

CHAPTER TWO

Existing Conditions

FORWARD

As outlined in the Federal Aviation Administration (FAA) **Advisory Circular (AC) 150/5070-6B, Airport Master Plans** and the Florida Department of Transportation (FDOT) *Guide to Airport Master Planning*, the initial step in the Master Plan Update for Herlong Airport (HEG) is the collection and evaluation of information about the Airport and the area it serves. This chapter provides a physical inventory and description of facilities and services now provided at the Airport. The inventory will include:

- The background information about the Jacksonville area and a description of development that has recently taken place at the Airport.
- The population and socioeconomic information, which provides a sign of possible future development in the Jacksonville area.
- A comprehensive review of the existing regional plans and studies to determine potential influence on the development and implementation of the Airport Master Plan.

An accurate and complete inventory is essential to the success of any master-planning document. The objective of the inventory task is to provide background information essential to the completion of the Master Plan Update. The inventory task for HEG was accomplished through physical inspection of the facilities, field interviews, telephone interviews, and review of available and appropriate administrative records. Additional information was collected from documents and studies about the Airport and the Jacksonville area. These documents include the following:

- Airport Master Plan Update, December 2000
- The existing Airport Layout Plan (ALP), 2004
- Jacksonville Aviation Authority (JAA) Financial Statements
- JAA fuel and aircraft operations records for HEG, and
- Miscellaneous reports generated by the University of Florida Bureau of Economic and Business Research, Florida Aviation System Plan and FAA Aerospace Forecasts, 2005-2016.

This chapter provides a general description of HEG and its service area. It describes data relevant to the Airport's history, geographic location, climate, and operational role in today's aviation environment.

In addition, an inventory of all primary airfield components was included in the August 2005 inventory process. The August 2005 inventory included the following data pertaining to:

- Runway and taxiway:

- Lengths and widths
- Designations,
- Lighting and marking
- Orientations, and
- Separations
- Meteorological data;
- Pavement conditions;
- Landing and navigational aids;
- Air traffic control procedures and airspace configuration; and
- Obstacles to the surrounding airspace, and
- Runway protection zones

The following sections provide a concise account of applicable airfield assets at the Airport.

AIRPORT SETTING

The Jacksonville Airport System consists of four airports (Herlong, Jacksonville International Airport (JAX), Craig (CRG) and Cecil Field (VQQ)), with each serving a distinct need within the Jacksonville and northeast Florida transportation system. Herlong Airport located approximately eleven (11) miles southwest of downtown Jacksonville, is promoted as “Jacksonville’s premier general aviation recreational and sport flying airport”. The Airport is currently a prime recreational site for small private planes, hot air balloons, skydiving, gliders and other small or experimental aircraft. Herlong supports JAX by accommodating sport aeronautical operations, thereby serving as a reliever airport to JAX.

The existing airport property covers 1,434 acres located approximately three (3) miles southwest of Interstate 10 and 295 as shown in **Figure 2-1, Airport Location**. The current airport elevation, defined as the highest point on the usable runways, is 87 feet above mean sea level (MSL). According to the 2000 Airport Layout Plan, the existing latitude and longitude coordinates for HEG’s airport reference point (ARP) is 30° 16’ 30” N and 81°48’ 20” W. As part of the review, these coordinates were verified.

**LOCATION OF AIRPORT
CITY OF JACKSONVILLE**



NOT TO SCALE

Source: THE LPA GROUP, 2005



Figure 2-1

The Airport is bound by Normandy Boulevard, a four-lane divided highway, to the north and residential communities to the south, east and west. New single family housing at the time of this writing is located along Normandy Boulevard directly north of the Airport entrance road. Due to high demand for residential housing, significant development is occurring adjacent to the airport. Impacts associated with residential use will be discussed in more detail in **Chapter 5, Demand Capacity and Facility Requirements**.



As shown in **Figure 2-2**, Jacksonville International Airport (JAX) is located approximately 25 nautical miles to the northeast, Craig Airport (CRG) is located 15.5 nautical miles to the east and Cecil Field (VQQ) is located approximately 10.2 nautical miles to the southwest of the Airport. All three airports serve Duval County and the Jacksonville Metropolitan Statistical Area (MSA).

In addition to the airports within the Jacksonville Airport System, three major military installations are located within a 25 nautical mile radius of Herlong Airport including Whitehouse Naval Outlying Field (NOLF), Jacksonville Naval Air Station and Mayport Naval Station.

Other airports, which serve the Jacksonville region and are located within a 40-nautical mile radius of HEG are outlined in **Table 2-1** and shown in **Figure 2-3, Airports in the Region**.

TABLE 2-1 PUBLIC GENERAL AVIATION AIRPORTS IN THE REGION			
Airport	Distance from HEG (nm)	Runway and Dimensions	Published Instrument Approach Procedures
Cecil Field (VQQ)	10.2	18L-36R (12,504' x 200') 18R-36L (8,003' x 200') 9R-27L (8,003' x 200') 9L-27R (8,002' x 200')	ILS - VOR - GPS
Craig Airport (CRG)	15.5	5-23 (4,004' x 100') 14-32 (3,998' x 100')	ILS/LOC - VOR/DME - GPS
Fernandina Beach Airport (55J)	26.8	13-31 (5,152' x 100') 8-26 (4,999' x 100')	GPS
St. Augustine Airport (SGJ)	30.8	13-31 (7,996' x 150') 6-24 (2,701' x 60') 2-20 (2,614' x 75') 17W/35W (12,000' x 1,000') 18W-36W (12,000' x 500') 12W-30W (5,000' x 1,000')	ILS - VOR - GPS
Keystone Airpark (42J)	28.9	4-22 (5,044' x 100') 10-28 (4,899' x 75')	VOR/DME - GPS
Palatka Municipal – Lt. Kay Larkin Airfield Airport (28J)	37.6	9-27 (6,000' x 100') 17-35 (3,500' x 75') 12-30 (3,000' x 75')	NDB

Source: Airnav.com (2005)

Airports in the Region

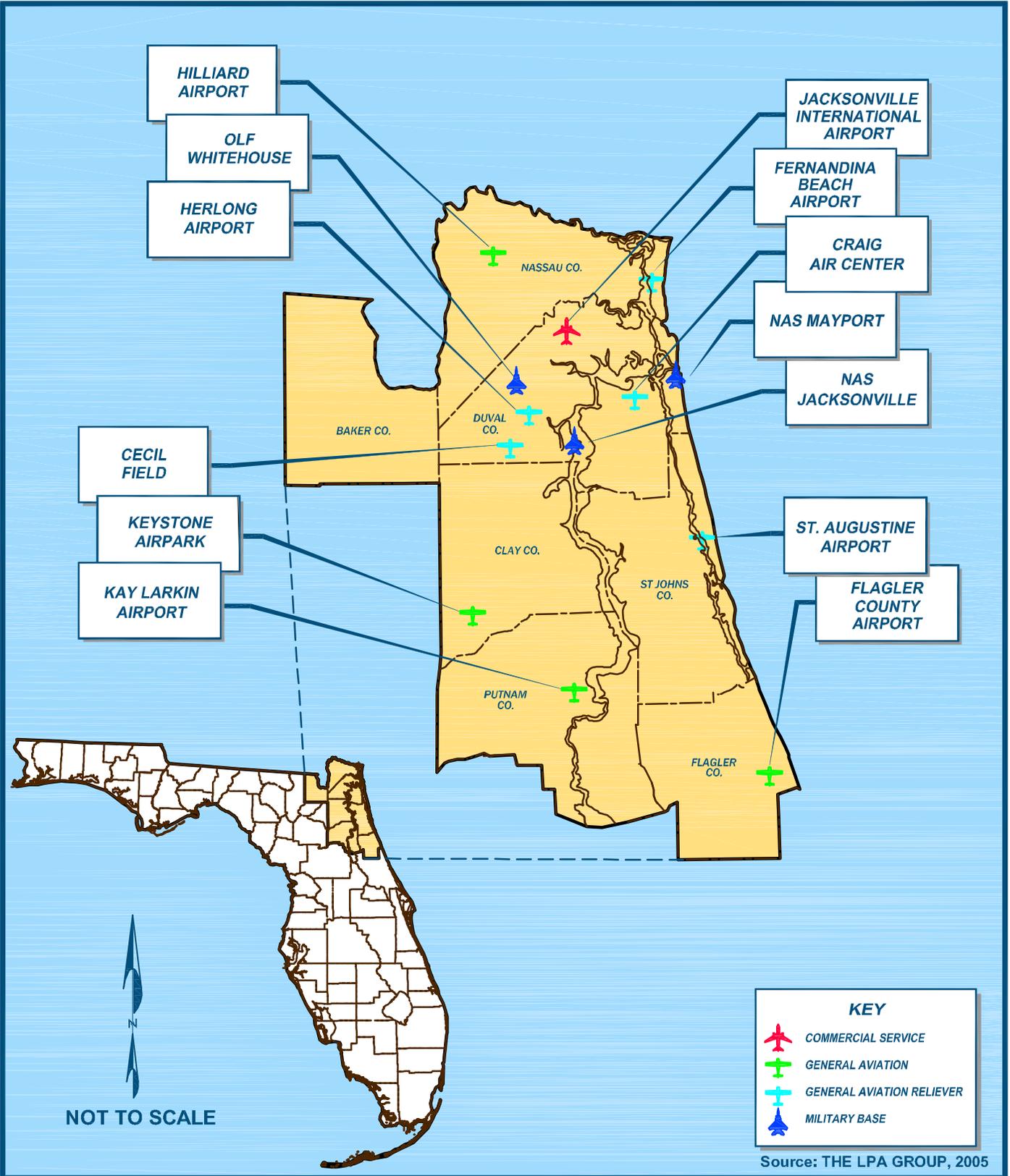


Figure 2-3

CLIMATE

Weather conditions are an important consideration in the planning and development of an airport. Temperature is a critical component in determining runway length, and wind speed and direction determine runway orientation. Also the frequency of cloud cover limits local area visibility and designates the need and type of navigational aids (NAVAIDs) and lighting. These issues will be discussed in further detail in **Chapter 5, Demand Capacity and Facility Requirements**.

The northern Florida region enjoys mild climate during the winter months and hot and humid temperatures with afternoon thunderstorms during the spring and summer. Freezing temperatures occur occasionally with occasional snow flurries during the winter about once every 5-7 years.

Historical data from the National Weather Service (NWS) in Jacksonville reflects temperatures typically ranging from 52.8° F in January to 82.1° F in July. The mean daily maximum temperature recorded for the warmest month of the year (July) was 91.7°F. Data collected over a 30-year period indicates monthly average total precipitation range from 2.19 inches during November to 7.93 inches during August. The average annual rainfall total is 51.31 inches per year.

WIND COVERAGE

Historical wind conditions were evaluated to determine the percentage of wind coverage at HEG. New wind rose data was compiled from the National Oceanic and Atmosphere Administration's National Climatic Data Center (NCDC), located in Asheville, NC. As aircraft takeoff and land into the wind, it is recommended by the FAA that sufficient runways be provided to achieve 95 percent wind coverage. The 95 percent wind coverage is computed based on the crosswind not exceeding 10.5 knots (12 MPH) for the smallest aircraft with ARCs of A-I and B-I; 13 knots (15 MPH) for ARCs A-II and B-II; 16 knots (18 MPH) for ARCs A-III, B-III, C-I through D-III; and 20 knots (23 MPH) for ARCs A-IV through D-VI. The "95 percent" criterion is applicable to all weather conditions: visual flight rules (VFR), instrument flight rule (IFR) and below minimum conditions. If 95 percent wind coverage is not provided at an airport for the maximum crosswind component of the critical aircraft, then the addition of a crosswind runway should be considered.

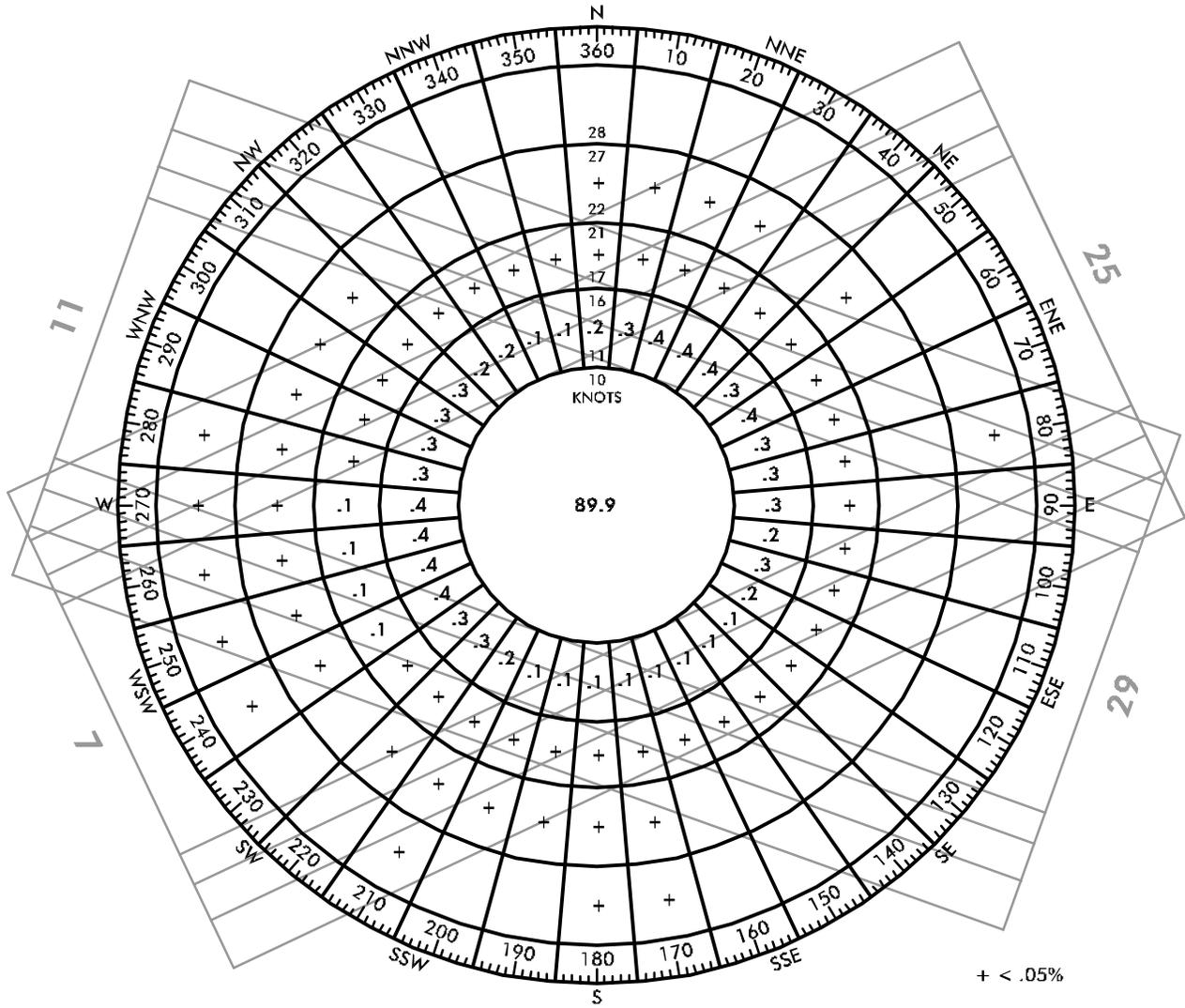
FAA Advisory Circular (AC) 150/5300-13, Change 10, Airport Design, suggests that a period of at least ten (10) consecutive years of on-site wind data should be examined when carrying out an airfield wind coverage evaluation. According to the Master Plan Update, the prevailing winds at HEG are predominantly from the northeast direction, from the coastal regions.

Using **Airport Design, Version 4.2D**, all weather, VFR and IFR wind coverage percentages was analyzed. This information is presented in **Table 2-2**. Wind coverage is only included for the crosswind speed that corresponds to the approach category and airplane design group that would utilize that runway. No change was noted from the previous master plan update.

TABLE 2-2
PERCENTAGE WIND COVERAGE

Airfield Configuration	10.5-Knots (12 mph)	13-Knots (15 mph)	16-Knots (18.4 mph)	20-Knots (23 mph)
<i>All-Weather Conditions</i>				
Runway 7-25	96.99%	98.67%	99.77%	99.96%
Runway 11-29	95.71%	97.84%	99.59%	99.91%
Total Combined	98.73%	99.59%	99.93%	99.99%
<i>VFR Conditions</i>				
Runway 7-25	97.08%	98.70%	99.78%	99.97%
Runway 11-29	95.92%	97.99%	99.61%	99.92%
Total Combined	98.87%	99.64%	99.94%	99.99%
<i>IFR Conditions</i>				
Runway 7-25	96.25%	98.35%	99.68%	99.95%
Runway 11-29	93.97%	96.55%	99.42%	99.89%
Total Combined	97.41%	99.11%	99.85%	99.99%

All weather wind rose and IFR wind rose data is provided in **Figures 2-4** and **2-5**, respectively.



<u>WIND COVERAGE</u>	<u>10.5 KNOTS</u>	<u>13 KNOTS</u>	<u>16 KNOTS</u>	<u>20 KNOTS</u>
RUNWAY 7/25	96.99%	98.67%	99.77%	99.96%
RUNWAY 11/29	95.71%	97.84%	99.59%	99.91%
TOTAL COMBINED	98.73%	99.59%	99.93%	99.99%

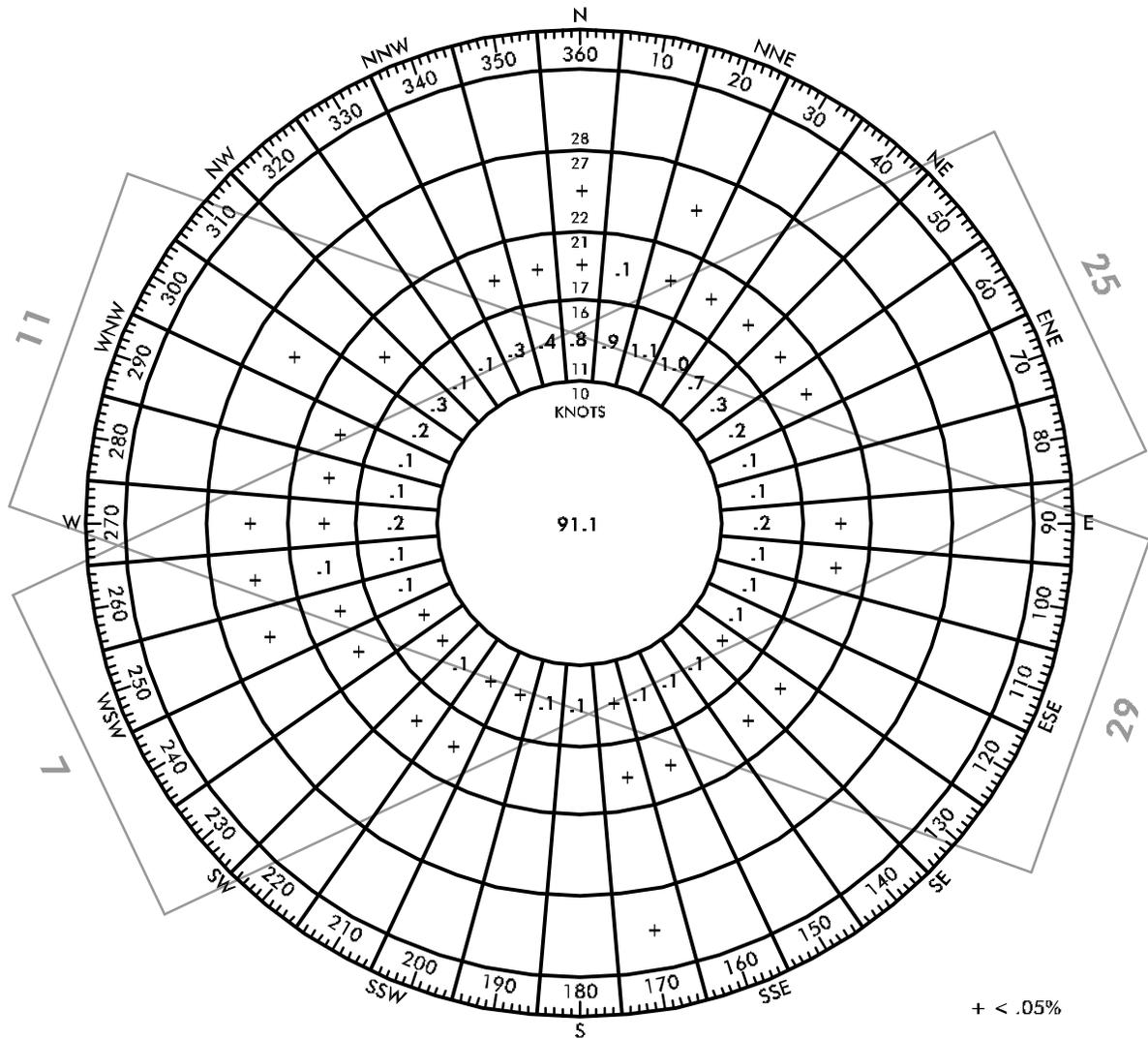
CEIL/VIS: ALL

SOURCE: NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NC

83015 OBSERVATIONS MADE
OVER THE PERIOD 1989-1998
STATION 72206 CECIL FIELD, FL, US



Figure 2-4



<u>WIND COVERAGE</u>	<u>13 KNOTS</u>
RUNWAY 7 *	91.24%
RUNWAY 25 *	80.38%
RUNWAY 11 *	88.13%
RUNWAY 29 *	91.18%

* BASED ON A 5 KNOT TAILWIND COMPONENT

<u>WIND COVERAGE</u>	<u>13 KNOTS</u>
RUNWAY 7/25	98.35%
RUNWAY 11/29	96.55%
TOTAL COMBINED	99.11%

CEIL/VIS: CEIL < 1000 FT. AND/OR VIS. < 3.00 MI.

SOURCE: NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NC

83015 OBSERVATIONS MADE
OVER THE PERIOD 1989-1998
STATION 72206 CECIL FIELD, FL, US



Figure 2-5

FAA CERTIFICATION AND CLASSIFICATION

FAA Classification

As a planning tool and guide, the FAA classifies aircraft based upon two key characteristics: Approach Speed and Wingspan. The Approach Speed Category ranges from A to E, with the letters representing approach speed of aircraft. The Airplane Design Group ranges from I to VI. The Roman Numerals represent the aircraft's wingspan. **Table 2-3** provides a complete list of the Approach Speed Categories and Airplane Design Group according to **FAA Advisory Circular 150/5300-13, Change 10, Airport Design**. These two categories are then used to determine the Airport Reference Code (ARC), which signifies the most demanding aircraft type expected to utilize the facility. The ARC is then used to determine the standards and dimensions of the critical surface and separations of the airfield facilities.

TABLE 2-3 FAA AIRCRAFT APPROACH CATEGORIES AND AIRCRAFT DESIGN STANDARDS	
Aircraft Approach Category	Approach Speed
A	Speed less than 91 knots
B	Speed 91 knots Speed to less than 121 knots
C	Speed 121 knots Speed to less than 141 knots
D	Speed 141 knots Speed to less than 166 knots
E	Speed greater than 166 knots
Airplane Design Group	Wingspan
I	49 feet and less
II	49 feet up to but not including 79 feet
III	79 feet up to but not including 118 feet
IV	118 feet up to but not including 171 feet
V	171 feet up to but not including 214 feet
VI	214 feet up to but not including 262 feet
<i>Source: FAA AC 150/5300-13, Change 10, Airport Design</i>	

Based upon current aircraft operations and the longest length of its primary runway, the ARC of HEG is a **B-II**.

Although HEG does accommodate limited business jet aircraft, the majority of aircraft operations at HEG are comprised primarily of single-engine and multi-engine piston aircraft equal to or less than 12,500 pounds, ultralight and glider aircraft. Thus, its primary runway length of 4,000 feet accommodates existing aircraft demand. However, if the significant increase in the use of HEG by larger multi-engine piston, turboprop and turbine engine aircraft continues, then the current runway length will not adequately meet both manufacturer and FAA runway length requirements for safe operation.

Based upon aircraft records, there are currently 162-based aircraft on the field as of 2005. The existing based aircraft fleet mix is shown in **Table 2-4**.

Aircraft Category	Based Aircraft	Percentage of Total
Ultra-lights	5	3%
Seaplane	1	0.6%
Experimental	0	0%
Glider	12	7.4%
Helicopter	4	2.47%
Single Engine	128	74%
Multi-Engine	15	9.26%
Jet Engine	5	3%
Military	0	0%
Total	170	100%

Source: The JAA, 2005 and The LPA Group Incorporated, 2006

HISTORIC DATA

AIRPORT HISTORY

HEG was constructed by the U.S. Navy during World War II and was used primarily as a training base. In 1947, the U.S. Navy deeded the property to the City of Jacksonville. In the mid-1960's, the City turned over ownership of the Airport to what was then known as Jacksonville Port Authority (JAXPORT). In 2001, the Jacksonville Airport Authority (now the Jacksonville Aviation Authority) was created by the State legislature to own and operate public airports in Duval County (JIA, Craig, Herlong and Cecil Field).

As part of the Jacksonville Airport System, HEG became Jacksonville's premier recreational and sport flying airport. In 2001, it was the recipient of the Florida Department of Transportation's General Aviation Airport of the Year award.

AIRPORT ACREAGE

Current airport acreage encompasses approximately 1,434 acres. The southern portion of the airport property includes several acres of low-lying areas exhibiting wetland characteristics and undeveloped wooded areas.

PREVIOUS STUDIES AND REPORTS

The following studies and reports were obtained from the Airport and other sources during the inventory phase of this project:

- Herlong Master Plan Update, December 2000;
- Airport Spill Prevention Control Plan (SPCC);
- Herlong Airport Building Condition Survey, 2004;
- Florida Aviation System Plan: Northeast Florida Metropolitan Area;
- National Plan of Integrated Airport Systems 2002-2005;
- FAA Aerospace Forecast, 2005-2016; and
- Florida Aviation System Plan 2025 Statewide Overview

These documents were reviewed for valuable historic data and significant insight into the process of long-range planning at the Airport.

ROLE OF AIRPORT

JACKSONVILLE AVIATION AUTHORITY (JAA) PLAN/DUVAL COUNTY SYSTEM PLANS

Herlong Airport is owned and operated by JAA. The Airport's current role as identified in the *Florida Aviation System Plan (2005 – 2009)* is to accommodate general aviation activity, provide vital aircraft storage facilities, and operational general aviation relief to commercial passenger service airports in the Northeast Florida Metropolitan Area. As a result, HEG is one of five designated reliever airports in the Northeast Florida Metropolitan Area.

Herlong Airport, Craig Airport, Fernandina Beach Municipal Airport, St. Augustine-St. Johns County Airport, and Cecil Field all provide reliever service to JAX, the region's only commercial service airport, by accommodating a significant portion of GA activity in the region. Since Herlong Airport is promoted as "Jacksonville's premier general aviation recreational and sport flying airport", it is recognized not only by JAA but FDOT and FAA as an essential element within the regional and national airport system.

Currently, JAA serves as the Fixed Base Operator (FBO) at HEG providing terminal facilities, hangar space, tie-down areas and fueling. Within the last five years, JAA built 24 new individual T-Hangar facilities to meet demand for aircraft storage. During the inventory phase of the master plan update, aircraft storage at the airport was at 100 percent capacity.

FLORIDA AVIATION SYSTEM PLANS (FASP)

The Florida Aviation System Plan (FASP) is the FDOT's 20-year aviation system plan for development at Florida's publicly owned airports. The FASP is an on-going system supported by multiple databases that provide current data on Florida's aviation industry. Because the plan must

reflect and keep pace with Florida's aviation growth, it often addresses a variety of issues including intermodal transportation networking, economic impact of airports on local and regional economy, and the development of long-range visions for aviation planning. The overall purpose of the FASP is to enhance Florida Department of Transportation's (FDOT's) goal of "providing a quality system that meets the existing and future growth needs of the state of Florida."

HEG is located in the Northeast Florida Metropolitan Area as defined by the FASP, which is comprised of the six counties: Baker, Clay, Duval, Putnam, Nassau and St. Johns. The current primary airport within the region is the Jacksonville International Airport (JAX) operated by the JAA. As stated earlier, JAA also operates Craig, Herlong and Cecil Field airports.

Craig Airport, located just minutes from Downtown Jacksonville and area beaches, acts as a general and corporate aviation reliever airport to JAX. Craig Airport provides aircraft sales, service and maintenance, avionics repair, complete airframe and power plant maintenance, electronics and instrument sales, aerial advertising, aircraft charter services, flight training and aircraft and automobile rentals. However, due to its proximity to residential neighborhoods, the airport has become noise sensitive and has implemented a Noise Abatement Program.

Cecil Field, a military base decommissioned in 1999, is defined as a public-use airport within the FASP system, which provides maintenance, repair and overhaul (MRO) services to general aviation and specialty cargo operations. However, as stated earlier, consideration is being given to reconfiguring Cecil Field back to a military facility, which may have an impact on Herlong operations.

Other airports within this Continuing Florida Aviation System Planning Process (CFASPP) Metropolitan Area include St. Augustine, Fernandina Beach, Kay Larkin (Palatka), Keystone Airpark, and Hilliard (Turf). Most of these airports have a 5,000-foot or greater runway, which accommodates both private and corporate air traffic. Many also contain sufficient industrial park space suitable for a wide variety of industrial and business interests. They also provide easy access to some of the worlds most sought after visitor destinations and a number of recreational interests.

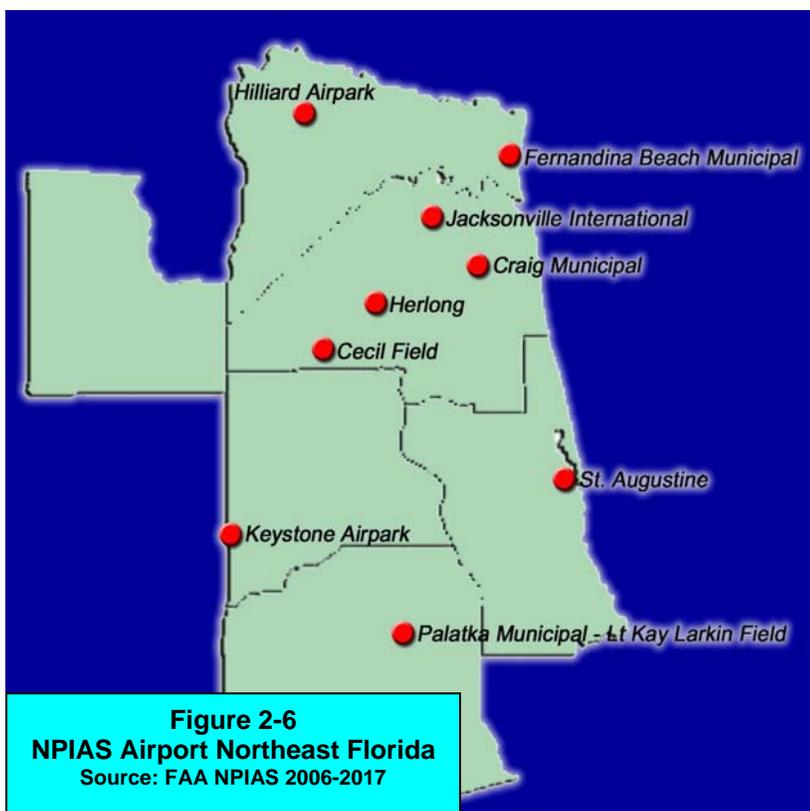
Military aviation and other activity continue to play a vital economic role within the Northeast Metropolitan Area. The Navy's Fleet Area Control Surveillance Facility Jacksonville (FACSFACJAX) is located at Naval Air Station Jacksonville. FACSFACJAX, as an active member of the Area Committee, has maintained an excellent rapport with the Northeast Metropolitan Area's aviation community and the FAA's Air Route Traffic Control Center (ARTCC) in Hilliard, Florida.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS)

The FAA integrates individual master planning efforts into the National Plan of Integrated Airport Systems (NPIAS). The NPIAS provides a standardized system to evaluate airport roles, effectiveness and eligibility for grants-in-aid on a national level.

There are a number of FAA classifications for general aviation airports according to the *National Plan of Integrated Airport Systems (NPIAS) 2007 - 2011*, which includes over 3,344 airports. Principally, an airport's role identifies the aircraft it can accommodate, or in the case of commercial service airports, the routes and markets it serves nonstop.

With respect to category of service, HEG is designated as a Reliever Airport. Reliever Airports are high capacity general aviation airports in major metropolitan areas, which provide pilots with an attractive alternative to using congested hub airports. They also provide general aviation access to the surrounding area. The 260-reliever airports have an average of 228-based aircraft, and together account for 27 percent of the Nation's general aviation fleet. Airports within the northeast Florida metropolitan statistical area are shown in **Figure 2-6**.



AIR TRAFFIC CONTROL AND AIRSPACE STRUCTURE

The National Airspace System (NAS) is defined as the common network of U.S. airspace, including the following:

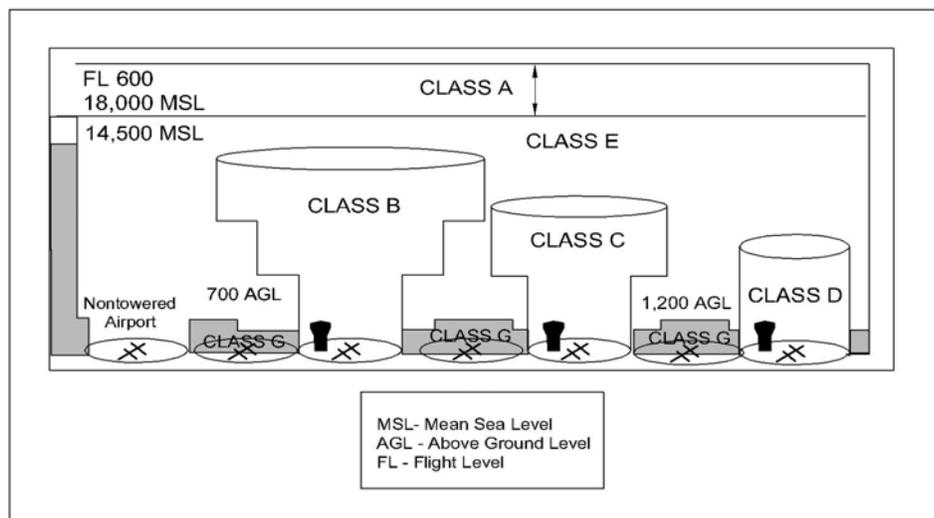
- Air navigation facilities,
- Airports and landing areas,
- Aeronautical charts and information,
- Associated rules, regulations and procedures,
- Technical information,
- Personnel, and
- Materials.

System components shared jointly with the military are also included.

Airspace in and around HEG like many airports in Florida includes a combination of civilian and military airspace. Since HEG is not equipped with an air traffic control tower (ATCT), its airspace is designated Class E (controlled) with floor 700 feet above MSL and extends upward to 18,000 feet MSL. However, HEG is surrounded by Class D and C airspace due to its proximity to the

Whitehouse Naval Outlying Field, Jacksonville Naval Air Station and Mayport Naval Station, as well as Jacksonville International Airport and Cecil Field. As a result, contact with Jacksonville Air Traffic Control is recommended during approach and departure procedures. Airspace Classes as shown in **Figure 2-7** illustrates an example of standard Class E airspace in relation to all other airspace.

Figure 2-7
Airspace Classes



Source: Federal Aviation Administration, Air Traffic Division, 2005

SPECIAL USE AIRSPACE

Military operations areas and airports located in the surrounding region are of considerable importance when evaluating sources of competition for airspace and aviation services. Whitehouse NOLF, Jacksonville NAS and Mayport NAS are home to a number of training operations within the region. As a result, many training exercises take place in the numerous special use airspace areas surrounding the airport. Special use airspace areas include Alert Areas, Military Operating Areas (MOAs), and Restricted Areas (RAs), which are located east, north and west of HEG. Civilian pilots operating near military operations areas are required to adhere to all applicable NOTAMS and contact the appropriate controlling agency for clearance. The special use airspace areas typically have a high volume of rotary and high-speed fixed wing activities and can have ceilings as high as 17,500 feet.

In relation to Herlong Airport, the Mayport MOA is located to the east, Quick Thrust MOA is located to the north and Moody and Live Oak MOAs are located to the West. An RA exists to the southwest near Camp Blanding. Because of the location of these alert areas and commercial airspace associated with JAX, it is virtually impossible to access HEG without first contacting the appropriate air traffic authorities. Special use airspace within the vicinity of HEG is illustrated in **Figure 2-8**, *Airspace Obstructions*.

TRAFFIC PATTERN

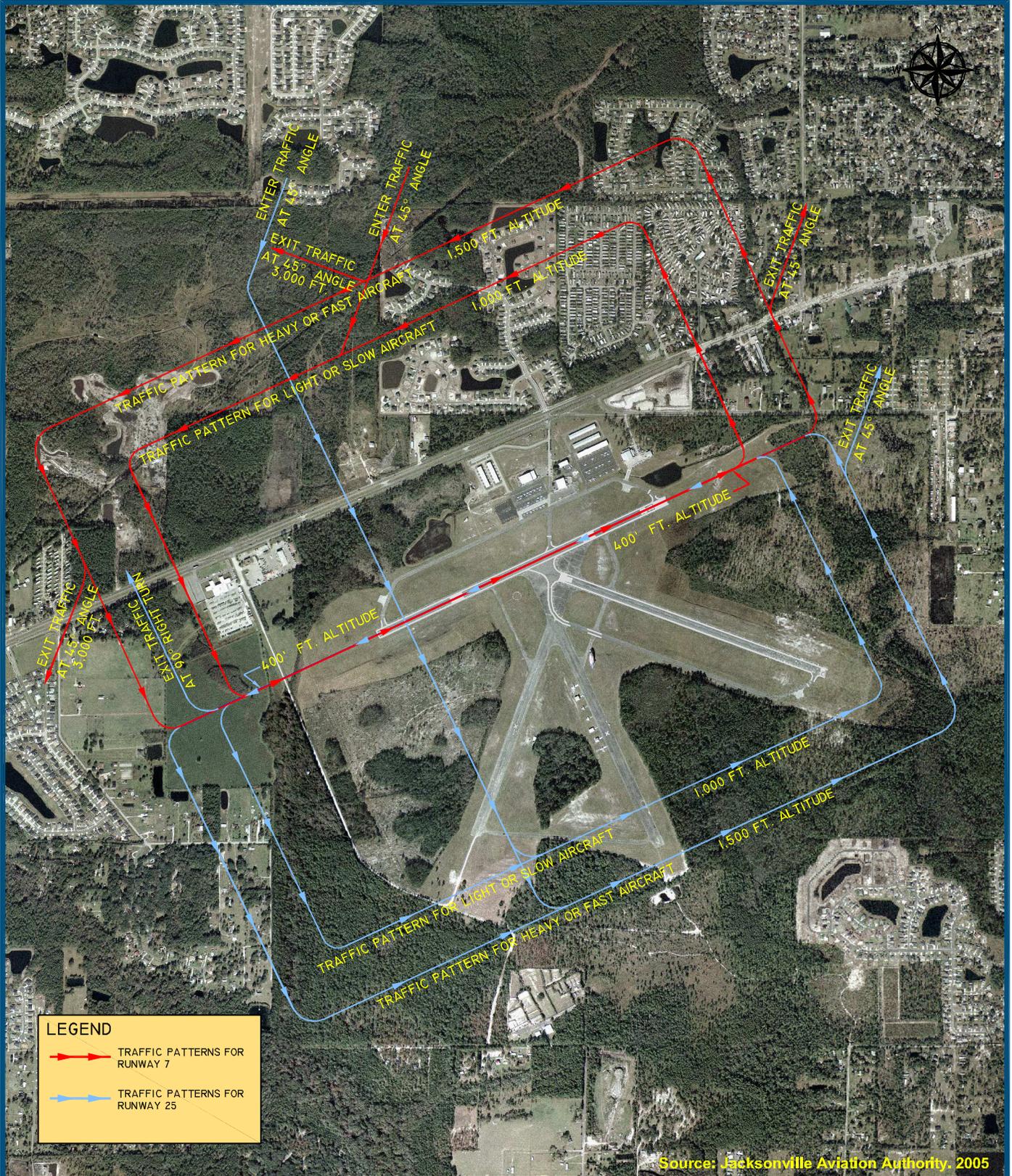
The pattern elevation for HEG, based upon the 2006 Approach Plates, is approximately 1,100 feet above mean sea level (AMSL), with a field elevation of 87 feet MSL. Departures for Runway 7 should climb on heading 060° to 800 feet prior to turning on-course. Additionally, departures for Runway 11 must climb straight ahead along the runway heading to 800 feet AMSL before turning on-course.

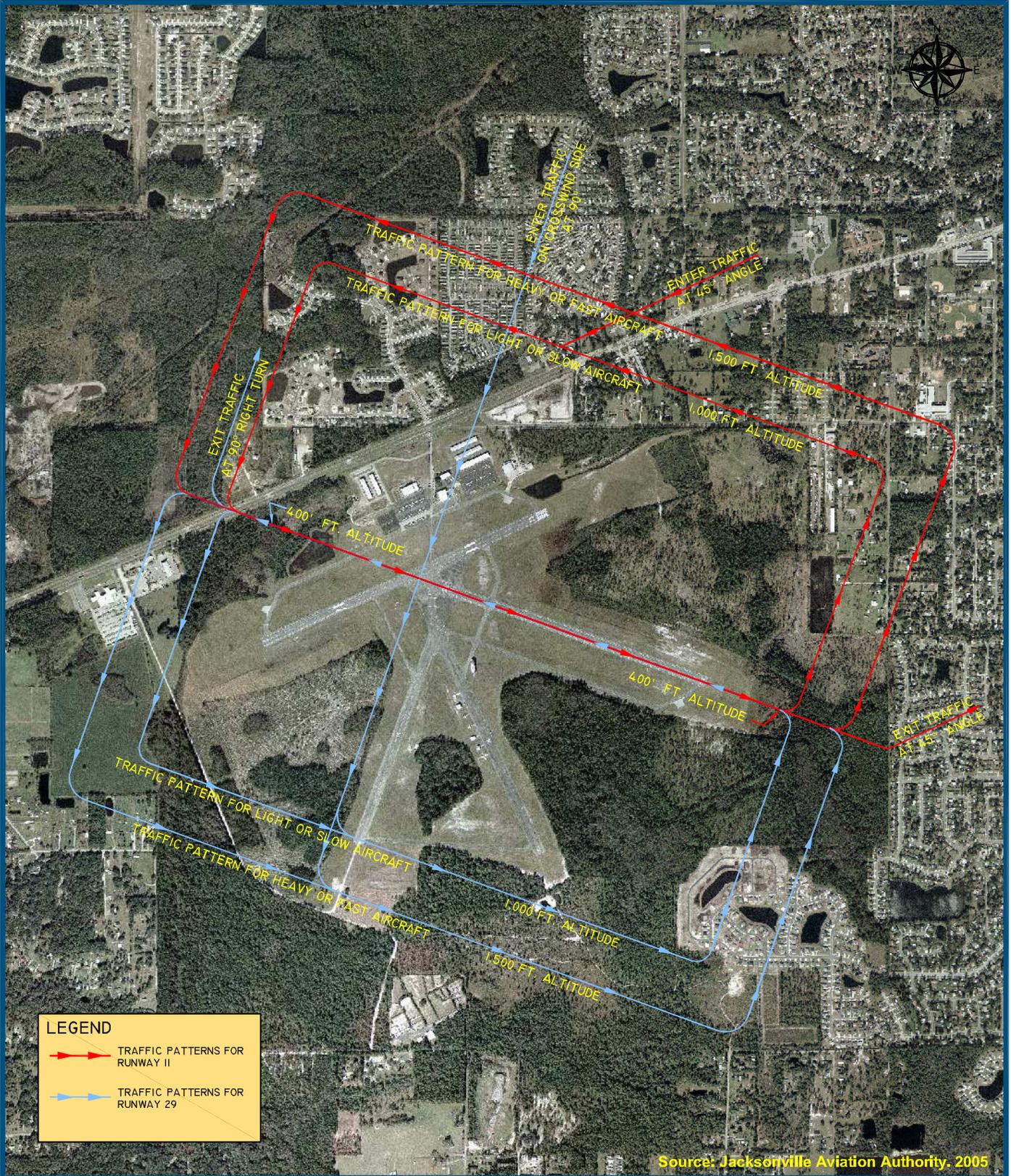
Arrivals to Runways 11, 29, 7 and 25 typically maintain a left hand traffic pattern. Aircraft maintain the downwind leg within one-half mile of the runways, and keep the base leg within one-half mile of the runway. The traffic pattern for Runways 7-25, 11-29 and Glider Traffic are shown in **Figures 2-9** and **2-10**. Since no control tower exists at HEG, all aircraft should comply with non-towered traffic control procedures.

GENERAL AIRPORT INFORMATION

Use of a close-in traffic pattern and strict adherence to this pattern at the Airport is important. The airspace at HEG is currently a one-mile cutout of Cecil Airfield's Class D airspace. Pilots and aircraft that wish to use instrument approach procedures at HEG according to the 2006 Approach Plates may utilize a circling or straight NDB-A approach to Runway 25 or a straight-in GPS approach to Runway 25. To aid this approach, precision approach path indicators (PAPI's) are located on the left sides of Runways 7 and 25, providing adequate clearance to existing obstructions. However, due to technical problems with the existing PAPI system, primarily associated with power surges and outages, the operating reliability of this system is limited. **Table 2-5, Non-Precision Instrument Approach Minimums (VOR/GPS)**, provides a summary of non-precision instrument approach minimums at HEG.

Approach & Departure Patterns For Runways 7 & 25





**TABLE 2-5
NON-PRECISION INSTRUMENT APPROACH MINIMUMS (GPS)**

Instrument Procedure	Height above Touchdown Zone Elevation (feet) MSL	Ceiling	Visibility (Miles)
Runway 25 <i>Straight-In</i>	513	600	1 (A, B), 1½ (C) & 1¼(D)
Runway 25 <i>Circling</i>	513	600	1 (A, B), 1½ (C) & 2(D)

Notes: Minimums based on local altimeter setting. Visibility letters refer to aircraft approach categories, as defined by FAA. Source: FAA, Southeast U.S. Terminal Procedures, March 17, 2005.

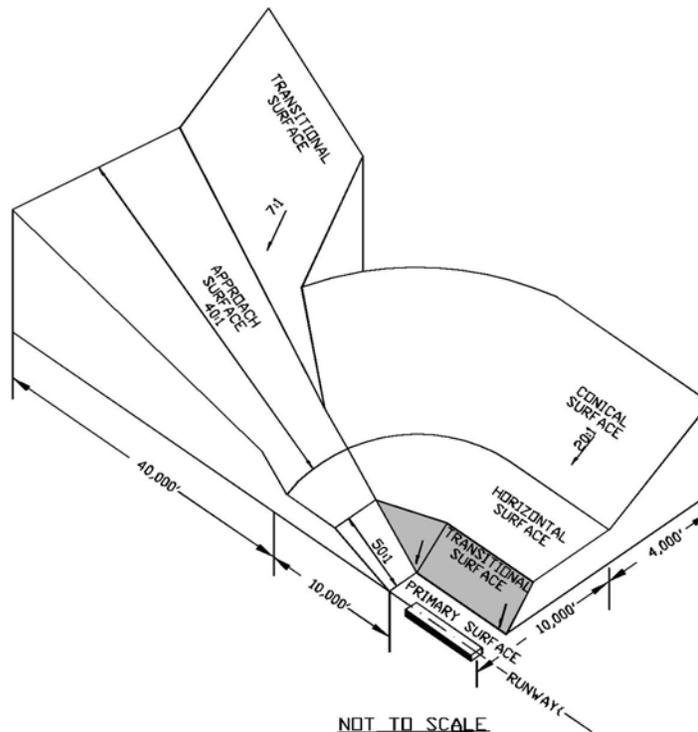
Aircraft en route to, or in the vicinity of, HEG may receive pertinent information about the Airport, weather and current traffic patterns, through Unicom frequency 123.0 (CTAF). Local air traffic should be monitored through this frequency when conducting operations at the Airport.

FAR PART 77 SURFACES – OBSTRUCTIONS TO NAVIGABLE AIRSPACE

Federal Aviation Regulations (FAR) Part 77 Obstructions to Navigable Airspace establishes standards for determining obstructions in navigable airspace. An obstruction is defined as any object of natural growth, terrain, or permanent or temporary construction and/or alteration, including related equipment and materials used therein, which penetrates any portion of the “imaginary surfaces”. FAR Part 77 defines “imaginary surfaces” which govern the vertical height of obstacles within the vicinity of airports. These surfaces will vary in size and slope depending on available approaches at each runway end.

By superimposing these “imaginary surfaces” over the airport, it is possible to determine the severity of existing obstructions. The Part 77 Surfaces also provide vertical boundaries for existing and new construction alterations. Once objects have been identified as obstructions, FAA must review them to determine if they pose a “hazard to air navigation”. If determined as such, the obstacle must be removed or altered to eliminate the penetration. If the obstruction were to remain, dramatic changes to the airfield and/or approach procedures may be required. An example of such changes may be a displaced runway threshold or increasing approach minimums to provide obstruction clearance. **Figure 2-11** illustrates typical FAR Part 77 surfaces.

Figure 2-11
Typical Part 77 Surfaces



Source: Federal Aviation Administration, Airports Division, 2000

EXISTING AIRSIDE FACILITIES

A description of each of the components of the Airport as they existed in August 2005 is summarized in the following subsections. These airport components include: the airfield, general aviation facilities, on-airport access and parking, and other miscellaneous, ancillary facilities as shown in **Figure 2-12, Existing Airfield**.

The description of the following facilities provides the basis for the airfield demand/capacity analysis and the determination of facility requirements to be presented in the subsequent chapters. The airside facilities generally include those required to support the movement and operation of aircraft. While this most certainly involves the airport's runways and taxiways, it also includes the following:

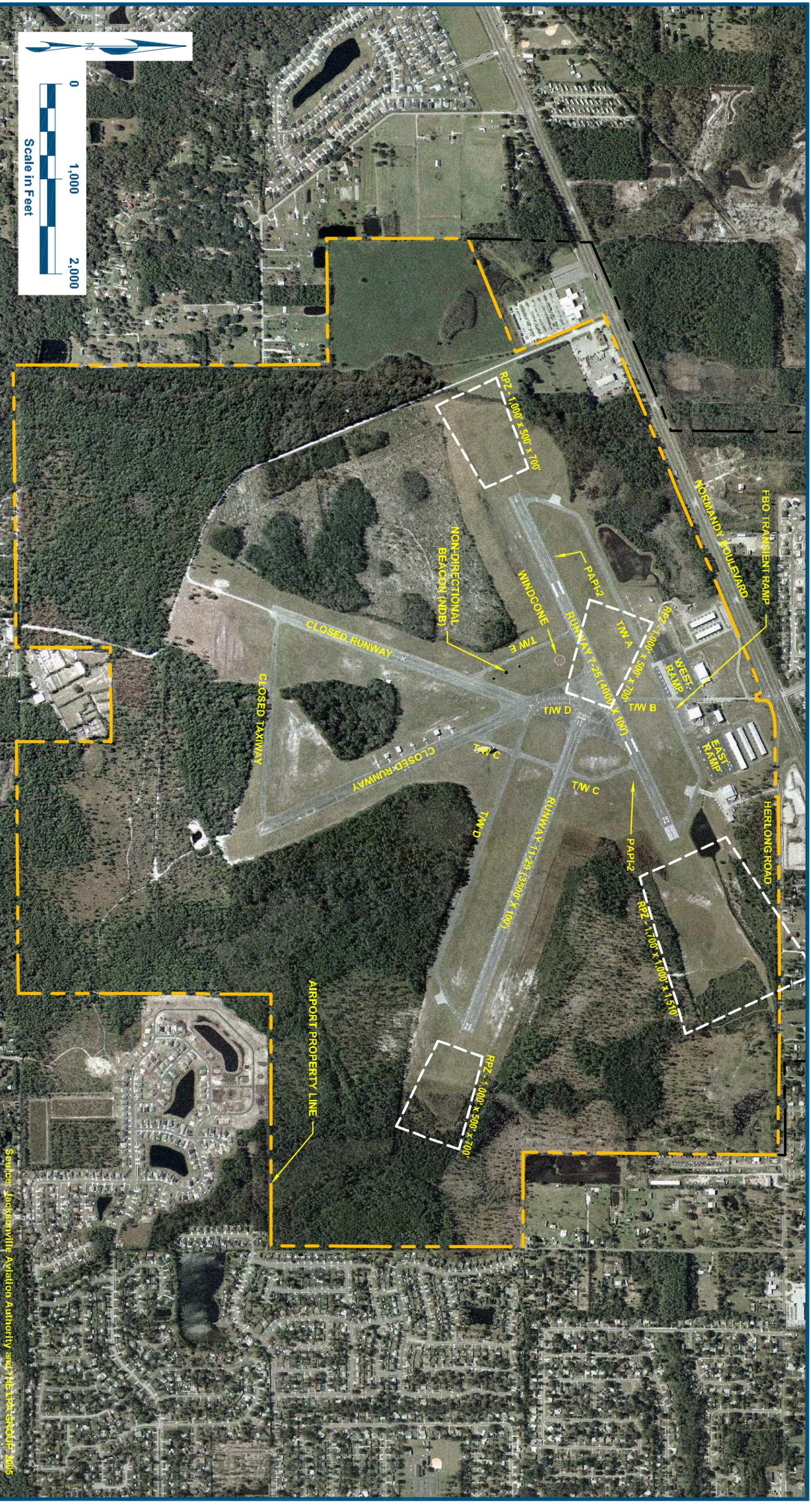
- Available instrument approaches;
- Airfield lighting; pavement markings;
- Takeoff and landing aids; and
- Airfield signage.

Figure 2-12, *Existing Airfield*, depicts the current physical airside facilities at HEG.

In addition to the physical characteristics of the runway, there are other safety-related criteria. These criteria are defined not only in **FAA AC 150/5300-13, Change 10**, but also by FAR Part 77, *Objects Affecting Navigable Airspace*. While there are various imaginary surfaces associated with each runway, the criteria for each will be discussed in **Chapter 4, Demand Capacity and Facility Requirements**. Details pertaining to the requirements for a Runway Safety Area (RSA), Runway Object Free Area (ROFA), and Runway Protection Zone (RPZ) will be addressed as part of the facility requirements determination, while the FAR Part 77 surfaces will be included in the text associated with the Airport Layout Plan set.

APPROACH & NAVIGATIONAL AIDS

The Airport currently utilizes several visual navigational aids (NAVAIDS), including runway lighting and two, four-box precision approach path indicator lights (PAPI-4) on Runway 7-25. Since Runway 7-25 is the primary runway, JAA replaced the older visual approach slope indicator lights (VASIs) with PAPI-4s. The Runway 7 PAPI-4 is located to the north of the runway, and the Runway 25 PAPI-4 is located south of the runway. Both were installed approximately 200 linear feet from their respective thresholds as shown in **Figure 2-12, *Existing Airfield***. The PAPI-4 consists of a light array, situated perpendicular to the runway that serves as a visual reference to guide pilots. A typical four light array will display two white lights and two red lights when the aircraft is flying 'on' the glide slope. Aircraft flying below glide slope will see the PAPI as all red and to those flying above the glide slope the PAPI will appear all white. However, since its installation the reliability of the PAPI-4 system has been limited due to on-going technical problems, primarily associated with power spikes, which, at the time of this writing, JAA is trying to resolve. Currently, Runway 11-29 is not equipped with any type of approach lighting system since it provides primarily crosswind coverage.



Source: Jacksonville Aviation Authority and THE LPA GROUP 2005



Figure 2-12

A non-precision instrument approach procedure utilizing Global Positioning System (GPS) equipment is published for Runway 25 with visibility minimums as low as one mile. Since a GPS approach is based upon a system of satellites, no ground equipment for this non-precision approach is required.

The airport Non-Directional Beacon (NDB) is an antenna, which emits a low-to-medium frequency signal to en route and approaching aircraft. The NDB antenna at HEG is a two-tower antenna located approximately 600 feet south of Runway 7-25 and 300 feet west of closed runway 16-34. According to FAA Instrument Approach Plate data, dated January 2007 to February 15, 2007, the NDB approach is designated as a non-precision approach with the following approach visibility minimums:

- Aircraft Category A - One (1) Statute Mile Approach Visibility
- Aircraft Category B - One and one-quarter (1 1/4) Statute Mile Approach Visibility
- Aircraft Category C - One and one-half (1 1/2) Statute Mile Approach Visibility, and
- Aircraft Category D - Two (2) Statute Mile Approach Visibility.

Although an NDB approach is designated as a non-precision approach, it requires higher approach minima compared to a GPS or ILS non-precision approach. In addition, as a result of new technology, NDB approaches and equipment are being phased out of use by the FAA. Although the NDB at HEG is still in good working order, consideration in the mid to long-term should be given to replacing the equipment with newer technology.

Other visual aids at the Airport include a lighted wind cone and segmented circle located immediately north of the NDB antenna and a rotating beacon located near Normandy Boulevard west of the airport main entrance. An automated weather observing system is also situated on the airfield near the NDB antenna and provides local weather information to pilots.

Both Runways 7-25 and 11-29 are equipped with medium intensity runway lighting (MIRL). Runway edge lights are used to outline the edge of the runway during periods of darkness or restricted visibility conditions. Pilots must use the Unicom/CTAF frequency 123.0 in order to activate the MIRL and PAPI's at HEG.

Pilots en route to or from the Airport may use a Very High Frequency Omni-directional Range/Tactical Air Navigation (VORTAC) at Craig Airport, frequency 114.5, channel 92, located approximately 16 nautical miles northeast of HEG. In addition, a global positioning system (GPS) approach to Runway 25 is available for approach in less than visual flight rule (VFR) conditions. Weather minimums must be at least one-mile visibility and 600-foot ceilings to use this approach. Additional Airport information is available via the CTAF/Unicom frequency 123.0, AWOS frequency 119.275, ASOS at JAX (14 NM NE) and ASOS at Craig Airport (16 NM East), Jacksonville Approach Departure Control frequency 124.4, and/or Notice to Airmen (NOTAM) announcements.

RUNWAYS

The Airport has two non-parallel active runways, Runway 7-25 and Runway 11-29 and two closed runways as illustrated on **Figure 2-12, Existing Airfield**. It was reported in the previous Master Plan updated in 2000 that the operations on both runways are not considered independent despite the fact that they don't intersect. Therefore, for operational purposes, the runways are considered intersecting runways due to the limited separation and overlapping safety areas.

Runway 7-25

Runway 7-25 is the primary runway with a length of 4,000-feet and 100-feet in width as published in the Airport Facility Directory (AFD). Runway 7-25 is designated to accommodate aircraft meeting ARC B-II design criteria, and is marked for a non-precision approach. According to **FAA AC 150/5300-13, Change 10**, runways with an ARC B-II designation with not lower than $\frac{3}{4}$ -statue mile approach visibility are required to have a Runway Safety Area (RSA) of 300-feet in width and an Object Free Area (OFA) of 500-feet in width, both, centered from the runway centerline. Both RSA and OFA require a length beyond the runway end of 300-feet.

The runway is made of asphalt and appears to be in good condition. Runway pavement should be capable of withstanding aircraft traffic that it is intended to serve. Therefore, pavement strength determines the maximum load bearing that the runway could sustain and is dependent on the aircraft's undercarriage configuration. There are three types of undercarriage configurations: single wheel, dual wheel, and dual wheel tandem. According to the FAA AFD, Runway 7-25 pavement has a maximum weight bearing capacity of 30,000 pounds for single wheel.

The 2000 MPU reported a discrepancy in the pavement strength for this runway when compared to the FAA Airport Facilities Directory (AFD) (2/24/00) and the 1994 MPU. The 1994 Master Plan listed the pavement strength at an estimated 21,600 pounds and the FAA AFD (2/24/00) listed the pavement strength at 30,000-pounds for single wheel gear (SWG). As a result, the 2000 MPU suggested that Airport management conduct a detailed assessment of the pavement strength on Runway 7-25. Thus, based upon JAA's assessment, it was determined that the pavement strength on Runway 7-25 was indeed 30,000-pounds for SWG. At the time of this writing, the FDOT has contracted the URS Corporation to provide a pavement evaluation for all public airport within the state.

Runway 11-29

Runway 11-29 is the shortest of both runways with a published length of 3,501-feet ft and 100-feet in width. With an ARC B-II designation, the same RSA and OFA standards as depicted above for Runway 7-25 are applicable to Runway 11-29. As illustrated in **Table 2-10**, there are also no issues associated with the required FAA RSA and OFA standards.

Runway 11-29 is also constructed of asphalt and reported to be in good condition from the last inspection. The pavement strength is listed in the FAA AFD with a weight bearing capacity of

30,000-pounds for single wheel. It is currently marked for a visual approach only, and pavement markings are in poor condition.

Because the wind criteria indicates that the alignment of Runway 7-25 provides 95 percent or better wind coverage in all weather conditions, the FAA does not provide any funding for Runway 11-29 or any supporting taxiways or lighting associated with that runway.

TAXIWAYS

Taxiways are provided to permit the safe and expeditious surface movement of aircraft to and from the runway and other facilities on the Airport. HEG is served by two parallel and two connecting taxiways. According to **AC 150/5300-13, Change 10**, taxiways serving airplanes in Airplane Design Group (ADG) II are required to have a taxiway width of 35-feet and a taxiway centerline to runway centerline separation distance of 240-feet. As stated in the AFD, all taxiways have pavement strengths of approximately 30,000-pounds for single wheel gear aircraft as comparable to the pavement strengths of the two runways. During the initial site visit in August 2005, all taxiways, with the exception of the taxiways and closed runways within the southern portion of the airfield, were reported to be in "fair to good" condition based upon FDOT pavement criteria. In addition, Taxiways A, B and C are equipped with low, medium and high intensity lighting systems.

Two closed runways and a closed taxiway are located south of the maintained airfield. These pavements are in poor condition, but are used by aircraft operating out of the hangars located on the south side of the airfield as well as skydiving and glider operations.

Taxiway A

Taxiway A is a parallel taxiway that serves Runway 7-25 and the general aviation facilities located on the north side of the airfield. As a primary taxiway serving a runway with an ARC B-II, Taxiway A has a width of 50-feet and a taxiway centerline to runway centerline distance of 500-feet. Both exceed applicable FAA standards. This taxiway is constructed of asphaltic concrete (asphalt) and is in fair condition based upon physical observations and FDOT pavement criteria. Since this taxiway supports Runway 7-25, FAA will provide funding for maintenance and improvements but only to a 35-foot width.

Taxiway B

Taxiway B is a stub taxiway with dimensions measuring 50-feet in width and approximately 500-feet in length. Since Taxiway B supports Runway 7-25, FAA will provide funding for maintenance and other improvements but only to a width of 35 feet based upon the critical aircraft requirements. Taxiway B, with the existing fillets, is located approximately 1,800-feet from the threshold end of Runway 25 and provides access to the general aviation facilities located north of the airfield. Based upon recent inspection and FDOT pavement criteria, pavement is in fair to good condition.

Taxiway C

Taxiway C provides access from the eastern end of Runway 7-25 to Runway 11-29, Taxiway D, and the closed runway pavements to the south of the airfield. Taxiway C is constructed of asphalt, and is in fair condition with a total width of 50-feet. Since a section of Taxiway C supports operations on Runway 7-25, the taxiway is considered eligible for FAA funding but only to a 35-foot width.

Taxiway D

Taxiway D is a full-length parallel taxiway that serves Runway 11-29. Taxiway D also exceeds applicable FAA design criteria with a width of 50-feet and a runway-taxiway separation of 500-feet between centerlines. The taxiway is constructed of asphalt and is in fair condition based upon physical observation and FDOT pavement criteria. Taxiway D at this time is not eligible for federal funding since it primarily supports operations on Runways 11-29.

Taxiway E

Taxiway E provides access from Runway 7-25 to the southwest closed runway. In order to provide an additional exit taxiway to the northwest GA area and access to future development in the southwest quadrant, JAA intends to rehabilitate the existing pavement and extend Taxiway E to connect with the existing Taxiway A. Until issues with the existing glider landing area are resolved, JAA has placed the Taxiway E extension on hold. The existing width of Taxiway E is 40 feet, which will serve B-II aircraft. The current pavement condition is considered fair to poor due to physical observations of pavement degradation.

AIRCRAFT APRON FACILITIES

Aircraft parking aprons are located within the general aviation terminal area as shown in **Figure 2-12, Existing Airfield**. Aircraft parking aprons are generally divided into two user categories, those for the station of based aircraft and the other for the temporary parking of itinerant aircraft. At HEG, the East and West aprons are used primarily for the parking of based aircraft, including the two large asphalt tie-down aprons. The East and West aprons measure approximately 15,000 square yards and 14,000 square yards, respectively and were reported to be in fair to good condition. Collectively, both aprons can accommodate 95 aircraft and they also provide direct access to neighboring hangar facilities.

Transient aircraft parking is provided on the FBO apron that is located south of the Airport terminal facility and one row on the west apron. The apron pavement is in relatively good condition. The transient apron measures approximately 3,100 square yards and can simultaneously accommodate approximately six (6) aircraft.

EXISTING LANDSIDE FACILITIES

The majority of landside facilities at HEG are located north of the airfield adjacent to Normandy Boulevard. Landside facilities consist of a mix of aviation and non-aviation facilities, including the remodeled terminal, fuel storage, automobile parking and various tenant facilities.

Aviation related facilities, which are dependent upon direct airfield access, are constructed adjacent to airport aprons and taxiways. Non-aviation related facilities, such as vehicle parking, are located further north adjacent to Normandy Boulevard and Herlong Roads.

LAND USE

A majority of the aviation activity is centered on the northside of the airfield. This area adjacent to Normandy Boulevard includes the Airport's main entrance, tenant and Airport management facilities, fueling facilities, housing for JAA airport police, and the majority of aircraft storage hangars and facilities. In addition, most of the airport tenants and tenant facilities are located adjacent to the terminal area, which is comprised of aviation related properties north of Runway 7-25 and parallel to Taxiway A. However, some non-aviation operations include facility rentals within the bulk hangar and office spaces on the west side of the Airport Entrance Road. Interest from non-aviation businesses in the Airport may allow for the development of a commerce park. This would allow non-aviation businesses to be relocated to facilities not adjacent to the Airport operating area, therefore providing more space for aviation related activities.

The existing airfield is surrounded by undeveloped tracts of Airport property, which provide a buffer between the airfield and residential communities surrounding the Airport. These areas are used for silviculture according to the JAA Forest Management Plan which includes cutting trees to generate revenue in support of airport operations and replanting trees for future revenue generation.

Existing On-Airport Land Use

Existing on-airport land use consists of the following categories:

- Airfield Operational Areas (AOA) - include runways, taxiways, and other facilities that aid in the movement of aircraft.
- Terminal Area – includes aircraft hangars, aircraft parking aprons, aircraft fueling facilities and aviation related tenant facilities directly relating to aircraft activity.
- Non-Aviation Related Development – includes the non-aviation related commercial development located adjacent to Normandy Boulevard and west of the Airport Access Road.
- Drainage – includes areas reserved for permitted drainage and stormwater management, such as man-made or natural ponds, swells or drainage ditches.
- Wooded Area/Open Space – includes cleared and undeveloped airport property located along the southern and eastern part of the airfield that is currently underutilized by airport management. This area primarily serves as a buffer between the airport and residential neighborhoods and the Gateway Rifle and Pistol Club as well as providing an additional source of revenue associated with tree harvesting.

Off-Airport Land Use and Controls

Land use adjacent to the airport includes residential development north, east and west of the airfield as shown in **Figure 2-13**, City of Jacksonville *Land Use Map*. Typically residential development adjacent to an airport unless related to a "fly-in" community is often limited to property outside the 65 LDB noise contour. In the case of HEG all residential activity is located outside the 65 LDN noise contours and is, therefore, not impacted by airport operations. In addition, the Airport is bordered on the south by the Gateway Rifle and Pistol Club, which is located on a 22.5 acre out-parcel south of the Airport fence line.

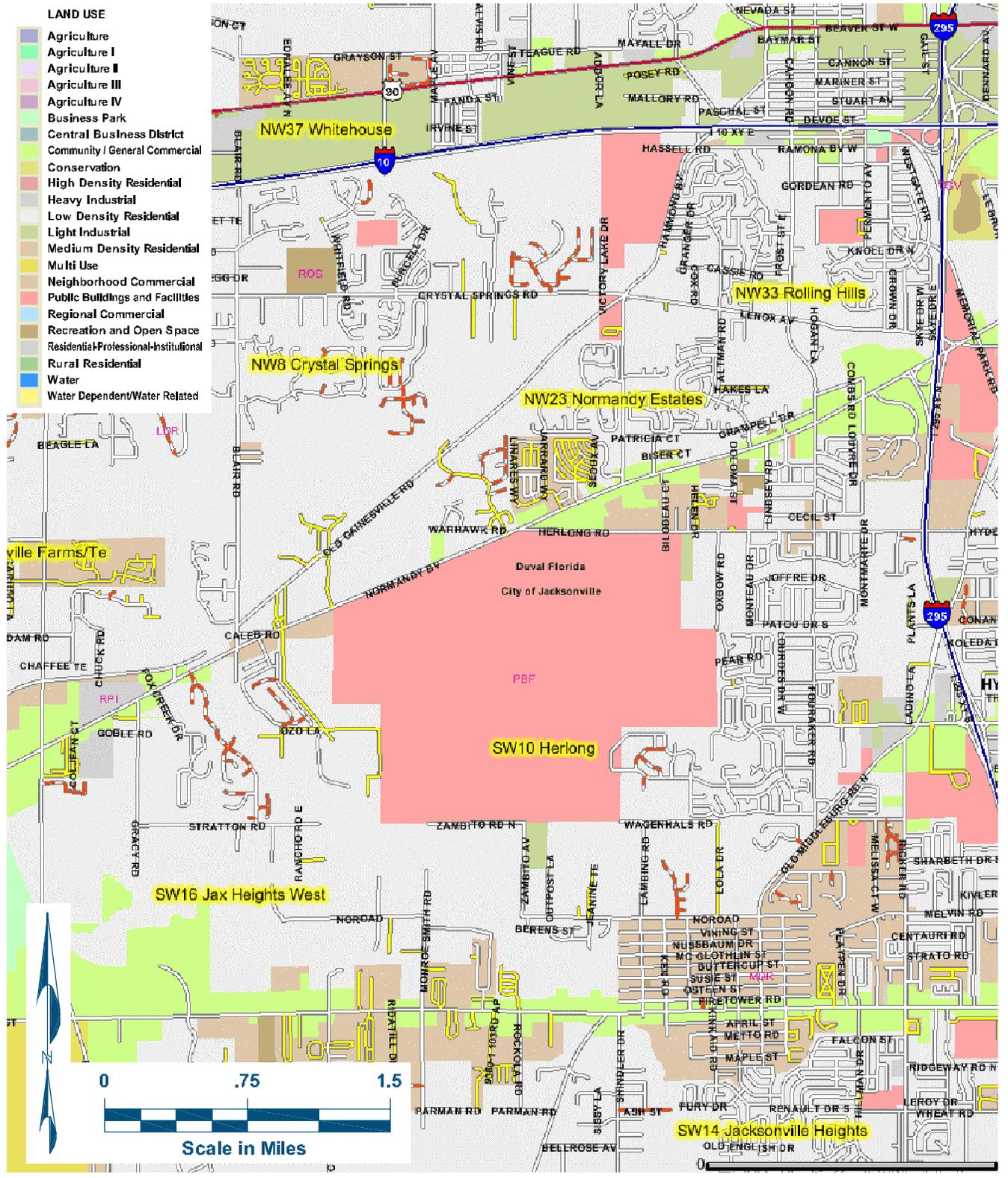
In 1978, the City of Jacksonville established an Air Installation Compatible Use Zones (AICUZ) Ordinance as shown in **Figure 2-14**, *City of Jacksonville Air Installation Compatible Use Zones*, to preserve public investment as well as protect the public's safety and health. This ordinance objective is to provide protection for planned airport operational capabilities as well as ensure compatible development. Zoning regulations within the AICUZ are contained in Part 10 of the city of Jacksonville Zoning Code.

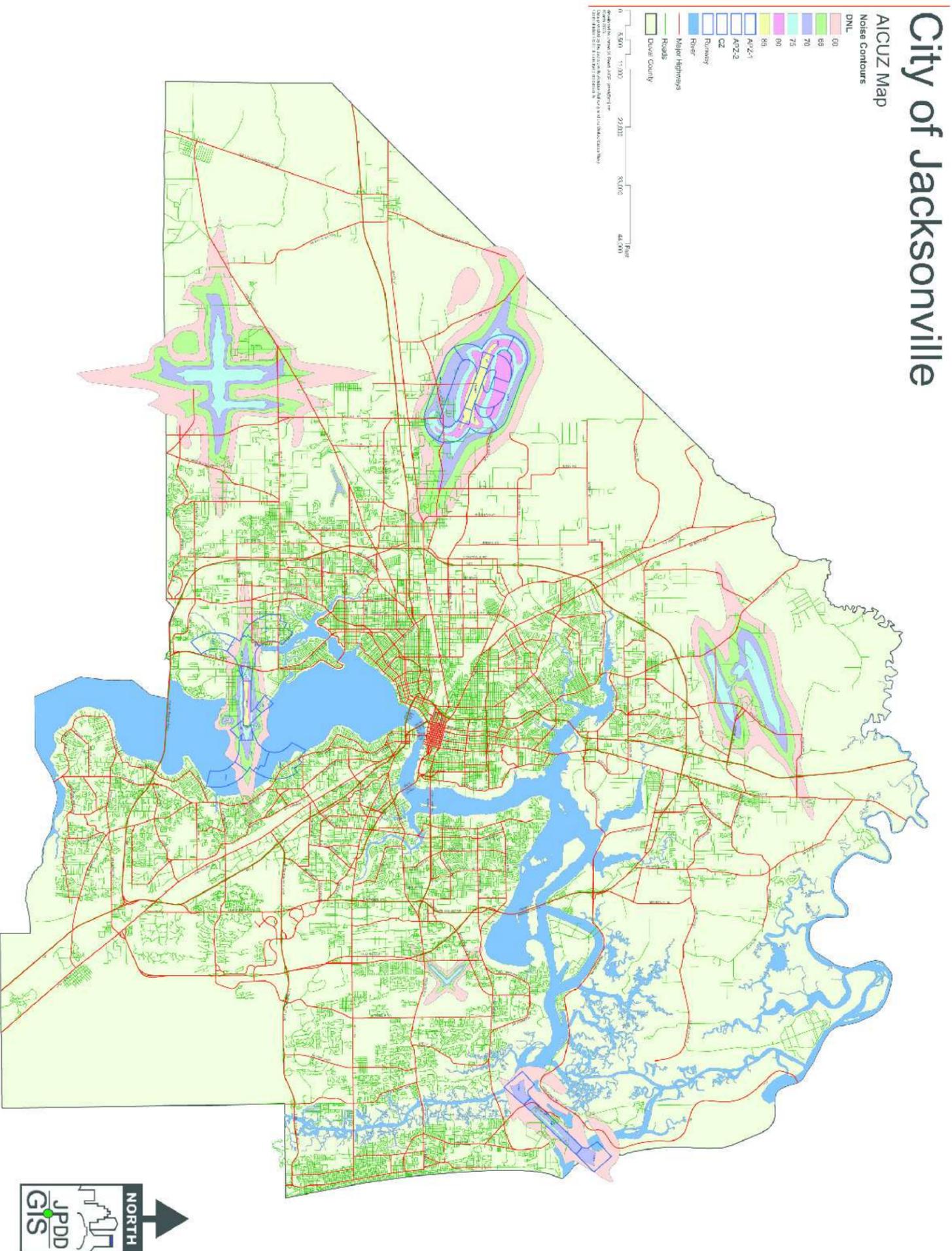
At the time of this writing, significant residential development is occurring in the western quadrant of the City of Jacksonville, including north of Normandy Boulevard across from the Airport Entrance Road. Although residential development is on-going, based upon 2006 property title data, JAA has an aviation easement over some of this property as shown in **Figure 2-15**, *North Aviation Easement*. This will be discussed in more detail within later chapters of this report. In order to ensure land use compatibility as outlined in the FAA Land Use Guidelines, **AC 150/5050-6 Airport Land Use and Compatibility Planning**, adjacent land use and zoning issues will need to be addressed as part of this MPU.

FBO TERMINAL FACILITIES

A building condition survey performed in October 2000, determined that the Herlong Terminal/Hangar and the associated offices were in fair to good condition. The existing terminal facility was renovated in 2001 to add more pilot amenities, and is, therefore, now considered in good condition.

The Terminal Building provides a pilot lounge, two conference rooms, restrooms, kitchen, and office facilities for Airport and Fixed Based Operator (FBO) staff. JAA serves as the Fixed Base Operator at Herlong. The FBO provides airport terminal, hangar space, tie-down areas, and fueling facilities at the airport. In addition, the FBO staff, including airport management, is responsible for airport inspection and maintenance, security, and overall operational control.





SURFACE TRANSPORTATION NETWORK

U.S. Interstate 10 (I-10), Interstate 95 (I-95) and Interstate 295 (I-295) provide regional access to the Airport. I-10 runs in an east – west direction and merges into I-95 at its most eastern portion. The I-10 corridor is located north of the Airport and south of the Jacksonville Business district. I-95 runs in a north-south direction. The I-95 corridor is located to the east of the airport location. I-295 is an eastern loop that runs in a north-south direction. I-295 intersects I-10, provides access to the Jacksonville Business district and reconnects to I-95. The Airport is located approximately 3 miles southwest of the intersection of I-10 and I-295.

Normandy Boulevard (Highway 228), the primary highway and arterial access to the HEG, is located north of the Airport, and connects the main airport entrance directly to I-295. I-295 connects directionally with I-10 and I-95. Normandy Boulevard is a 2-lane, divided highway that runs east west. Herlong Road is a two-lane road intersecting Normandy Boulevard approximately one mile east of the Airport. Herlong Road is bordered by residential development and provides access to the western section of the airport.

AUTOMOBILE PARKING

Public parking at the Airport includes parking areas located along the east and west edges of the airport entrance road, adjacent to the new bulk hangar to the west of the entrance road and another parking area to the north of the new T-Hangar facilities along the northwest side of the airfield. Access to all of these parking facilities is through the main access road along Normandy Boulevard. The majority of automobile parking is located outside the perimeter fenceline with the exception of five parking spaces located within the perimeter fence adjacent to the terminal facility.

28 parking spaces along the east edge of the Airport Road and seven spaces along the west edge of the entrance road serve as the primary parking facility for many of the airport tenants and visitors. However, the use of this parking area often delays vehicles entering or exiting the secure area via Gate 1. This is especially true during peak days of the week (usually Saturday) and special events, where parking both inside and outside the perimeter fence is inadequate to meet demand. Airport users who have automobile access to the airfield often park on the ramp and above the underground fuel tanks due to lack of adequate parking.

On the other hand, during visits to the Airport, the parking facilities adjacent to the T-Hangars are not used to any significant degree. This may be due to the fact that many T-hangar users often park their vehicles inside their hangar. This demonstrates that HEG does not lack adequate parking to meet current demand, but rather that the location of automobile parking on the airport is inadequate. An evaluation of automobile parking including the location and the number of facilities needed, will be evaluated in greater detail in the Demand Capacity and Facility Requirements Chapter. An approximate number of parking spaces available are listed in **Table 2-6, Existing Automobile Facilities**.

TABLE 2-6 EXISTING AUTOMOBILE FACILITIES AVIATION RELATED ONLY	
LOCATION	NUMBER OF SPACES
<i>Outside Perimeter Fenceline</i>	
West Side of Entrance Road	7
East Side of Entrance Road	28
North of new T-hangar Facilities	25
Adjacent to Bulk Hangar	46
<i>Inside Perimeter Fenceline</i>	
Adjacent to Terminal Facilities	5
TOTAL	111
<i>Source: JAA and The LPA Group Incorporated, 2005</i>	

Individual airport tenants and airport buildings, such as White Line Trucking and the Accessory Overhaul Group, which are not located near the Terminal Building have their own individual parking facilities.

AIRCRAFT FACILITIES

As stated earlier, the majority of aircraft storage and operating facilities are located along the north side of the airfield adjacent to Normandy Boulevard and Herlong Road. This is primarily due to ease of access to facilities and lack of utilities available on the southern and western portion of the airport property.

T-Hangar Facilities

The primary type of aircraft storage at HEG consists of T-Hangar facilities. Three rows of T-Hangars (approximately 48 units) are located northeast of the terminal facility. Two of the three hangars measure 356 feet in length and house 16 units each. The third T-Hangar is 412 feet in length and provides 16 larger hangars.

An additional two rows of T-Hangars (approximately 24 units) was constructed on the west side of the airfield south of Normandy Boulevard and west of the bulk hangar. All hangars are owned and operated by JAA and are leased to individual aircraft owners.

Tenant Facilities

In addition to the airport terminal facility and T-Hangar facilities, JAA recently constructed a 20,400 SF bulk hangar, which is occupied by several aviation and non-aviation tenants and housing several aircraft. These facilities and associated tie-down spaces are leased directly by JAA. Typical aircraft include single-engine piston, ultralights and gliders.

HEG is host to a diverse group of tenants including business which offer flight training, avionics sales and services, aircraft sales, thrill rides, skydiving and motorcycle training operations. Current airport tenants include:

- A&M Motorcycle
- ACME Barricades
- Advanced Disposal
- Butch Toney
- Dream Catcher Aviation
- First Coast Aircraft Sales
- Hipps Group, Inc.
- Jacksonville Navy Flying Club
- Mercair
- NFL Soaring Society
- NFL Flight Center
- RC Worldjet, Inc.
- Royal Atlantic Aviation
- Skydive Jacksonville

In addition to various aviation and non-aviation tenants, the Jacksonville Aviation Authority Police Department (JAA Police) leases and maintains a living quarters trailer immediately north of the airport terminal building. The airport also leases small portions of property along the west edge of the closed runway along the south side of the airfield to individual tenants. Two portable style hangars are located along the west apron and three separate individual hangar facilities are located south of the port-a-port hangars. None of these hangars have direct vehicular access, and, therefore, must traverse the airfield to gain access to their respective hangars.

Off Airport Facilities

The Florida Army National Guard operates an approximate 4.05-acre complex near the northwest corner of the airport property south of Normandy Boulevard. This non-airport facility is used for non-aviation operations and provides no direct access to the airfield. However, members of the National Guard utilize the southern portion of the airfield including closed runways for physical training every morning.

SUPPORT FACILITIES

Support Facilities ensure the efficient and safe operation of aircraft at HEG. These services include the Fixed Based Operator (FBO), police, fueling services and airport maintenance which all serve a key role in the support of the airport and its operations.

FIXED BASE OPERATOR

JAA serves as the FBO at Herlong by providing aviation services for general aviation aircraft and flight crews. These include terminal facilities for pilots, hangar space, tie-downs and fueling. As recommended in the last MPU, JAA recently constructed 24 new individual T-Hangar facilities south of Normandy Boulevard to meet aircraft owner demands.

JAA Flight Services offices are located in the refurbished terminal building. The FBO provides competitive prices for both aircraft storage and 100 low lead (LL) and Jet A fuel. A detailed discussion concerning the management of the FBO and Airport will be included in **Chapter 4, Facility Requirements**.

FUEL FACILITIES

The current airport fuel system is located immediately west of the terminal building and adjacent to the main entrance of the Airport. Fuel distribution is provided by JAA, which is the local FBO. Two underground fuel storage tanks consisting of one 15,000 gallon capacity for Jet A and one 15,000 gallon capacity for Avgas provide fuel at the Airport. It is the intent of JAA to relocate these facilities above ground by the year 2009 to comply with the Revised Spill Prevention, Control and Countermeasure Rule as outlined in Title 40 Code of Federal Regulations (CFR) Part 112 (Oil Pollution Prevention). There are two fuel trucks at the Airport that provide 8,000 gallons Avgas and 1,200 gallons Jet A for aircraft curbside fueling service. It is the intent of JAA to relocate these facilities above ground by the year 2009.

Waste products associated with the fuel storage area are typically placed in drums which are stored in a small storage shed located west of the terminal and are disposed properly on an as needed basis.

Self Service Fueling

A self-storage fueling station was constructed in 2002 in the area between the East Apron and the FBO Transient Apron. This station provides Avgas through a self-service pump and payment kiosk, which allows aircraft operators to have 24-hour access to fuel at the Airport. This self-fueling facility consists of a 1,500-gallon, above ground storage tank located beyond the Taxiway A object free area (OFA).

SECURITY

In the aftermath of September 11, 2001, airport security came under intense scrutiny. Historically, GA airports have not been high-security facilities, and the federal government has not, to date, regulated GA airport security as it has done with commercial service airports. The main terrorist threat at GA airports is the possible theft or hijacking of aircraft for use as terrorist weapons.

In May 2004, a report entitled, "Recommended Security Guidelines related to General Aviation Airports" was developed by State Aviation Officials from the continental United States, Puerto Rico and Guam. The report provides advice, recommendations and guidance to federal authorities for developing a national policy as well as appropriate standards of airport security for public-use general

aviation airports. As a result, the FDOT in conjunction with the FAA is recommending the following best practices to general aviation airports throughout the State. These practices include:

- Establishing security criteria at GA Airports based upon the airport's location, runway length, and number of based aircraft. According to the criteria outlined in the report, HEG is designated as a **Category 2 Airport**, which is defined as an "airport located within a major metropolitan area with a runway length of 4,001 feet or greater and/or 200 or more based aircraft".
- It is recommended that all public GA airports prepare a comprehensive airport security plan, which would be subject to periodic review and approval by both the TSA and FDOT.
- It is recommended that all public GA airports install adequate outdoor area lighting to improve the security in and around: (a) aircraft parking and hangar areas, (b) fuel storage areas, and (c) access points to the aircraft operations area.
- Criminal record background checks should be required on all airport, fixed base operator (FBO) and airport tenant employees with access to the aircraft operations area (AOA). Criteria similar to that used in FAR Part 107 should be developed and approved by FDOT to determine what offenses would disqualify individuals from being granted access.
- All GA airports require security fencing to help prevent unauthorized access to the aircraft operations area, fuel facilities, and other sensitive areas.
- All GA airports are required to install signage around the AOA, fuel facilities, and other sensitive areas to deter unauthorized entry.

However, it is important to note that under the current rules, security-related expenses at GA airports are not usually eligible for funding under the FAA Airport Improvement Program (AIP), but may receive a portion of funding from the FDOT. However, based upon the existing and anticipated threat level, the ability of GA airports to implement various recommendations will be contingent upon the identification of necessary funding to finance the projects.

Furthermore, FDOT has implemented an aviation security test project, referred to as the Integrated General Aviation Airport Security System (IGASS) Demonstration Project, which evaluates potential threats as well as general aviation operations at airports of various size and level of operations throughout the state of Florida. Based upon the findings of this study, FDOT in conjunction with the FAA and TSA will implement various security requirements.

Current security equipment and facilities located at HEG consist of the following:

JAA Police Trailer

On-airport security consists of a JAA Police trailer located immediately north of the terminal facility. The trailer is currently used as a residence by JAA Police staff and its conspicuous location near the airport's main entrance provide adequate security near the primary airfield facilities.

Security Lighting

The previous MPU recommended that additional lighting be added to the terminal area in order to assist users unfamiliar with the Airport and increase safety and security for terminal area activities. As a result, two lighted 15 to 20 foot poles with 4 lights each was constructed on either side of the Bulk Hangar facility, providing a significant amount of light to the terminal apron area and automobile parking area adjacent to the facility. Additional lighting was added to the terminal building when it was refurbished and to the apron area adjacent to the aircraft wash rack and self-fueling facility. All lighting complies with FAR Part 77 imaginary surface limitations and all other applicable airport design requirements.

Security Fence

The existing Airport perimeter fence encompasses the airfield and all aircraft movement areas. Access gates at the FBO facilities and throughout the fence provide adequate vehicular and pedestrian access.

In 2003 and 2004, the Airport refurbished portions of the existing fence to prevent unauthorized access into the Airport. A portion of the southwest section of the Airport was not fenced due to forested wetlands, which has allowed limited access by local wildlife. With the acceptance of new GA security regulations, security improvements at the Airport will be considered in order to limit unauthorized access by both wildlife and local residents.

AIRCRAFT WASHRACK

An aircraft washrack located at the eastern side of the terminal facility aircraft hangar is provided for airport tenants and users. The washrack consists of a hose and storm drain. The storm drain collects stormwater runoff and aircraft wash runoff. A valve located along the terminal hangar must be manually opened during aircraft washing activities to divert associated runoff in a separate collection system. This prevents oil and grease from entering the Airport's general stormwater system. The collection system aircraft wash runoff is periodically pumped for proper disposal.

AIRCRAFT RESCUE AND FIRE FIGHTING FACILITIES

Aircraft rescue and fire fighting services at HEG is provided by Jacksonville Fire and Rescue (JFRD). JFRD responds to all aircraft and structural emergencies on or off airport. Brush and Rescue Station 32 is the first to respond to an aircraft incident. At least five gates, three along Normandy and two along Herlong Road, provide access to the airfield. Station 32 is located within two miles from the airport. Response to an aircraft incident consists of two brush trucks, five engines, one safety truck, two tankers and JFRD Hazardous Response Team in addition to Sheriff, FAA and JAA personnel. On-airport safety equipment consists of fire extinguishers, which are inspected annually and maintained by local vendors.

PUBLIC UTILITIES

JEA provides Herlong Airport with electrical, water and sewer services. Water service is delivered to the airport through a water main that runs along Normandy Boulevard. JEA's water treatment plant provides potable water, and their wastewater treatment plan provides sewer treatment services to HEG. Water and sewer lines run to each hangar on the north side of the airfield.

Facilities located on the south side of the airfield adjacent to the closed runways do not have electricity, water and sewer access. Utility improvements will be considered as part of this MPU.

STORMWATER DRAINAGE

A number of areas have been identified to accommodate additional drainage requirements at the Airport. Existing drainage facilities are located along the South Airfield Access Road, East Airfield Access Road, and the realigned airport entrance road.

The existing retention/detention facility located north of Taxiway A was reportedly sized to accommodate build-out of the airport property north of the Runway 7-25 centerline. Additional stormwater management facilities will need to be constructed to accommodate any increase in impervious surface in this region between recommended airport improvement and the previous plan.

Future stormwater management facilities should be designed to minimize wildlife attractants and reduce the frequency and risk of aircraft-wildlife collisions. Since the collection of stormwater runoff for off airport disposal is cost prohibitive, JAA has used remote portions of the Airport's existing property for stormwater mitigation.

EXISTING ENVIRONMENTAL CONDITIONS

The following sections provide a summary of the results of the literature review and preliminary environmental survey of the existing natural features within the Airport.

WATER QUALITY

The FDEP, Division of Water Resource Management (DWRM), monitors water quality statewide in association with the administration of various programs to protect Florida's drinking water, groundwater, and surface waters. DWRM monitors 29 surface water basins within the State. Herlong Airport falls within the Ortega River Planning Unit of the Lower St. Johns Basin. Stormwater leaving the Airport flows into tributaries of Wills Branch to the east and McGirts Creek to the west. Wills Branch has been documented to suffer impairment as evidenced by elevated levels of fecal coliform bacteria, copper, total suspended solids, nutrients, and turbidity. Wills Branch is also documented to have less than optimal levels of dissolved oxygen. Impairment to McGirts Creek is evidenced by elevated levels of fecal coliform bacteria.

Based upon existing information and an overview by the consultant's environmental scientists, it is not believed that HEG contributes to the impairment of either Wills Branch or McGirts Creek. However, a definitive answer cannot be obtained until a water quality analysis is performed which is typically included as part of the environmental assessment process.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

A review of archaeological and historical literature and records pertaining to the Airport area was conducted in August 2005. Based on the results of this research effort, there are no recorded archaeological sites and no historic resources within or adjacent to Airport property. Therefore, no known cultural resources that are listed, determined eligible, or considered potentially eligible for listing in the National Register of Historic Places are located within the Airport boundary.

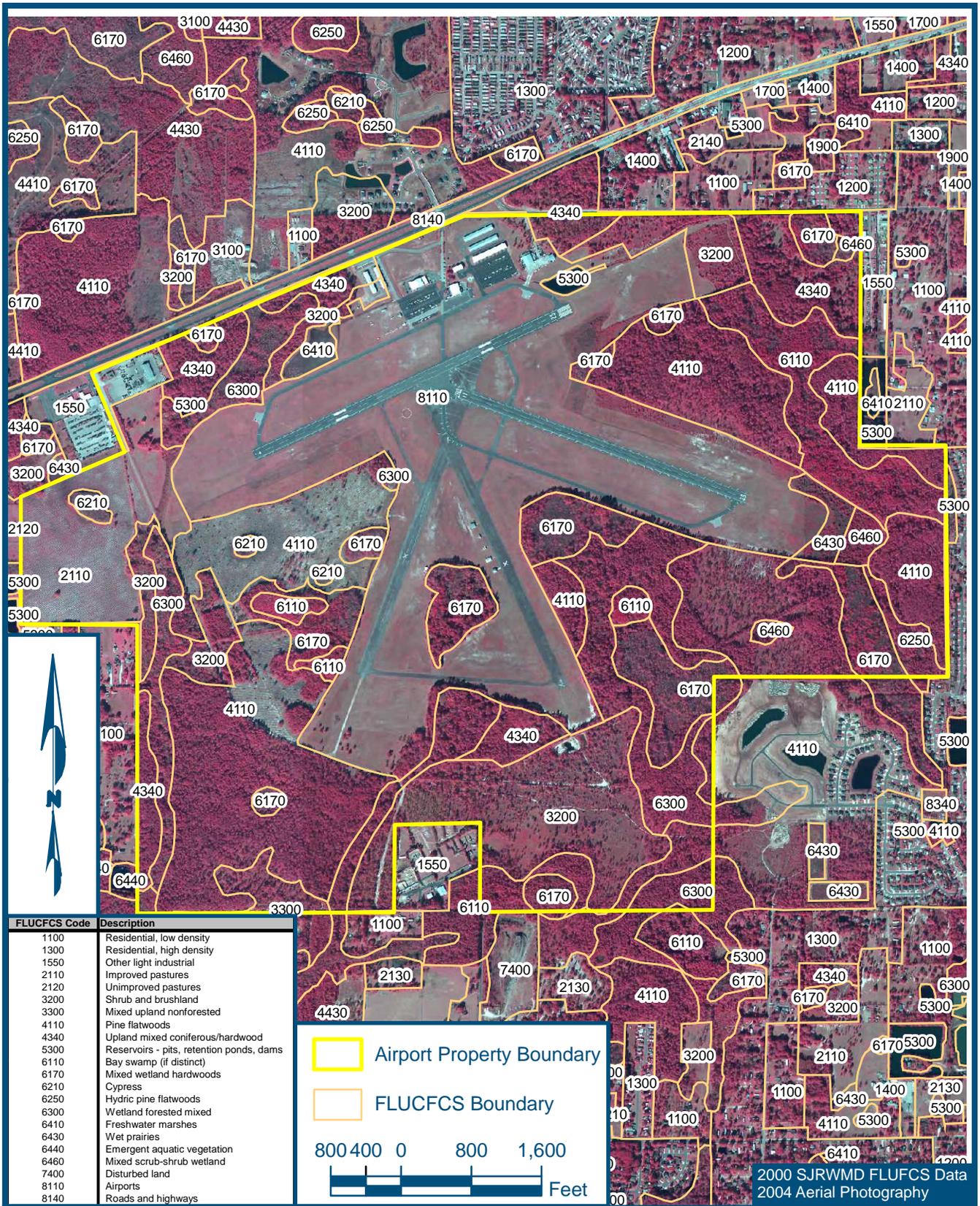
A site location predictive model was also employed in an effort to evaluate the probability for undocumented prehistoric site occurrences on Airport property. The model examined variables including soil drainage, distance to fresh water, topography, and proximity to resources such as food, stone, and clay. The investigator concluded that the Airport property was considered to have a generally low probability for prehistoric period site occurrence.

In addition, based on the results of the cultural resources record search, no historic structures are recorded within or adjacent to the Airport, and there is no potential for undocumented historic structures on Airport property.

BIOTIC COMMUNITIES

The SJRWMD classified the existing land use and cover in Duval County according to the Florida Land Use, Cover, and Forms Classification System (FLUCFCS) (**Figure 2-16**). A field survey was conducted on August 22, 2005 to verify the land use and land cover designations assigned by the FLUCFCS mapping for the Airport area. For the purposes of this study, field verified FLUCFCS (2005) and SJRWMD FLUCFCS (2000) data were used to identify the biotic communities and land use types that are within the existing Airport property boundary. Based on the 2000 SJRWMD data (**Figure 2-13**), FLUCFCS types that are present on Airport property include:

- Other light industrial (1550)
- Improved pastures (2110)
- Unimproved pastures (2120)
- Shrub and brushland (3200)
- Mixed upland nonforested (3300)
- Pine flatwoods (4110)
- Upland mixed coniferous/hardwood (4340)
- Reservoirs - pits, retention ponds, dams (5300)
- Bay swamp (6110)
- Mixed wetland hardwoods (6170)
- Cypress (6210)
- Hydric pine flatwoods (6250)
- Wetland forested mixed (6300)
- Freshwater marshes (6410)
- Wet prairies (6430)
- Mixed scrub-shrub wetland (6460)
- Airports (8110)



The field survey of the Airport property area verified that the 2000 SJRWMD FLUCFCS data was reasonably accurate for the majority of the Airport property area. However, there were some notable differences between the 2000 FLUCFCS data and the conditions that were observed during the survey of the Airport property. The majority of these differences were due to silvicultural activities consistent with the Airport's Forest Management Plan that occurred subsequent to the 2000 SJRWMD FLUCFCS analysis of the area. The 2000 FLUCFCS data identifies an area in the northwest corner of the Airport Property as one relatively large tract of upland mixed coniferous/hardwood and the adjacent areas as mixed wetland hardwoods and mixed scrub-shrub wetlands. Based on field observations, trees were harvested in this area. The upland sections are regenerating with pine seedlings and various herbaceous species and the wetland sections are regenerating with mixed scrub shrub and emergent aquatic vegetation.

Some of the land cover south of Runway 7 and west of the closed runway in the southwest portion of the airfield was also reclassified due to silvicultural activities. The areas north of the Airport Perimeter Road, mapped by FLUCFCS (2000) as pine flatwoods, have been clearcut and are now regenerating with pine. An area located west of the perimeter road, on the east side of a former agricultural field on the west side of the Airport property is mapped as shrub and brushland on the FLUCFCS (2000) mapping, but based on field observations appeared to be predominantly mixed coniferous/hardwood uplands. However, more detailed survey and wetland mapping will be required for construction of specific projects proposed in the Master Plan at the time of project design.

ENDANGERED AND THREATENED SPECIES

Available GIS maps and literature were compiled and reviewed to determine the types of plant communities and wildlife occurrences that have been previously documented within the project study area. Data sources used in this evaluation included:

- FFWCC's 1999 Bald Eagle Nesting Territory Locations and Activity Status (**Figure 2-17**);
- FFWCC's Wading Bird Colony Locations (**Figure 2-18**);
- FFWCC Wood Stork Colony Locations (**Figure 2-19**);
- FNAI (Florida Natural Areas Inventory) Matrix of Habitat and Distribution of Rare/Endangered Species for Duval County (**Figure 2-20**);

Listed fauna that may potentially occur at the Airport can be found below in **Table 2-7** and listed flora that may potentially occur can be found in **Table 2-8**.

Based on a review of FNAI element occurrence data, no state or federally listed plant or animal species are documented to occur within the Airport, and no suitable habitats for state or federally listed plants are documented to be present in the vicinity of the Airport.

FFWCC bald eagle nest location data (**Figure 2-17**), wading bird colony location data (**Figure 2-18**), and wood stork colony location data (**Figure 2-19**) also indicate that none of these species is documented to nest within the immediate vicinity of the Airport. The nearest bald eagle nest is

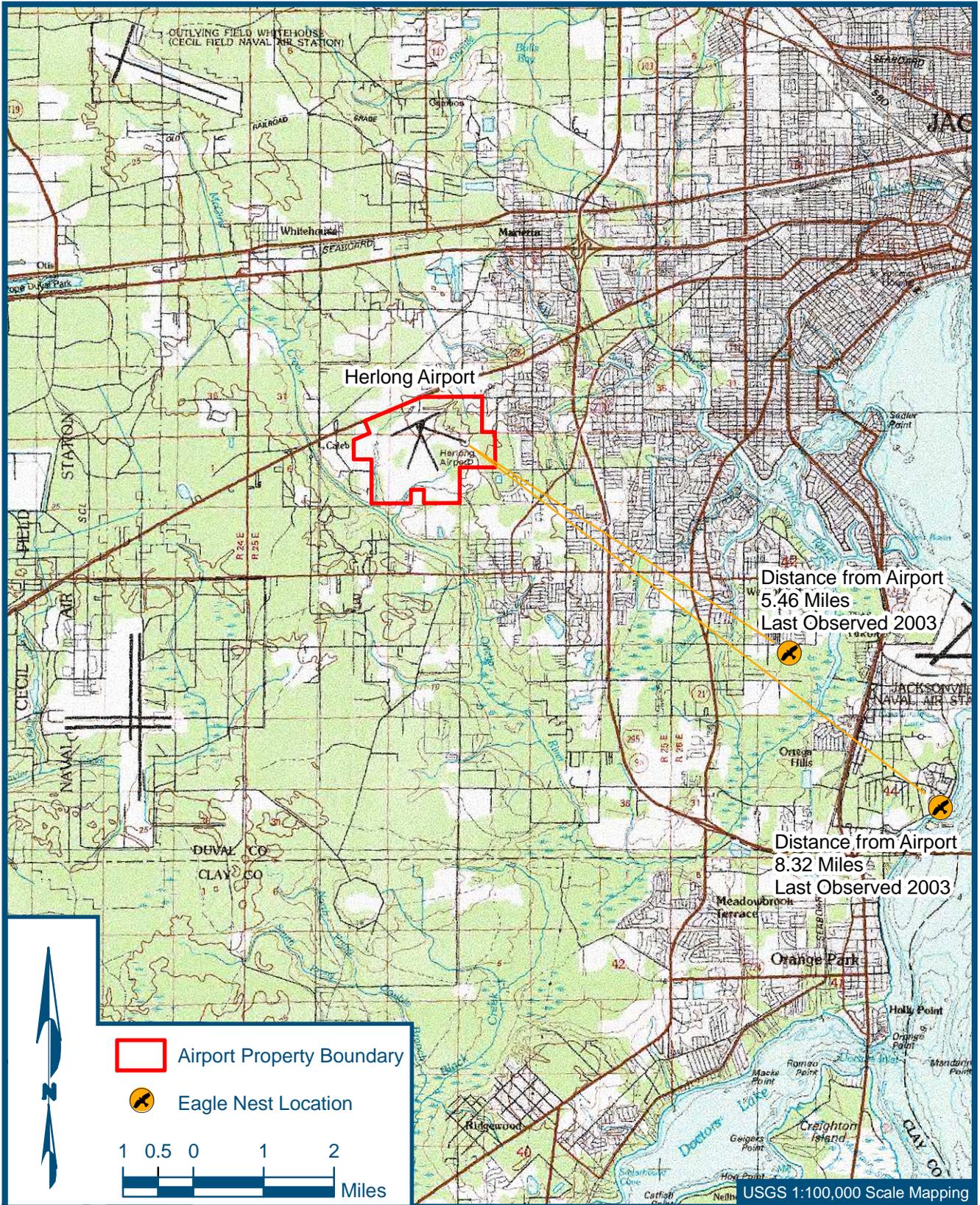
approximately 5.46 miles southeast of the Airport, which is significantly more distant than the USFWS recommended 1,500-foot radius secondary nest buffer protection zone. The nearest wading bird colony that does not contain wood stork nests is located approximately 6.75 miles south of the Airport. The nearest wood stork colony is located approximately 20.94 miles east of the Airport, which is outside the 18-mile radius wood stork colony core foraging area.

An environmental site visit was performed on August 22, 2005. During the visit, a gopher tortoise (*Gopherus polyphemus*), a species of special concern in the State of Florida, was observed just outside of the perimeter fence on the south side of the closed taxiway between the closed runways on the south side of the Airport property. An additional gopher tortoise was observed on a dirt road south of this area. A gopher tortoise carcass was also observed on the northern edge of the eastern RPZ for Runway 7/25.

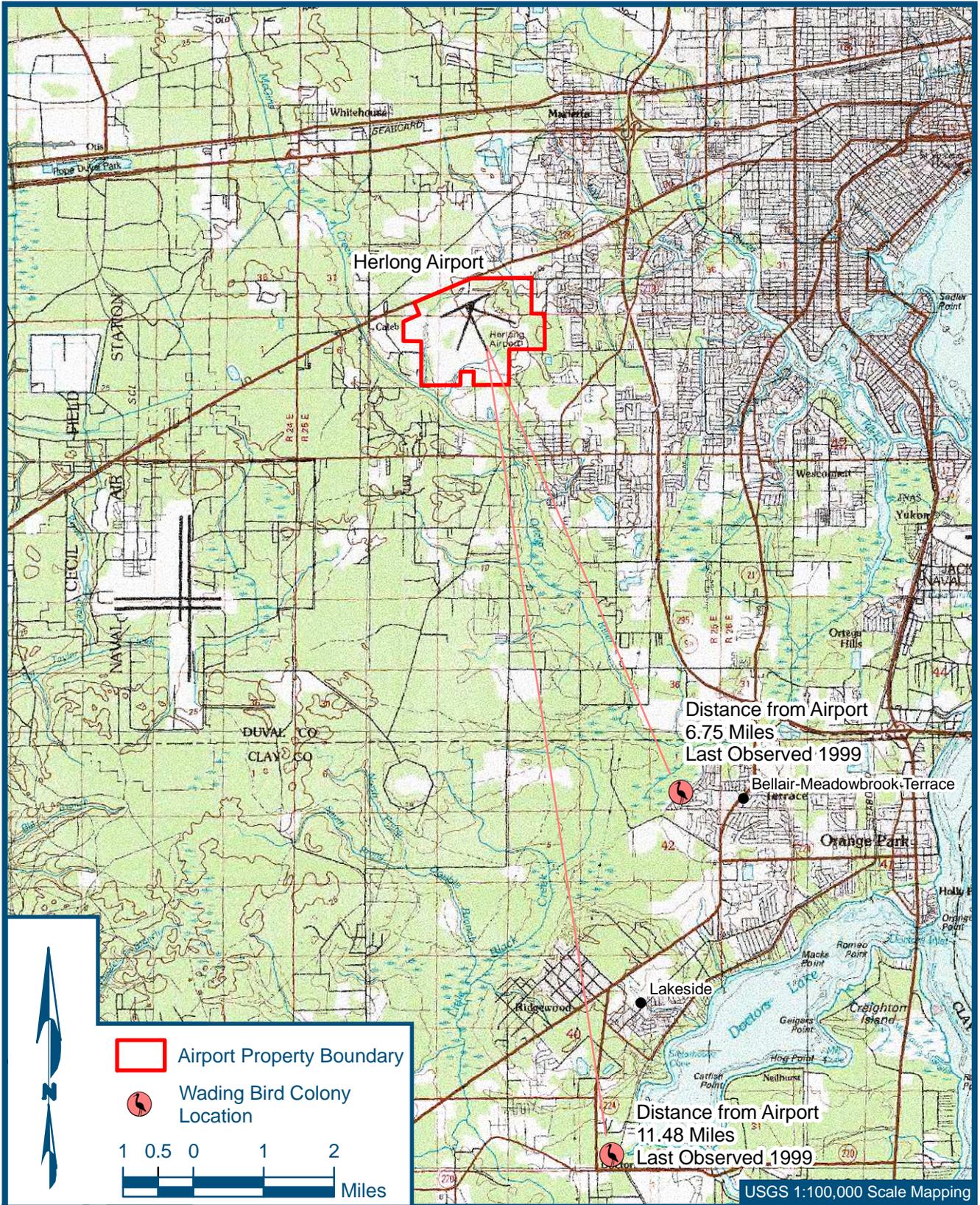
Gopher Tortoise mitigation would only be required if new construction takes place in an area with gopher tortoise burrows. During the initial EO survey, no gopher tortoises or their burrows were found near any of the active or closed runways. The closest sign was a gopher tortoise carcass found in a ditch near the approach end of Runway 25. All other evidence of gopher tortoises was found outside the perimeter fence line. However, since the consultant's environmental team did not examine the entire airfield, it is not possible to definitively state that there are no burrows within the airport property. It is important to note that any new construction will require a gopher tortoise survey of the impacted area(s) as part of the environmental assessment and permitting process.

Marginally suitable to suitable habitats exist on or near the Airport for other listed animal and plant species that appear on the USFWS and/or the FNAI lists for Duval County. Therefore, there is low to moderate potential occurrence of other listed plants and animals within the Airport based upon the initial field work completed as part of the Environmental Overview (EO) process. An in-depth review and survey will be conducted as part of the environmental assessment and permitting process if required.

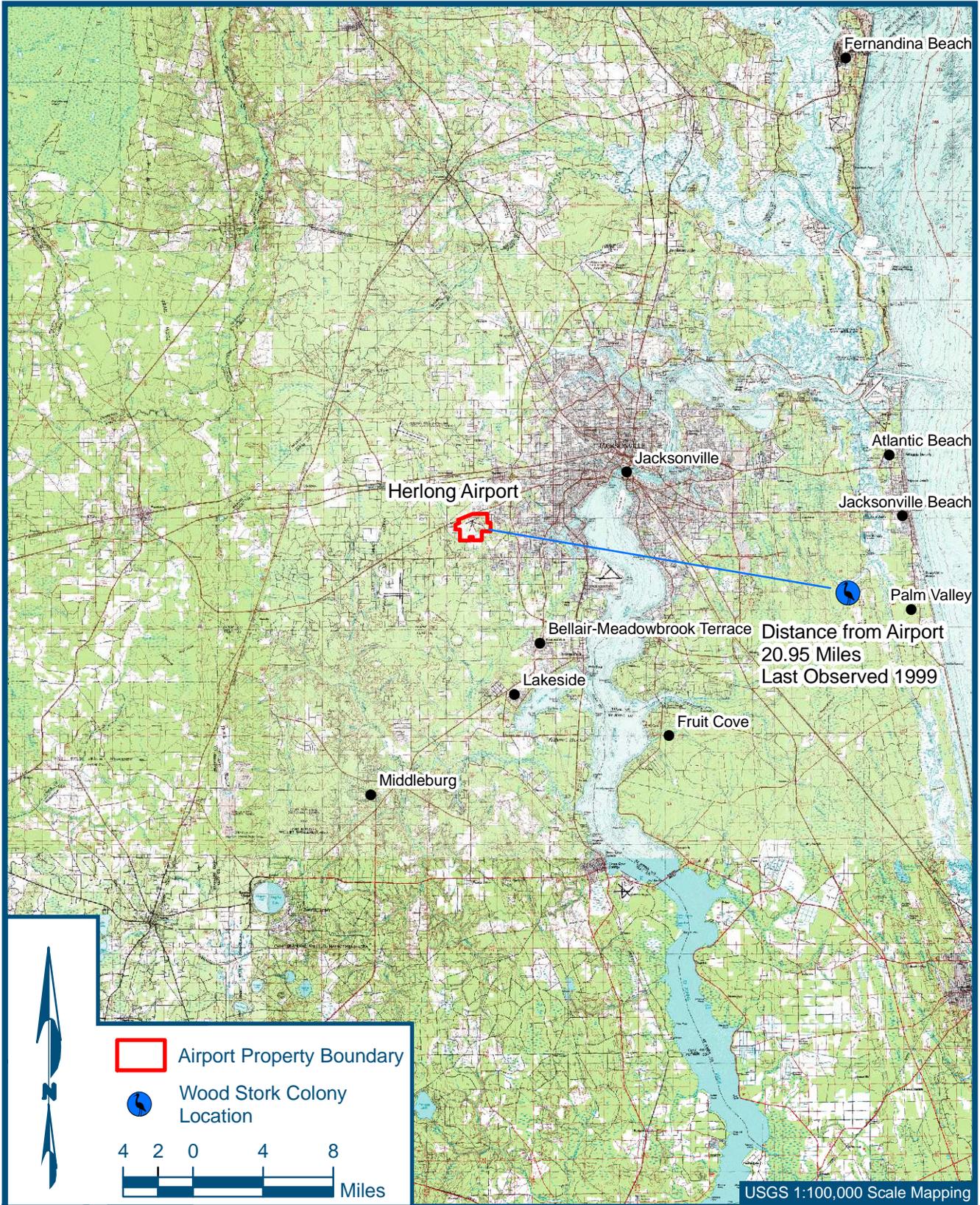
FFWCC EAGLE NEST LOCATIONS



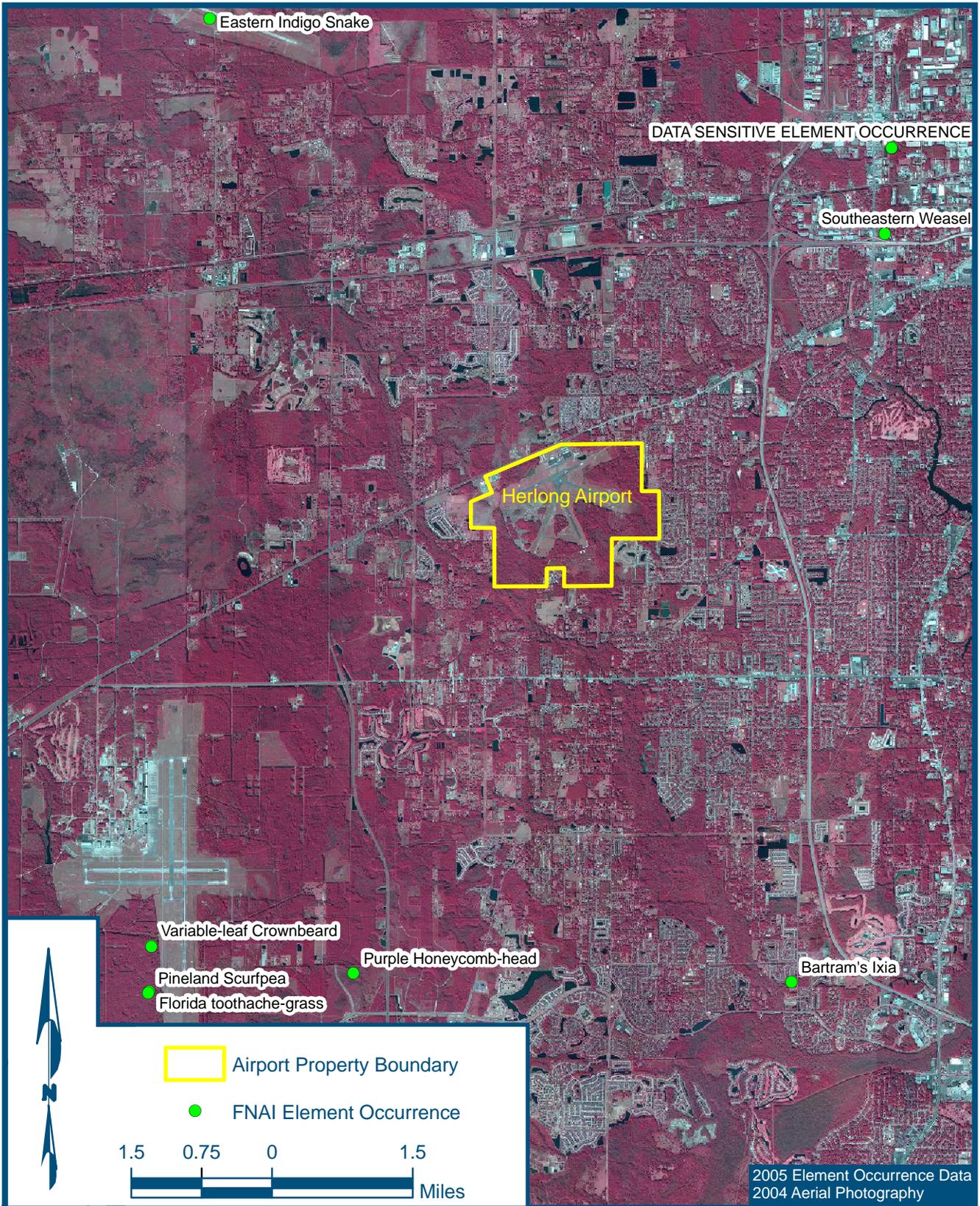
FFWCC WADING BIRD COLONY LOCATIONS



FFWCC WOOD STORK COLONY LOCATIONS



FNAI ELEMENT OCCURRENCE MAP



**TABLE 2-7
POTENTIALLY OCCURRING LISTED FAUNA
HERLONG AIRPORT**

SCIENTIFIC NAME	COMMON NAME	STATUS	
		USFWS	FFWCC
<i>Ambystoma cingulatum</i>	Flatwoods salamander	T	SSC
<i>Rana capito</i>	Gopher Frog	-	SSC
<i>Drymarchon corais couperi</i>	Eastern Indigo Snake	T	T
<i>Gopherus polyphemus</i>	Gopher Tortoise	-	SSC
<i>Pituophis melanoleucus mugitus</i>	Florida Pine Snake	-	SSC
<i>Aramus guarauna</i>	Limpkin	-	SSC
<i>Athene cunicularia floridana</i>	Florida Burrowing Owl	-	SSC
<i>Egretta caerulea</i>	Little Blue Heron	-	SSC
<i>Egretta thula</i>	Snowy Egret	-	SSC
<i>Egretta tricolor</i>	Tricolored Heron	-	SSC
<i>Eudocimus albus</i>	White Ibis	-	SSC
<i>Falco sparverius paulus</i>	Southeastern American Kestrel	-	T
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	T
<i>Mycteria americana</i>	Wood Stork	E	E
<i>Picoides borealis</i>	Red-Cockaded Woodpecker	E	T
<i>Sciurus niger shermani</i>	Sherman's fox squirrel	-	SSC
<i>Procambarus pictus</i>	Black Creek Crayfish	-	SSC

LEGEND:

USFWS = United States Fish and Wildlife Service
 FFWCC = Florida Fish and Wildlife Conservation Commission
 E = endangered species
 T = threatened species
 SSC = species of special concern

Source: Official Lists of Endangered and Potentially Endangered Species in Florida, FFWCC. 2004

TABLE 2-8
POTENTIALLY OCCURRING LISTED FLORA
HERLONG AIRPORT

SCIENTIFIC NAME	COMMON NAME	STATUS	
		USFWS	FFWCC
<i>Balduina atropurpurea</i>	Purple Honeycomb-head	-	E
<i>Calydorea coelestina</i>	Bartram's Ixia	-	E
<i>Cheilanthes microphylla</i>	Southern Lip Fern	-	E
<i>Coelorachis tuberculosa</i>	Piedmont Jointgrass	-	T
<i>Ctenium floridanum</i>	Florida Toothache-grass	-	E
<i>Drosera intermedia</i>	Spoon-Leaved Sundew	-	T
<i>Forestiera godfreyi</i>	Godfrey's Privet	-	E
<i>Lantana depressa</i> var. <i>floridana</i>	Atlantic Coast Florida Lantana	-	E
<i>Orbexilum virgatum</i>	Pineland Scurfpea	-	PE
<i>Peperomia humilis</i>	Terrestrial Peperomia	-	E
<i>Pteroglossaspis ecristata</i>	Giant Orchid	-	T
<i>Schoenolirion croceum</i>	Yellow sunnybell	-	PE
<i>Spiranthes polyantha</i>	Green Ladies'-tresses	T	E

LEGEND:

USFWS = United States Fish and Wildlife Service

FFWCC = Florida Fish and Wildlife Conservation Commission

E = endangered species

T = threatened species

SSC = species of special concern

Source: Official Lists of Endangered and Potentially Endangered Species in Florida, FFWCC. 2004

WETLANDS

Available GIS maps and literature were compiled and reviewed to determine the types of wetland systems that may occur within the project study area. Data sources used in this evaluation included:

- USGS Quadrangle Map;
- USFWS NWI maps (**Figure 2-21**);
- FLUCFCS maps (SJRWMD 2000) (**Figure 2-16**);
- National Resource Conservation Service (NRCS) soil data (**Figure 2-22**); and,
- Project aerial photography.

The NWI map data indicates that there are three wetland types within the project area, freshwater emergent wetlands (Cowardin classification codes PEM1C and PEM1F), freshwater forested/shrub wetlands (codes PFO1/4C, PFO1C, PFO3/6F, PFO3C, PFO3F, PFO4/1C, PFO4A, PFO5/UBH, PFO6/3F, and PFO6F), and freshwater ponds (codes PUBH and PUBHX, **Figure 2-21**). Field observations made during the site visit conducted on August 22, 2005 resulted in the preliminary identification and verification of 10 wetland types that fall within the following FLUCFCS categories (**Figure 2-16**):

- Reservoirs - pits, retention ponds, dams (5300)
- Bay swamp (6110)
- Mixed wetland hardwoods (6170)
- Cypress (6210)
- Hydric pine flatwoods (6250)
- Wetland forested mixed (6300)
- Freshwater marshes (6410)
- Wet prairies (6430)
- Emergent aquatic vegetation (6440)
- Mixed scrub-shrub wetland (6460)

Based upon the NWI and FLUCFCS data, wetlands occur in numerous areas throughout the Airport's property, but are particularly prevalent on the eastern portion of the Airport and in the undeveloped area south of Runway 11/29. Based upon the preliminary field visit, upland areas identified on the NWI and the FLUCFCS maps have the potential to contain wetlands. A formal wetland determination is necessary to determine the location, area, and boundary of wetlands within the Airport before individual project construction can begin.

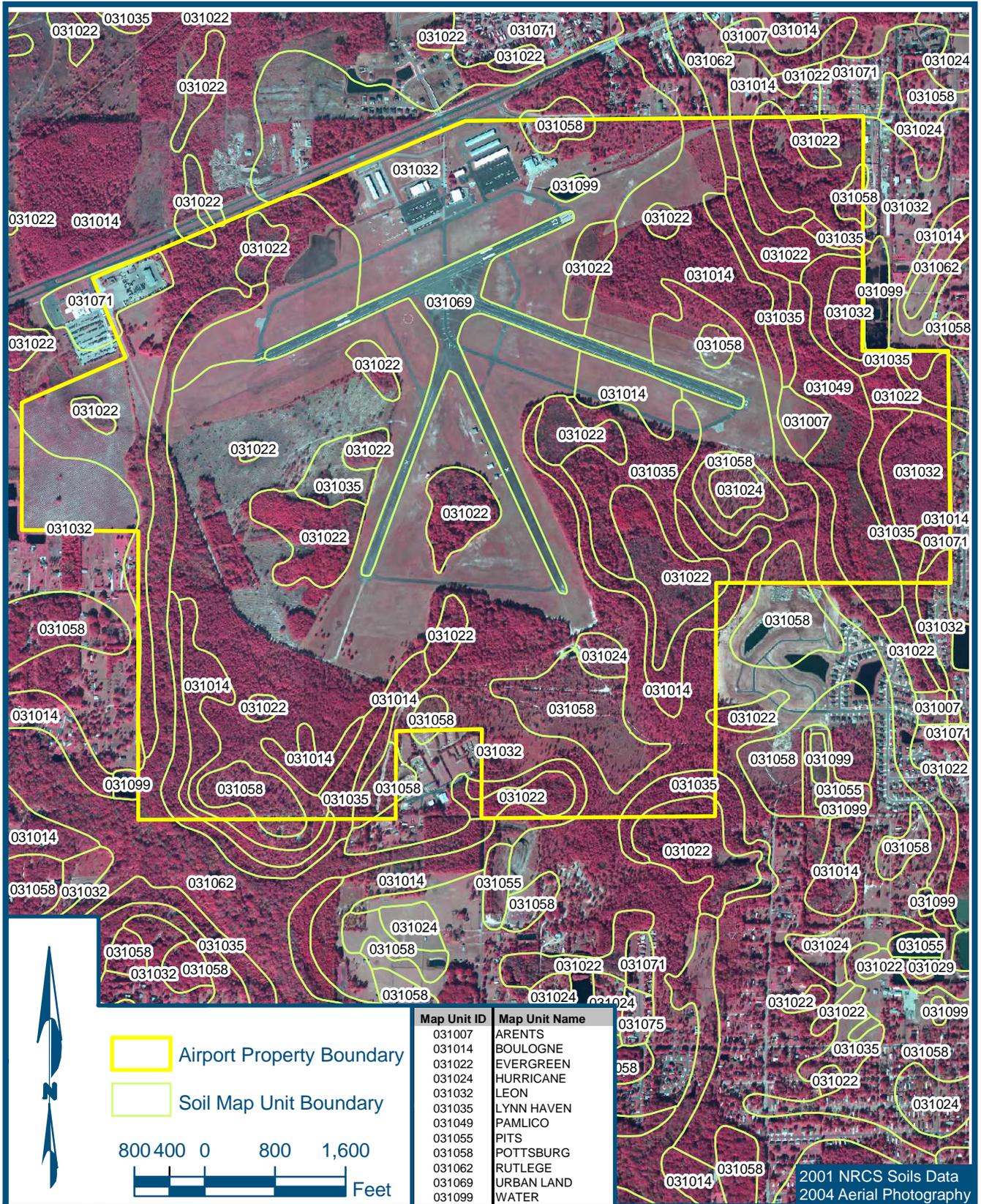


Figure 2-22

FLOODPLAINS

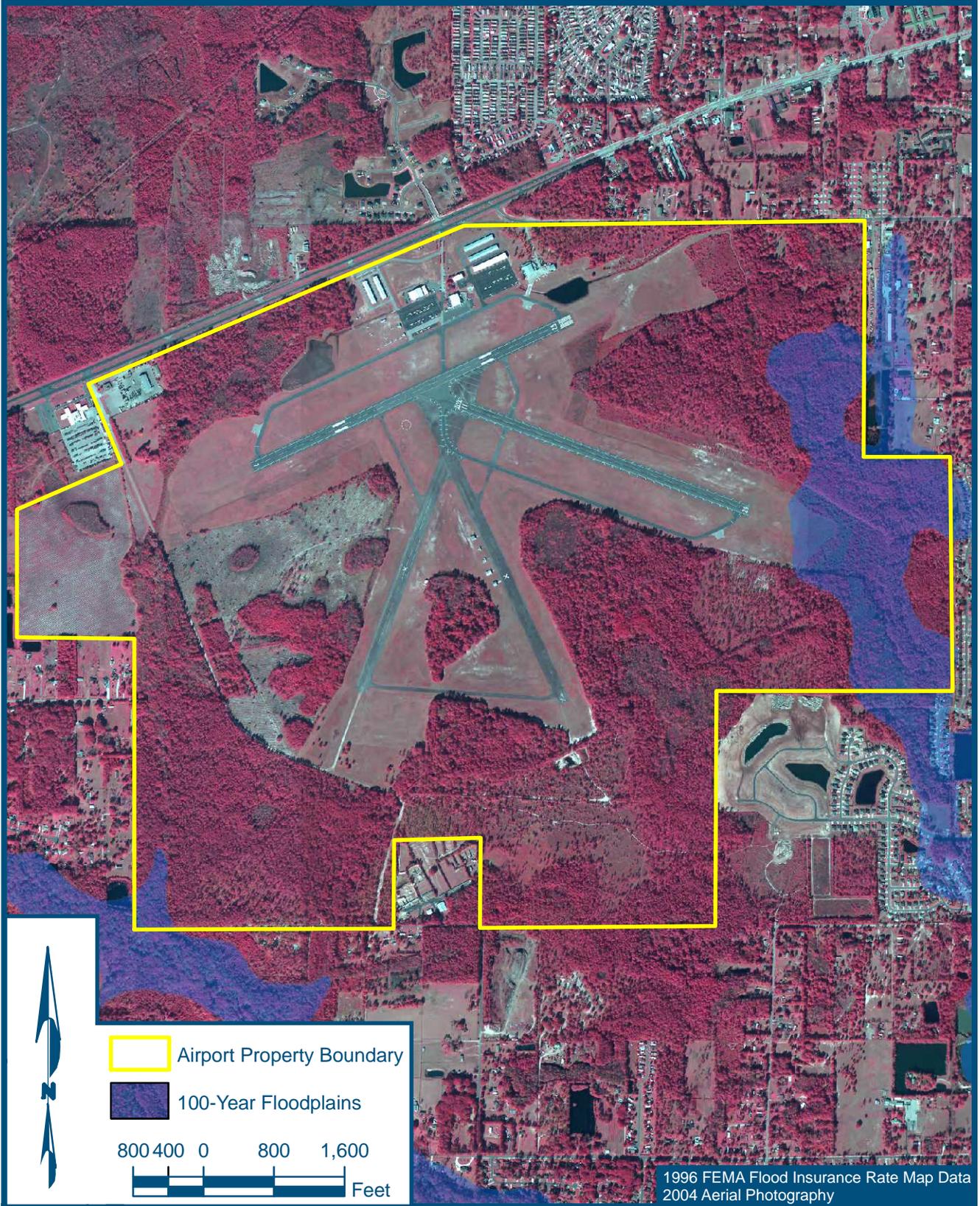
A review of FIRM mapping indicates that portions of the Herlong Airport property area are within the FEMA designated 100-year floodplain. The eastern side of the Airport property is within designated Zone AO, which is defined as an area of 100-year floodplain that is subject to flood depths of one to three feet, usually due to sheet flow on sloping terrain. An additional area of 100-year floodplain that is designated Zone AE is located in the extreme southwest corner of the Airport property. The Zone AE designation describes an area of 100-year floodplain for which the base flood elevation has been determined. The base flood elevation line of this portion of 100-year floodplain is at approximately 47.5 feet above sea level, referenced to the National Geodetic Vertical Datum of 1929. The remainder of the Airport is not mapped as being within the 100-year floodplain (**Figure 2-23**).

COASTAL ZONE MANAGEMENT PROGRAM

The entire State of Florida is located within a coastal zone due to the distance between the east and west coasts. As a result, all Florida counties have a Coastal Zone Management Program which evaluates and maintains coastal zone consistency. Coastal Zone Consistency means that the project will not have any impact to the Florida shoreline. JAA already complies with the Duval County Coastal Zone Management Program since all airports within the JAA system comply with Federal, State and Local environmental laws and regulations. If and when JAA applies for a permit or performs an environmental assessment associated with specific projects at HEG, both Duval County and U.S. Corps of Engineers will evaluate the project for Coastal Zone Consistency.

FARMLAND

Based on information obtained from the NRCS Field Office Tech Guide for Duval County, there are no prime or unique farmland soils, and therefore no farmlands that would be subject to the conditions of the Farmland Protection Policy Act, on Airport property.



SUMMARY

The information in this section provides the foundation upon which the remaining elements of the Master Plan process will be developed. Information on current infrastructure and operations will serve as a basis for the development of forecasts of aviation activity and facility requirements.

This information will provide guidance to assess potential changes to facilities and/or procedures necessary to meet the goals of the Airport planning process. Analysis of the inventory of Airport facilities determines and prepares for the needs presented by the Airport users in the short-, intermediate, and long-term. The inventory of existing conditions is the first step in the complex process to determine the steps that are needed to meet projected aviation demands in the community. The information collected is based upon year 2005 numbers, which serves as the baseline/foundation for the analysis and forecasting of future airport activity and facilities.