The types of aircraft based at the Airport have been primarily single engine and multi-engine piston aircraft. However, six rotorcraft and one ultra-light aircraft have been included in the 44 based aircraft of 2011. There are currently no turbine engine aircraft based at the Airport.

3.4.1.1 Indexed FAA Terminal Area Forecast

The FAA 2012 TAF shows that 41 aircraft were based at the Airport in 2010. There are 44 aircraft based at the Airport in 2011. The FAA 2012 TAF projects that the number of based aircraft would increase at a CAGR of 2.4 percent from 2010 to 2011. After that, the CAGR would be at a flat zero percent though the year 2018. In the year 2019, the forecast CAGR would be 2.4 percent. It would rise to 11.6 percent in the year 2020 and then would again be a flat zero percent through the year 2031. It is proposed that the FAA 2012 TAF be used but that it is indexed to the actual number of based aircraft currently on the Airport in 2011. The CAGR with the “Indexed TAF” would be the same as the FAA 2012 TAF as shown in **Figure 3-3** and **Table 3-11**.

Figure 3-3
INDEXED FAA 2012 TERMINAL AREA FORECAST

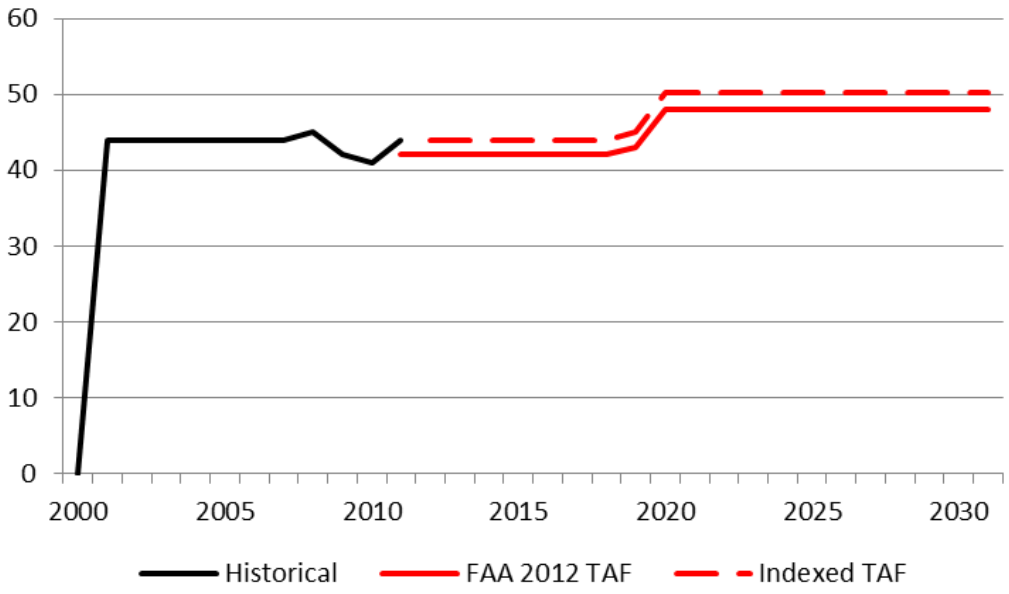


Table 3-11
INDEXED FAA 2012 TERMINAL AREA FORECAST

Year	FAA 2012 TAF	Indexed TAF
Base Year		
2011	42	44
Forecast Years		
2016	42	44
2021	48	50
2026	48	50
2031	48	50
CAGR		
2011-2016	0.0%	0.0%
2016-2021	2.7%	2.7%
2011-2031	0.7%	0.7%

The above Figure and Table show that the only difference between the FAA 2012 TAF and the Indexed TAF is the starting point of 44 Based aircraft in 2011 as opposed to the 42 based aircraft projected in 2011 by the FAA. This would indicate that by using the same CAGR, the number of based aircraft anticipated in 2016 would be 44 and in the year 2021, 50 based aircraft would be projected.

3.4.1.2 Projection of Historical Growth

The forecast of projected growth is based on the CAGR of zero percent that the Airport has experienced in the last 10 years as shown in **Figure 3-4** and **Table 3-12**. The CAGR of zero percent was then applied to project the number of anticipated based aircraft over the next 20 years.

Figure 3-4
PROJECTION OF HISTORICAL GROWTH

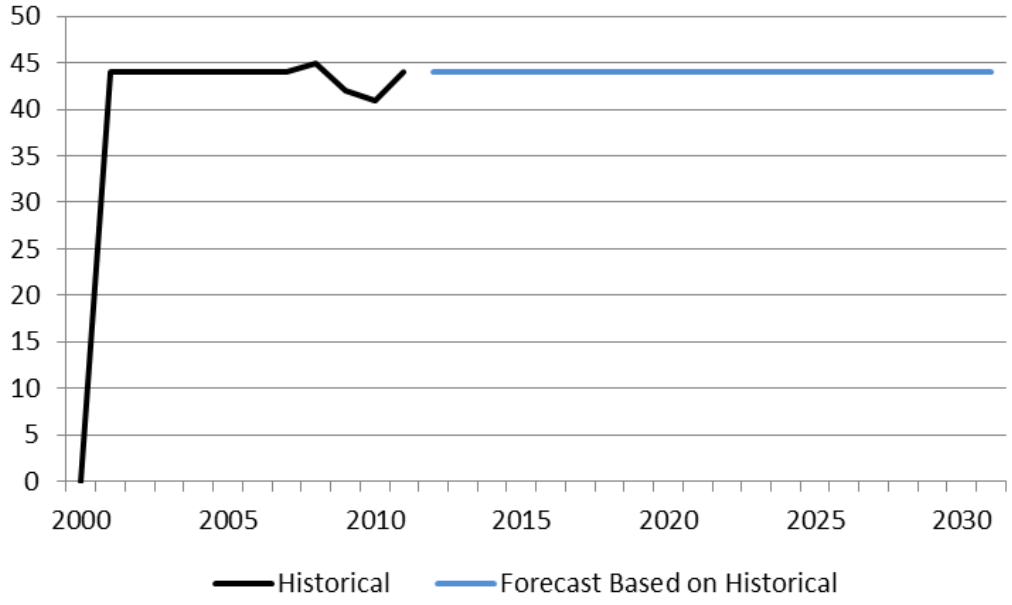


Table 3-12
PROJECTIONS OF HISTORICAL GROWTH

Year	Historical	Forecast
2001	44	
2006	44	
2011	44	
Forecast		
2016		44
2021		44
2026		44
2031		44
CAGR		
2011-2016		0.0%
2016-2021		0.0%
2011-2031		0.0%

From the above Figure and Table, this forecast shows that the 44 based aircraft of today would remain flat at 44 throughout the planning period. These projections are based on the actual CAGR of based aircraft at Wauchula Municipal Airport over the last 10 years.

3.4.1.3 Projection Using FAA Aerospace Forecasts

Annually, the FAA also develops the FAA Aerospace Forecasts. These forecasts are much more global in nature than the Terminal Area Forecasts and they project industry trends and economics. As with prior years, the *FAA Aerospace Forecast 2011-2031* has forecasts for commercial operations, aircraft, and enplanements. It also projects aviation activity for air cargo and more specifically for the purposes of this report; it forecasts the United States general aviation activity and aircraft. The *FAA Aerospace Forecasts for 2011- 2031*, Table 27, *Active General Aviation and Air Taxi Aircraft* projects that the total number of these types of aircraft would increase at a CAGR of 0.9 percent between the years of 2011 and 2031. This rate was applied to the based aircraft at Wauchula Municipal Airport with the results shown in **Figure 3-5** and **Table 3-13**.

Figure 3-5
PROJECTIONS USING FAA AEROSPACE FORECASTS

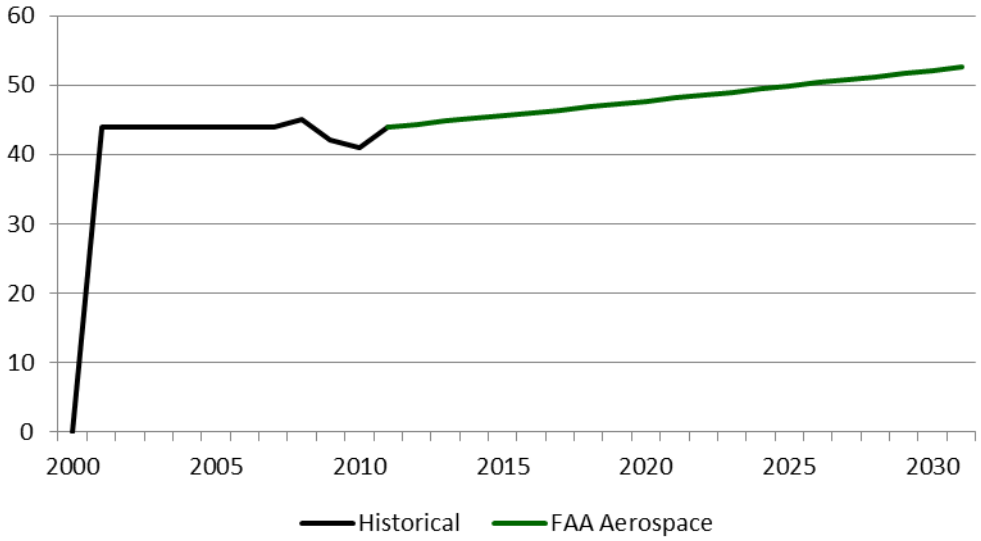


Table 3-13
PROJECTIONS USING FAA AEROSPACE FORECASTS

Year	Historical	Forecast
2001	44	
2006	44	
2011	44	
Forecast		
2016		46
2021		48
2026		50
2031		53
CAGR		
2011-2016		0.9%
2016-2021		0.9%
2011-2031		0.9%

The result of projecting the CAGR contained in the FAA Aerospace Forecasts is that the 44 currently based aircraft at the Airport would increase to 46 by the year 2016 and would increase to 53 based aircraft by the year 2031.

3.4.1.4 Florida Market Share Forecast

A comparison was made of all of the based aircraft in the 100 publicly owned airports in the State of Florida for which the FAA produces an annual Terminal Area Study. In 2011, there were 11,073 aircraft based at these airports. The 44 based aircraft at Wauchula Municipal Airport represent 0.397 percent of the market share for these Florida airports. By projecting this percentage across the total based aircraft as forecast by the FAA in their 2012 Terminal Area Study, it is forecast that Wauchula would maintain its current market share throughout the planning period. The results are shown in **Figure 3-6** and in **Table 3-14**.

The results of this projection indicate that Wauchula would have 47 based aircraft in the year 2016 and a total of 58 based aircraft in 2031.

Figure 3-6
FLORIDA MARKET SHARE FORECAST

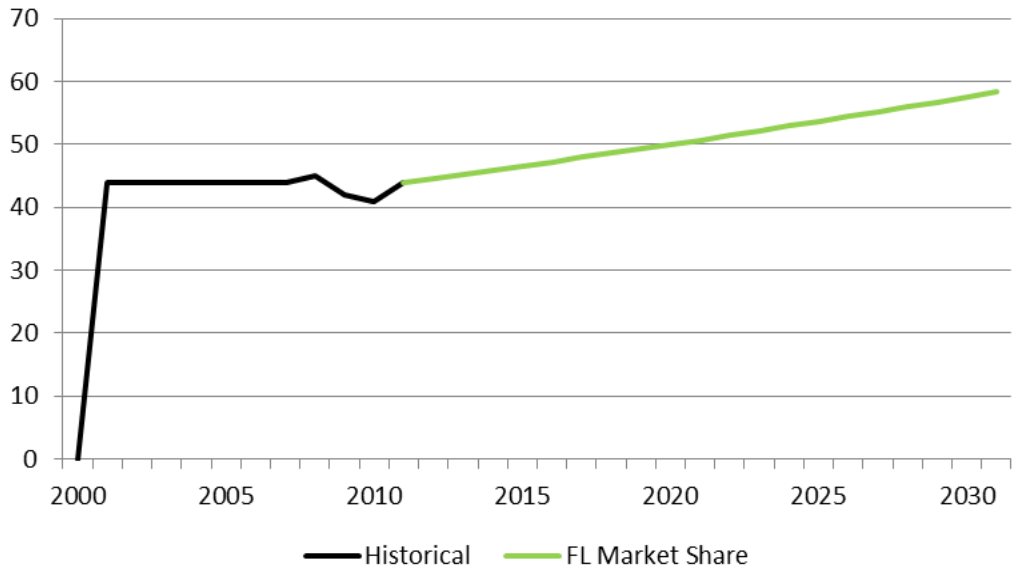


Table 3-14
FLORIDA MARKET SHARE FORECAST

Year	Historical	Forecast
2011	44	
Forecast		
2016		47
2021		51
2026		54
2031		58
CAGR		
2011-2016		1.3%
2016-2021		1.6%
2011-2031		1.4%

3.4.1.5 Comparisons of Based Aircraft Forecasts

A comparison of the Indexed TAF, the Projections of Historical Growth, the Projections Using FAA Aerospace Forecasts, and the Projections of Florida Market Growth is shown in **Figure 3-7** and **Table 3-15**. Also shown in this Figure and Table are the previously completed forecasts; the 2007 Master Plan Update forecast, FASP 2011 forecast, and the FAA 2012 TAF forecast.

Figure 3-7
COMPARISON OF BASED AIRCRAFT FORECASTS

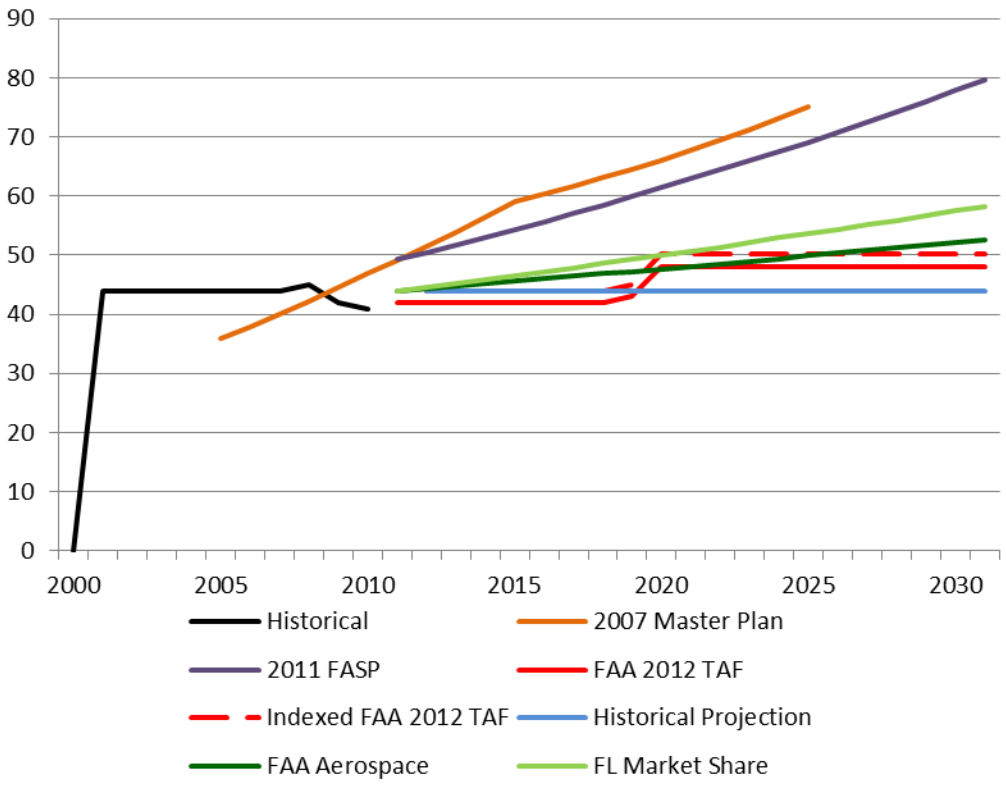


Table 3-15
COMPARISON OF BASED AIRCRAFT FORECASTS

Base Year	2007 Master Plan	2011 FASP	FAA 2012 TAF	Indexed TAF	Historical Projection	FAA Aerospace	FL Market Share
2011	49	49	42	44	44	44	44
Forecast							
2016	60	56	42	45	44	46	47
2021	68	63	48	52	44	48	51
2026	n/a	71	48	52	44	50	54
2031	n/a	80	48	52	44	53	58
CAGR							
2011-2016	4.2%	2.5%	0.0%	0.5%	0.0%	0.9%	1.4%
2016-2021	2.3%	2.5%	2.7%	2.7%	0.0%	0.9%	1.4%
2011-2031	3.2%	2.4%	0.7%	0.8%	0.0%	0.9%	1.4%

The above Figure and Table show that the while the FAA 2012 TAF did not take into consideration the actual number of based aircraft at the Airport, the Historical Projection

forecast also appears to be markedly skewed from the other forecasts. The Historical Projections forecast indicates that there will not be any growth in based aircraft at the Airport for the next 20 years. The three remaining forecasts, the Indexed TAF, the Projection Using the FAA Aerospace Forecasts, and the Florida Market Share appear to be much better indicators of the direction of growth in based aircraft at the Airport. It is recommended that the Florida Market Share be selected as the forecast adopted for based aircraft at the Airport.

3.4.2 Projected Based Aircraft Fleet Mix

As different aircraft require different facilities, it is important to break down the number of projected based aircraft by type of aircraft. The owners of turbine or multi-engine aircraft typically wish to hangar their aircraft. The owners of single engine aircraft are much more likely to use the tie-down facilities of an airport. As the size and number of operations of the larger aircraft increase, accommodations to the separation standards for these aircraft should be considered. For a general aviation airport such as Wauchula Municipal Airport, the aircraft are typically divided into the areas of single-engine, multi-engine, turbine, rotorcraft aircraft, and a category that covers experimental, sport and other aircraft.

The based aircraft at the Airport have typically been single engine and multi-engine aircraft. However, there are currently six rotorcraft aircraft based on the Airport. There are currently no turbine engine aircraft based on the Airport.

The projected based aircraft fleet mix is based on the projected growth in general aviation aircraft as found on Table 27 of the *FAA Aerospace Forecasts 2011-2031*. These show modest growth in single engine aircraft, turbine aircraft, and rotorcraft. A modest decline in multi-engine aircraft is indicated through the planning period. These rates of growth were also tempered somewhat but not extensively to bring the proportion of types of based aircraft at the Airport to something more reflective of the distribution of these types of aircraft across the United States. The projection of based aircraft fleet mix is shown in **Figure 3-8** and **Table 3-16**

Figure 3-8
PROJECTED BASED AIRCRAFT FLEET MIX

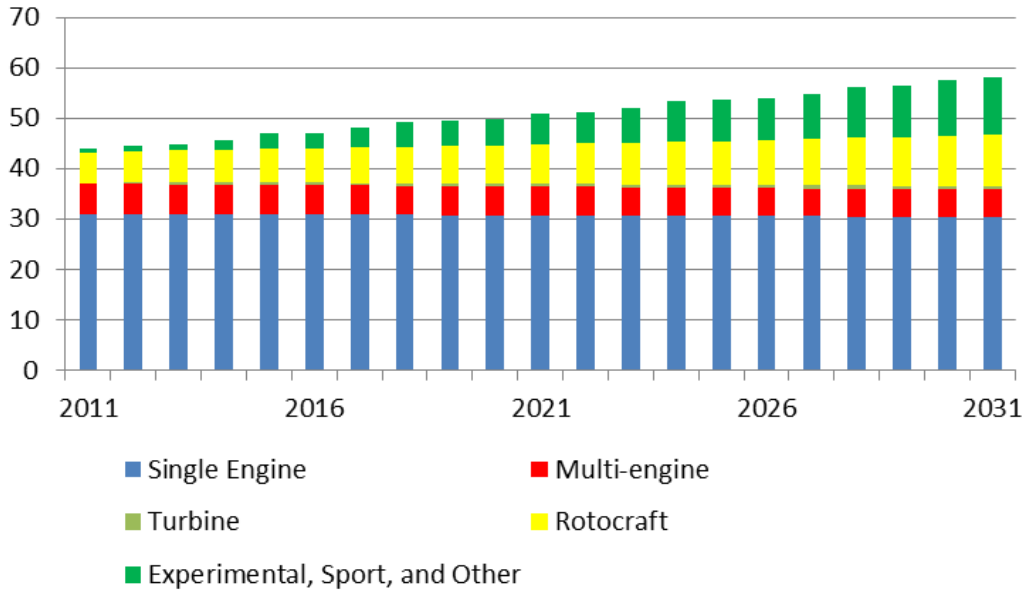


Table 3-16
PROJECTED BASED AIRCRAFT FLEET MIX

Base Year	Single-engine		Multi-engine		Turbine		Rotorcraft		Experimental, Sport, and Other		Total
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
2011	31	70.5%	6	13.6%	0	0.0%	6	13.6%	1	2.3%	44
Forecast											
2016	31	65.5%	6	12.4%	0	1.0%	7	14.6%	3	6.5%	47
2021	31	60.5%	6	11.2%	1	1.0%	8	15.4%	6	11.8%	51
2026	31	56.5%	6	10.3%	1	1.1%	9	16.6%	8	15.4%	54
2031	30	52.4%	5	9.4%	1	1.2%	10	17.6%	11	19.4%	58
CAGR											
2011-2016	-0.1%		-0.5%		n/a		2.7%		25.1%		1.4%
2016-2021	-0.1%		-0.5%		7.4%		2.7%		14.4%		1.5%
2011-2031	-0.1%		-0.5%		2.9%		2.7%		12.9%		1.4%

Single engine aircraft are anticipated to grow at a CAGR of negative 0.1 percent over the forecast period. Where single engine aircraft currently make up approximately 70.5 percent of the fleet mix today, they are anticipated to make up 52.4 percent of the fleet mix in 2031. Where there were 31 single engine aircraft based on the Airport in 2011, it is anticipated that there would be 31 in 2016 and 30 by the year 2031.

The multi-engine aircraft based at the Airport are also projected to decline over the planning period following the national trend away from these aircraft. The CAGR is anticipated to be a negative 0.5 percent over the full planning period. Where there were six multi-engine aircraft on the Airport in 2011, it is projected that this would remain at six by the year 2016 and decline to five by the year 2031.

There were no turbine based aircraft on the Airport in 2011, and it is anticipated that there would not be any based on the Airport by the year 2016. By the year 2031, there is anticipated to be one turbine aircraft on the Airport if the national CAGR for turbine aircraft is applied to the Airport's based aircraft.

There are currently six rotorcraft based on the Airport. By applying the appropriate CAGR found in the FAA Aerospace Forecasts, it is anticipated that the number of based rotorcraft on the Airport will rise to seven by the year 2016 and to 10 in the year 2031.

3.4.3 Forecast of Annual Aircraft Operations

The FAA defines an operation as a single aircraft landing or a single aircraft takeoff. The vast majority of general aviation operations are "touch and go" operations performed by student pilots practicing their landing and departure skills. A "touch and go" is considered to be two operations.

General aviation makes up that portion of the aviation industry that includes everything except commercial air carrier and military operations. The operations of the general aviation activities include pilot training, business and corporate flights, medical flights, personal travel, and sports as just a few examples.

3.4.3.1 Projection of Historical Growth

As with the based aircraft, the CAGR of a negative one percent for the historical annual operations at the Airport was calculated and then applied to project the future annual operations. These are shown in **Figure 3-9** and **Table 3-17**.

Figure 3-9
PROJECTIONS OF HISTORICAL GROWTH

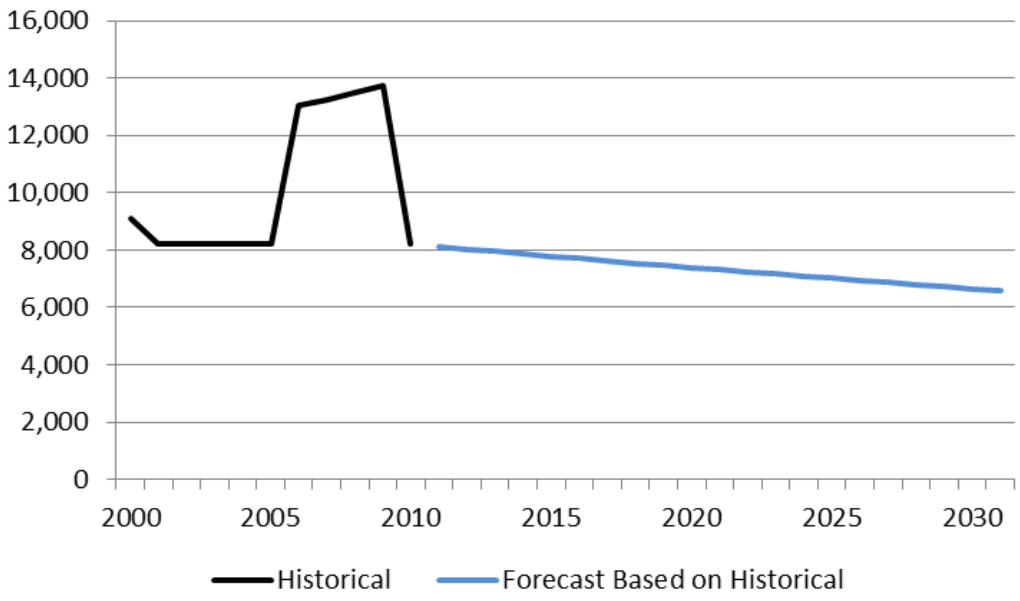


Table 3-17
PROJECTIONS OF HISTORICAL GROWTH

Year	Historical	Forecast
2001	8,200	
2006	13,025	
2010	8,200	
Forecast		
2016		7,700
2021		7,310
2026		6,940
2031		6,590
CAGR		
2011-2016		-1.0%
2016-2021		-1.0%
2011-2031		-1.0%

By projecting the historical CAGR, the annual operations for 2010 are projected to decrease to 7,703 by the year 2016. They are projected to further decrease to 6,589 by the year 2031.

3.4.3.2 Projection Using FAA Aerospace Forecasts

The *FAA Aerospace Forecasts 2011-2031* forecasts that the CAGR for total general aviation hours flown for the United States would be 2.2 percent for the period between 2011 and 2031. This is not a direct correlation to the number of operations, but is believed that there is a fair relationship. By applying this CAGR to the annual operations currently reported for Wauchula Municipal Airport, the results are as shown in **Figure 3-10** and **Table 3-18**.

Figure 3-10
PROJECTIONS USING FAA AEROSPACE FORECASTS

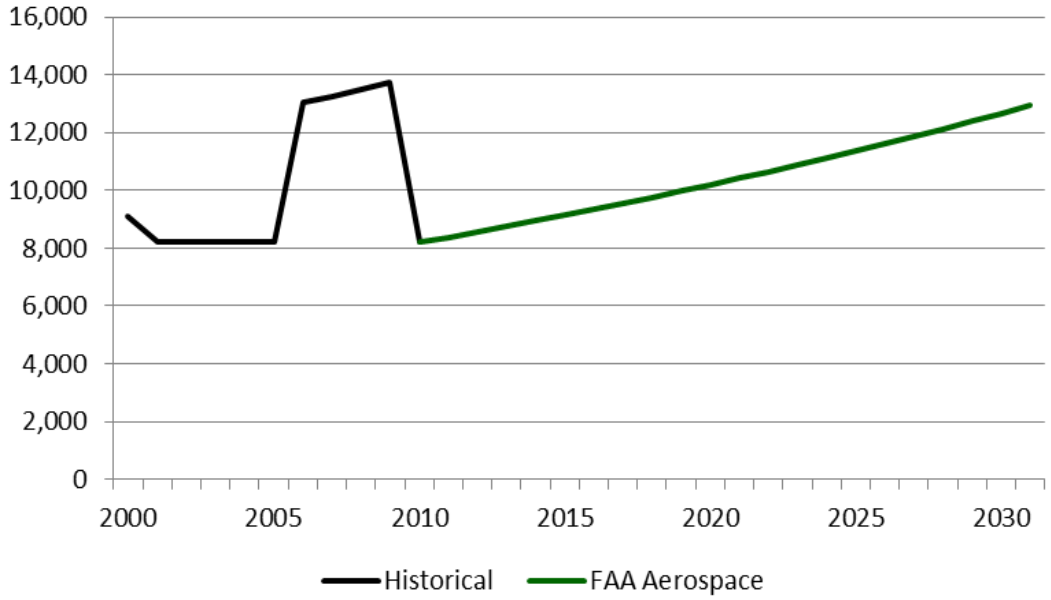


Table 3-18
PROJECTIONS USING FAA AEROSPACE FORECASTS

Year	Historical	Forecast
2001	8,200	
2006	13,025	
2010	8,200	
Forecast		
2016		9,340
2021		10,420
2026		11,620
2031		12,950
CAGR		
2010-2016		2.2%
2016-2021		2.2%
2010-2031		2.2%

The projections show that the annual operations would increase from 8,200 in 2010 to 9,344 in 2016. The annual operations would increase to 12,950 in 2031.

3.4.3.3 Regression Analysis

Several socioeconomic indicators were reviewed and analysed to determine if statistically significant relationships exist between historical annual operations at the Wauchula Municipal Airport and the selected indicators. The indicators reviewed in this analysis included:

- Florida Population
- Hardee County Population
- Florida Employment
- Hardee County Employment
- Florida Per Capita Personal Income (PCPI)
- Hardee County PCPI

These independent variables can sometimes be good predictors of annual operations (the dependent variable).

The indicators and annual operations were analysed using a general statistical technique called regression analysis. Regression analysis is a statistical forecasting model that is used to predict and measure the relationships between a dependent variable, in this case annual enplanements, and one or more independent variables, the socioeconomic indicators in this case. The benefit of using regression analysis as a forecast methodology is that the tool interprets the significance of the results.

Regression analysis was also performed for the based aircraft forecasts; however, no results of statistical significance resulted. This would indicate that the based aircraft are not related significantly to any of the socioeconomic indicators listed above.

One determination of the statistical significance of the projections produced by the regression analysis is the coefficient of determination, or R^2 value, as shown in the color peach in **Figure 3-12**. The R^2 value is the square of the correlation coefficient and measures the contribution of the independent variables in the prediction of the dependent variable. The R^2 value will range between 0.00 and 1.00 with 1.00 indicating a perfect correlation between the independent and dependent variables. R^2 values of less than 0.70 generally indicate there is little correlation between the independent and dependent variables. Where there is more than one independent variable in the analysis, the adjusted R^2 value will be of more significance. Each independent variable adds some variance to the dependent variable. The adjusted R^2 attempts to yield a truer $R^{2.}$ Again, values higher than 0.70 indicate a higher correlation between the independent and dependent variables.

Multiple regression analyses were done using various combinations of the independent variables including single and multiple variable regression analyses. However, few analyses were found to be significantly significant. Two scenarios were found to have some statistical significance. Of these, one of the analyses paired the independent variable, Hardee County Population with the annual operations and the other paired the independent variable Florida Employment with the dependent variable annual operations. As can be seen in **Figure 3-11** and **Table 3-19**, each of the two scenarios has only one variable, the R^2 factor is shown.

Figure 3-11
REGRESSION ANALYSIS

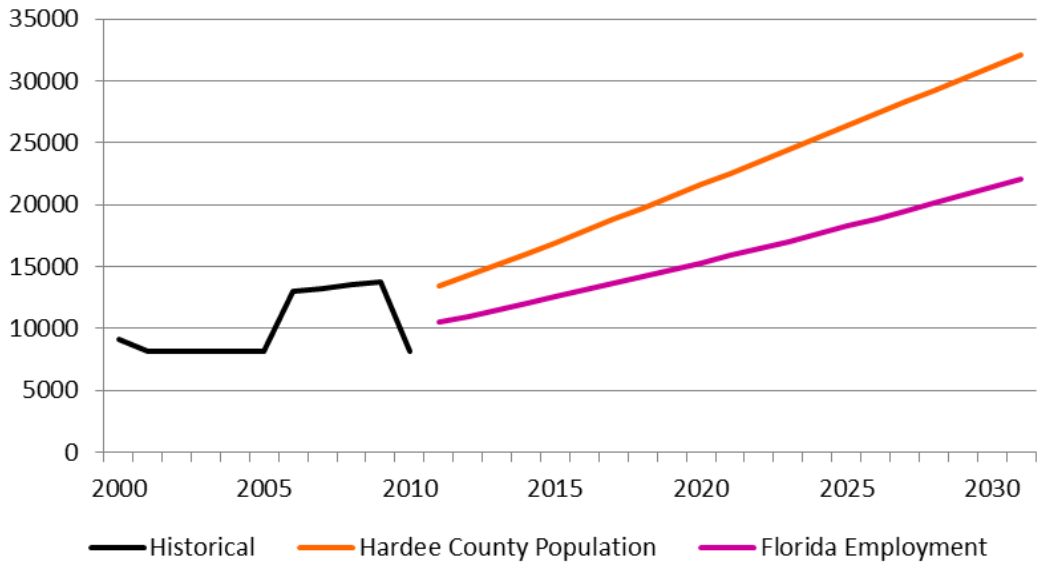


Table 3-19
REGRESSION ANALYSIS

Year	Historical	Hardee County Population	Florida Employment
2000	9,100		
2005	8,200		
2010	8,200		
Forecast			
2016		17,860	13,070
2021		22,540	15,870
2026		27,320	18,870
2031		32,080	22,100
R^2	n/a	0.38	0.48
CAGR			
2010-2016		13.9%	8.1%
2016-2021		4.8%	4.0%
2010-2031		6.7%	4.8%

Each of the R^2 factors shown in **Table 3-19** is significantly below 0.70. There are other indicators in the results of a regression analysis, which show that these scenarios may have statistical significance. **Figure 3-12** shows the summary output of the regression analysis done for the independent variable Hardee County Population.

Figure 3-12
SUMMARY OUTPUT OF A REGRESSION ANALYSIS

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.614482149
R Square	0.377588312
Adjusted R Square	0.308431458
Standard Error	2135.635944
Observations	11

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	24902202.22	24902202.2	5.459882696	0.044263248
Residual	9	41048467.97	4560940.89		
Total	10	65950670.18			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-81642.6779	39296.06843	-2.07762967	0.067524094	-170536.5605	7251.204814
Hardee Co. Population	3.388639321	1.450219331	2.33663919	0.044263248	0.108015273	6.669263369

While the R^2 and an adjusted R^2 are important, they only indicate whether the dependent variable is predictable, not whether the analysis did a good job at predicting the dependent variable (annual operations) with that particular data. The "Significance F", highlighted in the color yellow in **Figure 3-12**, gives that information and more. It tests the overall significance of the regression. It also tests whether or not the independent variable or group of independent variables can reliably predict the dependent variable. The level looked for is 0.05 or less. If the "Significance F" is greater than 0.05, it usually indicates that the independent variable or group of variables is not worthwhile.

The coefficients, highlighted in the color blue, indicate the value of each independent variable measured against the dependent variable. If the independent variable (Hardee County Population) were increased by one unit, the dependent variable (annual operations) would be raised 3.389 units. If the independent variable (Hardee County Population) were zero, the dependent variable (annual operations) would be equal to negative 81,642 annual operations.

The "P-value" highlighted in the color green indicates whether the coefficient is significantly different from zero. Values below 0.15 are considered good. In the example shown in **Figure 3-12** the "P-value" is well below 0.15.

3.4.3.4 Florida Market Share

A comparison was made of all of the based aircraft in the 100 publicly owned airports in the State of Florida for which the FAA produces an annual Terminal Area Forecast. In 2010, there were 7,662,194 annual operations at these airports. The 8,200 annual operations at Wauchula Municipal Airport represent 0.107 percent of the market share for these Florida airports. By projecting this percentage across the total annual operations for all Florida Airports as forecast by the FAA in their 2012 Terminal Area Study, it is forecast that Wauchula would maintain its current market share throughout the planning period. The results are shown in **Figure 3-13** and in **Table 3-20**.

Figure 3-13
FLORIDA MARKET SHARE ANNUAL OPERATIONS FORECAST

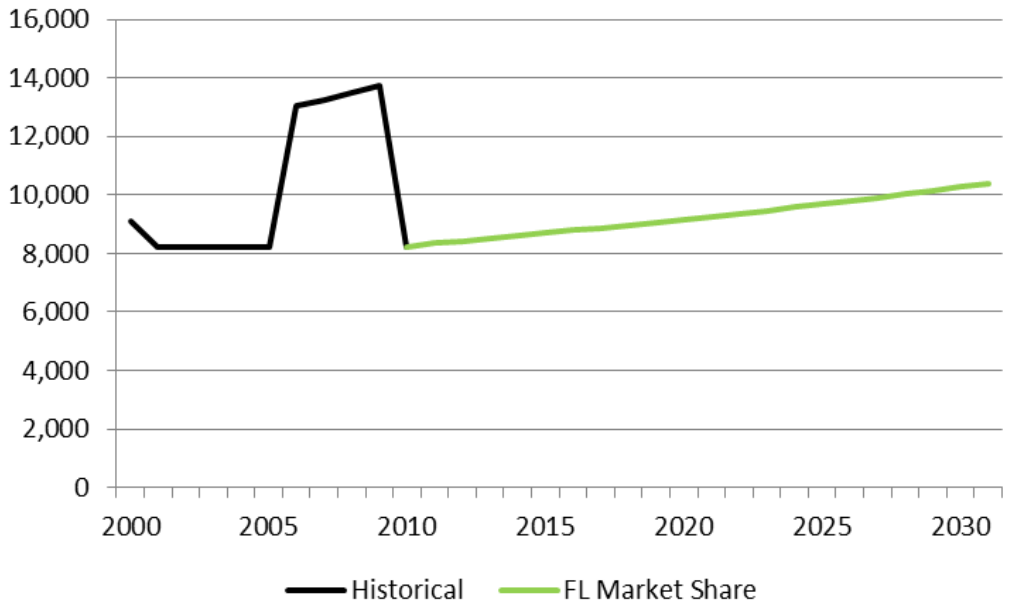


Table 3-20
FLORIDA MARKET SHARE FORECAST FOR ANNUAL OPERATIONS

Year	Historical	Forecast
2010	8,200	
Forecast		
2016		8,790
2021		9,270
2026		9,800
2031		10,390
CAGR		
2010-2016		1.2%
2016-2021		1.1%
2011-2031		1.1%

The results indicate that using this methodology, 8790 annual operations could be expected in the year 2016 and that a total of 10,390 annual operations could be expected by the year 2031. The CAGR would be 1.2 percent during the first five years and would decrease slightly to 1.1 percent for the next five years and as the overall CAGR for the 20-year period.

3.4.3.5 Comparison of Annual Operations Forecasts

The Historical Projection for annual enplanements is compared to the Projections Using the FAA Aerospace Forecasts, the Florida Aviation Database Forecast, and the Florida Market Share Forecast in **Figure 3-14** and **Table 3-21**. Also included in the comparison are the 2007 Master Plan Update, the FASP 2011 forecast, and the FAA 2012 TAF.

Figure 3-14
COMPARISON OF ANNUAL OPERATIONS FORECASTS

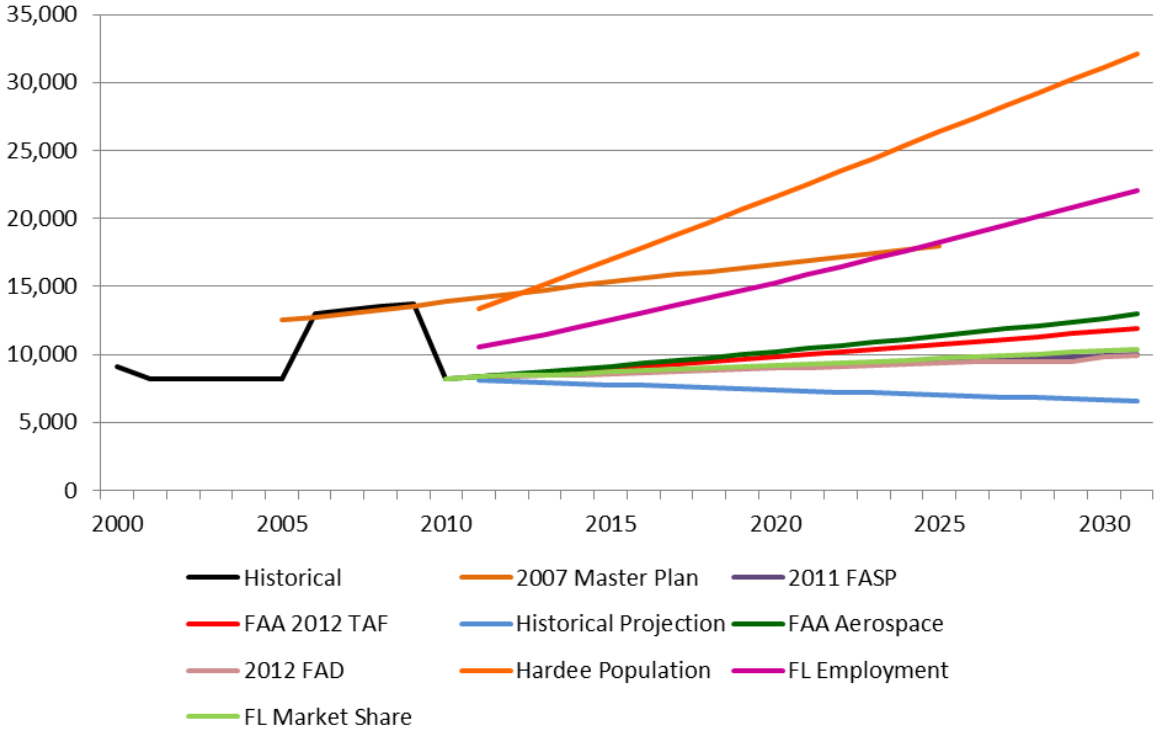


Table 3-21
COMPARISON OF ANNUAL OPERATIONS FORECAST

Base Year	2007 Master Plan	2011 FASP	FAA 2012 TAF	Historical Projection	FAA Aerospace	2012 FAD	Hardee Population	FL Employment	FL Market Share
2010	13,855	8,274	8,200	8,200	8,200	8,200	8,200	8,200	8,200
Forecast									
2016	15,603	8,731	9,126	7,700	9,340	8,653	17,860	13,050	8,790
2021	16,892	9,131	9,978	7,310	10,420	9,050	22,540	15,870	9,270
2026	n/a	9,549	10,908	6,940	11,620	9,464	27,320	18,870	9,800
2031	n/a	9,986	11,921	6,590	12,950	9,897	32,085	22,100	10,390
CAGR									
2010-2016	2.0%	0.9%	1.8%	-1.0%	2.2%	0.9%	13.9%	8.0%	1.2%
2016-2021	1.6%	0.9%	1.8%	-1.0%	2.2%	0.9%	4.8%	4.0%	1.1%
2010-2031	0.9%	0.9%	1.8%	-1.0%	2.2%	0.9%	6.7%	4.8%	1.1%

All but three of the compared forecasts of annual operations begin at a similar point. The exceptions being the 2007 Master Plan Update, Hardee Population forecast, and the Florida

Employment forecast. The 2007 Master Plan Update is the most dated of the forecasts. The Hardee population and the Florida Employment forecasts predict that the annual operations will jump 9,660 and 4,850 annual operations respectively within the first year. Something that is unlikely to occur.

The CAGR of the Projection of Historic Growth, unlike the remainder of the forecasts shows a decline in the number of annual operations at the Airport. The 2011 FASP, the 2012 FAD, and the Florida Market Share forecasts are tightly clustered and are lower than the FAA 2012 TAF. The forecast based on the FAA Aerospace Forecasts exceeds the FAA 2012 TAF and yet is still reasonable. It is recommended that the forecast based on the *FAA Aerospace Forecasts 2011-2031* be adopted.

3.4.3.6 Local Versus Itinerant Operations

Airport operations are divided into local and itinerant operations. Local operations are those arrivals and departures performed by aircraft that remain in the airport traffic pattern and are within sight of the airport; are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport; or is executing practice instrument approaches or low passes at the airport. All other operations are considered to be itinerant operations.

The reported proportional split between local and itinerant aircraft operations has remained relatively stable for the last twenty years at the Wauchula Municipal Airport. This has averaged at 59.0 percent itinerant to 41.0 percent local. This percentage split was applied to the recommended forecast for annual operations. The results are shown in **Figure 3-15** and **Table 3-22**.

Figure 3-15
LOCAL VERSUS ITINERANT OPERATIONS

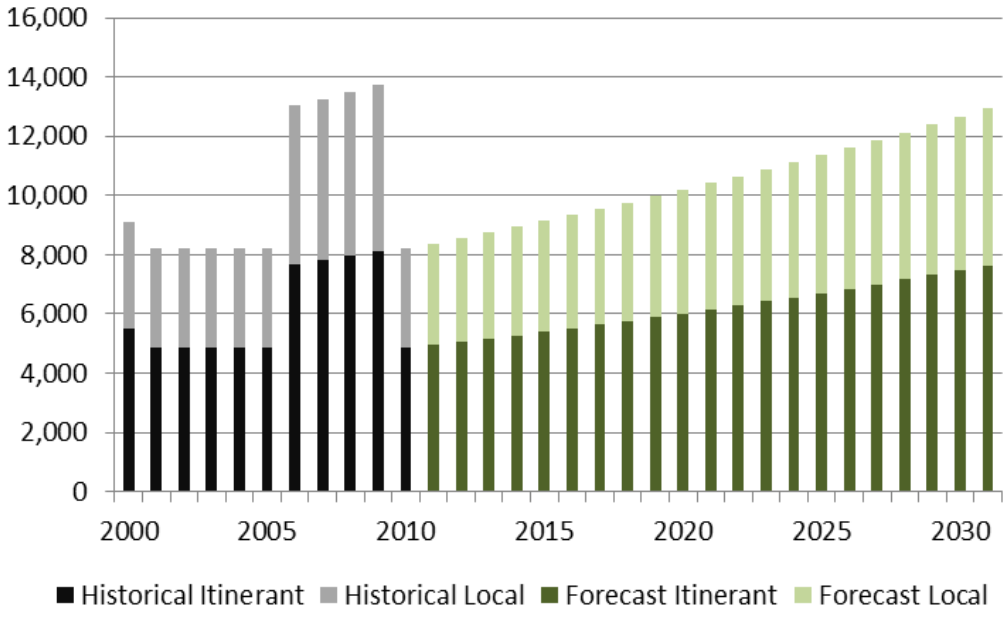


Table 3-22
LOCAL VERSUS ITINERANT OPERATIONS

Base Year	Itinerant	Local	Total
2010	4,840	3,360	8,200
Forecast			
2016	5,513	3,831	9,344
2021	6,146	4,271	10,418
2026	6,853	4,762	11,615
2031	7,641	5,310	12,950
CAGR			
2010-2016	2.2%	2.2%	2.2%
2016-2021	2.2%	2.2%	2.2%
2010-2031	2.2%	2.2%	2.2%

The Figure and the Table above show the percentage of local to itinerant operations remaining stable through the forecast period. The CAGR for the growth of each is the same as that for the recommended annual operations forecast; namely 2.2 percent CAGR.

3.4.3.7 Military Operations

In addition to local and itinerant, operations are also divided between commercial operations, military operations and general aviation operations. Commercial operations include regularly scheduled passenger services, air taxi, charter, and air cargo services. Wauchula has no commercial service.

Military operations are those officially carried out by a branch of the U.S. military services. The FAA 2012 TAF indicates that there have never been any local or itinerant military aircraft operations at the Airport. There is no evidence supporting an alternative forecast and no additional projections have been made to include military operations at the Airport. The remainder of the operations at the Airport is general aviation operations.

3.4.4 Projected Fleet Mix

The operational fleet mix at an airport is an important consideration in the determination of required airside and landside facilities. Different types of aircraft require different types of facilities.

Wauchula Municipal Airport primarily serves single and multi-engine aircraft with some itinerant jet activity. There is also one ultra-light and six rotorcraft based at the Airport. Approximately 70 percent of the local operations are conducted with single engine aircraft. Multi-engine aircraft currently make up approximately 13.6 percent of the local aircraft operations. Approximately 13.6 percent of local operations are conducted by rotorcraft. Currently, there are no local jet operations.

The current and projected operational fleet mix as shown in **Table 3-23** is projected to keep a similar balance between single and multi-engine aircraft while introducing some local turbine aircraft operations. The percentage rates of growth are similar to those anticipated for based aircraft.

Table 3-23
PROJECTED FLEET MIX

Base Year	Single-engine		Multi-engine		Turbine		Rotorcraft		Experimental, Sport, and Other		Total
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage	
2011	31	70.5%	6	13.6%	0	0.0%	6	13.6%	1	2.3%	44
Forecast											
2016	31	65.5%	6	12.4%	0	1.0%	7	14.6%	3	6.5%	47
2021	31	60.5%	6	11.2%	1	1.0%	8	15.4%	6	11.8%	51
2026	31	56.5%	6	10.3%	1	1.1%	9	16.6%	8	15.4%	54
2031	30	52.4%	5	9.4%	1	1.2%	10	17.6%	11	19.4%	58
CAGR											
2011-2016	-0.1%		-0.5%		n/a		2.7%		25.1%		1.4%
2016-2021	-0.1%		-0.5%		7.4%		2.7%		14.4%		1.5%
2011-2031	-0.1%		-0.5%		2.9%		2.7%		12.9%		1.4%

Together, the local and itinerant single engine operations are projected to decline to 65.5 percent of the operations in 2016; or approximately 6,120 annual operations. Single engine operations are projected to continue to decline at the Airport through 2031 with approximately 6,790 single engine annual operations in 2031. Multi-engine aircraft movements are anticipated to decline from approximately 1,145 in 2011 to approximately 1,120 in 2031. Turbine engine aircraft operations including those of light jets are anticipated to grow from less than one percent of the annual operations in 2011 to approximately 158 or 1.2 percent of the operations in 2031. Rotorcraft operations are also anticipated to grow at approximately 2.7 percent per year over the next twenty years with approximately 2,285 annual operations anticipated in the year 2031.

3.4.5 Peak Activity

Peak activity forecasts are used to size facilities. Typically, aircraft do not land and take off consistently from one hour to the next or even from one month to the next. The peak activity forecasts typically projected are the peak month, the average day of the peak month, and the peak hour of the average day. This is not intended to forecast the busiest hour of the busiest day of the year. If a facility were designed to accommodate the busiest day of the busiest month of the year, the facility would be underutilized the majority of the year. By designing to the peak hour of the average day of the peak month, the result is a facility that is comfortably utilized about 85 percent of the year. There will be times when the facility is underutilized, and there will also be times when it is crowded for short periods.

As Wauchula Municipal Airport has no air traffic control tower, monthly tabulations for the peak periods are not available. However, the Airport typically has the highest levels of activity during the months beginning in November and ending in April. This is largely due to the mild weather in Florida during these months. It was estimated that approximately 10 percent of the Airport's annual activity would occur during the peak month due to this activity. The peak month could occur during any of these six months. The 10 percent of

annual operations was used to determine the peak month activities through the year 2031 as shown in **Table 3-24**.

Table 3-24
PROJECTED PEAK ACTIVITIES

Base Year	Total Annual Operations	Peak Month Operations	Average Day Operations	Peak Hour Operations
2011	8,380	838	28	3
Forecast				
2016	9,344	934	31	4
2021	10,418	1,042	35	4
2026	11,615	1,162	39	5
2031	12,950	1,295	43	5

To achieve the average day peak month activity, the peak month activities would be divided by the number of days in the month identified as the peak month. In **Table 3-24**, each of the peak month activity numbers have been divided by 30.

No historical data was available to determine the peak hour operations at the Airport. Therefore, an estimate of 33 percent of the average day of the peak month was used to represent the number of peak hour operations.

3.4.6 Summary of Aviation Activity Forecasts

A number of previously produced forecasts of aviation activity were reviewed. These included the aviation activity forecasts from the Airport's 2007 Master Plan Update: the aviation forecasts done for Wauchula Municipal Airport as part of the Florida Department of Transportation's (FDOT) Florida Aviation System Plan (FASP); the Florida Aviation Database (FAD) developed by the Florida Department of Transportation, in cooperation with the FAA, Florida Airports Council and Florida's Public Airport Sponsors; and the FAA Terminal Area Forecast (TAF). These were reviewed for based aircraft, as well as annual operations.

After review of these forecasts, four additional forecasts were produced:

- Indexed FAA TAF; revised the number of based aircraft used for the FAA 2012 TAF from the 42 based aircraft projected for the year 2011 to the 44 based aircraft actually based at the Airport in 2011. From that point, the Compounded Annual Growth Rate (CAGR) used in the FAA 2012 TAF was used to determine the number of based aircraft projected for the Indexed TAF.
- Projections Based on Historic Growth; used the 0.0 percent CAGR that the Airport has experienced over the last 12 years to determine the number of based aircraft and the CAGR of negative one percent for the number of annual operations that the Airport would experience over the next 20 years.

- Projections Based on *FAA Aerospace Forecasts 2011-203*1; used the CAGRs used by the FAA in their Aerospace Forecasts as the national averages to project the number of based aircraft and annual operations that would occur at the Airport over the next 20 years.
- Projections based on the Wauchula Municipal Airport's share of the Florida market in 2011. This percentage share was then projected out over the 20 years of the forecast.

From these forecasts, it is recommended that the Florida Market Share forecast be used as the Airport's forecast for based aircraft. A summary of this forecast is shown in **Table 3-25**. The recommended forecast, the Florida Market Share forecast or Airport Forecast (AF), is also compared to the FAA 2012 TAF.

Table 3-25
SUMMARY OF BASED AIRCRAFT FORECAST

Forecast	Year	Airport Forecast (AF)	FAA 2012 TAF	AF/TAF (% Difference)	Indexed FAA 2012 TAF	AF/Indexed TAF (% Difference)
Based Aircraft						
Base Year	2011	44	42	4.8%	44	0.0%
Base Year + 5 Years	2016	47	42	12.5%	45	4.9%
Base Year + 10 Years	2021	51	48	5.6%	52	-1.6%
Base Year + 15 Years	2026	54	48	13.4%	52	5.6%

From the forecasts for annual operations, it is recommended that the forecast based on the *FAA Aerospace Forecasts 2011-2031* be adopted. This forecast is compared to the FAA 2012 TAF in **Table 3-26**.

Table 3-26
SUMMARY OF ANNUAL OPERATIONS FORECAST

Forecast	Year	Airport Forecast (AF)	FAA 2012 TAF	AF/TAF (% Difference)
Annual Operations				
Base Year	2011	8,380	8,347	0.4%
Base Year + 5 Years	2016	9,344	9,126	2.4%
Base Year + 10 Years	2021	10,418	9,978	4.4%
Base Year + 15 Years	2026	12,950	10,908	18.7%

From the recommended annual operations forecast, peak activity forecasts were also projected. These are shown in **Table 3-27**.

Table 3-27
SUMMARY OF PEAK ACTIVITY FORECAST

Peak Activity	2011	2016	2021	2026	2031
Peak Month	838	934	1,042	1,162	1,295
Average Day Peak Month	28	31	35	39	43
Peak Hour	3	4	4	5	5

4. FACILITY REQUIREMENTS

4.1 INTRODUCTION

This chapter builds upon the Inventory of Existing Conditions and the Forecast of Aviation Activities chapters to develop an understanding of how many and what types of facilities will be required to meet the forecast demand. It compares what is already available with what will be required over the next 20-year planning period and determines in five-year increments what facilities are likely to be needed and when.

4.2 AIRSPACE

There are five commercial service airports within 50 nautical miles of the Wauchula Municipal Airport. These are augmented by 11 general aviation airports within the same radius and seven private airports within 20 nautical miles. Additionally, several restricted or military operating areas are located east of Wauchula. However, based on available data, no known airspace conflicts currently exist. The airspace around the Airport is relatively uncongested.

4.2.1 Approaches

There are many types of approaches that can be executed into airports. There are those that occur during Visual Flight Rule (VFR) operations and those that occur during Instrument Flight Rule (IFR) operations, or those approaches that occur during Instrument Meteorological Conditions (IMC). IFR approaches are designed so that a pilot of an aircraft in IMC can land by using a radio, Global Positioning System (GPS) or Inertial Navigation System (INS) navigation without assistance from air traffic control. IFR approaches are generally classified between precision and non-precision approaches. Precision approaches are those that provide both lateral (through use of a localizer) and vertical (through use of a glideslope) electronic information. Non-precision approaches provide lateral information only.

Wauchula Municipal Airport does not have an electronic glideslope. Therefore all IFR approaches to the Airport are-non-precision. In January 2007, GPS based non-precision approaches were published for both Runway 18 and Runway 36. GPS is a space-based satellite navigation system that provides location and time information in all weather, anywhere there is an unobstructed line of sight to four or more GPS satellites. It is maintained by the U.S. government and is freely accessible to anyone with a GPS receiver.

A visibility of not less than one mile has been implemented at the Airport. Approaches with lower visibility minimums would require:

- The widening of the Part 77 Primary Surface from the existing 500 feet to 1,000 feet
- The acquisition or control of land in the Runway Protection Zone, which would require lengthening and widening
- Runway approach lights would need to be installed

The widening of the primary surface, required by the lower visibility minimums would encroach on and diminish the utility of the developable land within the Airport. Weather conditions with lower than one mile visibility minimums only occur between one and three percent of the time annually at the Airport.

4.2.2 Part 77 Surfaces

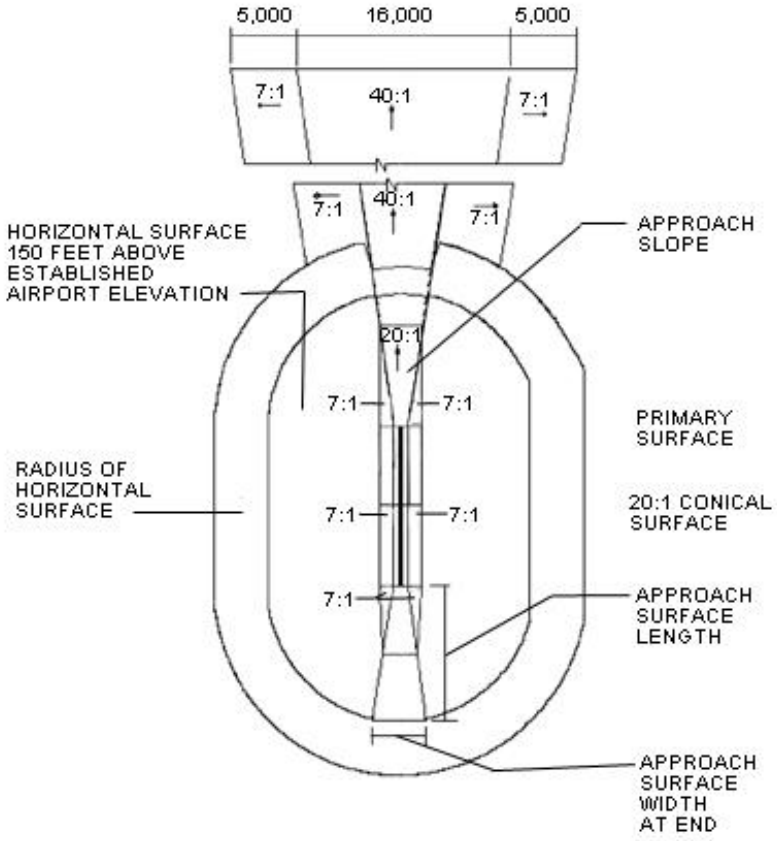
Code of Federal Regulations (CFR) Title 14, Chapter 1, Part 77, *Objects Affecting Navigable Airspace*, (Part 77) sets criteria for protecting airspace near airports. These regulations define numerous airspace imaginary surfaces that exist on and around airports. The size and dimensions of these surfaces are dependent upon the runway type, i.e. utility or non-utility, and the approved or planned aircraft approach procedures. Objects, whether natural or man-made, should not penetrate these defined Part 77 surfaces. The dimensions of the existing Part 77 surfaces for Wauchula Municipal Airport are given in **Table 4-1** and the surfaces themselves are depicted in **Figure 4-1**.

As aircraft over 12,500 pounds operate at the Airport, Runway 18-36 is classified as a utility runway. Non-precision approaches with visibility minima not less than one mile are currently in use at the Airport and this is not anticipated to change.

Table 4-1
EXISTING PART 77 SURFACES

Surface	Non-Precision Instrument Runway
Width of Primary Approach Surface and Approach Surface Width at Inner End	500
Radius of Horizontal Surface	5,000
Surface	**Non-Precision Instrument Approach**
Approach Surface Width at the End	2,000
Approach Surface Length	5,000
Approach Slope (horizontal to vertical)	20:1

Figure 4-1
EXISTING PART 77 SURFACES



4.3 AIRFIELD

The airfield is a system of components upon which aircraft operate. Airfield requirements are affected by demand capacity; aircraft mix, runway, taxiway design standards, airspace, and navigational and visual aids. This section looks at each of these factors with respect to the Wauchula Municipal Airport.

4.3.1 Airfield Configuration

The number, orientation, and spatial layout of the runways at an airport comprise the airfield configuration. The configuration is adequate if it provides sufficient operational capacity and appropriate wind coverage for the aircraft operating or expected to operate at the Airport through the end of the planning period.

The existing airfield configuration at Wauchula Municipal Airport consists of one runway of 4,005 feet in length, Runway 18-36. Runway 18-36 is situated in a north-south direction on the airfield. Runway 18-36 also has a full-length, parallel taxiway with four connector taxiways.

4.3.2 Airfield Capacity

It is recommended by the FAA that the operational capacity of an airport be determined on a periodic basis. This allows for any adjustments that might be required based on such an analysis. An airfield capacity analysis determines what percentage of the airfield's theoretical capacity is being used and what potential delays might develop given the calculated capacity. The FAA Advisory Circular 150/5060-5, *Airport Capacity and Delay*, provides a methodology for performing the analysis.

The Annual Service Volume (ASV) is the theoretical capacity of the Airport on an annual basis given the runway configuration, the number and location of taxiways, the aircraft fleet mix, the percentage of aircraft arrivals, the percentage of touch-and-go activity at the Airport, and the meteorological conditions. The methodology provided in FAA AC 150/5060-5 indicates that the current hourly capacity for the Airport during Visual Flight Rules (VFR) weather is approximately 98 operations per hour. During Instrument Flight Rules (IFR) conditions, the Airport capacity is reduced to approximately 59 operations per hour. The Annual Service Volume (ASV) is calculated at approximately 230,000 operations per year with the existing airfield configuration of a single runway.

Table 4-2
AIRFIELD CAPACITY

	Theoretical Capacity	2011 Operations	Percent of Capacity	2031 Operations	Percent of Capacity
Operations per hour during VFR Weather	98	3	3%	5	5%
Operations Per Year	230,000	8,380	3.6%	12,950	5.6%

While the theoretical capacity of the Airport indicates that as many as 98 operations per hour could occur during VFR weather, the Airport is not anticipated to approach this number of hourly operations during the planning period. The forecasts of aviation activity indicate that the peak hour operations in 2011 were three and that they are expected to rise to 5 in the year 2031. The ASV of the Airport is calculated at 230,000 annual operations. However, records show that only 8,380 annual operations were recorded at the Airport in 2011. This is approximately three percent of the ASV. The forecasts of aviation activity indicate that the annual operations are projected to grow to 12,980 by the year 2031. This would equate to approximately 5.6 percent of the ASV. The corresponding calculation of projected delay at the Airport anticipates that the delay will be less than one second. The Airport is projected to have more than sufficient capacity throughout the planning period. Accordingly, no airfield enhancements are justified in order to solely increase the operational capacity of the airfield.

4.3.3 Runway Design Code

Each runway on an airport has an established Runway Design Code (RDC), which is made up of the Aircraft Approach Category (AAC), the Airplane Design Group (ADG), and the approach visibility minimums for that runway. The first component, the AAC is depicted by a letter and relates to aircraft approach speed as shown in **Table 4-3**.

Table 4-3
AIRCRAFT APPROACH CATEGORY

Aircraft Approach Category	Approach Speed
A	Approach speed less than 91 knots
B	Approach speed 91 knots or more but less than 121 knots
C	Approach speed 121 knots or more but less than 141 knots
D	Approach speed 141 knots or more but less than 166 knots
E	Approach speed 166 knots or more

The second component, the ADG, is depicted by a Roman numeral and relates to either the wingspan or the tail height of the aircraft; whichever is more restrictive. The levels of the ADG are shown in **Table 4-4**.

Table 4-4
AIRPLANE DESIGN GROUPS

Group Number	Tail Height in Feet	Wingspan in Feet
I	Less than 20	Less than 49
II	20 to less than 30	49 to less than 79
III	30 to less than 45	79 to less than 118
IV	45 to less than 60	118 to less than 171
V	60 to less than 66	171 to less than 214
VI	66 to less than 80	214 to less than 262

The third component, the approach visibility minimums, are expressed by Runway Visual Range (RVR) values in feet of 1200, 1600, 2400, and 4000 as shown in **Table 4-5**. The third component should read “VIS” for runways designated with a visual approach only.

Table 4-5
VISIBILITY MINIMUMS

RVR in Feet	Flight Visibility Category in Statute Miles
4,000	Lower than 1 mile but not lower than ¾ mile (APV ≥ ¾ but < 1 mile)
2,400	Lower than ¾ mile but not lower than ½ mile (CAT-I PA)
1,600	Lower than ½ mile but not lower than ¼ mile (CAT-II PA)
1,200	Lower than ¼ mile (CAT-III PA)

Note: Approach Procedure with Vertical Guidance (APV)

Given the above parameters, Runway 18-36 currently has a Runway Design Code of B-II-VIS. The RDC is based on current or planned development. It has no operational application.

4.3.4 Airport Reference Code

The FAA has established a tiered system of Airport Reference Codes (ARC), which determines the design standards for runways, separations, safety areas, and many other airside facilities. The ARC is an airport designation that signifies the airport's highest Runway Design Code (RDC), minus the third component, visibility, of the RDC. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the Airport. Currently, the only runway at the Airport is Runway 18-36, which has an RDC of B-II-VIS. Therefore, the current ARC is B-II. This is not projected to change, unless the fleet mix at the Airport changes significantly. An aircraft with a higher AAC and or ADG would have to have 500 or more annual operations before this would occur.

4.3.5 Crosswind Runway

As is indicated in Section 2.6 of this Master Plan Update, the wind coverage analysis shows that Runway 18-36 meets the FAA recommended wind coverage of 95 percent, based on a 13-knot crosswind, which is appropriate for a B-II runway.

However, the 10.5-knots crosswind criterion applies to aircraft with an ARC of A-I and B-I. Runway 18-36 does not meet the 95 percent criterion for 10.5 knot winds. In the event that an airport does not meet this criterion, the FAA recommends that an additional runway be planned to satisfy the crosswind coverage requirements. A review of the all-weather windroses indicates that an orientation from 8-26 to 15-33 would likely yield the appropriate wind coverage.

4.3.6 Runway Lengths Analyses

Runway length analyses for the current runway, Runway 18-36 and for the proposed new crosswind runway were performed, based upon the Aviation Activity Forecasts presented in Chapter 3 of this report and approved by the FAA. The FAA Advisory Circular 150/5328-4B, *Runway Length Requirements for Airport Design*, was used in the preparation of these analyses.

4.3.6.1 Runway 18-36

Runway 18-36 at Wauchula Municipal Airport currently has an ARC of B-II. The B-II designation indicates that the Runway is designed to accommodate aircraft with approach speeds up to but not including 121 knots and wingspans up to but not including 79 feet. Aircraft that are within the ARC B-II designation include the King Air 200, the Cessna Citation III, and the Beach Airliner 1900-C. The runway pavement however, has an additional restriction; it is only constructed to accommodate aircraft of 12,500 pounds or less. Both the Cessna Citation and the Beech Airliner 1900-C weigh more than this. The King Air 200 weighs less than the restriction and it is currently listed as the critical aircraft for the runway and the Airport. Additional ARC B-II aircraft capable of using the Airport include the Beech King Air C90-1, the Cessna 441 Conquest, and the Rockwell 840.

The methodology used for determining the applicable runway length is contained in Table 1-1, *Airplane Weight Categorization for Runway Length Requirements*, of the FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design.* The table for runway lengths for aircraft with approach speeds of 50 knots or more and with less than 10 passengers was used.

Information specific to Wauchula Municipal Airport was used in conjunction with Figure 2-1, *Small Airplanes with Fewer than 10 Passenger Seats (excludes Pilot and Co-pilot)*, of FAA AC 150/5325-4B to obtain a single runway length for the entire group of B-II aircraft. The Airport specific information used is found in **Table 4-6.**

Table 4-6
AIRPORT SPECIFIC DATA

Category	Information
Hottest Month	July
Mean Daily Maximum Temperature for July from 2007-2011	92 degrees Fahrenheit
Airport Elevation	109 feet Above Mean Sea Level

As Wauchula is located on the fringe of a metropolitan area (Tampa) it was determined that 100 percent of the fleet mix from Figure 2-1 of the FAA AC 150/5325-4B would be used. This results in a recommended length for Runway 18-36 of 3,650 feet in length.

Title 14, Code of Federal Regulations (CFR), *Aeronautics and Space*, requires that runway landing distances be increased for turbojet-powered aircraft by 15 percent when landing on wet or slippery runways. Further, the take-off distances are to be increased by 15 percent or up to 5,500 feet, whichever is less, for effective runway gradients greater than zero. This would not be applicable, as the King Air 200 is not a turbojet-powered aircraft. The King Air along with the majority of the Aircraft Approach Category A and B aircraft are powered with internal combustion engines. Reaction engines used on larger aircraft include the turbo-jet, turbo-fan, and turbo-prop aircraft are also called turbine engine aircraft. Turbine aircraft are not projected to be operating at or above 500 annual operations at the Airport before the year 2021.

For takeoff only, the effective runway gradient is also considered. The 3,650 foot runway length would be increased at a rate of 10 feet for each foot of elevation difference between the high and low points of the centerline. For Runway 18-36, this difference would equate to 75 feet, or a runway length of 3,725 lineal feet. Runway 18-36 is currently 4,005 feet in length.

The calculations were performed for aircraft with less than 10 seats, excluding the pilot and copilot. Once the Airport experiences over 500 operations per year of aircraft with more than 10 seats, excluding the pilot and copilot, and weighing 12,500 pounds or less; the runway would be eligible for FAA funding to extend the runway to 4,200 feet in length. Once the Airport experiences over 500 operations per year of aircraft with more than 12,500 pounds but less than 60,000 pounds Maximum Take Off Weight (MTOW), the runway would be eligible for FAA funding to extend the runway to 5,200 feet in length. However, the runway would also need to be strengthened to accommodate the additional weight imposed by these aircraft.

4.3.6.2 Crosswind Runway

The crosswind runway must be designed to accommodate ARC A-I and B-I aircraft. These aircraft are the most susceptible to the influence of cross winds as typically, they are smaller and weigh less. These aircraft have approach speeds of less than 121 knots. Therefore, Table 1-1 of the FAA AC 150/5325-4B indicates that the methodology to be followed for the

crosswind runway is the same as that for Runway 18-36. The initial result would be the 3,650 feet in length obtained when performing the analysis for Runway 18-36. It is assumed that the runway gradient of the new runway would be similar to that of the existing runway. The difference between the high point and the low point of the existing runway is 75 feet. Therefore the runway length would be increased at a rate of 10 feet for each foot of elevation difference between the high and low points of the centerline. This would result in a runway length for the crosswind runway of 3,725 lineal feet.

4.3.7 Runway Widths Analyses

For runways such as Runway 18-36 that have an AAC A or B, and an ADG of II, and have a visibility minimum of not lower than 1 mile, the FAA approved runway width would be 75 feet wide with 10-foot wide shoulders. The existing width of Runway 18-36 is 75 feet. The runway does not have paved shoulders. Runways, such as the proposed crosswind runway, with an AAC of A or B and an ADG of I, would be considered a visual runway and the FAA approved width would be 60 feet wide with 10-foot wide shoulders.

4.3.8 Runway Design Standards

The FAA requires certain standards be met for a runway based on the identified RDG. **Table 4-7** compares the dimensions of the pavement and various safety areas on the existing runway with the standards for a B-II runway and the standards that would be applicable for the crosswind runway. **Table 4-8** presents the existing runway separation distances to a holding position, a parallel taxiway/taxilane centerline, and an aircraft parking area with the design standards for a B-II runway, which is representative of the existing runway and the design standards for a B-I runway, which would be representative of the future crosswind runway.

Runway 18-36 currently meets or exceeds all of the design standards for an RDC B-II-VIS runway as set forth in FAA AC 150/5300-13A, *Airport Design*.

- The width of the Obstacle Free Zone is currently 400 feet; however it only needs to be 250 feet wide.
- The aircraft parking area is located 350 feet from the centerline of the runway and it only needs to be 250 feet from the runway centerline.

Table 4-7
RUNWAY DESIGN STANDARDS

Design Parameter	Runway 18-36		Future Crosswind Runway
	Existing (in feet)	B-II (in feet)	B-I (in feet)
Width	75	75	60
Shoulder Width	10 (unpaved)	10	10
Crosswind Component	13-knots	13-knots	10.5-knots
Runway Safety Area			
Length Beyond Departure End	300	300	240
Length Prior to Threshold	300	300	240
Width	150	150	120
Runway Object Free Area			
Length Beyond Runway End	300	300	240
Length Prior to Threshold	300	300	240
Width	500	500	400
Runway Obstacle Free Zone			
Length	200 feet beyond each runway end	200 feet beyond each runway end	200 feet beyond each runway end
Width	400	250	250
Approach Runway Protection Zone			
Length	1,000	1,000	1,000
Inner Width	500	500	500
Outer Width	700	700	700
Departure Runway Protection Zone			
Length	1,000	1,000	1,000
Inner Width	500	500	500
Outer Width	700	700	700

Table 4-8
RUNWAY SEPARATION STANDARDS

Runway Separation in Feet: Runway Centerline to:			
	Existing Runway 18-36	B-II Standards	B-I Standards
Holding Position	200	200	200
Parallel taxiway/taxilane centerline	240	240	225
Aircraft parking area	350	250	200

4.3.9 Runway Designation

Runway designations are provided on each end of a runway and are used by pilots to identify landing facilities. A runway designation identifies a runway according to compass bearing and consists of a number and, on parallel runways, is supplemented with a letter. The designation number represents the whole number nearest the compass bearing when viewed from the direction of approach. For example, where the compass bearing is 183-degrees, the runway designation would be 18, and for a compass bearing of 87 degrees, the runway designation would be 9.

Compass bearings are affected by the magnetic field of the earth and by magnetic objects in the vicinity of the airfield. The effect of magnetic objects in the vicinity is called “deviation”. The effect of the Earth’s magnetic field is called “variation”. Compass bearings corrected for nearby objects (deviation) are “magnetic” directions. Correcting for the Earth’s magnetic field (variation) gives us the “true” bearing or direction. When on land, “variation” is referred to as “magnetic declination” or sometimes “deviation”.

The compass bearing is determined by correcting a runway’s true bearing for magnetic declination. To accomplish this modification, westerly magnetic values are added to a runway’s true bearing, while easterly magnetic declination values are subtracted. The magnetic declination for Wauchula Municipal Airport is 5° 31’ 11” west. Since the magnetic declination is westerly, the compass bearings associated with the runways at the Airport are determined by adding the declination value to the true bearing values. The true bearing of Runway 18 is 179° 56’ 08.12”. Adding the two values together results in a magnetic bearing of 185° 27’ 19.12”. This indicates that the runway designation is currently incorrect and should be 19. The true bearing of Runway 36 is 359° 56’ 08.12”. Upon adding the magnetic declination the result is 5° 27’ 19.12”. This indicates that the runway designation is currently incorrect and should be 1. Upon the next marking project or runway overlay project, the designations at the Airport should be changed to reflect the correct magnetic bearings of the runways.

The variation or magnetic declination changes gradually over time. Currently, the rate of change of the magnetic declination at the Airport is 0° 6’ 0” per year. This would indicate that the runway end designations are not likely to change for another 96 years as shown in **Table 4-9**.

Table 4-9
RUNWAY DESIGNATIONS

	Data
Airport declination	5° 31' 11" W
Rate of declination change per year	0° 6' 00" W
Runway 18	
True bearing	179° 56' 8.12"
Compass bearing	185° 27' 19.12"
Correct runway designation	19
Runway 36	
True bearing	359° 56' 08.12"
Compass bearing	5° 27' 19.12"
Correct runway designation	1
Approximate years to next designation change	96

Source: National Geodetic Survey
National Geophysical Data Center

4.3.10 Runway Pavement Condition and Strength

The pavement of Runway 18-36 is asphalt and is currently considered to be in good condition. The pavement condition should be monitored to ensure that rehabilitation is considered and planned for before the pavement reaches a Pavement Conditions Index (PCI) at or below 41, which would indicate that the pavement is in poor consideration. The pavement was constructed in 1990. It received a seal coat in the year 2002. The pavement will likely need rehabilitation approximately every 10 years depending on wear. Rehabilitation would likely consist of a traditional mill and overlay process. Pavement rehabilitation will lengthen the useable life of the runway and ensure that it is operable well into the future.

Airports have varying pavement strengths based on the aircraft types they expect to serve. Runway 18-36 reportedly has pavement strength of 30,000 pounds for single-wheel gear aircraft. The majority of the aircraft operating at the Airport do not exceed 12,500 pounds; however, some operations by aircraft weighing over 12,500 pounds do occur. This is not currently projected to change during the planning period. The existing pavement strength is anticipated to be suitable for the projected operations throughout the 20-year planning period. While heavier aircraft will continue to operate at the Airport, their frequency is not projected cause irreparable damage to the existing runway or to be at the level that would justify a pavement strengthening project within the next twenty years.

The runway pavement strength for a new crosswind runway would be designed not to have to support more than the 12,500 pound aircraft currently using Runway 18-36. A pavement strength of 30,000 pounds for a single-wheel gear aircraft should be sufficient.

4.3.11 Runway Markings, Lighting, and Signage

The current non-precision markings at both ends of Runway 18-36 are in fair condition. The FAA requires non-precision markings for GPS non-precision approaches. Runway 18-36 has these and they should be maintained.

Runway 18-36 has a Precision Approach Path Indicator (PAPI) system on each end of the runway. This meets the requirements for a visual approach runway.

The Airport currently has no airfield signage system. Airfield signage is not required as the Airport does not operate under a Part 139 certificate. Part 139 contains the certification standards for an airport providing transport services for a fee using aircraft with nine or more seats.

The Airport management has, in the past, expressed a desire for airfield signage. New signage should meet the requirements of both the FAA and FDOT. Ideally the signs would be lighted as the Airport supports night operations. Basic signs would include runway holding position signs and taxiway identification signs.

The crosswind runway would also be a visual approach runway and will require PAPIs on each runway end and non-precision runway markings. Should airfield signage be installed on the Airport, this runway should also be included, although it is not required.

4.3.12 Taxiways and Taxilanes

Runway 18-36 is served by a full-length, parallel taxiway, Taxiway A. There are four taxiway connectors between Taxiway A and Runway 18-36.

A taxilane connects Taxiway A to hangar buildings A, B, C, and D and the aircraft parking ramp. A second taxilane connects Taxiway A to hangar building E and a future hangar building area. A third taxilane connects Taxiway A to the Harvest Aviation hangar ramp and the fueling ramp.

The condition of the existing taxiways and taxilanes is good. However, they will need careful monitoring to ensure that when maintenance is required that the taxiways receive it in an expeditious manner to prevent further deterioration.

4.3.12.1 Taxiway Design Standards

Taxiways and taxilanes also have design standards that are detailed in FAA AC 150/5300-13A, *Airport Design*. The design standards for taxiways and taxilanes are based in part on the Airplane Design Group (ADG) of the critical aircraft of the runway. However, taxiway design is also based on Taxiway Design Group (TDG), which is based on the dimensions of an aircraft's Main Gear Width (MGW) and the Cockpit to Main Gear (CMG) distance as set forth in Figure 4-1 of the Advisory Circular. The King Air 200, the critical aircraft for Runway 18-36 is an ADG-II and is considered to be a TDG-2.

Taxiways associated solely with a new crosswind runway are likely to have a TDG-1 designation. The aircraft that have an A-I or B-I designation, which this runway will serve, typically have a smaller MGW and are therefore most likely to fall within the parameters of a TDG-1.

The taxiway design standards based on Airplane Design Group for both ADG-I and ADG II are shown in Table 4-10. The existing dimensions for Taxiway A are also shown. The taxiway design standards based on Taxiway Design Standards for both TDG-1 and TDG-2 are shown in **Table 4-11**.

Table 4-10
TAXIWAY DESIGN STANDARDS BASED ON AIRPLANE DESIGN GROUP

Item	Taxiway A in feet	ADG-II in feet	ADG-I in feet
Taxiway Protection			
Taxiway Safety Area (TSA)	79	79	49
Taxiway Object Free Area	131	131	89
Taxilane Object Free Area	115	115	79
Taxiway Separation			
Taxiway Centerline to Parallel Taxiway/Taxilane Centerline	105	105	69
Taxiway Centerline to Fixed or Moveable Object	60	65.5	44.5
Taxiway Centerline to Parallel Taxilane Centerline	n/a	97	64
Taxilane Centerline to Fixed or Moveable Object	57.5	57.5	39.5
Wingtip Clearance			
Taxiway Wingtip Clearance	26	26	20
Taxilane Wingtip Clearance	18	18	15

The centerline distance criteria from a taxiway centerline to a fixed or moveable object from Taxiway A is less than it should be as the containment for the fuel tanks from the old fueling facility has not yet been removed. The Airport intends to remove this in the near future.

Table 4-11
TAXIWAY DESIGN STANDARDS BASED ON TAXIWAY DESIGN GROUPS

Item	Taxiway A in feet	TDG-2	TDG-1
Taxiway Width	35	35	25
Taxiway Edge Safety Margin	7.5	7.5	5
Taxiway Shoulder Margin	10	10	10
Taxiway/Taxilane Centerline to Parallel Taxiway/Taxilane Centerline	105	69	69

4.3.12.2 Additional Taxiways

Additional taxiways and taxilanes will be required as further aviation development occurs at the Airport. Most notably, it is recommended that a full-length, parallel taxiway be developed along with the new crosswind runway. New taxiways could also support development in new areas of the Airport. Taxilanes would also be required to access new hangars or aprons.

4.3.12.3 Taxiway Conditions Assessment

Taxiway A is paved and lighted. The pavement and markings are in good condition. The pavement of the taxiway/runway connectors are also in good condition. Each connector is marked with centerline and runway hold line markings, all of which are in good condition. The taxilane pavement condition is considered to be in fair condition. The pavement for each of these facilities should be monitored and rehabilitation of these facilities could be warranted within a ten-year period.

4.3.13 Navigational Aids

There is currently a four-box Precision Approach Path Indicator (PAPI) located at each end of Runway 18-36. Both PAPIs are in good condition. There is also a Non-directional Radio Beacon (NDB) located on the airfield that is in good condition. There are two windsocks on the airfield. Both are showing signs of wear and should be scheduled for replacement within the first five years of the planning period. The Airport does not currently have a segmented circle; however it is strongly urged to consider installing one. A segmented circle aids a pilot in locating an airport and it also provides a centralized location for indicators and signal devices.

The Airport does not currently have an Automated Weather Observing System (AWOS). An AWOS provides pilots, via radio or telephone, the current weather conditions on the airfield. Because local, more accurate readings are given, pilots can make decisions with a higher degree of safety. Should an AWOS be installed on the Airport, it should be connected with the National Oceanographic and Atmospheric Administration (NOAA) as this would ensure that all local weather data would be stored and accessible for future planning studies.

4.4 LANDSIDE

Landside facilities are those that interface between the airfield and the public infrastructure. Landside facilities typically include hangars, terminals, roads, vehicular parking, utilities and other support structures.

4.4.1 Based Aircraft Storage

Based aircraft are typically housed in conventional hangars, T-hangars, or are tied down on a specified area of the apron or a grass area. There are currently 35 T-hangars, one portable hangar, and two conventional hangars on the Airport. Currently, there are no vacant T-hangars, one based aircraft is housed in a conventional hangar, and the remaining based aircraft are parked on the grass in a leased area. No based aircraft are currently housed at tie-down areas located on an apron. **Table 4-12** shows the projected based aircraft storage requirements based on the FAA approved aircraft fleet mix for the Airport.

Table 4-12
BASED AIRCRAFT STORAGE BASED ON NUMBER OF AIRCRAFT

	2011	2016	2021	2026	2031
Number of T-hangar units [1]	35	35	45	45	55
Number of aircraft stored in conventional hangars	1	1	1	1	1
Number of aircraft stored on grass areas [2]	8	8	0	0	0
Number of additional aircraft storage areas [3]	0	3	5	8	2
Total number of based aircraft	44	47	51	54	58

Note: 1 – Assumes that T-hangars will be built in multiples of 10 units per building
2 – Assumes that based aircraft will no longer be allowed to park on the grass due to environmental constraints within 10 years.
3 – Assumes that additional based aircraft storage will be accommodated with tie-down spaces on an apron until covered storage is available.

Table 4-12 assumes that future T-hangars will be built in multiples of 10 units per T-hangar building, that before the year 2021 based aircraft will no longer be allowed to park on the grass due to environmental constraints, and that new based aircraft storage will be accommodated at tie-down areas on an apron until covered storage is available. Based on these assumptions, an additional T-hangar building of 10 units will be required in 2021 and second new T-hangar building of 10 units will be required in 2031. By the year 2016, three based aircraft tie-down positions will be required on an apron and by the year 2026, a total of eight tie-down positions will be required for based aircraft.

From the number of aircraft parking storage units required, the assumptions listed above, and general planning areas per unit, the square foot area required for each type of based aircraft storage and the total aircraft storage requirements are shown in **Table 4-13**.

Table 4-13
BASED AIRCRAFT STORAGE AREA REQUIREMENTS

	2011 Existing	2016	2021	2026	2031
Number of T-hangar units	35	35	45	45	55
Square foot area of T-hangars [1]	42,740	42,740	57,620	57,620	72,500
Average square feet per T-hangar unit	1,221	1,221	1,280	1,280	1,318
Number of conventional hangar positions	1	1	1	1	1
Square foot area of conventional hangar positions	900	900	900	900	900
Number of portable hangars	1	1	0	0	0
Square foot area of portable hangars	1,050	1,050	0	0	0
Number of grass parking positions [2]	7	7	0	0	0
Square foot area of grass parking positions [2]	22,680	22,680	0	0	0
Number of tie-down positions on apron [3]	0	3	5	8	2
Square foot area of apron tie-down positions [3]	0	25,920	43,200	69,120	17,280
Total number of based aircraft storage positions	44	47	51	54	58
Total square foot area of based aircraft storage positions	67,370	93,290	101,720	127,640	90,680
Average square foot per aircraft	1,531	1,984	1,995	2,363	1,563
Surplus/(Deficit) square feet from existing	0	(25,920)	(34,350)	(60,270)	(23,310)

Note: 1 – Assumes that T-hangars will be built in multiples of 10 units per building
2 – Assumes that based aircraft will no longer be allowed to park on the grass due to environmental constraints within 10 years.
3 – Assumes that additional based aircraft storage will be accommodated with tie-down spaces on an apron until covered storage is available.

The total existing square foot storage area in 2011 was approximately 67,370 square feet. Based on the FAA approved forecast of based aircraft, the required area will grow to approximately 93,290 square feet in 2016 and to approximately 90,680 square feet in the year 2031.

4.4.2 Itinerant Aircraft Storage

Itinerant aircraft are those aircraft that are not based on the airport, but which are visiting. The pilots could be visiting for reasons of business or pleasure; however itinerant aircraft also arrive for special events either at the Airport or within the community. The itinerant aircraft require an area where they can be stored on a temporary basis. This is typically only for a couple of days at most.

Table 4-14 shows the methodology for calculating the apron requirements for itinerant aircraft as defined in AC 150/5300-13 Change 18, *Airport Design*, Appendix 5, *Small Airport Buildings, Airplane Parking, and Tiedowns*. The revised AC 150/5300-13A does not include this methodology, but it is used in this report as a viable guideline.

Table 4-14
ITINERANT AIRCRAFT PARKING

	2011	2016	2021	2026	2031
Number of based aircraft	44	47	51	54	58
Number of operations per based aircraft	190	199	204	215	223
Total annual operations	8,380	9,344	10,418	11,615	12,950
Percent of annual operations occurring in busiest month	10%	10%	10%	10%	10%
Busiest month operations	838	934	1,042	1,162	1,295
Average day operations of busiest month	28	31	35	39	43
Busiest day (average day + 10%)	31	34	38	43	47
Percent of itinerant operations	59%	59%	59%	59%	59%
Number of itinerant aircraft operations on busiest day	18	20	23	25	28
Number of itinerant aircraft landing operations	9	10	11	13	14
Percentage of itinerant aircraft on ground at one time	50%	50%	50%	50%	50%
Number of Itinerant aircraft on ground at same time	5	5	6	6	7
Square yards per Group I aircraft on apron with taxilane	960	960	960	960	960
Percent of Group I aircraft	100.0%	99.0%	98.9%	98.9%	98.8%
Number of Group I aircraft	5	5	6	6	7
Square yards per Group II aircraft on apron with taxilane	1,385	1,385	1,385	1,385	1,385
Percent of Group II aircraft	0.0%	1.0%	1.1%	1.1%	1.2%
Number of Group II aircraft	0	0	0	0	0
Square yards of itinerant apron required	4,800	4,800	5,760	5,760	6,720
Existing square yards of itinerant apron	5,978	5,978	5,978	5,978	5,978
Surplus/(Deficit)	1,178	1,178	218	218	(742)

One difference between the Advisory Circular (AC) methodology and the existing apron layout is that the AC allows for 960 square yards (8,640 square feet) per aircraft for Group I aircraft and the existing apron layout averages about 460 square yards (4,140 square feet) per aircraft. For this reason, only six aircraft are projected to be accommodated on the existing apron using the AC methodology. As the fleet mix of the Airport expands, larger Group I aircraft will undoubtedly be visiting the Airport. The methodology does show that by the year 2031, an additional 742 square yards of itinerant aircraft storage will be needed.

4.4.3 Aprons

It is not recommended that the based aircraft stored at the tie-downs and the itinerant aircraft parking occur on the same apron. Some consideration should be given to keeping these areas separate as they typically support different level and types of activities. However, at an airport as small as Wauchula is currently this may not be practical, as either the based aircraft numbers or those of the itinerant aircraft could increase unexpectedly and the facilities of the other could be used on a temporary basis. The total anticipated aircraft parking apron requirements are shown in **Table 4-15**.

Table 4-15
AIRCRAFT PARKING APRON REQUIREMENTS

Year	Itinerant Aircraft Apron in Square Yards	Based Aircraft Apron in Square Yards	Total Square Yards of Apron Required	Square Yards of Existing Apron	Surplus /(Deficit) in Square Yards
2011	4,800	0	4,800	5,978	1,178
2016	4,800	2,880	7,680	5,978	(1,702)
2021	5,760	4,800	10,560	5,978	(4,582)
2026	5,760	7,680	13,440	5,978	(7,462)
2031	6,720	1,920	8,640	5,978	(2,662)

Table 4-15 shows that taken together additional aircraft parking apron will be needed on the Airport by the year 2016. This apron is based on 960 square yards (8,640 square feet) per aircraft as opposed to the existing average of 460 square yards (4,140 square feet) per aircraft. The increased need is largely driven by the increased need for based aircraft storage in the year 2016. By the year 2021, it is anticipated that there will be additional need based on new aircraft being based at the Airport, at least 10 of these aircraft will be stored in new T-hangars, however, it is also anticipated that the based aircraft will no longer be allowed to park on the grass and that the portable hangar will likely no longer be viable. By the year 2031, it is anticipated that the requirements for aircraft storage of based aircraft on the apron will have been reduced again as a second new T-hangar building is opened.

In addition to the aprons that are used to store aircraft, there is a need for aprons to be built in front of those hangars that are used primarily for aircraft service and maintenance. Typically, these aprons are sized to be approximately the same size as the hangar that it serves.

Table 4-16
CONVENTIONAL HANGAR APRON AREA

Facility	Harvest Aviation Hangar	B&B Aircraft Services Hangar
Existing conventional hangar area in square feet	9,600	4,950
Existing conventional hangar apron space in square yards	1,667	306
Typically required conventional hangar apron space in square yards	1,067	550
Surplus/(Deficit) in square yards	600	(244)

The Harvest Aviation hangar has more than the recommended apron area. This should not be a cause for concern as it will over time be fully utilized.

While the existing apron area for the B&B Aircraft Services hangar is less than recommended, it should also be noted that this hangar is a Quonset type structure meaning that the cross section of the building is a half circle. Not all of the floor area along the walls is useable for aircraft maintenance. Roughly 56 percent of the floor area of the hangar is reflected in the aprons that are located both in front of and behind this hangar.

4.4.4 Support Facilities

In addition to the primary facilities located on the airside and landside of the Wauchula Municipal Airport, there are other facilities located on the Airport that support the operation of the airside and the landside facilities. These include the electrical vault, the fuel farm, the pilot's lounge, and utilities.

4.4.4.1 Electrical Vault

The airfield electrical vault at Wauchula Municipal Airport serves the lighting and NAVAIDs on the airfield. The vault currently has capacity for limited future development as a spare regulator is located within the vault for future airfield lighting when it is required. A second vault may be required for the crosswind runway when it is constructed. The building enclosing the electrical vault requires maintenance and if this is delayed for too long a period, the building may need to be replaced.

4.4.4.2 Fuel Farm

A new fuel farm was constructed in 2007 and is in excellent condition. At this time no additional requirements are found for the fuel farm. However, consideration should be made to add a Jet A fuel tank as the fleet mix at the Airport changes to aircraft that require this type of fuel.

The fuel spill containment wall remains from the previous fuel farm. The eastern side of the wall is located only 60 feet from the Taxiway A centerline. FAA design standards dictate that no object should be closer than 65.5 feet from the taxiway centerline for ADG-II taxiways. The modifications to standard notes that operations should be limited to aircraft with a wingspan of 50 feet or less until the fuel spill retaining wall is removed. Every effort should be taken to remove the wall as soon as practicable.

4.4.4.3 Pilot's Lounge

The approximately 1,450 square foot pilot's lounge was constructed in 2008. It is currently in excellent condition. It is not anticipated that this facility will need to be expanded, refurbished, or replaced within the next 10 years. If properly maintained, this structure should survive the planning period.

4.4.4.4 FBO/General Aviation Terminal

There currently is no Fixed Base Operator (FBO) on the Airport. An FBO typically would provide a variety of services to the flying public, including line service, maintenance, flight training, sale of flying material such as maps, fueling, aircraft storage, and many other services. An FBO building might also serve as a terminal for general aviation users.

Table 4-17 shows the size requirements for a General Aviation terminal should the Airport elect to construct one in conjunction with bringing an FBO onto the airfield or with the City becoming the FBO. In the interim, the Pilot's Lounge provides many of the amenities that a GA terminal would provide, including a meeting room for the Airport Authority meetings.

Table 4-17
GENERAL AVIATION TERMINAL REQUIREMENTS

Year	Total Operations	Peak Hour Operations	Peak Hour Pilots and Passengers	Terminal Requirements in Square Feet
2011	8,380	3	6	920
2016	9,340	4	7	1,020
2021	10,420	4	8	1,140
2026	11,620	5	8	1,270
2031	12,950	5	9	1,420

4.4.4.5 Vehicular Facilities

The current roads on the Airport are sufficient to provide access to the Airport for the level of activity that it supports. The roads, with adequate periodic maintenance, should be able to provide suitable access to the Airport throughout the planning period. If an FBO and/or a flight school or other high activity business were to begin operations at the Airport, additional parking facilities would be required.

However, on September 27, 2012, the FAA issued an *Interim Guidance on Land Uses Within a Runway Protection Zone*. Within this Guidance, it is stipulated that public roads will not be allowed in Runway Protection Zones. The Interim Guidance does not apply to existing roads and they may remain in the RPZ until one of the following triggers the requirement for either the road to be moved out of the RPZ, or a declared distance is imposed on the runway effectively moving the RPZ the required distance to avoid the road and shortening the effective length of the runway:

- An airfield project (e.g., runway extension, runway shift)
- A change in the critical design aircraft that increases the RPZ dimensions

- A new or revised instrument approach procedure that increases the RPZ dimensions
- A local development proposal in the RPZ (either new or reconfigured)

The entrance road, Maurice "Sonny" Clavel Road, currently runs through the Runway 18 RPZ. Prior to any future work being done on the runway, including rehabilitation, the entrance road will have to be rerouted out of the RPZ.

In order to promote future growth on the Airport, the entrance road should be extended to a point south of the hangar currently occupied by B&B Aircraft Services. Additionally, the Airport interior road located immediately west of the Harvest Aviation hangar and the Building E T-hangars should be extended north to meet the entrance road. This would provide access to additional T-hangar buildings, as well as to a proposed industrial park located between the interior road and the entrance road. Future interior roads will also be necessary to access the landside areas created with a new crosswind runway.

4.4.4.6 Perimeter Fencing

Wauchula's current perimeter fence is located along the existing eastern edge of the Airport property. It does not currently surround the entire Airport property, nor is it considered to be a security fence, nor a wildlife deterrent fence. However, plans have been developed to build an Airport perimeter security fence. This fence would largely enclose the Airport with the exception that the western industrial park located immediately east of the entrance road would not be enclosed. The fence would not be located immediately adjacent to the eastern Airport property line, but would be brought approximately 45 feet inboard. This would allow north-south access on Airport property between the airfield and the property bordering the Airport to the east.

The perimeter fencing project has been delayed while additional small parcels of property are purchased along the eastern border of the Airport. It is anticipated that this project will go to bid sometime during the year 2013.

4.4.4.7 Utilities

The utilities located at the Airport are adequate to support the current activities. However, as activities increase, additional utilities may be required.

- Power: currently, there is only one-phase power at the Airport. Plans have been made to add a 3-phase system as the T-hangars expand east of the entrance road. A 3-phase system is generally more efficient and would more effectively support future development.
- Water: currently, there is no municipal water line conveniently located near the Airport. The Airport uses well-water with a package treatment system providing basic disinfection. No additional water resources are likely to be required within the next 10 years.
- Sanitary Sewer: while most of the buildings that have restrooms use septic tanks, the Harvest Aviation hangar is served by a master lift station with a connection to the Vandolah Waste Water Treatment Plant. The system is designed to be able to accommodate not only the Harvest Aviation hangar, but one other, future hangar, as well. The system is also designed to be expandable to accommodate the entire west side of the Airport.

4.4.4.8 Stormwater Management

It is important for the Airport to have an effective stormwater management plan to control the quantity and quality of the runoff from the Airport facilities. The activities on the Airport can result in the creation of pollutants that can be hazardous to humans, animals, plants, and the remainder of the environment if not properly controlled and treated, where necessary. The control of runoff is regulated and monitored by several local, state and federal agencies.

Currently, there is a system of ditches and ponds that control the drainage of stormwater in the different basins on the Airport property. These facilities should be monitored and maintained by the Airport to ensure that they continue working properly. Routine maintenance includes trimming vegetation, cleaning pipes, and removing silt to keep the system functioning properly.

As more facilities are constructed on the Airport, the stormwater management system will require modification and expansion to control the increased volume of runoff. Additional inlets, pipes and dry retention ponds will need to be constructed as more impervious surfaces are added.

During construction activities, topsoil and vegetation are typically removed. This exposes the underlying soil to erosion during rainfall events. Contractors should be required to use best management practices, such as silt barriers, hay bales, and temporary seeding to minimize erosion and silt contamination of neighboring waterways,

4.5 FACILITY REQUIREMENTS SUMMARY

This chapter has addressed a number of improvements or expansions that may need to be constructed over the next 20-year planning period. Many of these are tied to the FAA approved Forecasts of Aviation Activity. **Table 4-18** is a summary of the requirements and recommendations from this chapter. Each of these requirements and recommendations is tied to a “trigger” that will allow Airport management to know when they are approaching an event that would trigger additional development regardless of the time period.

Table 4-18
NEW FACILITY REQUIREMENTS SUMMARY

Facility	Existing Capacity	Recommendation	Trigger
Airspace		GPS approach to both crosswind runway ends	Construction of crosswind runway
Runway 18/36	Currently, 4,005 feet in length	Increase the runway to 4,200 lineal feet	Over 500 annual operations of aircraft with more than 10 seats and less than 12,500 pounds Maximum Take Off Weight
		Increase the runway to 5,200 lineal feet and strengthen pavement	Over 500 annual operations of aircraft weighing more than 12,500 pounds and less than 60,000 pounds (MTOW)
		Perform periodic maintenance	As needed
Crosswind runway	None	Construct new 3,725' x 60' runway	Lack of wind coverage on Primary Runway
Taxiways & Taxilanes		Construct new 25 foot wide full-length parallel taxiway to crosswind runway	With design and construction of crosswind runway
		Perform periodic maintenance	As needed
Itinerant Aircraft Apron	5,978 square feet	Add approximately 960 square yards of pavement or as indicated by fleet mix	When annual operations exceeds approximately 12,000
		Add additional approximately 960 square yards of pavement or as indicated by fleet mix	When annual operations exceeds approximately 13,800
Based Aircraft Apron	None	Build a based aircraft storage apron of approximately 10,750 square yards or enough to store 10 aircraft	When based aircraft exceed 44 or environmental regulations no longer allow long-term based aircraft parking on the grass
T-hangars	35 T-hangars	Add another 10-unit T-hangar building for a total of 45 T-hangar units	When number of based aircraft reaches 50
		Add another 10-unit T-hangar building for a total of 55 T-hangar units	When number of based aircraft reaches 58
Airfield Lighting		Perform routine maintenance	As needed
Airfield Markings		Perform routine maintenance	As needed
NAVAIDS		Install Automated Weather Observation Station	As needed
Utilities		Connect with City/County water lines	As needed
		Develop a three-phase electrical system	As needed

Table 4-18 (Continued)
NEW FACILITY REQUIREMENTS SUMMARY

Facility	Existing Capacity	Recommendation	Trigger
Vehicular Parking		Add vehicular parking at the rate of 1.7 parking spaces per additional based aircraft requiring storage	Additional based aircraft storage
Fuel Farm		Add Jet A storage tank	As needed
FBO/GA Terminal		Construct new FBO/GA Terminal	As needed

5. ENVIRONMENTAL CONSIDERATIONS

As a federal agency, the FAA must consider the potential environmental impacts of any project for which they provide funding either in part or in whole. The provision of funds is considered a federal action. Therefore, as part of this Master Plan Update, consideration is given during the evaluation of alternatives to determine if there are currently any environmental concerns on the Airport that either might be affected by or impact any of the alternatives that have been developed. This section is not intended to be an environmental assessment. Where such is required, a Categorical Exclusion, an Environmental Assessment, or an Environmental Impact Statement would be developed immediately prior to the commencement of design of an individual project when much more project specific information would be available.

The FAA Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Aviation Actions*, Section 706e, *Affected Environment*, states that "this section succinctly describes only those environmental preferred action and its reasonable alternatives, if any, are likely to affect discussions (FAA Order 1050.1E, paragraph 405e)."

The following environmental resources and conditions within the Affected Environment that have a potential to be impacted by Airport development are discussed in the following sections:

- Noise
- Compatible Land Use
- Air Quality
- Construction Impacts
- Threatened & Endangered Species (Federal and State of Florida)
- Coastal Resources (Coastal Zones & Coastal Barriers)
- Department of Transportation: Section 4(f)
- Farmlands
- Flood Plains
- Hazardous Materials, Pollution Prevention and Solid Waste
- Historic, Architectural, Archaeological, and Cultural Resources
- Light Emissions and Visual Effects
- Natural Resources & Energy Supply
- Secondary (Induced) Impacts
- Socioeconomic Impacts
- Water Quality
- Wetlands
- Wild and Scenic Rivers
- Wildlife Hazard Management Issues

5.1 NOISE

In 2012 the impacts from aircraft are considered *de minimus,* which can be considered for the most part a risk too small to be concerned about. The current aircraft mix for Wauchula Municipal Airport does not show a conflict between aircraft noise and current or future residential development. The location of the Airport and current land use does not suggest a conflict with land use and future development of the Airport.

This Master Plan Update recommends appropriate buffering of Airport related development and non-compatible land uses. The Wauchula Municipal Airport should support and encourage development of aviation related development on Airport property, master planning of all development and coordination with local, County, and State of Florida agencies is a priority in order to promote economic growth and aviation related development.

Based on the above information, there will be no impacts to noise abatement requirements identified in this Master Plan Update.

5.3 COMPATIBLE LAND USE

The Wauchula Municipal Airport compatible land use is consistent with State of Florida, Hardee County and City of Wauchula land use plans. The Airport is located in an area that does not reflect land use conflicts. Proposed future development of hangars, aprons, and other aviation related development should be planned for consistency with future growth, optimum land use and development aviation linkages for current and future development.

This Master Plan Update recommends development of future growth plans that take advantage of future development of hangars, aprons and runway opportunities. The Airport should take advantage of local government comprehensive planning, State of Florida economic planning and development funding, and preservation of future important aviation corridors for transportation including surface and aviation related development.

Based on the above information, there will be no impact to compatible land use identified in this Master Plan Update.

5.4 AIR QUALITY

Air quality is a function of both the rate and location of pollution emissions under the influence of meteorological conditions and topographic features affecting pollution movement and dispersal. The Wauchula Municipal Airport is in a nonattainment air quality area and is not expected to change air quality conditions in the future. There are no air quality adverse impacts associated with the Airport currently or projected for future development.

Based on the above information, there will be no impacts to air quality identified in this Master Plan Update.

5.5 CONSTRUCTION IMPACTS

Current aviation and land surface transportation construction impacts are not considered significant based on current or Master Plan Update future development. All development at the Wauchula Municipal Airport complies with State of Florida, Hardee County, and City of Wauchula development regulations and permitting.

Future impacts will be in compliance with all building, construction, and environmental regulations including Federal, State of Florida, Hardee County, and City of Wauchula guidelines.

There are environmentally sensitive areas on the Airport including Federal and State of Florida Wetlands, Protected Federal and State of Florida Threatened and Endangered

Species, and potential but not listed archaeological resources. All construction impacts will consider these factors and acquire any necessary permits.

This Master Plan Update report provides directions in areas concerning the following:

1. Hazardous and toxic materials
2. Threatened & Endangered Species of flora and fauna
3. Wetland Analysis for Federal U.S. Army Corps of Engineers and the Southwest Florida Water Management District wetland jurisdictional determinations
4. Cultural Resource Assessments and Florida Master Site File Review identification of Cultural Resources eligible for National Register of Historic Places

Based on the above information, there will be no significant impacts caused by construction identified with the Master Plan. All construction will be in compliance with Federal, State of Florida, Hardee County, and City of Wauchula guidelines.

5.6 THREATENED AND ENDANGERED SPECIES (FEDERAL AND STATE OF FLORIDA)

A Threatened and Endangered Species Evaluation of the Wauchula Municipal Airport was conducted in October 2012 in conjunction with this Master Plan Update. The objective of the study was to identify protected species of flora and fauna, which would limit the development of portions of the Airport. A detailed review of Federal and State of Florida protected species were evaluated. There are three documented species likely to occur at the Airport based the on Florida Natural Areas Inventory and one additional species not listed. The report for two Matrix Units 36318 and 36319 can be found in Appendix C.

Impacts to Federal and State of Florida protected species should be avoided and minimized by Master Plan development plans. The three species include:

- Eastern Indigo Snake, (*Drymarchon corais couperi*)
- Florida Sandhill Crane (*Grus canadensis*)
- Wood Stork (*Mycteria americana*)

The full listing is included as Appendix C to this report under Threatened and Endangered Species Evaluation. Gopher Tortoises (*Gopherus polyphemus*) are not reported in the Florida Natural Inventory but are present on the Wauchula Municipal Airport site.

5.7 COASTAL RESOURCES (COASTAL ZONES AND COASTAL BARRIERS)

Florida's Coastal Zone Management Program is administered by the Florida Department of Environmental Protection (FDEP) Authorization under Section 380.23 of Florida Statutes. Federal and State of Florida activities involving aviation projects, which significantly affect Florida's Coastal Zones, will be evaluated for consistency with Federal and State of Florida Coastal Management Programs.

Based on the above information, there will be no impacts to coastal resources identified in this Master Plan Update.

5.8 DEPARTMENT OF TRANSPORTATION ACT: SECTION 4(F)

The development alternatives identified in this Master Plan Update would have no impacts on any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State of Florida, or local

significance. There will be no impacts on lands of an historic site of national, State of Florida or local significance as determined by the appropriate agency having jurisdiction of such matters.

Based on the above information, there will be no impacts to publicly owned lands identified in this Master Plan Update.

5.9 FARMLANDS

Chapter 7, of FAA Order 50504B, mandates coordination with the U.S. Department of Agriculture (USDA) when taking and/or using prime and unique farmland. The existing aviation footprint of the Wauchula Municipal Airport is within a cleared, maintained grassed area. Portions of the Airport both south and north are disturbed uplands and wetlands to the south and undisturbed forested mixed hardwood wetlands to the north. The Master Plan Update alternatives do not identify either the north or south area for future development. There are also agriculturally active fields both east and west of the Wauchula Municipal Airport. The agricultural areas are used for citrus, row crops, or pine plantation areas; are not on Airport property; and do not qualify as prime or unique farmlands.

This Master Plan Update does not identify any current or future impacts to prime and unique farmland.

5.10 FLOOD PLAINS

Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), areas of the Airport not within current development plans may be prone to 100 year and/or 500 year flood events. These areas are limited and restricted and are not part of future Airport Master Plan development areas.

It is not anticipated that future Airport development will be impacted by flood prone areas. All engineering Best Management Practices (BMP) will be employed in order to avoid impacts by flood prone areas based on Master Plan guidelines.

5.11 HAZARDOUS MATERIALS, POLLUTION PREVENTION AND SOLID WASTE

The Wauchula Municipal Airport does have a registered aboveground storage tank facility and past containment area where two previously used Aboveground Storage Tanks (AST) existed. FDEP regulations defined the Wauchula Municipal Airport as a Facility Index Site, which is not documentation of contamination, but an index report. This Environmental Site Assessment is contained in Appendix D. The current Environmental Data Resources, Inc. Database Report as found in Appendix E lists the following as registration, permit, and citations for the Wauchula Municipal Airport:

- The Resource Conservation and Recovery Act – Conditionally Exempt Small Quantity Generator (RCRA-CESQG), Environmental Data Resources (EDR) Identification Number is 1007201550 and Environmental Protection Agency (EPA) Identification Number is FLR000100657. The classification is municipal and description is as follows: Conditional Exempt Small Quantity Generator. There were no violations found. The evaluation date was 1/21/2004.
- The Wauchula Municipal Airport is listed as an Environmental Interest/Information System 1007217187 and is defined as the following (page 6): The Aboveground

Storage Tank #109209217 was removed with no violation notices. The tank status is evaluated in EDR (page 9).

- The National Pollution Discharge Elimination System (NPDES) Notification is #5111444152. There are no violation notices for the NPDES.
- The U.S. EPA Tier 2, Vehicle and Gasoline Sulpher Program (Tier2) documentation is S107716607. There are multiple listings for the Wauchula Municipal Airport which include gasoline, kerosene, jet fuel, and controlled liquid materials. There are no violation notices regarding the Tier 2 designations.
- The Underground Storage Tank (UST) is UST #U001352795, with Financial Assurances. The tank status is "open" with no violation notifications.

Reconnaissance of the Airport site showed a business centering on scrap metal and past aviation maintenance does show a lack of BMP.

This Master Plan Update encourages aviation related development that is consistent with Environmental BMPs and the policies, goals and objectives regarding environmental issues at the Wauchula Municipal Airport. All leases and agreements should reflect these Environmental BMP policies.

5.12 HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL AND CULTURAL RESOURCES

There are no recorded archaeological and/or historic sites located at the Wauchula Municipal Airport within the aviation footprint based on Florida Master Site File review in October 2012 or a pedestrian survey.

Two Registered Professional Archaeologists reviewed the site using current and historic aerials, topographic maps, and field review; no sites were inventoried. Copies of the current and historic aerials as well as the topographic maps can be found in Appendix F. A pedestrian survey and preliminary cultural resource assessment is included in Appendix E. Cultural Resource Assessments on file at the Division of Historic Resources show an archaeological site near the Wauchula Municipal Airport and this is documented in Appendix G.

The Master Plan Update recommends compliance with all Florida State Historic Preservation Act and Department of State, Division of Historic Resources directions and guidelines concerning future development.

5.13 LIGHT EMISSIONS AND VISUAL EFFECTS

The Master Plan Update evaluation for light emissions and visual effects has identified no current or proposed impacts. This Master Plan Update identified no significant issues for current or future light emissions and visual effects.

5.14 NATURAL RESOURCES AND ENERGY SUPPLY

It is not anticipated that any of the Wauchula Municipal Airport development alternatives will have a significant adverse impact on natural resources and energy supply. There are currently no significant impacts on people or businesses because of natural resource uses or energy supply.

The Master Plan Update identified no proposed significant changes in Natural Resources and/or Energy Supply uses.

5.15 SECONDARY IMPACTS

No significant secondary (induced) impacts are anticipated with the existing and/or proposed development recommended by this Airport Master Plan Update.

5.16 SOCIOECONOMIC IMPACTS

No socioeconomic, environmental justice, or children's environmental health and safety risk impacts are anticipated based on the proposed Airport development alternatives. None of the proposed alternatives would create any environmental justice issues, or have any effects on the health and safety of children.

5.17 WATER QUALITY

Stormwater design is determined, to a large extent, by the soil at the site and the depth of the groundwater level below the surface. Soils at the site have been evaluated and details are included in the Wetland Analysis completed for this Master Plan Update. The aviation footprint for taxiways, aprons, runways and hangars are all in uplands with a master drainage system of swales, ponds and surficial drainage. Airport property south of the airfield consists of Federal and State of Florida wetlands with some drainage features to the west. The area south of the active runway and taxiway is depressional to some extent and exhibits seasonal wetland characteristics.

All proposed development in this Master Plan Update will incorporate stormwater drainage management. Water quality improvements will be designed in accordance with the applicable water quality guidelines set forth by local, State of Florida and Federal agencies. Appropriate permits will be obtained prior to commencing construction. Temporary construction impacts will be avoided and minimized through the use of environmental Best Management Practices (BMP's).

5.18 WETLANDS

The Wauchula Municipal Airport has Federal, State of Florida, and Southwest Florida Water Management District wetland jurisdictional property. The locations of the wetlands are north and south of the existing runway and taxiway. These wetlands are delineated by hydric soils, topography, National Wetlands Inventory maps and field evaluation.

Appendix H contains the Wetland Analysis, which shows the wetlands in detail. The Master Plan Update strongly recommends avoidance and minimization of wetland impacts, close coordination with Federal, State of Florida, and local environmental agencies regarding future development with respect to direct impacts to wetlands or indirect impacts from drainage, retention ponds or the like. Also all permits associated with discharge of water such as the National Pollutant Discharge Elimination System (NPDES) permits or wetland impacts such as environmental resource permits must be complied with early in the planning process.

Based on the above information, no impacts to Federal, State of Florida, or Southwest Florida Water Management District jurisdictional wetlands are proposed within the development alternatives. All planned Airport development will be consistent with appropriate environmental policy.

5.19 WILD AND SCENIC RIVERS

The U.S. Department of the Interior maintains a National Inventory of river segments that qualify for the inclusion in the National Wild and Scenic River System. There are no national wild and scenic rivers on or near the Wauchula Municipal Airport. The closest river to the Airport, Troublesome Creek, is adjacent and near the Airport but not on the Airport. This creek system has no national and/or State of Florida designation and is partially channeled and/or properly adjacent to the Airport.

This Master Plan Update identified no impacts to wild and scenic rivers.

5.20 WILDLIFE HAZARD MANAGEMENT ISSUES

Rules governing the certification and operation of commercial service airports are identified in 14 CFR Part 139. Section 139.337 discusses the need to manage wildlife hazards on or near airports when aircraft collide with wildlife. This is most often birds. As Wauchula Municipal Airport is not a commercial service airport and as it does not have a record of bird or other wildlife, it is not currently required to have a Wildlife Hazard Management Plan. A Wildlife Hazard Management Plan would address the responsibilities, policies and procedures necessary to reduce wildlife hazards at the Airport.

5.21 ENVIRONMENTAL CONSIDERATIONS SUMMARY

Specific environmental resources and conditions within the Affected Environment of the Wauchula Municipal Airport that have a potential to be impacted by Airport development were discussed in this chapter. Based on the information gathered, no impacts to specific environmental requirements were identified. The information gathered will be used in evaluating alternatives to ensure that future development together with Best Management Practices avoid as much as possible any future impact to the environment.

6. DEVELOPMENT AND EVALUATION OF ALTERNATIVES

6.1. INTRODUCTION

The Development and Evaluation of Alternatives chapter identifies alternative solutions to the facility needs addressed in the Facility Requirements chapter. The alternatives are evaluated, and recommendations are provided to guide the overall planning strategy of the Wauchula Municipal Airport. The goal of the alternatives presented in this chapter is to provide compatible and efficient solutions that support the growth of the Airport throughout, and beyond the 20-year planning period. In addition to the projected aviation demand, many of the alternatives developed in this chapter address opportunities to expand the levels of economic activity at the Airport. The planning alternatives are developed by identifying the needs addressed in the Facility Requirements chapter, consulting Airport Management, and by using Federal Aviation Administration (FAA) and Florida Department of Transportation (FDOT) standards for airport design.

6.2 DEVELOPMENT OF ALTERNATIVES

6.2.1 Airside

The primary consideration for airside alternatives is the location of the new crosswind runway. Additionally, consideration is given to the extension of the primary runway.

6.2.1.1 Crosswind Runway

As discussed in the Facility Requirements chapter, a crosswind runway is justified as the existing Runway 18/36 does not receive 95 percent wind coverage. The provision of a crosswind runway would bring the wind coverage up to at least 95 percent. The runway length analysis performed for the crosswind runway indicates that a runway of 3,725 lineal feet and 60 feet wide with 10 foot wide shoulders is justified for FAA funding. A 25-foot wide, full-length parallel taxiway to the crosswind runway with connecting taxiway stubs is also envisioned, as is a taxiway that would connect the two runway/taxiway systems.

There are several options for the orientation of the crosswind runway. However, for non-intersecting runways, the FAA advises that the angle between extended runway ends should not be less than 30 degrees. For the purposes of this study, three orientations of crosswind runway were studied:

- Runway 9/27
- Runway 5/23
- Runway 14/32

6.2.1.2 Extension of the Primary Runway

Runway 18/36 is currently 4,005 feet in length and 75 feet wide. The runway length analysis for the primary runway indicates that a runway of 3,725 feet in length and 75 feet in width with 10 foot wide shoulders is justified for FAA funding with the current fleet mix at the Wauchula Municipal Airport.

Once the Airport has over 500 annual operations by aircraft with over 10 seats (excluding the pilot and copilot) and a weight of no more than 12,500 pounds, the Airport would be justified in extending the runway to 4,200 lineal feet. The runway width could be kept at 75 feet.

Once the Airport has over 500 annual operations by aircraft weighing more than 12,500 pounds and less than 60,000 pounds, the Airport would be justified in extending the primary runway to 5,200 lineal feet. The runway width would remain at 75 lineal feet. However, the runway pavement for the entire length of the runway would also have to be strengthened to accommodate the increased load.

The last master plan indicated that the centerline of 18/36 would have to be relocated approximately 60 feet to the east so that an adequate centerline separation of 300 feet between Taxiway A and Runway 18/36 could be provided. At the same time, the runway would be widened to 100 feet.

However, the width of the runway would only have to be increased if over 500 operations per year were achieved by aircraft that have either a wingspan of 79 feet or greater and/or if the approach speed of the aircraft were 121 knots or greater. At either of these levels, a runway width of 100 feet would be justified as the Aircraft Approach Category (AAC) and/or the Airplane Design Group (ADG) would move to the next higher level. This would also trigger the need for an increased width between the centerlines of the runway and the parallel taxiway from the current 240 feet to 300 feet. However, sufficient numbers of these larger aircraft are not projected to occur within the twenty year forecast of this Master Plan Update.

6.2.1.3 Wetlands

There are two wetland areas on the existing Airport property and many more on the properties adjacent to the Airport. These must be considered when determining the location and orientation of the new crosswind runway, as well as the extension of the primary runway. If at all possible, the wetland areas should be avoided. If wetlands absolutely cannot be avoided, mitigation measures, including purchasing mitigation credits in a wetland bank will have to be addressed.

6.2.1.4 Land Acquisition

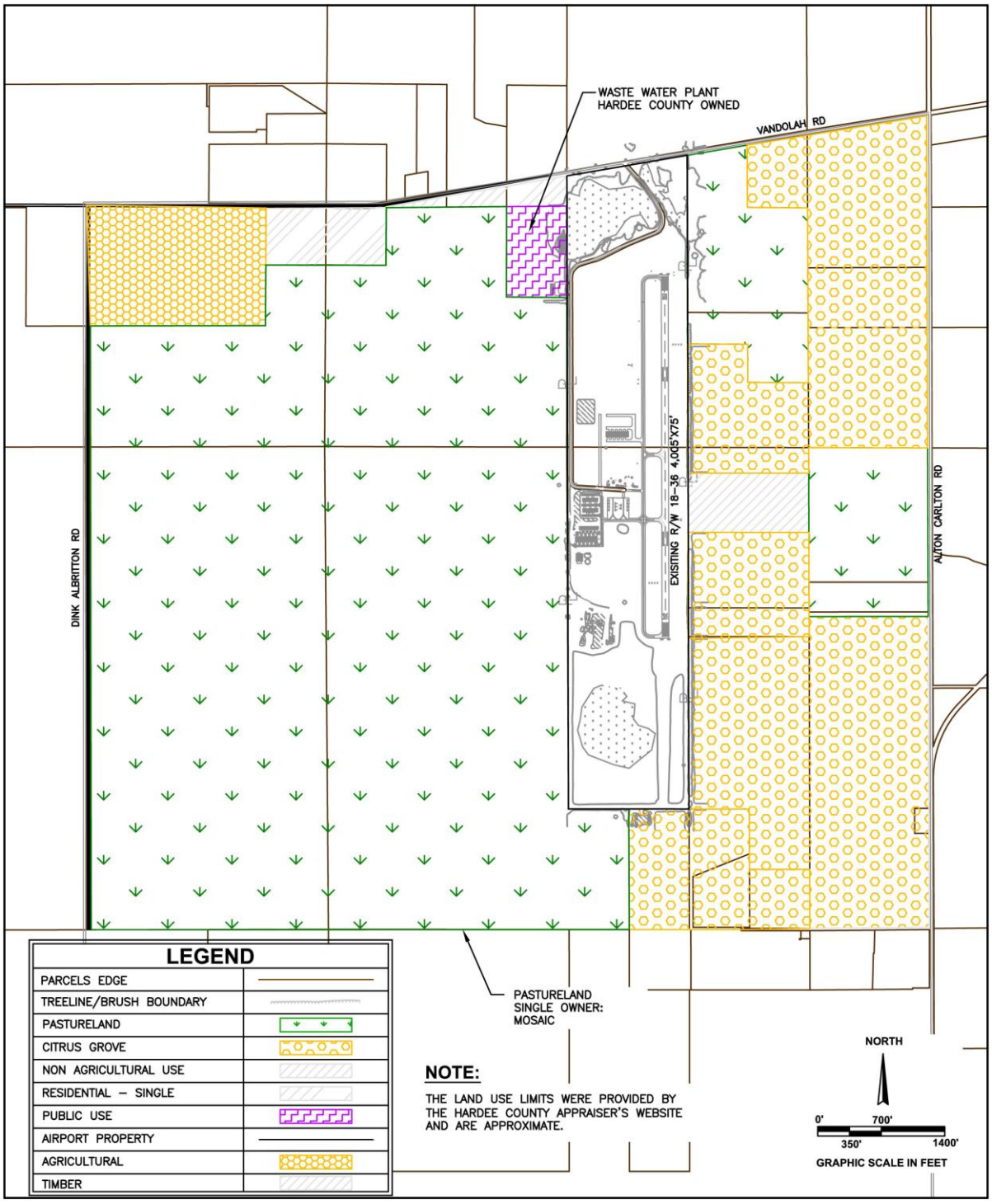
Currently, the Airport does not have enough land to construct a crosswind runway. Nor does it have enough land to extend Runway 18/36 much beyond 4,600 feet in length while keeping the Runway Protection Zone on Airport property. Therefore, each of the alternatives includes some area of land to be acquired. For this reason, the land uses around the Airport as well as the existing Airport facilities are key factors influencing the location of the new runway, as shown in **Figure 6-1**.

Mosaic, a leading producer and marketer of potash and phosphate, owns the property immediately adjacent both to the west and to the south of the Airport. Mosaic intends to mine the property, but has no plans to do so in the immediate future. The City of Wauchula has approached Mosaic in the past with the idea of purchasing property and Mosaic has not expressed an interest in doing so at this time.

Immediately adjacent to the Airport, also on the western border, is a parcel of land owned by Hardee County. The waste water treatment plant is located on this parcel and is accessed from the Airport entrance road.

The remainder of the properties surrounding and in the vicinity of the Airport are owned by approximately 20 private individuals. The Airport is currently working with a few of these to

Figure 6-1
OFF-AIRPORT LAND-USE MAP



purchase a 106-foot wide strip of land along the eastern border of the Airport. The purchase of this strip of land will allow the Airport to rectify the current penetration of the Airport perimeter fence to the Part 77 surfaces of the Airport. The purchase of the strip of land will allow the fence to be moved away from the centerline of the runway and out of the Part 77 surfaces.

6.2.2 Landside

6.2.2.1. Relocate the Entrance Road

Maurice "Sonny" Clavel Road serves as the only entrance to the Airport. It enters the Airport at the northern border from Vandolah Road. Unfortunately, the northern portion of this road is located within the Runway Protection Zone (RPZ) of Runway 18. On September 27, 2012, the FAA issued an Interim Guidance Letter. Within this letter, it states that the FAA Airport District Office must consult with the National Airport Planning and Environmental Division of the FAA when any of the following land uses would enter the limits of the RPZ:

- Buildings and structures
- Recreational land use
- Transportation facilities such as rail facilities, public roads/highways, or vehicular parking facilities
- Fuel storage facilities
- Hazardous material storage
- Waste water treatment facilities
- Above-ground utility infrastructure

Among other actions that could require the relocation of the entrance road from the RPZ would be:

- An airfield project such a runway extension, runway shift, or a runway rehabilitation
- A change to the critical design aircraft that would increase the RPZ dimensions
- A new or revised instrument approach procedure that would increase the RPZ dimensions
- A local development proposal in the RPZ

The Interim Guidance Letter is in place while the FAA finalizes the policy on land uses in the RPZ. It specifically states that the "interim policy only addresses the introduction of new or modified land uses to an RPZ and proposed changes to the RPZ size or location." Until something changes, the road may remain where it is currently located. However as the interim policy is currently being interpreted, the road would need to be relocated prior to the rehabilitation of existing Runway 18/36. A copy of the Interim Guidance Letter can be found in Appendix K.

6.2.2.2 Hangar Development

Currently, the Airport has 35 t-hangar units housed in four buildings. None of the existing t-hangars are empty. The Facility Requirements chapter recommends that an additional 10-unit t-hangar building be constructed when the number of based aircraft increases from the current 44 aircraft to 50 based aircraft. This is forecast to occur within the next nine to ten years.

A second, additional, 10-unit t-hangar building is projected to be required when the number of based aircraft reaches 58 based aircraft. This is projected to occur near the end of the planning period or within about 20 years.

Currently, one based aircraft is stored within a conventional hangar. This is not projected to change within the twenty year planning period. However, within the industrial parks that are laid out within each of the alternative developments, parcels are placed adjacent to taxiways that could be used for additional conventional hangars that could be used to store based aircraft should the demand occur for the storage of either based or itinerant aircraft within conventional hangars.

6.2.2.3 Apron Development

Currently, none of the based aircraft are stored at apron tie-down areas. In addition to the 35 aircraft that are housed in t-hangars, one is house in a portable hangar and seven are stored on the grass. There is an apron for itinerant aircraft that measures 5,987 square yards, which is currently sufficient to accommodate the current itinerant aircraft traffic.

It is anticipated that within the next ten years aircraft, either based or itinerant, will no longer be allowed to park on the grass. Along with an increase in itinerant aircraft, it is projected that an additional approximate 4,580 square yards of based and itinerant aircraft apron storage will be required by the year 2021 and an additional 2,880 square yards of aircraft apron storage will be required by the year 2026.

6.2.2.4 Industrial Park

The FAA encourages airports to be as financially self-sufficient as possible. One of the most successful ways for airport to achieve this is to be able to lease land to businesses and individuals, either directly or indirectly associated with the airside of the Airport. Each of the alternatives developed includes a proposed layout of parcels suitable for use as one or more industrial parks on existing or future Airport property.

6.3 ALTERNATIVES

Alternatives were developed that would address the facilities identified as being requiring to fill either the needs of the aviation activity forecast, safety, environmental issues, or facility requirement needs. Each of the alternatives has the following items in common:

- The primary runway has been shown with an ultimate extension of 5,200 feet and at 75 feet in width.
- The crosswind runway has been shown at 3,725 feet in length and 60 feet wide.
- Maurice “Sonny” Clavel Road, the Airport’s existing entrance road, has been relocated out of the existing Runway Protection Zone for Runway 18.
- Wherever possible, wetlands have been avoided both on and off existing Airport property.
- The location of property owned by Mosaic has been taken into consideration.
- Parcels have been identified for a potential industrial park.

The primary focus of each of the alternatives is the location and orientation of the crosswind runway. This is the distinctive differentiation between the alternatives.

6.3.1 Alternative 1

Alternative 1, as shown in **Figure 6-2,** shows the existing Runway 18/36 ultimately extending south to 5,200 lineal feet in length with a 75 foot width. The crosswind runway is shown in an east-west configuration with an orientation of 9/27. The 9/27 orientation in conjunction with the wind coverage of the existing runway yields wind coverage of 99.82 percent, which is above the 95 percent joint wind coverage recommended by the FAA.

The crosswind runway is proposed to be 3,725 feet in length and 60 feet wide with an ARC of B-I. The crosswind runway has been planned to accommodate A-I and B-I aircraft as is appropriate for a crosswind runway. The existing runway and taxiway system would be connected to the new crosswind runway and its associated full-length taxiway system with a connecting taxiway that would connect the two full-length taxiways at the Runway 36 end and the new Runway 27 end.

The existing runway, Runway 18/36, would be retained as the primary runway. The aviation activity forecasts indicate that this runway would remain an ARC B-II runway accommodating aircraft of less than 12,500 pounds Maximum Take-off Weight. The existing runway could be extended to approximately 4,600 lineal feet without causing the RPZ for Runway 36 to extend beyond the limits of the existing Airport property. It could be extended to approximately 4,700 lineal feet before it begins to impact the wetland located in the southwest corner of the existing Airport property. When the runway is extended to its ultimate length of 5,200 lineal feet, about 0.9 acres of wetland will be impacted. While it is not anticipated that the need for a 5,200 foot long runway will be justified within the planning period, it is advised that this length be reserved for the ultimate build out of the Airport.

With this alternative, the proposed crosswind runway would impact four wetlands currently located on Mosaic property. If this alternative were selected and constructed, approximately 9.9 acres of wetlands would be impacted.

The construction of the new, crosswind runway in this alternative would require the purchase of approximately 99.2 acres of land outside of existing Airport property and excluding the property to the east of the Airport that the City of Wauchula is currently negotiating to purchase for the relocation of the perimeter fence. An additional 3.25 acres would be required to relocate Maurice Clavel Road from its existing location to the west side of the Hardee County waste water treatment plant.

A small industrial park could be located on the existing Airport property. As illustrated, about 13 parcels would be available for an industrial park and of those seven would have direct access to a taxiway. The size of the parcels varies from approximately 1.2 acres to approximately 1.9 acres each.

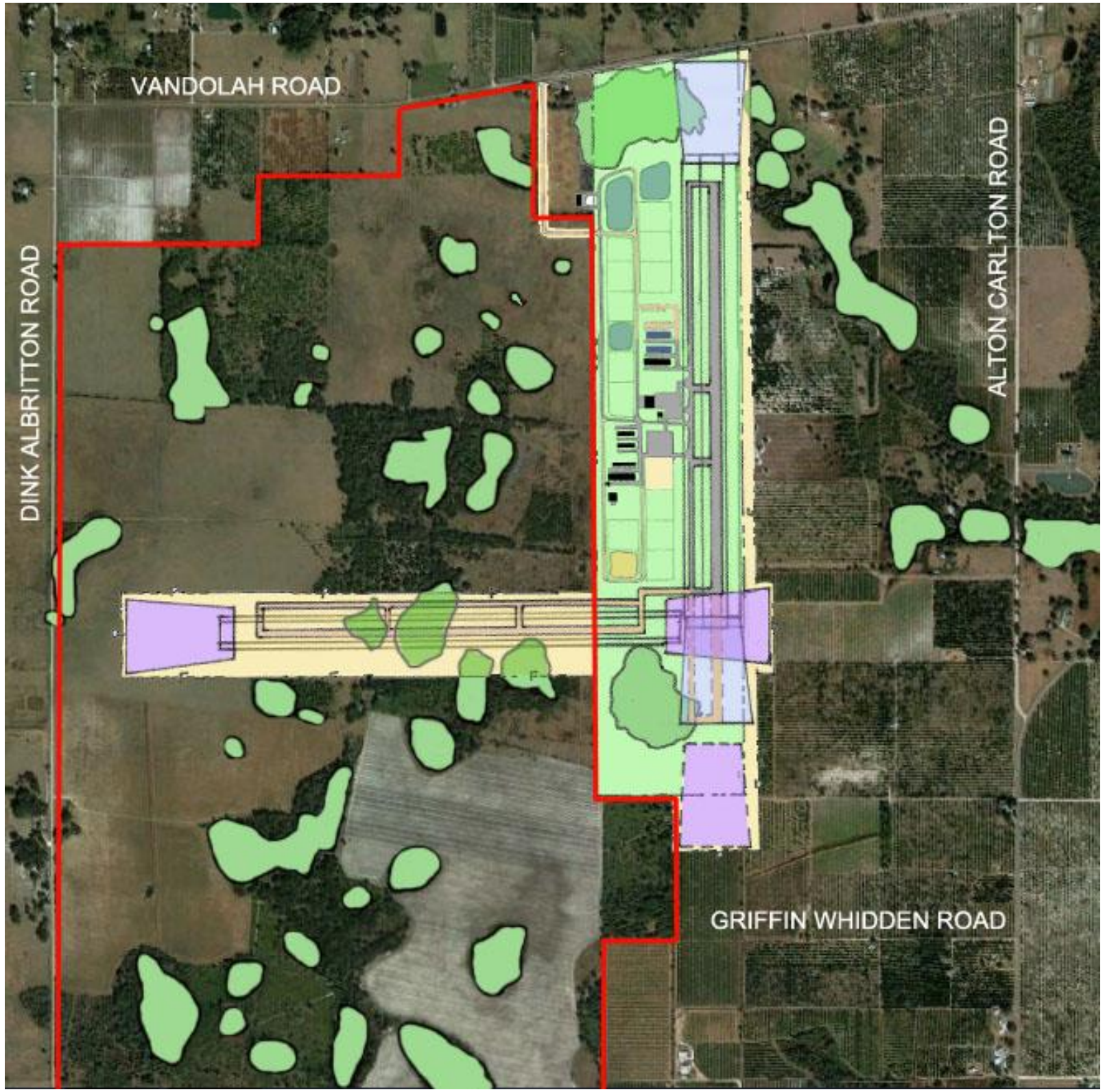


Figure 6-2
ALTERNATIVE 1

- Primary Runway 18/36 ultimately extended south 5,200 feet by 75 feet wide
- New crosswind Runway 9/27 at 3,725 feet in length and 60 feet wide
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Significant wetland impacts
- Significant impact to Mosaic property
- Small industrial park
- Moderate ease of operations

LEGEND

- Existing Stormwater Ponds
- Future Proposed Stormwater Ponds
- Existing Runway Protection Zone (RPZ)
- Future Runway Protection Zone (RPZ)
- Existing Airport Property
- Proposed Future Airport Property
- Existing Wetlands
- Existing Pavement
- Proposed Future Pavement
- New Buildings
- Mosaic Property Line

North

6.3.2 Alternative 2

Alternative 2, as shown in **Figure 6-3,** shows the existing Runway 18/36 ultimately extending south to 5,200 lineal feet in length with a 75 foot width. The crosswind runway is shown in an east-west configuration with an orientation of 9/27. The 9/27 orientation in conjunction with the wind coverage of the existing runway yields wind coverage of 99.82 percent, which is above the 95 percent joint wind coverage recommended by the FAA.

The crosswind runway is proposed to be 3,725 feet in length and 60 feet wide with an ARC of B-I. The existing runway and taxiway system would be connected to the new crosswind runway and its associated full-length taxiway system with a connecting taxiway that would connect the two full-length taxiways at the approximate center of the new taxiway parallel to the new, crosswind runway.

The existing runway, Runway 18/36 would be retained as the primary runway and it is anticipated that it would remain an ARC B-II runway accommodating aircraft of less than 12,500 pounds Maximum Take-off Weight. As in Alternative 1, the existing runway could be extended to approximately 4,600 lineal feet without causing the RPZ for Runway 36 to extend beyond the limits of the existing Airport property. It could be extended to approximately 4,700 lineal feet before it begins to impact the wetland located in the southwest corner of the existing Airport property. When the runway is extended to its ultimate length of 5,200 lineal feet, about 0.9 acres of wetland will be impacted. While it is not anticipated that the need for a 5,200 foot long runway will be justified within the planning period, it is advised that this length be reserved for the ultimate build out of the Airport.

With this alternative, the proposed crosswind runway would impact no wetlands. However the taxiway connecting the two runway/taxiway systems would impact approximately 0.68 acres of wetlands.

The construction of the new, crosswind runway in this alternative would require the purchase of approximately 113.6 acres of land outside of existing Airport property and excluding the property to the east of the Airport that the City of Wauchula is currently negotiating to purchase for the relocation of the perimeter fence. An additional 3.25 acres would be required to relocate Maurice Clavel Road from its existing location to the west side of the Hardee County waste water treatment plant.

A small industrial park could be located on the existing Airport property. As illustrated, about 17 parcels would be available for an industrial park and of those nine would have direct access to a taxiway. The size of the parcels varies from approximately 1.2 acres to approximately 1.9 acres each.

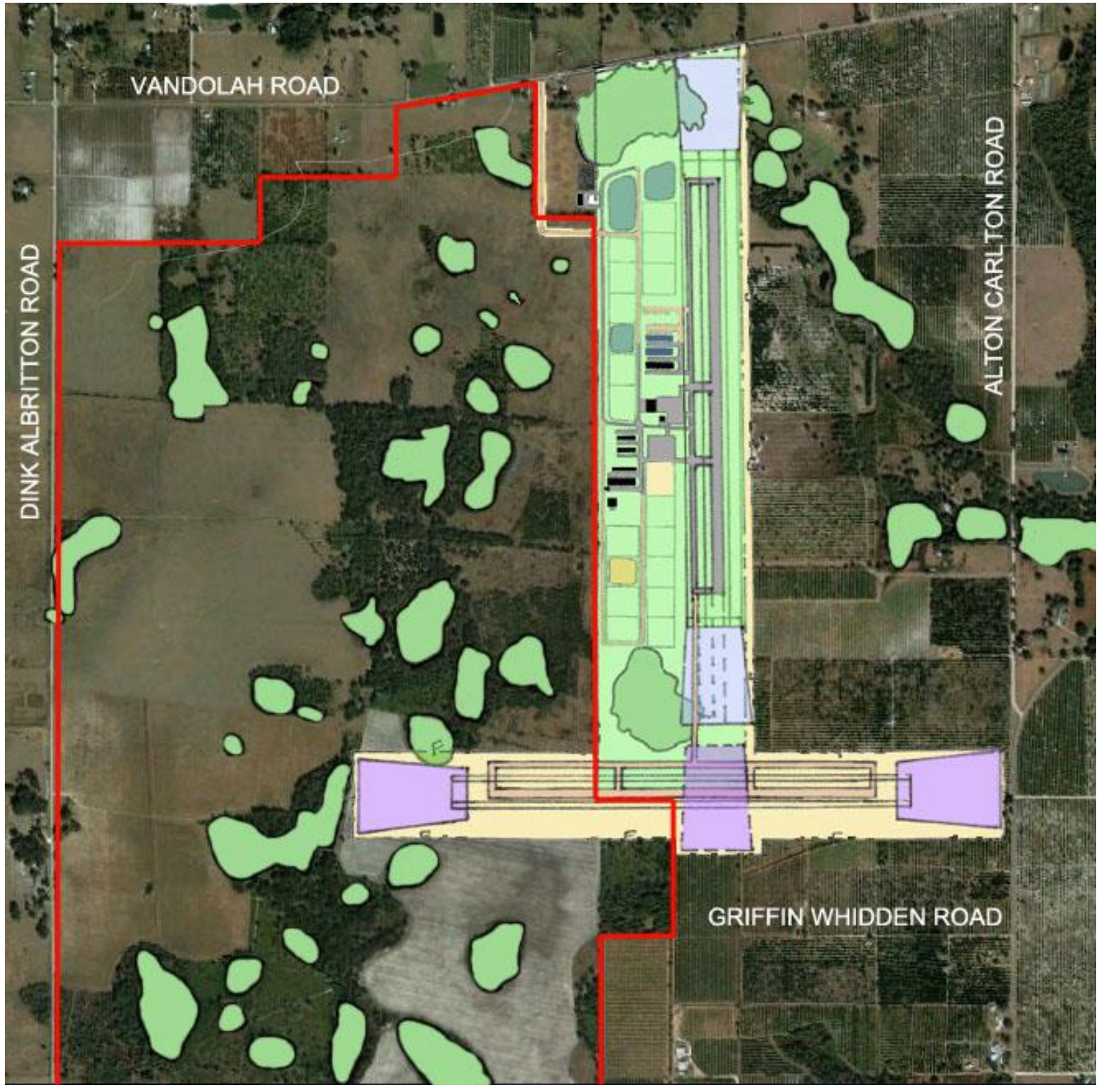


Figure 6-3
ALTERNATIVE 2

- Primary Runway 18/36 ultimately extended south 5,200 feet by 75 feet wide
- New crosswind Runway 9/27 at 3,725 feet by 60 feet wide
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Few wetland impacts
- Significant impact to Mosaic property
- Small industrial park
- Good ease of operations

6.3.3 Alternative 3

Figure 6-4, shows Alternative 3 with the existing Runway 18/36 being shortened to 3,725 feet long and 60 feet wide to become the crosswind runway. Runway 18/36 would become an ARC B-I runway accommodating aircraft of less than 12,500 pounds Maximum Take-off Weight (MTOW). The new runway would become the primary runway and is shown in a southwest to northeast configuration with an orientation of 5/23. The 5/23 orientation as a primary runway in conjunction with the wind coverage of the existing runway as the crosswind runway yields wind coverage of 97.67 percent, which is above the 95 percent joint wind coverage recommended by the FAA.

The new primary runway is proposed to be 3,725 feet in length initially and 75 feet wide with an ARC of B-II. The existing runway and taxiway system would be connected to the new crosswind runway and its associated full-length taxiway system with a connecting taxiway that would connect the two full-length taxiways at about the midpoint of the new taxiway parallel to the new, primary runway, Runway 5/23.

Runway 5/23 would be extended to 4,200 feet in length when the Airport has over 500 annual operations of B-II aircraft with more than 10 seats excluding the pilot and copilot and weighing less than 12,500 pounds MTOW. When the Airport has over 500 annual operations of aircraft weighing more than 12,500 pounds MTOW but less than 60,000 pounds MTOW, the runway would be eligible to receive FAA funding to lengthen the runway to 5,200 feet in length. While it is not anticipated that the need for a 5,200 foot long runway will be justified within the planning period, it is advised that this length be reserved for the ultimate build out of the Airport.

As shown in **Figure 6-4**, the runway would impact about 3.2 acres of wetlands.

The construction of the new, primary runway in this alternative would require the purchase of approximately 118.6 acres of land outside of existing Airport property and excluding the property to the east of the Airport that the City of Wauchula is currently negotiating to purchase for the relocation of the perimeter fence. This acreage would include only the runway and associated taxiways at their ultimate length. In order to provide for the second industrial park shown to the east of the existing airfield as shown, an additional 49 acres would need to be provided. The construction of the new, primary runway will impact approximately 8.8 acres of wetlands. An additional 3.25 acres would be required to relocate Maurice Clavel Road from its existing location to the west side of the Hardee County waste water treatment plant.

A small industrial park could be located on the existing Airport property. As illustrated, about 17 parcels would be available for an industrial park and of those nine would have direct access to a taxiway. The size of the parcels varies from approximately 1.2 acres to approximately 1.9 acres each. The eastern industrial park could have at least 13 parcels. Of those, 10 would have direct access to a taxiway. The eastern industrial park parcels, as shown, would vary from approximately 0.8 acres to about 1.9 acres. The eastern industrial park would have landside access from Alton Carlton Road.

The Airport would have essentially two landsides. Landside access between the two industrial parks would not be convenient. It would require leaving Airport property and traveling via Vandolah Road to Alton Carlton Road to the entrance road of the new, east industrial park.

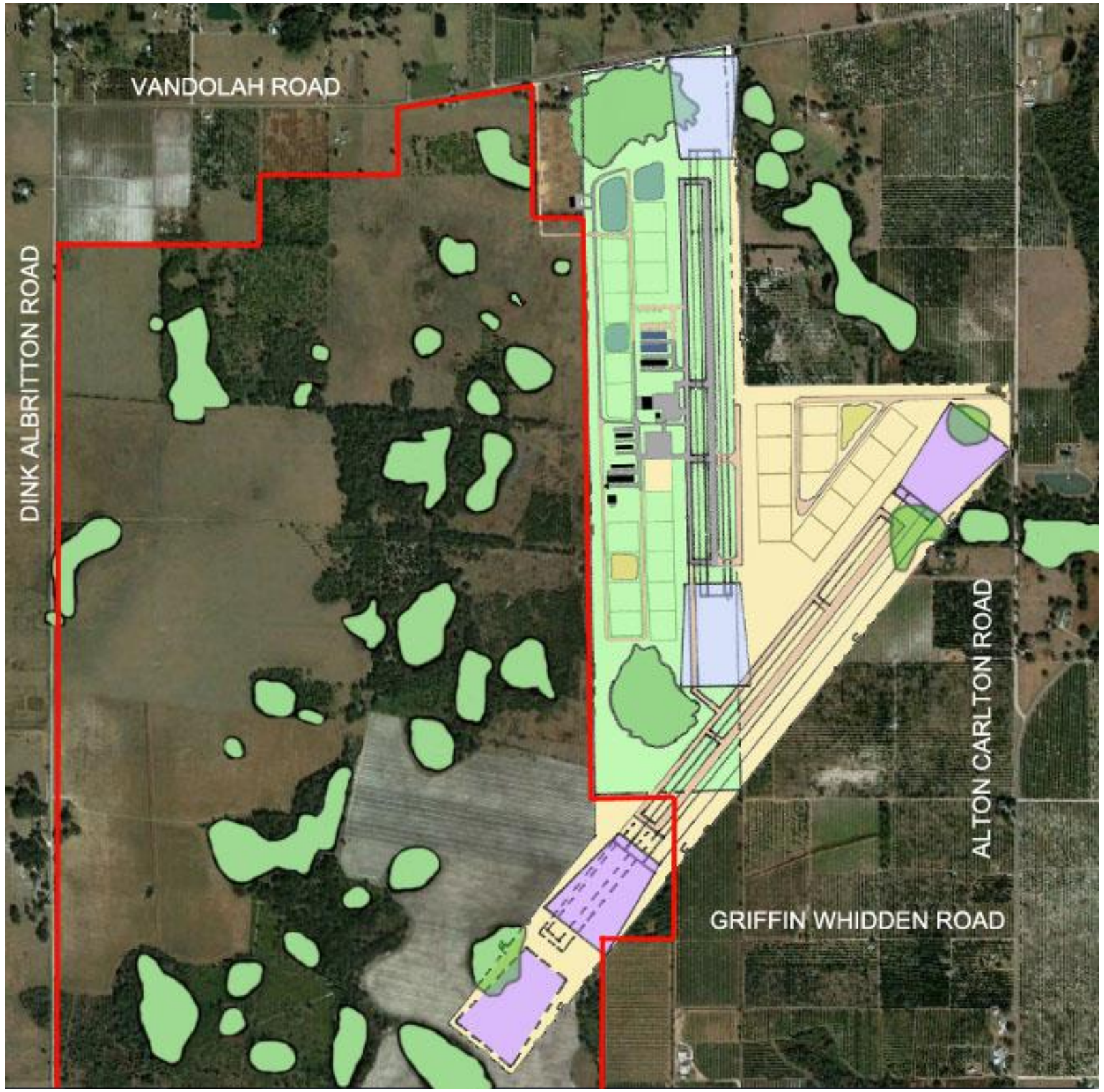


Figure 6-4
ALTERNATIVE 3

- Existing Runway 18/36 shortened to 3,725 feet and becomes the crosswind runway
- New primary Runway 5/23 initially built to 3,725 feet and ultimately to 5,200 feet and 75 feet wide
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Moderate wetland impacts
- Moderate impacts to Mosaic property
- Medium-sized industrial park
- Low ease of operations

LEGEND

- Existing Stormwater Ponds
- Future Proposed Stormwater Ponds
- Existing Runway Protection Zone (RPZ)
- Future Runway Protection Zone (RPZ)
- Existing Airport Property
- Proposed Future Airport Property
- Existing Wetlands
- Existing Pavement
- Proposed Future Pavement
- New Buildings
- Mosaic Property Line

North

6.3.4 Alternative 4

Figure 6-5 shows Alternative 4, which is very similar to Alternative 3, with three exceptions:

- The existing Runway 18/36 remains as the primary runway at its current length of 4,005 feet in length and 75 feet in width and ultimately could extend to 5,200 feet in length.
- Runway 5/23 would become an ARC B-I runway accommodating aircraft of less than 12,500 pounds Maximum Take-off Weight (MTOW) with a length of 3,725 feet in length and 60 feet in width.
- Runway 5/23 would slide to the south to avoid wetland impacts.

The 4/22 orientation of the crosswind runway, in conjunction with the wind coverage of the existing runway as the primary, would yield wind coverage of 97.14 percent, which is above the 95 percent joint wind coverage recommended by the FAA.

Runway 18/36 is proposed to remain with an ARC of B-II. A second, parallel taxiway would be located on the east side of Runway 18/36 to serve the new east industrial park. The existing runway and taxiway system would be connected to the new crosswind runway and its associated full-length parallel taxiway system with two connecting taxiways that would connect the two full-length taxiways at about the one third points of the new, full-length parallel taxiway to the new, crosswind runway, Runway 5/23.

Runway 18/36 would be extended to 4,200 feet in length when the Airport has over 500 annual operations of B-II aircraft with more than 10 seats excluding the pilot and copilot and weighing less than 12,500 pounds MTOW. When the Airport has over 500 annual operations of aircraft weighing more than 12,500 pounds MTOW but less than 60,000 pounds MTOW, the runway would be eligible to receive FAA funding to lengthen the runway to 5,200 feet in length. While it is not anticipated that the need for a 5,200 foot long runway will be justified within the planning period, it is advised that this length be reserved for the ultimate build out of the Airport.

The extension of the western parallel taxiway to Runway 18/36 would impact 0.68 acres of wet land. The extension of Runway 18/36 to its ultimate length of 5,200 feet would impact an additional 0.22 acres of wetlands.

The construction of the new, crosswind runway in Alternative 4 would require the purchase of approximately 141 acres of land outside of existing Airport property and excluding the property to the east of the Airport that the City of Wauchula is currently negotiating to purchase for the relocation of the perimeter fence. This acreage would include only the runway and associated taxiways at their ultimate length. In order to provide for the second industrial park shown to the east of the existing airfield, an additional 101.4 acres would need to be provided. An additional 3.25 acres would be required to relocate Maurice Clavel Road from its existing location to the west side of the Hardee County waste water treatment plant.

A small industrial park could be located on the existing Airport property. As illustrated, about 17 parcels would be available for an industrial park and of those nine would have direct access to a taxiway. The size of the parcels varies from approximately 1.2 acres to approximately 1.9 acres each. The eastern industrial park could have at least 19 parcels. Of those, 12 would have direct access to a taxiway. The eastern industrial park parcels, as shown, would vary from approximately 0.8 acres to about 1.9 acres. The eastern industrial park would have landside access from Alton Carlton Road.

As with Alternative 3, the Airport would have essentially two landsides. Landside access between the two industrial parks would not be convenient. It would require leaving Airport property and traveling via Vandolah Road to Alton Carlton Road to the entrance road of the east industrial park.

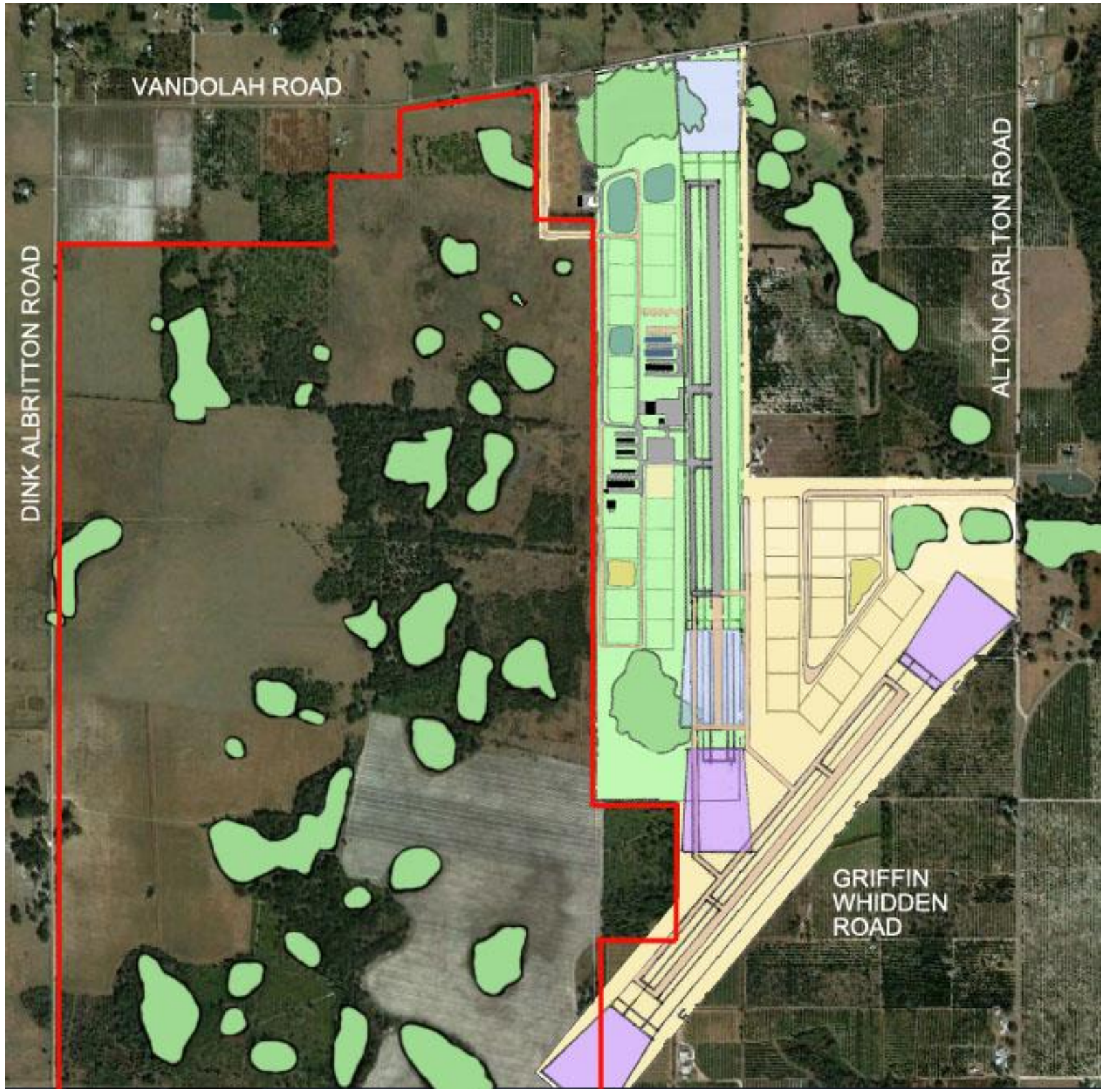


Figure 6-5
ALTERNATIVE 4

- Existing Runway 18/36 ultimately extended south to 5,200 feet with a 75 foot width
- New crosswind Runway 5/23 built to 3,725 feet with a 60 foot width
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Few wetland impacts
- Few impacts to Mosaic property
- Medium-sized industrial park
- Low level ease of operations

LEGEND

- Existing Stormwater Ponds
- Future Proposed Stormwater Ponds
- Existing Runway Protection Zone (RPZ)
- Future Runway Protection Zone (RPZ)
- Existing Airport Property
- Proposed Future Airport Property
- Existing Wetlands
- Existing Pavement
- Proposed Future Pavement
- New Buildings
- Mosaic Property Line

North

6.3.5 Alternative 5

Alternative 5, as shown in **Figure 6-6,** shows the existing Runway 18/36 ultimately extending south to 5,200 lineal feet in length with a 75 foot width. The crosswind runway is shown in a northwest-southeast configuration with an orientation of 14/32. The 14/32 orientation in conjunction with the wind coverage of the existing runway yields wind coverage of 96.76 percent, which is above the 95 percent joint wind coverage recommended by the FAA. This alternative is very similar to the selected alternative in the 2007 Master Plan Update.

The crosswind runway is proposed to be 3,725 feet in length and 60 feet wide with an ARC of B-I. The existing runway and taxiway system would be connected to the new crosswind runway and its associated full-length taxiway system with a connecting taxiway that would connect the two full-length taxiways somewhat to the south of the approximate center of the new taxiway parallel to the new, crosswind runway.

The existing runway, Runway 18/36, would be retained as the primary runway and it is anticipated that it would remain an ARC B-II runway accommodating aircraft of less than 12,500 pounds Maximum Take-off Weight. The existing runway could be extended to approximately 4,600 lineal feet without causing the RPZ for Runway 36 to extend beyond the limits of the existing Airport property. It could be extended to approximately 4,700 lineal feet before it begins to impact the wetland located in the southwest corner of the existing Airport property. When the runway is extended to its ultimate length of 5,200 lineal feet, about 0.9 acres of wetland will be impacted. While it is not anticipated that the need for a 5,200 foot long runway will be justified within the planning period, it is advised that this length be reserved for the ultimate build out of the Airport.

With this alternative, the proposed crosswind runway would impact three wetlands. The combined impacted acreage of the affected wetlands would be approximately 6.4 acres of wetlands.

The construction of the new, crosswind runway in this alternative would require the purchase of approximately 103.9 acres of land outside of existing Airport property and excluding the property to the east of the Airport that the City of Wauchula is currently negotiating to purchase for the relocation of the perimeter fence. This acreage would include only the runway and associated taxiways at their ultimate length. In order to provide for the expanded industrial park shown to the west of the existing airfield, an additional 118.3 acres would need to be provided. As shown, the expanded industrial park would also impact approximately 13.7 acres of wetlands. However when the industrial park is definitively laid out, much of the potential wetland impacts could be avoided. An additional 3.25 acres would be required to relocate Maurice Clavel Road from its existing location to the west side of the Hardee County waste water treatment plant.

A small industrial park could be located on the existing Airport property. As illustrated, about 15 parcels would be available for an industrial park and of those nine would have direct access to a taxiway. The size of the parcels varies from approximately 1.2 acres to approximately 1.9 acres each. In Alternative 5, the industrial park would expand to the west. As shown, 29 parcels would be available in this alternative and of these nine would have direct access to a taxiway. The parcels in the west industrial park would have an average of 1.9 acres each.

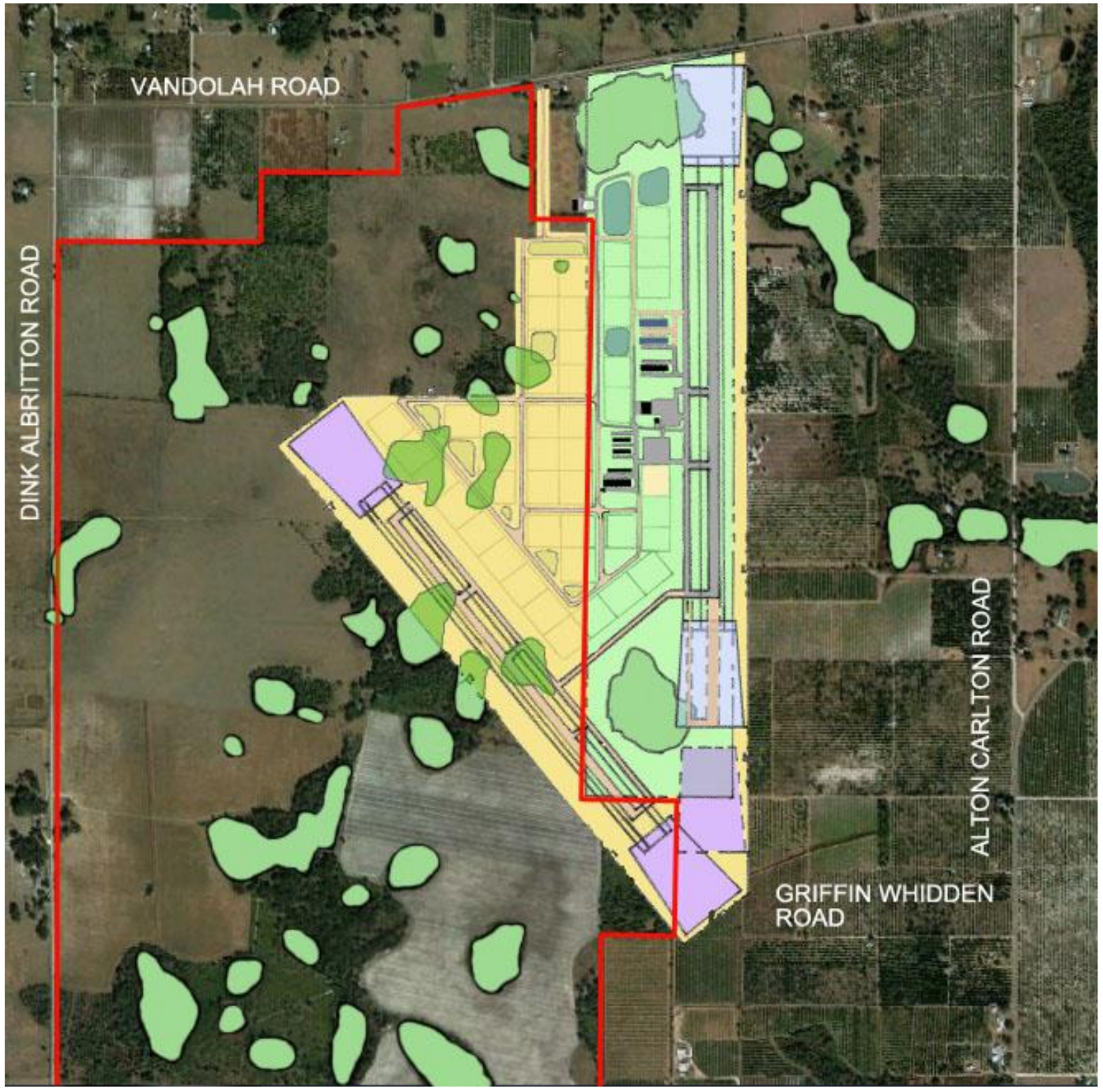


Figure 6-6
ALTERNATIVE 5

- Runway 18/36 ultimately extended south to 5,200 feet by 75 feet wide
- New crosswind Runway 14/32 built to 3,725 feet by 60 feet wide
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Significant wetland impacts
- Significant impacts to Mosaic property
- Large industrial park
- Good ease of operations

LEGEND

- Existing Stormwater Ponds
- Future Proposed Stormwater Ponds
- Existing Runway Protection Zone (RPZ)
- Future Runway Protection Zone (RPZ)
- Existing Airport Property
- Proposed Future Airport Property
- Existing Wetlands
- Existing Pavement
- Proposed Future Pavement
- New Buildings
- Mosaic Property Line

North

6.4 EVALUATION OF ALTERNATIVES

Each of the five alternatives has advantages and disadvantages. This section analyzes the positive and negative aspects of the alternatives and recommends a preferred alternative based on the analysis.

Several of the criteria analyzed involve the ownership of land adjacent to the Airport that is likely to be affected by the addition of a crosswind runway, the number of Industrial Park lots that can be located on the existing Airport property and the length of the taxiway that connects the two runways and associated taxiway systems, as shown in **Table 6-1**.

Mosaic is a leading producer and marketer of potash and phosphate that owns much of the land immediately to the west and south of the existing Airport property. The number of acres of Mosaic land affected was calculated for each alternative. Other property owners to the south and east of the Airport are also likely to be affected by the addition of a crosswind runway. The number of other property owners likely to be affected and the associated number of acres was also calculated for each alternative.

The number of parcels that could be anticipated from an industrial park located on the existing Airport property was calculated. The number of parcels associated with an industrial park on land to be purchased was not analyzed. While three of the alternatives showed potential industrial parks off of existing Airport land, the number of parcels on each of these alternatives could be considered to be proportionate to the amount of land that the City and Airport were capable of purchasing. Therefore, in evaluating the alternatives, it was decided to discount the industrial parks located off existing Airport property. The land to be purchased, the wetlands impacted, and the number of industrial park lots do not take into consideration the industrial parks located off of existing Airport property.

Table 6-1 shows the outcome of the analysis. Those areas of the table that are outlined with a heavy line and shaded indicate the alternative that is most favorable to the associated criterion.

Table 6-1
LAND USE FACTORS

	Acres of Mosaic Land	Number of Other Land Owners Affected	Number of Other Land Owner Acres Affected	Number of Industrial Park Lots On Existing Property	Length of Connecting Taxiway
Alternative 1	88.8	5	13.7	12	625
Alternative 2	52.9	6	64.0	16	1,650
Alternative 3	60.7	10	61.1	16	1,750
Alternative 4	10.0	11	134.2	16	2,565
Alternative 5	100.4	3	6.7	15	1,590

Alternative 4 requires the fewest number of acres of land to be purchased from Mosaic, while Alternative 5 would affect the fewest number of other property owners. Alternative 5

requires the largest amount of acreage to be purchased from Mosaic and the fewest amount of acreage from other land owners. Alternatives 2, 3, and 4 are each ranked first with the largest number of lots that might be available for an industrial park on existing Airport property. Alternative 1 requires the shortest connecting taxiway between the two runway and associate taxiway systems.

Table 6-2 shows the additional acreage that would need to be purchased in order to construct the new runway and associated taxiway and the number of acres that would be required to relocate Maurice Clavel Road. Again, these calculations do not consider the industrial parks located off of existing Airport property.

A survey was done of agricultural properties located in and around Wauchula and purchased in the preceding nine months. There was a wide ranging cost per acre for these properties. Therefore, the highest cost and the lowest cost were discarded, and the remaining property costs per acre were averaged. This resulted in an average cost per acre of approximately $25,000 per acre.

National averages suggest that mineral rich land purchased for the purpose of mining is generally worth approximately three times the value that the land would otherwise have. For purposes of this report, the land that is owned by Mosaic was valued at $75,000 per acre.

These costs are not intended to be a cost estimate. They are merely to be used to obtain an order of magnitude cost to compare one alternative with another.

Table 6-2
ADDITIONAL ACREAGE REQUIRED

	Runway/ Taxiway	Maurice Clavel Road	Industrial Park	Total Additional Acres	Number of Mosaic Acres	Number of Other Property Owner Acres	Potential Land Costs at $75,000 for Mineral Rich Land and $25,000 for Agricultural Land
Alternative 1	99.2	3.25	0	102.5	88.8	13.7	$ 7,000,250
Alternative 2	113.6	3.25	0	116.9	52.9	64.0	$ 5,564,650
Alternative 3	118.6	3.25	0	121.9	60.7	61.1	$ 6,082,941
Alternative 4	141	3.25	0	144.3	10.0	134.2	$ 4,108,495
Alternative 5	103.9	3.25	0	107.2	100.4	6.7	$ 7,700,250

Alternative 1 will require the least amount of additional acreage to be purchased. Alternative 4 will require the largest amount of land to be purchased. However, Alternative 4 will require the least amount of mineral rich Mosaic land to be purchased, which comes with a potential higher cost per acre. As a result, it is calculated that it would cost less to purchase the additional land required for Alternative 4 than for the other alternatives.

Also analyzed were the wetland impacts. As with the land purchases, the fewest number of wetland impacted equals the alternative that best addresses the issue. Again, the industrial

parks located off of existing Airport property were not included in this analysis. It is assumed that if additional land is purchased for one or more industrial parks, that the design of the park will include the avoidance and or mitigation of the associated wetlands at that time. The calculation of wetlands for this analysis is only for those wetlands affected by the extension or addition of runways and taxiways.

When a potential wetland has been identified as being impacted by a project, a wetland biologist will be required to determine the definitive boundaries of the wetland. If after all attempts to avoid the wetlands have been explored and it becomes necessary to mitigate the affected wetlands, it will also become necessary to negotiate the proposed mitigation with the Florida Department of Environmental Protection and the Southwest Florida Water Management District (SWFWMD). These negotiations will determine the acreage of the wetlands that must be mitigated and the price per acre for the mitigation. For the purposes of this report, the figure $300,000 per acre was used. This is not an indication of how much future mitigation costs might be, but is only intended to be used to develop an order of magnitude cost estimate for purposed of ranking the five alternatives. The approximate number of affected wetlands and the order of magnitude cost associated with these acreages are shown in **Table 6-3**.

Table 6-3
WETLAND IMPACTS

	Extension of Primary Runway	Crosswind Runway/ Taxiway	New Taxiway	Total Acreage of Wetland Impacts	Potential Wetland Costs at $300,000/acre
Alternative 1	0.9	9.9	0	10.8	$ 3,240,000
Alternative 2	0.22	0	0.68	0.9	$ 270,000
Alternative 3	8.8	0	0	8.8	$ 2,640,000
Alternative 4	0.22	0	0.68	0.9	$ 270,000
Alternative 5	0.9	6.4	0	7.3	$ 2,190,000

Alternatives 2 and 4 each are ranked first as they have the least number of acres potentially impacted by wetlands. Alternative 1 ranked the lowest with over 10 acres of impacted wetlands.

Order of Magnitude costs were developed for each of the alternatives. These are not intended to be taken for the project costs of the alternative as the project costs will be based on the final design of the project and the unit cost of construction and professional services that are in effect when the project is realized. Rather, the Order of Magnitude costs are developed using reasonable, current, unit costs and broad units of measure to produce potential project costs that will determine how one alternative would rank against another.

The potential land costs are taken from **Table 6-2**. The potential wetland mitigation costs are taken from **Table 6-3**. The cost of the connecting taxiway was developed by multiplying the length of the connecting taxiway with a reasonable unit cost for that width of taxiway. The Order of Magnitude cost for the new runway taxiway system was also calculated based

on whether or not it was a crosswind runway or a primary runway, along with the associated taxiways. The results are totaled and shown in **Table 6-4**.

Table 6-4
ORDER OF MAGNITUDE COSTS

	Potential Land Costs at $75,000 for Mineral Rich Land and $25,000 for Agricultural Land	Potential Wetland Costs at $300,000/acre	Cost of Connecting Taxiway	Order of Magnitude Cost of New Runway Taxiway System	Total Order of Magnitude Cost
Alternative 1	$ 7,000,000	$ 3,240,000	$ 1,066,000	$ 16,155,000	$ 27,461,000
Alternative 2	$ 5,565,000	$ 270,000	$ 2,728,000	$ 16,255,000	$ 24,818,000
Alternative 3	$ 6,083,000	$ 2,640,000	$ 2,660,000	$ 23,832,000	$ 35,215,000
Alternative 4	$ 4,108,000	$ 270,000	$ 4,373,000	$ 19,795,000	$ 28,546,000
Alternative 5	$ 7,700,000	$ 2,190,000	$ 2,711,000	$ 16,255,000	$ 28,856,000

The Order of Magnitude cost for Alternative 2 came in the lowest. This is due largely to the low wetlands mitigation costs associated with the alternative, the potential, relatively low cost of the land, and a relatively low cost for the runway and taxiway system. Alternative 3 appears to cost the most. This is due to the fact that the new runway/taxiway system would be built to the ARC B-II standards for the primary runway.

6.5 PREFERRED ALTERNATIVE

In the preceding tables, each of the alternatives ranked number one in at least one of the criterion. Two of the alternatives ranked number one in at least three of the alternatives. These two alternatives are Alternative 2 and Alternative 4. However, Alternative 4 also ranked lowest on four of the alternatives, while Alternative 2 never ranked below fourth place for any of the criterion. The rankings from each of the criterion for each alternative are shown in **Table 6-5**.

Table 6-5
SUMMARY OF ALTERNATIVE RANKINGS

	Additional Acres	Wetland Acres Impacts	Acres of Mosaic Land	Number of Other Property Owners Affected	Other Owner Acreage	Number of IP Lots on Existing Property	Ease of Operations	Order of Magnitude Costs
Alternative 1	1	5	4	2	2	5	2	2
Alternative 2	3	1	2	3	4	1	1	1
Alternative 3	4	4	3	4	3	1	4	5
Alternative 4	5	1	1	5	5	1	5	4
Alternative 5	2	3	5	1	1	4	3	3

Note: IP = Industrial Park

The alternatives and the analyses were presented to the Wauchula Airport Authority Board at their regularly scheduled meeting on April 1, 2013. The Board reviewed and discussed the results. The Board indicated that of the alternatives presented, their preferred alternative is Alternative 4. Alternative 4 requires the least amount of land to be purchased from Mosaic. It was the consensus of the Board that until Mosaic has mined their land that the cost to purchase the land would be prohibitive. There is no known timeline as to when the land might be mined.

The Airport Authority Board further stated that their first priority was not to construct a crosswind runway. They feel that it is much more important that the existing runway be lengthened to at least 5,000 feet. It is understood by the Board that the extension of the existing runway is not eligible for FAA funding at this time.

6.6 SUMMARY

A series of five alternatives were developed for the Wauchula Municipal Airport. These alternatives concentrated on the placement of a new crosswind runway that would provide the 95 percent wind coverage as recommended by the FAA. The five alternatives were evaluated against several criteria including:

- Number of acres required to be purchased and from whom
- Potential wetland impacts
- Ease of operations
- Order of Magnitude project costs

After review and discussion, the Wauchula Airport Authority Board selected Alternative 4 as their Preferred Alternative. Alternative 4 presents:

- Existing Runway 18/36 ultimately extended south to 5,200 feet with a 75 foot width
- New crosswind Runway 5/23 built to 3,725 feet with a 60 foot width
- Maurice “Sonny” Clavel Road relocated from RPZ to west side of Hardee County Waste Water Treatment Plant property
- Few wetland impacts

- Few impacts to Mosaic property
- Medium-sized industrial park

The Airport Authority Board selected Alternative 4 primarily because it represented the least amount of land that would have to be purchased from the Mosaic, the Airport's neighbor to the immediate west. Mosaic is a leading producer and marketer of potash and phosphate, and they intend to mine the neighboring property, although there is no known timeline. The Board considered that the cost to purchase Mosaic property would be prohibitive.

7. AIRPORT LAYOUT PLAN UPDATE

7.1 INTRODUCTION

This chapter describes the Airport layout Plan (ALP) set for the development of the Wauchula Municipal Airport from 2011 through 2031, presents the Airport's compliance with Federal Aviation Administration (FAA) design standards, lists revisions to the ALP, and presents a reduced size ALP set. The ALP graphically illustrates the existing facilities of the Airport, as well as the proposed development based on the aviation forecasts, facility requirements, and the alternatives analysis. An ALP set is made up of the ALP drawing, as well as other supporting drawings that are considered to be appended to the ALP drawing. As presented in the FAA Advisory Circular 150/5070-6B, *Airport Master Plans*, five primary functions of the ALP define its purpose:

- The approved plans are necessary in order to receive financial assistance under terms of the Airport and Airway Improvement Act of 1982 (AIP), as amended, and specific passenger facility charge actions. The maintenance of a current plan and conformity to the plan are grant assurance requirements at an airport on which Federal funds have been expended under the AIP Program (ADAP) and the Federal Air Airports Program (FAAP) of 1946, as amended. While ALPs are not required for airports other than those developed with assistance under the previously mentioned Federal programs, this guidance can be applied to all airports.
- The plans create a blueprint for airport development by depicting proposed facility improvements consistent with the strategic vision of the airport sponsor. The plans provide a guideline by which the airport sponsor can assure that development maintains airport design standards and safety requirements, and is consistent with airport and community land use plans.
- The ALP serves as a public document that is a record of aeronautical requirements, both present and future, and as a reference for community deliberations on land use proposals and budget resource planning.
- The approved ALP provides the FAA with a plan for airport development. This will allow compatible planning for FAA owned facility improvements at the Airport. It also allows the FAA to anticipate needs for budgetary and procedural needs. The approved ALP will also allow the FAA to protect necessary airspace for planned facility or approach procedure improvements.
- The plans can be a working tool for use by the City of Wauchula and Airport management.

The FAA and the Florida Department of Transportation (FDOT) require a complete ALP set for consideration of future funding. Programming of FAA and FDOT funds are based on development projects depicted on the ALP sheet.

The FAA provides airport design standards to ensure safe and efficient airport operations. The plans have been developed in accordance with the following:

- FAA Advisory Circular 150/5070-6B, *Airport Master Plans*
- FAA Advisory Circular 150/5070-6B, Appendix F, *Airport Layout Plan Drawing Set*
- FAA Advisory Circular 150/5300-13, *Airport Design*
- Federal Regulations Part 77, *Objects Affecting Navigable Airspace*

- FAA Order 5200, *Runway Safety Area Program*
- FAA ARP Standard Operating Procedure (SOP) 2.00, *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*
- FAA ARP SOP 3.00, *Standard Operating Procedure (SOP) for FAA Review of Exhibit "A" Airport Property Inventory Maps*

The ALP Drawing Set developed as a part of this master plan update complies with each of these documents.

7.2 ALP SET

The complete Wauchula Municipal Airport ALP set consists of 12 drawings. The purpose of each drawing is described in this section. The ALP drawings are produced on 24-inch by 36-inch sheets and are submitted by the City of Wauchula to FDOT and FAA for review and approval. Reduced reproductions of the draft ALP are included at the end of this chapter for illustration purposes. The FAA ALP Review Checklist can be found as **Appendix L** to this report. All of the ALP set drawings were created using AutoCAD version 2012.

7.2.1 Cover Sheet

The cover sheet of the ALP set provides basic Airport data that is not found elsewhere on the ALP. The cover sheet includes the Airport's name, the associated city, date, the project name, FAA, and FDOT grant numbers and the name of the City of Wauchula as the Airport Sponsor. The cover sheet also displays a location map, which indicates the Airport, major cities in Florida, and major roads near the Airport.

7.2.2 Data Sheet

The data sheet is a separate sheet that contains the basic airport and runway data tables. In this case, it also includes the windroses and the wind observation data.

7.2.3 Airport Layout Plan

The ALP is a graphic representation of existing and future Airport facilities. The ALP is the key document that reflects changes in physical features on and near the Airport, which may affect navigable airspace or the ability of the Airport to operate. The ALP includes dimensional information in order for recommended development to be in accordance with FAA planning and design recommendations outlined in FAA Advisory Circular 150/5300-13A, *Airport Design*, and 150/5070-6B, *Airport Master Plans*. Development shown on the ALP corresponds to the Airport's Capital Improvement Program (CIP) for the 20-year period, with emphasis on the first five-year period.

7.2.4 Terminal Area Plan

This plan sheet shows the development of the primary Airport area containing the hangars, aprons, fuel farm and other facilities. Major projects in the terminal area include additional taxiway/taxilane construction, apron design and construction, and additional t-hangars.

7.2.5 Airport Airspace Drawing

The Airport airspace drawing depicts "imaginary surfaces" that surround the Airport as defined in Federal Aviation Regulation (FAR) Part 77. They consist of the following surfaces:

- Primary Surface
- Approach Surface

- Transitional Surface
- Horizontal Surface
- Conical Surface

The drawing is based on the future runway configuration for both runways as planned to occur within the twenty-year planning period. Known obstructions have been identified.

7.2.6 Inner Portion of the Approach Surfaces for Runways 18/36 and 5/23

Sheets six through nine show the plan and profile views of the inner portion of the approach surfaces to the runway ends of Runways 18, 36, 5, and 23 respectively at the Wauchula Municipal Airport. In addition to the approach surfaces contained in FAR Part 77, *Objects Affecting Navigable Airspace*, the drawing also depicts the threshold siting surfaces both existing and future.

7.2.7 Runway Departure Surface Plan

The Departure Surfaces Plan shows the applicable departure surfaces for instrument departures from the Airport. The slopes shown are 40:1 slopes and identify those obstructions that penetrate the slope out from each runway end that is designated for instrument departures out to 10,200 feet beyond the runway threshold.

7.2.8 Land Use Plan

The property areas to be reserved for basic Airport functions are delineated on this drawing. Such functions include aeronautical and non-aeronautical land uses. These land uses are consistent with the Airport's requirements for aircraft operations and safety. It also shows the existing land uses of land adjacent to the Airport and the proposed future land use to on and off-Airport land. Off-Airport property required for acquisition to permit future Airport development has also been depicted.

7.2.9 Exhibit "A" Airport Property Inventory Map

The Exhibit "A" Airport Property Inventory Map depicts the Airport's boundary, the various tracts of land that were acquired to develop the Airport, and the method of acquisition. This plan must be updated when the Airport changes any property boundary, acquires new property, or acquires new easements. The FAA Exhibit "A" Property Inventory Map Review Checklist found in Appendix B of the FAA ARP Standard Operating Procedures (SOP) 3.00 can be found as **Appendix M** to this report.

7.3 ALP HIGHLIGHTS AND MODIFICATIONS

This section highlights significant elements of the proposed ALP and notes significant changes from the previous ALP (2007) prepared for the Wauchula Municipal Airport.

- The future relocation of the Airport's entrance road, Maurice "Sonny" Clavel Road, out of the Runway Protection Zone (RPZ) of Runway 18 has been shown.
- The future crosswind runway location and orientation has been changed from a 14/32 orientation located to the east of the Airport to a 4/22 orientation located to the south and west of the Airport.
- A recently completed conventional hangar located near the fuel farm has been shown.
- Recently completed storm water drainage areas located in the northern potions of the Airport have been shown.

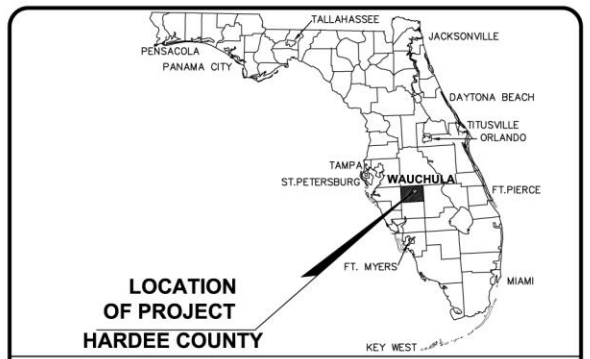
- Soon to be constructed taxiway/taxilanes to accommodate future T-hangars to the north of the terminal area has been shown.
- Future apron to be constructed between the conventional hangar and the T-hangars in the terminal area is shown.
- Future apron to be located south of the existing transient aircraft parking area has been shown.

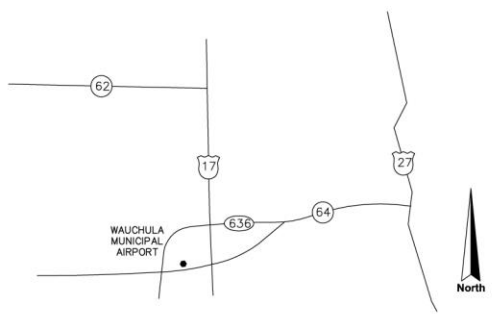
WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT LAYOUT PLAN

FEBRUARY 2014





VICINITY MAP
N.T.S.

INDEX OF DRAWINGS

DWG NO.	TITLE
1	COVER SHEET
2	DATA SHEET
3	AIRPORT LAYOUT PLAN
4	TERMINAL AREA PLAN
5	FAR PART 77 AIRSPACE SURFACES AIRPORT VICINITY PLAN
6	RUNWAY 18 INNER APPROACH PLAN
7	RUNWAY 36 INNER APPROACH PLAN
8	RUNWAY 5 INNER APPROACH PLAN
9	RUNWAY 23 INNER APPROACH PLAN
10	RUNWAY DEPARTURE SURFACE PLAN
11	LAND USE PLAN
12	EXHIBIT "A" AIRPORT PROPERTY INVENTORY MAP

FLORIDA DEPARTMENT OF TRANSPORTATION APPROVAL

FDOT SIGNATURE _____ DATE _____

NAME _____

TITLE _____

SPONSOR APPROVAL
WAUCHULA MUNICIPAL AIRPORT AUTHORITY

CITY MANAGER _____ DATE _____

FAA AIP NO. 3-12-0084-011-2012
FDOT FM NO. 432649-1
AVCON PROJECT NO. 2012.052.01

REVISIONS

NO.	DATE	DESCRIPTION	SHEETS

PREPARED FOR :
CITY OF WAUCHULA
126 SOUTH 7th AVENUE
WAUCHULA, FL 33873
863.773.3535

CITY OF WAUCHULA FLORIDA

CITY AND AIRPORT REPRESENTATIVES

CITY STAFF
TERRY ATCHLEY, CITY MANAGER
OLIVIA MINSHEW, ASSISTANT CITY MANAGER
JIM HAY, AIRPORT MANAGER

AIRPORT AUTHORITY
LAVON COBB, CHAIR
BILL CREWS
DALE JOHNSON
BILL LAMBERT
COLON LAMBERT
BILL MULCAY
JOE SMITH

CITY COMMISSION

DISTRICT SEAT 1	NEDA COBB
DISTRICT SEAT 2	RUSSELL GRAYLIN SMITH
DISTRICT SEAT 3	KEITH NADASKAY, JR., MAYOR
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DISTRICT SEAT 5	GARY SMITH
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DISTRICT SEAT 7	DR. PETER PRESTON

AVCON
AVCON, INC.
ENGINEERS & PLANNERS
5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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RUNWAY DATA TABLE

	RUNWAY 18-36		RUNWAY 5-23
	EXISTING	FUTURE	FUTURE
AIRCRAFT APPROACH CATEGORY (AAC)	B	SAME	B
AIRCRAFT DESIGN GROUP (ADG)	II	SAME	I
CRITICAL AIRCRAFT	KING AIR 200	SAME	EMBRAER 121
RUNWAY DESIGN CODE (RDC)	B-II-VIS	SAME	B-I-VIS
RUNWAY REFERENCE CODE (RRC)	B-II-VIS	SAME	B-I-VIS
EFFECTIVE GRADIENT	0.0699%	0.144%	0.295%
MAXIMUM GRADE CHANGE	0.1%	0.3%	0.0%
RUNWAY LENGTH	4,005 FT	5,200 FT	3,725 FT
RUNWAY WIDTH	75 FT	SAME	60 FT
RUNWAY SHOULDER WIDTH	10 FT (TURF)	SAME	10 FT (TURF)
MAXIMUM ELEVATION (AMSL)	108.0	SAME	108.0
RUNWAY SAFETY AREA WIDTH (RSA)	150 FT	SAME	120 FT
RSA LENGTH PRIOR TO LANDING THRESHOLD	300 FT	SAME	240 FT
RSA LENGTH BEYOND RUNWAY END	300 FT	SAME	240 FT
RUNWAY OBSTACLE FREE ZONE WIDTH (ROFZ)	400 FT	SAME	250 FT
ROFZ LENGTH BEYOND RUNWAY END	200 FT	SAME	200 FT
RUNWAY OBJECT FREE AREA (ROFA) WIDTH	500 FT	SAME	400 FT
ROFA LENGTH BEYOND EACH RUNWAY END	300 FT	SAME	240 FT
RUNWAY DEPARTURE SURFACE	YES	SAME	YES
PAVEMENT TYPE	ASPHALT	SAME	ASPHALT
PAVEMENT MARKINGS/CONDITION	NON-PREC/GOOD	SAME	NON-PREC
RUNWAY EDGE LIGHTING	MIRL	SAME	MIRL
PAVEMENT STRENGTH	30,000 LB SWG	SAME	30,000 LB SWG
RUNWAY PCN	64	100	100
RUNWAY CENTERLINE TO HOLD LINE	200 FT	200 FT	200 FT
RUNWAY CENTERLINE TO TAXIWAY	240 FT	SAME	225 FT
RUNWAY CENTERLINE TO AIRCRAFT PARKING	250 FT	SAME	200 FT
THRESHOLD SITING SURFACE (TSS)	SLOPE 20:1	SAME	SLOPE 20:1
OBSTACLE CLEARANCE SURFACE APPICABILITY	YES	YES	YES

AIRPORT DATA

DESIGN CRITERIA	EXISTING	FUTURE
AIRPORT ELEVATION (AMSL)	109'	
MEAN MAX TEMP. OF HOTTEST MONTH	92°F	
AIRPORT REFERENCE POINT (ARP)		
LONGITUDE	27°30'53.66" N	27°30'30.74" N
LATITUDE	81°52'49.67" W	81°52'47.06" W
AIRPORT REFERENCE CODE (ARC)	B-II	B-II
NAVAIDS	NDB, GPS	GPS
NPIAS SERVICE LEVEL	GA	GA
AIRPORT PROPERTY	216.1 AC	620.4 AC
AVIGATION EASEMENTS	NONE	NONE
ANNUAL SERVICE VOLUME	230,000	260,000
MAGNETIC DECLINATION **	5° 31' 11" W	
MAGNETIC RATE OF CHANGE **	0° 6' W PER YEAR	

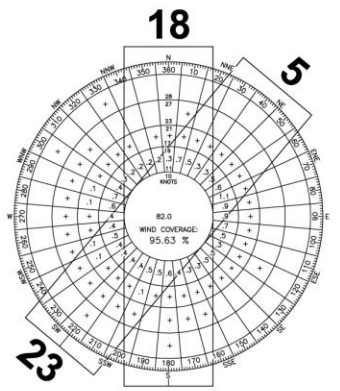
** SOURCE: NGDC/NOAA (2013)

WIND OBSERVATION DATA

SOURCE: NATIONAL CLIMATIC DATA CENTER, INFORMATION SERVICES DIVISION
STATION: NO. 72212, BARTOW MUNICIPAL AIRPORT, BARTOW, FL
NO. 72203, PUNTA GORDA AIRPORT, PUNTA GORDA, FL
AND NO. 72211 SARASOTA-BRADENTON INTERNATIONAL AIRPORT, SARASOTA, FL
PERIOD: JAN. 2000 - DEC. 2009

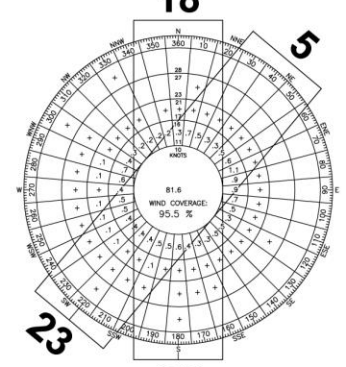
COORDINATES DATA

1. THE COORDINATE SYSTEM AND PROJECTION FOR AUTOCAD AND GIS FILES IS FLORIDA STATE PLANE WEST (ZONE 0902), TRANSVERSE MERCATOR, UNITS IN U.S. FEET.
2. ALL GEOGRAPHIC COORDINATES ARE NAD 83, U.S. FEET.
3. VERTICAL DATA ARE NAVD 88(91) GENERAL CORRECTION, AMSL, U.S. FEET.



ALL WEATHER WIND COVERAGE BY RUNWAY (%)

RUNWAY	10.5 KNOT (12 MPH)	13 KNOT (15 MPH)
18-36	90.45	95.76
5-23	93.09	96.7
TOTAL	95.63	99.62



VFR WIND COVERAGE BY RUNWAY (%)

RUNWAY	10.5 KNOT (12 MPH)	13 KNOT (15 MPH)
18-36	90.15	94.81
5-23	92.94	96.64
TOTAL	95.5	98.4

TAXIWAY/TAXILANE DATA TABLE

	RUNWAY 18-36		RUNWAY 5-23
	EXISTING	FUTURE	FUTURE
TAXIWAY LIGHTING	MITL	SAME	MITL
TAXIWAY WIDTH	35 FT	SAME	25 FT
TAXIWAY SHOULDER WIDTH	10 FT (TURF)	SAME	10 FT (TURF)
TAXIWAY EDGE SAFETY MARGIN	7.5 FT	SAME	5 FT
TAXIWAY SAFETY AREA WIDTH	79 FT	SAME	49 FT
TAXIWAY OBJECT FREE AREA WIDTH	131 FT	SAME	89 FT
TAXILANE OBJECT FREE AREA WIDTH	115 FT	SAME	79 FT
RADIUS OF TAXIWAY TURN CENTERLINE 90°	75 FT	30 FT	25 FT
TAXIWAY DESIGN GROUP	2	2	1
TAXIWAY CENTERLINE TO FIXED OR MOVABLE OBJECT	65.5 FT	SAME	44.5 FT

DECLARED DISTANCES TABLE

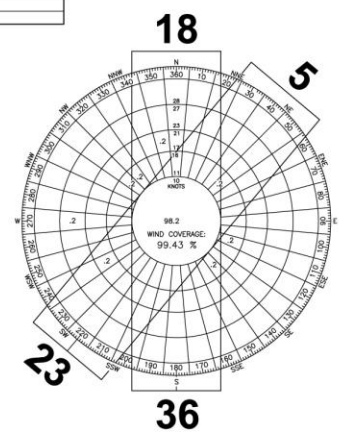
	EXISTING	FUTURE
RUNWAY 18		
TAKE OFF RUN AVAILABLE (TORA)		
TAKE OFF DISTANCE AVAILABLE (TODA)		
ACCELERATED STOP DISTANCE AVAILABLE (ASDA)		
LANDING DISTANCE AVAILABLE (LDA)		
RUNWAY 36		
TAKE OFF RUN AVAILABLE (TORA)		
TAKE OFF DISTANCE AVAILABLE (TODA)		
ACCELERATED STOP DISTANCE AVAILABLE (ASDA)		
LANDING DISTANCE AVAILABLE (LDA)		

MODIFICATION TO FAA DESIGN STANDARDS

DESCRIPTION	DESIGN STANDARD	AERONAUTICAL STUDY NUMBER	FAA APPROVAL

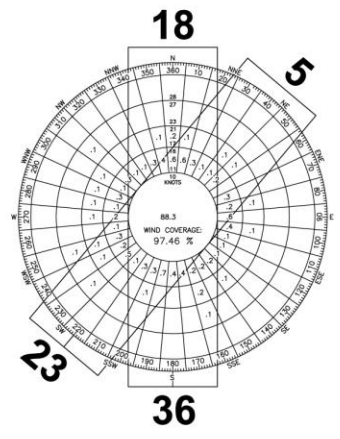
	RUNWAY 18		RUNWAY 36		RUNWAY 5	RUNWAY 23
	EXISTING 18	FUTURE 19	EXISTING 36	FUTURE 1	FUTURE	FUTURE
RUNWAY END ELEVATION	100.5'	SAME	103.3'	108.0'	96.0'	107.0'
TOUCHDOWN ZONE ELEVATION	102.6'	SAME	103.3'	108.8'	104.8'	107.0'
LATITUDE	27°31'13.49" N	SAME	27°30'33.83" N	27°30'22.03" N	27°29'53.43" N	27°30'20.48" N
LONGITUDE	81°52'49.69" W	SAME	81°52'49.64" W	81°52'49.61" W	81°52'57.53" W	81°52'29.40" W
NORTHING	1158373.298	SAME	1154369.375	1153174.380	1150285.454	1153019.888
EASTING	694908.793	SAME	694917.154	694919.650	694209.636	696739.161
TRUE BEARING	179°56'08.12"	SAME	359°56'08.12"	SAME	42°46'14.82"	222°46'14.82"
MAGNETIC BEARING (2013)	185°27'19.12"	SAME	5°27'19.12"	SAME	47°45'25.82"	227°45'25.82"
APPROACH CATEGORY	NON-PRECISION	SAME	NON-PRECISION	SAME	NON-PRECISION	NON-PRECISION
APPROACH VISIBILITY MINIMUMS	1 MILE	SAME	1 MILE	SAME	1 MILE	1 MILE
SURVEY REQUIRED FOR MINIMUM	NON-VERT GUIDED	SAME	NON-VERT GUIDED	SAME	NON-VERT GUIDED	NON-VERT GUIDED
NAVIGATIONAL AIDS	GPS	SAME	NDB, GPS	GPS	GPS	GPS
VISUAL AIDS	PAPI	SAME	PAPI	SAME	PAPI	PAPI
FAR PART 77 APPROACH SLOPE	34:1	SAME	34:1	SAME	34:1	34:1
RUNWAY END DESIGNATION	18	19*	36	1*	5	23
RUNWAY PROTECTION ZONE LENGTH	1,000 FT	SAME	1,000 FT	SAME	1,000 FT	1,000 FT
RUNWAY PROTECTION ZONE INNER WIDTH	500 FT	SAME	500 FT	SAME	500 FT	500 FT
RUNWAY PROTECTION ZONE OUTER WIDTH	700 FT	SAME	700 FT	SAME	700 FT	700 FT
RUNWAY PROTECTION ZONE AREA	13.77 AC	SAME	13.77 AC	SAME	13.77 AC	13.77 AC

* CHANGE DUE TO MAGNETIC DECLINATION (2013)



IFR LESS THAN 0.5 MILES COVERAGE BY RUNWAY (%)

RUNWAY	10.5 KNOT (12 MPH)	13 KNOT (15 MPH)
18-36	99.0	99.44
5-23	98.7	99.06
TOTAL	99.43	99.67



IFR GREATER THAN 0.5 MILES COVERAGE BY RUNWAY (%)

RUNWAY	10.5 KNOT (12 MPH)	13 KNOT (15 MPH)
18-36	93.71	96.28
5-23	95.11	97.49
TOTAL	97.46	98.9

CITY OF WAUCHULA FLORIDA

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5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

DATA SHEET

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY: MGS
DRAWN BY: JEA
CHECKED BY: CTS
APPROVED BY: SS
DATE: FEBRUARY 2014

FAA AIP NO. 3-12-0084-011-2012
FDOT FM NO. 432649-1
AVCON PROJECT NO. 2012.052.01
CADD FILENAME 1205201002DATA

DRAWING
2

SHEET NO. 2 OF 12

XREFS: ...\1205201b.dwg
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LEGEND

DESIGN CRITERIA	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
PAVEMENT EDGE		
RUNWAY OBJECT FREE AREA (OFA)	ROFA ROFA	ROFA(F)
RUNWAY OBSTACLE FREE ZONE (OFZ)	ROFZ ROFZ	ROFZ(F)
RUNWAY PROTECTION ZONE (RPZ)	RPZ RPZ	RPZ(F)
RUNWAY SAFETY AREA (RSA)	RSA	RSA(F)
BUILDING RESTRICTION LINE	BRL BRL	
THRESHOLD SITING SURFACE	TSS	
DEPARTURE SITING SURFACE	DSS	
APPROACH SURFACE	AS	AS(F)
TAXIWAY OBJECT FREE AREA	TOFA TOFA	TOFA(F)
FENCE	X X X X	X X X X
TREELINE/BRUSH BOUNDARY		
AIRPORT REFERENCE POINT (ARP)		
STORMWATER POND		
BUILDING/HANGAR/STRUCTURE		
BUILDING NUMBERING	1	14
WIND CONE – PRIMARY		
WIND CONE – SUPPLEMENTAL		
WETLAND AREA		
AVIATION RELATED DEVELOPMENT		
LAND ACQUISITION		
LIGHT INDUSTRIAL DEVELOPMENT		
FUTURE PAVEMENT		
DEMOLISH EXISTING PAVEMENT		

BUILDING INVENTORY

DESCRIPTION	EXISTING	FUTURE
BULK HANGAR	1	SAME
AIRPORT OFFICE	2	SAME
PORTABLE HANGAR	3	SAME
T–HANGAR BLDG. D	4	SAME
T–HANGAR BLDG. C	5	SAME
T–HANGAR BLDG. B	6	SAME
T–HANGAR BLDG. A	7	SAME
ELECTRICAL VAULT	8	SAME
PILOT LOUNGE	9	SAME
FUEL TANK (AVGAS)	10	SAME
OLD FUEL CONTAINMENT	10A	TO BE REMOVED
T–HANGAR BLDG. E	12	SAME
CONVENTIONAL HANGAR	13	SAME
NON–DIRECTIONAL BEACON	14	SAME
ROTATING BEACON	15	SAME
PAPI–4	16	SAME
PAPI–4	17	SAME

BUILDING INVENTORY

DESCRIPTION	EXISTING	FUTURE
FUEL TANK (JET–A)	———	11
T–HANGARS	———	16 — 18

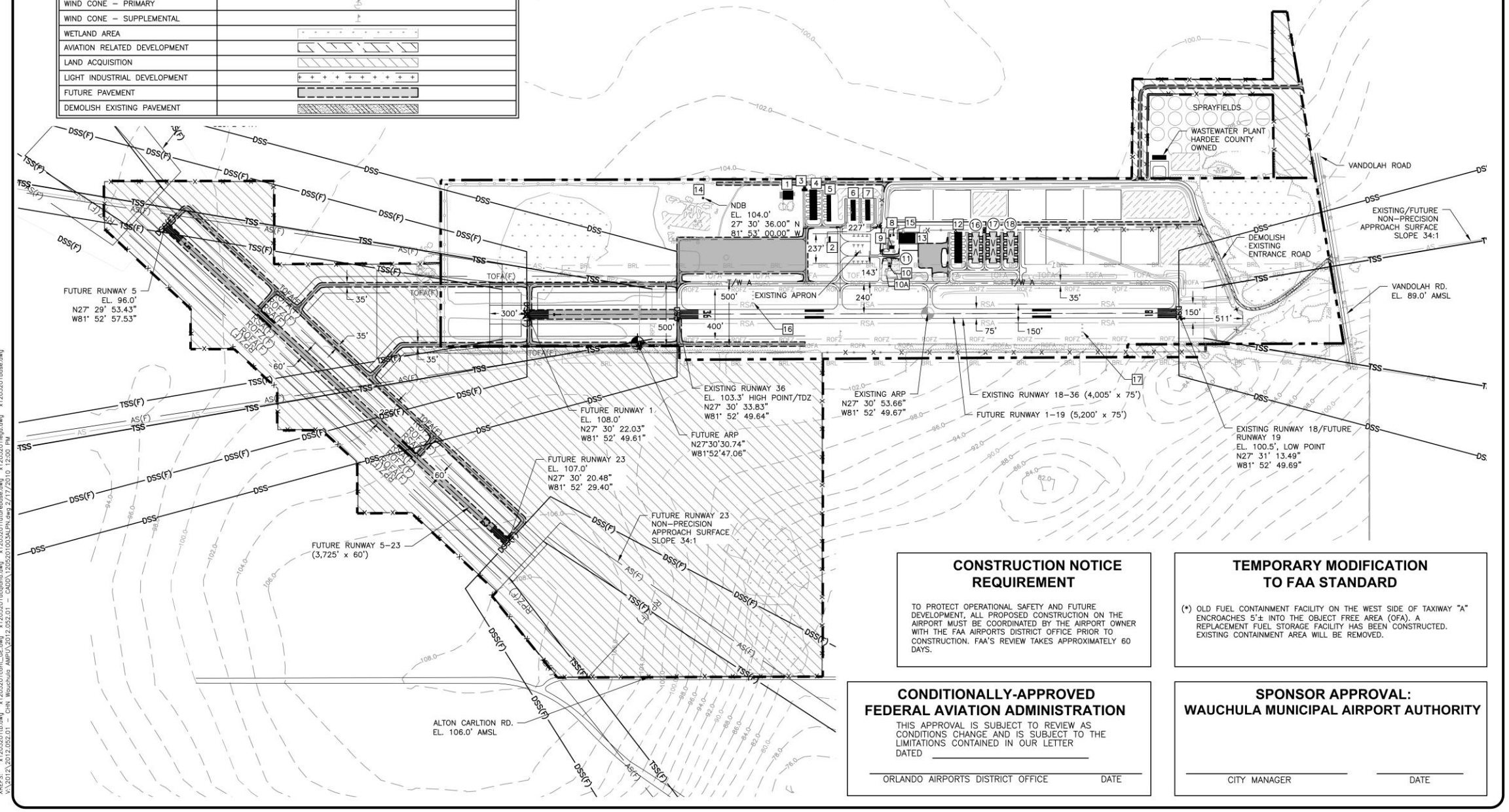
NOTES:

1. THE BRL WAS DETERMINED BY SELECTING THE MOST STRINGENT SURFACE OF A TOFA, ROFA, RVZ AND PART 77 SURFACE FOR A 20 FT BUILDING.
2. ALL COORDINATES GIVEN IN NAD 83 AND ELEVATIONS IN NAVD 88.
3. THE PROPOSED LAYOUT OF THE LIGHT INDUSTRIAL PARK AND AVIATION RELATED FACILITIES ALONG THE CROSSWIND RUNWAY 5–23, EXCEEDS THE FACILITY REQUIREMENTS SET FORTH IN THE AIRPORT MASTER PLAN. THE CONSTRUCTION TIME FRAME AND THE EXACT LOCATION OF THESE FACILITIES RELY ON THE FUTURE AVIATION ACTIVITY AND ECONOMIC GROWTH OF THE AIRPORT.
4. REFER TO SHEET 2, DATA SHEET, FOR RUNWAY TRUE BEARING.

MAGNETIC
TRUE
5°31'11" W
North

RATE OF CHANGE = 0°6' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER
DATE: 22 OCT 2013

0' 200' 400' 800'
GRAPHIC SCALE IN FEET



CONSTRUCTION NOTICE REQUIREMENT

TO PROTECT OPERATIONAL SAFETY AND FUTURE DEVELOPMENT, ALL PROPOSED CONSTRUCTION ON THE AIRPORT MUST BE COORDINATED BY THE AIRPORT OWNER WITH THE FAA AIRPORTS DISTRICT OFFICE PRIOR TO CONSTRUCTION. FAA'S REVIEW TAKES APPROXIMATELY 60 DAYS.

TEMPORARY MODIFICATION TO FAA STANDARD

(*) OLD FUEL CONTAINMENT FACILITY ON THE WEST SIDE OF TAXIWAY "A" ENCROACHES 5'± INTO THE OBJECT FREE AREA (OFA). A REPLACEMENT FUEL STORAGE FACILITY HAS BEEN CONSTRUCTED. EXISTING CONTAINMENT AREA WILL BE REMOVED.

CONDITIONALLY-APPROVED FEDERAL AVIATION ADMINISTRATION

THIS APPROVAL IS SUBJECT TO REVIEW AS CONDITIONS CHANGE AND IS SUBJECT TO THE LIMITATIONS CONTAINED IN OUR LETTER DATED _____

ORLANDO AIRPORTS DISTRICT OFFICE _____ DATE

SPONSOR APPROVAL: WAUCHULA MUNICIPAL AIRPORT AUTHORITY

CITY MANAGER _____ DATE

CITY OF WAUCHULA FLORIDA

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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

AIRPORT LAYOUT PLAN

SCALE: GRAPHIC

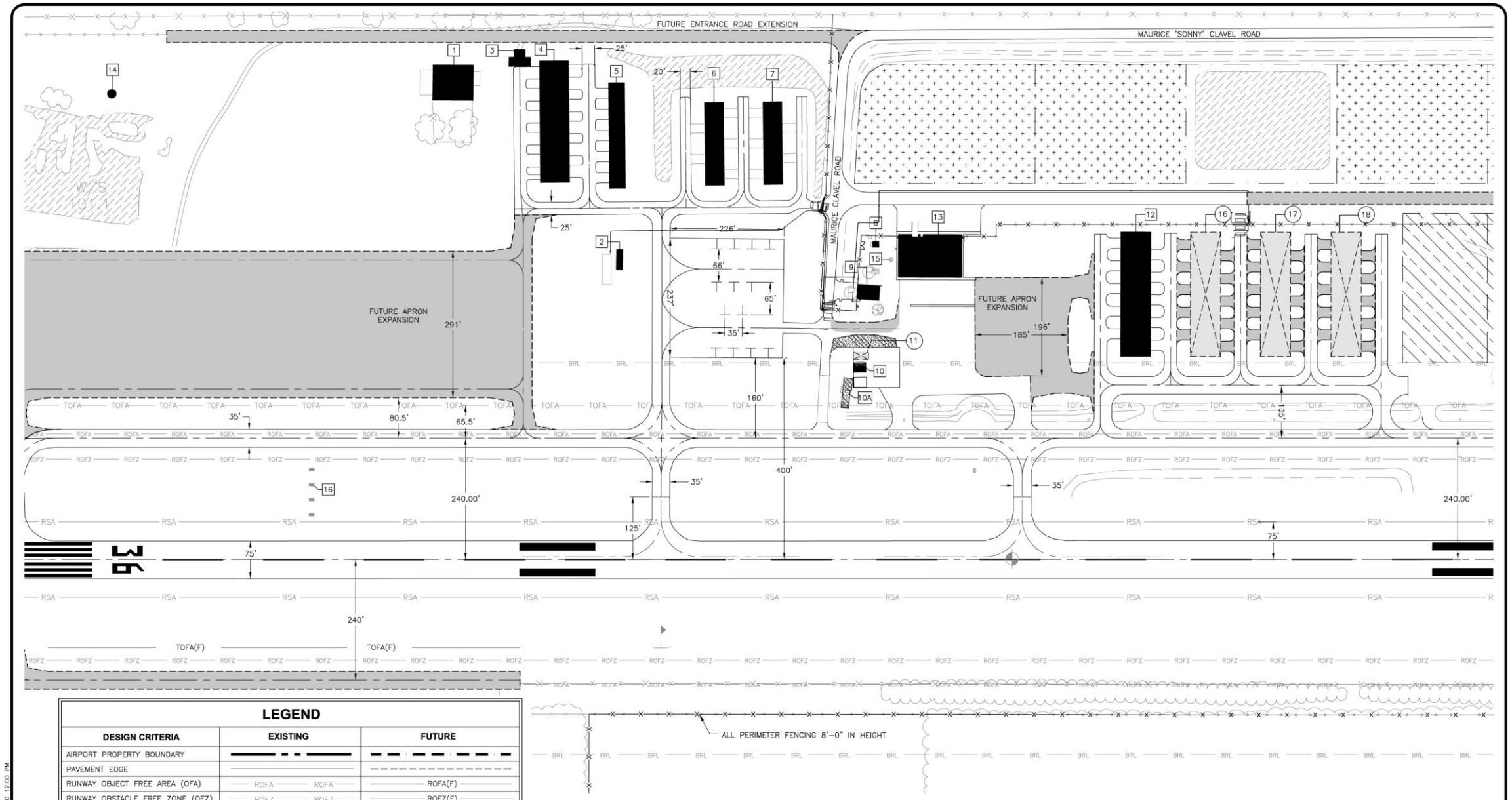
REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201003ALPN

DRAWING
3
SHEET NO. 3 OF 12

XREFS: x1205201tlb.dwg x1205201cont_GE.dwg x1205201existcad.dwg x1205201futurebase.dwg x1205201topo.dwg x1205201legd.dwg x1205201base.dwg
V:\2012\2012.052.01 – Civil\Wauchula AMP\A\2012.052.01 – CADD\1205201003ALPN.dwg 2/17/2010 12:00 PM



LEGEND

DESIGN CRITERIA	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
PAVEMENT EDGE		
RUNWAY OBJECT FREE AREA (OFA)	ROFA	ROFA(F)
RUNWAY OBSTACLE FREE ZONE (OFZ)	ROFZ	ROFZ(F)
RUNWAY PROTECTION ZONE (RPZ)	RPZ	RPZ(F)
RUNWAY SAFETY AREA (RSA)	RSA	RSA(F)
BUILDING RESTRICTION LINE	BRL	
THRESHOLD SITING SURFACE	TSS	
DEPARTURE SITING SURFACE	DSS	
APPROACH SURFACE	AS	AS(F)
TAXIWAY OBJECT FREE AREA	TOFA	TOFA(F)
FENCE		
TREELINE/BRUSH BOUNDARY		
AIRPORT REFERENCE POINT (ARP)		
STORMWATER POND		
BUILDING/HANGAR/STRUCTURE		
BUILDING NUMBERING	1	14
WIND CONE – PRIMARY		
WIND CONE – SUPPLEMENTAL		
WETLAND AREA		
AVIATION RELATED DEVELOPMENT		
LAND ACQUISITION		
LIGHT INDUSTRIAL DEVELOPMENT		
FUTURE PAVEMENT		
DEMOLISH EXISTING PAVEMENT		

EXISTING FACILITY INFORMATION

FACILITY NUMBER	BUILDING DESCRIPTION	TOP ELEVATION (*)	COMMENTS
1	CONVENTIONAL HANGAR	130	TO REMAIN
2	TRAILER/OFFICE	115	TO REMAIN
3	PORTABLE HANGAR	120	TO REMAIN
4	T-HANGARS BLDG. D	125	TO REMAIN
5	T-HANGARS BLDG. C	125	TO REMAIN
6	T-HANGARS BLDG. B	125	TO REMAIN
7	T-HANGARS BLDG. A	125	TO REMAIN
8	ELECTRICAL VAULT	115	TO REMAIN
9	PILOT LOUNGE	115	TO REMAIN
10	FUEL TANK (AVGAS)	115	TO REMAIN
10A	OLD FUEL CONTAINMENT	113	TO BE REMOVED
12	T-HANGAR BLDG. E	125	NONE
13	CONVENTIONAL HANGAR		TO REMAIN
14	NON-DIRECTIONAL RADIO BEACON		TO REMAIN
15	ROTATING BEACON		TO REMAIN
16	PAPI-4	2	TO REMAIN
17	PAPI-4	2	TO REMAIN

FUTURE FACILITY INFORMATION

FACILITY NUMBER	BUILDING DESCRIPTION	TOP ELEVATION (*)	COMMENTS
(11)	FUTURE JET-A TANK (12,000 GAL)	115	NONE
(16) – (18)	FUTURE HANGARS	125	NONE

NOTES: (*) EXISTING ELEVATIONS OF EXISTING AND FUTURE STRUCTURES WERE ESTIMATED, (UNITS IN FT AMSL)
(**) REFER TO SHEET 3 FOR DEFINITION OF BRL

MAGNETIC
TRUE
North
5°31'11" W
RATE OF CHANGE = 0°6' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER
DATE: 22 OCT 2013

0' 50' 100' 200'
GRAPHIC SCALE IN FEET

XREFS: x1205201tb.dwg x1205201legd.dwg x1205201base.dwg x1205201futurebase.dwg
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CITY OF WAUCHULA FLORIDA

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AVCON, INC.
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5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

TERMINAL AREA PLAN

SCALE: GRAPHIC

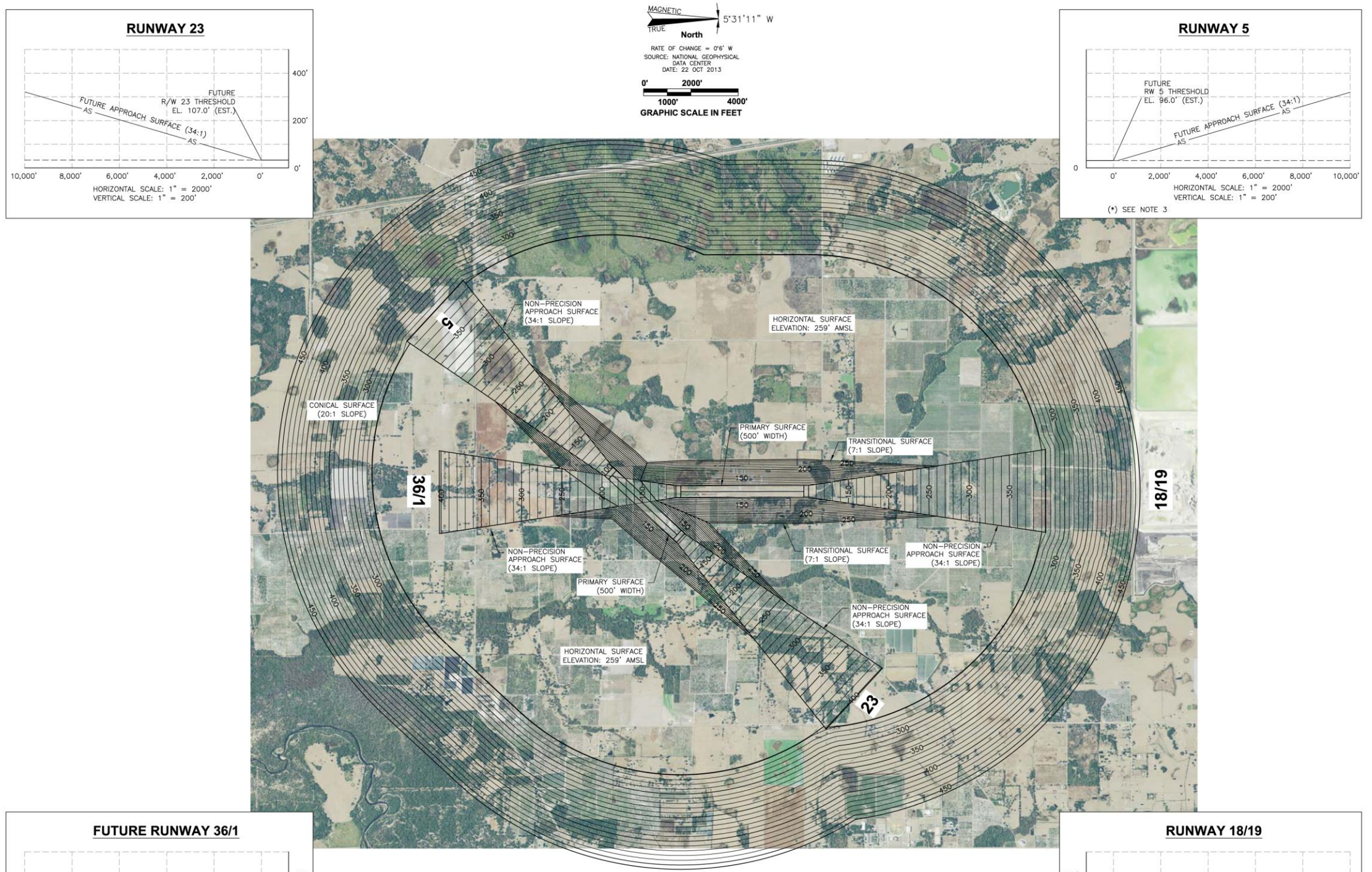
REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY: MGS
DRAWN BY: JEA
CHECKED BY: CTS
APPROVED BY: SS
DATE: FEBRUARY 2014

FAA AIP NO. 3-12-0084-011-2012
FDOT FM NO. 432649-1
AVCON PROJECT NO. 2012.052.01
CADD FILENAME 1205201004TAPN

DRAWING
4
SHEET NO. 4 OF 12



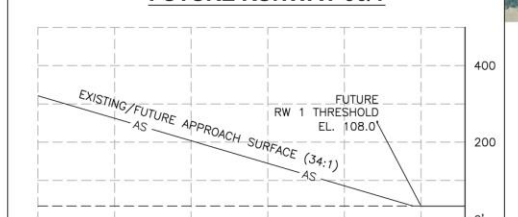
RUNWAY 23

HORIZONTAL SCALE: 1" = 2000'
VERTICAL SCALE: 1" = 200'

RUNWAY 5

HORIZONTAL SCALE: 1" = 2000'
VERTICAL SCALE: 1" = 200'
(*) SEE NOTE 3

FUTURE RUNWAY 36/1



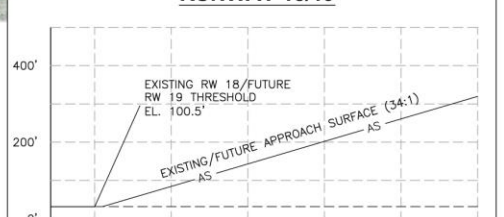
HORIZONTAL SCALE: 1" = 2000'
VERTICAL SCALE: 1" = 200'
(*) SEE NOTE 3

NOTES:

1. FLORIDA STATUTE 333 AND HARDEE COUNTY COMPREHENSIVE PLAN ENFORCE HEIGHT RESTRICTIONS IN THE AIRPORT OVERLAY DISTRICT.
2. THE AIRSPACE CONTOURS ARE PROVIDED IN FEET ABOVE MEAN SEA LEVEL (AMSL). REFER TO DATA SHEET 2 FOR ADDITIONAL INFORMATION ON ARP AND RUNWAY END ELEVATIONS.
3. REFER TO THE INNER PORTION OF THE APPROACH SURFACE PLANS FOR CLOSE-IN OBSTRUCTIONS.

   SOURCE: FLORIDA DEPARTMENT OF TRANSPORTATION, 2011
   WEB-SITE: WWW.WWW2.DOT.STATE.FL.US
4. AIRPORT ELEVATION: 109'

RUNWAY 18/19



HORIZONTAL SCALE: 1" = 2000'
VERTICAL SCALE: 1" = 200'
(*) SEE NOTE 3

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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

FAR PART 77 AIRSPACE SURFACES AIRPORT VICINITY PLAN

SCALE:	GRAPHIC

REVISIONS:

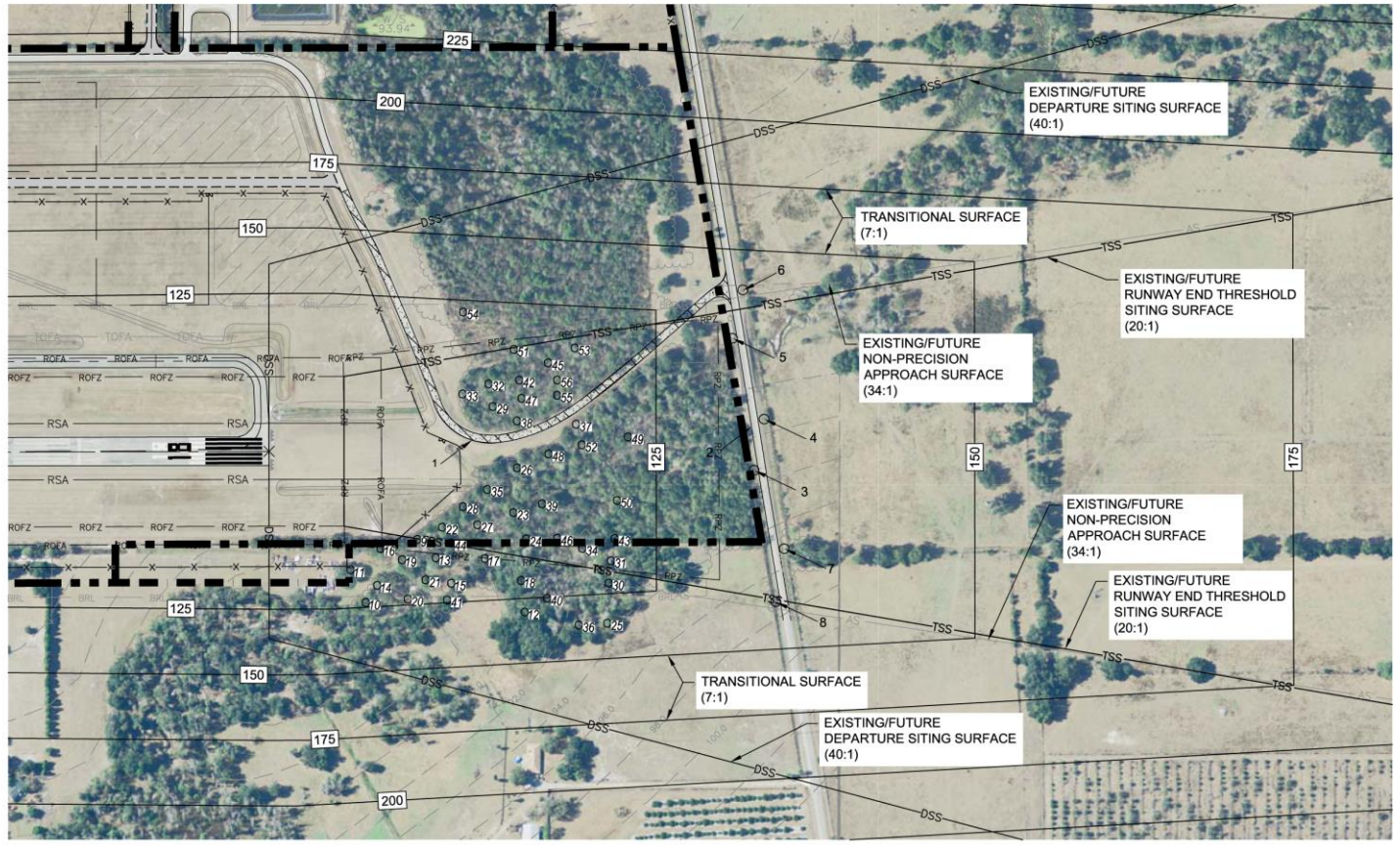
NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201005ASPC

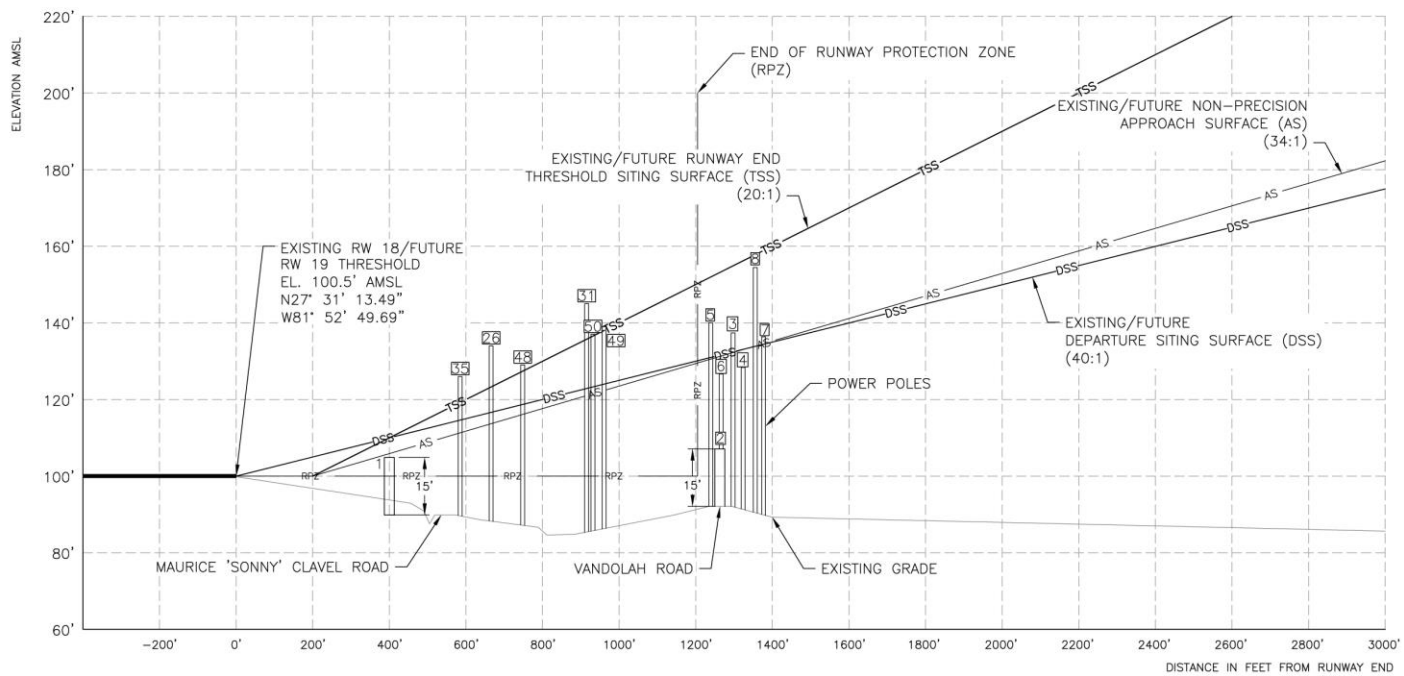
DRAWING

5

SHEET NO. 5 OF 12



PLAN VIEW



RUNWAY 18/19 APPROACH PROFILE

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V:\2012\2012.052.01 — Civil\ Wauchula AMP\ \2012.052.01 — CADD\ 1205201006A018.dwg 2/17/2010 12:00 PM

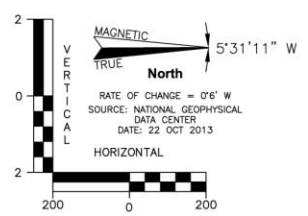
OBSTRUCTION DATA TABLE

ID	DESCRIPTION	LATITUDE	LONGITUDE	OBSTRUCTION ELEVATION (FT, AMSL)	PART 77 APPROACH ELEVATION (FT, AMSL)	PENETRATION	DISPOSITION
1	ROAD(*)	027°31'18.87" N	081°52'50.00" W	107.10	107.10	0	NONE
2	ROAD(*)	027°31'26.26" N	081°52'50.38" W	128.10	128.10	0	NONE
3	POWERPOLE	027°31'26.33" N	081°52'49.10" W	132.80	128.20	4.6	MARK/LIGHT
4	POWERPOLE	027°31'26.60" N	081°52'50.62" W	133.50	133.50	0	NONE
5	POWERPOLE	027°31'25.76" N	081°52'53.02" W	131.10	122.20	8.9	MARK/LIGHT
6	POWERPOLE	027°31'26.04" N	081°52'54.45" W	134.40	134.40	0	NONE
7	POWERPOLE	027°31'27.12" N	081°52'46.78" W	135.10	133.80	1.3	MARK/LIGHT
8	POWERPOLE	027°31'26.90" N	081°52'45.20" W	134.40	114.30	20.1	MARK/LIGHT
9	TREE	27°31'17.430" N	081°52'47.060" W	141	109.19	31.81	TO BE REMOVED
10	TREE	27°31'16.070" N	081°52'45.190" W	134	102.31	31.69	TO BE REMOVED
11	TREE	27°31'15.670" N	081°52'46.160" W	130	100.29	29.71	TO BE REMOVED
12	TREE	27°31'20.270" N	081°52'44.900" W	150	123.52	26.48	TO BE REMOVED
13	TREE	27°31'17.920" N	081°52'46.510" W	138	111.66	26.34	TO BE REMOVED
14	TREE	27°31'16.370" N	081°52'45.700" W	130	103.83	26.17	TO BE REMOVED
15	TREE	27°31'18.330" N	081°52'45.760" W	139	113.72	25.28	TO BE REMOVED
16	TREE	27°31'16.460" N	081°52'46.790" W	128	104.29	23.71	TO BE REMOVED
17	TREE	27°31'19.220" N	081°52'46.490" W	141	118.22	22.78	TO BE REMOVED
18	TREE	27°31'20.170" N	081°52'45.840" W	143	123.01	19.99	TO BE REMOVED
19	TREE	27°31'17.030" N	081°52'46.460" W	127	107.16	19.84	TO BE REMOVED
20	TREE	27°31'17.180" N	081°52'45.290" W	127	107.91	19.09	TO BE REMOVED
21	TREE	27°31'17.650" N	081°52'45.860" W	129	110.29	18.71	TO BE REMOVED
22	TREE	27°31'18.090" N	081°52'47.420" W	130	112.52	17.48	TO BE REMOVED
23	TREE	27°31'19.970" N	081°52'47.850" W	137	122.01	14.99	TO BE REMOVED
24	TREE	27°31'20.310" N	081°52'47.070" W	138	123.73	14.27	TO BE REMOVED
25	TREE	27°31'22.450" N	081°52'44.570" W	148	134.52	13.48	TO BE REMOVED
26	TREE	27°31'20.070" N	081°52'49.180" W	134	122.53	11.47	TO BE REMOVED
27	TREE	27°31'19.020" N	081°52'47.490" W	128	117.22	10.78	TO BE REMOVED
28	TREE	27°31'18.640" N	081°52'48.030" W	126	115.30	10.7	TO BE REMOVED
29	TREE	27°31'19.430" N	081°52'51.000" W	130	119.30	10.7	TO BE REMOVED
30	TREE	27°31'22.490" N	081°52'45.760" W	145	134.73	10.27	TO BE REMOVED
31	TREE	27°31'22.550" N	081°52'46.420" W	145	135.04	9.96	TO BE REMOVED
32	TREE	27°31'19.320" N	081°52'51.670" W	128	118.75	9.25	TO BE REMOVED
33	TREE	27°31'18.630" N	081°52'51.370" W	124	115.26	8.74	TO BE REMOVED
34	TREE	27°31'21.790" N	081°52'46.790" W	139	131.20	7.8	TO BE REMOVED
35	TREE	27°31'19.280" N	081°52'48.540" W	126	118.53	7.47	TO BE REMOVED
36	TREE	27°31'21.700" N	081°52'44.520" W	138	130.73	7.27	TO BE REMOVED
37	TREE	27°31'21.630" N	081°52'50.470" W	137	130.41	6.59	TO BE REMOVED
38	TREE	27°31'20.070" N	081°52'50.570" W	129	122.53	6.47	TO BE REMOVED
39	TREE	27°31'20.730" N	081°52'48.110" W	132	125.85	6.15	TO BE REMOVED
40	TREE	27°31'20.860" N	081°52'45.310" W	132	126.50	5.5	TO BE REMOVED
41	TREE	27°31'18.220" N	081°52'45.260" W	118	113.17	4.83	TO BE REMOVED
42	TREE	27°31'20.130" N	081°52'51.780" W	127	122.84	4.16	TO BE REMOVED
43	TREE	27°31'22.650" N	081°52'47.080" W	139	135.54	3.46	TO BE REMOVED
44	TREE	27°31'18.320" N	081°52'46.950" W	117	113.68	3.32	TO BE REMOVED
45	TREE	27°31'20.890" N	081°52'52.290" W	130	126.68	3.32	TO BE REMOVED
46	TREE	27°31'21.130" N	081°52'47.090" W	131	127.87	3.13	TO BE REMOVED
47	TREE	27°31'20.190" N	081°52'51.240" W	126	123.14	2.86	TO BE REMOVED
48	TREE	27°31'20.900" N	081°52'49.590" W	129	126.72	2.28	TO BE REMOVED
49	TREE	27°31'23.000" N	081°52'50.090" W	139	137.32	1.68	TO BE REMOVED
50	TREE	27°31'22.710" N	081°52'48.210" W	137	135.85	1.15	TO BE REMOVED
51	TREE	27°31'19.990" N	081°52'52.690" W	123	122.14	0.86	TO BE REMOVED
52	TREE	27°31'21.780" N	081°52'49.860" W	132	131.16	0.84	TO BE REMOVED
53	TREE	27°31'21.600" N	081°52'52.730" W	131	130.27	0.73	TO BE REMOVED
54	TREE	27°31'18.650" N	081°52'53.800" W	116	115.38	0.62	TO BE REMOVED
55	TREE	27°31'21.130" N	081°52'51.330" W	128	127.89	0.11	TO BE REMOVED
56	TREE	27°31'21.130" N	081°52'51.780" W	128	127.89	0.11	TO BE REMOVED

SOURCE: TREE OBSTRUCTIONS BY FAA ASO, 2011

NOTES:

1. TREES PENETRATING THE APPROACH SURFACE (AS) WILL BE TRIMMED OR REMOVED.
2. (*) THIS ELEVATION IS BASED ON THE EXISTING GROUND ELEV. PLUS 15 FEET PER FAA PART 77 REQUIREMENTS FOR PUBLIC ROADWAYS.
3. (**) PART 77 AND TOP ELEVATIONS ARE EXPRESSED IN FEET ABOVE MEAN SEA LEVEL.
4. APPROACH SURFACE DIMENSIONS = 500'W X 3500'W X 10,000'L.
5. NOT ALL OBSTRUCTIONS ARE SHOWN IN PROFILE VIEW FOR CLARITY.



CITY OF WAUCHULA FLORIDA

AVCON

AVCON, INC.
ENGINEERS & PLANNERS
5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
www.avconinc.com

WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

RUNWAY 18 INNER APPROACH PLAN

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY: MGS
DRAWN BY: JEA
CHECKED BY: CTS
APPROVED BY: SS
DATE: FEBRUARY 2014

FAA AIP NO. 3-12-0084-011-2012
FDOT FM NO. 432649-1
AVCON PROJECT NO. 2012.052.01
CADD FILENAME 1205201006A018

DRAWING
6
SHEET NO. 6 OF 12

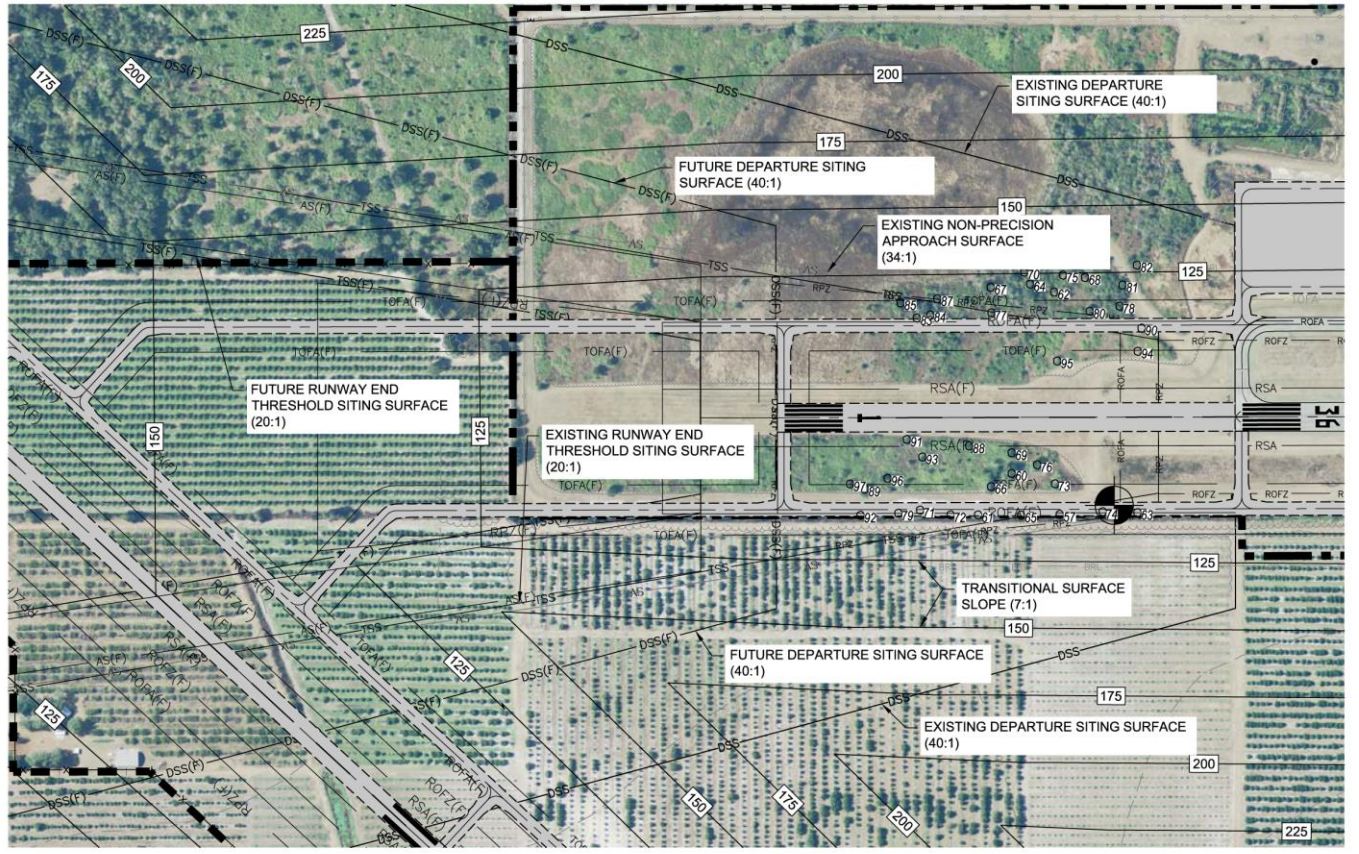
OBSTRUCTION DATA TABLE

ID	DESCIPTION	LATITUDE	LONGITUDE	OBSTRUCTION ELEVATION (FT, AMSL)	PART 77 APPROACH ELEVATION (FT, AMSL	PENETRATION	DISPOSITION
57	TREE	27°30'29.330" N	081°52'46.800" W	140	110.81	29.19	TO BE REMOVED
58	TREE	27°30'30.040" N	081°52'54.230" W	137	108.68	28.32	TO BE REMOVED
59	TREE	27°30'29.140" N	081°52'54.420" W	137	111.35	25.65	TO BE REMOVED
60	TREE	27°30'28.090" N	081°52'47.990" W	138	114.49	23.51	TO BE REMOVED
61	TREE	27°30'27.220" N	081°52'46.790" W	140	117.07	22.93	TO BE REMOVED
62	TREE	27°30'29.190" N	081°52'53.250" W	134	111.20	22.80	TO BE REMOVED
63	TREE	27°30'31.340" N	081°52'46.850" W	127	104.84	22.16	TO BE REMOVED
64	TREE	27°30'28.570" N	081°52'53.480" W	134	113.05	20.95	TO BE REMOVED
65	TREE	27°30'28.330" N	081°52'46.780" W	134	113.78	20.22	TO BE REMOVED
66	TREE	27°30'27.560" N	081°52'47.610" W	135	116.06	18.94	TO BE REMOVED
67	TREE	27°30'27.550" N	081°52'53.390" W	135	116.08	18.92	TO BE REMOVED
68	TREE	27°30'29.990" N	081°52'53.670" W	127	108.83	18.17	TO BE REMOVED
69	TREE	27°30'28.090" N	081°52'48.590" W	132	114.48	17.52	TO BE REMOVED
70	TREE	27°30'28.420" N	081°52'53.830" W	131	113.49	17.51	TO BE REMOVED
71	TREE	27°30'25.720" N	081°52'46.930" W	139	121.53	17.47	TO BE REMOVED
72	TREE	27°30'26.510" N	081°52'46.790" W	136	119.18	16.82	TO BE REMOVED
73	TREE	27°30'29.210" N	081°52'47.690" W	127	111.16	15.84	TO BE REMOVED
74	TREE	27°30'30.440" N	081°52'46.880" W	123	107.51	15.49	TO BE REMOVED
75	TREE	27°30'29.420" N	081°52'53.740" W	126	110.52	15.48	TO BE REMOVED
76	TREE	27°30'28.750" N	081°52'48.240" W	128	112.53	15.47	TO BE REMOVED
77	TREE	27°30'27.570" N	081°52'52.650" W	131	116.02	14.98	TO BE REMOVED
78	TREE	27°30'30.880" N	081°52'52.840" W	121	106.19	14.81	TO BE REMOVED
79	TREE	27°30'25.160" N	081°52'46.840" W	138	123.19	14.81	TO BE REMOVED
80	TREE	27°30'30.110" N	081°52'52.690" W	123	108.47	14.53	TO BE REMOVED
81	TREE	27°30'30.960" N	081°52'53.450" W	119	105.95	13.05	TO BE REMOVED
82	TREE	27°30'31.330" N	081°52'54.030" W	117	104.85	12.15	TO BE REMOVED
83	TREE	27°30'25.640" N	081°52'52.500" W	132	121.75	10.25	TO BE REMOVED
84	TREE	27°30'25.990" N	081°52'52.590" W	129	120.71	8.29	TO BE REMOVED
85	TREE	27°30'25.220" N	081°52'52.940" W	131	123.00	8.00	TO BE REMOVED
86	TREE	27°30'28.230" N	081°52'54.340" W	121	114.05	6.95	TO BE REMOVED
87	TREE	27°30'26.170" N	081°52'53.060" W	127	120.18	6.82	TO BE REMOVED
88	TREE	27°30'26.990" N	081°52'48.790" W	124	117.75	6.25	TO BE REMOVED
89	TREE	27°30'24.290" N	081°52'47.540" W	132	125.77	6.23	TO BE REMOVED
90	TREE	27°30'31.450" N	081°52'52.200" W	110	104.49	5.51	TO BE REMOVED
91	TREE	27°30'25.380" N	081°52'48.980" W	128	122.53	5.47	TO BE REMOVED
92	TREE	27°30'24.180" N	081°52'46.780" W	131	126.10	4.90	TO BE REMOVED
93	TREE	27°30'25.780" N	081°52'48.470" W	126	121.35	4.65	TO BE REMOVED
94	TREE	27°30'31.350" N	081°52'51.530" W	109	104.79	4.21	TO BE REMOVED
95	TREE	27°30'29.270" N	081°52'51.250" W	115	110.97	4.03	TO BE REMOVED
96	TREE	27°30'24.880" N	081°52'47.850" W	127	124.02	2.98	TO BE REMOVED
97	TREE	27°30'23.910" N	081°52'47.690" W	128	126.90	1.10	TO BE REMOVED

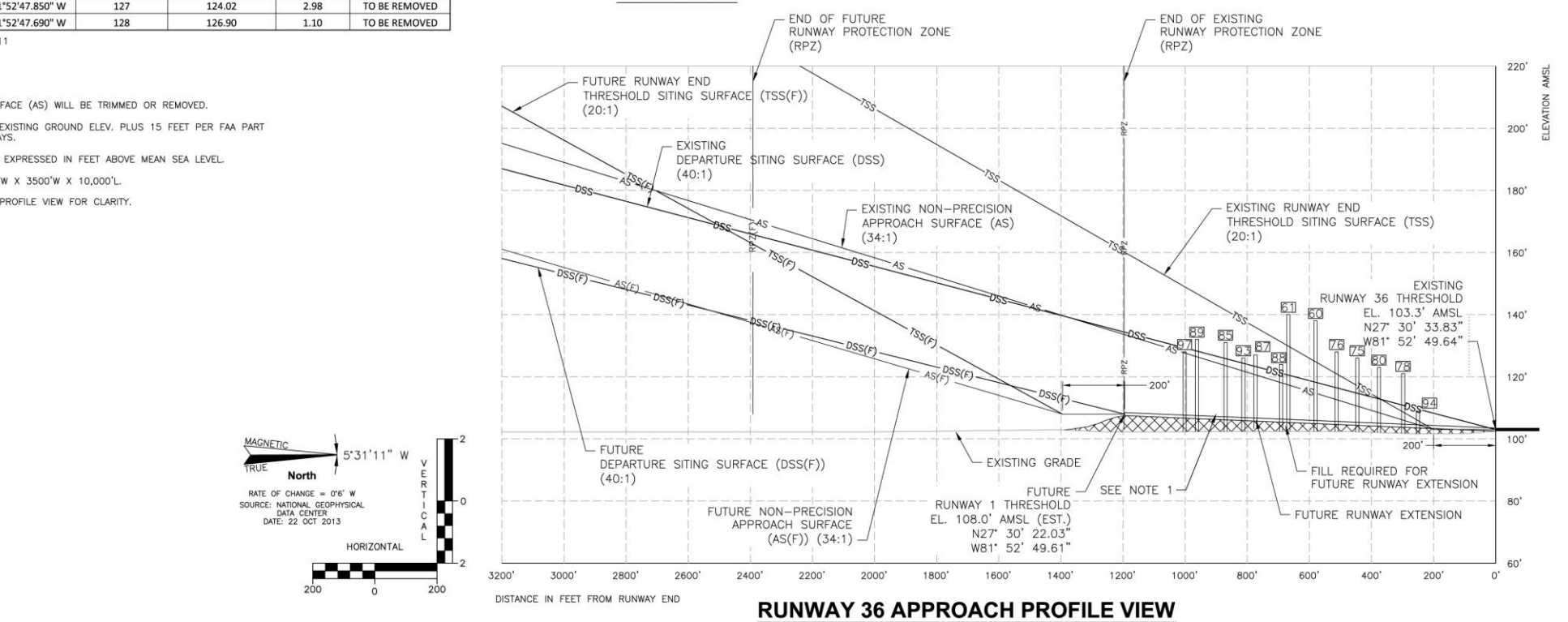
SOURCE: TREE OBSTRUCTIONS BY FAA ASO, 2011

NOTES:

1. TREES PENETRATING THE APPROACH SURFACE (AS) WILL BE TRIMMED OR REMOVED.
2. (*) THIS ELEVATION IS BASED ON THE EXISTING GROUND ELEV. PLUS 15 FEET PER FAA PART 77 REQUIREMENTS FOR PUBLIC ROADWAYS.
3. (**) PART 77 AND TOP ELEVATIONS ARE EXPRESSED IN FEET ABOVE MEAN SEA LEVEL.
4. APPROACH SURFACE DIMENSIONS = 500'W X 3500'W X 10,000'L.
5. NOT ALL OBSTRUCTIONS ARE SHOWN IN PROFILE VIEW FOR CLARITY.



PLAN VIEW



RUNWAY 36 APPROACH PROFILE VIEW

CITY OF WAUCHULA FLORIDA

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5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

RUNWAY 36 INNER APPROACH PLAN

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201007A036

DRAWING

7

SHEET NO. 7 OF 12

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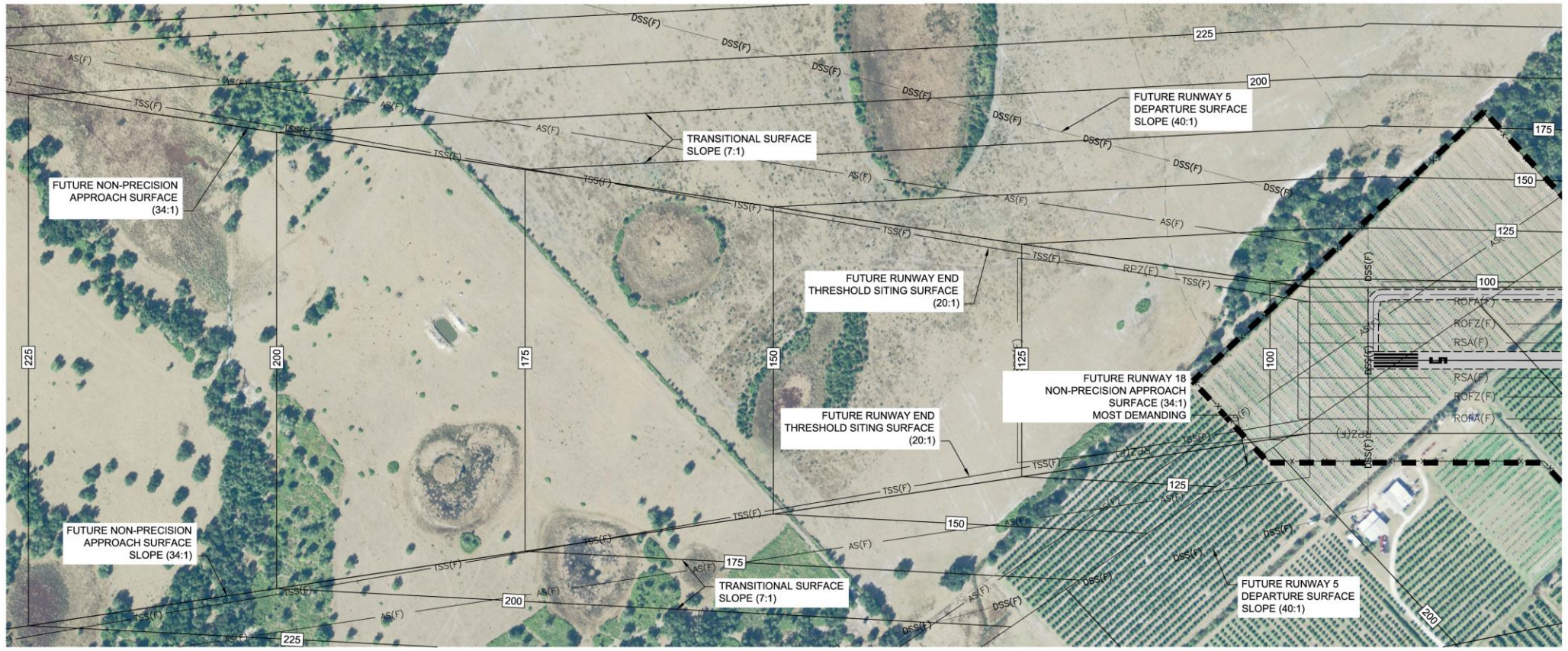
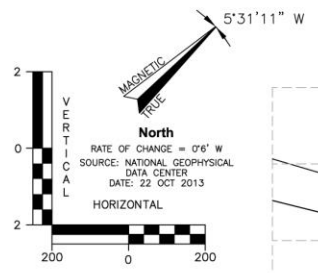
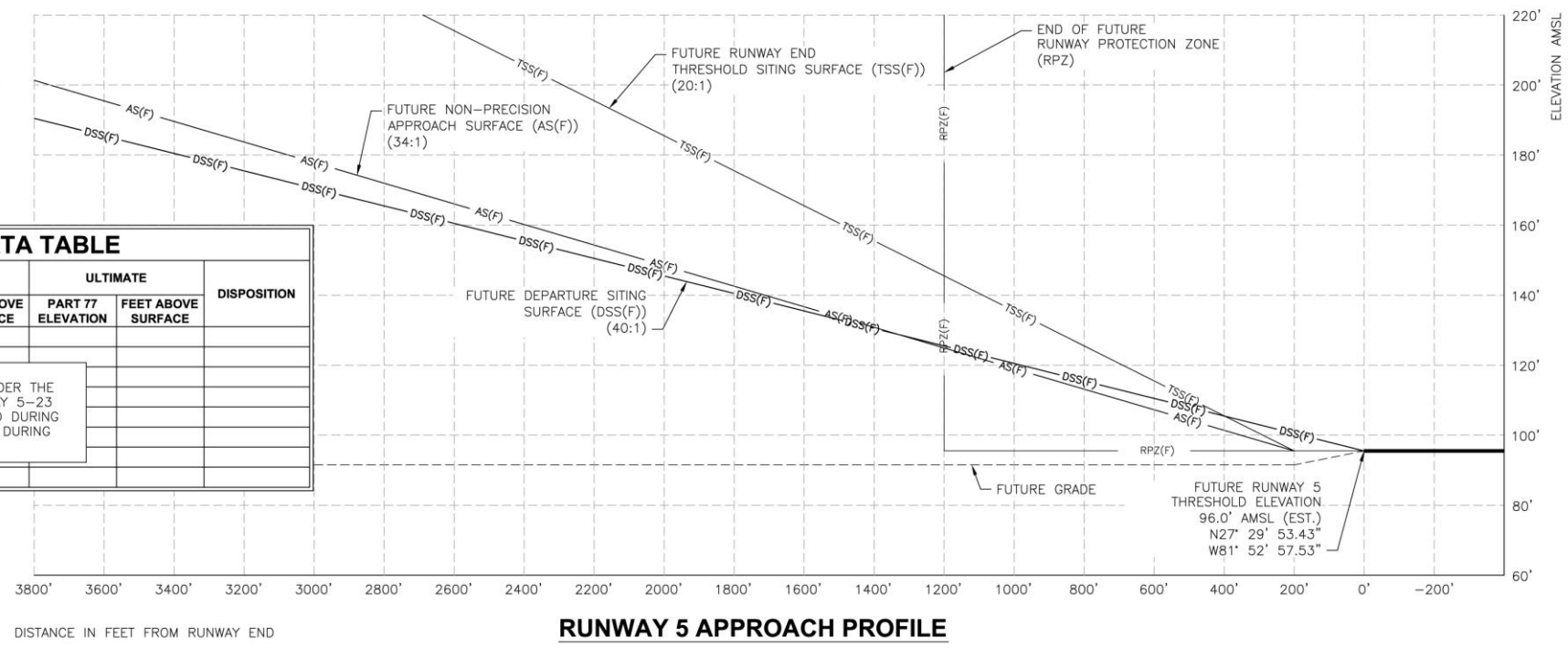


PLAN VIEW





RUNWAY 5 APPROACH PROFILE

OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TOP ELEVATION	EXISTING		ULTIMATE		DISPOSITION
			PART 77 ELEVATION	FEET ABOVE SURFACE	PART 77 ELEVATION	FEET ABOVE SURFACE	

ALL OBSTRUCTIONS UNDER THE APPROACH FOR RUNWAY 5–23 WILL BE FIELD CHECKED DURING DESIGN AND REMOVED DURING CONSTRUCTION

NOTES:

1. (**) PART 77 AND TOP ELEVATIONS ARE EXPRESSED IN FEET ABOVE MEAN SEA LEVEL.
2. APPROACH SURFACE DIMENSIONS = 500'W X 3500'W X 10,000'L.

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CITY OF WAUCHULA FLORIDA

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CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

RUNWAY 5 INNER APPROACH PLAN

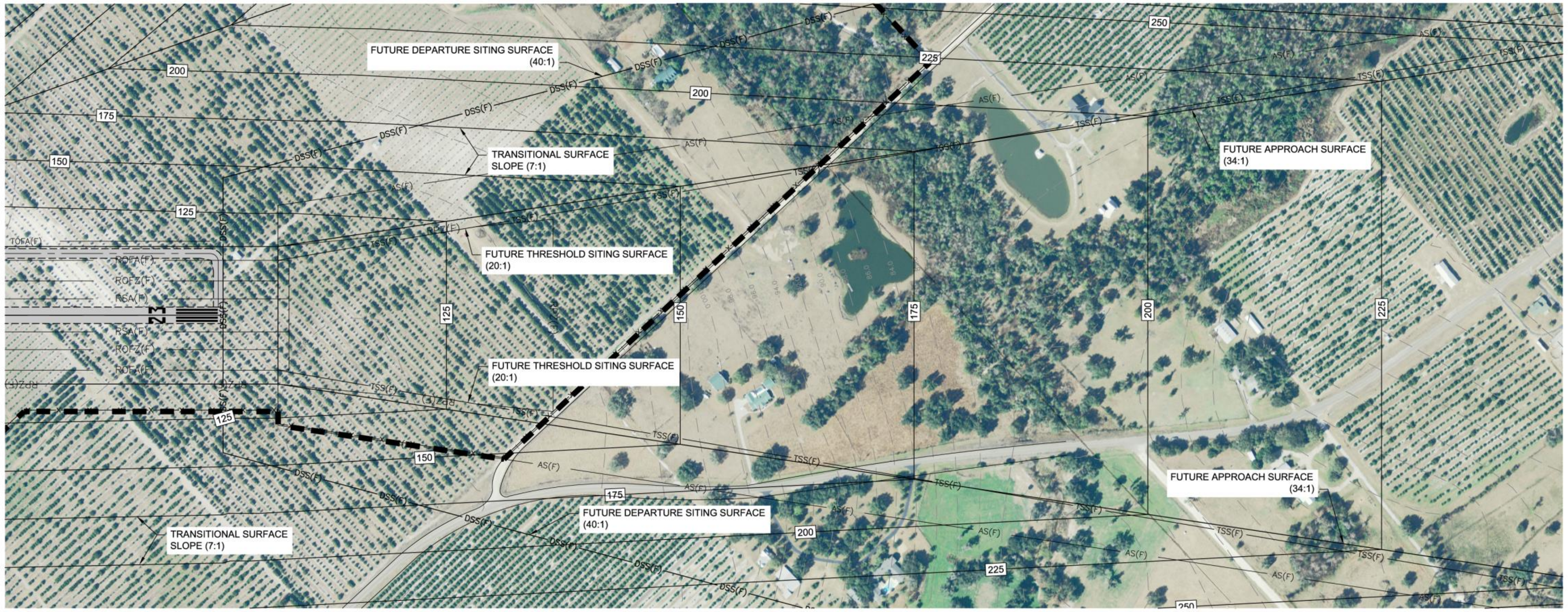
SCALE: GRAPHIC

REVISIONS:

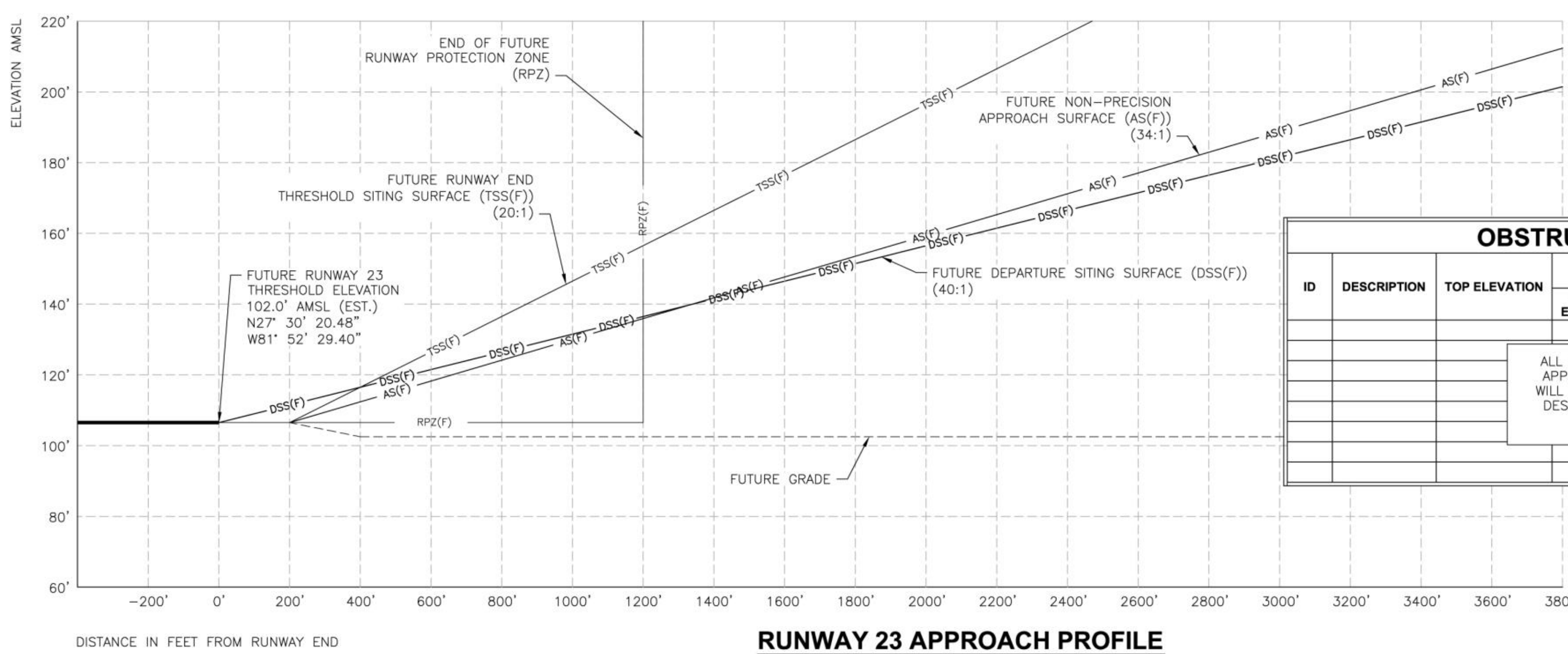
NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201008A005

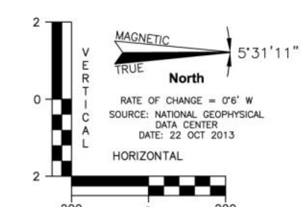
DRAWING
8
SHEET NO. 8 OF 12



PLAN VIEW



RUNWAY 23 APPROACH PROFILE



OBSTRUCTION DATA TABLE

ID	DESCRIPTION	TOP ELEVATION	EXISTING		FUTURE		DISPOSITION
			PART 77 ELEVATION	FEET ABOVE SURFACE	PART 77 ELEVATION	FEET ABOVE SURFACE	
			ALL OBSTRUCTIONS UNDER THE APPROACH FOR RUNWAY 5-23 WILL BE FIELD CHECKED DURING DESIGN AND REMOVED DURING CONSTRUCTION				

NOTES:

1. (**) PART 77 AND TOP ELEVATIONS ARE EXPRESSED IN FEET ABOVE MEAN SEA LEVEL.
2. APPROACH SURFACE DIMENSIONS = 500'W X 3500'W X 10,000'L.

XREFS: x1205201Aerial.dwg x1205201Part77_Merged_Approach.dwg x1205201tb.dwg x1205201cont_OE.dwg x1205201futurebase.dwg x1205201base.dwg
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CITY OF WAUCHULA ★ FLORIDA ★

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OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
www.avconinc.com

WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

RUNWAY 23 INNER APPROACH PLAN

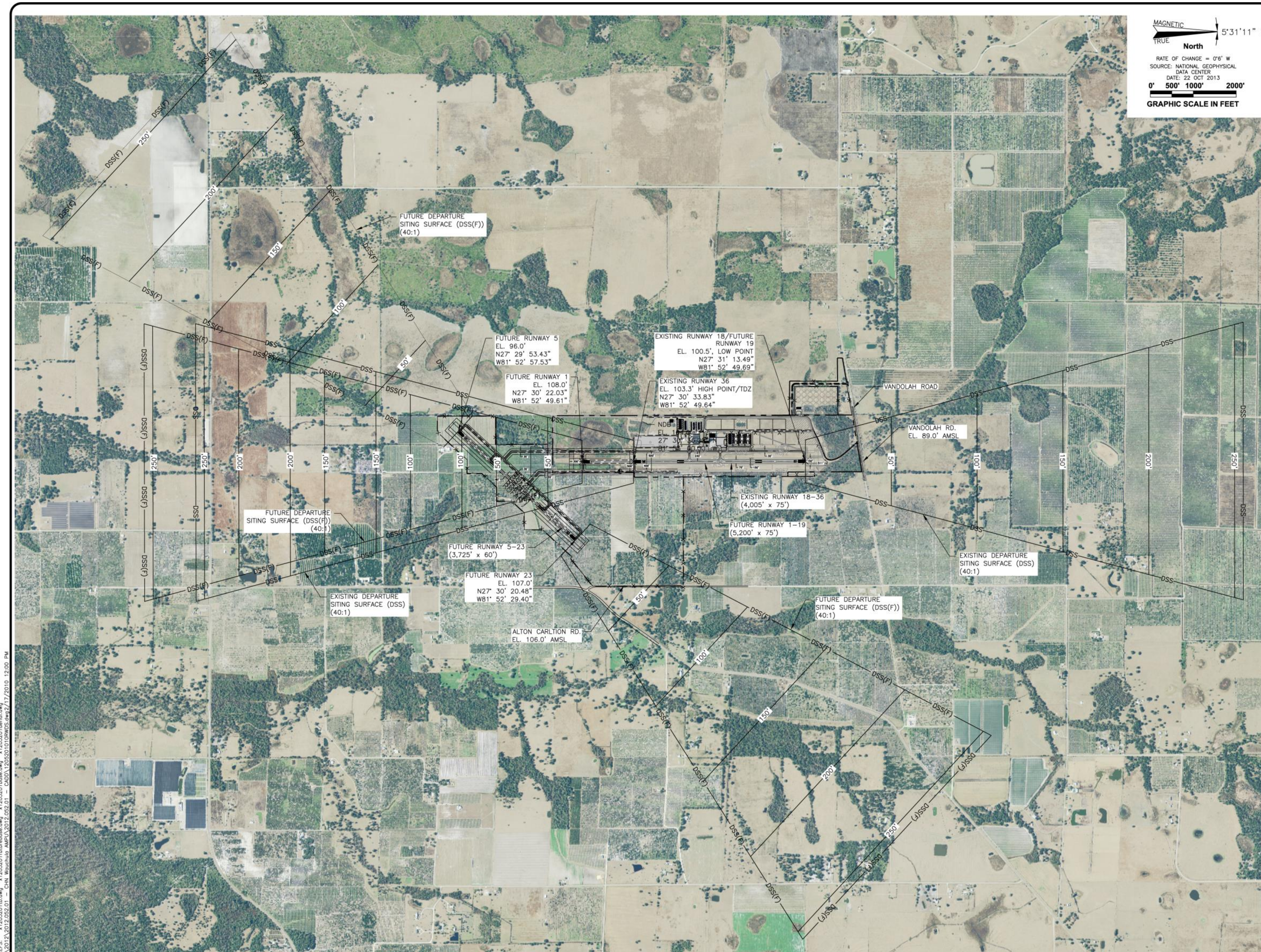
SCALE: GRAPHIC

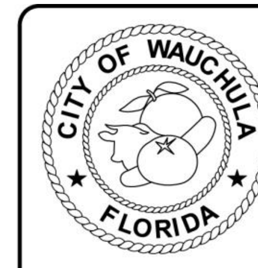
REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201009A023

DRAWING
9
SHEET NO. 9 OF 12





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5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

RUNWAY DEPARTURE SURFACE PLAN

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	DES
DRAWN BY:	DWN
CHECKED BY:	CKD
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201010RWDS

DRAWING
10

SHEET NO. 10 OF 12

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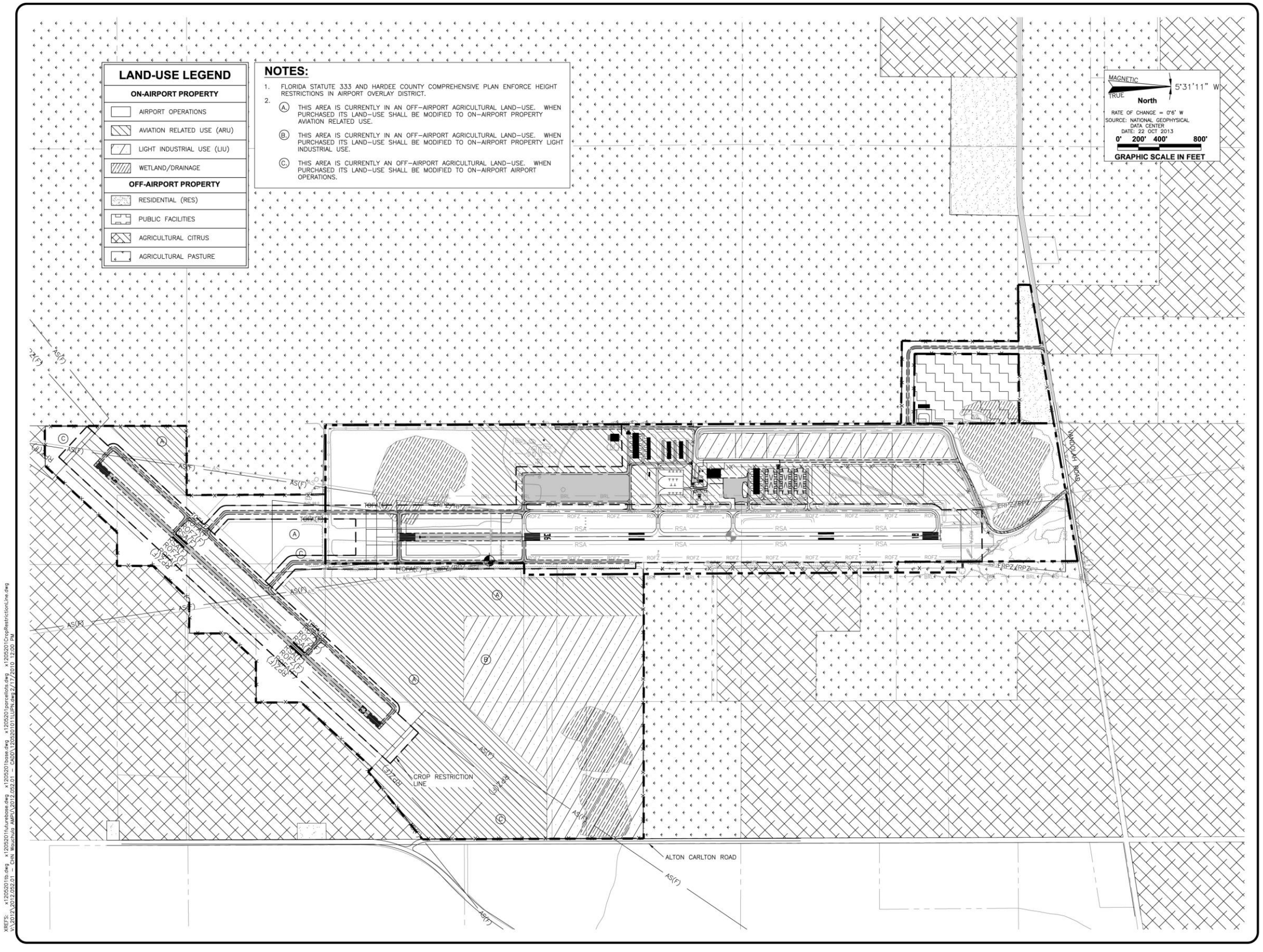

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CITY OF WAUCHULA FLORIDA

AVCON

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CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
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WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

LAND USE PLAN

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY:	MGS
DRAWN BY:	JEA
CHECKED BY:	CTS
APPROVED BY:	SS
DATE:	FEBRUARY 2014
FAA AIP NO.	3-12-0084-011-2012
FDOT FM NO.	432649-1
AVCON PROJECT NO.	2012.052.01
CADD FILENAME	1205201011LUPN

DRAWING
11
SHEET NO. 10 OF 12

LEGEND

DESIGN CRITERIA	EXISTING	FUTURE
AIRPORT PROPERTY BOUNDARY		
PAVEMENT EDGE		
RUNWAY OBJECT FREE AREA (OFA)	ROFA ROFA	ROFA(F)
RUNWAY OBSTACLE FREE ZONE (OFZ)	ROFZ ROFZ	ROFZ(F)
RUNWAY PROTECTION ZONE (RPZ)	RPZ RPZ	RPZ(F)
RUNWAY SAFETY AREA (RSA)	RSA	RSA(F)
BUILDING RESTRICTION LINE	BRL BRL	
THRESHOLD SITING SURFACE	TSS	
DEPARTURE SITING SURFACE	DSS	
APPROACH SURFACE	AS	AS(F)
TAXIWAY OBJECT FREE AREA	TOFA TOFA	TOFA(F)
FENCE	X X X X	X X X X
TREELINE/BRUSH BOUNDARY		
AIRPORT REFERENCE POINT (ARP)		
STORMWATER POND		
BUILDING/HANGAR/STRUCTURE		
BUILDING NUMBERING	1	14
WIND CONE – PRIMARY		
WIND CONE – SUPPLEMENTAL		
WETLAND AREA		
AVIATION RELATED DEVELOPMENT		
LAND ACQUISITION		
LIGHT INDUSTRIAL DEVELOPMENT		
FUTURE PAVEMENT		
DEMOLISH EXISTING PAVEMENT		

NOTES:

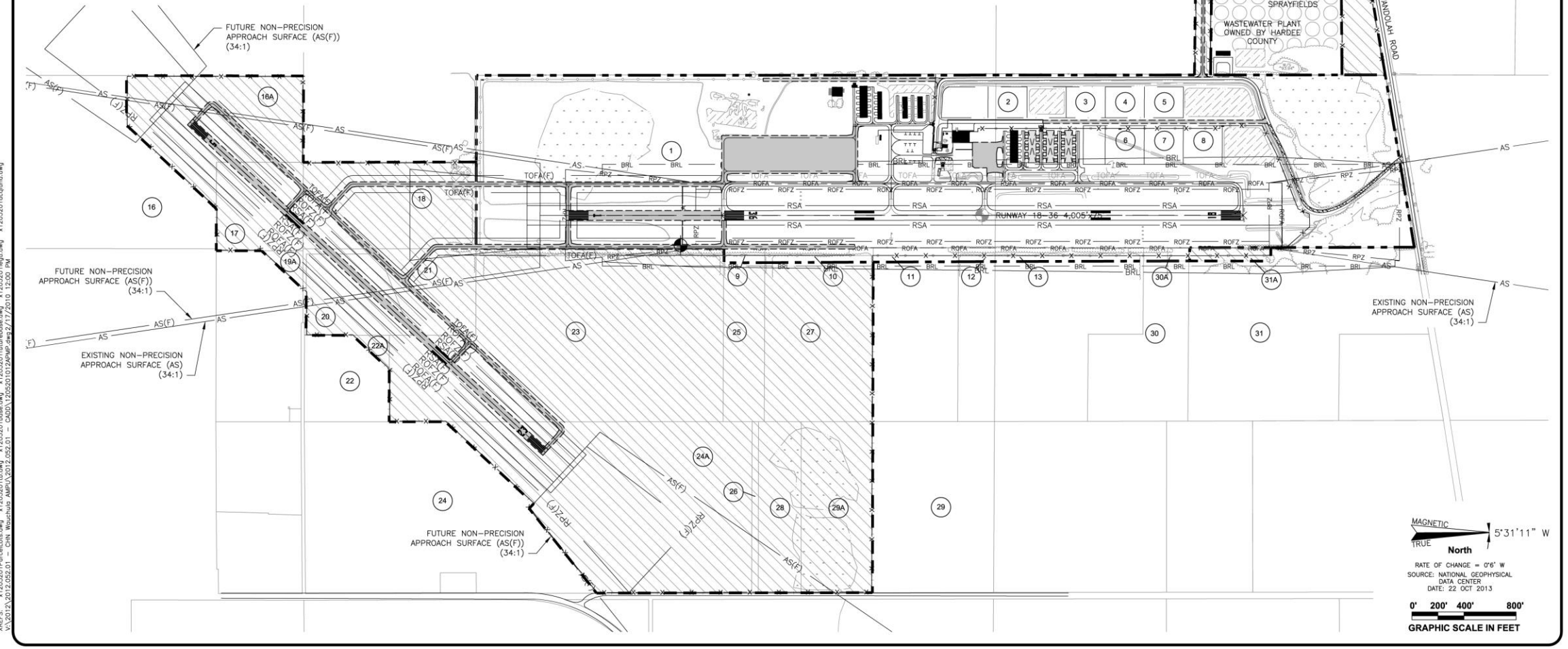
1. PROPERTY ACQUISITION HISTORY NEEDED FROM OWNER.
2. "A" ON PARCEL # INDICATES THAT ONLY A PORTION OF THE PARENT PARCEL WILL BE ACQUIRED.

PROPERTY INFORMATION

PARCEL #	ACQUISITION DATE	FAA AIP GRANT #	ACREAGE	OWNERSHIP TYPE	PURPOSE OF ACQUISITION
EXISTING					
1	5/1/1978			FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
2–8			N/A	TO BE LEASED	CURRENT/FUTURE DEVELOPMENT
9	7/1/2013	3–12–0084–011–2012	0.77	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
10	7/1/2013	3–12–0084–011–2012	2.03	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
11	7/1/2013	3–12–0084–011–2012	1.59	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
12	7/1/2013	3–12–0084–011–2012	0.69	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
13	7/1/2013	3–12–0084–011–2012	2.78	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
FUTURE					
14A			4.06	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
15			2.50	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
16A			35.71	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
17			10.23	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
18			20.00	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
19A			1.21	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
20			9.79	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
21			10.46	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
22A			1.03	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
23			68.19	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
24A			50.91	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
25			8.81	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
26			1.51	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
27			23.25	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
28			10.00	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
29A			16.67	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
30A			0.80	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT
31A			4.02	FEE SIMPLE	CURRENT/FUTURE DEVELOPMENT

SPONSOR APPROVAL
WAUCHULA MUNICIPAL AIRPORT AUTHORITY

CITY MANAGER _____ DATE _____



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CITY OF WAUCHULA FLORIDA

AVCON

AVCON, INC.
ENGINEERS & PLANNERS
5555 E. MICHIGAN ST., SUITE 200 - ORLANDO, FL 32822-2779
OFFICE: (407) 599-1122 - FAX: (407) 599-1133
CORPORATE CERTIFICATE OF AUTHORIZATION NUMBER: 5057
www.avconinc.com

WAUCHULA MUNICIPAL AIRPORT

WAUCHULA, FLORIDA

AIRPORT MASTER PLAN UPDATE

**EXHIBIT "A"
AIRPORT PROPERTY INVENTORY MAP**

SCALE: GRAPHIC

REVISIONS:

NO.	DATE	BY	DESCRIPTION

DESIGNED BY: MGS
DRAWN BY: JEA
CHECKED BY: CTS
APPROVED BY: SS
DATE: FEBRUARY 2014

FAA AIP NO. 3-12-0084-011-2012
FDOT FM NO. 432649-1
AVCON PROJECT NO. 2012.052.01
CADD FILENAME 1205201012APMP

DRAWING
12
SHEET NO. 11 OF 12

8. CAPITAL IMPROVEMENT PROGRAM

8.1 INTRODUCTION

The Capital Improvement Program (CIP) has been developed based on the needs of the Wauchula Municipal Airport as identified in the Facility Requirements chapter and justified in the Forecast of Aviation Activity chapter. The goal of this chapter is to:

- Provide a list of projects that will fulfill CIP requirements
- Give a brief description of each project
- Provide a general cost estimate of each project
- Give general financial guidance to airport management concerning potential funding sources
- Provide a recommended schedule that balances the need for a project with the prospects of available funds for the project

The various projects identified in the CIP are broken out over three time frames:

- Short-term (2013-2017) – five years
- Mid-term (2018-2022) – five years
- Long-term (2023-2032) – ten years

Although the implementation schedule presented in this chapter provides estimated time frames for initiating the proposed projects, continuous re-evaluation of the schedules will be necessary to account for changes in aviation demand, funding availability, and other unforeseen factors. Actual project implementation should generally occur just prior to when the actual need for an improvement is anticipated to occur and when funding for the project is available. This will allow the facility to be available just as the need is realized. Additionally other improvements not identified in this report may be needed over the planning period. All projects noted in this chapter are compatible with the development noted on the Airport Layout Plan (ALP) drawing. Certain projects may require an FAA approved amendment to the ALP. To the extent possible, the City should identify a continuing land purchase program in order to take advantage of any properties coming available throughout the life of the development program.

The project cost estimates presented in this chapter reflect a preliminary opinion of probable implementation costs. Among the items that are included in the implementation costs are construction costs, engineering, testing, and surveying fees, and a pricing allowance. All cost estimates are provided in 2013 dollars.

The projects have been scheduled in recognition of the probable availability of FAA and FDOT funds. Particularly within the short-term, it also recognizes the probable availability of local funding sources. It is possible that the City of Wauchula may identify additional resources and projects may be moved forward at that time.

8.2 SHORT-TERM PROJECTS (2013-2017)

The projects planned over the short-term time frame will become the basis for the FAA/FDOT JACIP process, where the appropriate funding can be programmed and applied

for following submittal and acceptance of this report. A probable breakdown of the funding sources for the individual projects is also presented in this chapter. The total project cost over the short-term time frame is estimated at $2.1 million. While cost estimates for the completed projects are provided, the exact scopes of these projects have yet to be completed, and will be subject to change. These projects costs are estimated as accurately as possible based upon available data. Prior to the initiation of these projects, a detailed engineering investigation may be needed to obtain a more detailed cost estimate.

S-1 Taxiways and Taxilanes (Phase 1) - Construction

Estimated Project Cost: $500,000

This project consists of the construction of the first phase of a taxiway and taxilane that will allow airside access to the next development of 10 T-hangar units to be located immediately north of the existing T-Hangar Building E. This project has already been designed.

S-2 Obstruction Removal - Design

Estimated Project Cost: $33,000

There are a number of obstructions at both runway ends. The FAA recently issues a Memorandum of Interim Policy Guidance for Mitigation of Penetrations to the 20:1 Visual Area Surface. This guidance indicates that obstructions that penetrate the Threshold Siting Surface (TSS) must be immediately removed, lighted, or lowered. If it the obstacle is not lighted, night operations are to be restricted. If the obstacles are not removed, the threshold of the runway must be displaced to accommodate the obstruction(s). Wauchula Municipal Airport currently has 24 obstructions to the Runway 18 TSS. Of these five are labeled as high risk as they penetrate the surface by more than 11 feet. There are also 12 obstructions to the Runway 36 TSS. Of these five are labeled as high risk as they penetrate the surface by more than 11 feet. This project would design a plan to remove or light all of the obstructions that currently penetrate the TSS as well as identify and mitigate any additional obstructions that may have grown.

S-3 Obstruction Removal – Construction

Estimated Project Cost: $1,000,000

This project would actually light or remove the 36 obstructions that penetrate the two TSSs.. Any additional obstructions as identified in Project S-2 will also be lighted or removed in this project.

S-4 Relocate Airport Entrance Road from RPZ – Environmental Assessment

Estimated Project Cost: $35,000

The FAA requires that prior to any work on an existing runway being approved for FAA funding, that any existing roads must be removed from the Runway Protection Zone (RPZ) or that a declared distance be implemented on that runway to avoid having a public road in the RPZ. Accordingly, before any rehabilitation or extension of Runway 18/36 can be reconsidered, the existing Airport entrance road must be relocated out of the RPZ of Runway 18. This specific project is the Environmental Assessment (EA) that FAA requires before the relocation. The purpose of the EA is to ensure that the relocation of the road does not adversely affect the environment by avoiding environmental issues, reducing their potential impact, or mitigating the impacts where they cannot be avoided.

S-5 Signage and Marking Improvements - Design

Estimated Project Cost: $60,000

The runway and taxiway signage and markings of the Airport require regular maintenance and upgrades to accommodate age, changes in technology, and changes in regulations. This project would bring the existing signage and airport markings up to current requirements and standards. This phase of the project would provide only the design of the project.

S-6 Relocate Entrance Road from RPZ – Land Acquisition

Estimated Project Cost: $153,100

It is assumed that additional land will be required to relocate the entrance road to the Airport as the remainder of the existing Airport frontage on Vandolah Road contains extensive wetlands. It is further assumed that the Environmental Assessment will have determined that these wetlands be avoided. Therefore, this project would provide for the purchase of additional property to accommodate the relocated entrance road based on the location shown in **Figure 8-1**.

S-7 Signage and Marking Improvements - Construction

Estimated Project Cost: $300,000.

This is the construction portion of the project described in Project S-5 above.

Table 8-1
SHORT-TERM CAPITAL IMPROVEMENT PROJECTS

Year	Project Number	Project Description	Estimated Project Cost
2013	S-1	Taxiway/Taxilanes (Phase 1) - Construction	$ 500,000
2015	S-2	Obstruction Removal - Design	$ 33,000
2015	S-3	Obstruction Removal - Construction	$ 1,000,000
2016	S-4	Relocate Entrance Road from RPZ - EA	$ 35,000
2016	S-5	Signage and Marking Improvements - Design	$ 60,000
2017	S-6	Relocate Entrance Road from RPZ – Land Acquisition	$ 153,100
2017	S-7	Signage and Marking Improvements - Construction	$ 300,000
		Total	$ 2,081,100

Figure 8-1
SHORT-TERM CAPITAL IMPROVEMENT PROGRAM PROJECTS

8.3 MID-TERM PROJECTS (2018-2022)

The mid-term projects have been identified for submittal to the FAA and FDOT for funding purposes. The sum of the development project costs and anticipated funding needs over the mid-term time frame is estimated to be approximately $7.6 million. Some of the projects identified as mid-term projects may move forward into the short-term as additional funds are identified. The primary focus of the mid-term program is the rehabilitation of Runway 18/36, transient aircraft parking apron expansion, and bringing utilities to the existing industrial park. **Figure 8-2** shows the location of the mid-term projects.

M-1 Relocate Entrance Road from RPZ - Design

Estimated Project Cost: $60,000

Once the EA is complete and any additional land is purchased, as tasked in Projects S-4 and S-6, the design of the relocation of the entrance road from the RPZ of Runway 18 can commence. This specific project includes only the design of the overall project.

M-2 Rehabilitate Runway 18/36 - Design

Estimated Project Cost: $200,000

Runway 18/36 was originally paved in 1990, over 20 years ago. Even the most well maintained runways need periodic rehabilitation. This project will rehabilitate the runway so that with regular maintenance it will be able to serve the Airport for another 20 years. This specific project includes only the design of the overall project.

M-3 Apron Expansion (Phases 1 and 2) - Design

Estimated Project Cost: $100,000

The apron in front of Harvest Aviation needs to be expanded to allow for the parking of additional transient aircraft. Phase 1 of the apron expansion project would design the expanded apron located north of the Harvest Aviation apron and south of Building E. The Phase 2 apron also designated for transient aircraft parking is located south of the Airport Office and would be located west of and parallel to Taxiway A.

M-4 Relocate Entrance Road from RPZ - Construction

Estimated Project Cost: $1,500,000

Construction of the relocated entrance road designed as part of Project M-1 will be accomplished in this project.

M-5 Water for Industrial Park Fire Suppression – Design and Construction

Estimated Project Cost: $2,500,000

Water for fire suppression will be required for the facilities that are constructed as part of the existing Industrial Park. Currently, the closest fire hydrant is located at the corner of West Main Street and Terrell Road. To bring the water into the property would be a distance of approximately 4.2 miles. This project would include both design and construction.

M-6 Three-Phase Power for Industrial Park – Design and Construction

Estimated Project Cost: $250,000

Three-phase power will be required for the facilities that are constructed as part of the existing Industrial Park. This project includes the design and construction.

M-7 Industrial Park Sanitary Sewer Completion – Design and Construction

Estimated Project Cost: $250,000

The existing Airport sanitary sewer system extends to the first row T-hangars located north of the Harvest Aviation Hangar. A lift station was included in the original project. However, the system needs to be extended north to the existing Airport entrance road. A stub out to service the west side of the industrial park will also be required.

M-8 Rehabilitate Runway 18-36 – Construction

Estimated Project Cost: $2,100,000

Construction of the project designed in Project M-2 will be accomplished in this project.

M-9 Apron Expansion (Phase 1) - Construction

Estimate Project Cost: $500,000

Phase 1 of the apron expansion project would design the expanded transient aircraft parking apron located north of the Harvest Aviation apron and south of Building E. This project would construct Phase 1 of the apron expansion.

M-10 Airport Master Plan 2021

Estimated Project Cost: $158,000

This project involves the development of a 20-year master plan update and the revision of the most current Airport Layout Plan.

M-11 Industrial Park Access Road - Design

Estimated Project Cost: $60,000

The construction of a new access road will facilitate vehicular access to the T-hangars and the implementation of new businesses on Airport property. This project provides for enhanced access to and from the light industrial park and aviation related land use along the parallel taxiway in the northern portions of the existing Airport property. This specific project is only for the design portions of the overall project.

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Table 8-2
MID-TERM CIP PROJECTS

Year	Project Number	Project Description	Estimated Project Cost
2018	M-1	Relocate Entrance Road from RPZ - Design	$ 60,000
2018	M-2	Rehabilitation of Runway 18/36 - Design	$ 200,000
2018	M-3	Apron Expansions (Phases 1 and 2) - Design	$ 100,000
2019	M-4	Relocate Entrance Road from RPZ - Construction	$ 1,500,000
2019	M-5	Water for Industrial Park Fire Suppression – Design and Construction	$ 2,500,000
2019	M-6	Three Phase Power for Industrial Park – Design and Construction	$ 250,000
2019	M-7	Industrial park Sanitary Sewer Completion – Design and Construction	$ 250,000
2020	M-8	Rehabilitate Runway 18-36 - Construction	$ 2,100,000
2021	M-9	Apron Expansion (Phase 1) - Construction	$ 500,000
2021	M-10	Airport Master Plan Update - 2021	$ 158,000
2022	M-11	Industrial Park Access Road - Design	$ 60,000
		Total	$7,678,000

Figure 8-2
MID-TERM CIP PROJECTS

8.4 LONG-TERM PROJECTS (2013-2032)

Based upon the anticipated need and available funding, many projects associated with the preferred alternative of development will be developed over the ten year long-term time frame. These projects have not been scheduled for specific years but are loosely prioritized. The total project development costs and funding needs over the long-term time frame is estimated at $24.3 million. The projects included in the long-term time frame are:

L-1 Industrial Park Access Road - Construction

Estimated Project Cost: $500,000.

The construction of the road described and designed in Project M-11 will be accomplished in this project.

L-2 Ten T-Hangar Units – Design and Construction

Estimated Project Cost: $1,000,000

This project consists of the design and construction of 10 T-hangar units to be located immediately north of the existing T-Hangar Building E.

L-3 Apron Expansion (Phase 2) - Construction
Estimated Project Cost: $500,000

Phase 2 of the transient aircraft parking apron expansion is located south of the Airport Office and would be located west of and parallel to Taxiway A. This specific project would construct this phase of the apron expansion designed in Project M-3.

L-4 Extend and Resurface Existing Entrance Road - Design

Estimated Project Cost: $100,000

Maurice Clavel Road, the existing Airport entrance road, will require resurfacing. This project will also include the extension of the entrance road south approximately 800 feet along the west side of the existing T-Hangar Buildings A, B, C, and D. The extension of the road will allow access to the southern portion of the Airport. This specific project will entail only the design of the overall project.

L-5 New Crosswind Runway – Environmental Assessment

Estimated Project Cost: $150,000.

This project will assess the environmental impacts of the construction of the crosswind runway. The results of the environmental analysis will lead to the selection of the exact runway location and orientation as well as the development of alternatives to avoid, reduce or mitigate the environmental impact associated with the new runway.

L-6 Extend and Resurface Existing Entrance Road - Construction

Estimated Project Cost: 500,000

This is the construction portion of the project described as Project L-4 above.

L-7 Automated Weather Observing Station – Purchase and Install

Estimated Project Cost: $125,000

An Automated Weather Observing Station (AWOS) broadcasts the local cloud ceiling, wind speed and direction, and barometric pressure to pilots and other interested parties in the vicinity of the Airport. This project consists of the purchase and installation of an AWOS at the Airport.

L-8 Ten T-Hangars – Design and Construction

Estimated Project Cost: $1,000,000

The design and construction of a 10-bay T-Hangar to the north of the hangars constructed in Project L-2 will be accomplished in this project.

L-9 Apron Expansions (Phases 3 and 4) - Design

Estimated Project Cost: $100,000

This apron expansion project is divided into two phases and both are located in line with and south of the Phase 2 apron expansion designed in Project M-3 and constructed in Project M-9.

L-10 New Crosswind Runway – Land Acquisition (Phase 1)

Estimated Project Cost: $2,378,000

It will be necessary to acquire additional parcels of land to provide sufficient space for the construction of the crosswind runway and supporting infrastructure. The final determination of the Environmental Assessment will largely determine the exact number of acres and the location of land that will need to be acquired. Due to the large amount of funds required, the purchase of land is split into two phases.

L-11 New Crosswind Runway – Environmental Mitigation

Estimated Project Cost: $250,000

Any environmental mitigation of wetlands, the relocation of protected species, or the mitigation of any other environmental impact will be identified in the Environmental Assessment completed in Project L-5. Once these factors have been assessed and every attempt has been made to avoid and/or reduce the impacts of the new crosswind runway, this project will mitigate any remaining impacts.

L-12 Rehabilitate Taxiway A – Design

Estimated Project Cost: $300,000

Taxiway A was developed and paved in 1994. While maintained well, the taxiway is currently 20 years old and will require rehabilitation. This project will design the proposed rehabilitation.

L-13 Apron Expansion (Phase 3) - Construction

Estimated Project Cost: $500,000

This project would construct Phase 3 of the apron expansion. Phase 3 is located in line with and south of the Phase 2 apron expansion designed in Project M-3 and constructed in Project M-9. It is also west of and parallel to Taxiway A.

L-14 New Crosswind Runway – Land Acquisition (Phase 2)

Estimated Project Cost: $2,497,000

This is the second phase of the acquisition of parcels of land necessary to provide sufficient space for the construction of the crosswind runway and supporting infrastructure. The final determination of the Environmental Assessment will largely determine the exact number of acres and the location of land that will need to be acquired. Due to the large amount of funds required, the purchase of land is split into two phases.

L-15 Rehabilitate Taxiway A – Construction

Estimated Project Cost: $2,215,000

This project will construct the rehabilitation of Taxiway A, which was designed in Project L-12.

L-16 New Crosswind Runway - Design

Estimated Project Cost: $577,500

The design of the new crosswind runway in the alternative determined by the Environmental Assessment will be accomplished in this project.

L-17 Apron Expansion Phase 4 - Construction

Estimated Project Cost: $500,000

Phase 4 of the transient aircraft parking apron expansion would be accomplished in this project. Phase 4 was designed as a part of Project L-9 and is located in line with and south of apron expansion Phase 3, constructed in Project L-13. It is also west of and parallel to Taxiway A.

L-18 New Crosswind Runway - Construction

Estimated Project Cost: $5,000,000

The construction of the new crosswind runway and associated taxiway system would be accomplished in this project.

L-19 Site Development Utilities (Phases 1 and 2) - Design

Estimated Project Cost: $40,000

This project consists of extending the utilities to the area comprised between Runway 18-36 and the new crosswind runway to be used for “Aviation Related” use and light industrial activity. This specific project is for the design only.

L-20 New Industrial Park Access Improvements – Environmental Assessment

Estimated Project Cost: $50,000.

An environmental assessment is required for the construction of new roadways to enable vehicular access to the new hangars or other miscellaneous buildings along the new crosswind runway. It will also enable access to the proposed light industrial park between the two runways. This specific project is for the environmental assessment portion of the overall project.

L-21 Site Development Utilities (Phase 1) - Construction

Estimated Project Cost: $720,000

The construction of the first phase of the site utilities for the new industrial park area located between Runway 18/36 and the new crosswind runway will be accomplished in this project as designed in Project L-19

L-22 Airport Master Plan Update 2025

Estimated Project Cost: $158,000

This project involves the development of a 20-year master plan update and the revision of the most current Airport Layout Plan.

L-23 Site Development Utilities (Phase 2) - Construction

The construction of the second phase of the site utilities for the new industrial park area located between Runway 18/36 and the new crosswind runway will be constructed in this project as designed in Project L-19 above.

L-24 New Industrial Park Access Improvements (Phases 1, 2, and 3) – Design

Estimated Project Cost: $177,500.

This project consists of the design portion of new roadways to enable the access to new hangars or other miscellaneous buildings along the new crosswind runway. It will also enable the access to the proposed light industrial park between the two runways.

L-25 Site Development Utilities (Phase 3) - Construction

The construction of the third phase of the site utilities for the new industrial park area located between Runway 18/36 and the new crosswind runway will be constructed in this project as designed in Project L-19 above.

L-26 New Industrial Park Access Improvements (Phase 1) – Construction

Estimated Project Cost: $532,500

The first phase of construction of the new roadways to enable the access to new hangars or other miscellaneous buildings along the new crosswind runway will be accomplished in this project. It will also enable the access to the proposed light industrial park between the two runways.

L-27 New Industrial Park Access Improvements (Phase 2) – Construction

Estimated Project Cost: $532,500

The second phase of construction of the new roadways to enable the access to new hangars, miscellaneous buildings, and a proposed light industrial park between the two runways will be accomplished in this project.

L-28 Airport Master Plan Update 2031

Estimated Project Cost: $158,000

This project involves the development of a 20-year master plan update and the revision of the most current Airport Layout Plan.

L-29 New Industrial Park Access Improvements (Phase 3) – Construction

Estimated Project Cost: $532,500

The third phase of construction of the new roadways to enable the access to new hangars, miscellaneous buildings, and a proposed light industrial park between the two runways will be accomplished in this project.

L-30 Taxiway/Taxilane (Phase 2) - Design

Estimated Project Cost: $146,000

This project consists of the design of the second phase of a taxiway and taxilane that will allow airside access to the next development of 10 T-hangar units to be located immediately north of the T-Hangar building constructed in Project L-2.

L-31 Taxiway/Taxilane (Phase 2) – Construction

Estimated project Cost: $1,204,000

The construction of the taxiway/taxilane (Phase 2), as described in Project L-30, will be accomplished in this project.

L-32 Ten T-Hangars – Design and Construction

Estimated Project Cost: $1,000,000.

Ten additional T-hangars will be designed and built immediately north of the T-hangars built in Project L-8.

Figure 8-3
LONG-TERM CIP PROJECTS

Table 8-3
LONG-TERM CIP PROJECTS

Project Number	Project Description	Estimated Project Cost
L-1	Industrial Park Access Road - Construction	$ 500,000
L-2	Ten T-Hangars - Design and Construction	$ 1,000,000
L-3-	Apron Expansion (Phase 2) - Construction	$ 500,000
L-4	Extend and Resurface Existing Entrance Road - Design	$ 100,000
L-5	New Crosswind Runway - EA	$ 150,000
L-6	Extend and Resurface Existing Entrance Road - Construction	$ 500,000
L-7	AWOS - Purchase and Install	$ 125,000
L-8	Ten T-Hangars - Design and Construction	$ 1,000,000
L-9	Apron Expansion (Phases 3 and 4) - Design	$ 100,000
L-10	New Crosswind Runway - Land Acquisition (Phase 1)	$ 2,378,000
L-11	New Crosswind Runway - Environmental Mitigation	$ 250,000
L-12	Rehabilitate Taxiway A - Design	$ 300,000
L-13	Apron Expansion (Phase 3) - Construction	$ 500,000
L-14	New Crosswind Runway - Land Acquisition (Phase 2)	$ 2,497,000
L-15	Rehabilitate Taxiway A - Construction	$ 2,215,000
L-16	New Crosswind Runway - Design	$ 577,500
L-17	Apron Expansion (Phase 4) - Construction	$ 500,000
L-18	New Crosswind Runway - Construction	$ 5,000,000
L-19	Site Development Utilities (Phase 1 and 2) - Design	$ 240,000
L-20	New Industrial Park Access Improvements - EA	$ 50,000
L-21	Site Development Utilities (Phase 1)- Construction	$ 720,000
L-22	Airport Master Plan Update 2025	$ 158,000
L-23	Site Development Utilities (Phase 2) - Construction	$ 720,000
L-24	New Industrial Park Access Improvements (Phases 1,2, & 3)- Design	$ 177,500
L-25	Site Development Utilities (Phase 3) - Construction	$ 720,000
L-26	New Industrial Park Access Improvements (Phase 1) - Construction	$ 532,500
L-27	New Industrial Park Access Improvements (Phase 2) - Construction	$ 532,500
L-28	Airport Master Plan 2031	$ 158,000
L-29	New Industrial Park Access Improvements (Phase 3) - Construction	$ 532,500
L-30	Taxiway/Taxilane (Phase 2) - Design	$ 50,000
L-31	Taxiway/Taxilane (Phase 2) - Construction	$ 500,000
L-32	Ten T-Hangars - Design and Construction	$ 1,000,000
	Total Long-term Projects	$24,283,500

8.5 FUNDING SOURCES

The Wauchula Municipal Airport relies primarily on revenues from tenants and funding from governmental sources. Funding from the FAA and state agencies such as the Florida Department of Transportation (FDOT) are very important to airports such as Wauchula

Municipal Airport. While the main revenue from tenant leases and fuel sales may cover operating costs and existing debt service, there are limited residual funds to cover the costs of necessary Airport capital improvement projects.

Based upon the type of project, these capital improvement projects may be eligible for FAA or FDOT funding. However, the Airport is competing with every other airport in the State and in the United States for the same funding. Because a project is eligible for Federal or State funding does not ensure that the funding will be received. The following sections describe several funding programs and general eligibility requirements associated with each.

8.3.1 Federal Funding

The Airport Improvement Program (AIP) developed by the FAA has been established to assist in the growth of public-use airports within the National Plan of Integrated Airport System (NPIAS). The AIP provides grants to public-use airports such as Wauchula Municipal Airport for a wide variety of airport improvement projects. Projects funded by the AIP include runway and taxiway rehabilitation and construction, land acquisition, planning and environmental studies, navigational aid installation, and airfield marking and signage projects. For small General Aviation (GA) airports such as Wauchula Municipal Airport the AIP will fund up to 90 percent of the eligible costs of the project. The remaining 10 percent is the responsibility of an airport's local governing body and potential matching monies from the State. Some of the projects over the 20-year planning period at the Airport that are eligible for AIP funding include the rehabilitation of Runway 18-36 and Taxiway A, the construction of the new crosswind runway, the construction of new taxiways, and also airfield marking and signage upgrades.

The AIP allows for the annual disbursement of $150,000 to applicable GA airports within the NPIAS. It is assumed that this program or one similar to it will continue throughout the planning period covered by this Master Plan Update. The annual $150,000 is referred to as Non-Primary Entitlement money. In order for an airport to receive this money it must be applied for each year. Additionally, the money may only be used towards the development of projects that are approved for federal funding under the AIP.

When entitlement funds are not sufficient to cover the costs of AIP eligible projects, airports can also request from the FAA special funds called discretionary funds. In order to allocate those additional grants, the FAA has developed a priority ranking system, which accounts for the type of project and airport. Projects concerning runway safety are generally the first priority. From these rankings the appropriate funds are distributed.

8.3.2 State Funding

Like the FAA, FDOT has established a program to support the funding of various airport improvement projects. The FDOT aviation grant program provides funding to four major types of projects: airport planning, airport improvement, land acquisition, and airport economic development. Examples of projects funded under these different categories that may apply to the Wauchula Municipal Airport include:

- **Airport Planning:** master plans, master drainage plans, and environmental assessments
- **Airport Improvements:** terminal building improvements and runway/taxiway construction
- **Land Acquisition:** acquisition of land, aviation easements, and mitigation land

- **Airport Economic Development:** hangar construction, industrial park infrastructure and building development and other the development of other facilities that will enhance economic impact

FDOT provides five percent of project costs when federal funding is available and when FAA funding is not available, FDOT usually funds 50 percent or 80 percent of the total cost. For some security projects, FDOT can fund up to 100 percent of a project. The remaining cost of a project is covered by local entities.

In addition to FDOT funding, the state of Florida has established numerous economic development programs to provide incentives for companies to locate to Florida. These programs are administered through Enterprise Florida, a public-private partnership responsible for leading Florida's statewide economic development efforts. Some of the programs administered by Enterprise Florida include:

- **Qualified Target Industry Tax Refund:** Available for companies that create high wage jobs in targeted high value-added industries
- **The High Impact Performance Incentive:** A negotiated grant used to attract and grow major high impact facilities in Florida
- **Qualified Defense Contractor Tax Refund:** Up to $5,000 is offered per job created or saved in Florida through the conversion of defense jobs to civilian production, the acquisition of a new defense contract, or the consolidation of a defense contract, which results in at least a 25 percent increase in Florida employment or a minimum of 80 jobs
- **Capital Investment Tax Credit:** is used to attract and grow capital-intensive industries in Florida
- **Enterprise Zone Incentives:** Assortment of tax incentives to businesses that choose to create employment within an enterprise zone, which is a specific geographic area targeted for economic revitalization such as Hardee County

While these programs are not meant to fund airport improvement projects, they may be utilized to fund commercial development areas, similar to those planned for the Airport. Further information regarding Enterprise Florida and their economic development programs can be found at www.eflorida.com

8.3.3 Third Party Funding

While the City of Wauchula does not typically have access to third party funding sources, the City does believe that for the installation of utilities it may be eligible for third-party funding. It is anticipated that this type of funding will be available for the utilities that will be required for the development of the industrial park locate to the west of the existing runway.

8.3.4 Local Funding

Depending on the type of project funding available, local funding sources may or may not account for a major part in the costs of an airport improvement project. Sources of local funding can vary over a diverse group from county and city governments to private investors. While it is usually necessary for an airport or its sponsor to cover some percentage of the costs associated with these projects, the local percentage is generally quite small compared to other entities.

The local share of airport improvement projects that receive FAA or FDOT funding are generally funded through the governing body of the airport. In this case, the City of

Wauchula would be responsible for funding the local share of the improvement projects. Other projects throughout the Airport that may receive additional funding from the City could include the development of infrastructure such as commercial and industrial development areas that would increase the number of revenue producing tenants on Airport property. How the City goes about funding their share of a project can vary.

Funding may be drawn from various sources or it may be drawn from programs such as issuing a development bond. Although issuing bonds is more common at larger commercial service airports, which produce large revenues as opposed to small GA airports, it remains a viable source of funding.

In the case of private developments on an airport, local funding may account for a much higher amount if not all of the funding necessary for certain developments. Historically, private investors are generally not a major source of funding for airport improvement projects unless they have a very significant impact on a particular current or future tenant. However a recent occurrence at more than one airport includes a private investor wishing to fully fund a development that is strictly an investment such as a T-hangar complex for subsequent lease, hangar, apron, or other facility.

8.6 POTENTIAL ALLOCATION OF FUNDING

Table 8-4 through **Table 8-6** provide a companion funding scenario for the short-, mid-, and long-term time frames based upon current programs and eligible funding sources. It should be noted that these current programs are subject to change and the CIP should be updated at least annually to adjust for changes in funding and priorities as necessary. In addition to the funding sources, the projected cost estimated for the various airport improvement projects are also provided. **Table 8-4** through **Table 8-6** provide an overview of grant funding and costs over the planning development period. These tables will need to be addressed continuously among all parties to the funding process.

At the Wauchula Municipal Airport, the proper management of funds is important to achieve self-sufficiency and to safely develop the Airport to match the projected growth over the planning period. It is recommended that the Airport apply for all available grant money for which it is eligible. It is also imperative that the Airport management meet often with the local representative of the FAA and FDOT to provide them with a clear, consistent vision of what the City desires to accomplish at the Airport.

By obtaining government assistance to fund airport improvements throughout the planning period, the ability of the Airport to progress toward operational and capital self-sufficiency will be greatly enhanced in future years. Additionally, a sound Capital Improvement Program may actually reduce the reliance of Wauchula Municipal Airport on governmental aid as the Airport continues to grow and mature as an economic engine.

Table 8-4
POTENTIAL ALLOCATION OF SHORT-TERM (2013-2017) CIP PROJECT FUNDING

Year	Project Number	Project Description	Estimated Project Cost	Probable FAA Participation	FAA Share		Probable FDOT Participation	FDOT Share	Probable Local Participation	Local Share
					GA Entitlement	Discretionary				
2013	S-1	Taxiway/Taxilanes (Phase 1) - Construction	$ 500,000	90%	$ 150,000	$ 300,000	5%	$ 25,000	5%	$ 25,000
2014		No Projects	$ -		$ -	$ -		$ -		$ -
	S-2	Obstruction Removal - Design	$ 33,000	90%	$ 29,700	$ -	5%	$ 1,650	5%	$ 1,650
2015	S-3	Obstruction Removal - Construction	$ 1,000,000	90%	$ 270,300	$ 629,700	5%	$ 50,000	5%	$ 50,000
		Total 2015 Projects	$ 1,033,000		$ 300,000	$ -		$ 51,650		$ 51,650
	S-4	Relocate Entrance Road From RPZ - EA	$ 35,000	90%	$ 31,500	$ -	5%	$ 1,750	5%	$ 1,750
2016	S-5	Signage and Marking Improvements - Design	$ 60,000	90%	$ 54,000	$ -	5%	$ 3,000	5%	$ 3,000
		Total 2016 Projects	$ 95,000		$ 85,500	$ -		$ 4,750		$ 4,750
	S-6	Relocate Entrance Road from RPZ - Land Acquisition	$ 153,100	90%	$ 137,790	$ -	5%	$ 7,655	5%	$ 7,655
2017	S-7	Signage and Marking Improvements - Construction	$ 300,000	90%	$ 76,710	$ 193,290	5%	$ 15,000	5%	$ 15,000
		Total 2017 Projects	$ 453,100		$ 214,500	$ 193,290		$ 22,655		$ 22,655
		Total Short-term Projects	$ 2,081,100		$ 750,000	$ 493,290		$ 104,055		$ 104,055
		Total Percentage	100%		36%	24%		5%		5%
		Average Annual Cost	$ 416,220		$ 150,000	$ 98,658		$ 20,811		$ 20,811

Table 8-5
POTENTIAL ALLOCATION OF MID-TERM (2018-2022) CIP PROJECT FUNDING

Year	Project Number	Project Description	Estimated Project Cost	Probable FAA Participation	FAA Share		Probable FDOT Participation	FDOT Share	Probable Third Party Participation	Probable Third Party Share	Probable Local Participation	Local Share
					GA Entitlement	Discretionary						
2018	M-1	Relocate Entrance Road from RPZ - Design	$ 60,000	90%	$ -	$ 54,000	5%	$ 3,000	0%	$ -	5%	$ 3,000
2018	M-2	Rehabilitation of Runway 18/36 - Design	$ 200,000	90%	$ 150,000	$ 30,000	5%	$ 10,000	0%	$ -	5%	$ 10,000
2018	M-3	Apron Expansions (Phases 1 and 2) - Design	$ 100,000	90%	$ -	$ 90,000	5%	$ 5,000	0%	$ -	5%	$ 5,000
		Total 2018 Projects	$ 360,000		$ 50,000	$ 174,000		$ 18,000		$ -		$ 18,000
2019	M-4	Relocate Entrance Road from RPZ - Construction	$1,500,000	90%	$ 50,000	$ 1,200,000	5%	$ 75,000	0%	$ -	5%	$ 75,000
2019	M-5	Water for Industrial Park Fire Suppression - Design & Construction	$2,500,000	0%	$ -	$ -	0%	$ -	90%	$2,250,000	10%	$ 250,000
2019	M-6	3-Phase Power for Industrial Park - Design and Construction	$ 250,000	0%	$ -	$ -	0%	$ -	90%	$ 225,000	10%	$ 25,000
2019	M-7	Industrial Park Sanitary Sewer Completion - Design & Construction	$ 250,000	0%	$ -	$ -	0%	$ -	90%	$ 225,000	10%	$ 25,000
		Total 2019 Projects	$4,500,000		$ 50,000	$ 1,200,000		$ 75,000		$2,700,000		$ 375,000
2020	M-8	Rehabilitate Runway 18-36 - Construction	$2,100,000	90%	$ 150,000	$ 1,740,000	5%	$ 105,000	0%	$ -	5%	$ 105,000
		Total 2020 Projects	$2,100,000		$ 150,000	$ 1,740,000		$ 105,000		$ -		$ 105,000
2021	M-9	Apron Expansion (Phase 1) - Construction	$ 500,000	90%	$ 150,000	$ 300,000	5%	$ 25,000	0%	$ -	5%	$ 25,000
2021	M-10	Airport Master Plan Update - 2021	$ 158,000	90%	$ -	$ 142,200	5%	$ 7,900	0%	$ -	5%	$ 7,900
		Total 2021 Projects	$ 658,000		$ 150,000	$ 442,200		$ 32,900		$ -		$ 32,900
2022	M-11	Industrial Park Access Road - Design	$ 60,000	0%	$ -	$ -	50%	$ 30,000	0%	$ -	50%	$ 30,000
		Total 2022 Projects	$ 60,000		$ -	$ -		$ 30,000		$ -		$ 30,000
		Total Mid-term Projects	$7,678,000		$ 600,000	$ 3,556,200		$ 260,900		$2,700,000		$ 560,900
		Total Percentage	100%		8%	46%		3%		35%		7%
		Average Annual Cost	$1,535,600		$ 120,000	$ 711,240		$ 52,180		$ 540,000		$ 112,180

Table 8-6
POTENTIAL ALLOCATION OF LONG-TERM CIP PROJECT FUNDING

Project Number	Project Description	Estimated Project Cost	FAA Share			Probable FDOT Participation	FDOT Share	Probable Local Participation	Local Share
			Probable FAA Participation	GA Entitlement	Discretionary				
L-1	Industrial Park Access Road - Construction	$ 500,000	0%	$ -	$ -	80%	$ 400,000	20%	$ 100,000
L-2	Ten T-Hangars - Design and Construction	$ 1,000,000	0%	$ -	$ -	80%	$ 800,000	20%	$ 200,000
L-3	Apron Expansion (Phase 2) - Construction	$ 500,000	90%	$ 300,000	$ 150,000	5%	$ 25,000	5%	$ 25,000
L-4	Extend and Resurface Existing Entrance Road - Design	$ 100,000	0%	$ -	$ -	50%	$ 50,000	50%	$ 50,000
L-5	New Crosswind Runway - EA	$ 150,000	90%	$ 135,000	$ -	5%	$ 7,500	5%	$ 7,500
L-6	Extend and Resurface Existing Entrance Road - Construction	$ 500,000	0%	$ -	$ -	50%	$ 250,000	50%	$ 250,000
L-7	AWOS - Purchase and Install	$ 125,000	90%	$ 112,500	$ -	5%	$ 6,250	5%	$ 6,250
L-8	Ten T-Hangars - Design and Construction	$ 1,000,000	0%	$ -	$ -	80%	$ 800,000	20%	$ 200,000
L-9	Apron Expansion (Phases 3 and 4) - Design	$ 100,000	90%	$ 52,500	$ 37,500	5%	$ 5,000	5%	$ 5,000
L-10	New Crosswind Runway - Land Acquisition (Phase 1)	$ 2,378,000	90%	$ 150,000	$ 1,990,200	5%	$ 118,900	5%	$ 118,900
L-11	New Crosswind Runway - Environmental Mitigation	$ 250,000	90%	$ 150,000	$ 75,000	5%	$ 12,500	5%	$ 12,500
L-12	Rehabilitate Taxiway A - Design	$ 300,000	90%	$ 150,000	$ 120,000	5%	$ 15,000	5%	$ 15,000
L-13	Apron Expansion (Phase 3) - Construction	$ 500,000	90%	$ -	$ 450,000	5%	$ 25,000	5%	$ 25,000
L-14	New Crosswind Runway - Land Acquisition (Phase 2)	$ 2,497,000	90%	$ 150,000	$ 2,097,300	5%	$ 124,850	5%	$ 124,850
L-15	Rehabilitate Taxiway A - Construction	$ 2,215,000	90%	$ -	$ 1,993,500	5%	$ 110,750	5%	$ 110,750
L-16	New Crosswind Runway - Design	$ 577,500	90%	$ -	$ 519,750	5%	$ 28,875	5%	$ 28,875
L-17	Apron Expansion (Phase 4) - Construction	$ 500,000	90%	$ -	$ 450,000	5%	$ 25,000	5%	$ 25,000
L-18	New Crosswind Runway - Construction	$ 5,000,000	90%	$ 150,000	$ 4,350,000	5%	$ 250,000	5%	$ 250,000
L-19	Site Development Utilities (Phase 1 and 2) - Design	$ 240,000	90%	$ -	$ 216,000	5%	$ 12,000	5%	$ 12,000
L-20	New Industrial Park Access Improvements - EA	$ 50,000	0%	$ -	$ -	50%	$ 25,000	50%	$ 25,000
L-21	Site Development Utilities (Phase 1)- Construction	$ 720,000	0%	$ -	$ -	50%	$ 360,000	50%	$ 360,000
L-22	Airport Master Plan 2025	$ 158,000	90%	$ 142,200	$ -	5%	$ 7,900	5%	$ 7,900
L-23	Site Development Utilities (Phase 2) - Construction	$ 720,000	0%	$ -	$ -	50%	$ 360,000	50%	$ 360,000
L-24	New Industrial Park Access Improvements (Phases 1,2, & 3)- Design	$ 177,500	0%	$ -	$ -	50%	$ 88,750	50%	$ 88,750
L-25	Site Development Utilities (Phase 3) - Construction	$ 720,000	0%	$ -	$ -	50%	$ 360,000	50%	$ 360,000
L-26	New Industrial Park Access Improvements (Phase 1) - Construction	$ 532,500	0%	$ -	$ -	50%	$ 266,250	50%	$ 266,250
L-27	New Industrial Park Access Improvements (Phase 2) - Construction	$ 532,500	0%	$ -	$ -	50%	$ 266,250	50%	$ 266,250
L-28	Airport Master Plan 2031	$ 158,000	90%	$ 7,800	$ 134,400	5%	$ 7,900	5%	$ 7,900
L-29	New Industrial Park Access Improvements (Phase 3) - Construction	$ 532,500	0%	$ -	$ -	50%	$ 266,250	50%	$ 266,250
L-30	Taxiway/Taxilane (Phase 2) - Design	$ 50,000	90%	$ -	$ 45,000	5%	$ 2,500	5%	$ 2,500
L-31	Taxiway/Taxilane (Phase 2) - Construction	$ 500,000	90%	$ -	$ 450,000	5%	$ 25,000	5%	$ 25,000
L-32	Ten T-Hangars - Design and Construction	$ 1,000,000	0%	$ -	$ -	80%	$ 800,000	20%	$ 200,000
	Total Long-term Projects	$24,283,500		$1,500,000	$ 13,078,650		$ 5,902,425		$ 3,802,425
	Total Percentage	100%		6%	54%		24%		16%