

MASTER PLAN UPDATE

Prepared for the

Hendry County Board of County Commissioners 25 East Hickpochee Street LaBelle, Florida 33975



Prepared by



September 2005

AIRGLADES AIRPORT MASTER PLAN UPDATE Prepared for the: HENDRY COUNTY BOARD OF COUNTY COMMISSIONERS **25 East Hickpochee Street** LaBelle, Florida 33975 **Prepared by:** URS **Airport Consultants** September 2005

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SECTION 1.0 INTRODUCTION, CONCLUSIONS, AND RECOMMENDATIONS

SECTION 1.0

INTRODUCTION, CONCLUSIONS, AND RECOMMENDATIONS

1.1 INTRODUCTION

This Master Plan Update for Airglades Airport will serve as a management guide for airport development. The anticipated aviation needs of the Airglades Airport have been identified, and the actions that should be undertaken to accommodate these needs have been organized into a programmed development plan.

The planning study period is for a 20-year period, with consideration of site capabilities beyond 2021. Development priorities, staging plans, and cost estimates are included for improvements proposed in the study. The short-term schedule and cost estimates are presented in sufficient detail for state and federal pre-application funding requests.

This study was conducted following procedures, guidelines, and criteria as set forth by the Federal Aviation Administration (FAA) and the Florida Department of Transportation (FDOT). The FDOT and the Hendry County Board of County Commissioners have financed this Master Plan Update.

1.2 PURPOSE AND GOALS OF THE STUDY

The purpose of this study is to update the 1993 Airport Master Plan Update and the 1995 Airport Layout Plan (ALP) Update to reflect conditions that may have changed since those studies were completed. The study will evaluate the Airglades Airport and determine improvements that are needed for the airport to continue to provide a reliable level of service.

The goals of the study are outlined as follows:

- Inventory and consider pertinent information and data as it relates to the airport and its environs.
- Collect and analyze aviation and socioeconomic data and evaluate the area's potential to generate aviation activity. Forecast the degree of aviation activity for the planning period.
- Evaluate and recommend actions and/or improvements needed to provide adequate facilities for current and projected demands.
- Update the ALP to reflect existing and proposed conditions, incorporating current FAA airport design standards.
- Schedule priorities and phasing of proposed developments and estimate development costs.

1.3 PREVIOUS PLANNING STUDIES

It is important to review the studies and recommendations that have been developed in the past because they have served to shape the airport as presently operated. Some of these recommendations are still under consideration. The following is a summary of the recommendations of prior planning studies.

1.3.1 1993 Master Plan Update

An Airport Master Plan Update for the Airglades Airport was completed in June 1993. The following is a list of items discussed in the previous Master Plan Study:

Forecasted Levels of Activity

- Total annual aircraft operations were projected to increase from 10,000 in 1990 to 50,000 in 2010.
- Total based aircraft were projected to increase from 16 in 1990 to 80 aircraft in 2010.

Recommended Short-Range Capital Improvements (1990-1995)

- Construct Runway 13/31 extension (3,000 feet x 100 feet)
- Overlay and widen existing runway
- Construct new parallel taxiway system (8,700 feet x 35 feet)
- Install medium-intensity runway lights (MIRL) and medium-intensity taxiway lights (MITL)
- Install VASI
- New electrical vault
- Reopen and stabilize Runway 4/22
- Construct aircraft parking apron addition (22,290 square yards (sy))
- Install 10 T-hangar units
- Construct automobile parking area (781 sy)
- Install lighted wind cone/segmented circle
- Install security fencing (19,000 linear feet (lf))

Recommended Intermediate-Range Capital Improvements (1995-2000)

- Pave turf runway (4,800 feet x 75 feet)
- Install REILs
- Construct aircraft parking apron addition (6,810 sy)

- Install 2 T-hangar units
- Construct additional automobile parking area (391 sy)
- Install Non-Directional Beacon

Recommended Long-Range Capital Improvements (2000-2010)

- Terminal building addition (840 square feet (sf))
- Construct aircraft parking apron addition (15,660 sy)
- Install 3 T-hangar units
- Construct additional automobile parking area (1,278 sy)

The airport realized numerous improvements recommended in the Master Plan, including extension of the runway and taxiway, installation/rehabilitation of airfield lighting, and construction of additional aircraft storage hangars.

1.3.2 1995 Airport Layout Plan Update

An ALP Update and narrative report was completed in June 1995. The following is a list of items recommended in the study:

Forecasted Levels of Activity

- Total annual aircraft operations were projected to increase from 16,041 in 1994 to 58,212 in 2015
- Total based aircraft were projected to increase from 24 in 1994 to 51 aircraft in 2015

Recommended Short-Range Capital Improvements (1990-1995)

- Security fencing
- Stabilize Runway 4/22
- Rehabilitate/expand existing apron
- Construct loading apron for agricultural aircraft
- Remove existing fuel tanks, install new tanks and washrack
- Construct T-hangars
- Airport Master Plan Update
- Infrastructure (install/rehabilitate potable water system)
- General aviation terminal expansion and auto parking

- Construct corporate hangars
- Hangar removal and demolition
- General aviation area (future)
- Construct hangars
- Construct wastewater treatment facility

Recommended Mid-Range Capital Improvements

- Ultimate apron expansion east of terminal
- Construct tie-down area
- Construct auto parking
- Construct T-hangars
- Future Fixed Based Operator (FBO) area (northeast quadrant) including connector taxiway
- Airport entrance road improvements
- Airport identification sign

Recommended Long-Range Capital Improvements

- Environmental Assessment (extend and pave Runway 4/22)
- Pave Runway 4/22 (4,400 feet) and construct parallel taxiway
- Construct auto parking
- Future FBO apron area (northeast quadrant)
- Future corporate aviation area
- Ultimate corporate aviation area

The airport implemented several improvements identified in the ALP Update report including the expansion and rehabilitation of the aircraft parking apron and the installation of a new fuel farm.

1.4 CONCLUSIONS AND RECOMMENDATIONS

The following is a summary of the conclusions and recommendations for this Airglades Airport Master Plan Update.

1.4.1 Conclusions

Several conclusions can be made based on the work performed for this Master Plan update. These are summarized below.

- The airfield infrastructure (i.e., runways, taxiways, edge lighting, etc.) is generally in good to excellent condition. The County should continue efforts to maximize the life of the existing infrastructure through routine maintenance and periodic rehabilitation.
- Annual aircraft operations are projected to increase from 2001 levels of 11,527 to approximately 27,000 in 2021. Based aircraft are projected to increase from 30 to 60 during this same period.
- Based on a review of available wind data and input from users and airport management, a crosswind runway would improve wind coverage at the airport. The reopening of Runway 4/22 was cited locally as a desired improvement for the airport.
- Hendry County has requested that the FAA establish non-precision approaches for Runway 13/31. Based on input from users and airport management, long-term planning includes a precision approach (using GPS technology) for Runway 13/31.
- Hendry County is currently developing a new terminal building to improve public facilities for pilots, businesses, and the traveling public. A modern and efficient terminal facility also supports strategic economic development efforts at the airport and in the County.
- A demand for additional T-hangar space at the Airglades Airport was noted during the preparation of this Master Plan Update. Given the relatively low level of activity at the airport, proposed hangars and related facilities should be developed as demand dictates.
- The Airglades Industrial Park presents an opportunity to attract and develop aviationrelated industry at the airport. Airfield access and related infrastructure should be developed as demand dictates and to accommodate the specific needs of a locating industry.

1.4.2 Recommendations

A summary of the recommended capital improvement projects is provided below. The projects, grouped to reflect short-, intermediate-, and long-term implementation plans, are detailed in Sections 7 and 9.

Recommended Short-Range Capital Improvements

Improve Runway 13/31 Safety Area, Phase 1 – Design (funded by FY 2003 AIP grant)				
Construct New Access Road				
Improve Runway 13/31 Safety Area, Phase 2 – Construction (planned to be funded by FY 2004 AIP grant)				
Construct New Access Road				
Acquire Land to Remove Tower				
Construct T-Hangars (10-Units)				
VOR-DME Approach				
Install Runway End Identifier Lights – Runway 13/31				
Construct Hangars (As Needed)				
Construct Aircraft Wash Rack				
Seal Coat Runway 13/31				
Stabilize and Rehabilitate Turf Runway 4/22				
Construct T-Hangars (10 Units)				
Install Entrance Sign / Airport ID at US 27				
Terminal Landscaping				
Construct Airfield Maintenance Building				
Rehabilitate and Expand Existing General Aviation Apron				
Construction of Corporate Hangar (80' x 80')				

Recommended Intermediate-Range Capital Improvements

Install Security Lighting and Upgrade Fencing Install Emergency Back-Up Generator Construct Airport Access Road Drainage Improvements Design and Construct T-Hangars (10-Units) Master Plan Update Seal Coat Taxiway "A" and Connectors Seal Coat Taxiway "S" Rehabilitate and Overlay Taxiway to Turf Runway Construct Hangars (As Needed) Construct Additional Automobile Parking Space **Construct Helicopter Pads Recommended Long-Range Capital Improvements** Construct T-Hangar (10 Units) Construct Hangars (As Needed) Rehabilitate and Replace Runway Lighting (MIRL) and Signage Rehabilitate and Replace Taxiway Edge Lighting (MITL) Expand General Aviation Apron Northeast of Terminal Extend and Pave Runway 4/22 Construct Runway 4/22 Parallel Taxiway

1.5 ORGANIZATION OF THE REPORT

In order to help the readers understand the organization of this document and be able to locate information of particular interest, a brief overview of each section is provided below:

<u>Introduction</u> – This section describes the purpose of the Master Plan, findings of prior airport development studies, and organization of the document.

Airport Inventory – This section presents an inventory of existing facilities at the airport.

<u>Aviation Forecast</u> – This section presents historical information and projects aviation activity over the 20year planning period.

Demand/Capacity Analysis and Facility Requirements – This section evaluates the ability of the airport to accommodate current and projected demand. The need for new or improved facilities is also identified.

<u>Alternatives</u> – This section describes alternatives developed as a result of the recommendations for new or improved facilities. On-airport land use development is also considered.

Environmental Overview – This section provides an overview of the likely environmental consequences expected to result from implementation of the preferred alternative.

Development Plan – This section details the selected development alternative into a long-range plan. The development plan will discuss the overall concept plan for the airport, as well as specific development plans (e.g., airspace plan and land use plan).

<u>Staging Plan and Cost Estimate</u> – This section presents a list of planned projects for short-term, intermediate, and long-term time frames. Cost estimates for the projects and a Capital Improvement Plan are also provided.

Appendices included provide supporting materials, technical data, and correspondence with agencies.

SECTION 2.0 AIRPORT INVENTORY

SECTION 2.0

AIRPORT INVENTORY

2.1 INTRODUCTION

The Airglades Airport (Airport Identifier 2IS) is owned and operated by the Hendry County Board of County Commissioners. The airport serves the general aviation transportation needs of Hendry County, the City of Clewiston, and the business community and organizations that utilize the airport and adjacent industrial park. Aviation tenants include a nationally-renowned company specializing in providing sky diving instruction and services. The airport also provides space for private and corporate tenants.

The Fixed Base Operator (FBO), Air Adventures of Clewiston, Inc., provides general aviation services such as: fueling, aircraft storage facilities, and aircraft maintenance services (airframe and powerplant). Air Adventures of Clewiston also provides sky diving instruction, services, and flights. The company hosts several large sky diving events at the airport throughout the year.

The Airglades Airport Industrial Park serves the local industrial and business community. The industrial park, when completed, will provide development sites for a variety of industrial users, including those requiring airfield access.

This section presents a brief developmental history of the airport and descriptions of the following: the area surrounding the airport, existing on-airport facilities, on-airport utilities services, meteorological conditions, and airspace and obstructions in the vicinity of the airport.

2.2 HISTORY OF THE AIRPORT

The U.S. Army Air Corps established the Airglades Airport in the 1940's as a training facility for British pilots. The original airfield was comprised of two sod runways and support facilities for instruction and housing.

After the second World War, the airport was owned and operated by the State of Florida. The facilities were leased to the Florida Conservation School until 1962, when the Hendry County Board of Commissioners requested that the airport be granted to the County. The County has leased the facilities to several schools since 1962. The education facilities have been demolished and schools no longer operate at the airport.

Completed and ongoing Federal- (Airport Improvement Program (AIP)) and state-funded projects and/or actions over the past 25+ years are briefly discussed in the following paragraphs:

<u>1964</u>

Runway 13/31 paved and lighted with federal assistance providing a 3,000-foot by 75-foot asphalt surface.

<u>1975</u>

Turf runway (Runway 4/22) closed.

<u> 1976 – 2000</u>

Runway 13/31, Taxiways "A", "B", and "C" overlaid. The existing aprons rehabilitated. Demolition of school buildings and infrastructure. Extension of Runway 13/31 to its present length. Airfield lighting systems (runway and taxiway) rehabilitated. Hangar construction and corporate aviation facilities developed. General aviation aircraft parking apron expansion/rehabilitation.

<u>2001</u>

Relocation of fuel farm. Installation of AWOS-III/PT. General aviation aircraft parking apron rehabilitation and expansion (including drainage improvements). Rotating beacon installed.

<u>2002</u>

Construction of concrete remote loading ramp east of existing T-hangars. Construction of automobile parking lot north of terminal building and west of aircraft parking apron.

2.3 CHARACTERISTICS OF THE EXISTING AIRPORT

The Airglades Airport is located in South Florida, approximately 6 miles west of the City of Clewiston in the northeast portion of Hendry County. **Figure 2.1** illustrates the location of Clewiston and its relationship to major cities in the region, and surrounding major roadways.

The existing airport facilities are shown in **Figure 2.2**. The airport property (including the industrial park) consists of approximately 2,485 acres. The airport is basically laid out in a configuration typical of many World War II-era military training fields. Terminal facilities are located on the north side of the airfield and generally consist of a terminal building, hangars, aircraft parking apron, and support facilities. Surrounding land use is predominantly agricultural.

The airport has an elevation of approximately 19.8 feet above mean sea level (MSL) (NGVD 88). The Airport Reference Point (ARP) is located at N 26° 44' 05.38" W 81° 03' 04.59"

The Airglades Airport can be classified as a general utility general aviation airport. Two corporate tenants have turbojet aircraft based at the airport – a Citation XL and a Citation V. According to airport records and available information, the airport had 29 based aircraft and experienced 11,527 aircraft operations in 2001. The current Airport Layout Plan (ALP) lists the existing Airport Reference Code as B-II. Airport Reference Code classifications are described in Section 4.2.1 of this report.



J: \AIRGLADES AIRPORT MPU\CAD\EXHIBITS\FIG 2.1.DWG 12/17/03 10:11



RGLADES AIRPORT MPU\CAD\EXHIBITS\FIG 2.2.DWG 12/17/03 09:52

	AIRGLADES AIRPORT HENDRY COUNTY BOARD OF COUNTY COMMISSIONERS Master Plan Update
	EXISTING FACILITIES
AIRPORT PROPERTY LINE	FIGURE 2.2

2.4 EXISTING AIRFIELD FACILITIES

2.4.1 Runways

As shown in **Figure 2.2**, the airfield has one paved (asphalt) runway and one closed turf runway. **Table 2.1** summarizes the existing airfield pavement characteristics.

Runway 13/31 has a length of 5,905 feet and a width of 75 feet. Its current design strength is reported on the ALP (Post, Buckley, Shuh & Jernigan, Inc., 1998) to be 22,000 pounds Dual Wheel Load. The pavement surface is in excellent condition (Eckrose/Green Associates, 1999). The runway is marked with non-precision markings which are slightly faded. There are no displaced thresholds on the runway. The reported design strength of Runway 13/31 appears to be sufficient to serve the general aviation aircraft that currently operate at the airport.

Runway 4/22 is not operational. The closed runway had a reported length of 2,960 feet and a width of 150 feet. The turf runway appears to be in fair condition and is maintained (mowed) on a regular basis.

2.4.2 Taxiways

Table 2.1 summarizes the existing airfield pavement characteristics as shown in **Figure 2.2**, including taxiways. Taxiway "A" is a full-length parallel taxiway for Runway 13/31. The taxiway is approximately 7,010 feet in total length (including connectors to runway thresholds) by 40 feet wide. Taxiway "A" has a taxiway-to-runway centerline separation distance of 525 feet. Taxiway "A1" is a connector taxiway from Taxiway "A" and Taxiway "S" to Runway 13/31. Taxiway "A2" provides east/west access from the passenger terminal building/FBO to Taxiway "A," Runway 13/31, and Runway 4/22. Taxiway "A3" provides north/south access from the passenger terminal building/FBO to Taxiway "A," and Runway 13/31. Taxiway "A2" provides access from the corporate aviation area to Taxiway "A" and Taxiway "A2."

A taxilane provides access to the maintenance hangar, storage hangars, and fuel farm from the terminal building and Taxiways "A" and "A2." The asphalt pavement is approximately 730 feet x 40 feet in size and is in excellent condition.

Generally, the taxiway pavements are in excellent condition (Ekrose/Green Associates, 1999). The taxiway markings are slightly faded.

2.4.3 Aircraft Parking Aprons and Tie-Downs

The general aviation aircraft parking area is located on the north side of the airfield, north of the passenger terminal building. The apron is rectangular in shape and is approximately 4,888 square yards in size and has 15 anchor tie-down positions for transient and based aircraft. The apron is constructed of asphalt and has been recently seal coated and is striped for circulation and parking. Apron lighting is provided by three pole-mounted lights.

TABLE 2.1 **EXISTING AIRFIELD CHARACTERISTICS Airglades Airport**

Airfield	Pavement	l ength/Width	Blast Pads/	Design Strength	Pavement	Average PCI (1999)	Liahtina	Description/Notes
_	13/31	5,905' x 75'	None	22,000 lbs. dual wheel	Asphalt	98-100	MIRL	Primary Runway
Runways	4/22	2,960' x 150'	None	n/a	Turf	n/a	None	Turf Runway (CLOSED)
	А	7,010' x 40'		22,000 lbs. dual wheel	Asphalt	93-100	MITL	Parallel TW for RW 13/32
	A1	550' x 35'		22,000 lbs. dual wheel	Asphalt	99	MITL	Access TW to RW 13/32
	A2	2,030' x 35'		22,000 lbs. dual wheel	Asphalt	90	MITL	Access TW to RW 13/32
Taxiways	A3	1,690' x 35'		22,000 lbs. dual wheel	Asphalt	100	MITL	Access TW to RW 13/32
	S	1,480' x 40'		22,000 lbs. dual wheel	Asphalt	98	MITL	Access TW to Corporate
	Taxilane	730' x 40'		22,000 lbs. dual wheel	Asphalt	65	MITL	Access TW to Fuel/ Maintenance Hangar
Apron	General Aviation	4,888 SY			Asphalt	Not inspected	Area Lighting	Aircraft Parking Apron
	Terminal Apron	3,300 SY			Asphalt	58	Area Lighting	Terminal Area Parking
	Corporate Apron	4,750 SY			Asphalt	Not inspected	Area Lighting	Corporate Access/Parking
	Remote Parking Apron	1,133 SY		65,000 lbs. Dual Wheel	Concrete	Not inspected		Aircraft Parking Apron
	Fueling Apron				Concrete	Not inspected	Area Lighting	Aircraft Fueling

n/a = not applicable.

 Pavement strength as reported on Airport Layout Drawing dated April 1998.
 Apron area dimensions not surveyed.
 PCI = Pavement Condition Index. Notes:

Source: URS Corporation, 2002. Eckrose/Green Associates, 1999.

Parking for itinerant and passenger loading/unloading aircraft is available in front of the terminal building. The parking area is generally triangular in shape and is bounded by apron taxiways to the west and east and the terminal building to the north. The asphalt apron is approximately 3,300 square yards in size and is in good condition (Eckrose/Green Associates, 1999).

A remote aircraft loading apron has been constructed adjacent to the access taxiway between Taxiway "A" and the T-hangars. The concrete apron is 1,133 square yards in size and provides parking space for approximately three aircraft. The pavement strength is 65,000 pounds Dual Wheel. The pavement section is 9 inches of concrete over 6 inches of stabilized base.

A concrete apron is located at the new fuel farm. The apron provides access and parking for aircraft fueling at the self-service pumps. The concrete pavement provides durability and resistance to fuel spills. The area of the apron is approximately 313 square yards. The pavement section is 6 inches of concrete over stabilized base.

Approximately 9,321 square yards of public aircraft parking apron are in place at the airport. **Table 2.1** summarizes the existing airfield pavement characteristics, including apron areas. **Table 2.2** provides a summary of the aircraft parking positions and pavement condition for the public aprons.

Apron	Apron Size (SY)	Approximate Spaces	Туре
GA Parking	4,888	15	Paved local and Itinerant parking
Terminal	3,300	5	Paved itinerant parking
Remote Apron	1,133	3	Concrete remote loading
Total	9,321	23	

TABLE 2.2 PUBLIC AIRCRAFT PARKING APRON SUMMARY Airglades Airport

2.4.4 Airfield Lighting

Approach Lighting – The purpose of approach lighting is to assist pilots in the visual identification of a runway. During instrument or low light conditions, a pilot will have only a short time to make necessary adjustments to complete a landing. Approach lighting helps pilots rapidly identify the proper alignment and orientation of the aircraft with respect to the runway. Runway 13/31 is not equipped with an approach lighting system.

Runway and Taxiway Lighting – Runway and taxiway edge lighting is used to identify the edge of pavements during periods of low visibility. Runway 13/31 is currently equipped with medium-intensity runway lights (MIRL), which can be radio activated by pilots. All taxiways are equipped with medium-intensity taxiway lights (MITL). The runway and taxiway lighting was rehabilitated in 1995 and appears to be in good working condition.

Apron Lighting – The aircraft parking aprons are illuminated by a combination of pole-mounted and building-mounted area lights. The lights appear to be adequate for the intended use and in good working condition.

<u>Rotating Beacon</u> – A new rotating beacon is installed on a mono-pole tower located behind the field equipment storage building. An old rotating beacon, located on top of a maintenance hangar, is out of service.

2.4.5 Airfield Fencing

Chain-link security fencing is installed for most of the terminal area, primarily along roadways. The security fence is 6-foot chain link with 3-strand barbed wire. Six vehicular gates provide access to the terminal area, maintenance facilities, T-hangar buildings, and corporate hangars. The remaining portion of the airport property line is thickly vegetated and borders agricultural land. Agricultural fencing is in place along sections of the airfield and airport property boundary.

2.4.6 Navigational Aids and Other Facilities

Navigational aids (NAVAIDS) are electronic or visual devices that provide guidance or position information to aircraft in flight. All electronic NAVAIDS provide direction and distance information to their location. Electronic and visual NAVAIDS are described in more detail in the following paragraphs.

<u>Electronic NAVAIDS</u> – The Airglades Airport area is served by two Very High Frequency (VHF) Omni-Directional Radio Range and Tactical Air Navigation (VORTAC) stations. A VHF Omni-Directional Range (VOR) and co-located Tactical Aircraft Control and Navigational (TACAN) equipment comprise a "VORTAC" navigational facility. A VORTAC broadcasts electronic navigational signals, 360 degrees in azimuth, oriented from magnetic north and provides VOR azimuth, TACAN azimuth, and TACAN Distance Measuring Equipment (DME) at one site. Each VOR is part of a nation-wide system of navigation facilities. Through the broadcast of discrete VHF radio frequencies, point-to-point air navigation to airborne aircraft is provided.

The LaBelle (LBV) VORTAC is located approximately 19 nautical miles west-northwest of the airport (105 degree radial) and transmits at a frequency of 110.4. The Pahokee VORTAC (263 degree radial) is located approximately 19.4 nautical miles east-northeast of the airport and transmits at a frequency of 115.4. Airspace and NAVAIDS in the vicinity of the Airglades Airport are shown in **Figure 2.3**.

The Victor Airway Structure (below 18,000 MSL) which surrounds the airport consists of Victor 492 to the north which connects the LaBelle and Palm Beach VORTACs, Victor 7E-97-521 to the southwest which connects the Miami and LaBelle VORTACs, and Victor 267-437 which connects the Miami and Pahokee VORTACs.



12/17/03 2.3.DWG MPU\CAD\EXHIBITS\FIG AIRPORT J: \AIRGLADES <u>Visual Approach NAVAIDS</u> – Runway 13/31 is equipped with Precision Approach Path Indicators (PAPI). The PAPIs are provided for approaches to Runways 13 and 31 and provide vertical guidance to pilots through a combination of red and white lights. The 2-box PAPIs (P2L) are operated continuously, located on the left side of the runway, and are set at a 3° slope to provide a threshold crossing height of 35 feet.

2.4.7 Instrument Approaches

A review of the United States Government Flight Information Publication, *U.S. Terminal Instrument Procedures* (Southeast, Volume 3 of 4, effective 18 April 2002 to 13 June 2002), shows there are no published instrument approach procedures for the Airglades Airport.

2.5 EXISTING LANDSIDE FACILITIES

All of the airport's buildings are located on the north side of the airport as shown in **Figure 2.2**. The buildings that make up the landside facilities can be defined as aviation use (including administrative, operational support, and general aviation facilities). One non-aviation industrial building is located in the industrial park. The Authority owns and operates the Airglades Industrial Park that is located contiguous to and northwest of the airfield.

2.5.1 Administrative Facilities

At present, there is no administrative space dedicated for County use in the terminal building. The Airport Advisory Board regularly uses the lounge area in the terminal building for meetings.

2.5.2 Operational Support Facilities

<u>Aircraft Rescue and Firefighting Facility</u> – At present, there is no Aircraft Rescue and Firefighting (ARRF) facility on the airport. The nearest fire station is located in Clewiston, approximately 8 miles from the airport. Estimated response time to the airport is 15 minutes.

Fuel Farm Facility – A new fuel farm facility is located immediately southwest of and in front of the aircraft maintenance hangar. The new fuel farm replaces the fueling facility that was located on the apron in front of the terminal building. The facility is comprised of two above ground, double-walled tanks, each having a capacity of 10,000 gallons. One of the tanks contains 100LL AvGas and the other contains Jet-A fuel. The fuel is dispensed self-service with a credit card payment system. The FBO also operates an 800-gallon fuel truck for remote fueling of aircraft.

Three privately-owned Jet-A fuel tanks are located in the corporate aviation area. The three aboveground tanks are covered and diked.

Automated Weather Observation System (AWOS-III) – An AWOS-III PT was installed at the airport in 2002. The AWOS-III reports a variety of site-specific meteorological data (e.g., temperature, precipitation, wind) and makes the information available to local pilots for flight planning.

2.5.3 General Aviation Facilities

2.5.3.1 Terminal Building

The focal point of the general aviation terminal area is the terminal building, which houses the FBO and sky diving operation. The FBO, Air Adventures of Clewiston, Inc., provides aviation fuel (100LL and Jet-A), and aircraft maintenance (minor airframe and powerplant). Currently, aircraft rental, flight instruction, weather radar, and rental cars are unavailable at the airport. An FAA-approved private pilot license test facility is available on demand at the airport.

The terminal is a metal frame building on a concrete slab foundation with approximately 1,768 square feet (gross) of space. The interior is finished with vinyl flooring, wood panel walls, and drop panel ceiling. The structure appears to be in fair condition.

The building offers space for FBO business (sales and sky diving operations), passenger waiting, vending and lounge, men and women's toilets. Limited flight planning space is available and is incorporated into the areas listed. An approximate space allocation (square feet) for the terminal building is as follows:

Passenger Waiting Area/Sales	628 SF
Vending / Lounge	600 SF
Office	185 SF
Restrooms	<u>158 SF</u>
	1,571 SF

2.5.3.2 Terminal Apron

Parking for itinerant aircraft and passenger loading/unloading aircraft is available in front of the terminal building. Use of this area is generally short-term. Although a variety of aircraft park in this area, the most common aircraft would be associated with the FBO and sky dive operations (e.g., Caravan 208B, PilatusPC6, Cessna 195, Cessna 120).

The parking area is generally triangular in shape and is bounded by apron taxiways and taxilanes to the west and east and the terminal building to the north. The asphalt apron is approximately 3,300 square yards in size and is in good condition.

2.5.3.3 Vehicular Parking

There are 58 marked parking spaces on the airport. The automobile parking area in front of the terminal building and adjacent to the maintenance hangar has a total of 13 marked spaces. An automobile parking lot located at the corporate aviation area has 10 marked spaces. A new parking lot west of the aircraft parking apron provides an additional 35 spaces. The new parking lot is 1,487 SY in size and contains 31 regular and 3 handicap spaces.

The FBO reports that 40 to 55 automobiles park in and around the terminal building on an average weekend and that during sky diving events an estimated 250 to 300 automobiles park in the terminal area.

As typical on an uncontrolled airfield, T-hangar and other tenants occasionally park their automobiles in their hangars while maintaining or operating their aircraft.

2.5.3.4 Aircraft Maintenance Facilities

Other aviation-related service facilities in proximity to the general aviation terminal includes two metal frame 8,000-square-foot aircraft maintenance hangars and a 12,500-square-foot building that is used to store airfield maintenance equipment and other material. One of the 8,000-square-foot hangars is currently used for aircraft maintenance and storage. The other hangar is used primarily for parachute packing and related sky dive activities.

2.5.3.5 Corporate Facilities

Several corporations operate from an area developed for corporate aviation. The corporations include US Sugar, Hilliard Brothers, and an agricultural aerial applicator. Five corporate hangars are located in the corporate aviation area. The metal frame structures range in size from approximately 3,600 square feet to 8,000 square feet in size.

A rectangular aircraft parking apron provides access to parking at the corporate hangars. The asphalt apron is approximately 4,750 square yards in size and is in excellent condition. The utility of this parking apron for long-term parking is restricted as the apron is dedicated for corporate hangar access and corporate activity.

2.5.3.6 Aircraft Storage Facilities

The airport provides both open and hangared aircraft storage. The general aviation aircraft parking apron has 15 anchored tie-down positions. Other paved parking is available in and around the terminal area and at the new remote aircraft parking apron. Additional aircraft parking is available on grass areas for air shows and special events.

Enclosed aircraft storage units are located on the north side of the airfield. Two 10-unit T-hangar buildings provide a total of twenty enclosed aircraft storage spaces. The 5 corporate hangars and maintenance hangars provide space for multiple aircraft. As such, an estimate can be made of the storage capacity, but the actual capacity is determined by the types of aircraft stored and the efficiency of the placement of aircraft on aprons and in hangars. **Table 2.3** provides a summary of open and hangared storage space on the airport. **Table 2.4** summarizes the hangared aircraft storage spaces by type of unit.



TABLE 2.3 EXISTING AIRCRAFT STORAGE FACILITIES Airglades Airport

Storage Type	Number of Spaces
Apron Tie-downs	15
Terminal Apron Parking	5
Remote Parking Apron	3
T-hangars	20
Maintenance hangar	6
Corporate hangars	5
Total	54

TABLE 2.4 EXISTING AIRCRAFT HANGAR STORAGE POSITIONS Airglades Airport

Building Number	Hangar Size (SF)	Approximate Spaces	Use/Type/Condition
2	8,000	6	Maintenance hangar/Metal Frame/Good
3	8,000	-	Sky Dive Activities/Metal Frame/Good
7	9,000	10	T-hangar/Metal Frame/Good
8	9,000	10	T-hangar/Metal Frame/Good
9	2,250	1	Corporate/Metal Frame/Good
10	3,250	1	Corporate/Metal Frame/Good
11	4,200	1	Corporate/Metal Frame/Good
12	4,200	1	Corporate/Metal Frame/Good
13	3,600	1	Corporate/Metal Frame/Good
Total	51,500	31	

2.5.3.7 Industrial Park

Airglades Industrial Park is located on the northwest side of the airfield, on airport property. Ultimately, the industrial park will encompass 257 acres of land and provide approximately 82 parcels for development. Several parcels will be situated to have airfield access. The conceptual layout of the industrial park is shown in **Figure 2.4**. Wastewater utilities have been recently extended to the industrial park and airport. Access roads for the industrial park are currently being developed. Several industries have recently located in the industrial park.

2.6 UTILITIES

2.6.1 Electrical Service

Electrical power is furnished to the airport by the Glades Electric Cooperative. The airport's airfield electrical vault is located to the west of the airfield equipment storage building.

2.6.2 Water Service

Potable water is supplied to the airport by South Shores Utilities. The water main is located along U.S. Highway 27 and a 4-inch line extends from the highway to the airport. The *Hendry County Airglades Industrial Park Master Plan* (Craig A. Smith & Associates, 1997) states that the water supply and distribution system should be capable of handling flows sufficient to fight industrial and commercial fires.

2.6.3 Sewer Service

Currently, the airport utilizes on-site sewage disposal (septic tanks) and a sanitary sewer collection system. A small wastewater treatment facility is located on airport property, northeast of the terminal area.

2.6.4 Telephone Service

Public pay telephone service is not available at the airport. A phone is available at the terminal for local calls and contacting the Flight Service Station. The phone is located outside of the terminal building and is accessible 24 hours per day. Phone service is provided to the airport by Sprint. Cellular phone service is available at the airport.

2.6.5 Natural Gas Service

Piped natural gas service is not available at the airport. Natural gas and propane gas users maintain individual tanks and purchase gas from local vendors.

2.7 AIRPORT DRAINAGE

Airport drainage is provided by a system of storm sewers, culverts, swales, and ditches. Although a jurisdictional delineation was not performed for the purpose of this Master Plan Update, it appears that any wetland areas on the airfield are associated mainly with ditches and swales. Several small isolated wetlands are found elsewhere on airport property.

Airport maintenance personnel report that temporary flooding occurs on the runway safety area, apron near the terminal building, and around hangars after rainfall events. The reported causes of the drainage problems are undersized and/or filled-in drainage conveyances and pipes.

2.8 LAND USE AND ACCESS

2.8.1 Off-Airport Land Use

The land contiguous to the Airglades Airport is developed and used primarily for agriculture (citrus groves and sugar cane). There is little residential and commercial development in the immediate vicinity of the airport. Clewiston, located approximately 6 miles east of the airport, is the closest concentration of urban land use in the area. Hendry County presently has zoning ordinances that regulate land use. Agricultural land holdings and natural features (e.g., wetlands) have also controlled development to a large extent around the airport.

A residential subdivision, Montura Ranch Estates, is located south-southeast of the Airglades Airport. The northern section of the subdivision is located approximately two miles from the airport's southern boundary. The subdivision has access to U.S. Highway 27 via Flaghole Road and Devel's Garden Drive (County Road 833).

2.8.2 Airport Surface Access

The airport is located on Airglades Boulevard, a two-lane paved road that connects the airport terminal area to U.S. Highway 27 and State Highways 80 and 25. U.S. Highway 27 and Florida Highway 25 provide north/south surface access generally through the center of the Florida peninsula. Florida Highway 80 traverses east/west, providing access to LaBelle, Fort Myers, and Interstate Highway 75 to the west and Clewiston to the east.

2.9 APPROACH SURFACES, RUNWAY PROTECTION ZONES AND OBSTRUCTIONS

The following is a description of the Federal Aviation Regulation (FAR) Part 77 approach surfaces, runway protection zones (RPZs) and obstructions to Runway 13/31 at Airglades Airport.

2.9.1 Approach Surfaces

Runway 13 has a visual approach surface having a 20:1 slope upward and outward from the Primary Surface. The width of the approach surface at the Primary Surface is 500 feet. The Approach Surface expands outward to a width of 1,500 feet at a distance of 5,000 feet from the Primary Surface.

Runway 31 has a visual approach surface having a 20:1 slope upward and outward from the Primary Surface. The width of the approach surface at the Primary Surface is 500 feet. The Approach Surface expands outward to a width of 1,500 feet at a distance of 5,000 feet from the Primary Surface.

2.9.2 Runway Protection Zones

As defined in FAA AC 150/5300-13, *Airport Design*, the function of a Runway Protection Zones (RPZ) is to enhance the protection of people and property on the ground. This is achieved through airport owner's control over land use and activity in an RPZ. Such control includes clearing and maintaining them clear of incompatible objects and prohibiting certain activities, such as congregations of people. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ. RPZs are trapezoidal in shape and are two-dimensional, being located on the ground An RPZ starts 200 feet from the runway end and is centered on the extended runway centerline.

The size of an RPZ for each runway end is determined by the approach and visibility minimums for that particular runway end and the Airport Reference Code (ARC). At this time, the runway at the airport has only visual approaches to each runway end and the airport's ARC is B-II. **Table 2.5** presents the existing RPZ dimensions.

Runway End	Inner Width	Outer Width	Length
13	500	1,010	1,700
31	500	1,010	1,700

TABLE 2.5 EXISTING RUNWAY PROTECTION ZONE DIMENSIONS Airglades Airport

2.9.3 Known and Charted Obstructions

Known and charted objects that are either located on, or that surround the airport have been reviewed. According to the Airport Facility Information Directory database maintained by FDOT, there are several obstructions in the vicinity of the Airglades Airport. Most are communication towers exceeding 200 feet in height above ground. The towers are mostly located along highways and roads, with a concentration in Clewiston. The obstructions will be noted and evaluated in the development of the Airspace Drawing to determine if any of the obstructions violate FAR Part 77 airspace surfaces.

2.10 METEOROLOGICAL DATA

Weather conditions play an important role in determining an airport's capacity and facility requirements. Items of interest are temperature and precipitation, ceiling and visibility, as well as local wind conditions. Temperature information will be used to determine runway length requirements, while precipitation, ceiling, and visibility data will be used to determine the capacity of the existing airfield. Wind data will be used to determine the capacity of the existing airfield.

2.10.1 Temperature and Precipitation

As reported by the National Oceanic and Atmospheric Administration's report titled *Climatography of the United States No. 81 (1971-2000)* and from the Southeast Regional Climate Center, *Historical Climate Summaries and Normals for the Southeast* (http://www.dnr.state.sc.us/climate/sercc/products/historical/ historical.html), Clewiston, Florida experiences an annual median temperature of 74 degrees Fahrenheit (° F). The hottest month (July) has a mean maximum temperature of 91.4° F. The coldest month (January) has a normal minimum temperature of 54.3° F. The total annual precipitation is about 47.4 inches. June is the wettest month; over half the rainfall occurs during June through September, from afternoon thunderstorms and tropical disturbances.

2.10.2 Ceiling and Visibility

The FAA has defined certain limits of ceiling height and visibility limit as visual meteorological conditions (VMC) and instrument meteorological conditions (IMC). These limits affect flight operations by establishing certain rules and procedures for pilots, aircraft and air traffic control. During VMC, pilots must adhere to visual flight rules. During IMC, pilots must adhere to instrument flight rules.

VMC is defined as that period when the ceiling is greater than 1,000 feet and the visibility is greater than three miles. IMC is defined as that period when the ceiling and visibility is less than 1,000 feet and 3 miles, but greater than 200 feet and 0.5-mile.

<u>Occurrence of Visual Meterological Conditions</u> - Using annual data from Station 12835, Ft. Myers, Florida, as obtained from the NOAA National Climatic Data Center, VMC occurs approximately 95.3 percent of the time. VMC conditions were observed when ceiling height was equal to, or great than 1,000 feet; and visibility was equal to, or greater than 3 miles. Flight operations during these conditions are typically conducted under Visual Flight Rules (VFR)

<u>Occurrence of Instrument Meterological Conditions</u> - Using annual data from Station 12835, Ft. Myers, Florida, as obtained from NOAA National Climatic Data Center, IMC occurs approximately 2.6 percent of the time. IMC conditions were observed when ceiling height was less than 1,000 feet and/or horizontal visibility was less than 3 miles; but when ceiling height was equal to or greater than 400 feet and/or horizontal visibility was equal to or greater than 1 mile. Flight operations during these conditions are conducted under Instrument Flight Rules (IFR).

2.10.3 Wind Coverage

Wind coverage indicates the percentage of time that crosswind components are within an acceptable velocity. For the purpose of runway wind analyses, a crosswind component can be defined as the wind that occurs at a right angle to the runway centerline. Crosswind components of 10.5, 13, and 16 knots (12, 15, and 18.4 miles per hour, respectively) were used for analyzing the runway system at Airglades Airport.
The nearest source of wind data suitable for producing a wind rose and calculating wind coverage is Ft. Myers (Station No. 12835). Given the distance to the weather station and proximity of Ft. Myers and Clewiston to different large bodies of water, the wind data is considered the best available representation of wind patterns in the vicinity of the Airglades Airport.

Windroses for all weather, VMC, and IMC conditions are shown in Figure 2.5 (Runway 13/31), Figure 2.6 (Runway 4/22), and Figure 2.7 (Combined). Table 2.6 presents the crosswind coverage information using a 10.5-, 13-, and 16-knot crosswind component.

Observed		Wind Coverage Crosswind Component						
Meteorological Conditions	Runway	10.5 Knots	13 Knots	16 Knots				
All Weather ¹	13/31	91.81%	95.45%	98.77%				
VMC ^{2, 3}	13/31	91.81%	95.45%	98.80%				
IMC ^{4, 5}	13/31	89.53%	93.69%	97.87%				
All Weather	4/22 (closed)	95.24%	97.58%	99.39%				
VMC	4/22 (closed)	95.19%	97.57%	99.42%				
IMC	4/22 (closed)	94.71%	97.02%	98.90%				
All Weather	Combined	99.32%	99.83%	99.96%				
VMC	Combined	99.35%	99.85%	99.97%				
IMC	Combined	98.92%	99.64%	99.90%				
Notes: 1 77.4	55 Observations.							

TABLE 2.6 **RUNWAY WIND COVERAGE ANALYSIS Airglades Airport**

77,455 Observations.

2 VMC - Visual Meteorological Conditions.

3 73,482 Observations.

4 IMC - Instrument Meteorological Conditions.

5 2,019 Observations.

2.11 **AIRPORTS WITHIN A 20-MILE RADIUS**

There are no public airports and 4 private airfields within a 20-mile radius of the Airglades Airport. The private airfields are Alico, Hilliards, Harpers Fly-In, and Okeelanta.

Public airports beyond the 20-mile radius, but in close proximity to the Airglades Airport, include the LaBelle Municipal Airport and the Palm Beach County Glades Airport. The LaBelle Municipal Airport is located in Hendry County approximately 22 nautical miles west of the Airglades Airport. The LaBelle airport has a 3,410-foot paved runway. An Environmental Assessment is currently being prepared to extend the runway at the LaBelle airport to 5,000 feet. The Palm Beach County Glades Airport, located approximately 21 nautical miles west-northwest of the Airglades Airport, has a 4,116-foot runway. The sectional chart information presented in Figure 2.3 depicts the location of airfields in the vicinity of the Airglades Airport.

U.S. Department of Commerce; National Climatic Data Center; Wind Tabulation Data; Weather Station Source: 12835, Ft. Myers, Florida; Data Period 1992-2001. FAA Airport Design Program, Version 4.2D, Standard Wind Analysis. Compiled by URS Corporation, 2002.



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SECTION 3.0 FORECASTS OF AVIATION ACTIVITY

SECTION 3.0

FORECASTS OF AVIATION ACTIVITY

3.1 INTRODUCTION

This section presents the preliminary development of the forecast of aviation activity at Airglades Airport. These forecasts were developed by URS Corporation to provide projections of aviation activity for the 20year planning period 2001 through 2021 as part of the Airport Master Plan Update. The updated forecast provides input for the assessment of airport facility requirements and the evaluation of airport development alternatives. It also provides information needed to assess the type and timing of new airport facilities and aid in the evaluation of the potential impact of improvements on the airport and its surroundings. Additionally, the updated forecast provides needed data and support for the Federal Aviation Administration's (FAA) Airport Improvement Program (AIP) and the Florida Department of Transportation's (FDOT) Joint Automated Capital Improvement Plan (JACIP) planning and Scheduling Tasks.

As prescribed in the FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems* (NPIAS), it is the expressed goal of this aviation activity forecasting effort to:

- Develop a realistic approach regarding the methodology, formulation and derivation of the various elements of the aviation activity forecasts;
- Utilize the latest available relevant information and data;
- Reflect the current and anticipated conditions at Airglades Airport; and
- Provide an adequate justification for airport planning and development.

Applying each of the above stated goals, the objective of this forecasting effort is to:

- Collect and review all pertinent historical forecast data and information;
- Select viable and prudent forecast methods;
- Apply selected forecast methods and evaluate the results; and
- Compare the selected forecast results with the latest FAA Terminal Area Forecasts (TAF) for Airglades Airport.

This section begins with a discussion of the localized factors affecting Airglades Airport's airport service area, general aviation trends, historical aviation activity, and the previous aviation activity forecasts for the airport. This section then proceeds with presentations of general aviation forecasts including projected aircraft mix and peaking activity for the three future planning years 2006, 2011, and 2021.

Forecasts of aviation activities include based aircraft, general aviation aircraft, and air cargo and itinerant military operations. These forecasts have been developed based on data obtained from airport

management, airport users, and FAA documents including the NPIAS, TAF, FAA Aerospace Forecasts, and Airglades Airport's Airport Master Record (FAA Form 5010). A detailed discussion of forecast techniques is provided in **Appendix A**.

It is important to note that forecasting is an inexact science. Departures from forecast levels in the local and national economy and in the aviation business environment may have a significant effect on the projections presented herein. These uncertainties increase towards the end of the forecast period. With that said, new technologies and changes in work and recreational practices may have an unpredictable impact on aviation activity at the Airglades Airport. For these reasons, the aviation activity forecasts should periodically be compared with actual Airglades Airport activity levels and airport plans and policies should be adjusted accordingly. These aviation activity forecasts assume that terminal and airfield capacity will be available at time of actualized demand.

3.2 HISTORICAL AVIATION ACTIVITY

Understanding trends in aviation activity and the factors influencing activity levels is important in projecting future growth. Therefore, activity statistics were compiled for historical aircraft operations and based aircraft levels at Airglades Airport. Data was compiled for various categories including itinerant and local operations, the number and type of based aircraft, and the number of instrument operations. Due to a lack of complete local records, this data had to be obtained from FAA Airport Master Records, FAA Form 5010, and other published sources. These data are presented and discussed in the following paragraphs.

3.2.1 General Aviation (Local and Itinerant)

General aviation activity is generally subdivided into local and itinerant operations. An itinerant operation occurs when an aircraft departs from an airport and arrives at another. A local operation is performed by an aircraft that:

- Operate in the local airport traffic pattern or within sight of the airport;
- Depart for, or arrive from, areas within a 20-mile radius of the airport; and
- Execute simulated instrument approaches or low passes at the airport during visual meteorological conditions (VMC).

General aviation activity comprises the majority of operations at Airglades Airport. Based on FAA Airglades Airport TAF data from 1990 through 1999, local general aviation operations decreased 14 percent from 7,000 operations to 6,000 operations annually. Over the same period, total itinerant general aviation operations increased approximately 33 percent from 3,000 operations to 4,024 operations annually. According to the TAF, total annual general aviation operations for the period of 1990 through 1999 were statistically flat, increasing from 10,000 to 10,024. According to the FAA Airport Master Record, FAA Form 5010, there were 4,599 itinerant and 6,900 local general aviation operations for year 2000. Historical local and itinerant general aviation operations are presented in **Table 3.1**.

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		lt	inerant O	perations	3					
Year	Air Carrier	Air Taxi	GA	Military	Total Itinerant Operations	GA	Military	Total Local Operations	Total GA Operations	Total Operations
1990	0	0	3,000	0	3,000	7,000	0	7,000	10,000	10,000
1991	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1992	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1993	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1994	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1995	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1996	0	60	3,000	0	3,060	7,000	0	7,000	10,000	10,060
1997	0	0	3,000	0	3,000	6,000	0	6,000	9,000	9,000
1998	0	0	3,000	0	3,000	6,000	0	6,000	9,000	9,000
1999	0	0	4,000	24	4,024	6,000	0	6,000	10,000	10,024
2000*	0	0	4,599	28	4,627	6,900	0	6,900	11,499	11,527

HISTORICAL AIRCRAFT OPERATIONS Airglades Airport

Source: Federal Aviation Administration, 21S Terminal Area Forecasts, 2002. URS Corporation, 2002.

*FAA Airport Master Record, FAA Form 5010, July 2000.

3.2.2 Regional Air Carrier/Air Taxi Operations (Local and Itinerant)

Regional air carrier or commuter service and air taxi aircraft generally function in the same manner and are similar in type; therefore, they are usually combined in data collection and forecasting. The distinction between the two is generally that commuter service is provided by an airline on a regularly scheduled basis, while air taxi service is provided as an on-demand air service.

The commuter airline industry is one of the most prominent developments of airline deregulation. Commuters have moved into markets that large air carriers had been serving, but have now abandoned because the level of passengers was insufficient to make service by large aircraft profitable. However, service by small regional aircraft is often profitable and has led to the increase in commuter airlines.

Commuter airlines characteristically use small aircraft over short haul flights. The short flights often form a network over the airline's service area and enable the airline to begin serving cities which otherwise would not receive commercial service.

Inspection of the FAA's TAF for Airglades Airport over a 10-year period from 1991 to 2000 reveals there is no current commuter/air taxi activity at Airglades Airport and during the years 1991 through 1996 were there 60 air taxi operations annually. The airport's primary Fixed-Base Operator (FBO) has an FAA Part 135 operating permit, but historical data and interviews reflects little or no air taxi or air cargo activity. Historical regional air carrier/air taxi operations are presented in **Table 3.1**.

3.2.3 Military Operations

The FAA's TAF for Airglades Airport indicated no sustained level of military operations at Airglades Airport. In 1999 and 2000, the TAF estimated minimal itinerant military operations and no local military operations at Airglades Airport. Historical military operations are presented in **Table 3.1**.

3.2.4 Instrument Operations

There are currently no facilities available for instrument operations at Airglades Airport.

3.2.5 Historical Based Aircraft Levels

The number of aircraft based at a general aviation airport is typically the common measuring tool used to determine the relative level of activity. It is the number of existing based aircraft and number of projected based aircraft that form the basis for many other forecasts. Based aircraft projections are also used to determine the number and size of most facilities that will be needed and shown on the facility plans.

According to the TAF data for years 1991 through 2000, based aircraft at Airglades Airport increased 18 percent from 16 in 1991 to 19 in 2000, although the recent trend shows a decrease after reaching a high of 30 based aircraft in year 1996. The based aircraft count of 29 for year 2001 was obtained from the FAA Airport Master Record, FAA Form 5010 and information obtained from airport inspections. The historical based aircraft type, are shown in **Table 3.2**.

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Year	Single Engine	Multi-Engine	Jet	Helicopter	Other	Total
1991	10	3	0	1	2	16
1992	10	3	0	1	2	16
1993	10	3	0	1	2	16
1994	8	3	0	1	5	17
1995	16	2	0	2	3	23
1996	23	2	1	1	3	30
1997	18	2	1	1	3	25
1998	18	2	1	1	3	25
1999	12	1	1	2	3	19
2000*	20	0	2	2	5	29

HISTORICAL BASED AIRCRAFT LEVELS Airglades Airport

* FAA Form 5010, July 2000.

Source: Federal Aviation Administration, 21S Terminal Area Forecasts, 2002. URS Corporation, 2002.

3.3 PREVIOUS AVIATION ACTIVITY FORECASTS

3.3.1 Previous Airport Planning Documents Forecasts

Post, Buckley, Schuh & Jernigan, Inc. (PBS&J) has prepared two relatively recent forecasts for Airglades Airport. The first effort was for the Master Plan Update in June of 1993 and the second was for the Airport Layout Plan (ALP) Update in June of 1995. These forecasts are summarized in **Table 3.3** and **Figure 3.1**.

Both of these forecasts produced results significantly higher than the actual data for the forecast years. As primary reason for this result, both the ALP Update and Master Plan Update predicted the closing of the Clewiston Airport would have major impact in based aircraft and operations at Airglades Airport. The Master Plan Update (June 1993) assumed a "large portion" of based aircraft and their resultant operations would transfer from Clewistown to Airglades. The ALP Update (June 1995) expected 12 to 15 aircraft based at Clewiston would relocate to Airglades, with additional operations they would perform. Additional factors mentioned in the 1995 document include the extension of Runway 13/31 and the construction of additional T-hangars.

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PREVIOUS FORECASTS	
Airglades Airport	

	E	Based Airc	raft		Operations						
Year	FAA Terminal Area Forecast (TAF)	1995 Airport Layout Plan Update	1993 Master Plan Update	Florida Aviation System Plan (FASP)	Year	FAA Terminal Area Forecast (TAF)	1995 Airport Layout Plan Update	1993 Master Plan Update	Florida Aviation System Plan (FASP)		
1990	16		16	16	1990	10,000		10,000	10,000		
1991	16			11	1991	10,060			10,060		
1992	16			16	1992	10,060					
1993	16			16	1993	10,060					
1994	17			17	1994	10,060	16,041				
1995	23		50	23	1995	10,060	27,945	23,000			
1996	30			30	1996	10,060			10,060		
1997	25			25	1997	9,000			9,000		
1998	25			25	1998	9,000			9,000		
1999	19			18	1999	10,024			10,024		
2000	19	33	60	24	2000	10,024	37,364	30,000	11,527		
2005	19	38			2005	10,024	43,315				
2006	19			29	2006	10,024			13,920		
2010	19	44	80		2010	10,024	50,214	50,000			
2011	19			33	2011	10,024			15,840		
2015	19	51			2015	10,024	58,212				
2021				44	2021				21,120		

Federal Aviation Administration, 21S Terminal Area Forecasts, 2002.

Florida Aviation System Plan Forecasts, 2000.

Airglades Airport Master Plan Update, PBS&J, June 1993.

Airglades Airport Airport Layout Plan Update, PBS&J, June 1995.

3.3.2 Florida Aviation System Plan Forecast

The Aviation Office of FDOT updates the Florida Aviation System Plan (FASP) every 10 years. The plan evaluates the state's public use airport system and related transportation elements. Additional elements analyzed and documented in the plan include airport inventory, economic impact and analysis, aviation activity projections, air service analysis, air cargo analysis, strategic planning, ground access, and land use.

The 2000 FASP projects general aviation operations at Airglades Airport to increase 111 percent (10,024 in 1999 to 21,120 in 2021) by the final planning year for this Master Plan Update. In addition, the 2000 FASP projects based aircraft at Airglades Airport to increase 144 percent (18 in 1999 to 44 in 2021) by the final planning year for this master plan update. FASP activity projections are presented in **Table 3.3** and **Figure 3.1**.

Figure 3.1 Airglades Airport Aircraft Operations Forecast Comparison



The following sections describe trends in general aviation operations and based aircraft for the State of Florida and within the FASP Central Region of Florida.

3.3.3 FASP Statewide General Aviation Operations Forecast

Statewide and FASP Southwest Regional general aviation activity projections provided in the FASP 2000 were reviewed to assess the comparative growth patterns at the two levels. Using a "bottom up" operation per based aircraft methodology, projections of general aviation total operations for the entire State of Florida and the FASP Southwest Region were developed. Results indicated an annual average growth rate of 1.79 percent for the period of 1999 through 2021 for the State of Florida. The projected growth rate for the same period for the Southwest Region was 2.48 percent. FASP activity projections are presented in **Table 3.4**.

3.3.4 FASP Statewide Based Aircraft Levels Forecast

Statewide and FASP Southwest Regional general aviation activity projections provided in the FASP 2000 were reviewed to assess the comparative growth patterns at the two levels. Using a "top down" linear growth rate methodology, the projections of general aviation based aircraft levels for the entire State of Florida and Southwest Region were developed. Results indicated an annual average growth rate of 1.28 percent for the period of 1999 through 2021 for the State of Florida. The projected growth rate for the same period for the Southwest Region was 2.71 percent. FASP activity projections are presented in **Table 3.4**.

TABLE 3.4

	1999	2006	2011	2021	AAGR 1999-2021						
Based Aircraft											
Airglades Airport 18 29 33 44 4.15%											
Southwest Florida	1,654	1,654 1,924 2,226		2,977	2.71%						
Florida Total	otal 13,294 14,286 15,281 17,5		17,574	1.28 %							
	Genera	al Aviation Op	perations								
Airglades Airport	10,024	13,920	15,840	21,120	3.45%						
Southwest Florida	726,564	805,287	929,949	1,244,207	2.48%						
Florida Total	8,145,458	9,154,687	10,005,316	12,042,001	1.79%						

FLORIDA AVIATION SYSTEM PLAN FORECASTS Airglades Airport

Source: Florida Aviation System Plan Forecasts, 2000.

3.3.5 Terminal Area Forecasts

The TAF is a detailed FAA forecast planning database that the FAA Airport Planning Office (FAA-APO) produces each year covering airports in the NPIAS. The FAA-APO develops policies, goals and

priorities, forecasts future aviation technology and demand, and analyses the economic impact of regulation. The FAA 2001 TAF is the official forecast of aviation activity at FAA facilities, including FAA-towered airports, federally contracted towered airports, nonfederal-towered airports and many non-towered airports. The TAF is prepared to assist the FAA in meeting its planning, budgeting, and staffing requirements. The TAF contains both historical and forecast data. The TAF forecasts are made at the individual airport level as well as the national level and are based in part on the national FAA Aviation Forecast. The TAF assumes an unconstrained demand for aviation services (i.e., an airport's forecast is developed independent of the ability of the airport and the air traffic control system to supply the capacity required to meet the demand).

The national level TAF forecasts an increase in total general aviation operations from 91,493,911 in 2000 to 100,181,583 in 2015. This equates to an average annual growth rate of 0.36 percent from 2000 through 2005, 0.74 percent from 2005 through 2010, and 0.72 percent from 2010 through 2020.

The TAF for Airglades Airport forecasts no growth in general aviation operations throughout the forecast period. The TAF predicts general aviation operations to remain at 10,024 from the year 2000 through 2015. According to the FAA Airport Master Record, FAA Form 5010, there were 11,499 general aviation operations in year 2000.

3.3.6 Aerospace Forecasts

The FAA distributes two reports entitled FAA Aerospace Forecasts fiscal years 2002-2013 (March 2002) and the FAA Long Range Aerospace Forecasts fiscal years 2015, 2020 and 2025 (June 2001). These reports contain forecasts of aviation activity at FAA facilities across the nation and are updated annually. These include airports with FAA airport control towers and contract towers; air route traffic control centers, and flight service stations. Detailed forecasts are developed for the major users of the national aviation system – air carriers, air taxi/commuters, general aviation, and military. The forecasts are prepared to meet the budget and planning needs of the constituent units of the FAA and to provide information that can be used by the state and local authorities, the aviation industry, and the general public.

The FAA Long Range Aerospace forecasts project general aviation operational activity at towered and non-towered airports to increase from 90.9 million in 2000 to 101.0 million in 2012 and to 108.8 million in 2025. The average annual growth rate for the short-range forecast period is 0.9 percent and 0.6 percent for the long-range forecast period. The majority of the growth is attributed to the expected increase in use of the turbine fleet for business/corporate related flying.

3.4 GENERAL FORECAST ASSUMPTIONS AND CONDITIONS

Forecasts of aviation demand are the levels of activity that are anticipated to occur at the airport, based upon the probable future of the aviation industry in Central and South Florida and throughout the nation. In order to quantify reliable activity levels, general assumptions as to the future must be made. As a basis for these assumptions, generalized forecasting trends, which have been developed for the national aviation industry, were modified to accurately reflect the Airglades Airport area. Since Airglades Airport serves the general aviation market, statewide and national trends in this market are the focus of this section.

3.4.1 Assumptions

General assumptions were made concerning the factors that affect aviation activity. The following list defines those factors that have been adopted as assumptions for the purposes of this study:

- The national economy will continue a moderate level of economic growth.
- Additional economic disturbances will occur during the forecast period and cause year-to-year traffic variations, but the long-range traffic forecasts will occur as projected.
- General aviation activity is expected to continue a sustained growth rate.
- The cost of aviation fuel will increase only at a moderate rate through the forecast period, and its availability will not be a significant problem.
- Aviation in the Airglades Airport area will generally reflect the characteristics of the national aviation industry. The industry is realizing an overall increase in all aspects.
- The City of Clewiston and Hendry County will continue to support and encourage aviation activity at the airport.

3.4.2 Recent National Events

The aviation activity projections reflect consideration of the recent economic downturn at the local and national levels. The effects of the September 11, 2001, terrorist attacks were also considered when reviewing similar aviation activity projections previously developed by others for Airglades Airport, the State of Florida, and the national aviation system as a whole. It is acknowledged that all previously developed aviation activity projections referenced in this report do not reflect effect of the events of September 11th. Therefore, the localized affect of those events to future operational activity levels at Airglades Airport and within the national aviation system of airports were also weighed and considered in the preparation of this forecast.

3.4.3 Population

Census data, presented in **Table 3.5**, shows that Hendry County experienced an increase in population during the period from 1980 to 2001. Year 2001 data shows a population of 37,260 people. The projected population levels for Hendry County show that the growth trend is expected to continue. As projected, the population growth trend is expected to continue and by 2021, Hendry County's population is estimated to be approximately 53,940.

Year	Population
1980	18,850
1985	22,390
1990	25,390
1995	31,790
2000	36,460
2001	37,260
2006	41,360
2011	45,480
2021	53,940

HENDRY COUNTY POPULATION DATA AND ESTIMATES 1980 TO 2021 Airglades Airport

Source: Woods and Poole Economics, Inc., Hendry County 2002 Data Pamphlet, 2002.

3.4.4 Economic Base and Activity

Employment in Hendry County is largely a rural county with extensive agricultural development, primarily citrus and sugar cane. The two primary economic/trade centers are the cities of LaBelle and Clewiston.

Employment estimates for 2001 show approximately 2,730 people employed in agriculture, comprising 13.79 percent of the work force in the county. However, it should be noted that seasonal farm employment can be significantly higher. Private industry (e.g., agricultural services, retail, manufacturing, finance, service) employs approximately 14,400 people. This represents 72.73 percent of the work force in the county. Government employs approximately 2,670 people (13.48 percent of the work force), with state positions employing the most people.

A review of earnings data for farm and non-farm sources shows a historical increase that is expected to continue. The data also shows that earnings generated by farms will continue, but will be outpaced by non-farm earnings (e.g., agricultural services, retail, manufacturing, finance, service). Agricultural services are expected to remain the largest component of private industry earnings. A summary of farm and non-farm earnings is presented in **Table 3.6**.

Year	Farm Earnings (\$M)	Non-Farm Earnings (\$M)	Total Earnings (\$M)
1980	140.10	142.62	282.72
1985	114.60	185.92	300.52
1990	127.53	219.38	346.91
1995	131.96	275.59	407.55
2000	120.91	334.93	455.84
2001	124.40	347.83	472.23
2006	138.40	413.40	551.74
2011	151.06	484.13	635.19
2021	178.30	637.62	815.92

EARNINGS BY INDUSTRY – HENDRY COUNTY 1980 TO 2021 Airglades Airport

Source: Woods and Poole Economics, Inc.,

Hendry County 2002 Data Pamphlet, 2002.

As reflected in **Table 3.7**, Per Capita Income (current dollars) in Hendry County increased from \$10,482 in 1980 to \$20,205 in 2000. Economic projections show a continued increase in Per Capita Income.

TABLE 3.7

HENDRY COUNTY PER CAPITA INCOME 1980 to 2010 Airglades Airport

Year	Per Capita Income
1980	\$10,482
1985	\$12,946
1990	\$16,639
1995	\$17,936
2000	\$19,547
2001	\$20,205
2006	\$24,220
2011	\$29,647
2021	\$44,879

Source: Woods and Poole Economics, Inc., Hendry County 2002 Data Pamphlet, 2002.

3.4.5 Special Events

Airglades Airport occasionally hosts sky diving fly-ins, bringing 200 to 300 people into the airport for a weekend and generating anywhere from 60 to 100 operations during the weekend.

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3.4.6 Airport Service Area

An airport service area is the geographic region from which an airport derives the majority of its users. It is important to define an airport's service area before attempting to prepare forecasts because the socioeconomic data needed to prepare the forecast should be representative of the same geographic area. Items considered when defining an airport service area include roadway access, the location of competing airports, and the relative strength of air service provided at competing airports.

For the purposes of this Master Plan Update, the airport's service area for Airglades Airport is considered to be Hendry County and parts of the surrounding counties of Glades and Palm Beach. Other airports in the vicinity of the Airglades Airport include the LaBelle Municipal Airport and the Palm Beach County Glades Airport. At 5,905 feet, the runway at the Airglades Airport is the largest in the service area.

3.4.7 General Aviation Industry Trends

General aviation activity continues to be a dominant force in aviation. General aviation activity represents the largest percentage of civil aircraft in the U.S. and accounts for the majority of operations handled by towered and non-towered U.S. airports, as well as for the majority of certificated pilots in the U.S. These operational levels, however, have declined at the state level over the past 10 years and have generally mirrored the overall decline of general aviation activity at the regional and national levels. This primarily occurred because of the following factors or conditions:

- Collapse in the U.S. general aviation manufacturing market in the 1980s and early 1990s;
- Significant increases in general aviation aircraft prices and operating costs;
- Needed changes in aircraft manufactures liability exposure to encourage the restoration of general aviation aircraft production; and
- Improvements to surface transportation.

Despite its dominance in the 1950s, 1960s, and 1970s, general aviation began a steady state of decline throughout most of the 1980s and early 1990s. Events that have contributed to the downturn in general aviation activity include; changes in disposable income, increases in airspace restrictions affecting flight conducted Visual Flight Rules (VFR), personal shifts in preferences for goods and services, and the deregulation of the commercial airline industry. Most evident was the major decline in the production of single- and light multi-engine general aviation aircraft during the mid- to late-1980s related to manufacturer's liability issues.

Enacted in 1994, the General Aviation Revitalization Act (GARA) established an 18-year Statute of Repose on all general aviation aircraft and components. The enactment of the legislation represented the culmination of a lengthy industry campaign to revitalize the markets for general aviation products and services and to help restore a once-healthy industry. Since the passage of the GARA, general aviation shipments and billings have increased at an average annual rate of over 17.8 percent, from 928 units shipped in 1994, to 2,525 units shipped in 1999. The strength of the general aviation industry's positive

outlook can be attributed to a strong U.S. economy and the passage of the GARA, which brought product liability reform to the industry.

3.4.8 Consideration of Other Forecasts

As prescribed by the FAA Airport Planning Office (FAA-APO), certain projections of aviation activity developed within this section will be compared to the FAA's 2001 TAF as published for the Airglades Airport, the State of Florida, and the national aviation system as a whole. In situations where the derived Master Plan aviation activity forecasts vary significantly (generally more than 10 percent) from the FAA's 2001 TAF, further discussions and documentation may be required for consideration of the variances between the respective forecasts. It is further recognized that certain TAF projections may not fully reflect or consider localized changes or paradigm shifts in aviation activity at Airglades Airport.

Other notable and important FAA-APO publications referenced include the FAA Aerospace Forecasts FYs 2002-2013 (March 2002) and the FAA Long Range Aerospace Forecasts FYs 2015-2025 (June 2001).

3.5 AVIATION FORECASTS

3.5.1 General Aviation (Local and Itinerant) Operations Forecast

The forecast of general aviation operations projects the number of arrivals and departures of all aircraft not classified as air carrier or military. Similar to commercial aircraft, the projections of future general aviation operations at Airglades Airport are used to subsequently develop estimates of runway capacity, certain environmental impact assessments, airfield facilities, runway length requirements and airspace protection requirements.

In developing a forecast of future general aviation operations at Airglades Airport, eleven separate projections were developed. Each projection was predicated on the use of data available or historical data obtained through FAA Form 5010, Airport Master Records, FAA's TAF, FAA's Aerospace Forecast and Long Range Forecast, and FASP. These forecasts are shown in **Table 3.8** and **Figure 3.2**.

3.5.2 Regional Air Taxi/Commuter Operations Forecast

There is currently no scheduled air taxi/commuter activity at Airglades Airport. The primary FBO does have an FAA Part 135 operating certificate, but currently does not operate this type of activity except in an on-demand basis.

3.5.3 Itinerant Military Operations Forecast

Currently, there is no scheduled military activity at Airglades Airport. According to the FAA Airport Master Records, FAA Form 5010, there were 28 itinerant military operations and no local military operations at the airport. This level of activity will be maintained throughout the forecast period.

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	TAF National	TAF 2IS	TAF US Market	TAF Florida	TAF Florida GA	FAA Aerospace		OPBA FAA-	Linear vs	Linear vs Total County	Linear vs Non-Ag
Year	Growth Rate	Growth Rate	Share	Market Share	Market Share	Growth Rate	FASP	TAF*	Population	Employment	Employment
2001	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499
2006	11,793	11,499	11,789	12,380	12,303	14,255	13,920	13,050	17,100	15,300	15,750
2011	12,258	11,499	12,222	13,210	13,081	15,209	15,840	13,050	20,250	17,550	18,450
2021	13,421	11,499	13,106	14,932	14,695	17,947	21,120	13,935	27,000	22,500	23,400

FAA FORECASTS OF GA OPERATIONS Airglades Airport

* FAA OPBA = 450

Source: FAA Terminal Area Forecasts, 2002.

FAA Aerospace Forecasts (2002-2013), March 2002.

FASP 2000.

FAA Airport Master Record, FAA Form 5010, July 2000.

FDOT, Florida Aviation System Database, Facility Information Directory, <u>www.florida-aviation-database.com</u>, June 2002.

URS 2002.

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Figure 3.2 Forecasts of GA Operations Airglades Airport Master Plan Update



3.5.4 Air Cargo Operations and Tonnage Forecast

There is currently no scheduled cargo activity at Airglades Airport. The primary FBO does have an FAA Part 135 operating certificate, but currently does not operate this type of activity except in an on-demand basis.

3.5.5 Forecast of Based Aircraft

The number of aircraft based at a general aviation airport is typically the common measuring tool to determine the relative level of activity. The number of existing and forecast based aircraft forms the basis for many other forecasts. Based aircraft projections are also used to determine the number and size of most of the facilities needed and shown on the facility plans

The based general aviation aircraft at the airport should continue to increase proportionally to local population growth. Based aircraft are expected to increase from 29 in 2000, to 60 (107 percent increase) by 2021. The increase of based aircraft is directly related to the increase in Hendry County population predicted through 2021. The five primary based aircraft forecasts for Airglades Airport are shown in **Table 3.9** and **Figure 3.3**.

TABLE 3.9

FORECASTS OF BASED AIRCRAFT Airglades Airport

			Regression Analysis						
			vs vs Total		vs Non-Ag				
Year	FAA - TAF	FASP	Population	Employment	Employment				
2001	29	24	29	28	29				
2006	29	29	38	34	35				
2011	29	33	45	39	41				
2021	31	44	60	50	52				

Source: FAA Terminal Area Forecasts, 2002.

FAA Aerospace Forecasts (2002-2013), March 2002.
FASP 2000.
FAA Airport Master Record, FAA Form 5010, July 2000.
FDOT, Florida Aviation System Database, Facility Information Directory, <u>www.florida-aviation-database.com</u>, June 2002.
URS 2002.

3.5.6 Forecast Fleet Mix

The fleet mix forecast was developed using the FAA's growth rates, as provided in the FAA Aerospace Forecasts, FY 2002-2013, and applied to the historical Airglades Airport fleet mix percentages. The resultant fleet mix percentages were applied to the based aircraft forecast developed through the regression analysis of based aircraft to the Hendry County population. This forecast, with historical data, is shown in **Table 3.10**.

Figure 3.3 Forecasts of Based Aircraft Airglades Airport Master Plan Update



							J	et							
	Year	Singl	e Engine	Multi	i-Engine	Tur	boProp	Tu	rboJet	Hel	icopter	C	Other	Total	
		#	%	#	%	#	%	#	%	#	%	#	%	#	%
	1991	10	62.50%	3	18.75%	0	0.00%	0	0.00%	1	6.25%	2	12.50%	16	100.00%
	1992	10	62.50%	3	18.75%	0	0.00%	0	0.00%	1	6.25%	2	12.50%	16	100.00%
	1993	10	62.50%	3	18.75%	0	0.00%	0	0.00%	1	6.25%	2	12.50%	16	100.00%
	1994	8	47.06%	3	17.65%	0	0.00%	0	0.00%	1	5.88%	5	29.41%	17	100.00%
i:	1995	16	69.57%	2	8.70%	0	0.00%	0	0.00%	2	8.70%	3	13.04%	23	100.00%
stol	1996	23	76.67%	2	6.67%	0	0.00%	1	3.33%	1	3.33%	3	10.00%	30	100.00%
Ξ	1997	18	72.00%	2	8.00%	0	0.00%	1	4.00%	1	4.00%	3	12.00%	25	100.00%
	1998	18	72.00%	2	8.00%	0	0.00%	1	4.00%	1	4.00%	3	12.00%	25	100.00%
	1999	12	63.16%	1	5.26%	0	0.00%	1	5.26%	2	10.53%	3	15.79%	19	100.00%
	2000*	20	68.97%	0	0.00%	0	0.00%	2	6.90%	2	6.90%	5	17.24%	29	100.00%
	2001**	18	60.00%	1	3.33%	2	6.67%	2	6.67%	2	6.67%	5	16.67%	30	100.00%
st	2006	23	59.84%	1	3.19%	3	6.98%	3	7.48%	2	6.45%	6	16.05%	38	100.00%
reca	2011	27	59.59%	1	3.06%	3	7.31%	4	8.37%	3	6.24%	7	15.44%	45	100.00%
Ъ	2021	35	58.80%	2	2.79%	5	7.96%	6	10.45%	3	5.80%	9	14.21%	60	100.00%

HISTORIC AND FORECAST FLEET MIX **Airglades Airport**

Source:

FAA Terminal Area Forecasts, 2002.

*FAA Airport Master Record, FAA Form 5010, July 2000. **Based on information provided by Airglades Airport staff.

3.5.7 Forecast of Operational Peaking Characteristics

Peak activity levels are an integral part of the demand and capacity analysis presented in Section 4.0. These levels, when no detailed local records are available, are determined based on FAA recommended factors applied to forecasted annual operational levels. These peak activity levels are presented in **Table 3.11**.

TABLE 3.11

Year	Peak Month	Average Day Peak Month	Peak Day Peak Month	Peak Hour
2001	1,153	38	42	2
2006	1,713	57	63	2
2011	2,028	68	75	3
2021	2,703	90	99	4

FORECAST OPERATIONAL PEAKING CHARACTERISTICS Airglades Airport

Source: URS Corporation, FAA, 2002.

3.6 RECOMMENDED FORECAST

The forecast of aviation activity as developed presents a variety of aviation activity projections predicated upon the use of unique and discrete data sources, activity forecasts previously developed by others or through derivative development techniques.

3.6.1 General Aviation

Of the eleven unique general aviation operational forecasts generated, applying the FAA operation per based aircraft of 450 to the regression analysis of based aircraft verses Hendry County population was considered to best represent the current and expected conditions at Airglades Airport. While higher than either the FAA's TAF or the FDOT's FASP forecasts, this forecast is assumed to best represent changing local socio-economic conditions.

3.6.2 Based Aircraft

A total of 5 unique based aircraft forecasts were developed. The based aircraft forecast derived using a linear regression analysis verses Hendry County population was considered to best represent the current and expected conditions at Airglades Airport.

3.6.3 Military Operations

Military aircraft operations at Airglades Airport were held constant throughout the entire 20-year forecast period using current operational levels of twenty-eight annual itinerant military operations.

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3.7 FORECAST SUMMARY AND COMPARISON

The forecast documentation requires a comparison between the recommended forecasts and the FAA's TAF forecast levels for passenger enplanements, commercial operations, and total operations.

There are no forecasted passenger enplanements or commercial operations at Airglades Airport. The total operations forecasts deals solely with general aviation operations and military operations.

The recommended military operations forecast is four operations per year higher than the TAF forecast throughout the forecast period. In both forecasts, these operations are expected to remain flat at 24 per year for the TAF and 28 per year for the recommended forecast.

The recommended forecast for general aviation operations predicts 7,104 more operations than the TAF in year 2006 and 10,254 more forecasted general aviation operations in 2011. This translates to an increase in general aviation operations of approximately 100 percent from the TAF forecast by year 2011. The two biggest contributing factors for this is the TAF's expectation of no growth through the entire forecast period and the recommended forecast expectation of operational levels maintaining a linear relationship to the Hendry County population.

The forecast summary and forecast to the FAA TAF and FASP comparisons are shown in **Tables 3.12** and **3.13**.

TABLE 3.12 SUMMARY OF AIRPORT PLANNING FORECASTS Airglades Airport

				A. Forecast Lev	vels and Growth	n Rates					
		Spec	cify base year:	2001							
	Bees Vr	Dees Vr	Deee Vr	Deec Vr	Bees Vr	Bass Vr	Dees Vr	Average Ann	ual Compound	I Growth Rate	S Deec Vr
	2001	Dase 11.	-5 vr (2006)	Dase 11.	±15 vr (2016)	+20 yr (2021)	base fr.	base fr.	to +10	base 11.	base fr.
Passenger Englanements	2001	+1 y1. (2002)	+5 yl. (2000)	+10 yl. (2011)	+13 yl. (2010)	+20 yl. (2021)	10 +1	10 +5	10 + 10	10 + 13	10 +20
Air Carrier	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Commuter	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
IOTAL	0	0	0	0	0	0	IN/A	IN/A	IN/A	IN/A	IN/A
Operations											
<u>Itinerant</u>											
Air carrier	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Commuter/air taxi	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Total Commercial Operations	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
General aviation	4,599	4,979	6.839	8.099	9.539	10.799	8.26%	8.26%	5.82%	4.98%	4.36%
Military	28	28	28	28	28	28	0.00%	0.00%	0.00%	0.00%	0.00%
Local		20		20	20	20	0.0070	010070	010070	0.0070	010070
General aviation	6 900	7 470	10 261	12 151	14 311	16 201	8 26%	8 26%	5.82%	4 98%	4 36%
Military	0,000	0,÷,10	10,201	12,101	1,011	10,201	N/A	N/A	N/A	-4.5070 N/Δ	4.0070 N/Δ
	11 527	12 477	17 128	20 278	23 878	27 028	8 2/%	8 2/1%	5.81%	1 97%	1 35%
TOTAL OF LIKE HONS	11,527	12,477	17,120	20,270	23,070	27,020	0.2478	0.2478	5.0176	4.57 /6	4.3378
Instrument Operations	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Peak Hour Operations	2	2	2	3	4	4	0.00%	0.00%	4.14%	4.73%	3.53%
Cargo/mail	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
(enplaned+deplaned tons)											
Based Aircraft											
Single Engine (Nonjet)	18	20	23	27	31	35	11.11%	5.02%	4.14%	3.69%	3.38%
Multi Engine (Noniet)	1	1	1	1	2	2	0.00%	0.00%	0.00%	4.73%	3.53%
Jet Engine	4	4	6	7	9	11	0.00%	8.45%	5.76%	5.56%	5.19%
Helicopter	2	2	2		3	3	0.00%	0.00%	4 14%	2 74%	2 05%
Other	5	5	6	7	8	g	0.00%	371%	3 42%	3 18%	2.98%
TOTAL	30	32	38	45	53	60	6.67%	4.84%	4.14%	3.87%	3.53%
							0.0170			0.01 /0	010070
			В	. Operational Fa	actors and Grov	wth Rates					
	Dese Ve				Dece Va	Average Annual Compound Growth Rates					
	Base fr.	Base Ir.	Base fr.	Base fr.	Base fr.	Base fr.	Base fr.	Base fr.	Base fr.	Base fr.	Base fr.
Average aircraft size (seats)	2001	+1 yn (2002)	+5 y1. (2000)	+10 yn (2011)	+13 yl. (2010)	+20 yl. (2021)	10 +1	10 +5	10 + 10	10 +13	10 +20
Average an cran size (seats)											
Domestic	0	0	0	0	0	0	NI/A	NI/A	NI/A	NI/A	NI/A
International	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Commuter	0	0	0	0	0	0	N/A				N/A
Commuter	0	0	0	0	0	0	IN/A	IN/A	IN/A	IN/A	IN/A
Average enplaning load factor											
All caller Demostic	0	0	0	0	0	0	NI/A	NI/A	NI/A	NI/A	NI/A
	0	0	0	0	0	0	IN/A	IN/A	IN/A	IN/A	IN/A
	0	0	0	0	0	U	N/A	N/A	N/A	N/A	N/A
Composite	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A
Commuter	0	0	0	0	0	0	N/A	N/A	N/A	N/A	N/A

0.81%

1.08%

GA operations per based aircraft

383

389

450

450

450

450

1.50%

3.26%

1.62%

TABLE 3.13				
COMPARISON OF AIRPORT PLANNING AND TAF FORECASTS				
Airglades Airport				

		Airport	Terminal Area	AF v. TAF	FASP	AF v. FASP
	Year	Forecast (AF)	Forecast (TAF)	(% Difference)	Forecast (FASP)	(% Difference)
Passenger Enplanements						
Base yr.	2001	N/A	N/A	N/A	N/A	N/A
Base yr. + 5yrs.	2006	N/A	N/A	N/A	N/A	N/A
Base yr. + 10yrs.	2011	N/A	N/A	N/A	N/A	N/A
Base yr. + 15yrs.	2016	N/A	N/A	N/A	N/A	N/A
Commercial Operations						
Base yr.	2001	N/A	N/A	N/A	N/A	N/A
Base yr. + 5yrs.	2006	N/A	N/A	N/A	N/A	N/A
Base yr. + 10yrs.	2011	N/A	N/A	N/A	N/A	N/A
Base yr. + 15yrs.	2016	N/A	N/A	N/A	N/A	N/A
Total Operations						
Base yr.	2001	11,527	10,024	15.0%	11,926	-3.3%
Base yr. + 5yrs.	2006	17,128	10,024	70.9%	13,920	23.0%
Base yr. + 10yrs.	2011	20,278	10,024	102.3%	15,840	28.0%
Base yr. + 15yrs.	2016	23,787	N/A	N/A	18,480	28.7%

Source: URS, 2003; FAA terminal Area Forecast, 2002; Florida Aviation System Plan Forecasts, 2000.

NOTES: 1. TAF data is on a U.S. Government fiscal year basis (October through September).

2. TAF forecast data shows same number of annual operations throughout forecast.

3. Airport's forecast will be coordinated with FAA for update of TAF.

SECTION 4.0 DEMAND/CAPACITY ANALYSIS AND IDENTIFICATION OF FACILITY NEEDS

SECTION 4.0

DEMAND/CAPACITY ANALYSIS AND IDENTIFICATION OF FACILITY NEEDS

4.1 INTRODUCTION

The objective of the demand/capacity analysis is to determine the capability of existing airport facilities to accommodate existing and future aviation demands as quantified by the aviation forecasts developed in Section 3.0, Forecasts of Aviation Demand, of this report. Once the demand/capacity analysis is performed, facility requirements can be determined. This section will describe those additional facilities identified as being required to meet future aviation demands. Other facilities recommended based on safety, operating efficiency, or to maintain, restore, and upgrade facilities to current standards will be described. The Federal Aviation Administration (FAA) standards for the location, construction, and protection of those facilities are also presented.

4.2 PLANNING AND DESIGN CRITERIA

The planning and design criteria utilized in this section of the report are based on FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, Change 6. Other FAA and Florida Department of Transportation (FDOT) guidance, as appropriate, will also be used to determine the demand/capacity of existing facilities and the need for additional facilities and/or improvements.

The identification of the critical aircraft that will use the airport over the planning period and the selection of the appropriate Airport Reference Code (ARC) are important elements in identifying the needs of the airport. The ARC and critical aircraft classifications are discussed below:

4.2.1 Airport Reference Code

For the purposes of airfield and facility planning, the FAA has established an Airport Reference Code (ARC). The ARC represents two components related to the operational demands of aircraft anticipated to utilize the airport over the planning period. The first component of the coding system is the Airplane Approach Category, which is a grouping of aircraft that have similar landing approach speed characteristics. The second component is the Airplane Design Group (ADG), which groups aircraft by wingspan. The classes of each component are described below:

Aircraft Approach Categories

- A Approach speeds 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

Airplane Design Groups

- I Wingspans up to, but not including 49 feet
- II Wingspans 49 feet up to, but not including 79 feet
- III Wingspans 79 feet up to, but not including 118 feet
- IV Wingspans 118 feet up to, but not including 171 feet
- V Wingspans 171 feet up to, but not including 214 feet
- VI Wingspans 214 feet up to, but not including 262 feet

To a large extent, airport planning and design criteria are based on the selected ARC. The more demanding ARC (i.e., larger and faster aircraft) requires greater separation distances and setbacks to allow an appropriate level of safety on an airfield.

4.2.2 Selected Critical Aircraft

The FAA defines an airport's "critical aircraft" as an aircraft operating at an airport on a regular basis requiring the longest runway length. A regular basis is considered to be at least 250 departures or 500 annual operations (FAA AC 150/5325-4A, *Runway Length Requirements for Airport Design*).

The Citation III listed on the Airport Layout Plan (ALP) as the existing critical aircraft for the airport (Runway 13/31). For the purpose of this analysis, the Citation III will continue as the selected critical aircraft. The Citation III is a turbine-powered business aircraft, which can accommodate up to 15 passengers (including crew). The Citation III has an approach speed of 114 knots and a wingspan of 53.5 feet, which meet the ARC B-II classification.

The Grumman Gulfstream I is listed on the current ALP as the future critical aircraft. The Gulfstream I is a turbine powered business jet aircraft, which can accommodate up to 21 passengers (including crew). The Gulfstream I has an approach speed of 113 knots and a wingspan of 78.3 feet, which meet the ARC B-II classification.

The Airglades Airport is currently classified by the Federal Aviation Administration as an ARC B-II airport and is expected to remain an ARC B-II airport throughout the 20-year planning period. The selection of the B-II ARC is supported by the fact that the two turbo-jet aircraft based on the airfield, a Citation 560 XL (which has an approach speed of 107 knots and wingspan of 55.7 feet) and a Citation V (which has an approach speed of 108 knots and wingspan of 52.2 feet), both meet B-II criteria. For the purposes of this report, all facilities will be planned to ARC B-II design criteria. URS is unaware of plans for larger aircraft to use the airport with a frequency that would cause a reclassification of the ARC.

4.3 AIRSIDE DEMAND/CAPACITY ANALYSIS

4.3.1 Airfield Capacity

The determination of airfield capacity is key to the evaluation of the adequacy of the runway and taxiway (airfield) system to meet existing and future airport activity demand levels. Hourly capacities under Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) and the annual airport service volume (ASV) for the one runway system at the Airglades Airport were evaluated using methodologies as specified in FAA AC 150/5060-5, *Airport Capacity and Delay*.

4.3.1.1 Capacity Factors

The following factors affect the airfield capacity analysis:

<u>Airfield Characteristics</u> – The configuration and number of available runways, parallel taxiways, and connector taxiways have a direct influence on an airfield's ability to accommodate various types of aircraft in a given period. The Airglades Airport has one operational paved runway. The runway is visual on both approaches and is equipped with Precision Approach Path Indicator (PAPI) lights on both runway approaches.

<u>Meteorological Conditions</u> – Runway capacity is highest during good weather when visibility is at its best and Visual Meteorological Conditions (VMC) is in effect. Meteorological information is presented in Section 2.0, Airport Inventory.

<u>Touch-and-Go Operations</u> – Repeated landings and takeoffs are normally associated with pilot training or practice operations and may significantly affect runway capacity. A runway can typically accommodate more touch-and-go operations in a given period that the normal landing and takeoff activity. The Airglades Airport does not have significant pilot training activity; however, touch-and-go operations are conducted at the airport by local and transient pilots.

<u>**Taxiway System**</u> – Similar to runways, taxiways can restrict the level of traffic an airfield may accommodate. Proper placement of exit taxiways based on the airport's operational fleet mix can reduce runway occupancy times and preserve optimum capacity levels. Based on the current layout of the Airglades Airport, there are no apparent restrictions associated with the taxiway system.

Airspace – The location of an airport with respect to other neighboring airports and natural or man-made obstructions (trees, buildings, towers, etc.) may restrict the way aircraft arrive and depart from the airport. Additionally, the absence of positive air traffic control (ATC) or an active air traffic control tower (ATCT) can also affect the volume of traffic safely accommodated by the airfield. There are no known airspace restrictions that adversely affect the airport. FDOT's airport database lists several obstructions in the vicinity of the airport, although most of the towers are located close to Clewiston. The county is taking steps to remove one tower north of the airport.

4.3.1.2 Runway Hourly Capacity

Using an approach outlined in FAA AC 150/5060-5, *Airport Capacity and Delay*, the hourly capacity of Runway 13/31 is approximately 98 VFR operations per hour. When a published instrument approach becomes available at the Airglades Airport, the IFR capacity would be an estimated 59 operations per hour.

4.3.1.3 Hourly Demand Versus Hourly Capacity

Utilizing forecast levels of peak hour operational demand developed for the Airglades Airport, the projected peak hour operational demand was compared to the existing runways hourly capacity. As shown in **Table 4.1**, the percent of capacity used for VFR operations will increase from 10.20 percent in 2001 to 23.47 percent in 2021. The VFR hourly capacity Runway 13/31 will not be exceeded within the 20-year planning period. Similarly, the hourly IFR capacity is not expected to be exceeded in the planning period.

Calculated Runway Capacity	2001 Runway Capacity	2006 Runway Demand (Forecast)	2011 Runway Demand (Forecast)	2021 Runway Demand (Forecast)				
Annual Service Volume (ASV)								
Annual Service Volume	Annual Operations	Annual Operations	Annual Operations	Annual Operations				
230,000	11,527	17,128	20,278	27,028				
Percent Capacity Used	5.01% 7.45% 8.82%		11.75%					
Hourly VFR								
	Hourly VFR	Hourly VFR	Hourly VFR	Hourly VFR				
Hould VER Capacity	Operations	Operations	Operations	Operations				
98	10	15	17	23				
Percent Capacity Used	10.20%	15.31%	17.35%	23.47%				
Hourly IFR (Percent Capacity Used)								
Hours IEP^2 Consolity	Hourly IFR	Hourly IFR	Hourly IFR	Hourly IFR				
Thoung IFR Capacity	Operations	Operations	Operations	Operations				
59	N/A	4 (6.8%)	6 (10.2%)	10 (16.9%)				

TABLE 4.1 RUNWAY CAPACITY ANALYSIS Airglades Airport

¹. Visual Flight Rules.

^{2.} Instrument Flight Rules.

Source: FAA AC 150/5060-5, Airport Design and URS Corporation, 2002.

4.3.1.4 Annual Service Volume

The ASV for the Airglades Airport was developed from the guidelines presented in FAA AC 150/5060-5, *Airport Capacity and Delay.* For long-range planning purposes, the ASV of an airport can be estimated by identifying the runway configuration and the aircraft mix index (which is the percentage of the airport's Class C aircraft plus three times the percentage of Class D aircraft). Because there are relatively few Class C or Class D aircraft using the airfield, an FAA aircraft mix index of 0-20 percent was used. Using the FAA's generalized "long-range" analysis technique, the ASV for Runway 13/31 was determined to be approximately 230,000 operations annually.

In 2001, there were 11,527 operations at the Airglades Airport. By 2021, it is anticipated there will be 27,028 operations at the airport. As shown in **Table 4.1**, the percent of ASV capacity used will increase from 5.01 percent in 2001 to 11.75 percent in 2021. By comparing the existing and projected annual operations with the FAA ASV for the Airglades Airport, no capacity enhancing changes to the runway system are required during the 20-year planning period.

4.4 FACILITY REQUIREMENTS

4.4.1 Runway

4.4.1.1 Runway Geometric Requirements

To accommodate projected activity and aircraft operational fleet mixes, the required overall length of the existing runway was analyzed. To determine runway length requirements, several planning assumptions were utilized:

- The airport has a field elevation of 19.8 feet (NGVD88).
- Based on monthly station normals, the maximum mean temperature is 91.4 degrees Fahrenheit in July (*Climatography of the United States No. 81*, 1971-2000).
- Existing and future operational aircraft fleet mix will operate at maximum design loads.
- Runway takeoff lengths for turboprop and business jets operating at maximum gross takeoff weight are based on the FAA's "balanced field" methodology under zero wind conditions.

Selected runway geometric requirements for ARC B-II are presented in **Table 4.2**. The table shows the current dimensions at the airport and the minimum required dimensions based on FAA design criteria for ARC B-II. Airport design information, as computed by the FAA's *Airport Design* program, is presented in **Appendix B**.

TABLE 4.2 AIRFIELD DESIGN STANDARDS Airglades Airport

RUNWAY DESIGN STANDARDS (in Feet)

Item	Existing Dimensions at Airglades Airport	Airplane Design Group II Dimensions
Runway Width	75	75
Runway Safety Area Width	150	150
Runway Safety Area Length Beyond Runway End	300	300
Runway Object Free Area Width	500	500
Runway Object Free Area Length Beyond Runway End	300	300
Runway Separation to Taxiway/Taxilane Centerline	528	240
Runway Separation to Aircraft Parking Area	675	250

TAXIWAY/TAXILANE DESIGN STANDARDS (In Feet)

Item	Existing Dimensions at Airglades Airport	Airplane Design Group II Dimensions
Taxiway Width	35	35
Taxiway Edge Safety Margin	7.5	7.5
Taxiway Shoulder Width	10	10
Taxiway Safety Area Width	79	79
Taxiway Object Free Area Width	131	131
Taxilane Object Free Area Width	115	115

Note: Runways with not lower than 0.75-statute-mile approach visibility minimums. Source: FAA AC 150/5300, Change 6, *Airport Design*.

4.4.1.2 Runway 13/31 Length Requirements for Critical Aircraft

Runway 13/31 is currently 5,905 feet long and 75 feet wide. The runway is constructed of asphalt and is in good condition. The current geometrics of the runway meet FAA requirements for ARC B-II runways.

Generalized runway length requirements, as computed by the FAA's *Airport Design* software program for Airglades Airport, are presented in **Appendix B**. The required runway lengths reflect the recommended runway lengths for aircraft classes as defined in the computer program. Aircraft performance characteristics at the specific design temperature of the airport, aircraft size, flight stage length, airport elevation, and runway gradient are evaluated. Additionally, the criteria assumes typical haul lengths of 500 miles and operations on a wet runway. The program output indicates that the existing runway length is adequate for small aircraft (less than 12,000 pounds) and 75 percent of large airplanes (60,000 pounds or less) at 60 percent useful load.

The Citation 560 Ultra (based aircraft), Citation 560 Excel (based aircraft), Citation III (existing critical aircraft), and the Gulfstream I (future critical aircraft) represent the class of turbine-powered aircraft that most regularly use the airport. Specific manufacturer performance data for these aircraft were examined to determine runway length requirements based on actual conditions at the Airglades Airport. Results of this analysis are presented in **Table 4.3**. As shown, these aircraft are capable of operating at 100 percent of their useful load on the existing 5,905-foot runway. Based on this analysis, the length and width of Runway 13/31 will remain adequate throughout the 20-year planning period.

The introduction of regular operations (at least 500 operations per year) by larger general aviation aircraft that require additional runway length should initiate a review of runway length requirements. In such case, the specific performance characteristics of the larger aircraft and documentation of frequency of operations, can be used to support a decision to lengthen the runway to accommodate the aircraft.

4.4.1.3 Runway 4/22

Current wind data reflects that Runway 13/31 has a crosswind component of 91.81 percent (All Weather) for aircraft that meet ARC A-I and B-I criteria (10.5-knot crosswind component) and a crosswind component of 93.69 percent (IMC) for aircraft that meet ARC A-II criteria (16-knot crosswind component). Generally, smaller aircraft are more affected by wind, particularly crosswinds. FAA guidance (FAA AC 150/5300-13) states that desired wind coverage for an airport is 95 percent. The orientation of Runway 4/22 provides 95.24 percent wind coverage (All Weather) for ARC A-I and B-I aircraft and 97.58 percent coverage for ARC A-II and B-II aircraft. Discussions with airport management and local pilots provided additional information on wind patterns to supplement the wind data obtained from Fort Myers (Station No. 112835). Pilots indicate that local wind patterns occasionally generate a crosswind that makes it difficult to land small aircraft on Runway 13/31 and that a crosswind runway is needed at the airport. Pilots cited the orientation of the closed turf runway (Runway 4/22) as the preferred orientation for a crosswind runway at the airport.

Runway 4/22 should be reopened to provide adequate wind coverage for small aircraft using the airport. The runway should be improved to ultimately include a paved surface and runway edge lighting.

The 95.45 percent coverage (at 13 knots) for Runway 13/31 satisfies the FAA criteria for runway wind coverage for Airglades' B-II ARC. Therefore, developing the crosswind runway is not considered eligible for federal financial participation at this time. A supplemental analysis using local data could be used to update the airport's wind rose, given the fact that the only source of data is from Fort Myers and that observations by local pilots on wind patterns indicate the need for a crosswind runway. The new AWOS at Airglades Airport should be set up to collect the data necessary to produce an updated wind rose. If this analysis shows coverage of less than 95 percent at 13 knots for Runway 13/31, confirming local contentions, then the development of the 4/22 crosswind runway may be considered eligible for federal financial participation.
TABLE 4.3 FAA FIELD LENGTH REQUIREMENTS **Airglades Airport**

					Runway Length (Over a 50 ft. Obstacle)				
Aircraft No.	Aircraft Type	Empty Weight (Ib.)	Gross Takeoff Weight (Ib.)	FAA Takeoff Field Length (ft.) at I.S.A Conditions ^{1.}	FAA Takeoff Field Length (ft.) at Airglades Airport Hottest Day Conditions ^{2.}	FAA Landing Field Length (ft.) at I.S.A. Conditions ^{1.}	FAA Landing Field Length (ft.) at Airglades Airport Hottest Conditions ²		
1	Citation Excel	10,900	18,900	3,414	3,659	3,315	3,553		
2	Citation Ultra	9,250	16,500	3,180	3,408	2,800	3,001		
3	Citation 3	13,500	22,200	5,150	5,519	2,900	3,108		
4	Gulfstream I	22,107	36,000	4,850	5,198	2,770	2,968		

Runway Length at Airglades Airport = 5,905 feet. Note: ^{1.} International Standard Atmospheric Conditions, 0 ft. MSL Elevation, 59° F. ^{2.} Runway length corrected for Airglades Airport maximum mean temperature (91.4 ° F).

Source: Nos. 1-2., Aviation Week & Space Technology, pages 80-81, January 8,1996. No. 3, Aviation Week & Space Technology, Pages 114-115, March 18, 1991. No. 4, Gulfstream Aerospace, Gulfstream.com, June 2002.

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FAA AC 150/5325-4A, Runway Length Requirements for Airport Design, provides runway length requirements based on meteorological conditions, runway data, and aircraft operational classes. Based on Airglades Airport data (21 feet elevation MSL, 91.4 degrees Fahrenheit, and 0 feet difference in runway centerline elevation), a runway length of 4,670 feet is recommended to accommodate 75 percent of the large aircraft fleet operating at 60 percent useful load. The minimum recommended runway length, 2,520 feet, would accommodate 75 percent of the small aircraft fleet with less than 10 seats.

4.4.1.4 Runway Pavement

Runway 13/31 received an overlay in 1996. Regular maintenance should maintain the integrity of the pavement for the near-term planning period. Depending on future pavement conditions and needs, an overlay of the runway may be required within the 15- to 20-year planning range. With the intense sun heat conditions in Florida, bituminous concrete pavements have a tendency to become brittle at about ten years. The liquid asphaltic cement (typically AC-20) used in the original pavement FAA P-401 mix, dries out and the stones start to un-ravel or pop out. Factors influencing the timing of the overlay includes pavement condition and/or the need to increase the pavement strength. The ultimate pavement strength, based on the Grumman Gulfstream I, is 36,000 pounds Dual Wheel.

The pavement markings are slightly faded at this time. Periodic maintenance will be required to keep the markings visible from the air.

4.4.2 Taxiways

The existing taxiway system for Runway 13/31 consists of a 35-foot-wide full-length parallel taxiway on the north side of the runway, five runway-taxiway connectors, and five taxiway-to-apron (or hangar area) connectors. The width of the existing taxiway system meet the requirements for an ARC B-II airport and is expected to be adequate for the planning period. Construction of terminal facilities (e.g., hangars, aprons) will require additional access taxiways. The taxiway should be located to provide efficient access and meet appropriate design criteria. Taxiway geometric requirements for ARC B-II are presented in **Table 4.2**.

Depending on future pavement conditions and needs, an overlay of the taxiways may be required within the 15- to 20-year planning range. Factors influencing the timing of the overlay includes pavement condition and/or the need to increase the pavement strength. The ultimate pavement strength, based on the Grumman Gulfstream I is 36,000 pounds Dual Wheel.

4.4.3 Airfield Lighting

The existing medium-intensity runway lighting system (MIRL) and medium-intensity taxiway lighting system (MITL) for Runway 13/31 appear to be in good condition and with regular maintenance should not need replacement until the 15- to 20-year planning period. The timing of a runway and/or taxiway edge lighting rehabilitation project is dependent on the condition of the lighting systems and their operational reliability (outage maintenance).

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The installation of Runway End Identifier Lights (REIL) for both ends of Runway 13/31 is recommended to aid pilots making an approach to the airport at night. The airport is located in a largely rural setting with few lights to identify the airport and landing surface at night. The REILs will provide additional visual information for pilots landing at the airport at night.

4.4.4 Navigational Aids (NAVAIDS)/Approaches

Presently, both ends of Runway 13/31 have visual approaches. The establishment of instrument approaches for the airport will aid pilots attempting to land at the airport in periods of inclement weather or reduced visibility. Instrument approaches also make an airport more attractive to corporations that use aircraft by making the facility more accessible and reducing the need to divert to other airports.

Hendry County has recently applied to the FAA for the establishment of non-precision approaches using the LaBelle (LBV) VOR. The application is currently under review/development by the FAA. The approach minimums for the VOR non-precision approach have not been determined, but will likely be a 400-foot decision-height and 1-mile visibility. Noting that non-precision approaches would certainly be helpful, airport users requested that long-range planning include a precision approach for Runway 13/31. As the installation of an Instrument Landing System (ILS) at the airport is considered unlikely due to the low level of activity, the long-range plan includes establishing a GPS-based precision approach for the approach to Runway 13. No approach lighting system is projected and the approach minimums are assumed to be not lower that 3/4 mile.

Electronic navigational facilities that would offer future precision-instrument capabilities may utilize existing or emerging navigational technologies such as the current ILS or emerging technologies such as GPS Local Area Augmentation System (LAAS) and Wide Area Augmentation System (WAAS), respectively. The LAAS/WAAS technologies are promised to offer both horizontal and vertical guidance capabilities similar to those traditionally offered by the ILS. The airport should continue to monitor the development of these emerging technologies and their availability.

4.5 LANDSIDE DEMAND/CAPACITY ANALYSIS AND IDENTIFICATION OF FACILITY NEEDS

4.5.1 Aircraft Parking Apron

Apron areas provide additional aircraft parking for locally based and transient aircraft providing direct access to the FBO and terminal facilities, aircraft fueling facilities, and surface transportation. Transient aircraft parking areas vary in size and shape from airport to airport depending on local operational needs, ancillary support services, historical use and transient operational demand.

The existing public aircraft-parking apron at the Airglades Airport represents approximately 9,321 square yards (1.9 acres). This includes the area adjacent to the terminal building, the general aviation aircraft parking area located north of the terminal building, and the new remote aircraft parking apron. Currently, the airport has 23 apron parking positions. These include 15-anchor tie down positions on the apron area located north of the terminal, 5 transient aircraft parking positions on the terminal apron, and 3 at the remote parking apron. It should be noted that the capacity of the aprons can vary with aircraft type

parked and, if utilized, the efficiency of flight line personnel in directing aircraft and/or moving aircraft to parking positions.

The assumed ratio of based small aircraft (under 12,500 pounds) located in hangars to based small aircraft located on aprons is 80:20. For the forecast period, it is assumed that 90 percent of large based aircraft will be hangared. Applying these ratios to the expected number of based aircraft and adding the expected number of transient aircraft on a typical busy day, an estimate of required apron space can be made for the forecast period. The aircraft parking apron requirements are presented in **Table 4.4**. As shown, the airport is not expected to have an apron deficiency. However, if the assumed hangar to apron ratio for small based aircraft is 70:30 and only 80 percent of large aircraft are expected to be hangared, approximately 1,979 square yards of additional apron will need to be in place after 2011 to meet the demands of 2021. The aircraft parking apron requirements based on the second set of assumptions are also presented in **Table 4.5**.

Another factor that may affect apron capacity and need is the potential growth of the sky-dive business and their operations at the airport. Peak periods on weekends and during special events may require temporary grass parking and/or additional paved parking. The need for additional apron parking to meet these peak periods should be monitored and addressed as needed.

4.5.2 FBO/Terminal Area Facilities

The terminal area at an airport is the interface between ground and air transportation, and a "gateway" to the community. The Airglades Airport terminal building houses the FBO and a skydiving operation. The terminal appears to be adequately sized for the skydiving operation and the current level of activity at the airport. However, some elements found in most modern general aviation terminal buildings are not offered within the existing building. Typically, these elements include dedicated space for flight planning (including telephones and weather information station), classroom and flight training space, and a separate pilot's lounge. Additionally, meeting space is usually provided for airport administration and/or business users. In some instances, meeting space can be combined with classroom space.

Terminal planning for small general aviation airports is unique because the buildings are typically a multipurpose facility. Therefore, standard planning measurements for large terminal buildings do not apply. However, planning methods developed for comparably sized airports have been used to develop nominal terminal building size estimates for the Airglades Airport. The building size estimates are not strict requirements – they are intended as "rule-of-thumb" guidance for terminal planning should the expansion of the existing building or construction of a new terminal occur.

TABLE 4.4

TERMINAL AREA REQUIREMENTS Airglades Airport

DESIRED HANGAR/APRON PARKING RATIO

Aircraft Over 12,500 lbs.	Hangar:	90%	Apron:	10%
Aircraft Under 12,500 lbs.	Hangar:	80%	Apron:	20%

AIRCRAFT OPERATIONS

	2001	2006	2011	2021
Annual Operations (Total)	11,527	17,128	20,278	27,028
Annual Itinerant Operations	4,627	6,839	8,099	10,799
Peak Month Operations	1,153	1,713	2,028	2,703
Average Daily Operations for Peak Month	38	57	67	89
Busy Day Operations	42	63	74	98
Transient Aircraft on Apron on Busy Day	5	7	8	10

BASED AIRCRAFT

	2001	2006	2011	2021
Large Aircraft (Over 12,500 lbs.)	2	3	5	8
Small Aircraft (Under 12,500 lbs.)	28	35	40	52
Total Based Aircraft	30	38	45	60

APRON & HANGAR REQUIREMENTS

	Existing	2001	2006	2011	2021
Aircraft Parking Apron Positions	23	11	14	17	21
Aircraft Parking Apron (sy)	9,321	4,564	6,097	7,045	9,036
Hangar Spaces	31	24	31	37	49

PEAK HOUR INFORMATION

	2001	2006	2011	2021
Peak Hour Operations	10	15	17	23
Peak Hour Passengers	13	20	23	30

VEHICULAR PARKING REQUIREMENTS

	Existing	2001	2006	2011	2021
Vehicle Parking Spaces Required	58	17	26	30	39
Vehicle Parking Area Required (sy)		600	923	1,061	1,384

Source: URS Corporation.

TABLE 4.5 TERMINAL AREA REQUIREMENTS Airglades Airport

DESIRED HANGAR/APRON PARKING RATIO

Aircraft Over 12,500 lbs.	Hangar:	80%	Apron:	20%	
Aircraft Under 12,500 lbs.	Hangar:	70%	Apron:	30%	

AIRCRAFT OPERATIONS

	2001	2006	2011	2021
Annual Operations (Total)	11,527	17,128	20,278	27,028
Annual Itinerant Operations	4,627	6,839	8,099	10,799
Peak Month Operations	1,153	1,713	2,028	2,703
Average Daily Operations for Peak Month	38	57	67	89
Busy Day Operations	42	63	74	98
Transient Aircraft on Apron on Busy Day	5	7	8	10

BASED AIRCRAFT

	2001	2006	2011	2021
Large Aircraft (Over 12,500 lbs.)	2	3	5	8
Small Aircraft (Under 12,500 lbs.)	28	35	40	52
Total Based Aircraft	30	38	45	60

APRON & HANGAR REQUIREMENTS

	Existing	2001	2006	2011	2021
Aircraft Parking Apron Positions	23	14	18	21	27
Aircraft Parking Apron (sy)	9,321	5,670	7,504	8,730	11,300
Hangar Spaces	31	21	27	32	43

PEAK HOUR INFORMATION

	2001	2006	2011	2021
Peak Hour Operations	10	15	17	23
Peak Hour Passengers	13	20	23	30

VEHICULAR PARKING REQUIREMENTS

	Existing	2001	2006	2011	2021
Vehicle Parking Spaces Required	58	17	26	30	39
Vehicle Parking Area Required (sy)		600	923	1,061	1,384

Source: URS Corporation.

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There are several terminal building size procedures available for identifying terminal space requirements for general aviation airports. One method estimates terminal building space based on the projected number of peak-hour pilots and passengers multiplied by a demand factor of between 40 and 100 square feet (sf) per peak-hour pilot and passenger, with consideration of the nature of the airport (FDOT). This method will be used to estimate terminal size for the airport.

For the planning period at the Airglades Airport, a factor of 2.3 persons per aircraft is assumed as the average peak-hour pilot and passenger load. This is based on the typical load factor of 1.9 for small aircraft adjusted to account for the skydiving operations at the airport that have larger load factors. At the Airglades Airport, 50 sf per peak-hour pilot and passenger is considered a minimum for estimating the terminal building space needs. Given the multi-use nature of activity at the Airglades Airport (general aviation and intensive skydiving operations), 55 sf per peak-hour pilot and passenger would be a reasonable factor to establish a range for estimating terminal building size.

The terminal building size estimates, calculated using the method outlined above, are included in **Table 4.6**. According to projections, a terminal building approximately 2,700 to 2,970 sf in size will be needed by the Year 2021. By comparison, the 1993 Master Plan Update projected the need for a 2,640-sf building for 2010 and the 1995 Airport Layout Plan Update report projected the need for a 2,760-sf building by 2015.

TABLE 4.6			
TERMINAL BUILDING SIZE ESTIMATES			
Airglades Airport			

	2001	2006	2011	2021
Peak-Hour Operations	10	15	17	23
Peak-Hour Pilots and Passengers	24	35	40	54
Terminal Building Size (PHPP x 50 sf)	1,200	1,750	2,000	2,700
Terminal Building Size (PHPP x 55 sf)	1,320	1,925	2,200	2,970

Source: URS Corporation, 2002.

Note: Existing terminal building = 1,571 sf.

The terminal building estimates presented in **Table 4.6** are not intended to be strict requirements or limits for terminal building size. The actual size and layout of the terminal building should be developed through an architectural design process that includes programming studies and consideration of long-term airport user needs, community goals, and future business plans. Detailed architectural and terminal building studies will be conducted as work programs independent from this Master Plan Update.

4.5.3 Hangar Facilities

Demand for hangar space is related to the local climate and the type of based aircraft. Typically, airports that experience prolonged periods of high temperatures or have frequent severe weather conditions have the highest demand for hangar facilities. The high value of aircraft (especially jet and turboprop aircraft) and avionics equipment increases the demand for secure storage.

At Airglades Airport, there are 31 hangar spaces available (20 in T-hangars, 6 in conventional/ maintenance hangars, and 5 corporate hangars. Of the 30-based aircraft, 26 (86.7%) are in hangars, and 4 (13.3%) are parked on open apron. As mentioned in Section 2.0, *Airport Inventory*, the actual number of hangar spaces can vary as to the type and number of aircraft parked in the large hangars. At the time of this study, the T-hangar facilities at the Airglades Airport were full. Airport management maintains a waiting list for T-hangar space rental.

Due to the high demand for aircraft hangar space at the Airglades Airport, it is assumed that 90 percent of based large aircraft and at least 80 percent of based small aircraft will be hangared at the airport for the planning period. **Table 4.4** shows that based on this ratio, the projected demand for aircraft hangar storage at the Airglades Airport will increase to 49 spaces in 2021. However, there is a current waiting list for T-hangar space. Therefore, it is recommended that additional hangar capacity be provided as needed to accommodate demand.

4.5.4 Corporate Aviation Facilities

There are five corporate hangar units located on the northwest quadrant of the airfield, east of Taxiway "S." The area has a 4,750 square yard common apron used for access and parking.

Future expansion capability is available on an as-needed basis. Based on the conceptual site plan for the Airglades Industrial Park, several corporate and industrial facilities with airfield access could be developed along the north side of Taxiway "S" and Taxiway "A." Two to four additional corporate hangars could also be developed on the south side of Taxiway "S." The number of sites available in this area is dependent on the aggregate land requirements and hangar needs of the locating corporate entities. Access to this corporate aviation area is adequate for existing facilities and could easily be added for future aviation-related corporate developments.

4.5.5 Air Cargo Facilities

Currently, the Airglades Airport does not have any dedicated air cargo facilities. Potential facilities for handling air cargo should be developed on an as-needed basis. Lots with airfield access will be available in the Airglades Industrial Park as the park is developed. Depending on the nature and size of a potential air cargo facility, other locations in the terminal area could be developed to accommodate such use. Airport access road improvements may be needed in the future to accommodate increased truck traffic.

It should be noted that there have been discussions by private entities to locate an international air cargo facility at a rural airport in the lower Central Florida region. The air cargo operation will likely involve fresh flowers, among other possible goods, and involve direct flights from Europe and South America. The Airglades Airport would be greatly affected if such a facility was sited on the airfield. A brief discussion on the proposed facility and its impact is found in Section 4.6.

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4.5.6 Maintenance and Support Facilities

The airport maintenance storage building is located in an old hangar that is in poor condition. Demolition of this hangar was recommended in the 1993 Airport Master Plan and in this update. The site on which the existing maintenance is located would be more efficiently utilized for additional hangar development area. It is recommended that a new maintenance building be constructed at a new location to accommodate the development of another large hangar at the present location. The construction of the a new large hangar should be considered when there is sufficient demand or a prospective tenant for such a building. Until such time, airport maintenance can continue to operate at its present location.

At the time of this Master Plan Update, the fuel farm facility and AWOS III station are both new and are expected to provide adequate capacity throughout the planning period.

Based on the FAA ARFF facility requirements for levels of aviation activity required, the fire fighting and rescue resources should remain adequate for the airport throughout the 20-year planning period. The nearest fire station is located in Clewiston, approximately 8 miles from the airport.

4.5.7 Vehicular Parking

An analysis of automobile parking demand for general aviation facilities was conducted on the basis of projected number of pilots and passengers expected to utilize the airport during typical peak periods. Weekend activity and special events associated with the sky diving operation generate parking demands above that generated by typical general aviation activity. Based on discussions with the FBO, approximately 40 to 55 automobiles associated with the sky diving operation park at the airport over the course of a typical weekend. On special event weekends, approximately 250 to 300 automobiles park at the airport. The airport currently has 58 paved and marked parking spaces.

Applying typical peak general aviation demand and parking allocation assumptions, automobile parking requirements for the general aviation operations should be adequate for the planning period. Public parking demand, based on general aviation operations, is shown in **Table 4.4** and **Table 4.5**. However, when factoring in the sky diving operations, there still may be shortfalls in paved, marked parking spaces during busy weekends. Weekend and special event automobile parking overflows into grassed or paved areas in the vicinity of the terminal building. Airport management should monitor the peak parking demand associated with the sky diving operation and general aviation activity and construct additional parking space, or improve grassed parking space (e.g., hard-stand), to accommodate the visitors and users of the airport. **Table 4.7** summarizes the airport parking requirements based on peak general aviation and sky diving activities.

TABLE 4.7

Parking Requirements	Existing	2001	2006	2011	2021
General Aviation		17	26	30	39
Skydiving		55	55	55	55
Total	58	72	81	85	94

AUTOMOBILE PARKING REQUIREMENTS Airglades Airport

Source: URS Corporation; Air Adventures of Clewiston, Inc., 2002.

4.5.8 Airport Access

On-airport access to the Airglades Airport for vehicles and trucks is provided by a two-lane access road and terminal loop road that provides access to the terminal building and hangars. With regular maintenance, the roadway is expected to remain adequate throughout the 20-year planning period for the general aviation vehicular traffic. However, corporate development and industrial development in the Airglades Industrial Park and on the airport may require some improvements to accommodate potential increases in heavy truck traffic. Airglades Airport is currently preparing an upgraded roadway design program to support the industrial park facilities.

Off-airport ground transportation to and from the Airglades Airport is provided by U.S. Highway 27 and State Highways 80 and 25. It is anticipated that the capacities provided by these highways will remain adequate throughout the 20-year planning period in regards to airport activity and operations.

4.6 POTENTIAL AIR CARGO FACILITY

There have been discussions to locate an international air cargo facility at an airport in the lower central Florida region. The air cargo operation will likely involve fresh flowers, among other possible goods, and involve direct flights from Europe and South America. The aircraft serving this facility would likely include large cargo aircraft such as the Boeing 747 and Boeing 767. Planning for a new international cargo facility should also consider New Large Aircraft (NLA) being introduced to the passenger and air cargo market. An example of the NLA is the Airbus A-380. The aircraft has a wingspan of 261 feet (compared with 213 feet for a Boeing 747-400) and has a maximum take-off weight of 1,300,727 pounds.

It appears that several south Florida airports have been contacted regarding this venture and that one of the locations considered was the Airglades Airport. Discussions have taken place regarding the possibility of locating the facility at the airport. The Airglades Airport offers available land, potential for runway and taxiway extensions, and an adjacent industrial park with airfield access.

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A large air cargo facility would change the character and nature of the airport. The critical aspect to accommodate the proposed operation will be airfield upgrades based on critical aircraft in the C-III to D-VI Airport Reference Code categories. The runway and parallel taxiway will need to be rebuilt and extended to approximately 11,000 feet in length to accommodate large aircraft, including the anticipated large cargo aircraft. The runway will need to be reconstructed to obtain appropriate pavement strength and widened to a width of 150 feet. The current runway-to-taxiway separation distance meets design criteria for Category V aircraft, but would have to be relocated to 600 feet of separation distance to accommodate the large D-VI aircraft. Specific project planning will need to be accomplished to determine the airfield facility, terminal, and road access needs of the proposed facility.

At this time, it is unlikely the Airglades Airport will be selected for a large air cargo operation. However, given the opportunity for attracting such a facility, airport and local planning should seek to maintain the ability to respond to the siting of air cargo and other major aviation-related facilities at the Airglades Airport. For the airport, maintaining the ability to extend the runway and provide adequate terminal facilities, warehouse facilities, and aircraft maintenance service facilities (whether on the airport or in the industrial park) is critical.

SECTION 5.0 AIRPORT DEVELOPMENT ALTERNATIVES

SECTION 5.0

AIRPORT DEVELOPMENT ALTERNATIVES

5.1 AIRPORT DEVELOPMENT ALTERNATIVES

This section will describe development scenarios and alternatives reasonably available to provide for the major airport improvements identified in the Facility Requirements section of this report. In this case, the major airport development projects proposed for the planning period include terminal/building area improvements, additional aircraft storage hangars, additional aircraft parking apron construction, and re-opening Runway 4/22. Development of corporate aviation facilities and aviation-related industrial sites are also considered.

5.2 AIRPORT PLANNING GOALS AND CONCEPTS

The goal of the airport planning process is to provide a modern, safe, and efficient general aviation facility for Hendry County citizens, businesses, and the traveling public. The Airglades Airport should meet the needs of the community and be a vital component of the area's transportation network and economic development strategy. Planning for airport development should be accomplished in a prudent, financially sound manner that considers safety, efficiency, and utility.

- Safety Safety should be of utmost concern and is best implemented by meeting applicable federal and state airport design criteria and guidelines.
- Efficiency The Airglades Airport should have adequate facilities to meet existing and projected future demands. Consideration of the location of facilities that are related by use is important, as well as traffic flow of aircraft on the ground. Maintenance of airfield facilities is also an important planning factor.
- Utility The planning process should consider best use of available land and anticipated future development needs. Proposed development should minimize environmental impacts whenever possible.

The planning process should look at the facilities identified based on aviation forecast and also include consideration of potential development demands. The result is a long-term plan for the location of facilities that can be used to accommodate projected demand as well as opportunities that may arise to attract and/or accommodate corporate or aviation-related industrial activity. Additional planning considerations for the airport include:

- Plan for additional apron and aircraft storage facilities to meet future demand.
- Plan for incremental expandability. Construct facilities efficiently on an as-needed basis.

- Reserve space for at least one additional large hangar (i.e., 100 feet x 120 feet) for maintenance operation or potential 2nd Fixed Base Operator.
- Promote corporate aviation and business use of the airport.
- Promote industrial development and aviation-related industry.
- Promote revenue producing land uses.

5.3 TERMINAL/BUILDING AREA DEVELOPMENT

A layout plan for the terminal/building area identifies development areas and provides an approach for the orderly development of terminal, apron, hangar, and support facilities. The development of terminal/building area conceptual layouts considered the present use of land and the location of existing facilities. The development of existing facilities was based on sound planning principles that the current planning exercise could easily expand upon. The process resulted in the development of terminal/building area concepts that share several common features.

The planning process evaluated several layouts for the terminal area, around which most general aviation activity would occur, and the corporate/industrial area located along Taxiway "S" and the northwest portion of Taxiway "A." The process resulted in two alternate layouts for the terminal area and two alternate layouts for the corporate/industrial area. These layouts are depicted in **Figures 5.1, 5.2, 5.3, and 5.4**. Several combinations of the layouts were considered, resulting in two overall terminal/building area conceptual alternatives (**Figures 5.5 and 5.6**).

The two overall terminal/building area concepts, discussed below, were developed to promote the orderly expansion of facilities and the grouping of facilities based on use. Facility use can be broadly grouped as aircraft parking apron, passenger terminal building and apron, aircraft maintenance and FBO operations, aircraft storage hangars, corporate aviation, aviation-related industry, and airfield maintenance. Such grouping enhances orderly development and the ability to expand incrementally to meet demand.

5.3.1 Terminal/Building Area Concept #1

Terminal Area

Terminal/Building Area Concept #1 (**Figure 5.5**) incorporates a planned new passenger terminal building proposed for the airport at the location of the existing terminal building. The design and footprint of the planned terminal building is being conducted as a work program independent from this Master Plan Update.

The area west of the existing/planned terminal area would be developed with one additional large hangar (100 feet x 120 feet) in line with the existing maintenance hangars. The proposed hangar would replace the hangar building that is currently used for storage of maintenance equipment. Additional aircraft parking and circulation apron would be constructed west of the existing apron located in front of the maintenance hangars.

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A four-unit corporate hangar complex, comprised of a single structure divided into four spaces, would face the new apron. Each hangar unit would be approximately 80-foot x 60-foot in size. Three additional 10-unit T-hangar buildings would be constructed west of the existing T-hangar buildings.

The area east of the passenger terminal building would develop with an apron expansion, T-hangars, and a new maintenance facility. The apron expansion and T-hangar construction would be accomplished after the area west of the terminal building was built-out. A helicopter landing pad would be installed southeast of the passenger terminal building. The maintenance facility could need to be constructed at a time when the additional large hangar was developed.

Corporate Aviation Area

In this concept, the corporate aviation area continues development on east side of Taxiway "S" until this area is built-out near-term. Then future development would shift to the west side of Taxiway "S," providing for five 80-foot x 80-foot corporate hangars and one 100-foot x 100-foot corporate hangar. All corporate hangars would have automobile access and parking. A helicopter landing pad would be installed on the southern end of the corporate hangars east of Taxiway "S."

Industrial Park

The layout provides five Airglades Industrial Park parcels with airfield access. Four 3-acre parcels could accommodate small to medium-size aviation-related industries. One 6.5-acre lot could accommodate a larger operation. The lots could be combined, however, to suit specific industrial user needs.

Diamond Area Concept

The north half of diamond can be developed for RV park and/or other revenue producing use. The southern half of diamond can also be developed for similar use, however, long-term airfield development may require use of this property. As such, infrastructure investment in the southern section should be undertaken with this long-term possibility in mind.

5.3.2 Terminal/Building Area Concept #2

Terminal Area Concept

Terminal/Building Area Concept #2 (**Figure 5.6**) incorporates a planned new passenger terminal building proposed for the airport at the location of the existing terminal building. The design and footprint of the planned terminal building is being conducted as a work program independent from this Master Plan Update.

The area west of the existing/planned terminal area would be developed with two additional large hangars (100 feet x 120 feet and 100 feet x 100 feet in size). The hangars would be in line with the existing maintenance hangars, with the 120-foot x 100-foot hangar replacing the hangar that is currently used for storage of maintenance equipment. Additional aircraft parking and circulation apron would be constructed west of the existing apron located in front of the maintenance hangars. Three additional 10-unit T-hangar buildings would be constructed west of the existing T-hangar buildings.

The area east of the passenger terminal building would develop with an apron expansion, corporate hangars, T-hangars, and a new maintenance facility. A 4-unit corporate hangar complex, comprised of a single structure divided into four spaces, would face the existing aircraft parking apron. Each hangar unit would be approximately 80 feet x 80 feet in size. The aircraft parking apron expansion and T-hangar construction would be accomplished after the area west of the terminal building was built-out. A helicopter landing pad would be installed southeast of the passenger terminal building. The maintenance facility could need to be constructed at a time when the additional large hangar was developed.

Corporate Aviation Area

In this concept, the corporate aviation area continues development on east side of Taxiway "S" until this area is built-out near-term. Then future development would shift to the west side of Taxiway "S," providing for three 80-foot x 80-foot corporate hangars and one 100-foot x 100-foot corporate hangar. All corporate hangars would have automobile access and parking. A helicopter landing pad would be installed on the southern end of the corporate hangars east of Taxiway "S."

Industrial Park

This layout provides 6 Airglades Industrial Park parcels with airfield access. Five 3-acre parcels could accommodate small to medium-size aviation-related industries. One 4.5-acre lot could accommodate a larger operation. The lots could be combined, however, to suit specific industrial user needs.

Diamond Area Concept

The north half of diamond can be developed for RV park and/or other revenue producing use. The southern half of diamond can also be developed for similar use, however, long-term airfield development may require use of this property. As such, infrastructure investment in the southern section should be undertaken with this long-term possibility in mind.

5.3.3 Terminal/Building Area Concept Comparison

Table 5.1 presents a comparison of the two terminal/building area development concepts.

The number of hangars provided in each layout concept are essentially the same, however, Terminal/Building Area Concept #2 (Concept #2) provides for two additional large maintenance hangars in the terminal building area as opposed to the one additional large maintenance hangar in Terminal/Building Area Concept #1 (Concept #1). The layout in Concept #2 maximizes the use of land west of the terminal building for aviation-related services and potential 2nd FBO operations.

TABLE 5.1 TERMINAL/BUILDING AREA CONCEPT COMPARISON Airglades Airport

	Terminal/Building	Terminal/Building
Additional Proposed Facilities	Area Concept #1	Area Concept #2
Aircraft Hangars*		
100 feet x 120 feet		
100 feet x 100 feet	1	1
80 feet x 80 feet	1	2
80 feet x 60 feet	7	9
60 feet x 60 feet	4	0
T-Hangar Units	1	1
Total	<u>60</u>	<u>60</u>
	74	73
New Terminal Building	Yes	Yes
	5,900 SY future	7,700 SY future
Aircraft Parking Apron	12,800 SY ultimate	12,800 SY ultimate
	18,700 total	20,500 total
	44 in terminal area	54 in terminal area
Automobile Parking Spaces	Other additional parking	Other additional parking
	for proposed corporate	for proposed corporate
	hangars	hangars
Helicopter Pads	2	2
Industrial Park Parcels with Airfield Access	5	6
Relocate Maintenance Building/Operations	Yes	Yes

Excludes potential hangars in the industrial park.

The proposed aircraft parking apron expansion west of the terminal building will provide parking for transient aircraft and aircraft visiting the aviation service area. The apron would be configured to maintain traffic flow among the existing fueling facility and existing and proposed hangars. Pavement available for aircraft parking would be reduced in Concept #1 by the location of the four corporate hangars that would face the apron. Concept #2 would ultimately provide an additional 1,800 square yards of aircraft parking apron.

Both conceptual layout plans envision additional automobile parking in the terminal/building area associated with the proposed hangar development. Concept #2 will provide an additional 10 parking spaces in the area west of the terminal building.

Concept #1 plans for 13 corporate hangars. Concept #2 plans for 11 corporate hangars. The size of the proposed hangars ranges from 60 feet x 60 feet to 100 feet x 100 feet.

Both conceptual layout plans provide industrial park lots with airfield access. Concept #2 provides for six industrial park lots and Concept #1 provides five lots. A portion of the area northwest of the intersection of Taxiway "A" and Taxiway "S," within the 500-foot radius of the AWOS, may have potential to be utilized in conjunction with the industrial park lots, however, any use that may affect the AWOS instrumentation should be prohibited.

5.4 RUNWAY DEVELOPMENT

5.4.1 Runway 4/22

The re-opening of Runway 4/22 will enhance operations during IFR and VFR conditions by providing adequate crosswind component coverage (please refer to **Table 2.6**). The long-term goal is to provide a 4,670-foot paved and lighted crosswind runway.

Alternate strategies include initially opening with the 4,670-foot paved runway or staged development. Staged development would consist of re-opening Runway 4/22 initially as a 2,520-foot turf runway, with future development to the ultimate 4,670-foot paved runway. The Runway 4/22 alternatives are shown in **Figure 5.7**.

The initial 4,670-foot runway alternate will provide the benefit of the full crosswind runway upon re-opening the runway. The initial 2,250-foot turf runway strategy will provide adequate runway length for 75 percent of small aircraft (Aircraft Design Group I). The initial 2,250-foot turf runway strategy would re-open the closed turf runway at a lesser cost than the initial 4,670-foot runway strategy. The turf runway would be available for crosswind landing by small aircraft and for recreational use. The runway would be ultimately paved and extended as activity and demand increased at the airport. An unpaved, on-airport road would have to be realigned to accommodate the proposed runway extension.

The FAA has no explicit criteria for turf runways. The State of Florida Administrative Code (FAC), Rule 14-60, *Airport Licensing and Airspace Protection*, states that the minimum effective landing strip length for a public-use airport should be 2,000 feet and usable width of 60 feet.

Federal Aviation Regulations (FAR) Part 157 requires notification at least 90 days prior to any construction of a runway and/or taxiway on a public-use airport. Notification shall be made to the FAA Regional Office or Airports District Office with Form 7480-1, *Notice of Landing Area Proposal*. Runway 4/22 would be required to meet the geometric and gradient standards detailed within FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, and airspace requirements specified in FAR, 14 C.F.R., Part 77, *Objects Affecting Navigable Airspace*.

5.5 NON-AVIATION LAND USE DEVELOPMENT

Non-aviation land at the Airglades Airport is currently leased for agricultural purposes, providing a source of operating revenue for the airport. The non-aviation land is generally divided into four quadrants, as depicted in **Figure 5.8**.

The northwest quadrant of the non-aviation property is currently being developed as the Airglades Industrial Park. Recent improvements include installation and upgrade of utilities, including sanitary sewer service. Roadway projects are currently being designed to improve Airglades Boulevard (the airport entrance road) and construct industrial park access roads. The Airglades Industrial Park is comprised of approximately 257 acres of land (44 acres commercial and 213 acres industrial). Industrial park land along Airglades Boulevard is available for industrial development.



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The highest and best use of the remaining land is considered to be agricultural at this time. The land use is compatible with airport operations and requires little maintenance effort on behalf of the County or airport staff. However, long-range plans could include alternate uses for the agricultural land use. As the Airglades Industrial Park develops and reaches 50 to 60 percent occupancy, planning studies should be undertaken to develop additional industrial park resources at the airport. Based on access to Flaghole Road, the next quadrant with potential for development is the southwest quadrant. The eastern area of the airport could be subsequently developed for industrial use, but would require access improvements.

The area designated for aviation use is also depicted in **Figure 5.8**. This area should be restricted to aviation development and use. However, some land within the aviation use area can be leased for agricultural purposes. In general, aviation land outside of the Object Free Areas and Safety Areas can be used for agriculture as long as the activity does not attract wildlife or otherwise conflict with airport operations.

5.6 SELECTION OF THE PREFERRED ALTERNATIVE DEVELOPMENT PLAN

After a series of Airport Advisory Board and public meetings, the Hendry County Board of County Commissioners adopted Terminal Building Concept #2 as the preferred plan for airport development. The concept layout was modified in earlier meetings by the Airport Advisory Board to include the rehabilitation of the old hangar (currently used to store maintenance equipment) for use as an aircraft storage hangar.

SECTION 6.0 ON-AIRPORT LAND USE DEVELOPMENT

SECTION 6.0

ON-AIRPORT LAND USE DEVELOPMENT

6.1 INTRODUCTION

This section provides an overview of existing on-airport land use development, consideration of the planned industrial park, and potential future land use development.

6.2 ON-AIRPORT LAND USE DEVELOPMENT

A key element of this master plan update is consideration of on-airport land use and how to best manage the large amount of land at the airport. In this case, land use planning is not concerned with detailed studies for maximizing the use of confined areas, but a review of issues to help guide future development decisions. Land use decisions should consider aviation and airfield development as a critical land use superior to all other uses. However, compatible development and use of non-aviation property is encouraged to enhance airport revenue.

6.2.1 Airport Land Use Classifications

For planning purposes, categories of on-airport land uses at the Airglades Airport are set forth as follows:

- Airfield/Aviation Operations;
- Agricultural;
- Industrial; and
- Commercial

The following paragraphs discuss each of these land uses on airport property. Existing land uses are depicted in **Figure 6.1**. Planned future land uses are depicted in **Figure 6.2**.

Airfield/Aviation Operations Land Use

This airfield component of this category includes land dedicated to runway/taxiway pavements, navigation aids, and their related critical clearance areas as defined by the FAA. The aviation operations component (airport building area) generally includes terminal facilities, general aviation facilities, and airport maintenance facilities.

Airfield Land Use Area

The existing airfield land use area is essentially restricted to the airfield pavement network and accompanying Safety Areas, Object Free Areas, and Runway Protection Zones (RPZs).

The future airfield land use area is defined to accommodate anticipated improvements for the 20-year planning period and provides an increased area associated with airfield facilities. The factors affecting change in airfield land use include improved approaches and the re-activation and development of Runway 4/22. The increased area allocated to airfield land use does not preclude all agricultural land use in the vicinity of the runway and taxiways; it provides an area that for planning purposes has a high







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importance for airport operations. In general, agricultural use outside of Safety Areas and Object Free Areas can be continued. However, other uses should be restricted to those necessary and compatible with airport operations.

The planned precision and non-precision approaches for Runway 13/31 will require establishing larger RPZs for the runway. RPZs are two-dimensional trapezoid-shaped areas located beyond each runway end. Within all RPZs, land use should be restricted and controlled to prevent the erection of structures and/or the congregation of people. Use of this land for generating revenue (i.e., agriculture) is encouraged, but the use should be compatible with airport operations and not allow obstructions to a runway approach.

Land use for the proposed Runway 4/22 development is mostly established since the closed turf runway is still in place and occasionally used by local pilots. The re-activation and future extension of the runway would involve converting areas of on-airport agricultural land use to airfield land use.

Aviation Operations Land Use Area

The Aviation Operations Area encompasses the airport facilities that serve airport users and passengers. These facilities include the passenger terminal building; aircraft parking aprons; aircraft storage hangars; maintenance hangars; corporate aviation facilities; public automobile parking; and the terminal access roadway system.

At the Airglades Airport, the Aviation Operations Area is associated with general aviation operations. This includes both commercial and non-commercial activities. Commercial general aviation, by definition, consists of the Fixed Base Operator (FBO) and aircraft services. These activities include: the sale of aviation services for a profit to the general public, including maintenance, storing and servicing of aircraft; sale of aircraft parts and accessories; sale of aircraft fuel, lubricants and propellants, and operation of non-scheduled and charter transportation. The commercial services are provided in the area west of and adjacent to the passenger terminal facilities. This area is comprised of large aircraft maintenance/storage hangars, limited aircraft parking apron, and a fueling facility. This area will remain the focal point for commercial aviation services as the selected development scenario for airport development plans for additional aircraft maintenance facilities and infrastructure. This area should be developed and promoted as the business and service area of the airport.

Non-commercial general aviation consists of those activities that involve the facilities for storage and service of aircraft for an individual, private organization, or corporation solely for its own benefit. The non-commercial areas include the aircraft parking apron located northeast of the passenger terminal building, T-hangars located west of the FBO operation, and corporate hangars along Taxiway "S." These areas do not require close proximity to terminal or commercial aviation facilities. The future land use plan accounts for the proposed development of additional aircraft storage hangars and corporate facilities along Taxiway "A", Taxiway "S", and the area northeast of the general aviation aircraft parking apron.

Airfield/Aviation Operations Land Use Assessment

The provision of adequate land for current and future airfield and aviation-related operations should be the primary consideration of the Airport Advisory Board and County Commission. As such, all land use decisions or development proposals should take into account the effects on long-term aviation functions and growth potential.

The extent and configuration of the airport's property should allow for establishing and protecting land needed for airfield and aviation-related operations. Certain activities, such as agricultural leases, can be allowed in parts of the Airfield/Aviation Operations land use area. However, these land uses should be subordinate in all cases to airfield operations and aviation activity needs. One case in point is the potential development of a recreational vehicle park in the diamond-shaped area north of the terminal area. Although aviation-related development of this property is not depicted in this master plan update, any development or lease for this area should consider the potential need for this property for future airfield development and include appropriate reversion provisions.

6.2.2 Agricultural Land Use

A large portion of existing airport property is under agricultural lease and represents a substantial source of revenue for the airport. This land use is compatible with airport operations and should be continued. As mentioned above, agricultural activity should be conducted outside of established Safety Areas and Object Free Areas. Certain consideration should be given to agricultural land uses as some crops attract large numbers of wildlife. Agricultural activities that attract wildlife should be discouraged.

In the future, conversion of agricultural land use to other potential land uses that may generate a higher return or economic benefit, such as additional industrial park development, should be considered on a case-by-case basis as the airport grows.

6.2.3 Industrial Land Use and Park Development

The northwest quadrant of the airport is being developed as the Airglades Industrial Park. The current conceptual layout of access roads and airport development lots is depicted in **Figure 6.2**.

The planned industrial park layout offers opportunities for the development of approximately six 3.2-acre parcels with airfield access. The industrial park property fronting Taxiways "A" and "S" should be reserved for aviation-related enterprises that require airfield access. The successful promotion and development of these parcels for aviation-related use can benefit the local economy and tax base while increasing the number of based aircraft and operations at the airport. As with most industrial park layouts, consideration of the parcel needs of a potential industry tenant may require combining/reconfiguring lots or developing a revised parcel layout with airfield access.

Restrictions and limitations to industrial park development, as related to airport operations, include safety clearance areas, airspace considerations, and potential incompatible activities. In regards to safety clearance areas, no development should occur within a runway or taxiway Safety Area or Object Free area. In addition, all RPZs should be restricted and allow only development compatible with a RPZ.

Consideration should also be given to the siting of industries in the Airglades Industrial Park. Those that may generate smoke, dust, nuisance light, electromagnetic interference, or other conditions that have the potential to affect pilots or aircraft should be located far from the airfield and runway approach corridors.

The airport has land available for additional industrial park development. As the existing Airglades Industrial Park builds out, planning for a future industrial park should be undertaken.

6.2.4 Commercial Land Use

The airport appears to have some potential for commercial land use development on the north side of the airport, along Highway 27. The "diamond" area within the airport access loop road has been identified by County staff also as an area with potential commercial use. One concept for this area is a recreational vehicle park that would likely be leased, developed, and operated by third parties.

6.3 INCOMPATIBLE LAND USES

A wastewater treatment plant and spray field is located on airport property, near the east point of the airport access road "diamond." According to FAA Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants on or Near Airports*, the FAA considers wastewater treatment plants as an incompatible land use on an airport as they may attract wildlife (FAA, 1997). The FAA states that regular spraying of wastewater or sludge disposal on unpaved areas may improve soil moisture and quality. The resultant turf growth requires more frequent mowing, which in turn may mutilate or flush insects or small animals and produce straw. The maimed or flushed organisms and the straw can attract hazardous wildlife and jeopardize aviation safety. In addition, the improved turf may attract grazing wildlife such as deer and geese. In the case of an existing plant, the FAA recommends correcting any wildlife hazards that may be associated with the facility.

SECTION 7.0 AIRPORT DEVELOPMENT PLAN

SECTION 7.0

AIRPORT DEVELOPMENT PLAN

7.1 INTRODUCTION

This section presents the 20-year airport development plan for the Airglades Airport. The plan is described in a series of development planning topics for clarity and understanding. Emphasis is placed on major capital improvements. However, minor or incidental improvements may be discussed when associated with major capital projects.

Facility planning for the Airglades Airport provides a guide for the County to meet the aviation needs of the community. The intent is to better serve the traveling public and to support local economic development goals. The development plan should efficiently utilize existing facilities and allow for the orderly development of new facilities. As discussed in Section 5.0, airport development should be accomplished in a prudent manner that considers safety, efficiency, and utility.

The review of current and projected demand and facility requirements in Section 4.0 found that the existing facilities mostly satisfy current demand at the Airglades Airport. However, efforts by the County and FBO to improve facilities, increase aviation activity, and accommodate aviation-related industries has the potential to generate demand for additional facilities and services. As such, the approach in this development plan assumes that a steady growth in the demand for facilities will occur over the planning period.

In general, improvements and new facilities (i.e., hangars and aircraft parking apron) should occur as demand dictates. This requires monitoring and anticipating the demand for facilities. Major rehabilitation projects should be conducted on a programmed basis, and in some cases, as a response to unforeseen conditions. To assist in planning for these actions, a staging program will be planned to promote an adequate balance between anticipated aviation needs, community goals, and anticipated funding availability. Detailed staging and cost estimates are described in Section 8.0, Implementation Program.

This section describes the basic planning elements of the recommended development program for the airport through the year 2021. The following four major subjects are discussed in this section:

- Long-Range Plan;
- Airfield Development
- Airport Land Use and Access, and
- Building Area Plan.
7.2 LONG-RANGE PLAN

The major elements of the recommended Long-Range Airport Development Plan are depicted in **Figures 7.1 and 7.2**. The airport plan has been developed to include the necessary elements as identified in the analyses of facility requirements and the adopted airport development conceptual layout.

Considering the current level of activity at the airport, it is assumed that much of the hangar, apron, and aircraft parking development would occur on an as-needed basis. It should be noted that this airport development plan is not intended to represent a fixed plan, but is a demonstration of how the airport might appear toward the end of the 20-year forecast period. As part of an on-going planning process, the County and Airport Advisory Board should periodically consider potential aviation and economic development opportunities and update the long-range plan to position the airport to take advantage of those opportunities.

The following capital improvement projects have been identified for the Long-Range Development Plan. The major development elements will be discussed, along with capital improvement program phasing.

Airfield

- Airfield Pavement Rehabilitation (Runway 13/31 and Taxiways)
- Runway 13/31 Runway Safety Area Improvements
- Airfield Lighting Rehabilitation
- Install Runway End Identifier Lights (REIL) for Runway 13/31
- Re-Activate Turf Runway 4/22 (short-term)
- Extend, Pave, and Light Runway 4/22 (long-term)
- Construct Parallel Taxiway for Runway 4/22
- Construct Helicopter Pads

Terminal/Building Area

- Construct six 10-Unit T-Hangar Buildings
- Construct one 100' x 120' Maintenance Hangar
- Rehabilitate Old Maintenance Hangar
- Construct one 100' x 100' Corporate Hangar
- Construct nine 80' x 80' Corporate Hangars
- Construct one 60' x 60' Corporate Hangar







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- Construct New Terminal Building
- Construct Additional Automobile Parking Space
- Expand General Aviation Apron West of Terminal Building
- Construct Connector and Access Taxiways to Maintenance and Corporate Hangars
- Expand General Aviation Apron Northeast of Terminal Building
- Upgrade Security Lighting and Security Fencing
- Construct Aircraft Wash Rack

Industrial Park

Develop Six Aviation-Related Parcels with Airfield Access

General

- Relocate and Construct New Airport Maintenance Facility
- Airport Drainage Improvements
- Obstruction Removal (Off-Airport Communications Tower)
- RV Park Development
- Install New Entrance Sign Upgrade
- Access Road Rehabilitation

Planning Studies

- Environmental Assessment for Re-Activate Runway 4/22
- Master Drainage Plan Update

7.3 AIRSIDE IMPROVEMENTS

The airfield improvements are described in the following paragraphs.

7.3.1 Runway 13/31

Runway 13/31 will remain the primary runway for the airport. Long-term planning includes a precision approach to Runway 13 and a non-precision approach on Runway 31. The airport reference code for Runway 13/31 is and will remain B-II. No changes to the layout, length, width, and geometry of the runway are planned.

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Runway 13/31 Pavement and Safety Area

The Runway 13/31 pavement is currently (2003) in very good condition. The 1999 Pavement Maintenance Evaluation for the runway stated that the Pavement Condition Index (PCI) for three sections of the runway ranged from 98 to 100, indicating that the pavement will have an acceptable service level for the master plan 20-year study period. However, the Development Plan includes a future project to rehabilitate (overlay) Runway 13/31 as the intense sun and heat conditions experienced at the airport can affect pavement condition. In this regard, planning for a long-term runway pavement rehabilitation project is considered prudent.

Regular (annual) inspections to identify conditions requiring maintenance or rehabilitation should be conducted to prolong the life of the pavement structure. Runway markings should be periodically inspected and re-marked to ensure visibility.

The Runway Safety Area meets the dimensional requirements for the B-II ARC. The RSA has some areas in which storm water does not adequately drain, causing some temporary ponding on and around portions of the runway turf area after rain events. Drainage problems should be corrected to prevent water accumulation. An airfield drainage study and RSA grading and drainage project are included in the Development Plan to correct and improve drainage on and around the RSA. During the course of regular maintenance duties, the RSA should be regularly inspected for other conditions requiring maintenance.

No modification of design standards or the application of Declared Distance Criteria are required or proposed.

Runway 13/31 Pavement Strength

The existing pavement strength is reported to be 22,000 pounds Dual Wheel Load. The future pavement strength for Runway 13/31 is proposed at 36,000 pounds Dual Wheel Load (based on the Gulfstream I as the future Critical Aircraft). A strengthening overlay should be considered as a long-term planning item to respond to a potential future increase of operations by larger, heavier aircraft.

Runway 13/31 Electronic NAVAIDS and Visual Approach Aids

Electronic and visual navigational aid equipment serving Runway 13/31 is anticipated to ultimately include the following:

- VOR Non-Precision Approaches to both runway ends;
- LAAS/WAAS Precision GPS approach capability to Runway 13;
- LAAS/WAAS Non-Precision GPS approach to Runway 31; and
- Runway End Identifier Lights (REIL) for Runway 13/31 (both ends).

7.3.2 Runway 4/22

The re-opening of Runway 4/22 will provide adequate crosswind coverage during IFR and VFR weather conditions.

Re-open Runway 4/22

The first phase will consist of re-opening Runway 4/22 as a 2,520-foot turf runway for small aircraft and recreational use. As demand dictates, the runway would be extended to an ultimate length of 4,670 feet and paved (see **Figure 7.3**). The ultimate runway configuration would be lighted with medium-intensity runway lights (MIRL). The future pavement strength for the ultimate configuration of Runway 4/22 would be 12,500 pounds Single Wheel Load.

The proposed ultimate Runway Safety Area would meet the dimensional requirements for the B-II ARC. No modification of design standards or the application of Declared Distance criteria are expected for this runway.

Runway 4/22 Electronic NAVAIDS and Visual Approach Aids

Visual navigational aid equipment serving Runway 4/22 is anticipated to ultimately include the following:

• Precision Approach Path Indicators (PAPI) on both ends.

7.3.3 Helicopter Landing Areas

As activity on the airfield increases, the need to designate helicopter landing areas may become necessary. As such, two locations are proposed in this Airport Development Plan for the construction of helicopter landing pads. The first location would be located southeast of the passenger terminal building and serve the terminal area. The second location is proposed for the corporate aviation area on Taxiway "S". The helicopter pads should be designed and constructed to FAA criteria.

7.3.4 Taxiways

The existing taxiway network has an efficient layout and meets or exceeds design standards. The 1999 *Pavement Maintenance Evaluation* reflects the pavement condition to be good to excellent based on the Pavement Condition Index (PCI). Certain taxiway section were identified as needing surface treatment or rehabilitation.

The pavement maintenance report projected that the taxiway between the passenger terminal building ramp and the turf runway would have a projected PCI of 60 in 2002 (60 PCI was identified in the report as the minimum level of service). The pavement maintenance report recommended resurfacing or an overlay as viable alternatives for this taxiway. This taxiway should be rehabilitated to coincide with the re-opening of the turf runway.

The taxiway connecting the maintenance hangar apron and Taxiway "A" is projected to have a PCI of 59 in 2004. The pavement maintenance report recommended a surface treatment to extend the life of this pavement.



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The Development Plan also includes future projects to rehabilitate (overlay) the airfield taxiway system (Taxiway "A" and connectors and Taxiway "S"). As mentioned previously, the intense sun and heat conditions experienced at the airport affect pavement conditions and planning for long-term of pavement rehabilitation projects is prudent.

The layout plan depicts a potential parallel taxiway for Runway 4/22. This taxiway is depicted to reserve land for possible future construction, as demand dictates. It is likely that construction of the full parallel taxiway may occur beyond the 20-year study period.

Regular (annual) inspections to identify conditions requiring maintenance should be conducted to prolong the life of the pavement structure. Taxiway markings should be periodically inspected and re-marked to ensure visibility.

7.3.5 Aircraft Parking Apron

The development plan identifies two areas for aircraft parking apron expansion. Phase I will expand the existing aircraft parking apron located west of the terminal building, between the T-hangar buildings and existing apron. Phase II consists of an expansion of the aircraft parking apron located northeast of the terminal building. The aprons will provide additional tie-down positions and improve access. It is anticipated that additional aircraft parking apron will be constructed as needed to meet demand.

The 1999 *Pavement Maintenance Evaluation* reports the Pavement Condition Index (PCI) for apron at the terminal building is good with a PCI of 58 at the time of inspection and an estimated PCI of 56 in 2000. The study proposed a surface treatment or resurfacing to extend the life of the pavement. The strip of concrete in front of the maintenance hangars was also noted to be in poor condition in the *Pavement Maintenance Evaluation* report. Rehabilitation of these pavements will be included in the development plan. The long-term plan will also include the rehabilitation of the existing apron pavement at the maintenance hangars.

Regular inspections of apron pavements should be conducted to identify conditions requiring maintenance. Apron markings should be periodically re-painted to ensure visibility.

7.3.6 Imaginary Airspace and Instrument Approaches

When the planned precision and non-precision instrument approaches to Runway 13/31 are published, the airspace dimensions and approach surface slopes associated FAR Part 77 will increase from the current visual criteria. Runway 4/22 is planned to have visual approaches for both ends throughout the planning period.

7.3.7 Land Requirements

No land acquisition is required to accommodate the proposed improvements at the Airglades Airport.

7.4 AIRPORT ACCESS ROAD

The existing airport access road is a two-lane facility that provides access from U.S. Highway 27 (State Highways 80 and 25). The two-lane access road is expected to remain adequate throughout the planning period for airport traffic. However, the development of the industrial park and increased truck traffic may require some rehabilitation and maintenance during the study period. New access roads to the planned industrial park are proposed airport development items. The new roads should be designed to accommodate heavy truck traffic in the airport industrial park.

An unpaved road on the airport would be realigned to accommodate the future extension of Runway 4/22. The road is not open to the public and provides access to agricultural lease areas on the airport.

7.5 SURROUNDING LAND USE

Existing land uses surrounding the airport are agricultural and industrial. The proposed airport improvements will not physically impact or adversely affect existing and planned land uses surrounding the airport.

7.6 BUILDING AREA PLAN

The proposed development of airport buildings and hangars through the year 2021 is depicted on **Figure 7.2**. In addition to satisfying facility requirements established in Section 4.0, the Building Area Plan presents an orderly plan for development and provides the ability to respond to unforeseen aviation-related demands. The following paragraphs discuss aspects of these facilities.

7.6.1 Passenger Terminal Building

A new passenger terminal building is planned for construction in the near future. The new terminal building will replace the existing terminal building and provide modern facilities for passengers, pilots, and airport administration. The proposed terminal building should provide sufficient passenger and management facilities for the master plan study period.

The conceptual layout of the terminal building is depicted in **Figure 7.2**. However, design modifications may be implemented during the design-build process. The final approved site plan will also include improved vehicular access and parking.

7.6.2 Maintenance / FBO Hangars

The airport development plan allocates space for additional maintenance hangars (and/or second Fixed Base Operator (FBO)). The build-out concept is to develop the area west of the existing maintenance hangars to provide a focal point on the airport for aviation and aircraft maintenance services.

The County plans to rehabilitate an old maintenance hangar that is currently being used for equipment storage. The rehabilitated hangar could be used to park aircraft or conduct aircraft maintenance or avionics activities. An additional maintenance hangar, approximately 120'x100' in size, could be

constructed west of the rehabilitated hangar. The new maintenance hangar should be considered when there is adequate demand for additional hangar or FBO facilities.

The development plan provides vehicular parking for the maintenance hangar area. This will improve access to the facilities and limit the need to drive and park automobiles on the aircraft parking apron. Airside access and parking apron capacity for the maintenance hangars can be staged to coincide with development. The aircraft access and parking apron will be part of the overall proposed Phase I aircraft parking apron expansion in the area west of the terminal building.

7.6.3 T-Hangar Development (Phases I and II)

To meet the projected demand for enclosed aircraft storage facilities, the development of additional T-hangar facilities is proposed for the areas northwest and northeast of the terminal building.

Phase I would consist of the development of three 10-unit T-hangar buildings west of the two existing T-hangar buildings. The additional T-hangars should be of a standard design and have paved access to Taxiway "A." Phase I improvements could be staged as demand for storage space and/or financial interest dictates.

Phase II would provide three additional 10-unit T-hangar buildings northeast of the proposed corporate hangar complex. These would be developed adjacent to the existing general aviation aircraft parking apron. The T-hangar buildings should also be of standard design and have paved access to the terminal area and taxiway system via a taxilane connector that would be constructed adjacent to the existing aircraft parking apron. Phase II would also be staged as future demand for storage space and/or financial interest dictates. The concept plan depicting these facilities is shown on **Figure 7.2**.

7.6.4 New Corporate Hangar Facilities (Phases I and II)

The ability to promote and increase corporate aviation at the airport can be an integral part of the local economic development program. As such, the development plan addresses siting and development of additional corporate hangar facilities at the Airglades Airport.

Phase I development consists of the build-out of corporate hangar facilities on Taxiway "S." The conceptual layout allows for seven new corporate hangars. To offer a variety of site development opportunities, the proposed hangars range in size from 100'x100' to 60'x60', with a majority being 80'x80'. The plan includes the development of access and parking aprons. Vehicular access and parking would be from Airport Road and the planned industrial park road. Corporate hangar development can be staged to meet the demand for corporate aviation facilities.

Phase II corporate hangar development consists of the construction of a corporate hangar building containing four 80'x80' enclosures. The concept would be to provide aircraft storage facilities for entities that may not require dedicated vehicular access and parking. The hangar building and associated parking apron would adjoin the north edge of the existing general aviation aircraft parking apron. A concept plan depicting these facilities is shown on **Figure 7.2**.

7.6.5 Industrial Park Lot Development

The development of the Airglades Industrial Park includes the ability to provide six aviation-related lots with airfield access. As discussed previously, these lots can be combined or adjusted to meet the specific needs of the locating industry. The development plan includes the development of hangars, office buildings, vehicular access, and individual aircraft parking aprons. The industrial park lots would be developed to meet the demand.

7.7 NEW AIRPORT MAINTENANCE FACILITY

The development plan calls for a new airport maintenance facility to be developed adjacent to the Phase I T-hangar buildings. Airfield maintenance is currently conducted from the old maintenance hangar. The rehabilitation of this hangar would displace the maintenance operations and equipment storage. The new facility will have access to the access road and airfield and generally consist of a metal building suitable for a workshop and small office and a fence storage yard. The proposed location of the airport maintenance facility is shown on **Figure 7.2**.

7.7.1 General Improvements

Security Lighting and Fencing Upgrades

Install additional security lighting in the terminal and aircraft storage areas. Replace sections of existing security fencing and install additional security fencing around the airfield.

Airport Entrance Sign

The Development Plan includes the construction of two airport entrance signs. The plan includes installation of one sign at the existing airport entrance and one sign at the proposed alternate entrance west of the existing entrance.

Aircraft Wash Rack

A wash rack is proposed to provide a common aircraft wash area and collection system for wash water.

Obstruction Removal (Off-Airport Communications Tower)

This project consists of the removal of an abandoned communications tower that is located in the proposed approach to Runway 13.

Emergency Generator

Install an emergency back-up electric power generator to maintain airfield lights and communications during power outages.

RV Park Development

It is assumed that infrastructure for a proposed RV park at the airport will be provided by third-party developer/operators.

SECTION 8.0 ENVIRONMENTAL OVERVIEW

SECTION 8.0

ENVIRONMENTAL OVERVIEW

8.1 INTRODUCTION

This section provides a general overview of environmental conditions and potential impacts relative to proposed improvements at the Airglades Airport. The proposed improvements generally consist of airfield improvements (i.e., re-open Runway 4/22) and terminal area improvements, which include hangar and aircraft parking apron development. Although a detailed assessment of impacts is beyond the scope of this master plan study, this chapter broadly discusses some of the environmental considerations that may require further review to meet federal, state and or local requirements prior to construction.

8.2 ENVIRONMENTAL EVALUATION REQUIREMENTS

Consideration of Environmental Impacts

All airport improvement projects that are considered "federal actions," or otherwise involve federal funding or approvals, must be examined from an environmental standpoint in order to comply with the *National Environmental Policy Act* (NEPA). Guidance for the FAA's consideration of environmental impacts is provided in FAA Order 5050.4A, *Airport Environmental Handbook* and FAA Order 1050.1D, *Policies and Procedures for Considering Environmental Impacts*. Other federal and state regulations policies are also integral to the process of considering potential environmental impacts generated by airport development.

For any proposed Federal action, an initial environmental determination that considers the type of action and its potential effect upon the environment is performed. The result of the determination is the selection of one of the following three environmental processes:

- Categorical Exclusion (CE) A proposed action may be considered categorically excluded if it typically does not result in significant environmental impacts and for which an Environmental Assessment (EA) or Environmental Impact Statement (EIS) is not specifically required. A CE may require brief documentation of the project's description and environmental impact potential in order to support its processing as a CE.
- Environmental Assessment (EA) An EA is prepared for proposed actions with expected minor or uncertain environmental impact potential. An EA requires analysis and documentation similar to that of an EIS, but with somewhat less detail and coordination. Depending upon whether certain environmental thresholds of significance are exceeded or not, an EA will either lead to a Finding of No Significant Impact (FONSI) or a requirement for the preparation of an EIS.
- **Environmental Impact Statement (EIS)** An EIS is prepared for major federal actions, which are expected or known to have the potential for significant environmental impacts. An EIS involves thorough evaluation and documentation of a proposed action's purpose and need, alternatives, affected environment, and environmental consequences. The study requires coordination with involved Federal, state, and local agencies and the public.

Proposed Airport Improvements Requiring NEPA Environmental Review

Improvements proposed for the Airglades Airport that may require NEPA environmental review include the following:

- Re-activation of Runway 4/22
- Future extension of Runway 4/22
- Establishment of an instrument landing system (GPS precision approach) for Runway 13/31.

A detailed discussion of projects and thresholds that determine which environmental process is applicable are described in FAA Order 5050.4A, *Airport Environmental Handbook*. Environmental studies, if required, should be prepared well in advance of a planned project.

Development projects and certain airport operations may not be subject to NEPA review but require compliance with state and local environmental regulations. State and local regulations most commonly associated with airport development projects are associated with water quality, wetlands, and storm water management. State and local agencies should be consulted in advance of development projects to determine permit requirements.

Consideration of Regional Impacts

In Florida, a Development of Regional Impact study is required when a project, because of its character, magnitude or location, would have a substantial effect on the health, safety, or welfare of citizens in more than one county. The state has established thresholds to determine when a development is subject to the DRI review process. The determination to prepare a DRI is made by the Florida Department of Community Affairs (DCA).

In general, any proposed change to a previously approved development which creates a reasonable likelihood of additional regional impact, or any type of regional impact created by the change not previously reviewed by the regional planning agency, shall constitute a substantial deviation and shall cause the development to be subject to further review. For airports, a new runway, a new terminal facility, a 25-percent lengthening of an existing runway, or a 25-percent increase in the number of gates of an existing terminal (if the increase adds at least three additional gates) can be subject to development-of-regional-impact review (Florida Statutes, 2002. Chapter 380.06).

Recent state legislation states that a development or expansion of an airport consistent with the adopted airport master plan that has been incorporated into the local comprehensive plan that addresses land use, airport zoning, and transportation plans, shall not be a development of regional impact (Florida Statutes, 2002. Chapter 163.3177 (6)(k)). Given this legislation, this updated airport master plan should be considered for incorporation into the local comprehensive plan. As a matter of planning practice, the Master Plan should also be made available to local and regional planning agencies.

8.3 ENVIRONMENTAL CONSIDERATIONS

The following discussion briefly describes the environmental impact categories normally considered in the preparation of an EA/EIS and provides a general discussion of likely consequences. Detailed analysis of each environmental impact category is beyond the scope of this study and will be performed when the appropriate level of environmental review is conducted for a specific proposed action.

8.3.1 Noise

One of the most important environmental considerations related to airport development is that of noise compatibility. For this Master Plan Update, Noise Exposure Maps (NEMs) were produced for the existing condition (based on 2001 operational data) and for the level of activity projected for year 2021. The NEMs provide a valuable gauge for anticipating future aircraft noise impacts and also act as a guide in land use planning and decisions regarding local development. The following paragraphs describe the development of the Master Plan Update NEMs and potential impacts in the vicinity of the airport.

Aircraft Noise Terminology

A variety of noise metrics are used to assess airport noise impacts. Noise metrics are used to describe individual noise events (such as a single operation of an aircraft taking off overhead) or groups of events (such as the cumulative effect of numerous aircraft operations, the collection of which creates a general noise environment or overall exposure level). The most frequently used metric at general aviation airports is the Day-Night Average Sound Level (DNL).

The Day-Night Average Sound Level (DNL) represents noise as it occurs over a 24-hour period. It is the same as a 24-hour equivalent sound level (Leq), with one important exception: DNL treats nighttime noise differently from daytime noise. The equivalent sound level is the log of the average value of the sound exposure during a stated time period. It is often used to describe sounds with respect to their potential for interfering with human activity. In calculating DNL, it is assumed that the A-weighted levels occurring at night (10:00 p.m. to 7:00 a.m.) are 10 dB louder than they really are. This penalty is applied to account for greater sensitivity to nighttime noise and because events at night are often perceived to be more intrusive.

Values of DNL can be measured with standard monitoring equipment and predicted with computer models. Most aircraft noise studies utilize computer-generated estimates of DNL, determined by accounting for all of the SELs from individual events which comprise the total noise level at a given location on the ground.

Noise Prediction Methods

This section documents the noise prediction methodology for preparing NEMs for current and projected operations at the Airglades Airport. The FAA's Integrated Noise Model (INM) Version 6.1 is a complex computer program that calculates aircraft noise levels around an airport from data describing yearly aircraft operations, using an extensive internal database of aircraft noise and performance statistics. The input data required include average daily and nightly aircraft operations by specific aircraft type, typical flight path and runway geometry, and average annual runway and flight path use statistics by aircraft category.

The FAA developed the INM as the primary tool for analyzing and evaluating noise impacts from aircraft operations. Its use is prescribed for all FAA-sponsored projects requiring environmental evaluation. The INM contains a set of noise and profile databases that can be altered by the analyst to enable input of data for new aircraft and engine types and to account for specific changes in flight procedures.

The input data used in this noise prediction model are derived from a number of sources including, but not limited to, records maintained by the Airglades Airport, the FAA, the FDOT, and assumptions made in this report regarding projected aircraft activity levels. Specific data sources are identified for each input requirement.

Activity Levels and Fleet Mix - The average daily number of aircraft operations for the years 2001 and 2021 were the basis for developing noise exposure contours for the airport. The number of aircraft operations (annual and average daily) for these years are presented in **Table 8.1**.

	Annual Operations	Average Day Operations
2001	11,527	31.58
2021	27,028	74.05

TABLE 8.1
AIRCRAFT OPERATIONS FOR INM

Source: URS Corporation, 2002.

The make and model of aircraft used in these operations were also identified for the development of a fleet mix. Fleet mix refers to the various types of aircraft that operated at the Airport and included very specific information such as engine type, gross weight, and departure stage length. Application of the fleet mix to the average-daily aircraft operations figures produced the number of average-daily operations by aircraft type. As fleet mix and aircraft operations data were collected, appropriate aircraft categories were established to reflect activity at the airport by corporate and general aviation users. The average daily operations by aircraft type for 2001 and 2021 are included in **Tables 8.2 and 8.3**.

	Dana		A!		Tauah		Ta	4.01	r 1
	Depa	rture	Arri	vai	I OUCH a	and Go	10		
INM	Day	Night	Day	Night	Day	Night	Day	Night	Total
Single Engine Pis	Single Engine Piston								
GASEPF	5.4743	0.2881	5.4743	0.2881	1.9321	0.1017	12.8808	0.6779	13.5587
GASEPV	3.3237	0.1749	3.3237	0.1749	1.1731	0.0617	7.8205	0.4116	8.2321
CNA206	0.9776	0.0515	0.9776	0.0515	0.3450	0.0182	2.3001	0.1211	2.4212
Multi Engine Pisto	on								
BEC58P	0.5000	0.0263	0.5000	0.0263	0.0000	0.0000	1.0001	0.0526	1.0527
Turbo Prop									
CNA441	1.0001	0.0526	1.0001	0.0526	0.0000	0.0000	2.0001	0.1053	2.1054
Jet									
CIT3	0.6700	0.0353	0.6700	0.0353	0.0000	0.0000	1.3401	0.0705	1.4106
MU3001	0.3300	0.0174	0.3300	0.0174	0.0000	0.0000	0.6600	0.0347	0.6948
Helicopter									
B206	1.0001	0.0526	1.0001	0.0526	0.0000	0.0000	2.0001	0.1053	2.1054
Total	13.2758	0.6987	13.2758	0.6987	3.4502	0.1816	30.0018	1.5790	31.5808

TABLE 8.2BASE YEAR 2001 AVERAGE DAILY OPERATIONS

Source: URS Corporation, 2002.

TABLE 8.3 FORECAST YEAR 2021 AVERAGE DAILY OPERATIONS

	Depa	rture	Arr	ival	Touch a	and Go	Tot	tal	
INM	Day	Night	Day	Night	Day	Night	Day	Night	Total
Single Engine I	Piston								
GASEPF	12.2236	0.6433	12.2236	0.6433	4.3142	0.2271	28.7614	1.5138	30.2752
GASEPV	7.4215	0.3906	7.4215	0.3906	2.6193	0.1379	17.4623	0.9191	18.3813
CNA206	2.1828	0.1149	2.1828	0.1149	0.7704	0.0405	5.1360	0.2703	5.4063
Multi Engine Pi	ston								
BEC58P	0.9800	0.0516	0.9800	0.0516	0.0000	0.0000	1.9600	0.1032	2.0632
Turbo Prop									
CNA441	2.7984	0.1473	2.798	0.147	0.0000	0.0000	5.5968	0.2946	5.8913
Jet									
CIT3	2.4626	0.1296	2.4626	0.1296	0.0000	0.0000	4.9251	0.2592	5.1844
MU3001	0.8454	0.0445	0.8454	0.0445	0.0000	0.0000	1.6907	0.0890	1.7797
CL600	0.367548	0.019345	0.367548	0.019345	0.0000	0.0000	0.7351	0.0387	0.7738
Helicopter									
B206	2.0398	0.1074	2.0398	0.1074	0.0000	0.0000	4.0795	0.2147	4.2942
Total	31.3215	1.6485	31.3215	1.6485	7.7039	0.4055	70.3468	3.7025	74.0493

Source: URS Corporation, 2002.

Physical Input - Physical input parameters include runway layout, runway utilization, and flight tracks. Input for these parameters is discussed as follows:

Runway Definitions - The existing 5,905-foot Runway 13/31 was modeled for 2001 conditions. For 2021, the 5,905-foot Runway 13/31 and proposed 4,670-foot Runway 4/22 were modeled.

Runway Use - Runway use refers to the frequency with which aircraft utilize each runway during the course of a year as dictated or permitted by wind, weather, aircraft weight, air traffic control conditions, and noise considerations. Runway utilization estimates are shown in **Table 8.4**.

Runways	2001	2021
13	49%	44%
31	51%	46%
04	N/A	4%
22	N/A	6%
Total	100%	100%

TABLE 8.4 RUNWAY UTILIZATION

Source: URS Corporation, 2002.

Flight Tracks - Flight tracks are the aircraft's actual path through the air projected vertically onto the ground. All flight tracks do not represent the precise paths flown by all aircraft utilizing the Airport. Instead, they represent the primary flight corridors for the airport. For the Airglades Airport, a standard left-hand traffic pattern and straight-in/straight-out approached are utilized. **Tables 8.5 and 8.6** present departure and arrival flight track use rates for all aircraft categories, respectively.

TABLE 8.5 ARRIVAL FLIGHT UTILIZATION

Runway	Track	Existing	Future
13	13A1	60%	60%
13	13A2	40%	40%
To	otal	100%	100%
31	31A1	60%	60%
31	31A2	40%	40%
To	otal	100%	100%
04	04A1	N/A	60%
04	04A2	N/A	40%
To	otal		100%
22	22A1	N/A	60%
22	22A2	N/A	40%
Тс	otal		100%

Source: URS Corporation, 2002.

TABLE 8.6 DEPARTURE FLIGHT UTILIZATION

Runway	Track	Existing	Future
13	13D1	100%	100%
To	otal	100%	100%
31	31D1	100%	100%
To	otal	100%	100%
04	04D1	N/A	100%
To	otal		100%
22	22D1	N/A	100%
Тс	otal		100%

Source: URS Corporation, 2002.

2001 Noise Exposure Estimate

Noise exposure levels resulting from 2001 operations are depicted as DNL contours in **Figure 8.1**. The figure depicts the DNL 65 dB noise exposure contour. DNL contours are a graphical representation of how the noise from aircraft operations is distributed over the surrounding area on an average day of a given year. The FAA defines DNL 65 dB as the threshold of noise compatibility with residential and other noise-sensitive land uses. Thus, the DNL 65 dB contour is important for impact assessments.

The 2001 65 DNL dB noise exposure contour is located entirely on airport property and is restricted to the immediate runway area. No residential or other noise-sensitive land uses are impacted.

2021 Noise Exposure Estimate

Noise exposure levels resulting from projected 2021 operations are depicted as DNL contours in **Figure 8.1**. The 2021 65 DNL noise exposure contour is located entirely on airport property and is generally restricted to the area surrounding Runway 13/31 and a portion of Runway 4/22. No residential or other noise-sensitive land uses are impacted.

Noise Impact Summary

The existing and proposed level of aircraft activity should not create substantial noise-related impacts. However, the proposal to establish a precision approach and re-activate Runway 4/22 will require consideration of potential noise impacts as part of an Environmental Assessment.

8.3.2 Compatible Land Use

According to FAA Order 5050.4A, "The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of noise impacts related to the airport. If the noise analysis described concludes that there is no significant impact, a similar conclusion usually may be drawn with respect to compatible land use."

Federal Aviation Regulations Part 150, *Airport Noise Compatibility Planning*, contain FAA guidelines regarding the compatibility of land uses with various noise levels measured using the DNL metric (FAA, 1981). These guidelines are listed in **Table 8.7**.





TABLE 8.7 FAR PART 150 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

	Y	early Day-l	Night Avera	age Sound	Level (DNL	_)
	Below 65 Decibels	65-70 Decibels	70-75 Decibels	75-80 Decibels	80-85 Decibels	Over 85 Decibels
<u>Residential</u>						
Residential (Other than mobile homes & transient lodges)	Y	N ¹	N ¹	Ν	Ν	Ν
Mobile Home Parks	Y	N	Ν	N	Ν	Ν
Transient Lodging	Y	N ¹	N ¹	N ¹	Ν	Ν
Public Use						
Schools	Y	N ¹	N ¹	Ν	Ν	Ν
Hospitals, Nursing Homes	Y	25	30	N	N	N
Churches, Auditoriums, Concert Halls	Y	25	30	Ν	Ν	N
Governmental Services	Y	Y	25	30	Ν	Ν
Transportation	Y	Y	Y ²	Y ³	Y ⁴	Y ⁴
Parking	Y	Y	Y ²	Y ³	Y ⁴	Ν
Commercial Use						
Offices, Business & Professional	Y	Y	25	30	Ν	Ν
Wholesale & Retail Building Materials, Hardware & Farm Equipment	Y	Y	Y ²	Y ³	Y^4	Ν
Retail Trade - General	Y	Y	25	30	N	N
Utilities	Y	Y	Y ²	Y ³	Y ⁴	N
Communications	Y	Y	25	30	N	Ν
Manufacturing & Production						
Manufacturing, General	Y	Y	Y ²	Y ³	Y ⁴	Ν
Photographic and Optical	Y	Y	25	30	N	N
Agriculture (Except Livestock) & Forestry	Y	Y ⁶	Y ⁷	Y ⁸	Y ⁸	Y ⁸
Livestock Farming & Breeding	Y	Y ⁶	Y ⁷	Ν	N	Ν
Mining & Fishing, Resource Production & Extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor Sports Arenas, Spectator Sports	Y	Y ⁵	Y ⁵	Ν	Ν	Ν
Outdoor Music Shells, Amphitheaters	Y	Ν	N	N	N	N
Nature Exhibits & Zoos	Y	Y	N	N	N	N
Amusement, Parks, Resorts, Camps	Y	Y	Y	N	N	N
Golf Courses, Riding Stables, Water Recreation	Y	Y	25	30	N	Ν

TABLE 8.7 (CONTINUED)

FAR PART 150 LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

NOTE: The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties remains with the local authorities. FAA determinations under Part 150 are not intended to substitute Federally determined land use for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

KEY TO TABLE:

- SLUCM Standard Land Use Coding Manual.
- Y (Yes) Land Use and related structures are compatible without restrictions.
- N (No) Land Use and related structures are not compatible and should be prohibited.
- NLR Noise Level Reduction (outdoor to indoor) are to be achieved through incorporation of noise attenuation into the design and construction of structure.
- 25,30, or 35 Land use and related structures are generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated in design and construction of structure.

¹ Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor NLR of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

- ² Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- ³ Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- ⁴ Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of the buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- ⁵ Land use compatible provided special sound reinforcement systems are installed.
- ⁶ Residential buildings require an NLR of 25 dB.
- ⁷ Residential buildings require an NLR of 30 dB.
- ⁸ Residential buildings not permitted.

Noncompatible land use.

Source: 14 CFR FAR Part 150, Appendix A, Table 1 (28 December 1995).

The development of these guidelines was intended to establish a consistent process for estimating noise compatibility and for considering federal funding for noise compatibility programs implementation. These guidelines also aid those local jurisdictions that have not established land use guidelines with respect to airports and surrounding lands. The FAR Part 150 land use compatibility guidelines are consistent with land use compatibility guidelines developed by other Federal agencies such as the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Housing and Urban Welfare (HUD). It should be noted that the FAR Part 150 land use compatibility guidelines developed by other Federal, state, or local laws. The responsibility for determining acceptable land uses rests with the local authorities through zoning laws and ordinances.

Since there are no anticipated aircraft noise impacts, no adverse land use impacts are expected. The existing and projected DNL 65 dBA noise exposure contours are restricted to airport property and there are no residential or other noise sensitive land uses adjacent to the airport. The agricultural land use around the airport is compatible with airport operations.

8.3.3 Social/Socioeconomic/Environmental Justice Impacts

The developments proposed in this master plan update are not expected to generate adverse social impacts, disrupt planned developments, create an appreciable change in employment, or alter surface transportation patterns. The proposed airport improvements are not expected to require the relocation of residences or businesses, or disrupt established communities.

Shifts in patterns of population movement and growth are not anticipated. The proposed developments should not impact any public service demands or cause any significant changes to business and economic activities.

The improvements proposed at the Airglades Airport are not expected to unfairly or adversely impact any group of people, including racial, ethnic, or socioeconomic groups. Detailed review of census data should be accomplished in the preparation of environmental documents for the proposed runway improvements.

8.3.4 Air Quality

The U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (DEP) share regulatory authority over air quality in Hendry County. The EPA has established National Ambient Air Quality Standards (NAAQS) to protect public health, the environment, and the quality of life from the detrimental effects of air pollution. The federal standards have been set for the following criteria pollutants: carbon monoxide (CO), lead (Pb), oxides of nitrogen (NO_x), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and sulfur dioxide (SO₂). Florida DEP has adopted these same standards.

In accordance with the Clean Air Act Amendments (CAAA) of 1977, all areas within the State of Florida are designated with respect to the NAAQS as attainment, nonattainment, or maintenance. An area with air quality better than the NAAQS is designated as attainment, an area with air quality worse than the NAAQS is designated as attainment, and area that is in transition back to attainment is designated as attainment/maintenance. Hendry County is classified as attainment for all criteria air pollutants.

Since the existing and forecasted levels of aircraft operations are below the FAA's threshold of 180,000 annual operations, an air quality analysis should not be required for the evaluation of air quality impacts generated by proposed airport improvement projects. The low level of current aircraft operations (11,527 operations in 2001) and projected aircraft operations (27,028 in 2021) are not expected to have a substantial impact on air quality.

8.3.5 Water Quality

The groundwater throughout the Airglades Airport area is relatively shallow and the principal source of recharge is from rainfall. The aquifer underlying this region is the Floridan Aquifer. Surficial water features in the vicinity of the Airglades Airport include a network of upland-cut canals, ditches, and isolated depressional ponds. The canals and ditches on and around the airport are associated with airfield, roadway, and agricultural developments.

The proposed improvements may require culverting and/or rerouting man-made ditches and swales on the airport. These actions may involve some minor wetland disturbance that would require coordination and possibly a permit from the South Florida Water Management District and US Army Corps of Engineers. The proposed improvements will also have the potential to generate temporary water quality impacts during construction. Potential erosion and sedimentation during construction can be minimized through the use of Best Management Practices (BMPs). The developments are not expected to have a substantial impact on drinking water sources or supplies.

8.3.6 Section 303(c) Properties

Section 303(c) of the *Department of Transportation Act* (formerly codified as Section 4(f)) provides that no program or project will be approved which requires the use of any publicly owned land from a public park, recreation area, historic site, or wildlife and waterfowl refuge of national, state, or local significance as determined by those authorities who have jurisdiction over such areas unless there is no practicable alternative available and provisions to minimize the possibility of harm are included in the planning.

The proposed projects at the Airglades Airport are not expected to involve any public park, public recreation area, or a designated wildlife or waterfowl refuge of national, state, or local significance.

8.3.7 Historic, Architectural, Archeological, Cultural Resources

Historic and archaeological resources that are listed, or eligible for listing, in the National Register of Historic Places (NRHP) are protected by the *National Historic Preservation Act of 1966* (NHPA), as amended. Federal agencies must consider the potential effect of a proposed project on historic and archaeological resources.

A potential historic resource is any historic district, site, building, or structure that is 50 years old or older and is generally located above ground. The development proposed in this master plan should not affect any historic structures or resources. Hendry County recently approved a course of action to rehabilitate a hangar that was associated with former military training operations at the airfield.

The construction of airport facilities, intensive agricultural activities (including array of drainage ditches), and industrial development have altered the landscape on and around the airport. The potential for sites of archaeological significance in the vicinity of the airport is considered to be low, but cannot be ruled out without further research and/or field surveys.

The presence of any potential historic and cultural resources that may be affected by runway development will have to be determined when an EA is prepared. Coordination with the State Historic Preservation Officer (SHPO) and possible subsequent cultural resource studies conducted during the environmental study will evaluate and describe the potential impact to any identified resources.

8.3.8 Biotic Communities

Natural vegetation communities in the area include isolated freshwater marshes, hardwood swamps, and pine flatwoods. The freshwater marshes are vegetated primarily with sawgrass (*Cladium jamaicense*), willow (*Salix caroliniana*), sweetbay (*Magnolia virginiana*), and cypress (*Taxodium* spp.). The hardwood swamps are comprised mostly of red maple (*Acer rubrum*), sweetbay, and sweet gum (*Liquidambar styraciflua*), and cypress. Pine flatwoods mostly contain slash pine (*Pinus elliottii*), cabbage palm (*Sabal palmetto*), and saw palmetto (*Serenoa repens*).

The vegetation and cover types on the airport have largely been affected by human activity. Agricultural development has altered the natural biotic communities through the establishment of large monoculture farming operations. Agricultural operations include the production of sugarcane, cattle, and row crops. Small areas of remnant natural vegetation can be found along fences and drainage ways. Nuisance vegetation (i.e. Brazilian pepper) is found along highway corridors, fencerows, and other disturbed areas.

The vegetation communities provide habitat for a variety of wildlife, including mammals, reptiles, amphibians, birds, fish, and invertebrates. Natural habitat on airport property has been modified over the years by airport and agricultural activities. The predominant habitat type on the airfield is open, grassed field and cultivated agricultural fields.

The proposed airport development plan should have a low potential to impact wildlife habitats and biotic communities. Environmental studies for proposed airport development actions may include an inventory of the biotic communities in the project impact area and an evaluation of the potential impacts to those systems.

8.3.9 Endangered and Threatened Species

In 2002, an environmental study conducted at the LaBelle Municipal Airport, also located in Hendry County, identified species known to occur in Hendry County that are classified as threatened, endangered, candidate, or of special concern by the US Fish and Wildlife Service and the State of Florida. The listing includes a variety of indigenous bird, reptile, amphibian, and mammal species. A summary of the listed threatened and endangered species known to occur in Hendry County is provided in **Table 8.8** for information purposes.

US FWC FDA Habitat Pineland jacquemontia Jacquemontia curtissii E Pinelands and limestone outcrops.	NO0100	Desi	jnated S	status	Preterred
Pineland jacquemontia E Pinelands and limestone outcrops. Jacquemontia curtissii E Pinelands and limestone outcrops.	Species	US	FWC	FDA	Habitat
Jacquemontia curtissii	Pineland jacquemontia			E	Pinelands and limestone outcrops
	Jacquemontia curtissii			E	Finelatius and intrestone outcrops.
Banded wild- pine	Banded wild- pine			F	Oak scrub and pipelands
tillandsia flexuosa	tillandsia flexuosa			L	
Coastal hoary-pea	Coastal hoary-pea			F	Scrub and sandy areas
Tephrosia angustissima	Tephrosia angustissima				ocido and sandy areas.
Rain lilly E Wet flatwoods and meadows	Rain lilly			F	Wet flatwoods and meadows
Zephyranthes simpsonii	Zephyranthes simpsonii			L	
Gopher Frog	Gopher Frog			S	Scrub sandy areas and dry flatwoods
Rana capito	Rana capito			5	
American alligator T S Rivers swamps lakes ponds and marshes	American alligator	Т	S		Rivers swamps lakes ponds and marshes
Alligator mississippiensis S/A S Trivers, swamps, lakes, ponds, and marshes.	Alligator mississippiensis	S/A	0		Rivers, swamps, lakes, polids, and marshes.
Eastern Indigo Snake	Eastern Indigo Snake	т	т		Dry sand areas, moist flatwoods, and citrus
Drymachon corais couperi groves, habitat can be variable.	Drymachon corais couperi				groves, habitat can be variable.
Gopher tortoise S Beach scrub, sand pine, live oak, turkey oak	Gopher tortoise		S		Beach scrub, sand pine, live oak, turkey oak,
Gopherus polyphemus and oak scrub, palmetto prairie, dry areas.	Gopherus polyphemus		0		and oak scrub, palmetto prairie, dry areas.
Florida grasshopper sparrow	Florida grasshopper sparrow				
Ammodramus savannarum S Dry prairie with open areas and pastures.	Ammodramus savannarum		S		Dry prairie with open areas and pastures.
floridanus	floridanus				
Florida scrub-jay	Florida scrub-jay	т	т		Oak scrub
Aphelocoma coerulescens	Aphelocoma coerulescens	•	1		
Limpkin Hardwood swamps, cypress swamps, we	Limpkin		S		Hardwood swamps, cypress swamps, wet
Aramus guarauna prairies, and marshes.	Aramus guarauna		Ŭ		prairies, and marshes.
Crested Caracara	Crested Caracara	т	т		Savannas, palm groves
Caracara plancus	Caracara plancus	•			Caramac, pam groves
Little Blue Heron Shallow brackish freshwater and salt wate	Little Blue Heron				Shallow brackish freshwater and salt water
Egretta caerulea S habitats, freshwater, coastal hammocks and	Egretta caerulea		S		habitats, freshwater, coastal hammocks and
wooded streams.					wooded streams.
Snowy Egret S Freshwater, coastal hammocks and wooded	Snowy Egret		s		Freshwater, coastal hammocks and wooded
Egretta thula streams.	Egretta thula		-		streams.
Tricolored Heron S Marshes, swamps and wooded streams	Tricolored Heron		S		Marshes, swamps and wooded streams
Egretta tricolor	Egretta tricolor				
White Ibis	White Ibis		s		Freshwater marshes, shallow lakes, estuaries
Eudocimus albus and wooded streams.	Eudocimus albus				and wooded streams.
Peregrine Falcon	Peregrine Falcon	E	_		Open terrain-coastal barrier islands, lake and
<i>Falco peregrinus</i>	Falco peregrinus	S/A	E		river margins, prairies, coastal ponds, sloughs,

TABLE 8.8 THREATENED AND ENDANGERED SPECIES FOUND IN HENDRY COUNTY

TABLE 8.8 (CONTINUED) THREATENED AND ENDANGERED SPECIES FOUND IN HENDRY COUNTY

Species	Desig	gnated S	Status	Preferred
	US	FWC	FDA	Habitat
Southeastern American Kestrel Falco sparverius paulus		Т		Open areas with longleaf pine, sand pine, and small turkey oaks, live oaks, and open country.
Florida Sandhill Crane Grus canadensis pratensis		Т		Wet prairies, marsh lake margins, wet pasture.
Bald Eagle Haliaeetus leucocephalus	Т	Т		Close to large water bodies, habitat can be variable.
Wood Stork Mycteria americana	E	E		Woody vegetation over standing water or on island surrounded by ocean water.
Snail kite Rostrhamus sociabilis plumbeus	Е	Е		freshwater marshes.
Florida Burrowing Owl Speotyto cunicularia floridana		S		Very open areas such as prairies, sandhills, and farmland.
Florida panther Felis concolor coryi		S		Woods, scrub, swamps.
Mangrove fox squirrel Sciurus niger avicennia		Т		Pine flatwoods, hardwood swamp, cypress swamp, cabbage palm forest, sand pine scrub and mixed hardwoods.
Florida black bear Ursus americanus floridanus		т		Pine flatwoods, hardwood swamp, cypress swamp, cabbage palm forest, sand pine scrub and mixed hardwoods.

Source: Florida Natural Areas Inventory and U.S. Fish and Wildlife Service, 2002.

Legend

US =	United States Fish and Wildlife Service	E	=	Endangered
FWC =	Florida Fish and Wildlife Conservation Commission	Т	=	Threatened
FDA =	Florida Department of Agriculture	S S/A	= =	Special Concern Similarity of Appearance

The preparation of environmental studies for airport improvements should include coordination with state and federal agencies to determine the current status of listed species, and any newly-listed species, known to occur in the vicinity of the Airglades Airport. The agency coordination may be supported by field surveys to identify the species and/or their critical habitat that may have the potential to be impacted by the proposed actions.

8.3.10 Wetlands

Wetlands on the Airglades Airport are associated with natural and man-made drainage systems and small isolated depressions. A review of US Fish and Wildlife Service *Nationwide Wetland Inventory* (NWI) maps for the airport area indicates several isolated wetland areas on airport property. The proposed airport developments should not impact any of the wetland areas depicted on the NWI maps.

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It should be noted that the NWI maps have limitations and usually identify only major wetland features. Identification of jurisdictional wetlands on the airport would require a formal wetland delineation and determination, which is beyond the scope of this master plan study. Given the physical setting of the airport, minor wetlands may be found along natural and man-made drainage ways and ditches.

The proposed airport developments could have minor wetland involvement, primarily with modifications to drainage ways, ditches, and swales. Activities involving wetlands require coordination and permits from the South Florida Water Management District and the US Army Corps of Engineers. The preparation of environmental studies for the proposed runway improvements and site planning for individual projects should include a review of potential water resource and wetland impacts. If wetlands are involved, coordination with the South Florida Water Management District and the US Army Corps of Engineers should be undertaken to acquire the necessary permits and approvals.

8.3.11 Floodplains

The proposed developments at the Airglades Airport are not located within a base floodplain.

8.3.12 Coastal Zone Management Program

The Florida Coastal Management Program (FCMP) consists of a network of statutes administered by eleven state agencies and four of the five water management districts. The FCMP is designed to ensure the prudent use and protection of the state's coastal resources. Under provisions of the federal *Coastal Zone Management Act* of 1972, any federal activity that has the potential to impact Florida's coastal resources is reviewed for consistency with the FCMP. The geography of Florida is such that the entire state is considered to be within the coastal zone and therefore subject to oversight by the FCMP.

The proposed runway improvements, likely funded in part by the FAA, will require that the projects be submitted for FCMP consistency review. Consistency would be reviewed during environmental studies and any state Environmental Resource Permit (ERP) application involving wetland or water resources. If state review determines a project is not consistent with Florida's statutes, the FCMP can require that the applicant revise its plans. It is assumed that any project impacts considered for consistency review can be mitigated and thus should meet consistency requirements.

8.3.13 Wild and Scenic Rivers

No river segments classified as Wild and Scenic, or stream segments included in the National Park Service's Nationwide River Inventory, should be impacted by the proposed developments at the Airglades Airport.

8.3.14 Farmland

The *Farmland Protection Policy Act* (FPPA) of 1981 minimizes the contribution of federal programs to the unnecessary and irreversible conversion of farmland to uses other than those which are agricultural in nature. Farmland protected under this act is defined as "prime" farmland, "unique" farmland, and farmland of local or state importance. Prime farmland is defined as land which has the best combination of physical and chemical characteristics for producing agricultural crops with minimum input of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Unique farmland is land used for production of specific high-value food and fiber crops.

The proposed airport development plan may have minor impacts on agricultural lease operations on the airport. No farmland will be acquired and converted to non-agricultural use by the proposed developments. No impact to prime farmland is anticipated.

8.3.15 Energy Supply and Natural Resources

The expansion of the facilities at the Airglades Airport is expected to generate a slight increase in electricity demands primarily due to proposed runway development. The additional electricity demand is not anticipated to be substantial and should be readily supplied though existing supply systems.

The operation and proposed improvements to the airport should not impact any mineral resources considered to be in short supply or unusual in nature.

8.3.16 Light Emissions

Airfield lighting currently in use at the Airglades Airport includes Medium Intensity Runway Lights (MIRL), Medium Intensity Taxiway Lights (MITL), and Precision Path Indicator Lights (PAPI) lights. Other airfield lighting includes limited outdoor area lighting at the aircraft parking apron, terminal building, parking lot, and aircraft storage hangars. The proposed airfield improvements may include the installation of new runway and taxiway lights in association with the proposed future extension and paving of Runway 4/22. The Airglades Airport is located in a rural setting with no residential developments located adjacent to the airport. No substantial impacts related to airport lighting are anticipated.

8.3.17 Construction Impacts

Construction activity has the potential to produce temporary, unavoidable impacts to air quality, water quality, and noise levels. Measures to minimize impacts can be implemented in accordance with the provisions and specifications of FAA Advisory Circular 150/5370-10, *Standards for Specifying the Construction of Airports*, Item P-156. No significant construction impacts are anticipated.

SECTION 9.0 IMPLEMENTATION PROGRAM

SECTION 9.0

IMPLEMENTATION PROGRAM (STAGING AND COST ESTIMATES)

9.1 INTRODUCTION

The goal of long-term planning is to ensure that adequate provisions have been made for growth and that on-airport land use is organized in such a manner that expenditures for major capital improvements can be implemented as part of a comprehensive plan. This allows for the staging of capital projects to enhance capacity and maintain existing infrastructure.

However, it is not practical, nor is it necessary, to implement a single program to complete all of the identified projects. It should be a policy of the County to construct new airport facilities to meet demand and implement major maintenance and rehabilitation projects as needed to protect the public investment in the airport's infrastructure. A long-range airport Capital Improvement Plan (CIP) provides a process to establish a series of priorities and to set forth these priorities within the framework of specific planning periods. Commonly these planning periods are Short-Range (present to 5 years), Intermediate-Range (6 to 10 years), and Long-Range (11 to 20 years).

The use of identified planning periods provides a framework to focus on the implementation and funding of specific projects within the upcoming fiscal years; to plan for potential projects that are anticipated beyond the short-term period; and identify strategic long-term projects for the airport. Key to this approach is the annual review and update of the CIP. Updates are conducted to reevaluate project priorities; incorporate new projects; review funding sources and opportunities; and update project cost estimates. This approach is consistent with the Joint Automated Capital Improvement Program (JACIP) planning process implemented by the FDOT.

In general, the planning effort undertaken for this study indicates that priorities should be established as follows:

- Ensure that all airfield elements are adequate and provide for safe, reliable aircraft operations.
- Develop additional aviation facilities to meet local needs and demands.
- Reserve aviation development areas to meet long-range activity demands.
- Develop non-aviation industrial/commercial areas to increase airport revenues.

Under this general priority list, and in consideration of the Development Plan presented in Section 7.0 of this Master Plan, it is possible to outline recommended improvements for planning periods outlined above. The following paragraphs set forth the programs on this basis. It should be noted that unforeseen changes in project priorities, the funding capability of the Hendry County Board of County Commissioners, or the availability of federal and/or state funding assistance might require delaying certain actions or amending the proposed implementation program.

9.2 RECOMMENDED SHORT-RANGE CAPITAL IMPROVEMENT PROGRAM

The program recommends specific airport improvements through 2007. The projects identified for this planning period have been included an update of the JACIP submitted to the FDOT in August 2003. **Table 9.1** lists the recommended short-term capital improvements, projected costs (in 2003 dollars), and anticipated funding sources. A summary of each project, including a project description and justification, is presented below and the proposed short-term improvement projects are depicted in **Figure 9.1**.

1 Improve Runway 13/31 Safety Area, Phase 1 – Design (FY 2003)

- Project Narrative: The safety area for Runway 13/31 does not currently meet the Runway Safety Area (RSA) standards specified in Paragraph 305 of FAA AC 150/5300-13, *Airport Design*. There are two reasons for this. The airport has a very high water table, due predominantly to the area surrounding the airport being occupied by agricultural activities requiring a high water table. The other reason being that of an inadequate closed drainage system to convey the water away from the runway's paved surface. To adequately solve this problem this project involves a study of the stormwater management basins that encompass the runway to ensure that engineering solution to correct the non-standard safety area was also in compliance with the requirements set forth by South Florida Water Management District. Design plans will be produced for future construction.
- <u>Project Justification</u>: This project is justified to bring the current RSA into compliance with RSA standards. Water currently ponds on the runway's paved surface during frequent rain events creating a hydroplaning condition for aircraft. Water also ponds in the RSA and creates saturated conditions affecting the ability of the RSA to support aircraft and rescue equipment. Wading birds and other waterfowl are also attracted to ponding water on or adjacent to the runway presenting a high potential for bird strike hazards.
- Estimated Cost: \$166,666.

Note: Funded by FAA in a FY 2003 Airport Improvement Program (AIP) grant.

2 Improve Runway 13/31 Safety Area, Phase 2 - Construction (2005)

<u>Project Narrative</u>: The Runway Safety Area (RSA) for Runway 13/31 does not meet requirements due to poor drainage conditions, resulting in standing water on the RSA after rain events. The proposed construction project will improve drainage and thereby improve the surface for aircraft and emergency vehicles.

<u>Project Justification</u>: The project is justified to meet FAA RSA standards. During frequent rain events water currently ponds on the runway's paved surface creating a hydroplaning condition for aircraft. Water also ponds in the RSA and creates saturated conditions affecting the ability of the RSA to support aircraft and rescue equipment. Wading birds and other waterfowl are also attracted to ponding water on or adjacent to the runway presenting a high potential for bird strike hazards.

Estimated Cost: \$500,000.

3 Acquire Land to Remove Tower (2006)

<u>Project Narrative</u>: This project consists of acquiring land north of the airport containing a tall communication tower and removing the tower.

<u>Project Justification</u>: There is an abandoned tower in Hendry County at the Glades County line, east of US 27 as it is an obstruction to planned approaches to Runway 13/31. This tower should to be removed to facilitate establishment of proposed instrument approaches at the airport.

Estimated Cost: \$50,000.

4 Construct T-Hangars (10-Units) (2005)

Project Narrative:	The project includes the design and construction of a T-hangar building with 10 storage units.
Project Justification:	There is a demand at the Airglades Airport for T-hangar space. The Airport will benefit from this income producing facility.
Estimated Cost:	\$400,000.

5 VOR-DME Approach (2004)

<u>Project Narrative</u>: The project consists of preparing necessary applications and studies to support a request to establish a non-precision approach for Runway 13/31.

<u>Project Justification</u>: The County has determined a need for a non-precision approach for Runway 13/31. The approach will improve safety for approaches at night and during inclement weather. Accessibility to the airfield will also be improved.

Estimated Cost: \$30,000.

6 Install Runway End Identifier Lights – RW 13/31 (2005)

 Project Narrative:
 This project consists of the installation of Runway End Identifier Lights (REILs) on Runway 13/31.

 Project Justification:
 The lights will improve safety by providing additional visual guidance to pilots making approaches at night or in inclement weather.

 Estimated Cost:
 \$128,650.

7 Construct Hangar Building (100' x 100') (2005)

<u>Project Narrative</u>: This project includes the design and construction of a hangar 100 feet by 100 feet in size.

<u>Project Justification</u>: The hangar is intended for lease to maintenance/avionics enterprises and for storage of large aircraft. The Airport will benefit from this income producing facility. The project should be implemented as demand dictates.

Estimated Cost: \$655,600.

8 Construct Aircraft Wash Rack (2005)

Project Narrative: The project consists of the construction of a self-serve aircraft wash rack.

<u>Project Justification</u>: A wash rack would provide a central location for aircraft washing. The system would be compliant with environmental requirements and serve the needs of airport tenants.

Estimated Cost: \$230,000.

9 Seal Coat Runway 13/31 (2006)

<u>Project Narrative</u>: The project consists of applying a seal coat on the Runway 13/31 pavement surface.

<u>Project Justification</u>: The runway pavement presently is in good condition, however, the pavement is exhibiting some signs of oxidation, raveling, and cracking attributed to severe sun and heat. The seal coat project will prolong the life of the pavement and prevent FOD problems associated with raveling and oxidation.

Estimated Cost: \$450,000.

10 Stabilize and Rehabilitate Turf Runway 4/22 (2006)

 Project Narrative:
 This project will stabilize and rehabilitate turf Runway 4/22 that has been closed since the mid-1970's. The turf runway would be 2,520 feet in length.

 Project Justification:
 This project will provide a turf runway for the local pilots who request access to turf facilities and provide a needed crosswind runway for small aircraft.

Estimated Cost: \$530,000.

11 Construct T-Hangars (10 Units) (2006)

<u>Project Narrative</u>: The project consists of the construction of a T-hangar building with 10 storage units.

<u>Project Justification</u>: There is a demand at Airglades Airport to lease T-hangar space. The Airport will benefit from this income producing facility.

Estimated Cost: \$425,000.

12 Install Entrance Sign / Airport ID at US 27 (2006)

- <u>Project Narrative</u>: Entrance signs should be installed at the main entrances to the Airport. This project is intended to construct two signs at the Airglades Airport: one at the existing entrance and one at the new access road a half mile to the west of the main entrance.
- <u>Project Justification</u>: The signage will provide information to users of the airport and visitors. Recent road improvements on airport property require signage to direct traffic to appropriate airport areas.

Estimated Cost: \$60,000.

13 <u>Terminal Landscaping (2006)</u>

<u>Project Narrative</u>: This project consists of installing landscaping (and related irrigation) for the passenger terminal building.

<u>Project Justification</u>: The project will improve the airport by providing attractive, low-maintenance landscaping at the new terminal building.

Estimated Cost: \$40,000.

14 Construct Airfield Maintenance Building (2007)

<u>Project Narrative</u>: The project includes the construction of an airfield maintenance building with vehicular access and fenced storage yard.

<u>Project Justification</u>: Currently, airfield maintenance operations and equipment storage occur in a dilapidated hangar. The hangar is scheduled for rehabilitation and reversion to aircraft maintenance and storage use. A new airfield maintenance building and storage yard will segregate those operations and improve efficiency of maintenance operations. The building will also shelter airport equipment thereby extending the useful life of the equipment

Estimated Cost: \$240,000.

15 Rehabilitate and Expand Existing General Aviation Apron (2007)

<u>Project Narrative</u>: This project includes the rehabilitate and expansion of the aircraft parking apron west of passenger terminal.

<u>Project Justification</u>: The additional apron will improve circulation in an area bordered by the passenger terminal, maintenance hangers, and fueling facility. The project will also increase parking capacity for itinerant aircraft.

Estimated Cost: \$457,800.

16 <u>Construction of Corporate Hangar (80' x 80') (2007)</u>

<u>Project Narrative</u>: This project includes the construction of a new 80-foot x 80-foot corporate hangar.

<u>Project Justification</u>: The project will provide an area for the County's continued effort to attract and promote corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway S. The project should be implemented as demand dictates.

Estimated Cost: \$312,500.
TABLE 9.1

20-YEAR CAPITAL IMPROVEMENT PROGRAM SHORT-RANGE PLANNING PERIOD AND DEVELOPMENT PROJECTS

Project	Fiscal	Sponsor Priority in	Project Description	Federal	State	Local	Total Estimated
10 110.	Tear	UAOII	2003 PRC	JECTS	Unare	Unare	110jeet 003t
1	2003	1	Improve Runway 13/31 Safety Area, Phase 1 - Design	\$150,000	\$8,333	\$8,333	\$166,666
Total Cos	ts 2003 F	Projects		\$150,000	\$8,333	\$8,333	\$166,666
			2004 PRC	JECTS	_		-
5	2004	7	Install VOR-DME Approach	\$0	\$24,000	\$6,000	\$30,000
Total Cos	ts 2004 F	Projects		\$0	\$24,000	\$6,000	\$30,000
			2005 PRC	DJECTS		-	
2	2005	3	Improve Runway 13/31 Safety Area, Phase 2 - Construction	\$450,000	\$25,000	\$25,000	\$500,000
4	2005	6	Design and Construct T- Hangars (10 Units)	\$0	\$320,000	\$80,000	\$400,000
6	2005	8	Install Runway End Identifier Lights, Runway 13/31	\$122,218	\$3,216	\$3,216	\$128,650
7	2005	11	Construct Hangar Building	\$0	\$524,480	\$131,120	\$655,600
8	2005	18	Construct Aircraft Wash Rack	\$0	\$184,000	\$46,000	\$230,000
Total Cos	ts 2005 F	Projects		\$572,218	\$1,056,696	\$285,336	\$1,914,250
			2006 PRC	JECTS	-		-
3	2006	5	Acquire Land to Remove Communications Tower	\$0	\$37,500	\$12,500	\$50,000
9	2006	9	Seal Coat Runway 13/31	\$427,500	\$11,250	\$11,250	\$450,000
10	2006	10	Stabilize and Rehabilitate Turf Runway 4/22	\$0	\$424,00	\$106,000	\$530,000
11	2006	13	Design and Construct T- Hangars (10 Units)	\$0	\$340,000	\$85,000	\$425,000
12	2006	14	Install Entrance Sign / Airport ID at US 27	\$0	\$48,000	\$12,000	\$60,000
13	2006	17	Terminal Landscaping	\$0	\$32,000	\$8,000	\$40,000
Total Cos	ts 2006 F	Projects		\$427,500	\$892,750	\$234,750	\$1,555,000
			2007 PRC	DJECTS			
14	2007	12	Construct Airfield Maintenance Building	\$0	\$192,000	\$48,000	\$240,000
15	2007	15	Rehabilitate and Expand Existing Apron	\$434,910	\$11,445	\$11,445	\$457,800
16	2007	16	Construct Corporate Hangar (80 ft x 80 ft)	\$0	\$250,000	\$62,500	\$312,500
Total Cos	ts 2007 F	Projects		\$434,91 <u></u> 0	\$453,445	\$121,945	\$1,010,300
TOTAL C	OSTS F	(2003 – FY	2007 PROJECTS	\$1,584,628	\$2,435,224	\$656,364	\$4,676,216

* JACIP priority as assigned in current adopted FDOT work plan.

Source: URS, 2003.



LEGEND 1) IMPROVE RUNWAY 13/31 SAFETY AR 2) CONSTRUCTION OF NEW ACCESS ROA 3) IMPROVE RUNWAY 13/31 SAFETY AR 4) CONSTRUCTION OF NEW ACCESS ROA 5) ACQUIRE LAND TO REMOVE TOWER (10 6) CONSTRUCT T-HANGAR (10 UNITS) 7) VOR-DME APPROACH (NOT DEPICTED 8) INSTALL RUNWAY END IDENTIFIER LIG 9) CONSTRUCT HANGAR BUILDING (100' 10) CONSTRUCT AIRCRAFT WASH RACK 11) SEAL COAT RUNWAY 13/31 12) STABILIZE/REHABILITATE TURF RUNWA 13) CONSTRUCT T-HANGAR (10 UNITS)	EA-PHASE 1 D-PHASE 1 EA-PHASE 2 D-PHASE 2 NOT DEPICTED) HTS (13/31) X 100')	AIRGLADES AIRPORT HENDRY COUNTY BOARD OF COUNTY COMMISSIONERS Master Plan Update
 4) INSTALL ENTRANCE SIGNS AT U.S. 2 3) TERMINAL LANDSCAPING 6) CONSTRUCT AIRFIELD MAINTENANCE IN 7) REHABILITATE/EXPAND AIRCRAFT API 8) CONSTRUCT 80' X 80' CORPORATE H 	1000	SHORT RANGE DDEVELOPMENT PLAN (FY 2003 - FY 2007)
	URS	FIGURE 9.1

9.3 RECOMMENDED INTERMEDIATE-RANGE CAPITAL IMPROVEMENT PROGRAM

The program recommends specific annual airport improvements beginning in FY2008 and continuing through FY2012. The FY 2008 and FY2009 projects identified for this planning period have also been included in an update of the JACIP submitted to the FDOT in August 2003. **Table 9.2** lists the recommended intermediate-term capital improvements, projected costs (2003 dollars), and anticipated funding sources. A summary of each project, including a project description and justification, is presented below and the proposed intermediate-term improvement projects are depicted in **Figure 9.2**.

17 Install Security Lighting and Upgrade Fencing (2008)

<u>Project Narrative</u>: This project entails installation of security lighting; new and upgraded existing security fencing; automate gates; and electronic surveillance equipment.

<u>Project Justification</u>: There is a need for improved security at general aviation airports. The Airglades Airport is in need for fencing around the airfield operations area, terminal facilities, and hangars to improve security. Security lighting at strategic locations and surveillance equipment will also be needed to improve security and safety.

Estimated Cost: \$400,000.

18 <u>Construct T-Hangars (10-Units) (2008)</u>

Project Narrative:	The project consists of the construction of a T-hangar building with 10 storage units.
Project Justification:	There is a demand at Airglades Airport to lease T-hangar space and it is expected that this demand will continue in 2008. The project should be implemented as demand dictates.
Estimated Cost:	\$437,500.

19 Install Emergency Back-Up Generator (2008)

<u>Project Narrative</u>: This project includes the installation of an emergency back-up electric power generator.

<u>Project Justification</u>: During power failures, the generator would maintain power to critical runway lighting system, beacon and AWOS, and terminal systems.

Estimated Cost: \$100,000.

20 Construct Airport Access Road Drainage Improvements (2009)

Project Narrative:	The project includes the piping and enclosure of deep ditches adjoining the main airport access road near the terminal building.
Project Justification:	The unprotected ditches along the airport access road near the terminal, also referred to as the "Diamond", reach up to six feet deep in some locations. The proposed project will improve safety and reduce the possibility of personal or vehicular damage.
Estimated Cost:	\$500.000.

21 Design and Construct T-Hangars (10 Units) (2009)

<u>Project Narrative</u>: The project includes the construction of a T-hangar building with 10 storage units.

<u>Project Justification</u>: There is a demand at Airglades Airport to lease T-hangar space and it is expected that this demand will continue in 2009. The project should be implemented as demand dictates.

Estimated Cost: \$437,500.

22 Airport Layout Plan Update (2010)

<u>Project Narrative</u>: This planning project entails an update of the airport master plan.

<u>Project Justification</u>: The County periodically evaluates its long-term goals, projections and direction. The master plan update will update the 20-year plan for the airport and provide an updated Airport Layout Plan.

Estimated Cost: \$50,000.

23 Seal Coat Taxiway "A" and Connectors (2010)

<u>Project Narrative</u>: The project consists of applying a seal coat for Taxiway "A" and connector taxiway pavements.

<u>Project Justification</u>: The taxiway pavement presently is in good condition, however, the pavement is exhibiting some signs of oxidation, raveling, and cracking attributed to severe sun and heat. The seal coat project will prolong the life of the pavement and prevent FOD problems associated with raveling and oxidation.

Estimated Cost: \$275,100.

24 Seal Coat Taxiway "S" (2010)

Project Narrative: Project consists of applying a seal coat to the Taxiway "S" pavement.

<u>Project Justification</u>: The taxiway pavement presently is in good condition, however, the pavement is exhibiting some signs of oxidation, raveling, and cracking attributed to severe sun and heat. The seal coat project will prolong the life of the pavement and prevent FOD problems associated with raveling and oxidation.

Estimated Cost: \$44,700.

25 Rehabilitate and Overlay Taxiway to Turf Runway (2011)

<u>Project Narrative</u>: The project consists of rehabilitating and overlaying the taxiway pavement providing access from the terminal building to the turf runway.

<u>Project Justification</u>: The project to rehabilitate and overlay the taxiway is needed as the taxiway provides access to the turf runway. The taxiway pavement is in poor condition, exhibiting oxidation, raveling and cracking attributed to severe sun and heat. The rehabilitation project will repair the pavement structure.

Estimated Cost: \$64,200.

26 Construct Corporate Hangar (80' x 80') (2011)

- <u>Project Narrative</u>: The project includes the construction of a new 80-foot x 80-foot corporate hangar and associated apron and parking improvements.
- <u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$521,600.

27 Construct Additional Automobile Parking Space (2012)

- <u>Project Narrative</u>: This project consists of constructing additional automobile parking to provide convenient access to existing and proposed maintenance hangars.
- <u>Project Justification</u>: Current FBO and maintenance hangars do not have adequate, adjacent automobile parking areas. Additional parking space will improve convenience and reduce use of aircraft parking aprons for automobile parking.
- Estimated Cost: \$133,800.

28 Construct Two Helicopter Pads (2012)

<u>Project Narrative</u>: This project includes construction of two helicopter pads – one located southeast of the terminal and one located in the corporate aviation area near Taxiway "S."

- <u>Project Justification</u>: The project will provide landing areas for the private and agricultural helicopter operations at the airport. The project will provide designated on-airport helicopter landing areas and help segregate helicopter operations from based and transient aircraft parking areas.
- Estimated Cost: \$310,100.

TABLE 9.2

20-YEAR CAPITAL IMPROVEMENT PROGRAM INTERMEDIATE-RANGE PLANNING PERIOD AND DEVELOPMENT PROJECTS

Sponsor					Total Estimated				
Project	Fiscal Year	Priority in	Project Description	Federal	State Share	Local Share	Project Cost		
10 110.	Tear	UAOI	2008 PROJECTS	Unare	Unare	onare	0031		
17	2008	19	Install Security Lighting and Upgrade Fencing	\$380,000	\$10,000	\$10,000	\$400,000		
18	2008	20	Construct T-Hangars (10 Units)	\$0	\$350,000	\$87,500	\$437,500		
19	2008	21	Install Emergency Back Up Generator	\$0	\$80,000	\$20,000	\$100,000		
Total Cost	s 2008 Pro	ojects		\$380,000	\$440,000	\$117,500	\$937,500		
			2009 PROJECTS	5					
20 2009 22		22	Airport Access Road Drainage Improvements	\$0	\$400,000	\$100,000	\$500,000		
21	2009	23	Construct T-Hangars (10 Units)	\$74,375	\$290,500	\$72,625	\$437,500		
Total Cost	s 2009 Pro	ojects		\$74,375	\$690,500	\$172,625	\$937,500		
2010 PROJECTS									
22	2010	24	Airport Layout Plan Update	\$0	\$40,000	\$10,000	\$50,000		
23	2010	-	Seal Coat Taxiway A and Connectors	\$261,345	\$6,878	\$6,878	\$275,100		
24	2010	-	Seal Coat Taxiway S	\$42,465	\$1,118	\$1,118	\$44,700		
Total Cost	s 2010 Pro	ojects		\$303,810	\$47,995	\$17,995	\$369,800		
			2011 PROJECTS						
25	2011	-	Rehabilitate and Overlay Taxiway to Turf Runway	\$60,990	\$1,605	\$1,605	\$64,200		
26	2011	-	Construct Corporate Hangar (80 ft x 80 ft)	\$0	\$417,280	\$104,320	\$521,600		
Total Cost	s 2011 Pro	ojects		\$60,990	\$418,885	\$105,925	\$585,800		
			2012 PROJECTS	;					
27	2012	-	Construct Automobile Parking	\$0	\$107,040	\$26,760	\$133,800		
28	2012	-	Construct Helicopter Pads (2)	\$294,595	\$7,753	\$7,753	\$310,100		
Total Cost	s 2012 Pro	ojects		\$294,595	\$114,793	\$34,513	\$443,900		
TOTAL C	OSTS 5-10	YEAR PRO	JECTS	\$1,113,770	\$1,712,173	\$448,558	\$3,274,500		

* Sponsor JACIP priority as assigned in the current adopted FDOT work plan (as of August 2003). The JACIP entries are through the year 2009.

Source: URS, 2003.



AIRGLADES AIRPORT MPU\CAD\EXHIBITS\FIG 9.2.DWG 10/29/03 10:5

9222222	LEGEND INSTALL SECURITY LIGHTING & UPGRADE FENCING CONSTRUCT T-HANGAR (10 UNITS) INSTALL EMERGENCY BACK-UP GENERATOR AIRPORT ACCESS ROAD DRAINAGE IMPROVEMENTS CONSTRUCT T-HANGAR (10 UNITS) MASTER PLAN UPDATE (NOT DEPICTED) SEAL COAT TAXIWAY A & CONNECTORS SEAL COAT TAXIWAY A & CONNECTORS SEAL COAT TAXIWAY S REHABILITATE/OVERLAY TAXIWAY TO TURF RUNWAY CONSTRUCT 80' X 80' CORPORATE HANGAR CONSTRUCT ADDITIONAL AUTOMOBILE PARKING CONSTRUCT HELICOPTER PADS (2)	AIRGLADES AIRPORT HENDRY COUNTY BOARD OF COUNTY COMMISSIONERS Master Plan Update
	N 100O1000 GRAPHIC SCALE IN FEET	INTERMEDIATE RANGE DEVELOPMENT PLAN (FY 2008 - FY 2012)
	URS	FIGURE 9.2

9.4 RECOMMENDED LONG-RANGE CAPITAL IMPROVEMENT PROGRAM

The program recommends airport improvements beginning in FY2013 and continuing through FY2021. **Table 9.3** lists the recommended intermediate-term capital improvements, projected costs (2003 dollars), and anticipated funding sources. A summary of each project, including a project description and justification, is presented below and the proposed long-term improvement projects are depicted in **Figure 9.3**.

29 Construct T-Hangar (10 Units) (2013)

<u>Project Narrative</u>: Design and construct a T-hangar building with 10 storage units.

<u>Project Justification</u>: It is expected there will be a continued demand at Airglades Airport to lease Thangar space. The Airport will benefit from this income producing facility, however, the project should be implemented as demand dictates.

Estimated Cost: \$500,000.

30 Construct Corporate Hangar (80' x 80') (2014)

<u>Project Narrative</u>: The project includes the construction a new 80-foot x 80-foot corporate hangar and associated apron and parking improvements.

<u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$521,600

31 Rehabilitate and Replace Runway Lighting (MIRL) and Signage (2015)

<u>Project Narrative</u>: This project includes rehabilitation and/or installation of new runway lighting (MIRL) for Runway 13/31.

<u>Project Justification</u>: It is expected that the system components will requires will require rehabilitation and/or replacement by 2015 due to age. The MIRL would be evaluated to determine the appropriate action to rehabilitate, replace, or upgrade the system.

Estimated Cost: \$329,300.

32 Construct T-Hangar (10 Units) (2015)

<u>Project Narrative</u>: The project involves the construction of a T-hangar building with 10 storage units.

<u>Project Justification</u>: It is expected there will be a continued demand at Airglades Airport to lease Thangar space. The Airport will benefit from this income producing facility, however, the project should be implemented as demand dictates.

Estimated Cost: \$525,000.

33 Construct Corporate Hangar (60' x 60') (2016)

<u>Project Narrative</u>: The project includes the construction of an 80-foot x 80-foot corporate hangar and associated apron and parking improvements.

<u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$355,600.

34 Construct Corporate Hangar (80' x 80') (2017)

<u>Project Narrative</u>: The project includes the construction of an 80-foot x 80-foot corporate hangar and associated apron and parking improvements.

<u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$521,600

35 Rehabilitate and Replace Taxiway Edge Lighting (MITL) (2017)

<u>Project Narrative</u>: This project includes rehabilitation and/or installation of new taxiway lighting (MIRL) for Runway 13/31.

<u>Project Justification</u>: It is expected that the system components will requires will require rehabilitation and/or replacement by 2017 due to age. The MITL would be evaluated to determine the appropriate action to rehabilitate, replace, or upgrade the system.

Estimated Cost: \$413,100.

36 Expand General Aviation Apron Northeast of Terminal (2018)

- <u>Project Narrative</u>: This project includes the expansion of the general aviation aircraft parking apron northeast of passenger terminal.
- <u>Project Justification</u>: The apron expansion project will provide increased parking capacity for itinerant and based aircraft.
- Estimated Cost: \$638,400.

37 Construct Corporate Hangar (80' x 80') (2019)

- <u>Project Narrative</u>: The project includes the construction of an 80-foot x 80-foot corporate hangar and associated apron and parking improvements.
- <u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$521,600.

38 Construct Corporate Hangar (100' x 100') (2020)

- <u>Project Narrative</u>: The project includes the construction of a 100-foot x 100-foot corporate hangar and associated apron and parking improvements.
- <u>Project Justification</u>: The project will provide a hangar for the County's continued effort to attract corporate aviation activity at the Airglades Airport. The project will continue development of the corporate area on Taxiway "S." The project should be implemented as demand dictates.

Estimated Cost: \$668,200.

39 Extend and Pave Runway 4/22 (2020)

- <u>Project Narrative</u>: The project includes extending and paving the turf Runway 4/22 to provide a paved and lighted crosswind runway. The runway length will be 4,670 feet. The project would include medium-intensity lighting (MIRL).
- <u>Project Justification</u>: The project would provide adequate wind coverage for small aircraft using the Airport and to meet the FAA desired wind coverage of 95 percent. The desired length will accommodate 75 percent of the large aircraft fleet operating at 60 percent useful load. Based on wind data available from Ft. Meyers, Runway 13/31 provides wind coverage meeting FAA requirements for a B-II runway. However, discussions with airport users identify the need for a crosswind runway. To justify this project for federal participation, supplemental wind rose analyses, using local data, would be required.

Estimated Cost: \$2,957,300.

40 <u>Construct Corporate Hangar Complex (Four 80' x 80') (2021)</u>

<u>Project Narrative</u>: The project includes the construction of a new four 80-foot by 80-foot corporate hangar facility and associated apron and parking improvements.

<u>Project Justification</u>: The project will provide a hangar complex for the County's continued effort to attract corporate aviation activity at Airglades Airport. The project will continue development of aviation related facilities to the northeast of the passenger terminal. The project should be implemented as demand dictates.

Estimated Cost: \$1,405,800.

41 Construct Runway 4/22 Parallel Taxiway (2021)

<u>Project Narrative</u>: The project includes the construction of a parallel taxiway and connectors for the extended Runway 4/22.

<u>Project Justification</u>: The project will improve safety by eliminating the need to back-taxi on Runway 4/22 and promote efficient circulation and movement of aircraft on the airport.

Estimated Cost: \$1,527,000.

TABLE 9.3

20-YEAR CAPITAL IMPROVEMENT PROGRAM LONG-RANGE PLANNING PERIOD AND DEVELOPMENT PROJECTS

Project ID No.	Fiscal Year	Sponsor Priority in JACIP*	Project Description	Federal	State	Local	Total Project Cost Estimate
29	2013	-	Construct T-Hangars (10 Units)	\$85,000	\$332,000	\$83,000	\$500,000
30	2014	-	Construct Corporate Hangar (80 ft x 80 ft)	\$0	\$417,280	\$104,320	\$521,600
31	2015	-	Replace Runway 13/31 Lighting & Signage	\$312,835	\$8,233	\$8,233	\$329,300
32	2015	-	Construct T-Hangars (10 Units)	\$89,250	\$348,600	\$87,150	\$525,000
33	2016	-	Construct Corporate Hangar (60 ft x 60 ft)	\$0	\$284,480	\$71,120	\$355,600
34	2017	-	Construct Corporate Hangar (80 ft x 80 ft)	\$0	\$417,280	\$104,320	\$521,600
35	2017	-	Replace Taxiway Edge Lighting (MITL)	\$392,445	\$10,328	\$10,328	\$413,100
36	2018	-	Expand GA Apron – Northeast of Terminal	\$606,480	\$15,960	\$15,960	\$638,400
37	2019	-	Construct Corporate Hangar (80 ft x 80 ft)	\$0	\$417,320	\$104,320	\$521,600
38	2020	-	Construct Corporate Hangar (100 ft x 100 ft)	\$0	\$534,560	\$133,640	\$668,200
39	2020	-	Extend and Pave Runway 4/22 (1)	\$2,809,435	\$73,933	\$73,933	\$2,957,300
40	2021	-	Construct Corporate Hangar Complex (Four – 80 ft x 80 ft)	\$0	\$1,124,640	\$281,160	\$1,405,800
41	2021	-	Construct Runway 4/22 Parallel Taxiway	\$1,450,650	\$38,175	\$38,175	\$1,527,000
TOTAL	COSTS L	ONG-RANGE	E PROJECTS	\$5,746,095	\$4,022,748	\$1,115,658	\$10,884,500

Total Costs Short Range Projects (2003 – 2007)	\$1,584,628	\$2,435,224	\$656,364	\$4,676,216
Total Costs Intermediate-Range Projects (2008 – 2012)	\$1,113,770	\$1,712,173	\$448,558	\$3,274,500
Total Costs Lon-Range Projects (2013 – 2021)	\$5,746,095	\$4,022,748	\$1,115,658	\$10,884,500
Total Program Costs	\$8,444,493	\$8,170,144	\$2,220,579	\$18,835,216

* Sponsor priority to be assigned when projects are entered into the JACIP database.

(1) Federal participation in the development of the crosswind runway will require justification (based on supplemental wind rose analysis) prior to funding.

Source: URS, 2003.

9.5 INDUSTRIAL PARK LOT DEVELOPMENT COSTS

Concurrent with the preparation of this Master Plan, Hendry County is developing road access and infrastructure for the Airglades Industrial Park. The industrial park plan and the airport master plan identify several parcels having airfield access and suitable for aviation-related industrial development. A conceptual site layout was developed for the lots to illustrate a potential development scenario. However, the lots and site layouts may be modified substantially to accommodate the specific needs of a potential industry or user and, as such, development costs can vary widely. The funding for industrial site development may also involve different state and federal agencies than the FDOT and FAA. As such, this Implementation Plan does not include the staged cost for developing the six parcels in the airport



CIP, but does include projected information to establish a conceptual budgets for site developments as shown.

The aviation-related industrial sites are assumed to include taxiway access and aircraft parking apron; a hangar/fabrication building; office space; and vehicular access and parking. The conceptual site layouts differ somewhat based on the size and layout of the lots. An average cost for developing one site, as depicted, is projected to be approximately \$750,000.

9.6 FINANCIAL FEASIBILITY

This Master Plan Update includes capital improvement projects that rehabilitate existing pavements and facilities; expand existing facilities (i.e., aircraft parking apron); and provide new facilities to meet project demand. The projects will likely involve funding from a combination of sources. Depending on the nature and eligibility of a project, funding assistance could be obtained from federal grants and/or state grants, with a local funding share. The availability and timing of federal and state funding has been assumed in the development schedules provided in **Tables 9.1**, **9.2**, **and 9.3**. Federal (FAA) and state (FDOT) funding for the proposed projects is not guaranteed and the timing may vary from that depicted. This is due to the competitive nature of the respective grant programs and the limited amount of development funds available for each program in any given fiscal year.

The proposed projects described in this section also include the development of several maintenance and corporate hangar facilities. Development cost of these hangar facilities may be borne by third parties, but the costs are included to present an overall picture of a long-term capital improvement budget. These projects are scheduled in anticipation of economic and aviation growth in Hendry County; however, they would only be developed as demand dictates, if they are in the best interest of the County, and are financially feasible. The actual expenditure of local funds on these projects can vary depending on specific project conditions and agreements with the users. In some cases, private parties could construct hangars themselves on leased airport land.

Local funding shares for capital improvements at the Airglades Airport will be provided by Hendry County. Sources of the local funding are expected from airport revenue (i.e., income from leases), fees, and appropriations from the County's capital development and operating and maintenance budgets. If necessary, Hendry County will obtain additional funds to provide the projected local share of the proposed capital improvements. Sources of additional funds may include, but not necessarily be limited to issuing bonds, borrowing from available agency funds, or obtaining commercial loans. **Table 9.4** summarizes the local funding required by Hendry County for capital projects through 2010 and the planned sources of local funding. There are no known conditions that would affect the ability of the County to fund the local share of the proposed projects.

TABLE 9.4

LOCAL FUNDING FOR PROPOSED CAPITAL IMPROVEMENT PROJECTS THROUGH FISCAL YEAR 2010

	Hendry County	
Project Description	Share	Proposed Source of Local Funding
2003	PROJECTS	······································
Improve Runway 13/31 Safety Area, Phase 1 - Design	\$8,333	County appropriations
2004	PROJECTS	
Install VOR-DME Approach	\$6,000	Airport revenue and/or County appropriations
2005	PROJECTS	
Improve Runway 13/31 Safety Area, Phase 2 - Construction	\$25,000	Airport revenue and/or County appropriations
Design and Construct T-Hangars (10 Units)	\$80,000	Airport revenue, County appropriations, bond, and/or commercial loan
Install Runway End Identifier Lights, Runway 13/31	\$3,216	Airport revenue and/or County appropriations
Construct Hangar Building	\$131,120	Airport revenue, County appropriations, bond, and/or commercial loan
Construct Aircraft Wash Rack	\$46,000	Airport revenue and/or County appropriations
2006	PROJECTS	
Acquire Land to Remove Communications Tower	\$12,500	Airport revenue and/or County appropriations
Seal Coat Runway 13/31	\$11,250	Airport revenue and/or County appropriations
Stabilize and Rehabilitate Turf Runway 4/22	\$106,000	Airport revenue and/or County appropriations
Design and Construct T-Hangars (10 Units)	\$85,000	Airport revenue, County appropriations, bond, and/or commercial loan
Install Entrance Sign / Airport ID at US 27	\$12,000	Airport revenue and/or County appropriations
Terminal Landscaping	\$8,000	Airport revenue and/or County appropriations
2007	PROJECTS	
Construct Airfield Maintenance Building	\$48,000	Airport revenue and/or County appropriations
Rehabilitate and Expand Existing Apron	\$11,445	Airport revenue and/or County appropriations
Construct Corporate Hangar (80 ft x 80 ft)	\$62,500	Airport revenue, County appropriations, bond, and/or commercial loan
2008	PROJECTS	
Install Security Lighting and Upgrade Fencing	\$10,000	Airport revenue and/or County appropriations
Construct T-Hangars (10 Units)	\$87,500	Airport revenue, County appropriations, and/or commercial loan
Install Emergency Back Up Generator	\$20,000	Airport revenue and/or County appropriations
2009	PROJECTS	
Airport Access Road Drainage Improvements	\$100,000	Airport revenue and/or County appropriations
Construct T-Hangars (10 Units)	\$72,625	Airport revenue, County appropriations, and/or commercial loan
2010	PROJECTS	
Airport Layout Plan Update	\$10,000	Airport revenue and/or County appropriations
Seal Coat Taxiway A and Connectors	\$6,878	Airport revenue and/or County appropriations
Seal Coat Taxiway S	\$1,118	Airport revenue and/or County appropriations

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REFERENCES

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APPENDIX A FORECAST DEVELOPMENT TECHNIQUES

APPENDIX A

FORECAST DEVELOPMENT TECHNIQUES

Aviation activity forecasts for Airglades Airport were developed using a variety of techniques that were considered viable and prudent for a general aviation airport. These techniques primarily centered on the use and review of existing data and projections of aviation activity as published by others and a limited analysis of local socio-economic conditions. Various publications were used to develop baseline activity level data, or where required, to develop derivative forecasts using combined data from a variety of sources. The primary source of aviation projection data was derived or obtained from the following publications:

- FAA Order 5090.3C, Field Formulation of the NPIAS, December 2000.
- FAA Aerospace Forecasts for FYs 2002-2013, FAA-APO-01-1, March 2002.
- Long-Range Aerospace Forecasts FYs 2015, 2020, and 2025, FAA-APO-01-3, June 2001.
- FAA's 2001 TAF, January 2002.
- Florida Aviation System Plan 2000 (FASP).
- Forecasting Aviation Activity by Airport, GRA, Incorporated, July 2001.
- FAA Advisory Circular 150/5070-6A, Airport Master Plans, June 1985.
- Socioeconomic data derived by Woods and Poole Economics, Inc., for Hendry County.

These publications were referenced and utilized to provide the baseline data, projection data, and forecast formulation evidence and to develop a number of comparative aviation activity forecasts for Airglades Airport. The publications also provided a variety of sources from which meaningful analytical comparisons of forecasts could be made to validate certain forecast assumptions pertaining to Airglades Airport activity. Where appropriate, projections of aviation activity obtained from these sources were interpolated or, where required to develop forecasts beyond the last respective forecast year of a particular forecast, extrapolated to the year 2020.

SOCIOECONOMIC ECONOMIC REGRESSION ANALYSIS

Regression analyses (linear) for Airglades Airport general aviation operations and based aircraft was performed using five different independent variables; per capita income, county population, total county employment, county agricultural employment and county non-agricultural employment. The analyses were calculated using historical data from year 1991 through 2000. They were also calculated with the same data set with 1999 data removed as an outlyer, due to anomaly of the based aircraft data for the year. Only three of the analyses were deemed

statistically significant to generate forecasts on. These three indicated only a moderate relationship, but useful enough for this application. The three were the analysis of based aircraft verses county population, total county employment and county non-agricultural employment. The results of these analyses are shown in **Table A-1**. The coefficient of correlation (r) measures the strength of the linear relationship between the two variables; the closer r is to 1 or -1, the stronger the relationship. The coefficient of determination (r²) represents the proportion of the sample variability explained by the linear relationship between the variables.

Since the regression analysis only identified useful correlations with regards to based aircraft, operations were calculated using the FAA's operations per based aircraft (OPBA) factor of 450. This factor is applied to the forecast number of based aircraft as determined by the regression analysis. The predicted based aircraft and concurrent operations for the significant regression analyses are shown in **Table A-2**. This OPBA factor was also applied to the number of based aircraft predicted using the TAF Airglades Airport growth rate applied to the year 2000 based aircraft data provided in the FAA Airport Master Record, FAA Form 5010, to compare against the regression based forecast.

FORECASTS PREVIOUSLY GENERATED BY OTHERS

Published forecasts of aviation activity for Airglades Airport, the State of Florida, and the nation were used to develop a variety of aviation activity forecasts. Where required, interpolation or extrapolation techniques were utilized to derive projections for any one or all of the three forecast years of 2006, 2011, and 2021. A compilation of the following forecasts is presented in **Table A-3** and **Figure A-3**.

FAA 2001 TAF Growth Rates

The FAA's TAF projections of passenger enplanements, air carrier/air taxi operations, general aviation operations, instrument operations and based aircraft as developed for Airglades Airport (TAF-2IS) were utilized to develop TAF-based projections for each respective forecast year. The forecast utilized the published TAF growth levels for the years 2001 through 2021, applied to the FAA Airport Master Record, FAA Form 5010, activity level. Since the TAF forecast no growth at Airglades Airport, the general aviation operations for the years 2002 through 2021 maintained current activity levels. This forecast represents the FAA's estimates of future activity at Airglades Airport, but does not reflect actual operating conditions, constraints, planned changes or anticipated localized shifts in activity levels at time of forecast.

In an effort to present a more realistic projection, a "normalized" TAF-based forecast of the various activity levels at Airglades Airport was developed using the average annual compound growth rate (AACGR) calculated using the projected national general aviation operations between each TAF forecast year (2001-2015). Utilizing actual general aviation operations and based aircraft data for the years 2001, future activity levels were developed that "mirrored" or paralleled year-to-year growth estimates of the FAA's TAF national general aviation growth rate.

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TABLE A-1 REGRESSION ANALYSIS FACTORS Airglades Airport

	Regression Analysis of Based Aircraft														
	vs Per Capita			vs County			vs Total County			vs Agricultural			vs Non-Ag		
	Income			Popu	lation		Employment			Emplo	yment		Employment		
	w/o 1999	w/1999		w/o 1999 w/1999			w/o 1999	w/1999		w/o 1999	w/1999		w/o 1999	w/1999	
r =	0.4488	0.1655		0.8569	0.7222		0.8087	0.7173		-0.195	-0.2159		0.8536	0.7621	
$r^2 =$	0.2014	0.0274		0.7343	0.5215		0.6540	0.5145		0.038	0.0466		0.7287	0.5808	
				Re	egressior	۱ A	Analysis o	f GA Ope	ra	tions					
	vs Per	Capita		vs County			vs Total County			vs Agricultural			vs Non-Ag		
	Inco	ome		Population			Employment			Employment			Employment		
	w/o 1999	w/1999		w/o 1999	w/1999		w/o 1999	w/1999		w/o 1999	w/1999		w/o 1999	w/1999	
r =	0.2573	0.1884		0.1508	0.1495		-0.0158	-0.0078		0.0322	0.0359		-0.0195	-0.0115	
$r^2 =$	0.0662	0.0355		0.0227	0.0223		0.0002	0.0001		0.001	0.0013		0.0004	0.0001	

Note: Regression Analysis performed with and without 1999 to account for the large deviation from the prior and subsequent years.

Source: Kwikstat 3.0

								0		
		Deced			Desert	Iotal		Desert	Non-Ag	
		Based			Based	Employ		Based	Employ	
	Year	Aircraft	Population	Operations	Aircraft	ment	Operations	Aircraft	ment	Operations
	1991	16	27,542	10,000	16	12,795	10,000	16	10,414	10,000
	1992	16	28,634	10,000	16	14,940	10,000	16	12,460	10,000
	1993	16	29,599	10,000	16	15,791	10,000	16	13,049	10,000
0	1994	17	30,853	10,000	17	16,676	10,000	17	19,745	10,000
oric	1995	23	31,792	10,000	23	17,163	10,000	23	14,546	10,000
list	1996	30	32,427	10,000	30	17,615	10,000	30	15,363	10,000
-	1997	25	33,622	9,000	25	18,829	9,000	25	16,155	9,000
	1998	25	34,392	9,000	25	18,723	9,000	25	16,058	9,000
	1999	19	35,140	10,000	19	18,725	10,000	19	16,026	10,000
	2000	29	36,455	11,499	29	19,286	11,499	29	16,569	11,499
at .	2001	29	37,264	13,050	28	19,798	12,600	29	17,070	13,050
cas	2006	38	41,362	17,100	34	22,188	15,300	35	19,498	15,750
ore	2011	45	45,478	20,250	39	24,610	17,550	41	22,001	18,450
Ľ	2021	60	53,940	27,000	50	29,390	22,500	52	26,938	23,400
			r = 0.8569			r = 0.8087			r = 0.8536	
			$r^2 = 0.7343$			$r^2 = 0.6540$)		$r^2 = 0.7287$	

TABLE A-2 STATISTICAL FORECASTS OF GA OPERATIONS Airglades Airport

Note: Forecast of based aircraft obtained using regression analysis verses County population, total county employment and non-agricultural county employment. Year 1999 was viewed as an outlyer and excluded from the statistical analysis. Operation levels obtained by applying FAA Operations Per Based Aircraft (OPBA) factor of 450 to forecasted based aircraft numbers.

Source: FAA Terminal Area Forecasts, 2002. FAA Airport Master Record, FAA Form 5010, July 2000. Kwikstat 3.0 2002 WOODS & POOLE ECONOMICS, INC. URS 2002

TABLE A-3 FAA FORECASTS OF GA OPERATIONS Airglades Airport

Year	TAF National Growth Rate	TAF 2IS Growth Rate	TAF US Market Share	TAF Florida Market Share	TAF Florida GA Market Share	FAA Aerospace Growth Rate	FASP	OPBA FAA- TAF*	Linear vs Population	Linear vs Total County Employment	Linear vs Non- Ag Employment
2001	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499
2006	11,793	11,499	11,789	12,380	12,303	14,255	13,920	13,050	17,100	15,300	15,750
2011	12,258	11,499	12,222	13,210	13,081	15,209	15,840	13,050	20,250	17,550	18,450
2021	13,421	11,499	13,106	14,932	14,695	17,947	21,120	13,935	27,000	22,500	23,400

* FAA OPBA = 450

Source: FAA Terminal Area Forecasts, 2002.

FAA Aerospace Forecasts (2002-2013), March 2002.

FASP 2000

FAA Airport Master Record, FAA Form 5010, July 2000.

FDOT, Florida Aviation Database, Facility Information Directory, www.florida-aviation-database.com, June 2002.

URS 2002.

TABLE A-3 FAA FORECASTS OF GA OPERATIONS Airglades Airport

Year	TAF National Growth Rate	TAF 2IS Growth Rate	TAF US Market Share	TAF Florida Market Share	TAF Florida GA Market Share	FAA Aerospace Growth Rate	FASP	OPBA FAA- TAF*	Linear vs Population	Linear vs Total County Employment	Linear vs Non- Ag Employment
2001	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499	11,499
2006	11,793	11,499	11,789	12,380	12,303	14,255	13,920	13,050	17,100	15,300	15,750
2011	12,258	11,499	12,222	13,210	13,081	15,209	15,840	13,050	20,250	17,550	18,450
2021	13,421	11,499	13,106	14,932	14,695	17,947	21,120	13,935	27,000	22,500	23,400

* FAA OPBA = 450

Source: FAA Terminal Area Forecasts, 2002.

FAA Aerospace Forecasts (2002-2013), March 2002.

FASP 2000

FAA Airport Master Record, FAA Form 5010, July 2000.

FDOT, Florida Aviation Database, Facility Information Directory, www.florida-aviation-database.com, June 2002.

URS 2002.

Figure A-3 Forecasts of GA Operations Airglades Airport Master Plan Update



FAA Aerospace Forecast 2001 through 2012 (FAA) Growth Rates

Using the FAA's Aerospace Forecast for Fiscal Years (FY) 2002-2013 and the Long-Range Aerospace Forecasts for FYs 2015, 2020 and 2025, AACGR projections of passenger enplanements, air carrier/air taxi operations, general aviation operations, instrument operations, and air cargo tonnage were developed for the short-term (2001-2013) and long-term (2014-2021). These growth rates were applied to the actual respective activity level for the year 2001 and grown outward to the year 2020.

Florida Aviation System Plan 2000 (FASP)

The FASP projections of commercial enplanements, air carrier operations, and general aviation operations for the FASP forecast years 2006, 2011, and 2021 were utilized to develop comparison forecasts. Using calculated AACGR between each respective forecast year. Interpolated projections for the forecast years 2005, 2010, and 2020 were also developed.

STUDY-SPECIFIC FORECASTS

Trend Analysis

The use of trend analysis is a common and helpful tool in projecting future anticipated levels of aircraft operations, passenger enplanements and based aircraft. The successful use of this forecasting technique is highly dependent on sustained rates of change of annual activity levels with minimal or moderate fluctuating cycles.

After examining and analyzing the historical aircraft operational and passenger enplanement activity levels at Airglades Airport, it was evident that the use trend analysis would not produce meaningful results. As such, trend analysis was not utilized.

Market Share – National and Florida

In addition to providing facility-level projections, the FAA's TAF also provides a forecast of activity levels for the state of Florida and the nation out to the year 2015. Using market share projection techniques, the year 2001 Airglades activity levels were calculated as a percentage of the state and national TAF projections. This Airglades-to-state/national percentage was held constant and applied to the respective state of national activity forecasts. This forecasting technique assumes: 1) the percentage of Airglades general aviation operations as a percentage of national, state or state general aviation activity levels remain unchanged throughout the entire forecast period, and 2) year-over-year growth at Airglades will parallel the state or national activity projection trends. Future activity levels for the year 2021 were developed using extrapolation techniques based on the 2010 through 2015 TAF AACGR.

APPENDIX B AIRPORT DESIGN CRITERIA

APPENDIX B

AIRPORT DESIGN CRITERIA

This appendix contains the output from the FAA's Airport Design computer program.

AIRPORT DESIGN AIRPLANE AND AIRPORT DATA

Aircraft Approach Category B Airplane Design Group II 78.30 feet Primary runway end approach visibility minimums are not lower than 3/4 mile Other runway end approach visibility minimums are not lower than 3/4 mile Airplane undercarriage width (1.15 x main gear track) . . . 41.01 feet 20 feet RUNWAY AND TAXIWAY WIDTH AND CLEARANCE STANDARD DIMENSIONS Airplane Group/ARC Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is not treated as a factor: VFR operations with no intervening taxiway 700 feet VFR operations with one intervening taxiway 700 feet VFR operations with two intervening taxiways 700 feet IFR approach and departure with approach to near threshold 2500 feet less 100 ft for each 500 ft of threshold stagger to a minimum of 1000 feet. Runway centerline to parallel runway centerline simultaneous operations when wake turbulence is treated as a factor: 2500 f.eet 2500 feet IFR approach and departure with approach to near threshold . . 2500 feet IFR approach and departure with approach to far threshold 2500 feet plus 100 feet for each 500 feet of threshold stagger. 3400 feet Runway centerline to parallel taxiway/taxilane centerline . 239.1 240 feet 250 feet Runway width 75 feet 10 feet 95 feet 150 feet 150 feet Runway safety area length beyond each runway end 300 feet 500 feet Runway object free area length beyond each runway end 300 feet Clearway width 500 feet 75 feet Obstacle free zone (OFZ): 400 feet 200 feet 400 feet Inner-approach OFZ length beyond approach light system . . . 200 feet Inner-approach OFZ slope from 200 feet beyond threshold . . . 50:1 0:1

1000 feet 1700 feet Runway protection zone at other runway end: 1000 feet 1510 feet 1700 feet Departure runway protection zone: 500 feet Width 1200 feet from the far end of TORA 700 feet 1000 feet Threshold surface at primary runway end: Distance out from threshold to start of surface 200 feet Width of surface at start of trapezoidal section 1000 feet Width of surface at end of trapezoidal section 4000 feet 0 feet 20:1 Threshold surface at other runway end: Distance out from threshold to start of surface 200 feet Width of surface at start of trapezoidal section 1000 feet 4000 feet Width of surface at end of trapezoidal section 10000 feet 0 feet 20:1 Taxiway centerline to parallel taxiway/taxilane centerline 104.0 105 feet Taxiway centerline to fixed or movable object 64.8 65.5 feet Taxilane centerline to parallel taxilane centerline . . . 96.1 97 feet 57.5 feet 56.1 feet 10 feet 79 feet 131 feet 115 feet 7.5 feet 26 feet 18 feet

Runway protection zone at the primary runway end:

REFERENCE: AC 150/5300-13, Airport Design, including Changes 1 through 4.

AIRPORT AND RUNWAY DATA

Airport elevation	20	feet
Mean daily maximum temperature of the hottest month 91	.40	F.
Maximum difference in runway centerline elevation	0	feet
Length of haul for airplanes of more than 60,000 pounds	500	miles
Wet and slippery runways		

, RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Small airplanes with approach speeds of less than 30 knots	300	feet
Small airplanes with approach speeds of less than 50 knots	800	feet
Small airplanes with less than 10 passenger seats		
75 percent of these small airplanes	2520	feet
95 percent of these small airplanes	3090	feet
100 percent of these small airplanes	3660	feet
Small airplanes with 10 or more passenger seats	4290	feet
Large airplanes of 60,000 pounds or less 75 percent of these large airplanes at 60 percent useful load 75 percent of these large airplanes at 90 percent useful load 100 percent of these large airplanes at 60 percent useful load 100 percent of these large airplanes at 90 percent useful load	5370 7000 5500 8500	feet feet feet feet
Airplanes of more than 60,000 pounds Approximately	5020	feet
REFERENCE: Chapter 2 of AC 150/5325-4A, Runway Length Requirements for Airport Design, no Changes included.		

APPENDIX C PUBLIC INVOLVEMENT PROGRAM

APPENDIX C PUBLIC INVOLVEMENT PROGRAM

INTRODUCTION

A public involvement program was implemented to ensure information regarding the Master Plan Update and proposed airport developments was made available to the general public and that input from interested parties was received and considered. The program sought input from users of the airport and the citizens of Clewiston and Hendry County. The following summarizes the public involvement program.

PUBLIC INVOLVEMENT PROGRAM

Input from interested parties and the public was sought through advisory board meetings and specialpurpose public meetings.

Airport User Input

The planning process considered input from airport users and interested parties provided at regularly scheduled airport advisory board meetings that are open to the public and frequently attended by pilots and users of the airport. This provided specific input relative to the needs of the airport (i.e., establish precision approaches and information on local wind and runway use patterns).

Public Input

Proposed airport development concepts and alternatives were presented at a Public Information Meeting held at the Clewiston City Hall on November 12, 2002. The purpose of the meeting was to advertise the availability of draft study materials, discuss the results of the Working Papers prepared to-date, and to obtain input regarding the alternative development scenarios for the airport. The meeting (advertised in local publications) provided information on the airport's forecast, facility needs, and development alternatives. The meeting was an informal workshop where the attendees could inspect the information, maps, and diagrams and discuss the airport with Hendry County representatives and their consultants. A question and answer session was conducted as part of the meeting. Approximately fifteen people attended the information meeting, including Hendry County representatives. Copies of the meeting materials are attached to this appendix. Comments regarding the turf runway and airport operations were provided at the meeting. No written comments were submitted.

Recommended airport development projects and the proposed Capital Improvement Plan were also presented at Hendry County Board of County Commissioners meetings. These meeting allowed for additional public comment and discussion prior to County decisions on these elements of the Master Plan update.

Upon County, FAA, and FDOT review and approval of responses to comments on the Draft Master Plan update and Airport Layout Plan (ALP), the recommended Master Plan and ALP will be presented at a public meeting. Upon public and County acceptance of the findings and recommendations, a final report will be issued.

ainglades MP B4

PUBLIC INFORMATION MEETING

Airglades Airport Master Plan Update Hendry County, Florida

Tuesday November 12, 2002 4:00 p.m. - 5:30 p.m. Clewiston, Florida

NAME (Please Print)	ADDRESS (Street, City, State, Zip)
Peter Green	URS Corporation, Tampa, FL
RON ZIMMERLY	HENDRY COUNTY, L. Belle, 33975
SANDI HAGAN	FDOT 801 N. BROADWAY, BARTON, FL. 33830
ERNIE HUGHES	218 DESOTO AVE, CLEWISTON, FL 33447
Denas Spane	JES CALOUD EST. Dr., LABSICE, FZ 33935
RON MORRIS	URS CURRITATION, 315 East Robinson St, Suite 245, Orlando, FL
Mille Page	3200 AirgLeses BL.S. Chariston
JASON JACOBS	US SUGAR III PONCE DE LEON
DAVID 4 EQUES	Airporr Baard
Wayne Smith	Hilland Brothers
DORREU HORRis	Hendry Co. Comm.
RON SCHAEFER	LABELLE AIRPORT
Dandel Kelley	Rochin K. Jam'
Bere Barala	H& Sunlay Veers
Letter & Baudo	POBOX La Bell, FR 33935 863-675- 7575 5220

PUBLIC INFORMATION MEETING

Airglades Airport Master Plan Update

November 12, 2002 4:00 p.m. – 5:30 p.m.



Airglades Airport Master Plan Update
Meeting Format

This Public Information Meeting will be conducted in an informal, open-house type format where participants will be able to view project materials and speak with representatives of Hendry County and their consultant (URS Corporation) about the future of the Airglades Airport.

You are invited to review the Working Papers prepared for the Airport Master Plan Update and the diagrams depicting the alternate layouts for future airport development. Your comments and ideas regarding the future of the airport and the alternate layouts are important.

Written comments can be submitted anytime during the meeting or they can be mailed on the comment form at the back of this handout. Additional copies of the comment form are located at the registration table. Comments should be postmarked by November 19, 2002.

Master Plan Update

The Airglades Master Plan is in the process of being updated. To-date, five Working Papers have been produced as draft sections of the Master Plan Update. A description of the Working Papers completed to-date is provided below.

Working Paper 2.0 – Introduction: The Introduction presents the purpose and goal of the study and provides a brief review of prior Master Plan recommendations. At the completion of this update, this section will provide a summary of the report's conclusions and recommendations.

Working Paper 2.0 – Airport Inventory: This section provides an inventory of existing facilities at the Airglades Airport.

Working Paper 3.0 – Airport Forecasts: The forecast section provides a projection of aviation activity at the Airglades Airport over a 20-year period. Components of the forecast include a review of past aviation activity, local trends, and future aviation activity projections for Airglades Airport.

Working Paper 4.0 – Airport Demand/Capacity Analysis and Identification of Facility Needs: This section evaluates the capability existing infrastructure and facilities to meet current and projected aviation demands and identifies major improvements needed at the airport.

Working Paper 5.0 – Airport Development Alternatives: This section summarizes the effort to develop and evaluate development scenarios to provide the required facilities and plan for future potential growth at the Airglades Airport.

The review and selection of a preferred development plan will allow for the completion of the Master Plan Update, which includes preparation of a Capital Improvement Plan and an Airport Layout Plan drawing set.

Airport Planning Objectives

The goal of the airport planning process is to provide a modern, safe, and efficient general aviation facility for Hendry County citizens, businesses, and the traveling public. The Airglades Airport should meet the needs of the community and be a vital component of the area's transportation network and economic development strategy. Planning for airport development should be accomplished in a prudent, financially sound manner that considers safety, efficiency, and utility.

A development plan should provide a long-term plan for the location of facilities that can be used to accommodate projected demand as well as opportunities that may arise to attract and/or accommodate corporate or aviation-related industrial activity. Additional planning considerations for the airport include:

- Plan for additional apron and aircraft storage facilities to meet future demand.
- Plan for incremental expandability. Construct facilities on an as-needed basis.
- Reserve space for at least one additional large hangar for maintenance operation or potential 2nd Fixed Base Operator.
- Promote corporate aviation and business use of the airport.
- Promote industrial development and aviation-related industry.
- Promote revenue producing land uses.

Proposed Development Alternatives

Terminal/Building Area

The planning process evaluated several layouts for the terminal area, around which most general aviation activity would occur, and the corporate/industrial area located along Taxiway "S" and the northwest portion of Taxiway "A." The process resulted in two alternate layouts for the terminal area and two alternate layouts for the corporate/industrial area. The layouts are depicted in the drawings located in the meeting room. Several combinations of the layouts were considered, resulting in two overall terminal/building area conceptual alternatives.

Development plans at the Airglades Airport include a planned new passenger terminal building. The new terminal building is proposed at the location of the existing terminal building. The design and footprint of the planned terminal building is being conducted as a work program independent from this Master Plan Update.

The following table presents a comparison of the two terminal/building area development concepts.

Additional Proposed	Terminal/Building Area	Terminal/Building Area Concept #2	
Facilities	Concept #1		
Aircraft Hangars*			
100' x 120'	1	1	
100' x 100'	1	2	
80' x 80'	7	9	
80' x 60'	4	0	
60' x 60'	1	1	
T-Hangar Units	<u>60</u>	<u>60</u>	
*(excludes potential hangars in the	74	73	
industrial park)			
New Terminal Building	Yes	Yes	
Aircraft Parking Apron	5,900 SY future	7,700 SY future	
	12,800 SY ultimate	12,800 SY ultimate	
	18,700 total	20,500 total	
Automobile Parking Spaces	44 in terminal area	54 in terminal area	
	Other additional parking for proposed	Other additional parking for proposed	
	corporate hangars	corporate hangars	
Helicopter Pads	2	2	
Industrial Park Parcels with	5	6	
Airfield Access			
Relocate Maintenance	Yes	Yes	
Building/Operations			

Airglades Airport Terminal/Building Area Concept Comparison

Re-Open Runway 4/22

The re-opening of Runway 4/22 will enhance operations during IFR and VFR conditions by providing adequate crosswind coverage for small aircraft. The long-term goal is to provide a 4,670-foot paved and lighted crosswind runway.

Alternate strategies include initially opening with the 4,670-foot paved runway or staged development. Staged development would consist of re-opening Runway 4/22 initially as a 2,520-foot turf runway, with future development to the ultimate 4,670-foot paved runway.

The initial 4,670-foot runway alternate will provide the benefit of the full crosswind runway upon re-opening the runway. The initial 2,250-foot turf runway strategy would re-open the closed turf runway at a lesser cost than the initial 4,670-foot runway

strategy. The turf runway would be available for crosswind landing by small aircraft and for recreational use. The runway would be ultimately paved and extended as activity and demand increased at the airport.

Airport Land Use

Non-aviation land at the Airglades Airport is currently leased for agricultural purposes, providing a source of operating revenue for the airport.

The northwest section of airport property is currently being developed as the Airglades Industrial Park. Recent improvements include installation and upgrade of utilities, including sanitary sewer service. Roadway projects are currently being designed to improve Airglades Boulevard (the airport entrance road) and construct industrial park access roads.

The highest and best use of the remaining land is considered to be agricultural at this time. The land use is compatible with airport operations and requires little maintenance effort on behalf of the County or airport staff. However, long range plans should include alternate uses for the agricultural land. As the Airglades Industrial Park develops and reaches 50 to 60 percent occupancy, planning studies should be undertaken to develop additional industrial park resources at the airport. Based on access to Flaghole Road, the next quadrant with potential for development is the southwest quadrant. The eastern area of the airport could be subsequently developed for industrial use, but would require access improvements.

COMMENT SHEET

PUBLIC INFORMATION MEETING November 12, 2002 Airglades Airport Airport Master Plan Update

Please state your comments clearly and concisely regarding the Airport Master Plan Update:

PLEASE PRINT

Comments:

Name: ______ Address: _____

Comments must be postmarked by November 19, 2002

Please mail all comments to the address provided below. Comments are not limited to the space on this sheet. Please feel free to add additional sheets, if necessary.

(fold here)	

Mr. Rock Aboujoude, PE Hendry County Engineer 99 East Cowboy Way LaBelle, Florida 33975



