Table of Contents

List of Tables

List of Exhibits

I. Executive Summary

This document provides an overview of the Jacksonville International Airport (JIA) Master Plan. It is designed for stakeholders to gain an overview of major matters addressed in the detailed Master Plan report. A Master Plan is not a blueprint for development. Instead, it is an organic, evolving document that builds on the strategies of previous planning, and sets out a framework for the development of JIA to meet demand and create business and industry opportunity for the next 20 years and beyond. While the Master Plan is a visionary document that sets out a 'road map' for the sustainable growth of Northeast Florida's primary airport, it is not an approval for any specific development or project.

1.1 Introduction

JAX[1] is located approximately 11 miles north of downtown Jacksonville, and serves as the primary commercial service airport for Northeast Florida. The Airport is situated in Duval County, Florida, and set on approximately 8,480 acres of land, although only 1,730 acres is required for existing aviation related uses. Excess land is provided to accommodate future aviation related development including two new potential runways; future non-aviation related development, such as business park/office campus, Research and Development (R&D) technology parks, light industrial related uses; areas for environmental mitigations; and wetland and opens areas. **Exhibit I-1** illustrates the existing and future on-airport land uses.

As the world's economy becomes more global and integrated, the importance of airports to business, travel, and trade is continuing to increase. JAX is one of the keys to the City of Jacksonville and Duval county's economies, and more broadly the State of Florida. Without the Airport, business, tourism, and personal travel opportunities would be severely limited. The Jacksonville Aviation Authority (JAA) recognizes the important role it plays and is committed to the establishment of appropriate short and long term planning concepts for the airport site. It is the intent of JAA to maintain and enhance the value of the airport by meeting both its transportation vision and by making the airport a generator of economic opportunity.

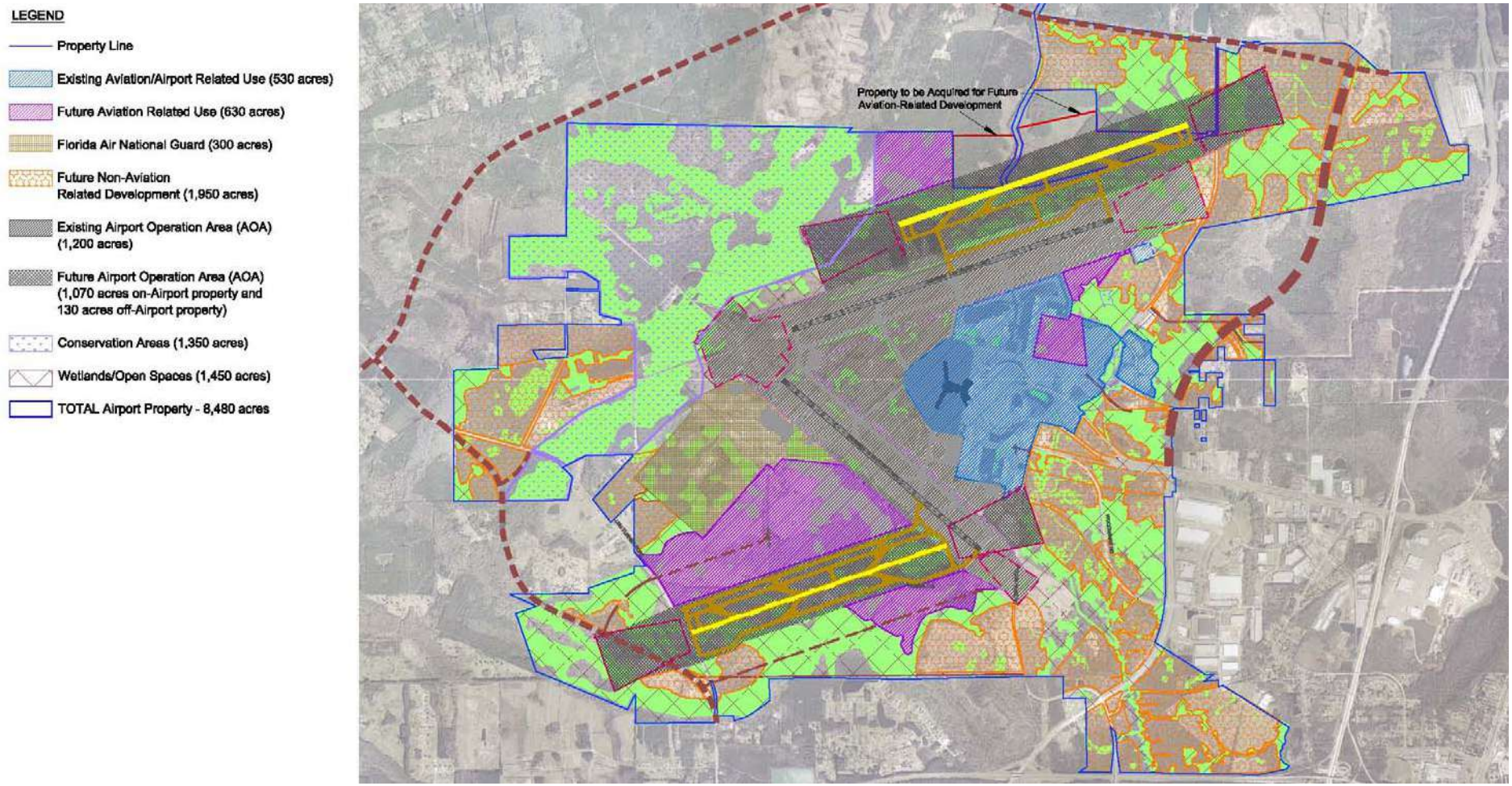
As Northeast Florida grows, JAX will consider issues relating directly to its future as well as its role in the greater planning area. In order to do this, the JAA has undertaken an update to the JAX Master Plan to meet forecasted transportation needs and to continue to drive the region's economic engine.

The need for this 2010 update was really twofold. The primary reason being the Federal Aviation Administration (FAA) requires airports receiving development grants to conduct periodic updates to the airport's future development plan, last updated in 2001. Secondly, over the past nine years many changes have occurred in areas surrounding the airport as well as in the aviation industry; therefore, changing the demands placed upon the airport. This update to the JAX Master Plan is intended to provide a vision for the growth and development of the Airport over the next 20 years and establish a framework for the development of airport facilities and guide long-term on-airport land use and development decisions. Projections of aircraft and passenger traffic for the next 20 years have been used to determine the ultimate Airport development plan.

[1] The FAA identifier for JIA is JAX and this report will use JAX when referring to the Airport.

Exhibit I-1 *(11x17)*

Existing and Future On-Airport Land Uses



Source: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F. Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010

The Master Plan update recognizes that while it may not be necessary to construct a new runway over the next 20 years, development of new taxiways, aprons, cargo facilities, and passenger terminal facilities, as well as non-aviation related development for commercial opportunities, will be required.

1.1.1 Project Intent and Purpose

The central purpose of the Airport Master Plan Update is to ensure continued operational and service excellence in the management of the Airport to 2027 and beyond. The Plan is meant to assist management and stakeholders with short and long term operational decisions and to guide future capital investments in a manner that is consistent with the Authority's long term goals. The Master Plan includes recommendations that address current and near-term operational issues in the context of a long-term development strategy. Specifically, the Airport Master Plan identifies airfield, terminal building and landside facility requirements to accommodate two planning activity levels (PALs). PAL 2 was defined to correspond to 4 million annual enplaned passengers (or 8 million total annual passengers) while PAL 3 was established to reflect 5 million annual enplaned passengers or 10 million total annual passengers.

The purpose of this Master Plan is to:

- Outline a plan for the provision of future facilities to achieve optimum airport use;
- Insure that short-term actions and recommendations do not preclude long-range planning options;
- Remain sensitive to the overall environmental characteristics and needs of the area surrounding the airport;
- Incorporate current comprehensive land use (both on- and off-airport property) and recommend developments that are compatible with existing and future land uses; thereby ensuring a harmonious interface between the airport's operations and its adjacent communities
- Fulfill statutory obligations by meeting all FAA requirements, thereby enabling approval of the Master Plan; and
- Establish an implementation schedule for short-, intermediate-, and long-term improvements and insure that they are financially feasible.

1.1.2 Key Issues

It has been over nine years since JAX last had an update to the Airport Master Plan. Since that time many changes have occurred not only in the Jacksonville community, but also in the aviation industry. Some of these changes include: the introduction of regional jets to airline fleets, the downturn of the economy and associated travel demand reduction, the severe increase in the price of oil, airline bankruptcies including the loss Eos Airlines, Skybus Airlines, and ATA Airlines, and several airline consolidation/mergers. Taking these events into consideration, airport staff has identified a number of key issues requiring attention, including:

- Existing airfield capacity: To determine JAX's ability to accommodate existing and future aviation demand, the capacity of the existing airfield must be assessed.
- Future runway length requirements: In recent years, aircraft and power-plant manufacturers have made technological improvements that have leveled off the trend toward longer take-off distances. This is due, in part, to the increasingly constrained airport system and the lack of

available land to increase runway lengths or to build new and longer runways. In light of these considerations, the conclusions of the previous Master Plan with regard to future runway length requirements must be verified.

- South parallel runway siting: The proposed alignment for the south runway must be refined based on the definition of future runway length requirements, potential impacts on the wetland and floodplain areas, the proposed alignment for Lem Turner Road, the need to provide airfield safety areas that meet FAA requirements, and the need to protect the runway approach surfaces from potential obstructions.
- Terminal areas functional capacities: the capacity of the terminal processes and areas (check-in lobby, outbound baggage screening and sortation, security screening checkpoints, holdrooms, etc) must be reassessed to identify potential bottlenecks and determine future passenger terminal facilities requirements.
- Future parking facilities needs: Because some existing parking facilities near capacity at peak time, future requirements for public parking must be based on the application of projected growth in passenger enplanements compared with existing passenger activity.
- Roadway intersection analysis: Observations suggest that Pecan Park Road traffic experience some difficulty finding sufficient gaps to safely cross Yankee/Dixie Clipper Drives during peak periods. The collection of vehicle turning movement data and a Level-of-Service (LOS) analysis for the main on-Airport intersections is therefore required. Based on these analyses, the need for the installation of traffic signals, grade separation, or rerouting of traffic will be discussed.
- On-airport land use plan: The development of a comprehensive on-airport land use plan with an emphasis on the area located in along the south side of Runway 7-25 and the north side of the Runway 13-31 is required. This on-airport land use plan will allow for the preservation of areas required for future aviation-related development and the identification of land parcels for commercial (non-aviation) development.
- Future property acquisition requirements: The identification of any neighboring areas that the airport would need to acquire to support the short, intermediate, and long-term developments proposed by this study is required. The siting of a new runway north of and parallel to existing Runway 7-25 will need to be evaluated and the definition of associated land acquisition identified.
- Areas for future air cargo, maintenance, repair and overhaul (MRO), and general aviation facilities.

The preceding list is not intended to be an exhaustive delineation of issues but it does present an overview of the key considerations that were included in this Master Plan update. By addressing these and other issues, this Master Plan developed an action plan to address current and future aviation demand at JAX.

1.1.3 Master Planning Process

The objectives of the master planning process is to allow orderly development with the framework of local, regional, and national economic and transport plans, while protecting the environment. The master planning process typically defines the airport facilities needed and when they will be needed.

This airport master plan update for JAX was prepared in accordance with the requirements of the FAA, the Florida Department of Transportation (FDOT), and the needs of the JAA. All portions of this document are based on the criteria set forth in the FAA Advisory Circulars (AC) 150/5070-6B, Change 1, Airport *Master Plans,* and AC 150/5300-13, Change 13, *Airport Design*. To accomplish the objectives identified, the study has included the following tasks:

- Inventory and Data Collection: The creation of an inventory database is the first task accomplished within the airport master planning effort. The purpose is to conduct an inventory of the existing documents related to the airport, the physical airport facilities, and the airport environment;
- Aviation Activity Forecasts: Based on the collection of historic operational data, interviews of key tenants, and the analysis of local socioeconomic data, R&A developed a forecast of aviation activity through the year 2027. These forecasts were approved by the FAA in June 2008 and provide a probable level of demand that the Airport should plan to accommodate over future years.
- Demand/Capacity and Facility Requirements: The demand/capacity and facility requirements analysis serves to determine which of the array of airport facilities will become inadequate to meet the projected demand levels. The aviation activity forecast details the projected demand, including its major characteristics, while this analysis compares that demand to the estimated capacities of the existing facilities and defines the level of facility development necessary to meet projected demand. This information provides the basis for the next step in the planning process: the definition and evaluation of development alternatives. The identification of deficient or excess capacity in airport facilities provides an indication of the degree of facility development needed.
- Alternatives: A key objective of the master planning process is to identify the best options available for addressing future development needs at the Airport. To accomplish this objective, it is necessary to identify and evaluate a range of alternatives for meeting the requirements identified in the demand/capacity and facility requirements section, and ultimately provide a planning framework on which to base future Airport development decisions.
- Environmental Overview: While not intended to provide the detail of a formal environmental assessment or environmental impact statement (EIS), the environmental overview provides a summary of potential environmental impacts and mitigation opportunities associated with the selected airport improvement plan.
- Airport Layout Plan (ALP) Set Development: This set of plans depicts the preferred Airport development concept, showing existing and planned facilities and land uses. The set of drawings is prepared in accordance with current Federal Aviation Administration (FAA) design standards. The purpose of the ALP set is to provide airport management with a scaled, graphic presentation of the airport's 20-year development program. These plans identify areas for future aviation related development, as well as available land, which can be used for revenue to support the airport. The ultimate configuration of airport facilities demonstrates a feasible improvement plan that provides for safe, compatible, and efficient airport operations.
- Capital Improvement Program and Financial Analysis: The development of a Capital Improvement Program (CIP) involves the development of a detailed project list to meet the facility requirements, including project priorities, a phased implementation schedule, and estimated project costs. The financial analysis is used to establish, when appropriate, a

financial plan to fund the CIP. The financial analysis considers costs associated with the CIP, as well as airport operating and maintenance costs.

Throughout this process, reviews of this master plan report were conducted at key points such as at the completion of the forecasts and during the development of the alternatives. This ensured that input was received from key stakeholders, such as the Airport Authority, FAA, and FDOT. The individual report chapters provide a detailed explanation of these key steps. It should be noted that each step in the master plan process built upon information and decisions made during previous steps. Taken as a whole they address the key issues identified above and show how the study objective was met.

1.1.4 Master Plan Report Structure

The Master Plan report follows the Master Planning process sequence and is divided into the following sections:

- Section I: Executive Summary
- Section II: Airport Inventory
- Section III: Aviation Activity Forecasts
- Section IV: Demand/Capacity and Facility Requirements
- Section V: Alternatives
- Section VI: Environmental Considerations
- Section VII: Airport Layout Plans Set
- Section VIII: Financial Analysis

In addition, the following appendices supplement the Master Plan report:

- Appendix A: Environmental Resource Solutions, Inc., *Baseline Environmental Assessment* report, *2008.*
- Appendix B: Ricondo & Associates, Inc, *Airfield & Landside Demand/Capacity and Facility Requirements Analysis*, Power Point Presentation, September 2008.
- Appendix C: St. Johns River Water Management District, *JIA Conceptual Environmental Resource Permit and Technical Staff Report*, April 2001.
- Appendix D: U.S Army Corps of Engineers, JIA Individual Permit No. 200005079 (IP-BAL), November 2003.
- Appendix E: Ware Malcomb & Rink Design, *Highest and Best Use Study*, December 2009.

1.2 History of the Airport

JAX opened on October 27, 1968, replacing Imeson Airport as Jacksonville's commercial service airport. Imeson Airport was subsequently closed for aviation activity and the adjacent land areas were developed into a light industrial park. The new facility included a FAA control tower complex, an instrument landing approach system, and an airport lighting system.

Since its inception, JAX has continued to develop and improve its facilities to accommodate increasing activity levels. The improvements over the years have included major airfield, terminal, and landside development. Most notably is the terminal and landside development, which was

initiated in 1982 when passenger traffic exceeded 2 million. In 1990, a new $100 million terminal was opened. The construction included the addition of twelve new airline gates, a new two level roadway system, and a multi-level parking garage. In 1998, the JAA embarked on another terminal expansion program that also incorporated parking improvements. The ongoing program consists of four different stages and maintains the location of the terminal area at the center of Airport property, between the Airport's runways.

Stage 1, completed in March 2003, provided approximately 95,000 square feet of additional space, and included an expansion of the baggage claim/makeup processing space, as well as additional ticketing and rental car counter space. Stage 2 of the program, completed in late 2004, added an additional 46,500 square feet, and included an expansion of the main courtyard to accommodate a new centralized security checkpoint and provide more concession space.

The final two stages, Stage 3 and 4, of the Program involve the replacement of Concourses A, B, and C, which were originally constructed in 1968. Stage 3, involving the replacement of Concourses A and C, is now completed. JAA will begin replacing Concourse B as part of Stage 4 once the demand growth necessitates further gate capacity beyond that offered by two new concourses. In June 2009, the JAA took the first step toward the completion of the Stage 4 expansion program by closing Concourse B and initiating its demolition.

1.3 Airport Location and Strategic Role

As illustrated in **Exhibit I-2**, JAX is located approximately 11 miles north of downtown Jacksonville, and serves as the primary commercial service airport for Northeast Florida. The Airport is accessible by road (taxi, shuttle service, bus, private car) and mainly serves the population residing in the Baker, Clay, Duval, Nassau, and St. Johns counties, which included approximately 1.6 million people as of 2006. The Airport also provides access to areas in southeast Georgia.

Few airports in northeast Florida and south Georgia offer a level of commercial air service comparable to that available at JAX. The closest major airport to JAX is Orlando International Airport; which is located approximately 170 miles away. Other smaller, regional airports are located in the general vicinity of Jacksonville serving primarily general aviation aircraft. As illustrated on **Exhibit I-3**, these airports include, but are not limited to, Craig Municipal (CRG), Herlong (HEG), and Cecil Field (VQQ), which are also operated by the JAA.

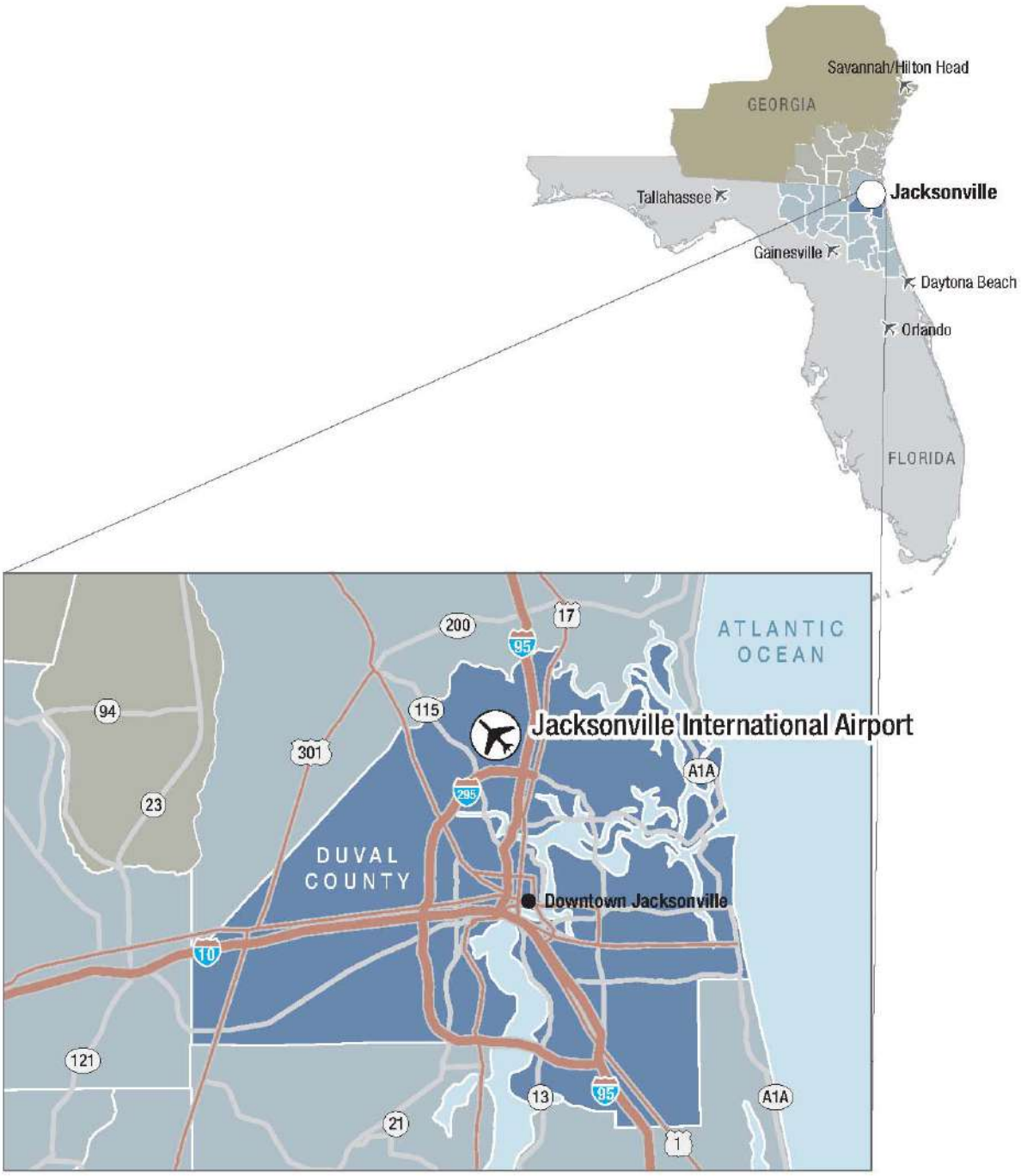
JAX provides commercial services and serves the general aviation community, including general aviation and business flyers, with two Fixed Base Operators (FBO), Signature Flight Support, and Sheltair, based at the Airport. In addition, the Airport accommodates several air cargo tenants and freight forwarders including United Parcel Service (UPS) and Federal Express (FedEx), and several freight forwarding companies.

JAX is home to the Florida Air National Guard (FANG) 125th Fighter Group, which operates a fleet of F-15 fighter aircraft. The Fighter Group and its related activities also include transport aircraft, reconnaissance and support aircraft and tanker aircraft that are staged at the Airport.

Finally, JAX is included within the National Plan of Integrated Airport System (NPIAS), which establishes the role of those public airports defined as essential to meet the needs of civil aviation. Because the Airport's enplanement levels comprise less than one percent of the total national enplanements but are greater than 0.05 percent, JAX is categorized in the NPIAS as a medium hub or primary commercial service airport.

Exhibit I-2

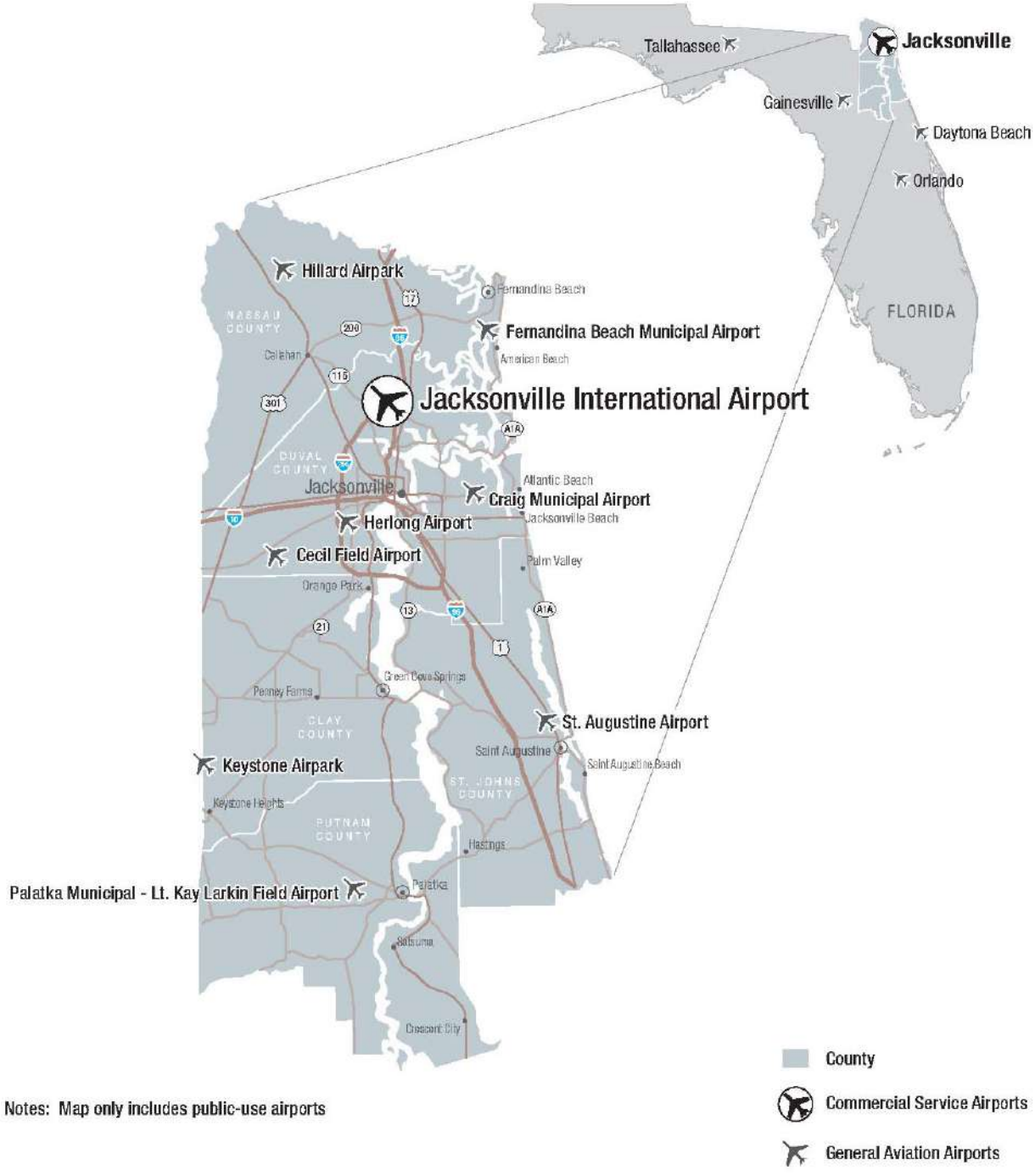
Airport Location Map



Source: FAA Map Resources, 2007.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-3

Northeast Region Airport Locations



Source: FAA Map Resources, 2007.
Prepared by: Ricondo & Associates, Inc., January 2010.

1.4 Current Conditions

As illustrated on **Exhibit I-4**, The Airport is currently configured with two diverging runways which can accommodate both civilian and military aircraft. Commercial air carriers predominantly use Runway 7-25, which is the longer of the two runways and is also considered the primary runway at JAX. Runway 7-25 is 10,000 feet in length and 150 feet wide, which allows for the takeoffs and landings of the largest military and commercial aircraft including the Boeing 747-400 and Antonov An-124. Runway 13-31 is the secondary or crosswind runway at JAX with a published length of 7,701 feet and a width of 150 feet.

The passenger terminal facilities consist of a landside terminal, a terminal Courtyard and two concourses (Concourses A and C) providing a total of 20 aircraft gates (Refer to **Exhibit I-5**). As previously indicated, JAA will begin replacing Concourse B once demand growth necessitates further gate capacity beyond that offered by the two existing concourses.

The landside terminal is a two-level, curvilinear building that supports the various passenger processing functions, including ticketing, baggage claim, baggage screening, and baggage make up. The landside terminal provides a total building area of approximately 238,000 square feet. To support the automobile parking demand, there are currently seven public parking facilities available at the Airport including an hourly garage, a daily garage, a daily surface lot, three economy lots, and one courtesy lot.

The air cargo area is located southeast of the passenger terminal area and north of Runway 31 end. This area encompasses approximately 24 acres and consists of four main buildings, three ramps, and associated landside facilities. The majority of the general aviation facilities are located on the north side of the terminal area and south of Runway 7-25. This general aviation area, including apron, hangar facilities, executive terminal, automobile parking, and access road, encompasses approximately 100 acres. The fixed base operators (FBOs) that own the general aviation hangars and executive terminals, manage the ramp, and lease the tiedown positions include Signature Flight Support and Sheltair Aviation Services.

Other on-site facilities include the FANG complex, which is currently located near the approach end of Runway 13 and encompasses approximately 332 acres with 36 buildings, a mail facility operated by the US Postal Service (USPS), two hotel complexes, and a facility that provides luxury accommodations and services for pets.

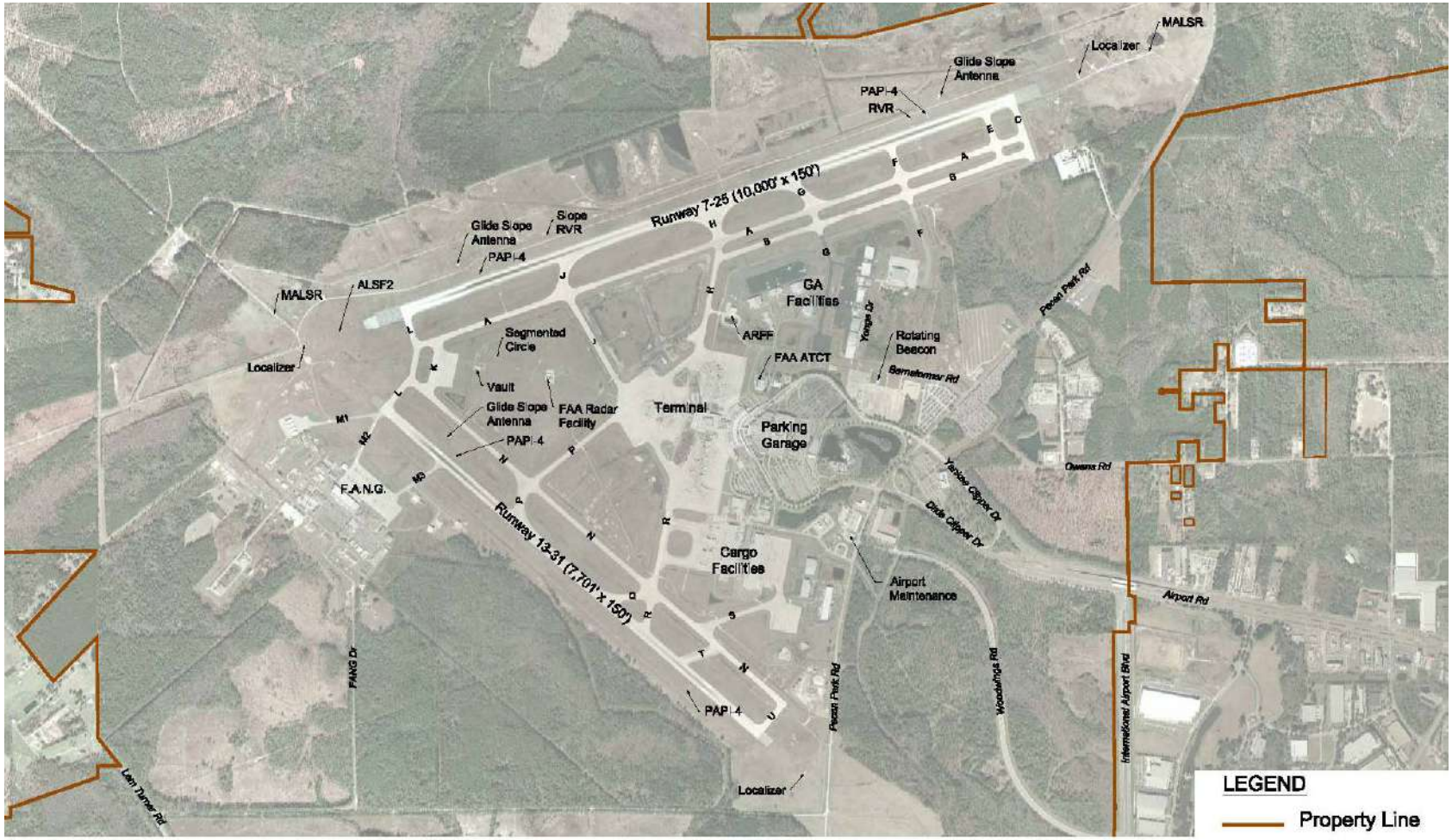
1.5 Aviation Activity Forecasts

Forecasts of passenger and aircraft movements and air cargo are essential for planning the long-term and staged development of airport facilities. The aviation forecasts that were developed considered a number of parameters, including incomes of travelers, airline service characteristics, tourism trends, population projections, gross domestic product, aircraft size, and other market indicators.

In light of regional socioeconomic data, the demand for air services is expected to increase and airlines are expected to add flights and/or new destinations to their schedules at JAX. As the local population grows and the economic base prospers, air cargo and GA activity are also anticipated to increase.

Exhibit I-4 *(11x17)*

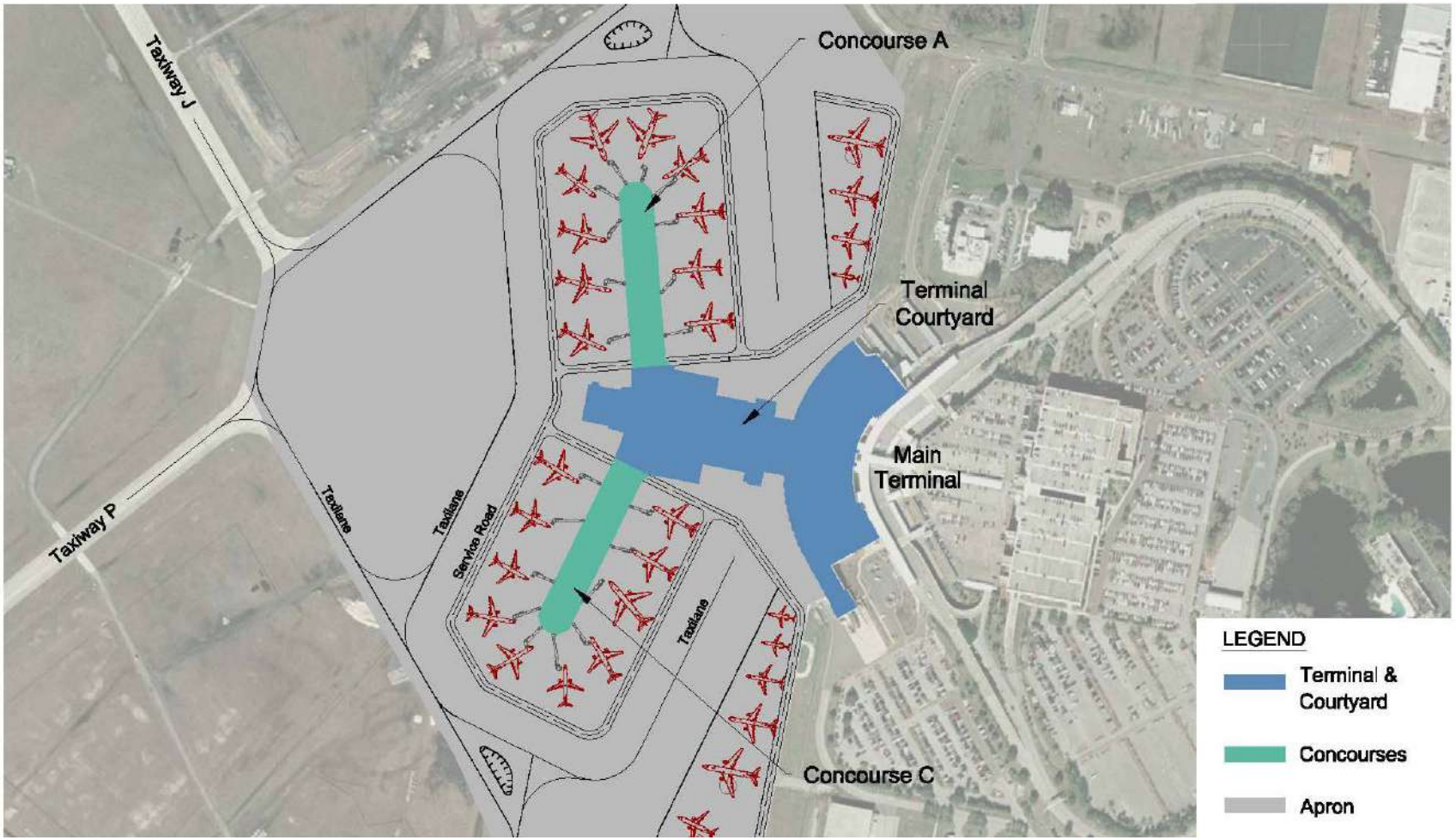
Existing Airport Layout



Source: Jacksonville Aviation Authority Aerial, November 2007.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-5

Existing Passenger Terminal Facilities



Sources: Reynold, Smith & Hills, Inc., Terminal Drawings; Jacksonville Aviation Authority Aerial Photo, January 2007.
Prepared by: Ricondo & Associates, Inc., January 2010.

These forecasts were based on historic data through 2007 and growth projections to 2027. The global recession has resulted in reduced activity levels over the last two years. JAA believes that the forecasted ranges still accurately reflect potential demand over the 20-year period. Below are key conclusions of the aviation activity forecasts presented in this chapter.

1.5.1 Passenger Traffic

1.5.1.1 Historic Traffic

In fiscal year 2009, nearly 5.62 million passengers passed through the Airport and as of December 2009, nine scheduled airlines[2] were providing passenger services. The Airport also handles both international and domestic charter operations on occasion. In 2007, passenger levels were exceeding 6 million.

1.5.1.2 Current Air Services

The airlines operating at the Airport offer regular non-stop scheduled service to 25 domestic destinations, which are heavily concentrated in the eastern half of the United States. The only direct departures currently provided beyond the eastern half of the United States are to Las Vegas.

1.5.2 Passenger and Aircraft Movement Forecasts

Actual and forecast passengers over the period 2007 to 2027 are presented graphically **in Exhibit I-6**. For the purposes of this Master Plan Update, the enplaned passenger forecasts determined through the market share methodology were selected as the preferred passenger forecasts for the Airport. These forecasts fall within the range of the socioeconomic regression analyses forecasts and show enplaned passenger numbers reaching 5.6 million by 2027.

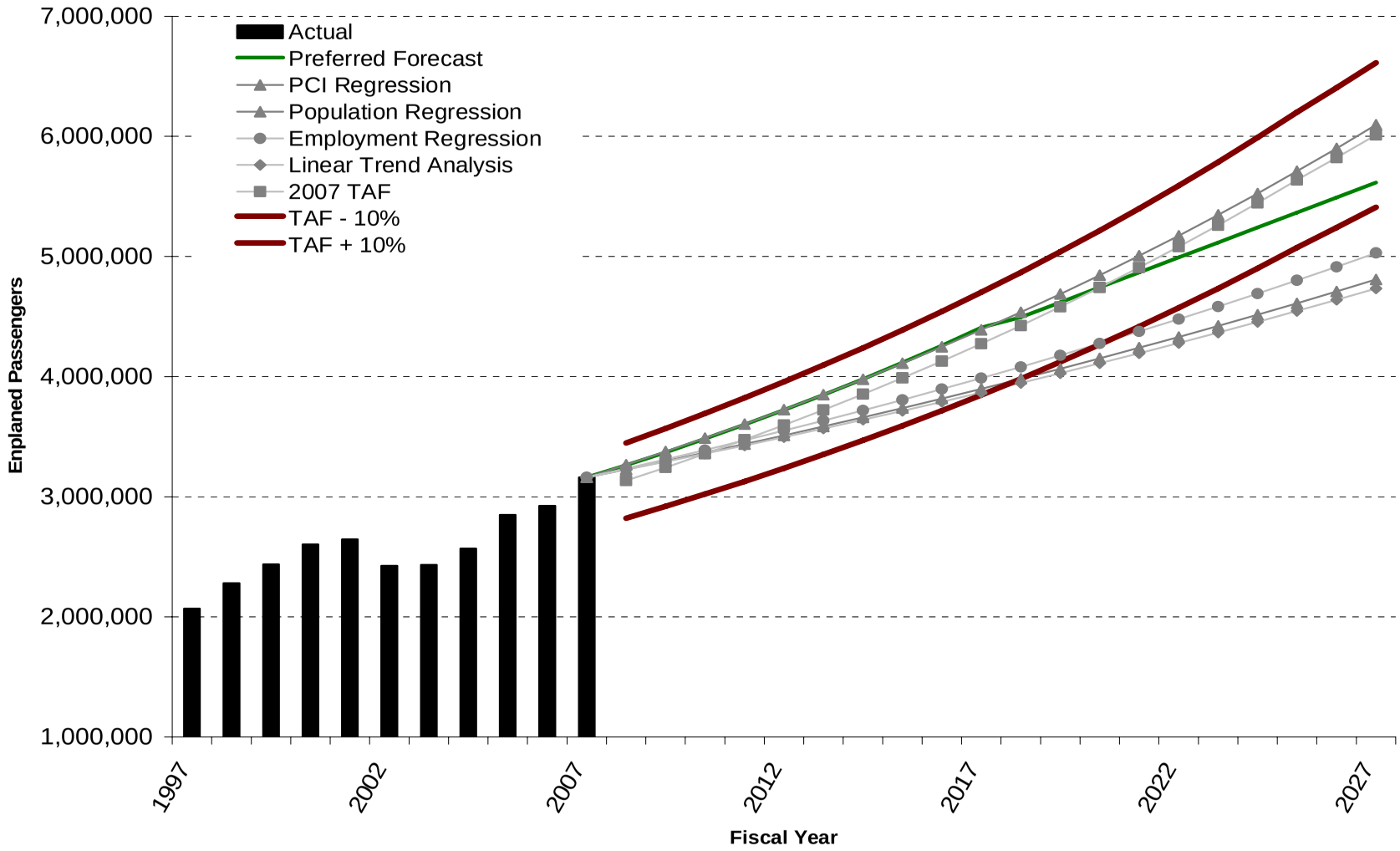
The total number of enplaned passengers is forecast to increase an average of 2.9 percent per year over the 20-year planning period. For the short-term period (i.e., through 2012), the forecast shows 3.3 percent annual growth. By the mid- to long-term period (i.e., through 2027), the growth rate for enplaned passengers tapers off to an average of 2.9 percent per year while the FAA TAF forecasts more aggressive growth rate of 3.5 percent per year, on average.

Total movements are expected to reach approximately 169,000 by 2027. Total airline aircraft operations are forecast to increase an average of 2.0 percent per year over the 20-year planning period while Cargo operations at JAX are forecast to increase at a 3.3 percent annual growth rate. Despite a decline in general aviation aircraft operations in recent years, it is anticipated that GA operations will begin to rebound as forecast in the TAF at an average annual rate of 1.5 percent over the planning period. Military and air taxi operations are forecast to remain at their existing level over the planning period.

[2] Including American Airlines, AirTran Airways, Continental Airlines, Delta Airlines, JetBlue Airways, Northwest, Southwest, US Airways, and United Airlines

Exhibit I-6

Enplaned Passenger Forecasts



Sources: FAA *Terminal Area Forecast*, December 2007; Ricondo & Associates, Inc., February 2008.
Prepared by: Ricondo & Associates, Inc., February 2008.

1.5.3 Air Cargo Forecasts

1.5.3.1 Current Air Cargo Services

Several passenger airlines and four dedicated all-cargo airlines provide air cargo service at JAX. The dedicated all-cargo carriers operating at the Airport include United Parcel Service (UPS); FedEx; ABX Air, which carries freight for DHL; and Mountain Air Cargo, which is a major contract carrier for FedEx. These dedicated all-cargo carriers transport both freight and mail. FedEx, in particular, handles a significant amount of mail relating to an agreement executed in 2001 between FedEx and the U.S. Postal Service (USPS) to transport express mail, priority mail, and first-class mail.

1.5.3.2 Cargo Forecasts

The volume of cargo, including freight and mail, handled at the Airport will continue to increase over the planning period. The volume of cargo transported in the belly compartments of passenger aircraft is forecast to increase an average of 2.0 percent per year during the planning period, while cargo volume carried by the all-cargo carriers is forecast to increase an average of 3.3 percent per year.

1.6 Demand/Capacity and Facility Requirement Analysis

The purpose of the Demand/Capacity and Facility Requirement Analysis is to determine 1) those facilities and services that are deficient in terms of capacity under present air traffic demand conditions; 2) the capacity required in the Airport facilities and services to meet future demand conditions based on forecast air traffic and other demand characteristics for the Master Plan period; 3) the extent to which existing facilities and services need to be expanded or upgraded.

This Airport Master Plan Update offers the following set of recommendations for implementation through to the 2027 planning horizon and beyond. The recommendations are based on the analyses undertaken through the course of the project and on the results of airport stakeholder consultation. The recommendations are separated into four main categories: Airside; Terminal; Landside, and Airline/Airport Support Facilities.

1.6.1 Airside

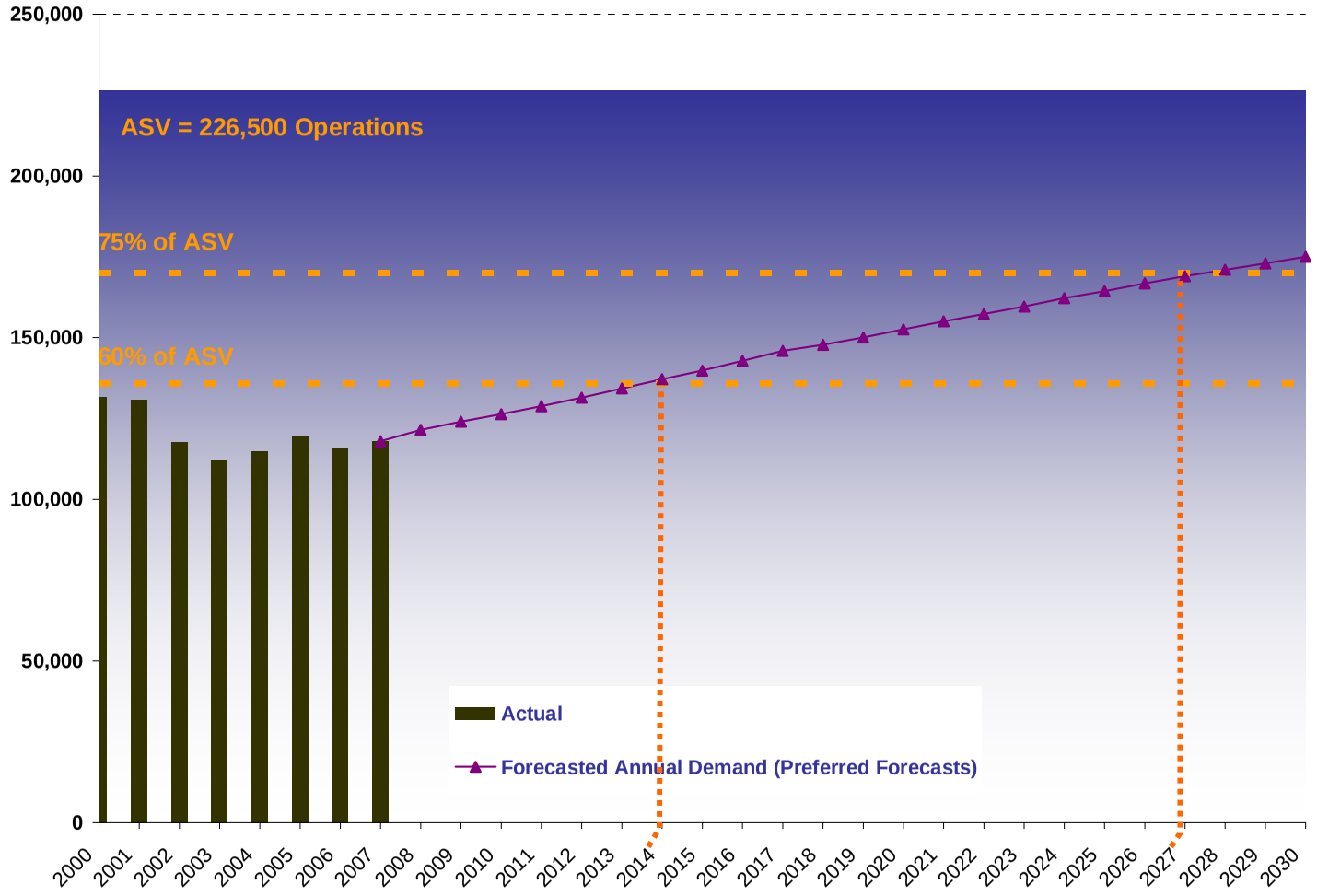
Increasing the capacity of JAX's runway system will be essential to meet forecast aircraft traffic demand. It will optimize economic benefits regionally and to the community as a whole and enhance the competitiveness of Jasonville. Planning to efficiently handle this growth in aircraft movements and passengers, together with business and industry development at the Airport, is therefore a critical part of the Master Plan process.

The hourly capacity of the existing runway system ranges between 71 and 88 operations in VFR conditions. During IFR conditions, the hourly capacity is estimated to be 58/59 in CAT I conditions, and 48 in CAT II and III conditions, when only Runway 7-25 is operational. Overall, the weighted hourly capacity of the airfield is estimated at 68 operations per hour. The resulting Annual Service Volume (ASV) for the current runway configuration is 226,500 movements per year, as illustrated on **Exhibit I-7**.

The long term forecast of this Master Plan suggests that the total demand will be approximately 169,000 movements (itinerant and local flights) by the end of the planning period considered in this Master Plan, meaning that implementation of capacity enhancement improvements should occur between 2014 and 2027.

Exhibit I-7

Annual Service Volume vs. Projected Demand



Source: Ricondo & Associates, Inc., March 2008.
Prepared by: Ricondo & Associates, Inc., March 2008.

Assuming that the airport maintains its current and forecast growth rates, a new runway may be needed at the end of the planning horizon, in order to provide a good level of service to its users. The airfield capacity provided by a three-runway layout, including two parallel runways, is expected to provide the necessary capacity at least through the planning horizon. As indicated in the 2001 Master Plan, a new parallel runway would bring the annual airfield capacity to an average of 334,000 operations.

To ensure that proper protection of the Airport environs is established and maintained, provision for a third parallel runway is also included in the future ALP. While this runway is not required within the planning period, this will ensure the protection of the airspace and runway approaches, and ensure that all developers and future residents are aware of the Airport's growing activity, and expanding facilities.

Other airside improvements recommended for implementation include the following:

- Taxiway B Extension: Taxiway B is extended to the full length of existing Runway 7-25. The proposed extension would (1) improve aircraft movements to and from the primary runway, Runway 7-25, (2) allow air traffic controllers to queue departing aircraft on both Taxiways A and B, and (3) avoid bi-directional taxiway use. The proposed extension should parallel Taxiway A and the separation distance between the two taxiway centerlines should be maintained at 267 feet.
- Taxiway F Extension: Taxiway F is extended to allow for the development of future general aviation, MRO, and/or air cargo facilities.
- Air Carrier, Cargo, and General Aviation Apron Expansion: The air carrier apron is extended to allow for the construction of an ADG V perimeter taxilane around the proposed Concourse B. The existing air cargo and general aviation aprons are also expanded to meet long-term air cargo and general aviation demand. The ALP also shows additional ramp construction along the south side of the proposed south runway to accommodate additional growth.
- Runway 7 and 13 Entrance Taxiways Widening: To facilitate the movement of departing aircraft and provide space for one aircraft to pass another, the entrance taxiways that provide access to Runway 7 and Runway 13 departure ends are widened. These taxiways are widened by approximately 260 feet to provide for a separation distance of 267 feet between the two entrance taxiways, allowing for the staging of two Design Group V aircraft.
- Runway 13-31 Shoulders Construction: Runway 13-31 does not have any shoulders along the sides of the runway pavement. To meet FAA standards, runway shoulders that are 35 feet wide are constructed on both sides of the existing runway.
- Runway 13-31 Blast Pads Construction: To meet FAA requirements for ADG V aircraft, Runway 13-31 blast pads should be widened by 35 feet on each side and lengthened by 200 feet.
- Taixway Intersection Widening: Widening of certain taxiway intersections is recommended to accommodate cockpit over centerline steering enabling more efficient aircraft movement on the airfield. The proposed taxiway fillet improvements are located along parallel Taxiways A, B, and N. All other taxiway-taxiway intersections meet the FAA standards for cockpit over centerline steering for Design Group IV/V aircraft.

1.6.2 Terminal

While the majority of the terminal functions are adequate to meet the space requirements for the PAL 2 and PAL 3 planning horizons, notable deficiencies that will need to be addressed in the future include:

- Aircraft gates: The previous analysis indicates that the current facilities will accommodate the short-term passenger demand but 6 additional gates will be required to accommodate the PAL 2 demand (8 million annual passengers). By PAL 3 (10 million annual passengers), a total of 32 aircraft gates will be required (12 additional).
- Departure lounges and operations space to support additional gate facilities: Approximately 17,000 square feet of additional holdroom areas will be required by PAL 2 and 33,500 additional square feet by PAL 3. In addition, a total of 5,400 and 10,800 square feet of airside concessions will be required by PAL 2 and PAL 3, respectively.
- Baggage make-up area: the projected passenger demand will require expansion of the existing baggage make-up area to increase the outbound baggage throughput capacity. To accommodate the PAL 2 demand, an additional 11,250 square feet of baggage make-up area will be required. Similarly, the PAL 3 demand will require an additional 22,050 square feet of baggage make-up area.
- Security screening checkpoints: One additional passenger security screening checkpoint lane may be required by PAL 2. By PAL 3, 11 security screening checkpoint lanes may be required (3 additional).

1.6.3 Landside

1.6.3.1 Local Roadway Network

Results of the analysis indicate that the Airport's roadway level of service is adequate for each of the three PAL scenarios considered, and that all roadway links analyzed operate at LOS B or better. An intersection analysis conducted at the key Airport intersections indicate that the Pecan Park Road and Yankee Clipper Drive, as well as the Pecan Park Road and Dixie Clipper Drive intersections are expected to experience LOS E and F in the future. Based on the existing conditions traffic volumes, the analysis showed that the installation of a traffic signal at each intersection would result in an improved level of service for traffic on Pecan Park Road and increase safety by facilitating the crossing of Yankee Clipper Drive and Dixie Clipper Drive, while at the same time maintaining traffic flow along the Yankee Clipper and Dixie Clipper Drives. However, JAA does not want to impact the free flow of traffic on the main Airport access road. Additional analysis will be required to identify the best alternative to traffic lights in the future.

1.6.3.2 Public Parking

Each individual parking product is expected to meet or exceed capacity prior to reaching the PAL 3 condition. Furthermore, by the PAL 2 condition, demand for the hourly and daily garages is expected to exceed capacity and the demand for the economy lots is projected to be 88 percent of the lots' capacity, nearing the 90 percent threshold at which parking facilities often reach their operational capacity. It also shows that for the design day, the demand for parking spaces in both the hourly and daily garages is currently near the operational capacity of these facilities.

Table I-1 identifies the estimated passenger activity level at which each product will reach it's operational capacity (i.e., between 90 and 95 percent of existing capacity to account for the inefficiencies of finding a parking space in a near-full parking facility). The analysis did not include assumptions related to customer's decisions between switching to their next preferred parking product if their first parking choice is full.

Table I-1

Public Parking Facility Requirements – By Product

		Number of Public Parking Spaces				
	Total Passengers	Hourly Garage	Daily Garage	Daily Surface	Economy Lots	Total Parking
Existing Capacity						
Actual		773	1,963	1,722	3,181	7,639
Operational		734	1,767	1,550	2,863	6,876
Demand						
PAL 1 (Baseline)	6 MAP	694	1,707	1,012	2,306	5,620
PAL 2	8 MAP	847	2,082	1,234	2,813	6,855
PAL 3	10 MAP	1,062	2,611	1,548	3,527	8,597

Note:
MAP=Million Annual Enplanements

Sources: Jacksonville Airport Authority, Public Parking Transaction Data, July-August 2008 (baseline demand); Ricondo & Associates, Inc., October 2008 (forecast demand).
Prepared by: Ricondo & Associates, Inc., October 2008.

While the public parking forecasts show the Daily Surface lot is expected to have sufficient capacity to meet demand through PAL 3, and the Economy lots are expected to meet demand through PAL 2, shifting of customers from a parking product that is at capacity to another on-airport parking product will likely mean these facilities will reach capacity earlier than predicted. Not all Daily Garage or Daily Surface Lot customers can be expected to continue to park at the Airport as these products reach capacity. Customer convenience and confidence that a parking space will be available at an off-airport parking competitor may result in some potential on-airport customers shifting to off-airport products. This shifting of on-airport parking customers to off-airport parking competitors will extend the life of the Airport's parking facilities, but will result in a lost source of revenue for the airport. Therefore, JAA should look at adding additional garage capacity in the next 3 to 5 years.

1.6.3.3 Employee Parking

Future employee parking requirements were derived from the projected number of additional aircraft gates that will be required in the future. The analysis shows that an additional 149 and 394 parking spaces will be required by PAL 2 and PAL 3, respectively.

1.6.3.4 Curbside Roadway

From the analysis, the LOS for departure level (upper level) and arrival level (lower level) curbside roadways were calculated to be LOS C or better for PAL 1, PAL 2, and PAL 3. In addition, the LOS calculated for both arrival levels (lower level) curbsides were B or better for each PAL. The LOS for the departures level curbside in all three scenarios was calculated as LOS D or E as shown in **Table I-2**. This lower LOS was caused in part by using the length of effective curbside as the curbside

frontage between the first and last pedestrian crosswalk immediately in front of the terminal building. Although the curbside extends prior to and beyond the first and last pedestrian crosswalks, a lack of signage or other means to direct motorists to use these sections of curbside limits the effective curb length.

Table I-2

Curbside Level of Service Analysis Results

Scenario	Element	Departure Level	Arrival Level (Inner Curbside)	Arrival Level (Outer Curbside)
PAL 1 (Baseline)	Curbside	D	A	A
	Roadway	A	A	A
PAL 2 (8 MAP)	Curbside	D	A	A
	Roadway	A	A	A
PAL 3 (10 MAP)	Curbside	E	A	B
	Roadway	C	B	A

Source: Ricondo & Associates, Inc., August 2008.
Prepared by: Ricondo & Associates, Inc., September 2008.

As Table I-1 illustrates, each curbside is expected to operate at an acceptable LOS through PAL 2. Under the PAL 3 scenario, the departures curb is expected to experience a LOS E condition during a portion of the peak passenger activity. By implementing measures such as assigning airline passenger drop-offs to under-utilized sections of the departures curbside, removing valet parking operations from the departures curbside, and increasing enforcement of no parking and no standing on the curbside, the effective curbside length can be increased, thereby improving LOS without the need to construct additional curb frontage.

1.6.4 Support Facilities

The demand for support facilities and the size of those facilities is based on the forecasts of activities and is dependent on activities at the other three airports in the Jacksonville System. Herlong and Craig are general aviation airports primarily serving piston powered aircraft and some business aircraft. Cecil Field is undergoing a major transformation from a former naval air station to a major aviation commercial center with Major Repair Operations (MRO), aircraft assembly facilities, educational and flight training activities, air cargo and commercial development.

1.6.4.1 Rental Car Facilities

The size and timing of any future expansion of those facilities will be a business decision for each rental car company. However, sufficient space should be reserved adjacent to the existing facilities to allow for future expansion. Future aviation activity growth at JAX shows that an additional 18 acres of additional land may be required for the accommodation of additional rental car facilities.

1.6.4.2 Air Cargo

The air cargo forecasts indicate a need for additional apron areas for the staging of air cargo aircraft, as well ground support equipment. Total ramp requirements increase from 77,000 square yards in 2007 to 115,000 square yards in 2027.

Although the forecasts do not indicate the need for additional building/warehouse space to accommodate cargo, the Master Plan identifies certain areas that could be used for facilities that may

be needed in the future. The viable and economical development of air cargo facilities at Cecil Field will also influence the decision of air cargo companies to operate at JAX. Costs, transportation networks and geographic considerations could influence this decision. JAX needs to remain poised and capable of providing these additional facilities should the demand arise.

1.6.4.3 General Aviation

Although no additional general aviation or corporate facilities are anticipated through the planning period, there appears to be ample space on the airport and in the general vicinity of the existing facilities to accommodate future growth. Additional development space is also available farther down Taxiway A toward the U.S. Post Office, providing both landside and airside access. Additional in-fill space is available around the existing corporate aviation facilities. It is not anticipated that another FBO would locate at the airport, but corporate interests might want their own facilities similar to Fidelity National Financial.

1.6.4.4 Airlines/Airport Support Facilities

Key airlines/airport support facilities that will need to be expanded and/or upgraded include:

- Aircraft Rescue and Fire Fighting (ARFF) facility: The present ARFF will meet the operational requirements stated in FAR Part 139 for the planning period. However, the design of the proposed new runway 7L-25R will require the construction of a new ARFF station in order to ensure compliance with response time.
- Air Traffic Control Tower (ATCT): Prior to the design and construction of the proposed new Runway 7R-25L, a detailed line of sight survey should be conducted. Line-of-sight studies are now carried out directly by the FAA at their Atlantic City Hughes Research Center.
- Airport Maintenance Facilities: A new maintenance facility that offers easy access to the airfield areas will be required. This facility should include 3,200 square feet of administrative space. 36,600 square feet of shops and garage space, 24,000 square feet of warehouse space, and 33,050 square feet of ancillary use space.
- Water Tower/Rotating Airport Beacon: The Jacksonville Electric Authority (JEA) will stop maintaining this facility upon the completion of a new water treatment plant.. Since the water tower houses the airport rotating beacon and several cell phone antennae, the JAA would need to assume responsibility for the water tower, leaving the airport rotating beacon and antennae in place or demolish the water tower and relocate the airport rotating beacon and cell phone antennae to other structures.

1.7 Proposed Development Plan

One of the goals of the master planning process is to identify the best options available for meeting the future development needs at the Airport. Based on the results of analysis and coordination with JAA representatives, a recommended Airport Development Program was selected.

1.7.1 Proposed Runway System

1.7.1.1 South Parallel Runway

A total of seven runway alternatives were reviewed for the siting of a parallel runway south of existing Runway 7-25. The preferred alternative constructs a 8,000-foot long runway between Lem Turner Road and Runway 31, on the south side of the Airport. The proposed runway is separated from existing Runway 7-25 by about 7,500 feet, consistent with the runway alignment depicted in the

approved ALP. By providing a wide runway separation, the airfield would accommodate simultaneous arrivals and departures during the most poor weather conditions.

The proposed runway would be constructed to D-IV standards to accommodate all aircraft types that have been projected to operate at JAX throughout the planning period. Two parallel taxiways would be built on both sides of the runways with a runway centerline to taxiway centerline spacing of 500 feet. Even though FAA requirements for Design Group IV aircraft, only requires a separation distance of 400 feet between the centerlines of runways and taxiways, it is recommended that a separation of 500 feet be maintained. This separation distance would allow for the occasional passage of Design Group V aircraft and allow for the construction of acute-angled "high-speed" taxiway exits.

Ultimately, an outer dual parallel taxiway that would be separated from the proposed north side parallel taxiway by 267 feet would also be constructed to (1) improve aircraft movements to and from the runway, (2) allow ATC to queue departing aircraft on both parallel taxiways (3) avoid bi-directional taxiway use.

The south parallel runway will provide for precision instrument landings on both Runway 7R and Runway 25L with minima down to CAT I. Thus, the runway ends 7R and 25L will be equipped with a CAT I ILS, including a MALSR, localizer, and glideslope.

1.7.1.2 North Parallel Runway

Five alternatives were considered to determine a recommended siting of a future parallel Runway 7L-25R north of the existing Runway 7-25. The proposed development of future Runway 7L-25R is beyond the 20-year planning horizon of the master plan. Given the uncertainties of future market demands, operational enhancements and other technological advances, the placement of this runway should provide the greatest ability to adjust its configuration should future airport development needs change.

To ensure the greatest degree of flexibility and optimal capacity to the airfield, it is recommended that the updated ALP for JAX depict future Runway 7L-25R at a length of 9,000 feet and with a lateral separation of 1,900 feet from existing Runway 7-25. Some property acquisition is required for this runway development.

1.7.1.3 Ultimate Runway Concept

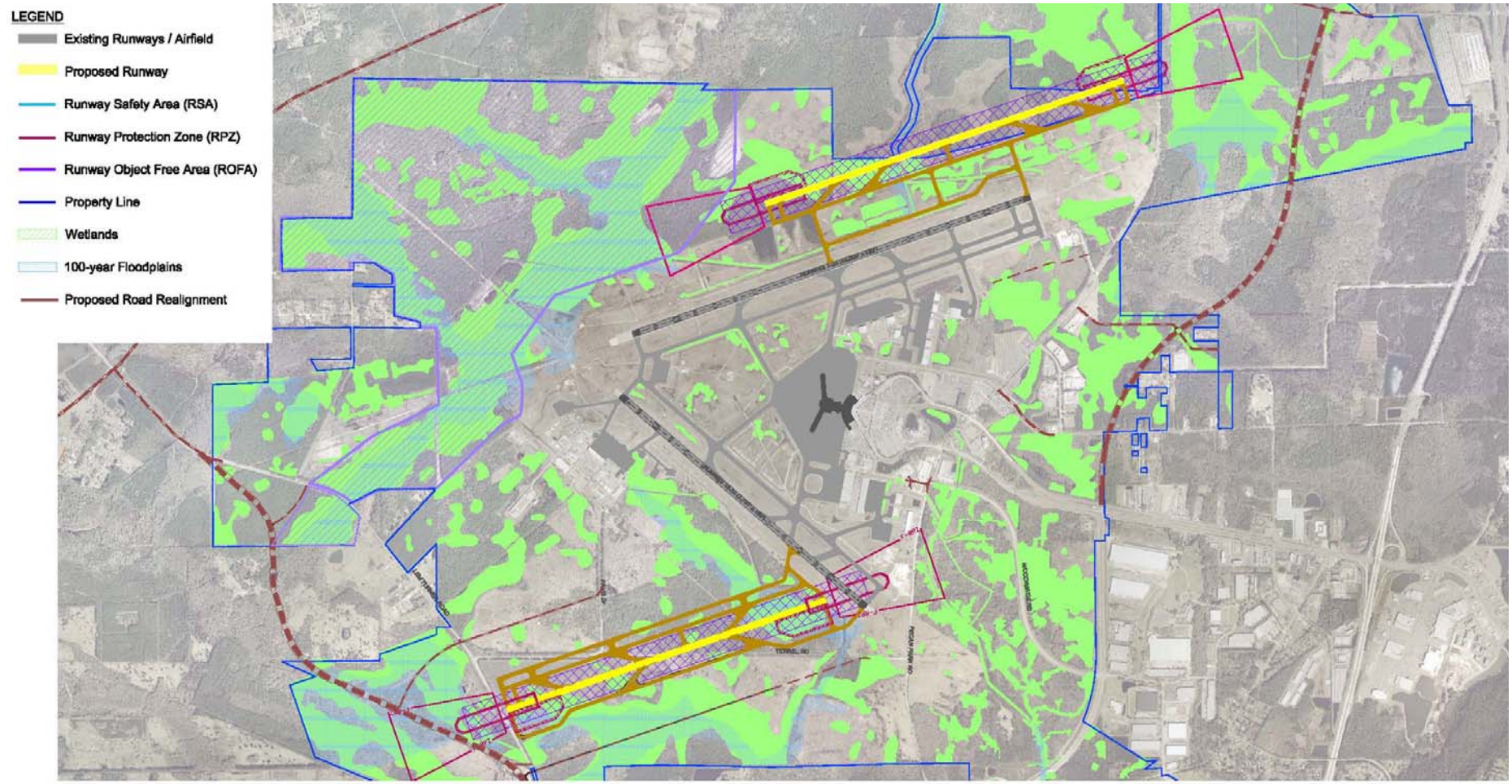
The siting of the north and south parallel runway resulted in the development of an ultimate airfield development plan, which is depicted on **Exhibit I-8**.

1.7.2 Terminal Area Development Strategy

1.7.2.1 PAL 2 Concourse Expansion

The PAL 2 preferred terminal area plan is highlighted on **Exhibit I-9**. This alternative replaces existing Concourse B. This new concourse would meet the short-term demand and provide a s state-of-the-art facility that blends in with and complements new Concourses A and B.

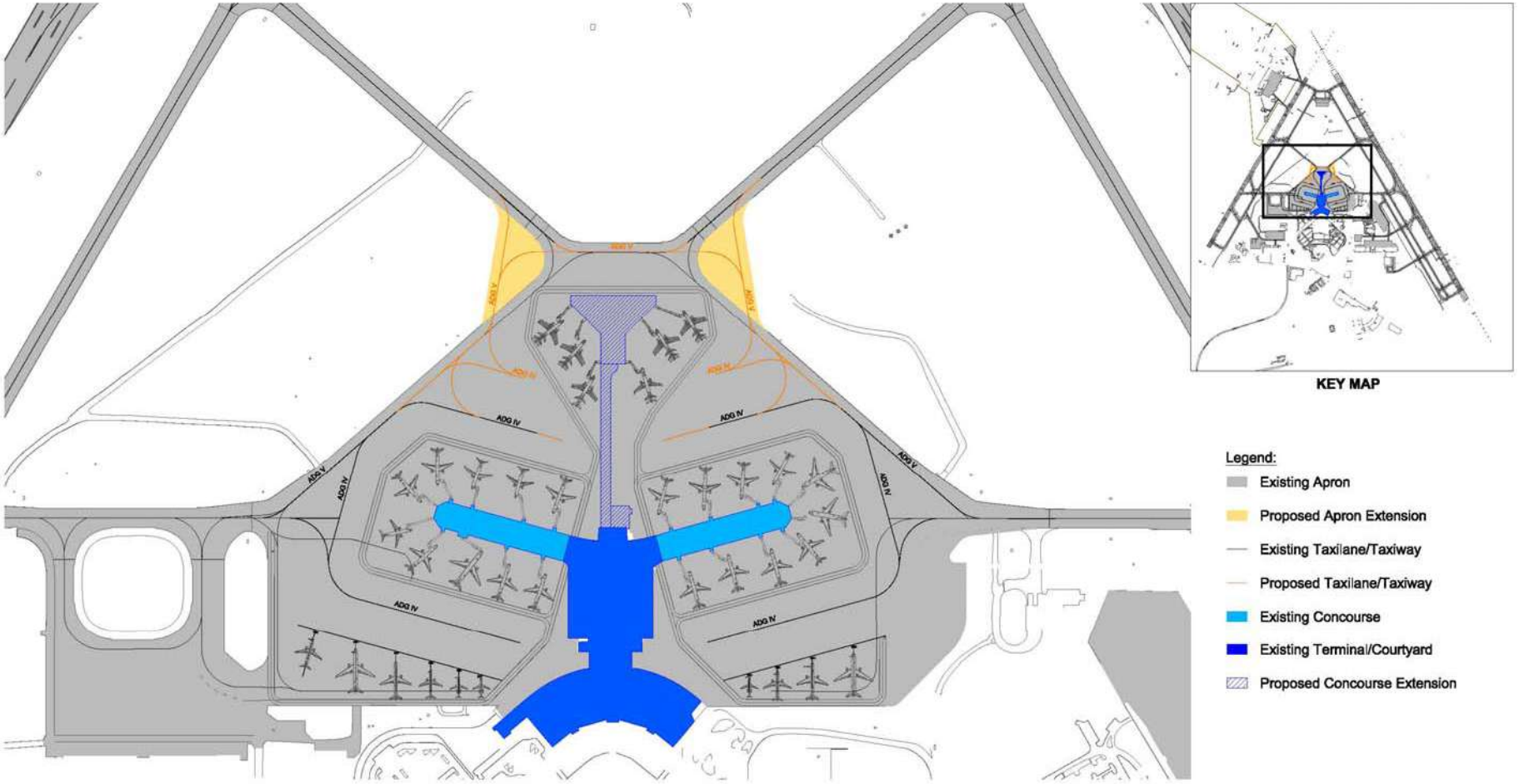
Exhibit I-8 *(11x17)*
Ultimate Airfield Development Plan



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-9 *(11x17)*

Proposed PAL 2 Concourse Expansion



Sources: Ricondo & Associates, Inc., July 2008; Reynold, Smith & Hills, Inc., Terminal Drawings.
Prepared by: Ricondo & Associates, Inc., January 2010.

The PAL 2 preferred terminal area plan provides six additional gates at Concourse B capable of accommodating narrowbody aircraft such as the next generation Boeing 737 or Airbus A320 and A321. The distance between the proposed Concourse B and the terminal courtyard is approximately 660 feet. This distance allows for the ultimate development of two Design Group IV taxilanes between Concourses A and C and future Concourse B. The perimeter taxiway that is shown around proposed Concourse B would be capable of accommodating Design Group V aircraft and linked to the Group V taxiways serving Concourses A and C. Although Design Group V aircraft are not expected at the Airport in the near future, provision for Group V perimeter taxilanes will provide more flexibility. A review of the apron layout indicates that provision for a Group IV perimeter taxilane does not significantly reduce the amount of pavement required. Thus, it is recommended to extend the existing apron to allow for the construction of a new Concourse B and a Group V perimeter taxilane.

1.7.2.2 PAL 3 Concourse Expansion

As shown on **Exhibit I-10**, the preferred PAL 3 terminal area plan reflects the extension of Concourse B to a total of 13 gates, comprising 6 narrowbody gates and 7 gates for accommodating new generation 737 and 767 aircraft series, as well as Boeing 787-3. Similar to the PAL 2 drawing, a Design Group V taxiway is provided around Concourse B to provide access to the gates and allow for circulation of aircraft around Concourse B. The Design Group IV taxilanes shown on the PAL 2 terminal area plan remain but are extended to connect to the new perimeter taxiway. This concept plan would require the existing apron areas to be increased by 116,000 square yards to provide dual taxilanes along the extended Concourses A and B.

1.7.2.3 Outbound Baggage Makeup

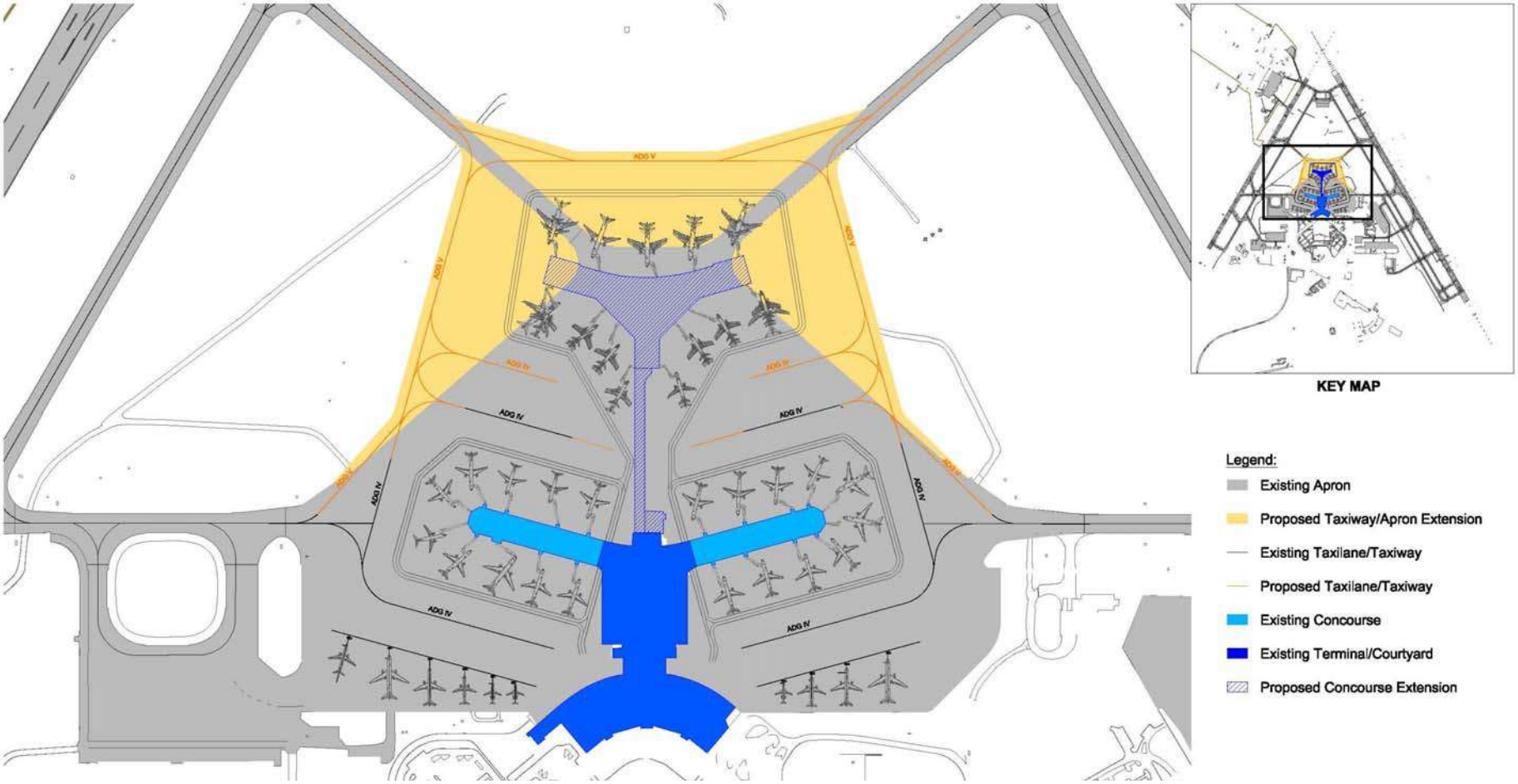
Based on discussion with JAA staff, the preferred outbound baggage makeup alternative is to provide additional baggage make-up area on the lower level of future Concourse B. This option would not impact existing operations or the structure of the existing terminal and the proposed bag room could easily be expanded to accommodate the ultimate passenger demand. **Exhibit I-11** shows the preferred baggage make-up area expansion alternatives to accommodate the future passenger demand.

1.7.2.4 Passenger Security Screening Checkpoint

The results of the demand/capacity and facility requirements analysis show the existing security screening checkpoints will probably need to be expanded to provide a total of 11 lanes by PAL 3. The alternatives that were reviewed as part of the Master Plan update were developed based on feedback received from JAA representatives and the desire to preserve the existing concession areas located adjacent to the existing security screening checkpoint. These alternatives also reflected the Authority's desire to expand the existing security screening checkpoint to the north, even if it requires the closure of the central corridor that currently links the courtyard and concourses. The preferred passenger security screening checkpoint concepts are illustrated on **Exhibit I-12.**

Exhibit I-10 *(11x17)*

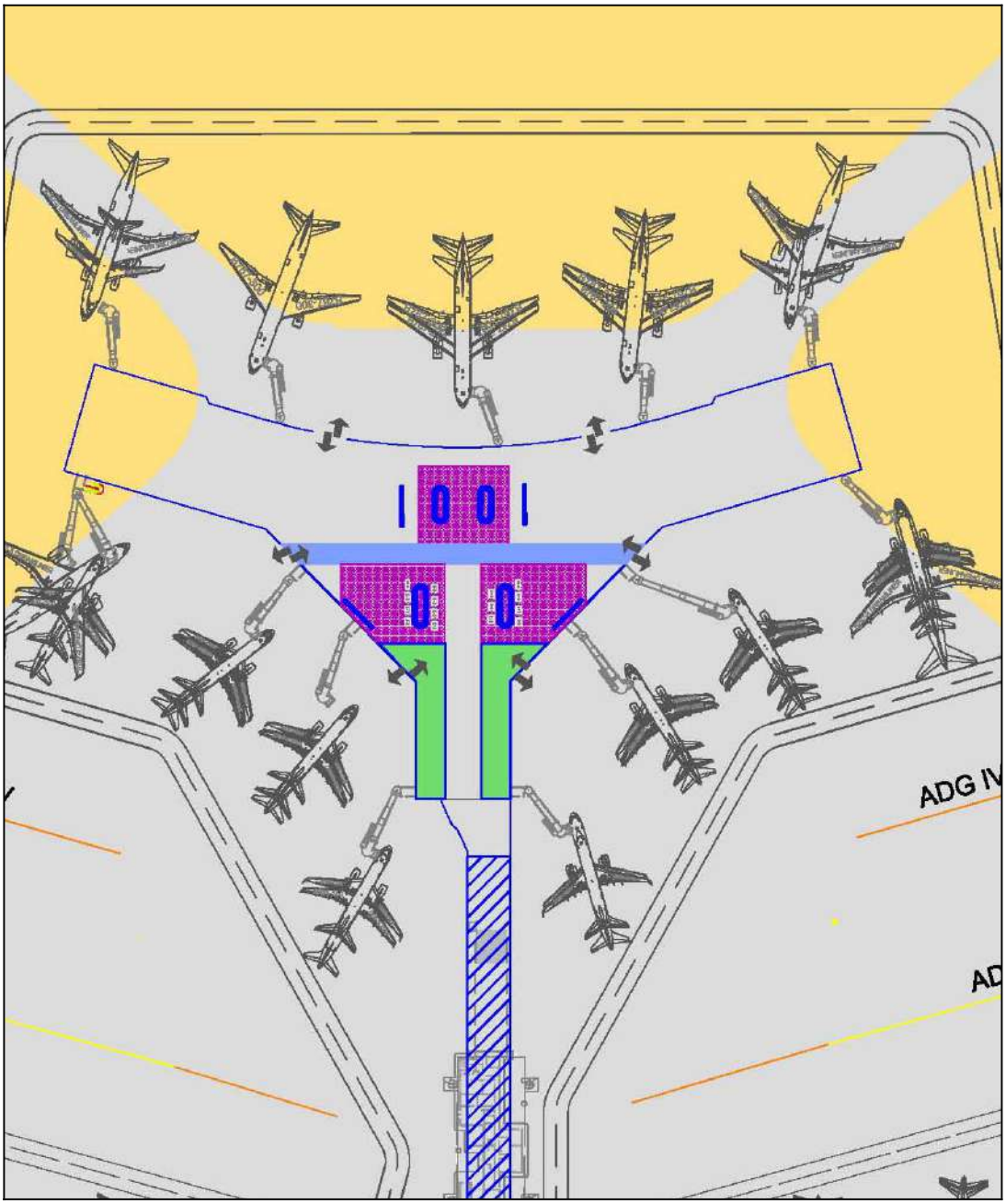
Proposed PAL 3 Concourse Expansion



Sources: Ricondo & Associates, Inc., July 2008; Reynold, Smith & Hills, Inc., Terminal Drawings.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-11

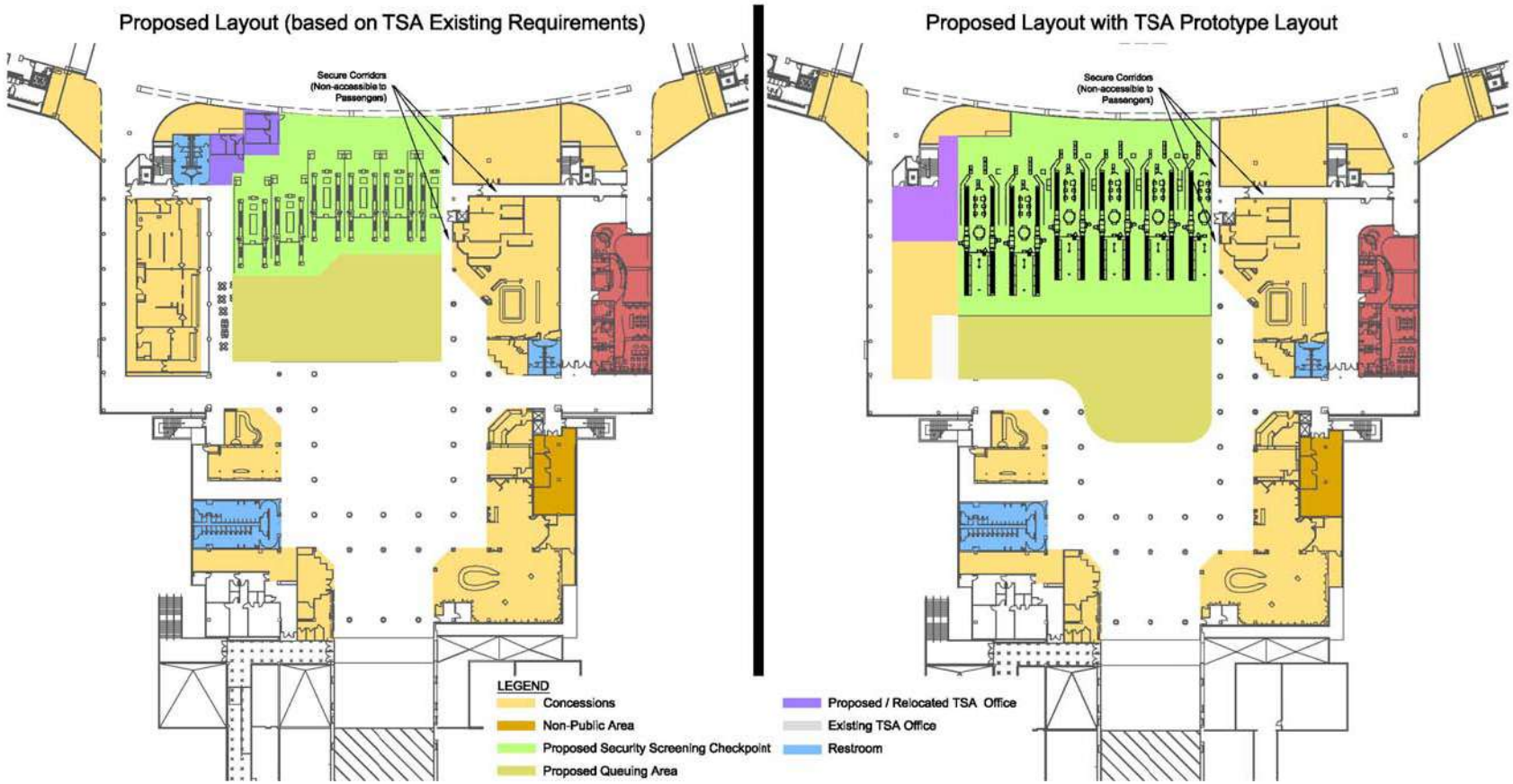
PAL 3 Proposed Outbound Baggage Makeup Area



Sources: Reynold, Smith & Hills, Inc., Terminal Drawings; Ricondo & Associates, Inc., July 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-12 *(11x17)*

Proposed Passenger Security Screening Checkpoint



Source: Reynold, Smith & Hills, Inc., Terminal Drawings; Airport Optimization & Safety Support, April 2009, Transportation Security Administration, Checkpoint Evolution, wwww.tsa.gov/evloultion, accessed August 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

1.7.3 Surface Access and Parking Facilities

1.7.3.1 Proposed Roadway Improvement

The concern identified in the roadway demand/capacity analysis was that the vehicle volumes entering and exiting the Airport on Yankee Clipper Drive and Dixie Clipper Drive are high in comparison to the cross street traffic of Pecan Park Road. Traffic from Pecan Park Road were observed to experience some difficulty finding sufficient gaps to safely cross the major street (Yankee/Dixie Clipper Drives) during peak periods. Analysis of future conditions indicates that this movement will become increasingly difficult.

The primary movements to and from Pecan Park Road are vehicles entering and exiting the Economy lots (public parking), rental cars being jockeyed between the ready return areas in the Hourly garage and support facilities on Rental Car Lane, and local airport-related traffic.

To resolve the concerns over the movements from Pecan Park Road across Yankee Clipper Drive and across Dixie Clipper Drive, vehicle access to and egress from the Economy lots and rental car facilities would be accommodated on Owens Road, through a two-way, realigned segment west of the intersection with Rental Car Lane (Refer to **Exhibit I-13**). Vehicles would access Owens Road from the proposed International Boulevard Extension, and thus be separated from other traffic bound for the terminal area. The existing alignment of Owens Road past Rental Car Lane would be closed.

With two-way access provided to the proposed International Boulevard Extension, the through movement from Pecan Park Road across Yankee Clipper Drive would be eliminated. Right turns from Yankee Clipper Drive to Pecan Park Road and from Pecan Park Road to Yankee Clipper Road would continue. The through movement from Pecan Park Road across Dixie Clipper Drive, however, would be eliminated.

Access to the Airport facilities located along Cole Flyer Road, including the employee parking, the air cargo facilities, a fuel farm, and the flight kitchen facility, would be provided via Woodwings Road and include a roadway improvement that realigns Cole Flyer Road with the intersection of Pecan Park Road and Woodwings Road.

1.7.3.2 Proposed Public Parking

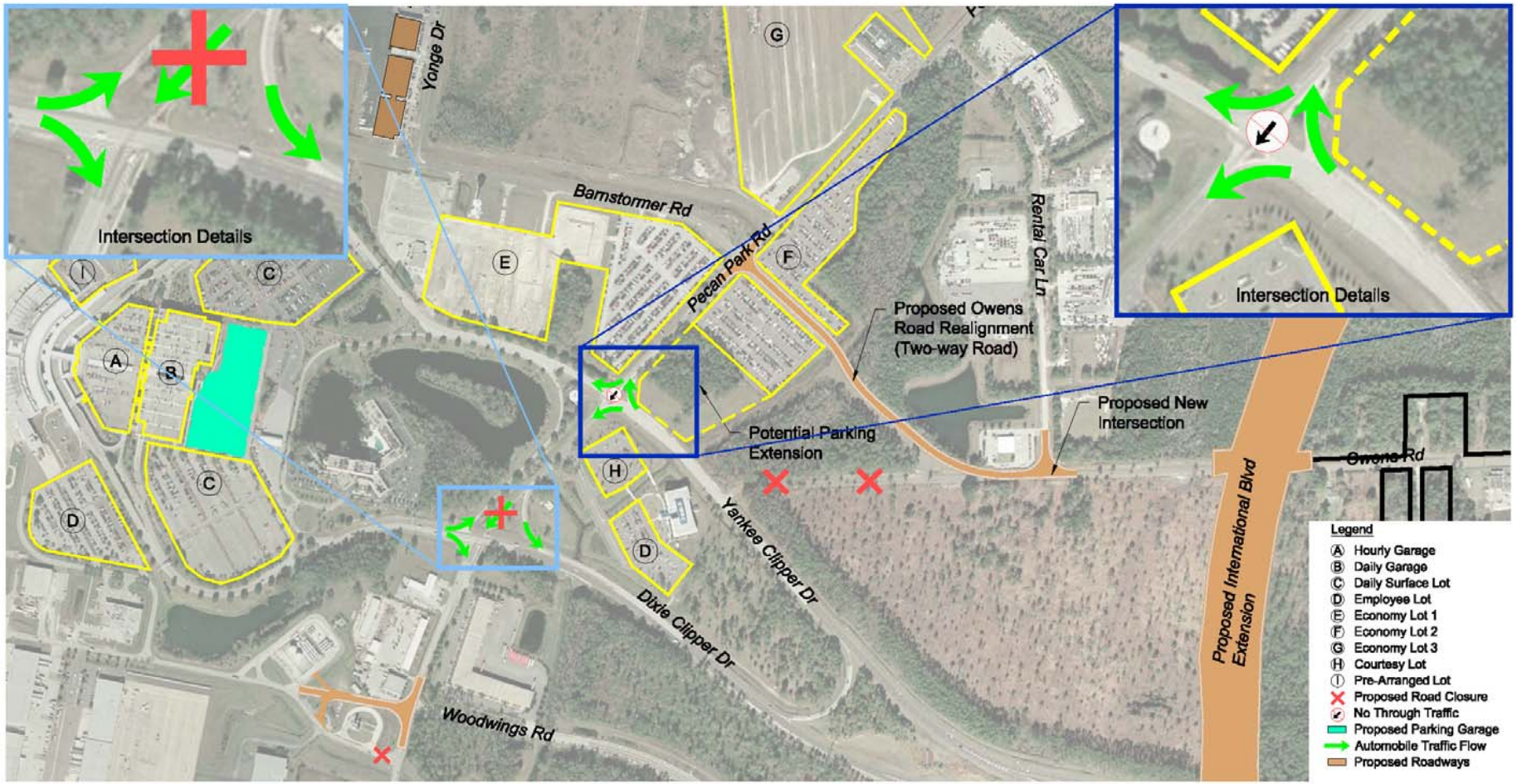
The preferred concept to meet demand for terminal area public parking through the planning horizon is to construct a new parking garage immediately east of the existing Daily garage, the rehabilitation of the existing overflow lot as a long-term parking surface lot, and provision for a new overflow lot.

The proposed garage is located in an area that currently supports Daily Surface parking (425 spaces) that would consequently be lost. The new garage itself adds 1,963 spaces to the short-term parking supply for a total of 5,223 spaces in the terminal area, meeting projected demand for terminal area public parking through PAL 3. The terminal area public parking improvement option is shown on **Exhibit I-14**.

The proposed overflow parking is depicted on **Exhibit I-15**. This lot could add up to 2,300 spaces to the economy parking supply and exceed demand through PAL 3. This alternative retains the parcel of land immediate adjacent to and west of Economy Lot 3 for future aviation-related development.

Exhibit I-13 *(11x17)*

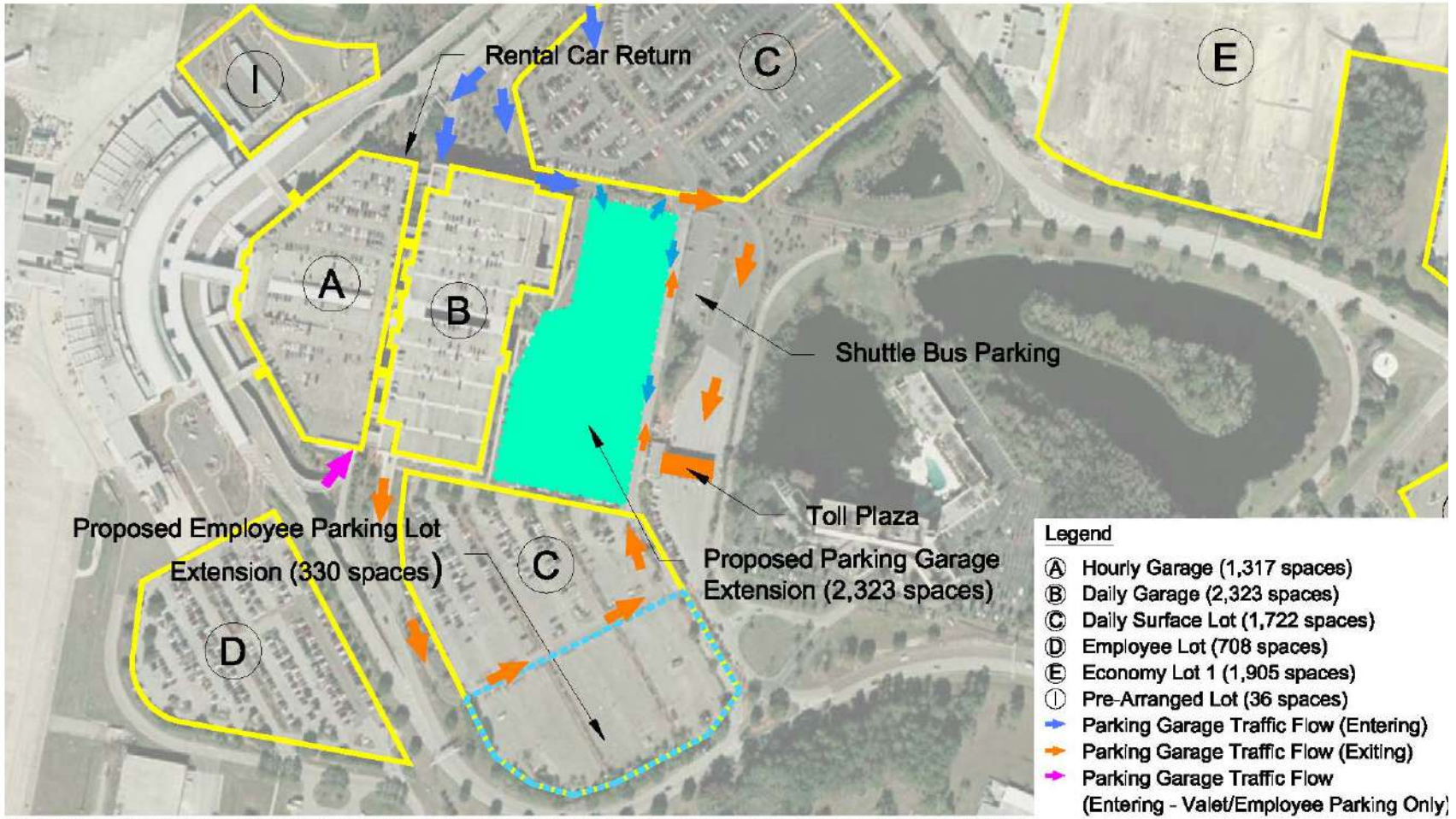
Proposed Roadway Improvement



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-14

Proposed Parking Garage



Note: The number of spaces provided by each lot was estimated at 90 percent of overall capacity, except for the Hourly parking garage for which a theoretical operational capacity of 95 percent was used because the garage has an automated parking system, which increases the efficiency of finding a parking space when the garage nears capacity.

Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-15

Proposed Overflow Parking

Lot Name (Existing/Future sp)							
Ⓐ Hourly Garage (1,317 sp)	Ⓒ Daily Surface Lot (1,722 sp)	Ⓕ Economy Lot 2 (1,276/1,101 sp)	Ⓘ Pre-arranged Lot (36 sp)
Ⓑ Daily Garage (2,323 sp)	Ⓓ Employee Lot (708 sp)	Ⓖ Economy Lot 3 (900 sp)	Ⓙ Economy Lot Expansion (2,050 sp)
	Ⓔ Economy Lot 1 (1,905/2,315 sp)	Ⓗ Courtesy Lot (160 sp)	

Notes: 1/ Economy lot G is reconfigured as a permanent long-term parking facility.
2/ Space (sp).

Source: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

1.7.3.3 Proposed Employee Parking

In the preferred employee parking alternative, valet parking is removed from the fourth level of the Hourly Garage, an area valet shares with employee parking. Valet parking is relocated to an area immediately south of the terminal building. Storage for 44 "valet" vehicles would be accommodated directly next to the terminal building, and a staging area supporting 85 spaces would be carved out of the existing employee surface lot, just southwest of the valet storage area. The southern portion of the south Daily Surface lot would also be reallocated from the public parking supply to the employee parking supply. This option accommodates all employee parking within a walkable distance of the terminal building. The proposed employee parking is illustrated on **Exhibit I-16..**

1.7.4 Support Facilities

1.7.4.1 Rental Car Facilities

The maintenance and vehicle fleet storage facilities will continue to remain in their present location on Rental Car Lane, east of the passenger terminal and general aviation facilities. The size and timing of any future expansion of those facilities will be a business decision for each rental car company. However, sufficient space should be reserved next to the existing facilities to allow for expansion. The locations of the additional rental car service facilities are shown on **Exhibit I-17.**

1.7.4.2 Air Cargo

Although no new cargo building facilities are called for in the initial planning periods, additional spaces should be reserved adjacent to the existing cargo area of the airport to accommodate incremental growth from freight-only carriers and others with a need for heavy lift cargo access. The existing cargo area is constrained by existing Taxiway N to the west, the proposed Runway 25L to the south, and Pecan Park Road to the East, limiting the number of additional air cargo facilities that could be built. An additional 74,800 square feet of cargo building could be constructed south of Cargo Buildings #2 and #3, as shown in **Exhibit I-18.** Limited space, however, would be available for automobile parking, tractor trailer staging areas, and other landside infrastructures. If the demand for air cargo warrants the need for additional cargo facilities in the long-term future, it is recommended that additional facilities be built along the proposed south runway. These facilities could be built prior to the runway expansion supported by a new taxiway system.

1.7.4.3 General Aviation

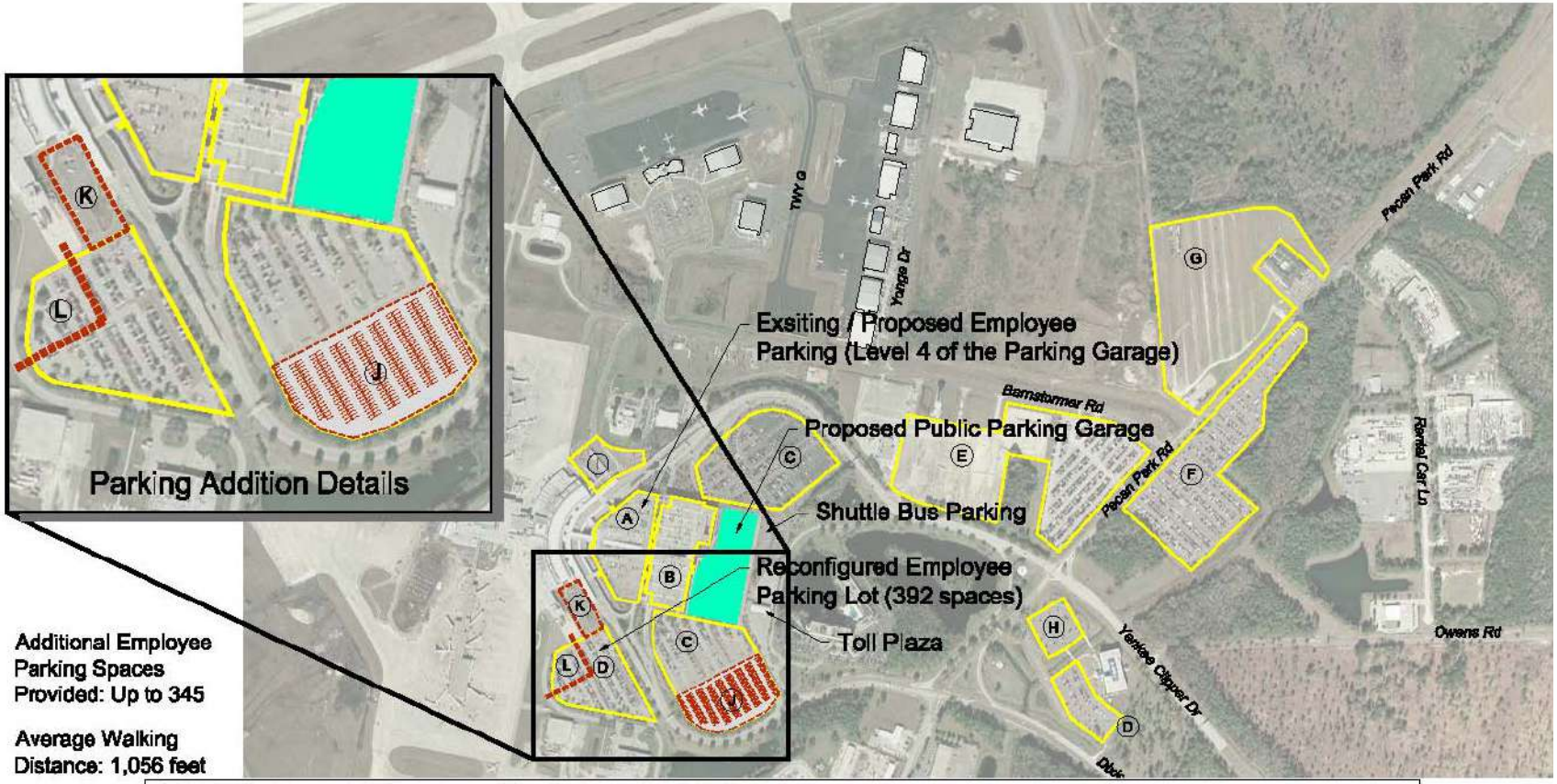
Although the JAA system plan presently focuses on Craig Airport and Herlong Airport to support General Aviation Activities, and Cecil Field as the preferred location for new development to support aircraft maintenance, repair and overhaul activities in the Jacksonville region, it is possible that some additional general aviation or MRO support facilities may be desired at JAX to supplement the existing FBO capacity and to support current air carrier and dedicated air freight companies and/or their designated heavy aircraft maintenance contractors.

Alternative sites that were considered for additional General Aviation sites or MRO facilities are as follows:

- The first is just east of Taxiway F, between Signature and the USPO facility. This location will allow for all of the GA facilities to be co-located in the same vicinity of the airfield. This may be acceptable for common access, but it may also cause increased competition for services among the existing two and/or future competing service providers. This development is shown on **Exhibit I-19**.

Exhibit I-16

Proposed Employee Parking

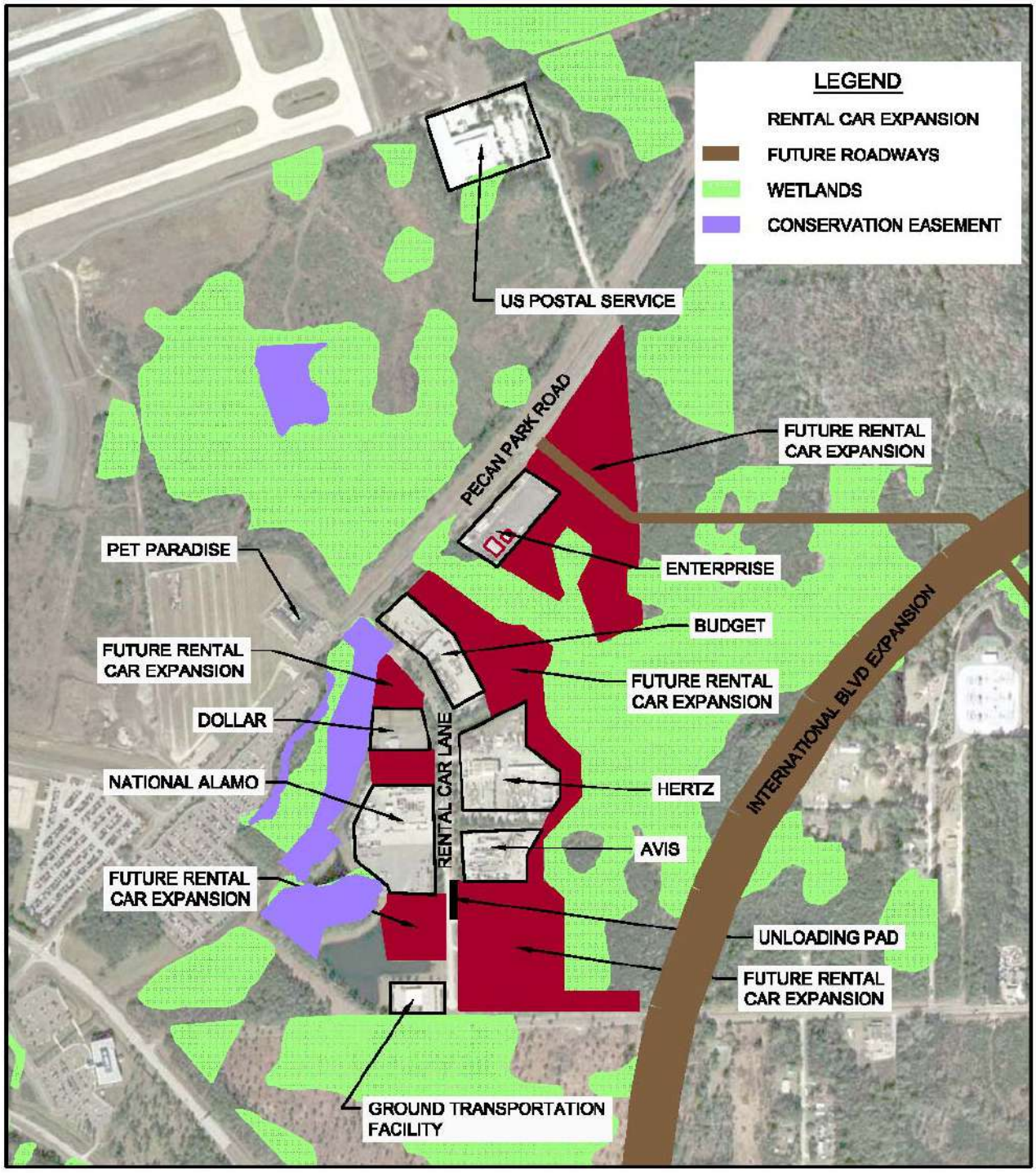


Notes: 1/ The number of parking spaces includes revenue and non-revenue parking spaces.
2/ Spaces (sp).
3/ Reconfigured Daily Surface Lot.

Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-17

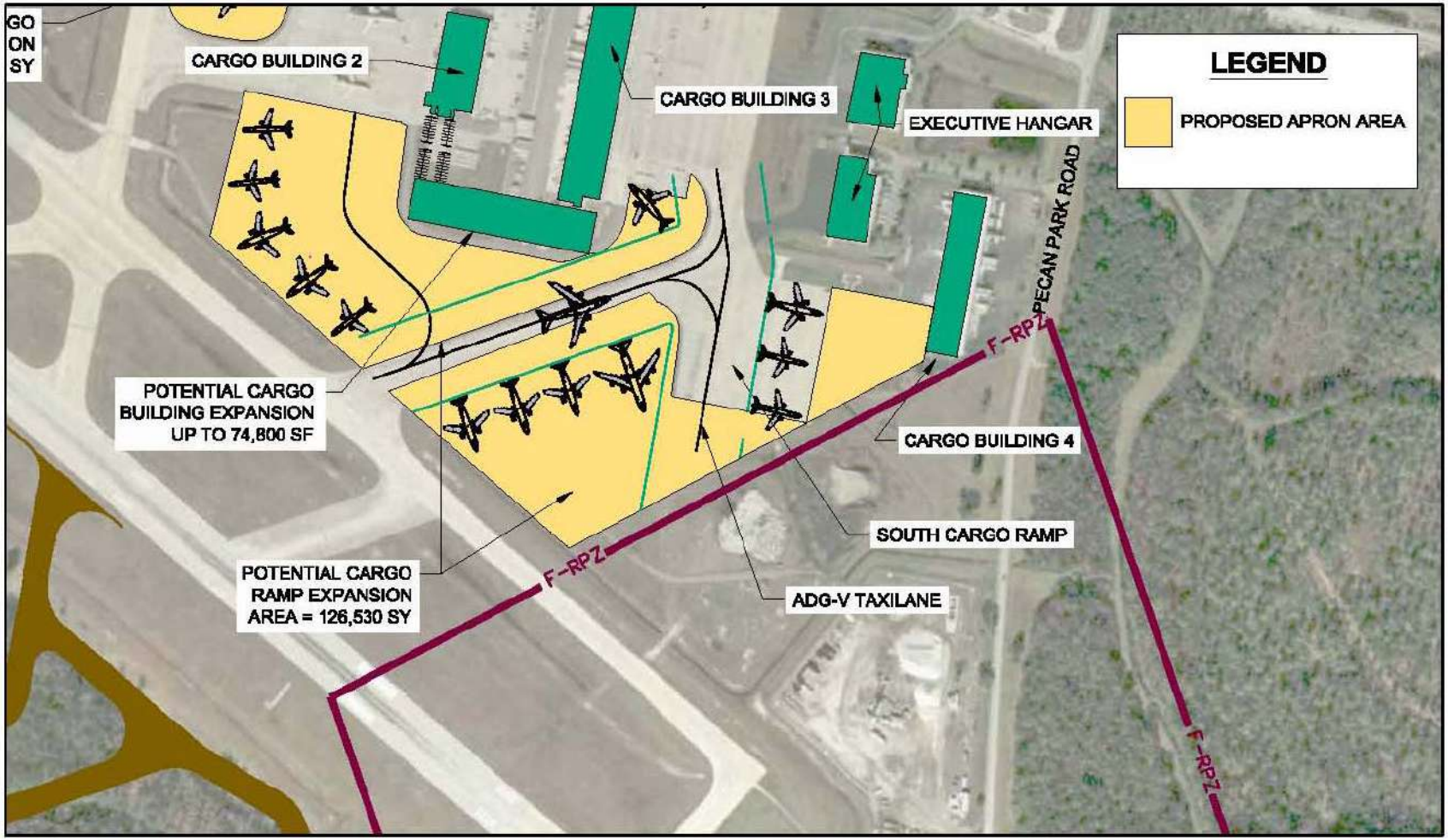
Proposed Rental Car Facilities



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-18

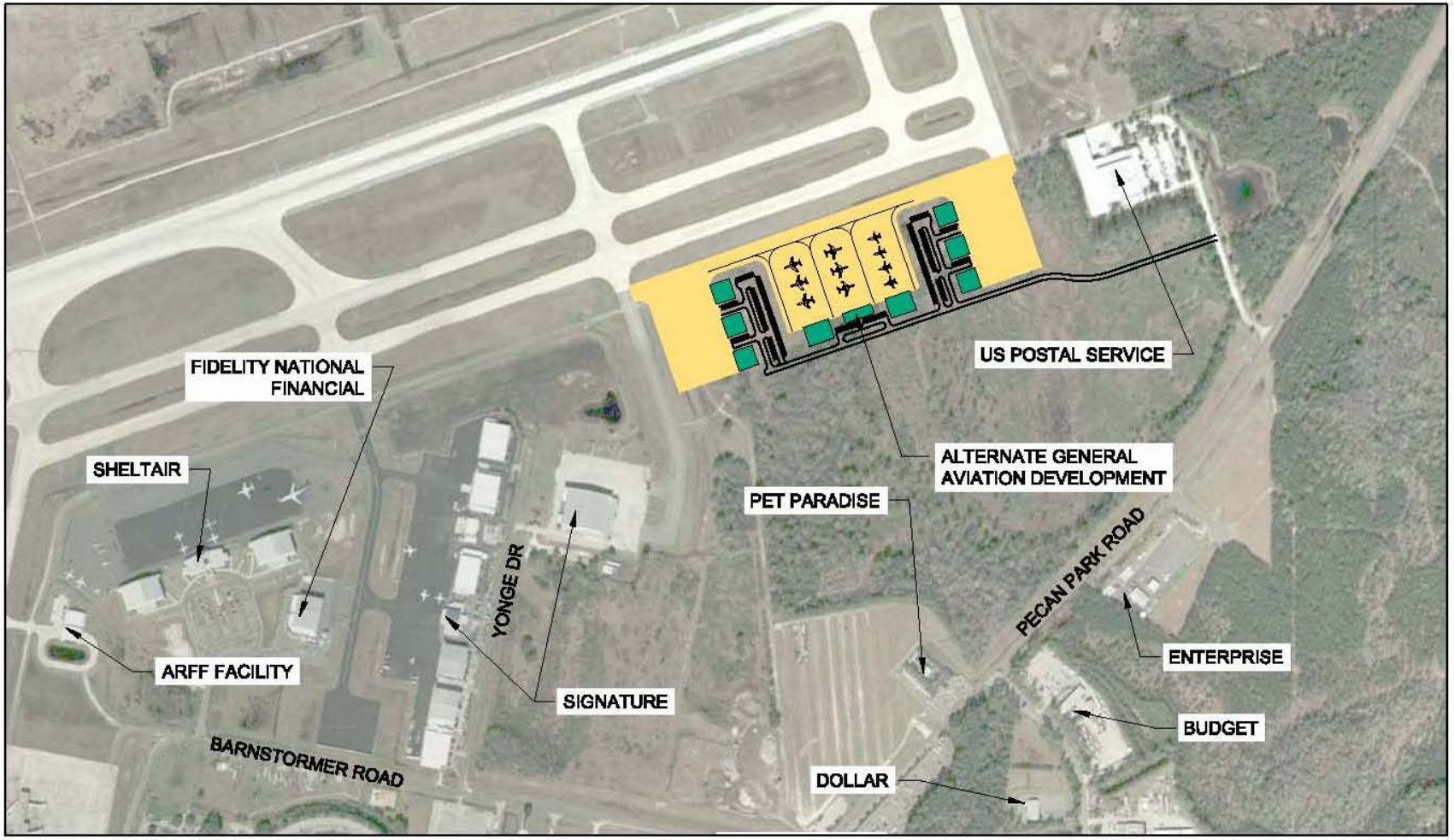
Potential Air Cargo Facilities



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-19

Proposed General Aviation Facilities – East Alternative #1



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

- The second site layout is located at the south end of Taxiway F and provides for additional corporate development along the east side of Yonge Drive, similar to the large individual storage hangars opposite. This site is adequate to accommodate additional corporate hangar facilities around either a central courtyard apron or multiple taxilanes between each row of hangar development space. The site is presently shown to preserve the airport seasonal overflow parking facility. This development option is shown on **Exhibit I-20.** As a potential MRO site, a similar layout is possible on the site located adjacent to the existing maintenance operation along Taxiway F with up to three separate hangar/shop facilities constructed around a central courtyard apron with supporting shops and employee parking. Ground access for either development option will be off of Pecan Park Road.
- In order to provide some additional geographic coverage from west of JAX, an alternate new GA site is shown near the southwest quadrant of Runway 13-31 and the proposed Runway 7R-25L. Access will be from the relocated Terrell Road, with excellent connectivity to the west via Lem Turner Blvd. It may also be possible to extend some additional GA or corporate hangar development along the south side of Runway 7R-25L from the future FBO to the West. This development is shown on **Exhibit I-21**. This location could also considered for an alternate new MRO site.

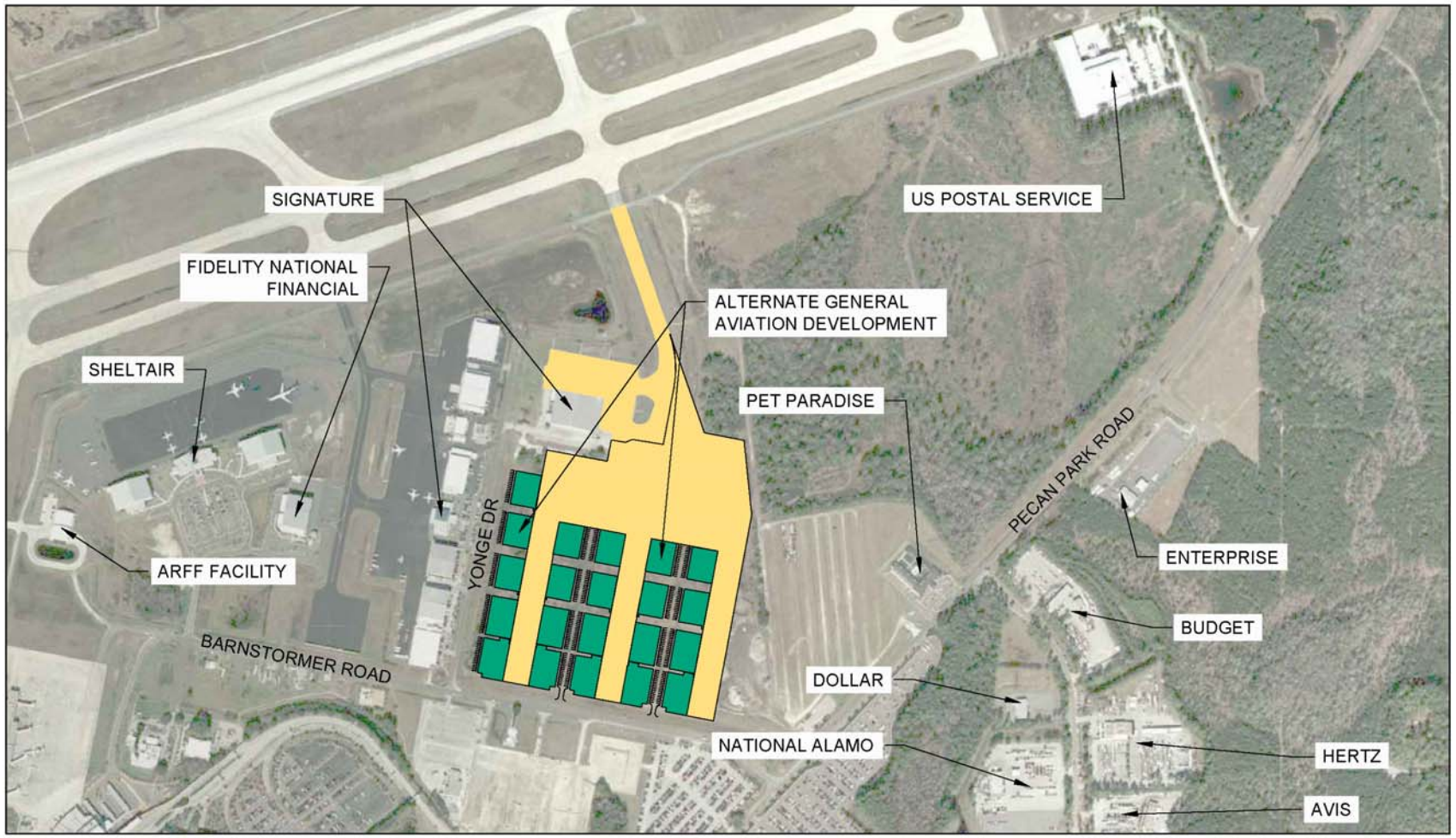
1.7.4.4 Airlines/Airport Support Facilities

As previously indicated, a new ARFF facility should be anticipated with the proposed new Runway 7R-25L so the first vehicle can reach the mid-point of the farthest runway in 3 minutes and the remaining vehicles in 4 minutes. **Exhibit I-22** shows a possible location of the ARFF with access and utilities off of Terrell Road.

The suggested location of the new airport maintenance facilities on Cole Flyer Road is shown on **Exhibit I-23.** The new maintenance facility would include 3,200 square feet of administrative space; 36,600 square feet of shops and garage space; 24,000 square feet of warehouse space and 33,050 square feet of ancillary use space.

Exhibit I-20

Proposed General Aviation Facilities – East Alternative #2



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

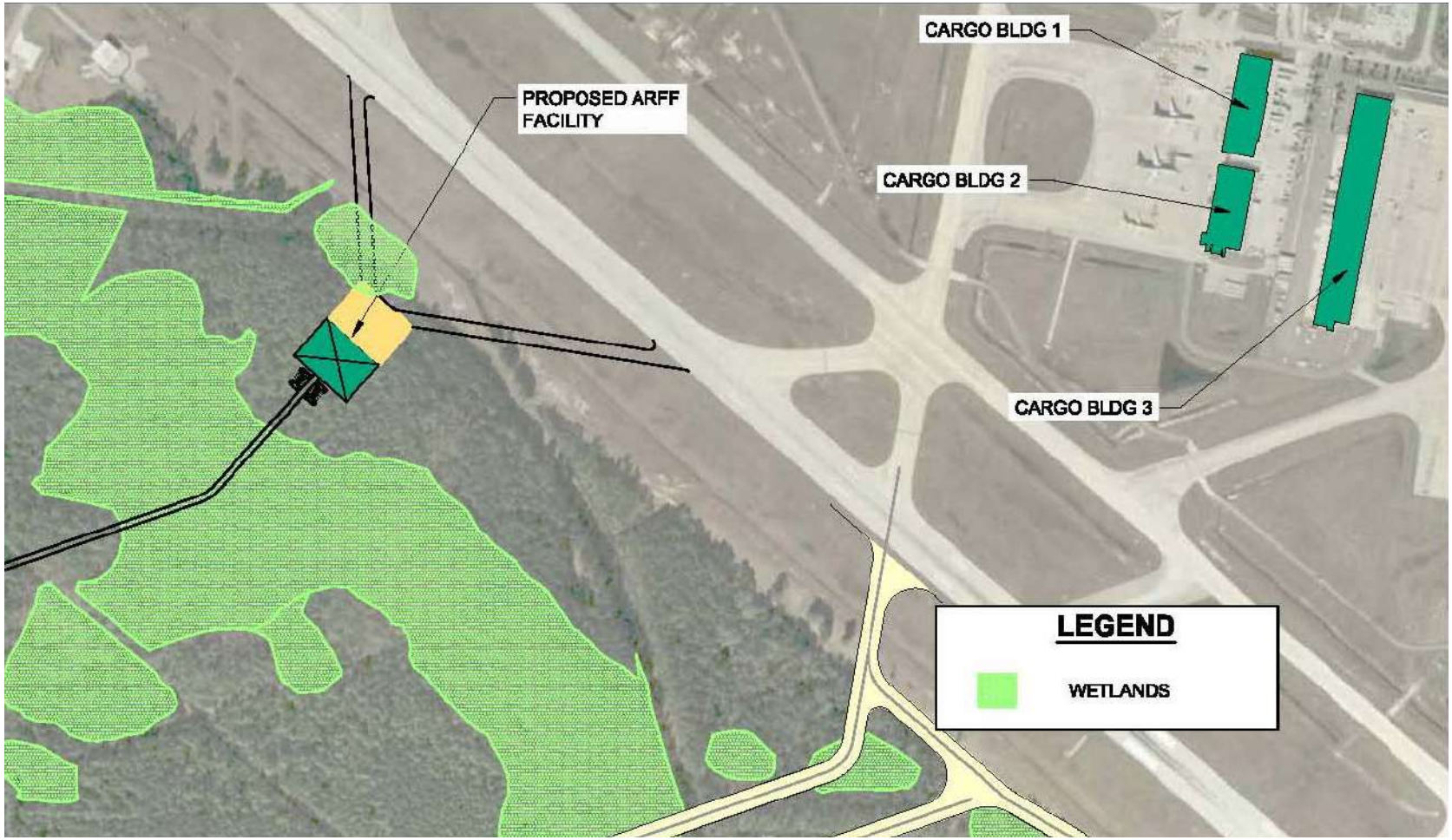
Exhibit I-21

Proposed General Aviation Facilities – West Alternative

Source: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-22

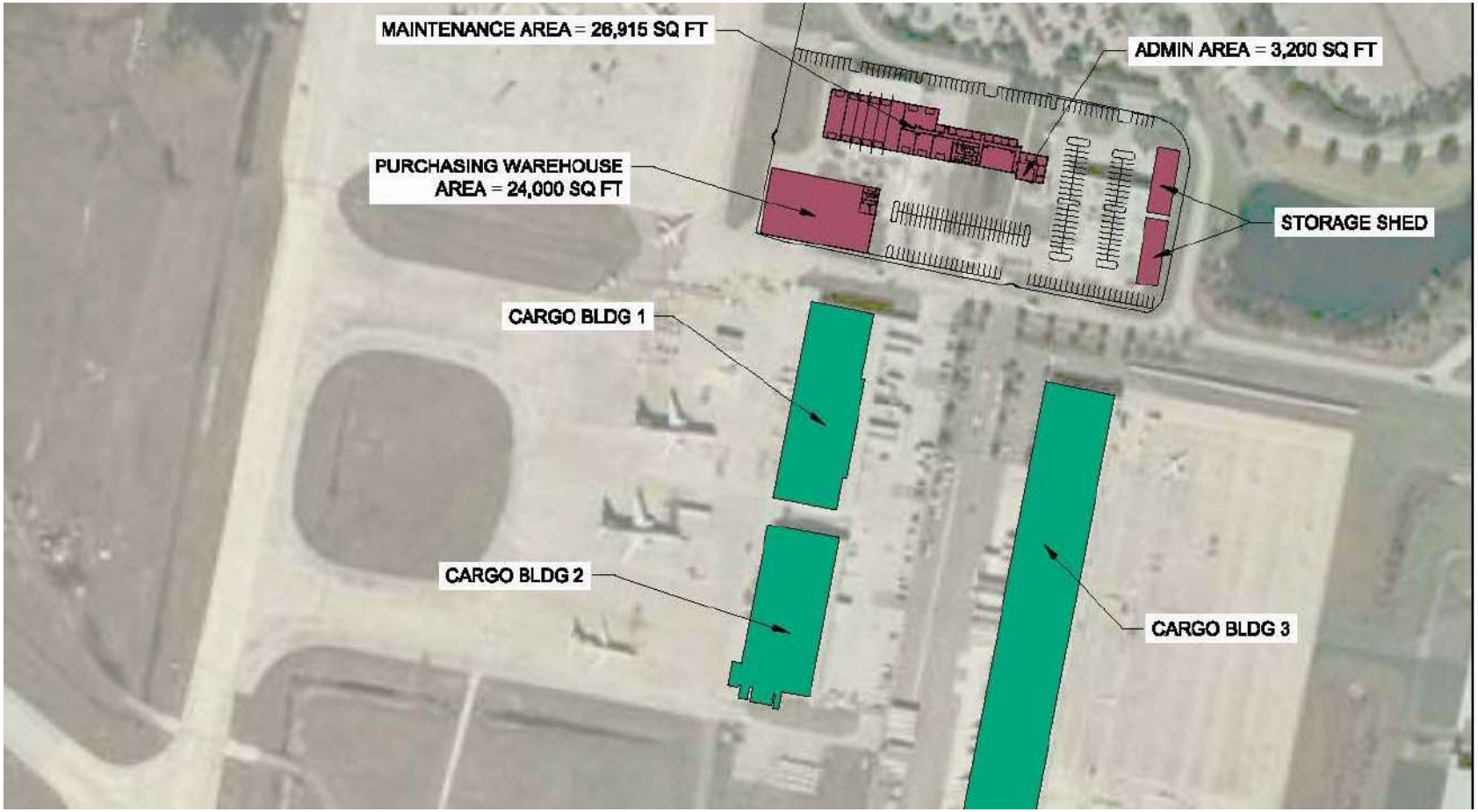
Proposed ARFF Facility



Source: Avcon, Inc., August 2008.
Prepared by: Avcon, Inc., August 2008.

Exhibit I-23

Proposed Airport Maintenance Facilities



Source: Avcon, Inc., August 2008.
Prepared by: Avcon, Inc., August 2008.

1.8 Environmental Impacts of Recommended Development Options

In parallel with preparing the Master Plan Update, an environmental overview, which deals with environmental impacts and mitigation opportunities associated with the selected airport improvement plan, was prepared.

1.8.1 Wetland Impacts

The limits of construction, ILS Critical Area, Runway Safety Area (RSA), Object Free Zone (OFZ), and the Runway Protection Zone (RPZ) were used to determine the approximate amount of jurisdictional wetland impacts associated with the construction of the proposed south runway. Potential impacts to wetlands will be in the form of fill impacts, vegetative clearing to ground impacts and vegetative clearing to shrub layer depending upon FAA mandated activities within the various safety zones.

The area encompassed by the south runway development includes mature, forested wetlands that are associated with Cedar Creek, as well as uplands and wetlands that are part of the Forest Management Plan for JIA and are routinely harvested for silvicultural purposes. The forested wetlands associated with Cedar Creek are of moderate to high quality, while the wetlands that are included in the Forest Management Plan have been disturbed and consist predominantly of planted pine.

Proposed construction for the south runway will incur a total of 132.15 acres± of direct wetland impacts as a result of filling or clearing on-site wetlands. Fill impacts for the proposed Runway, Taxiway, and Critical Area comprise approximately 96.29 acres of the total impact acreage. The remaining 35.86 acres of impact are clearing impacts within the RSA, OFZ, and RPZ.

Permits are required, to varying extents, by both the St. Johns River Water Management District (SJRWMD) and U.S. Army Corps of Engineers (USACE) for dredge/fill and clearing activities in jurisdictional wetlands and surface waters. In accordance with both state and federal permitting criteria, the permitting agencies will approve a development plan only when efforts are undertaken to eliminate and reduce wetland impacts to the fullest extent practicable. Additionally, SJRWMD regulations require that an average 25-foot wide upland buffer be preserved adjacent to the wetlands to remain after development to prevent secondary wetland impacts.

Once agency staff concludes that wetland impacts are unavoidable for a proposed development, a mitigation plan can be proposed to offset adverse impacts and facilitate permit approval. Pursuant to State regulations, SJRWMD does not require mitigation for impacts to wetlands which are both hydrologically isolated and less than 0.5-acre in size. If mitigation is required, it can be provided in the form of upland preservation; wetland preservation, restoration, enhancement, or creation; and/or purchase of credits from an approved mitigation bank which services the project site. The site is located within SJRWMD Regulatory Basins 3 and 4. Both of these regulatory basins contain permitted mitigation banks which have credits available for sale at the current time.

1.8.2 Floodplain Impacts

The proposed footprint of the south runway and associated taxiways encompasses approximately 60 acres of flood hazard areas. According to Federal Emergency Management Area (FEMA) Map Panel No. 120077 0070E, dated 15 August 1989, for the City of Jacksonville, Florida, Duval County, the floodplain impact areas for the proposed south runway lie within Flood Zones A0 and A. Areas within Zone A0 have flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average

depths have been determined in these areas. FEMA mapping shows a flood depth of 2 feet in this area. Areas within Zone A have no base flood elevation determined.

1.8.3 Wildlife

Protected species including American alligator, bald eagle, gopher tortoise, and southeastern American kestrel were identified within the Airport property. A bald eagle nest documented as active in 2007 by FWC lies to the southeast of the airport property, however, there are no documented eagle nests directly adjacent to the proposed locations for the south runway. Although the soils occurring in the areas where the proposed runway and taxiways lie are not suitable for gopher tortoise habitat, gopher tortoise burrows have been observed along the perimeter fence in or adjacent to these locations.

Listed species will need to be addressed if development occurs within occupied gopher tortoise habitat or near the identified bald eagle nest. Additional surveys will be required to determine the extent of gopher tortoise habitat, if any, that will be potentially impacted by the proposed runway and taxiways development projects.

1.8.4 Noise Impacts

Exhibits I-24 and **I-25** are included to show the updated land uses around JAX overlaid by the 2001 and 2021 noise contours from the 2001 Master Plan. Operations, aircraft fleet mixes and airfield configuration modifications were reviewed to determine the changes in potential noise exposure when compared to the noise contours prepared as part of the 2001 MPU. Based on this analysis, it appears very likely that the PAL 2 and PAL 3 activity levels would generate noise contours that would be smaller than the contours developed for the 2001 MPU 2021 activity level. However, the westward shift in the proposed orientation of Runway 7R-25L would likely result in a slight shift in noise exposure to the west and south. The noise contours will be reevaluated as part of the planning for the new runway.

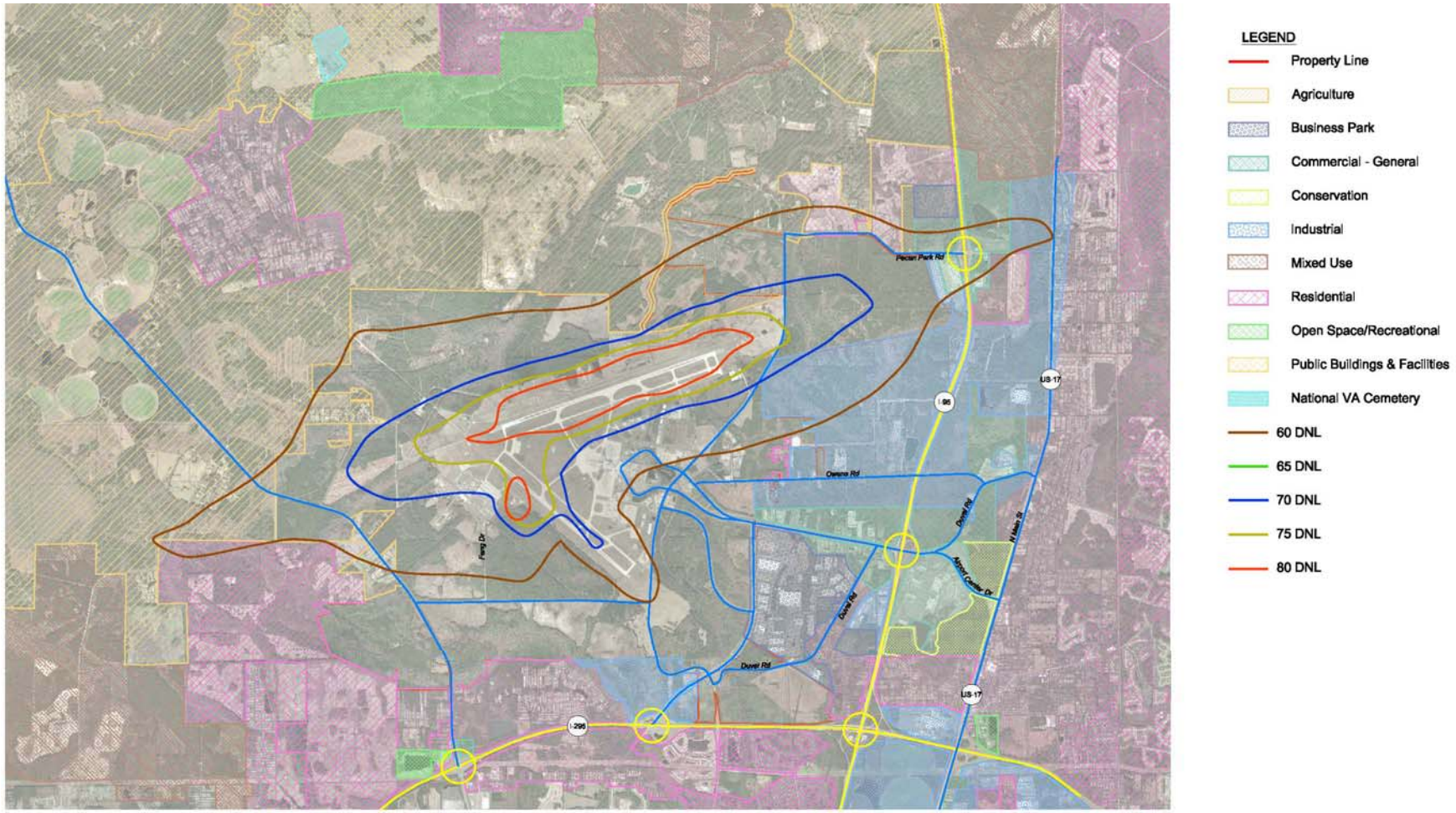
1.9 Implementation and Financial Planning

trends and demands. The implementation of the Master Plan will be in stages to match that demand. It must be recognized that actual passenger growth may be higher or lower than the forecasts presented in the Master Plan. Actual growth and the requirement for delivery of airport infrastructure and capacity development is dependent on recovery by the aviation industry from recent downturns, the rate of that recovery, and industry trends, initiatives and global influences. This is not expected to affect the development strategies presented in this Master Plan; however, it will affect the timing of investments in elements of the plan.

For the purposes of this financial analysis, a specific implementation schedule was assumed; however, it should be noted that this schedule and the resulting financial analysis are intended only to demonstrate financial viability assuming the demand levels and patterns associated with the implementation schedule and recognizing that the actual financing strategies used will be determined as implementation nears.

Exhibit I-24 *(11x17)*

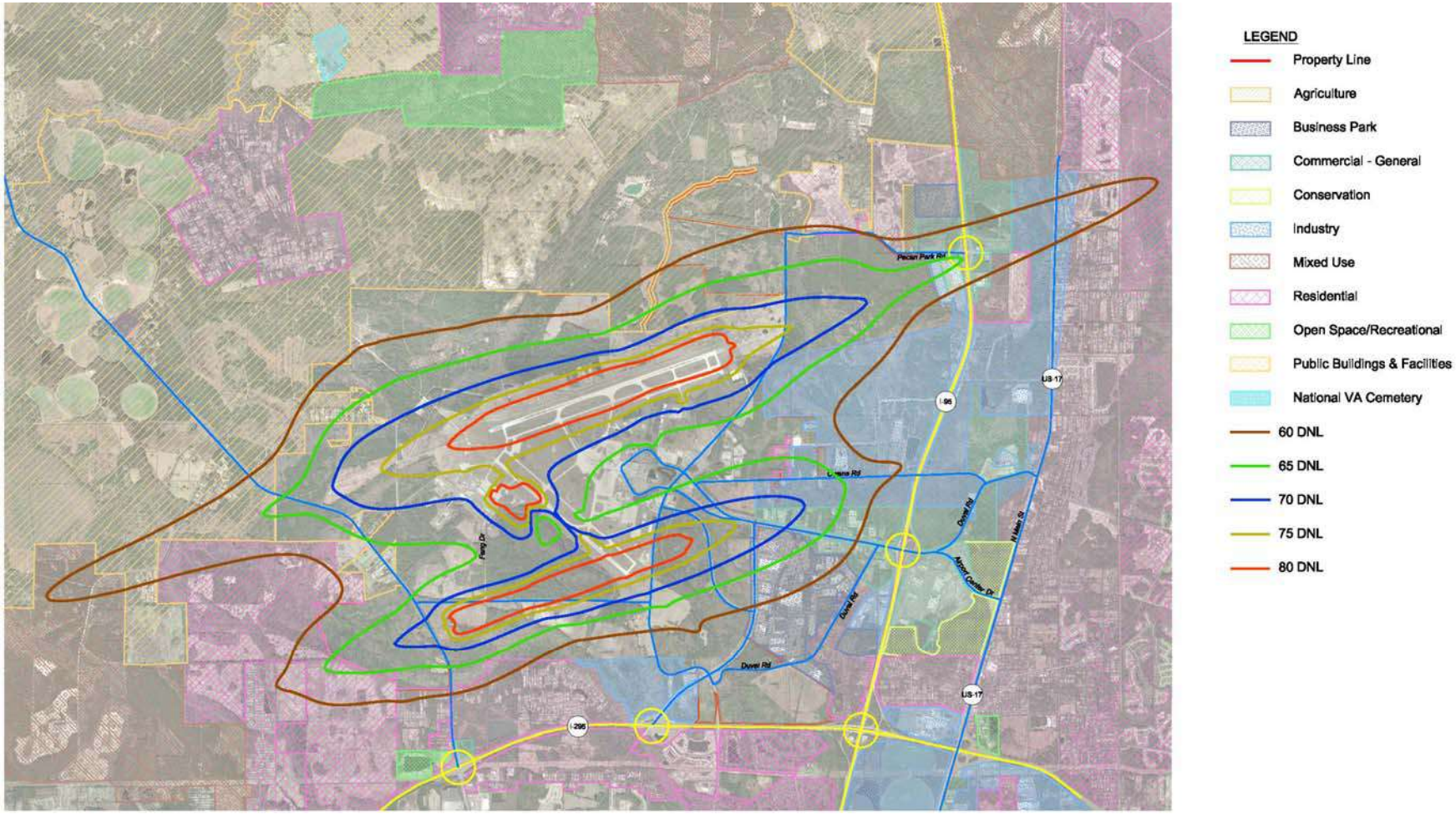
Existing (2001) Noise Contours



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

Exhibit I-25 *(11x17)*

Future (2021) Noise Contours



Sources: Ricondo & Associates, Inc., July 2008; Aerial Photo, I.F Rooks & Associates, April 2008.
Prepared by: Ricondo & Associates, Inc., January 2010.

1.9.1 Short Term Development (2010 – 2014)

Developments required to facilitate short-term growth of traffic demand are expected to include but not be limited to:

- Taxiway T Restoration
- Air Cargo Facilities Employee Parking Expansion
- Old Sign Shop Refurbishment and Conversion to JAA Maintenance Facility
- Yankee Clipper and Dixie Clipper Roads Rehabilitation
- New Parking Garage Design and Construction
- Air Cargo Ramp Expansion
- Cole Flyer Road Realignment
- Concourse B Design

1.9.2 Intermediate Term Development (2015 - 2020)

Developments required to facilitate intermediate term growth of traffic demand are expected to include but not be limited to:

- Concourse B Construction
- General Aviation Ramp Expansion
- Runway 13-31 Blast Pad Construction
- Taxiway F Extension
- Owens Road Realignment
- Taxiway G Rehabilitation
- Economy Parking Lot #2 Rehabilitation
- Runway 13-31 Shoulders Construction
- Baggage Make-Up Area Expansion
- General Aviation/MRO Hangar Development
- Passenger Security Screening Checkpoint Expansion

1.9.3 Long-Term Development (post 2020)

Long-term projects required to meet the projected aviation activity, including passengers and aircraft operations, include but may not be limited to:

- Conversion of Economy Parking Lot #3 into a Long-Term Economy Parking
- Land Parcel Acquistion
- Concourse B Expansion
- Baggage Claim Devices Acquisition
- Baggage Make-Up Area Expansion
- South Parallel Runway Design
- Wetland Mitigation for Runway 7R-25L Construction
- Clearing of Proposed Runway 7R-25L Approaches
- Taxiway Intersections Widening

1.9.4 Financial Planning

The 10-year Master Plan CIP for JAX is $337.3 million. Airport expansion has been typically funded through a combination of Federal funds, bonds, airport user charges, including airline landing fees, and passenger facility charges (PFC). Other sources of revenue will need to be identified to fund the CIP, such as on-airport commercial, retail and industrial development.

Based on analyses of forecast activity at the Airport, in addition to projected revenues and expenses, and the Airport CIP for FY 2010 through FY 2020, it appears that JAA has adequate financial resources to accommodate future demand. JAA has access to various sources of funds through a mix of FAA funding, State funding, PFC and CFC revenues, Airport funds, and GARBs. The capital projects recommended in this Master Plan Update appear to be financially feasible and JAA can reasonably expect to implement these projects as long as the demand triggers associated with each project are adhered to and the cost-to-benefit tradeoffs are re-evaluated as the project is considered for implementation. The airline rates and overall airline CPE are estimated to remain reasonable over the planning period and projected Airport funds appear to be adequate to effectively operate the Airport. As required in the Bond Resolution, debt service coverage is projected to be significantly above the minimum 125 percent of debt service throughout the planning period.

As implementation of the CIP progresses, Airport staff should continually assess the financial feasibility of each CIP project. Future considerations regarding the financial feasibility of the CIP include enplaned passenger/traffic growth, availability of AIP and FDOT funds, potential increase in maximum PFC level, and airline approval of capital projects.

1.9.5 Summary

JAA management has taken all prudent steps to ensure that JAX is able to grow to meet future aviation demands in the northern Florida area. The Airport owns all property required for growth over the 20-year period and has the financial resources necessary to support that growth. JAA should continually review this plan to ensure it accounts for any unforeseen issues and incorporate potential changes into future plan updates.

Table of Contents

List of Tables

List of Exhibits

II. Airport Inventory

This inventory chapter provides background data on the existing facilities at Jacksonville International Airport (JAX or the Airport). The inventory of existing facilities is key to any master planning effort as it provides the basis for evaluating facilities and subsequently determining future facility needs. The data presented in this chapter of the Master Plan Update was collected through on-site visits and interviews conducted in November and December 2007, or documented within existing studies, reports, design drawings, and other Airport records.

The data collection effort conducted as part of this Master Plan consisted of:

- Interviews with Airport management and staff;
- Interviews with Airport tenants (air cargo, general aviation, rental car agencies, etc);
- Interviews with representatives of the Federal Aviation Administration (FAA) Air Traffic Control (ATC) division and the Transportation Safety Administration (TSA)
- Research and review of previous Airport planning analyses and studies;
- Review of aerial photography, mapping, terminal plans, and lease drawings;
- Review of airport facility directories, approach plates, sectional charts, etc;

The data collection effort also relied on the review of the following documents:

- Parsons Transportation Group, *Jacksonville International Airport 2001 Airport Master Plan Update*, April 2002.
- Environmental Resources Management (ERM), *Jacksonville International Airport Expansion Development of Regional Impact 2006 Annual Monitoring Report*, June 2007.
- Reynolds, Smith, and Hills, Inc. (RS&H), *Stages 3 and 4 Concourse Replacement Project Concept Report*, Jacksonville International Airport, October 2003.
- Prosser Hallock, *2006 Annual Traffic Monitoring Report*, Jacksonville International Airport, June 2007.

This report provides a summary of the Airport's existing facilities and reflects the on-airport developments that have occurred since the 2001 Master Plan Update including, but not limited to, the following:

- The installation of a fully automated and integrated in-line baggage screening system
- The completion of the Stages I and II of the Terminal Expansion Program
- The construction of a parking garage providing 2,400 automobile parking space
- The construction of the Jacksonville Airport Authority (JAA) Administration building
- The expansion of the Alamo-National rental car facility
- The construction of a JAA/Fidelity National Financial Airport hangar
- The construction of the Sheltair's general aviation executive terminal and two corporate hangars.
- The construction of a car wash facility and fueling station for the fueling, cleaning, and maintenance of the Enterprise Leasing rental car fleet.
- The construction of International Airport Boulevard, a four-lane divided highway that stretches between the I-295–Duval Road interchange and Airport Road.
- The construction of Woodwings Road, stretching from Pecan Park Road South to International Airport Boulevard.
- The construction of a Microtel Hotel Inn and Suites: In January 2007, "the JAA board approved a general ground lease of 2.2 acres at the intersection of International Airport

Boulevard and Airport Road at Jacksonville International Airport to Jax Lodging Inc,"[1] which opened a 78-room Microtel Hotel Inn and Suites.

The construction of the new Concourses A and C was completed in early 2009. These new concourses provide additional space for holdrooms, airline operation areas, concessions, and public circulation. The existing A and C concourses have also been demolished providing additional space for aircraft movements and parking. Even though during the development of this report, these facilities were still under construction, for the purpose of the Master Plan, the new concourse facilities were considered to be an "existing/baseline condition." Concourse B was also considered to be an "existing/baseline condition" although the facility was closed in the summer of 2009 to allow for its demolition and future replacement.

JAA has also been proceeding with the development of non-aviation facilities by granting development rights for several undeveloped parcels of land, including Woodwings East, which encompasses 328 acres, and sections of Woodwings West, which encompasses a total area of 890 acres.

2.1 Airport Setting

JAX is located approximately 11 miles north of downtown Jacksonville, and serves as the primary commercial service airport for Northeast Florida. The Airport is situated in Duval County, Florida, and encompasses approximately 8,478 acres. As depicted in **Exhibit II-1**, JAX is bound on the east by Interstate 95, on the south by Interstate 295 and on the west by Lem Turner Road (State Road 115).

In fiscal year 2007, nearly 6.3 million of passenger passed through the Airport and as of September 2007, eleven scheduled airlines[2] were providing passenger services. The Airport also handles both international and domestic charter operations on occasion. In 2008, traffic declined due to the national economic slowdown but was still over 6 million passengers.

The Airport is also serving the general aviation community, including general aviation and business flyers, with two Fixed Base Operators (FBO), Signature Flight Support, and Sheltair, based at the Airport. In addition, the Airport accommodates several air cargo tenants and freight forwarders including United Parcel Service (UPS), Federal Express (FedEx), DHL, and several freight forwarding companies.

JAX is home to the Florida Air National Guard (FANG) 125th Fighter Group. The 125th Fighter Group operates an armed fleet of F-15 fighter aircraft. Its mission is to "provide air defense for the southeastern United States, as directed by the North American Aerospace Defense Command (NORAD) and United States Northern Command (USNORTHCOM), from Charleston, South Carolina to the southern tip of Florida and across the Florida panhandle."[3] The Fighter Group and its related activities include transport aircraft (e.g. Lockheed C-130 Hercules), reconnaissance and support aircraft (e.g., C-26[4]) and tanker aircraft (e.g. Boeing KC-135) that are staged at the Airport.

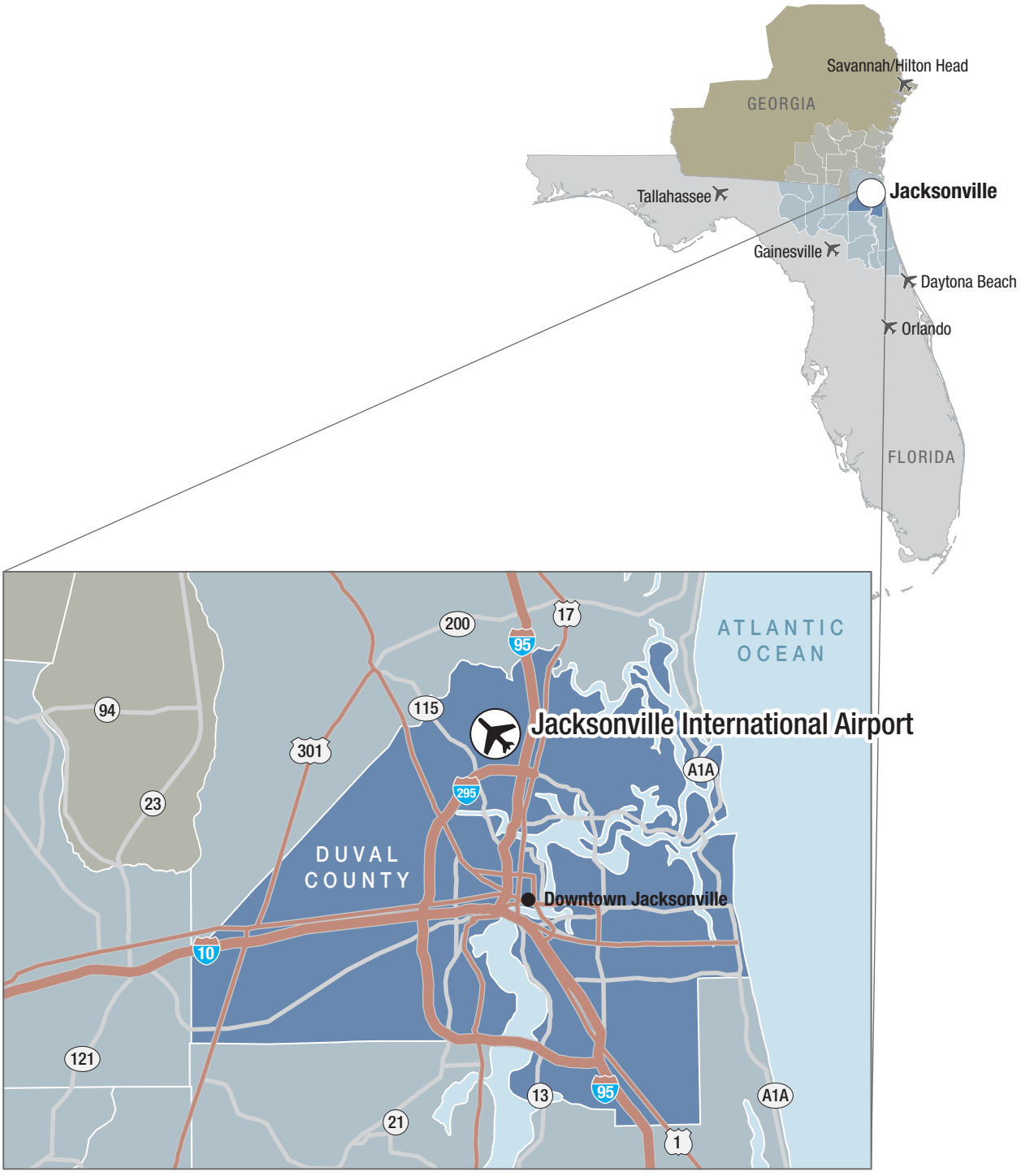
---

1 Jacksonville Aviation Authority, http://www.jaa.aero/AboutUs/pressreleaseview.aspx?id=236, accessed December 14, 2007.

2 Including American Airlines, AirTran Airways, Continental Airlines, Delta Airlines, JetBlue Airways, Northwest, Southwest, US Airways, ExpressJet Airlines, Frontier Airlines, and United Airlines

3 Florida Air National Guard, http://www.fljack.ang.af.mil/125/, accessed December 10, 2007

4 The C-26 is the military variant of the commercial Model SA-227-DC (Metro 23) aircraft series manufactured by Fairchild Aircraft Corporation.



Source: Map Resources, 2007.
Prepared by: Ricondo & Associates, Inc., January 2008

Exhibit II-1

north

Airport Location Map

The Airport is one of four public use airports owned and operated by the Jacksonville Aviation Authority (JAA). The other airports include Craig Municipal (CRG), Herlong (HEG), and Cecil Field (VQQ). Of these airports, only JAX currently provides commercial air service. A brief description of the role and activity at each airport within the Jacksonville Airport System is provided below. The location for each of these airports, as well as other airports in the region is depicted on **Exhibit II-2**.

The JAA airports are included within the National Plan of Integrated Airport System (NPIAS), which establishes the role of those public airports defined as essential to meet the needs of civil aviation. In the NPIAS, the role for each airport identifies one of four basic service levels. These levels describe the type of service that the airport is expected to provide the community at the end of the NPIAS five-year planning period. It also represents the funding categories set up by Congress to assist in determining funding eligibility. **Table II-1** provides a summary these service levels.

Table II-1

FAA-NPIAS Airport Service Level Classification

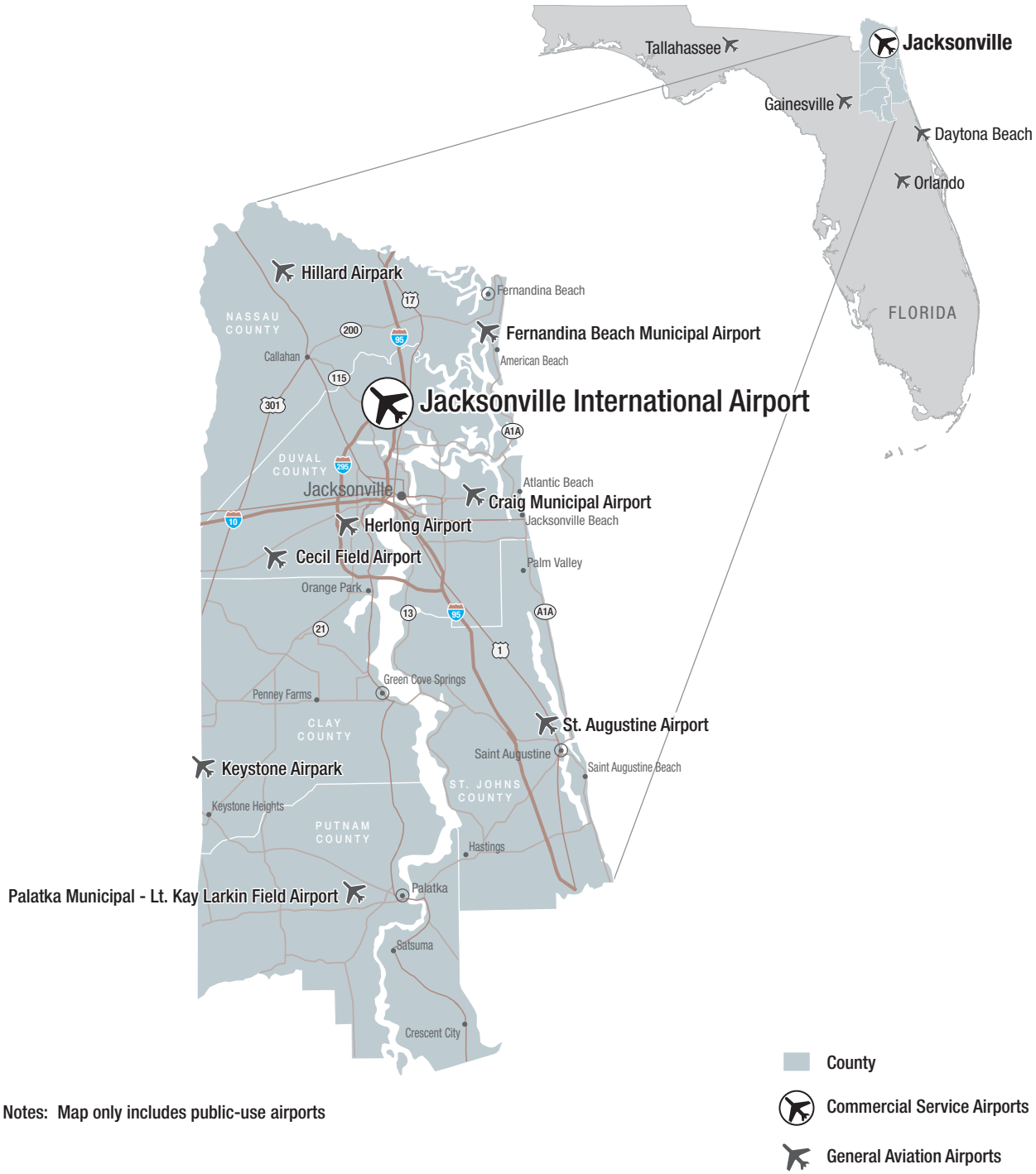
Classification	Definition
Commercial Service - Primary	Public-use commercial Airport enplaning at least 10,000 annual passengers
Commercial Service - Non-Primary	Public-use commercial Airport enplaning between 2,500 and 10,000 annual passengers
General Aviation - Reliever	A general aviation Airport that serves to relieve operational congestion at a nearby commercial service Airport. Must have at least 100 based aircraft or 25,000 itinerant operations.
General Aviation	Other Airports with fewer than 2,500 annual enplanements or that do not receive scheduled service

Source: FAA, Report to Congress – NPIAS 2007
Prepared by: Ricondo & Associates, Inc., December 2007

The NPIAS designation for each of the JAA airports is summarized below.

- **JAX** is a public-use facility offering scheduled commercial airline service that also supports cargo, military and general aviation activity. Because the Airport's enplanement levels comprise less than one percent of the total national enplanements but are greater than 0.05 percent, JAX is categorized in the NPIAS as a medium hub or primary commercial service airport.
- **CRG**, which is located approximately eight miles east from downtown Jacksonville, accommodates general aviation activity and serves as a primary reliever airport to JAX. Thus, CRG is designed as a General Aviation Reliever airport in the NPIAS.
- **HEG** is a general aviation airport located approximately eight miles southwest from downtown Jacksonville. As indicated in the 2007 Master Plan Update, HEG is currently a "prime recreational site for small private jets, hot air balloons, skydivers, gliders, and other small or experimental aircraft."[5] HEG is also designated as a General Aviation Reliever airport in the NPIAS.

[5] The LPA Group Inc., *Herlong Airport Master Plan Update*, *Final Report*, August 2007.



Notes: Map only includes public-use airports

Source: Map Resources, 2007.
Prepared by: Ricondo & Associates, Inc., January 2008

Exhibit II-2

north

Northeast Region Airport Locations

- **VQQ**, located on the site of the former Naval Air Station Cecil Field, accommodates a wide range of activities and tenants. Like CRG, VQQ also serves as a reliever airport to JAX. The Airport is promoted by the JAA as an ideal site for the establishment "of aircraft maintenance, repair and overhaul (MRO) operations and a variety of aviation-related industrial and commercial development."[6] VQQ is designated as a General Aviation airport in the NPIAS.

Together, these facilities form a diversified system of airports that serve the commercial, business, and recreational aviation needs of the City of Jacksonville, Northeast Florida and Southeast Georgia. These airports are also located within the Northeast Florida Metropolitan Area, which is one of nine aviation activity centers identified by the Continuing Florida Aviation System Planning Process (CFASPP)[7]. This area is comprised of Baker, Clay, Duval, Putnam, Nassau, and St. Johns counties and includes a total ten public and military airports. **Table II-2** lists each airport within the Northeast Region and the associated service level. As shown in this table, of the nine airports within the Northeast Metropolitan Area, only JAX provides commercial service. The location of these airports relative to JAX is depicted on Exhibit II-2**.**

Table II-2

Northeast Metropolitan Area Airports

Airport	Three-letter Identifier	Service Level
Cecil Field	VQQ	General Aviation
Craig Municipal	CRG	General Aviation
Fernandina Beach Municipal	55J	General Aviation
Herlong	HEG	General Aviation
Hillard	01J	General Aviation
Jacksonville International	JAX	Commercial/International
Kay Larkin (Palatka Municipal)	28J	General Aviation
Keystone Airpark	42J	General Aviation
St. Augustine/St. Johns Airport	SGJ	General Aviation

Source: Florida Aviation System Plan (FASP) 2025; Skybus website, accessed December 2007.
Prepared by: Ricondo & Associates, Inc., December 2007

2.2 Meteorological Conditions

Weather has a direct effect on aircraft performance and plays an important role in the operation of aircraft. Meteorological conditions influence airport operations by affecting runway use, runway length requirements, and runway capacity. In addition, the evaluation of meteorological conditions affecting an airport's operations generally dictates the type of airfield instrumentation required to maintain the airport operational during poor weather and allow aircraft to safety land and takeoff.

---

6 Jacksonville Aviation Authority, http://www.jaa.aero/AirSys/CF.aspx, accessed December 10, 2007.

7 CFASPP is a component of the Florida Aviation System Plan (FASP) that is used to continually monitor the aviation environment and determine the development requirements to best meet projected activity levels. The CFASPP aviation activity centers are defined by either a "Region" or "Metropolitan Area". The CFASPP defines a Region as an area containing several communities with common aviation ties to each other due to geographic and economic characteristics, and a Metropolitan Area is defined as a portion of the State with interrelationships between airports and common economic base due to contiguous urban development. The CFASPP contains five aviation regions and four metropolitan areas.

The meteorological conditions evaluated as part of this Master Plan Update include climatic factors and wind data.

2.2.1 Climate

The predominant climatic condition in the region is relativity humid, sunny weather with infrequent rainfall, which occurs mainly in the summer months. According to the National Climatic Data Center (NCDC), the annual temperatures for Jacksonville average between 68 and 69 degrees Fahrenheit, and the daily maximums average 79.3 degrees Fahrenheit[8]. As indicated in **Exhibit II-3**, the summer months of June, July, and August are the hottest with mean daily maximum temperatures exceeding 90 degrees Fahrenheit. Conversely, the winter months of December, January and February are the coolest months, with temperatures in the 40s. High temperatures, which generally increase aircraft runway length requirements, are frequent during the summer months. As shown in Exhibit II-3, temperatures exceed 90 degrees about 77 days per year. Temperatures in the winter are mild because of the southern latitude and proximity to the warm Atlantic Ocean water.

Thundershowers during the summer months produce the greatest amount of rainfall in this region, where a measurable amount can be expected in one to two days. As indicated in **Exhibit II-4**, average precipitations recorded over a 30 year-period range from 2.3 to 7.9 inches per month.

2.2.1.1 Wind Coverage Analysis

According to the NCDC, the winds in Jacksonville are predominantly from the northeast in the fall and winter months (refer to **Exhibit II-5**) and from the southwest in the spring and summer (refer to **Exhibit II-6**), and are generally of light to moderate speed (less than five miles per hour).

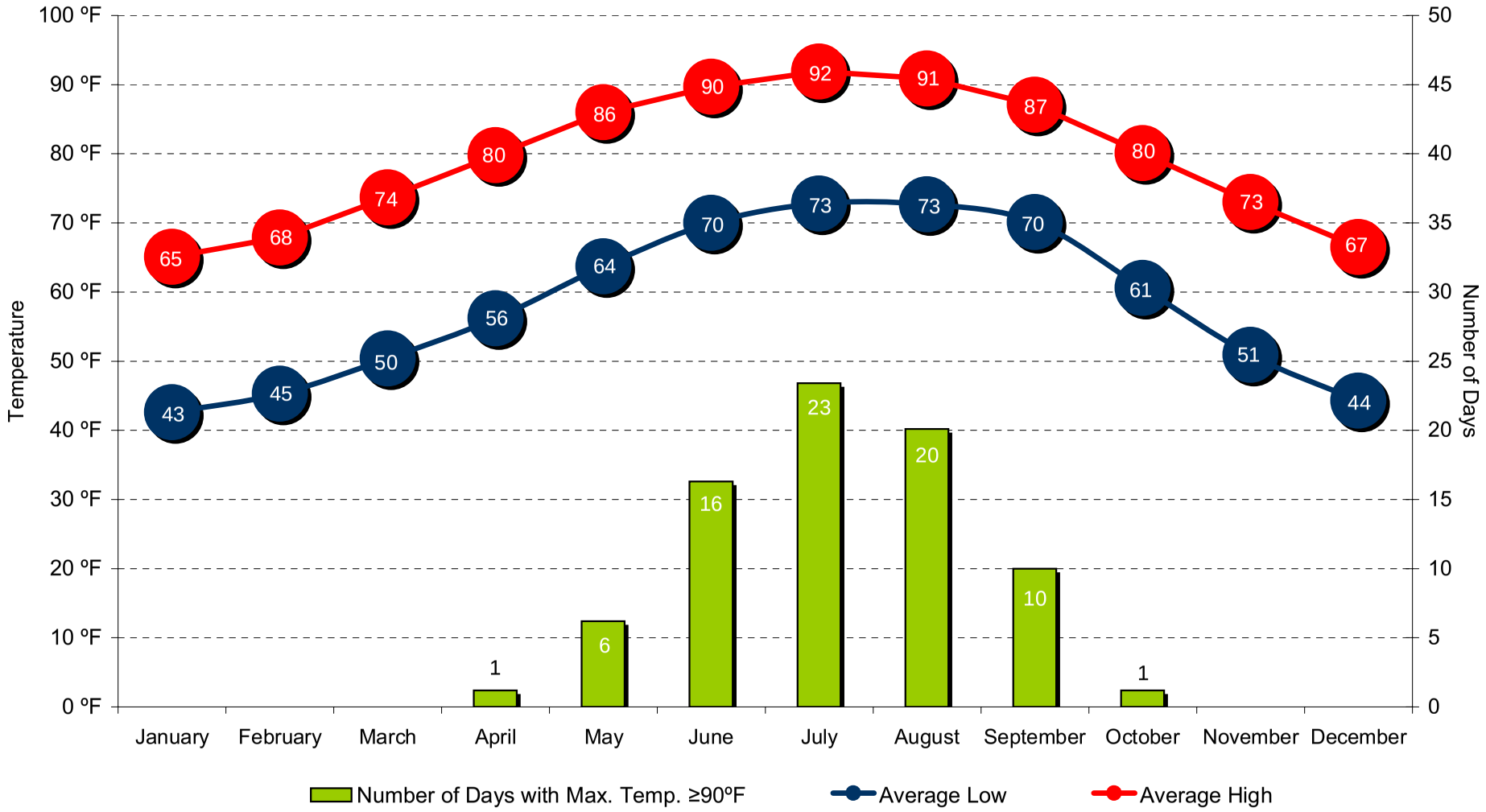
According to Federal Aviation Administration (FAA) Advisory Circular (AC) 5300-13, Airport Design, Change 11, the usability factor of an airport should not be less than 95 percent. As such, the number and orientation of runways should be set so that an airport runway system provides a minimum of 95 percent wind coverage. For airports like JAX, that accommodate large commercial and military aircraft, the maximum crosswind component allowable to meet the 95 percent wind coverage is 20 miles per hour. Wind coverage percentages should also take into account weather minimums. Therefore, all-weather, visual flight rule (VFR), and instrument flight rule (IFR), conditions data were analyzed.

VFR provisions occur when the weather conditions permit the aircraft to maintain safe operations by visible means. IFR provisions occur when the visibility or cloud ceiling falls below minimum VFR requirements. VFR minimums are represented by a ceiling of at least 1,000 feet above the Airport elevation and a visibility of at least three statute miles. At JAX, it is estimated that VFR conditions occurs approximately 92.8 percent of the time, while IFR conditions occur 7.2 percent of the time.[9]

---

[8] National Climatic Data Center, *2006 Local Climatological Data, Annual Summary with Comparative Data*, 2006.

[9] National Climatic Data Center, Jacksonville Observation Station (ID #072206), Period of Record: October 1, 1998 through September 30, 2007.



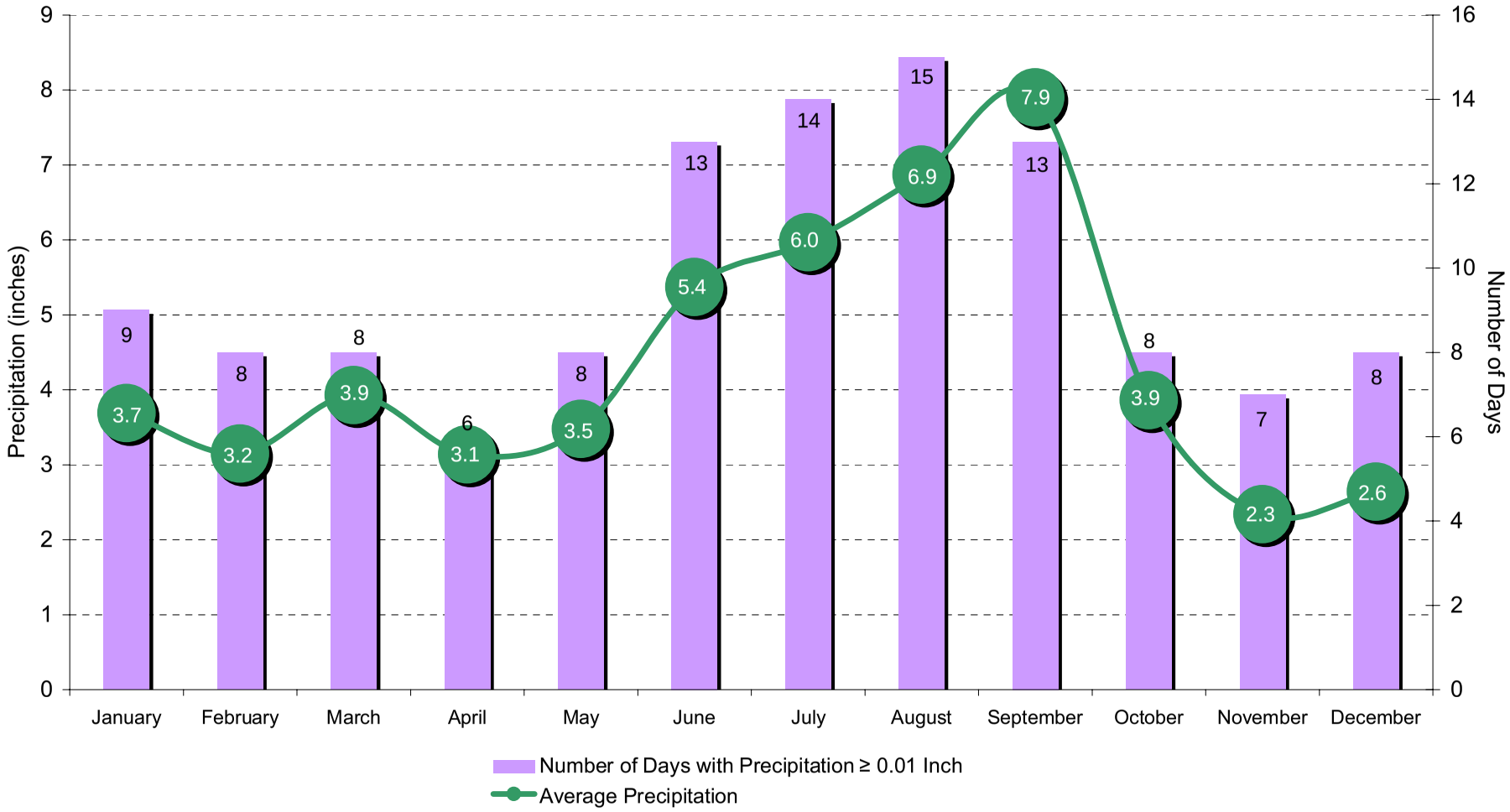
Note: Numbers have been rounded.

Source: National Climatic Data Center, Local Climatological Data, Jacksonville International Airport, Jacksonville, FL (Period of Record = 30 years)

Prepared by: Ricondo & Associates, Inc, December 2007.

Exhibit II-3

Monthly Temperature Averages



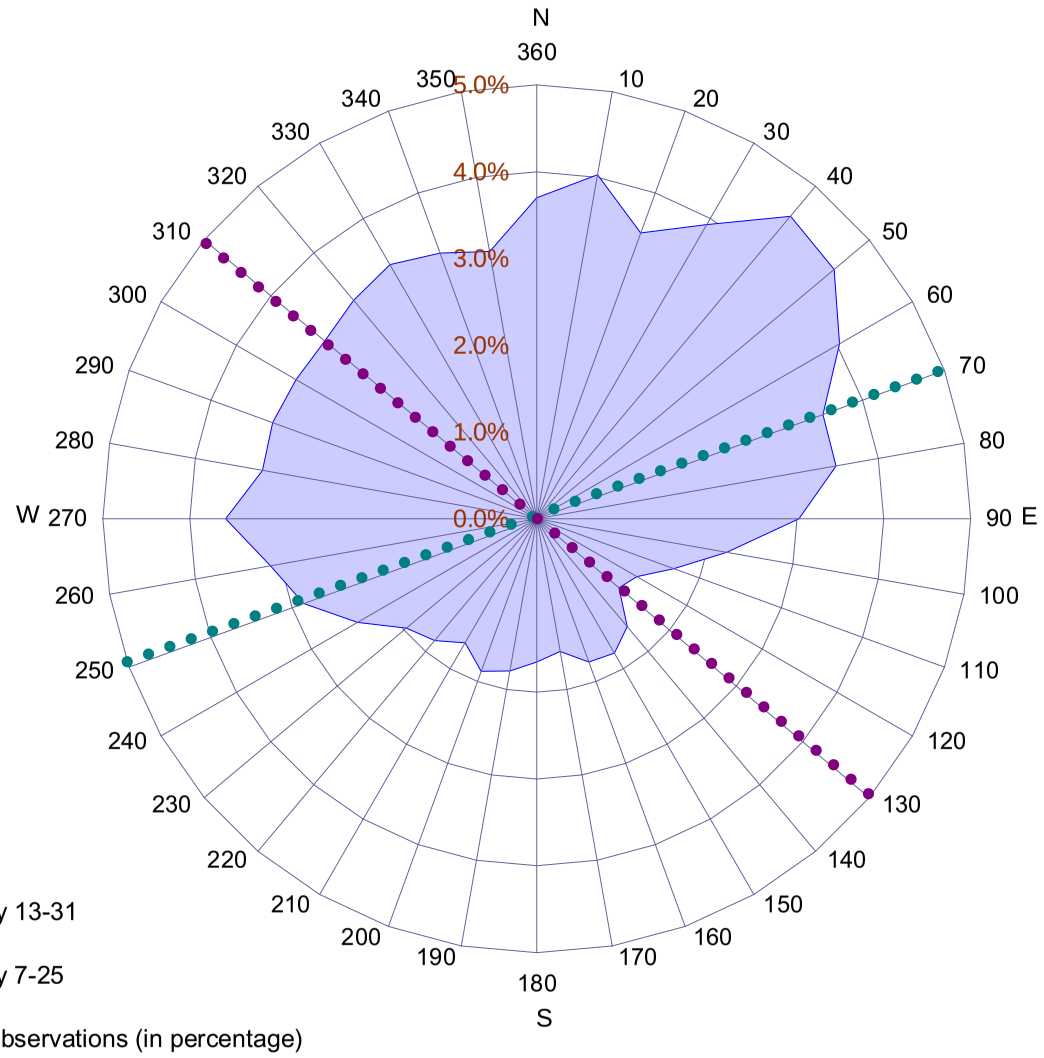
Note: Numbers have been rounded.

Source: National Climatic Data Center, Local Climatological Data, Jacksonville International Airport, Jacksonville, FL (Period of Record: 30 years)

Prepared by: Ricondo & Associates, Inc, December 2007.

Exhibit II-4

Monthly Precipitation Averages

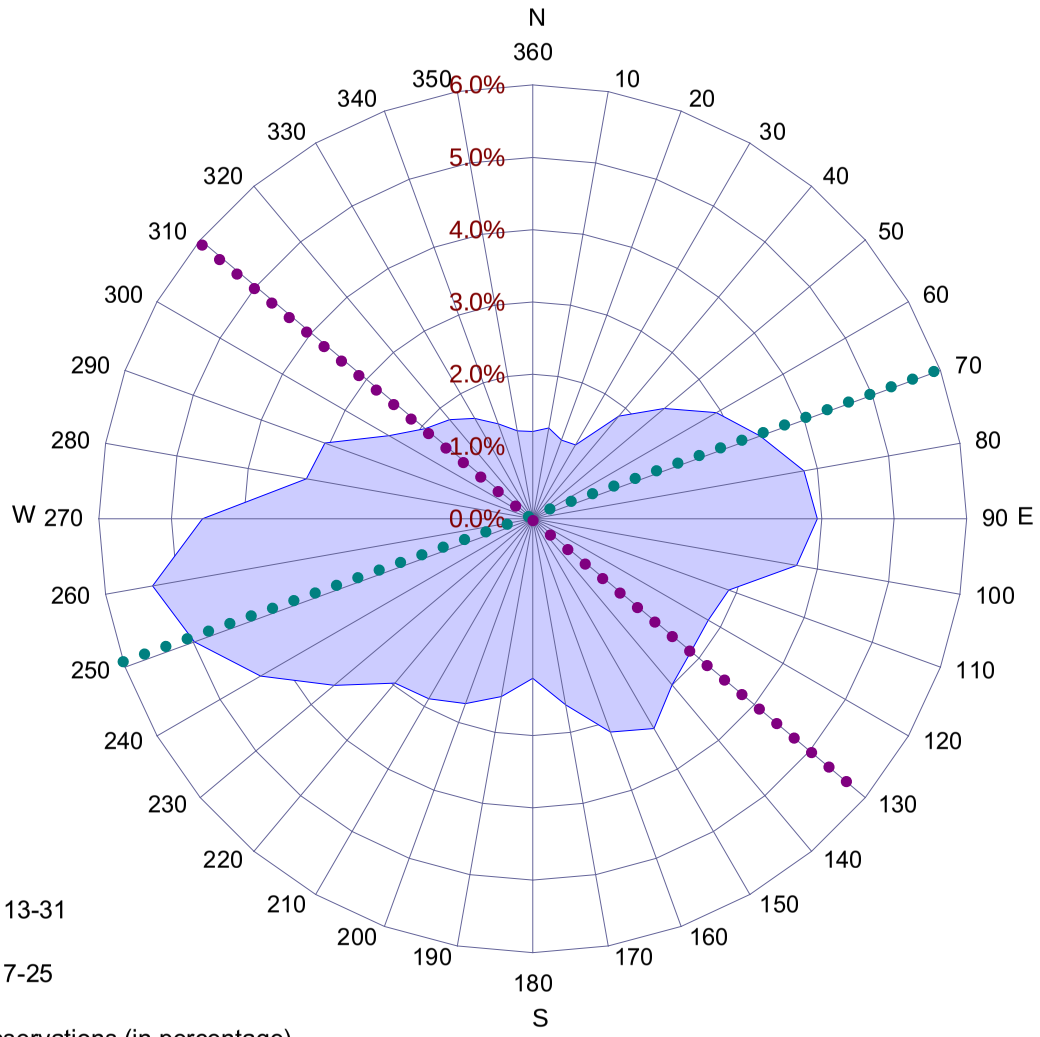


Source: National Climatic Data Center, Local Climatological Data, Jacksonville International Airport, Florida (Period of Record: 10 years).

Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-5

Percentage of Wind Observations by Direction
(All Weather - Fall and Winter Months Only)



Source: National Climatic Data Center, Local Climatological Data, Jacksonville International Airport, Florida (Period of Record: 10 years).

Prepared by: Ricondo & Associates, Inc., December 2007.

Exhibit II-6

Percentage of Wind Observations by Direction
(All Weather - Spring and Summer Months Only)

FAA requires that a period of at least 10 consecutive years be examined for determining the wind coverage when carrying out an evaluation of this type. As such, hourly wind observations collected by the NCDC from 1998 through 2007 were obtained for JAX. To determine the wind coverage at JAX, the current runways were evaluated independently and together. A review of this information shows that, for a 10.5-knot crosswind, Runway 13-31 does not provide the requisite 95 percent coverage under all-weather, IFR, or VFR conditions. However, the combination of the Airport's two runways yields the requisite wind coverage at this crosswind speed. Together, both runways provide 100.0 percent wind coverage.

Table II-3 summarizes the percent of wind coverage for the various runway configurations under all weather, VFR, and IFR. **Exhibit II-7** presents the all-weather and IFR windrose for the Airport's runways.

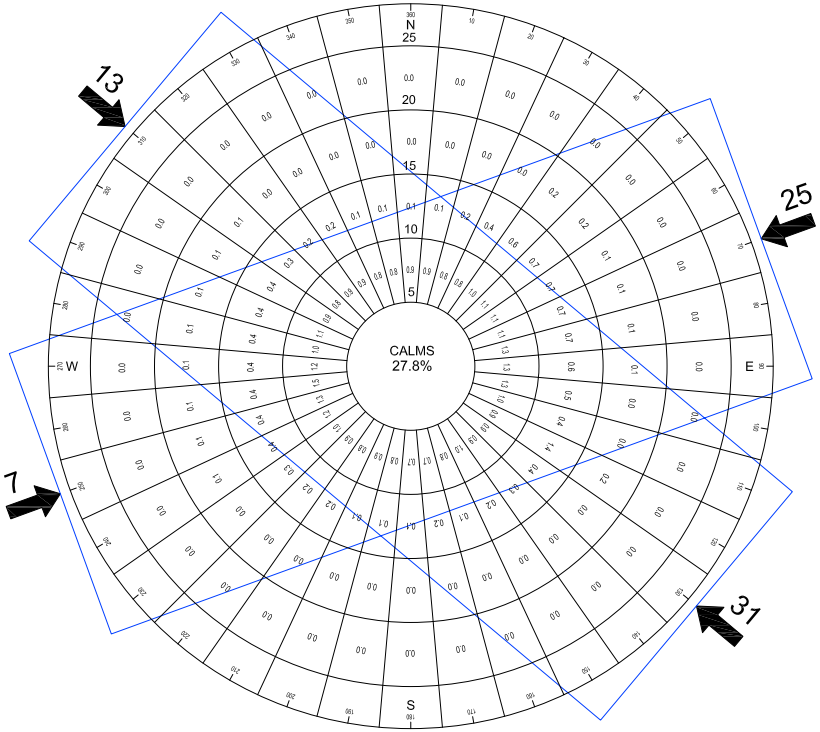
Table II-3

Percentage Wind Coverage

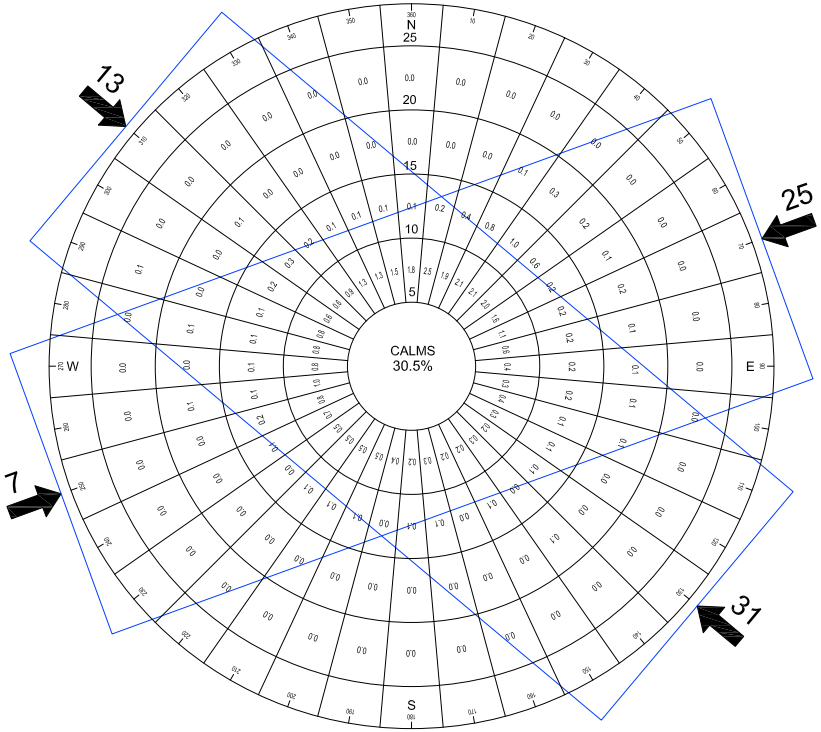
Airfield Configuration	Crosswind Component			
	10.5-knots (12 mph)	13-knots (15 mph)	16-knots (18.4 mph)	20-knots (23 mph)
All Weather Conditions				
Runway 13	56.3%	58.1%	58.9%	59.2%
Runway 31	60.5%	62.1%	63.0%	63.3%
Runway 7	59.7%	60.5%	60.8%	60.8%
Runway 25	60.0%	61.2%	61.6%	61.7%
Runway 13-31	94.3%	97.6%	99.4%	99.9%
Runway 7-25	97.4%	99.2%	99.8%	100.0%
Combined	99.5%	99.9%	100.0%	100.0%
VFR Conditions				
Runway 13	56.8%	58.7%	59.6%	59.8%
Runway 31	59.6%	61.1%	62.0%	62.3%
Runway 7	58.9%	59.8%	60.0%	60.0%
Runway 25	60.6%	61.6%	62.0%	62.1%
Runway 13-31	94.2%	97.6%	99.4%	99.9%
Runway 7-25	97.4%	99.2%	99.8%	100.0%
Combined	99.5%	99.9%	100.0%	100.0%
IFR Conditions				
Runway 13	49.3%	50.5%	51.1%	51.4%
Runway 31	73.0%	74.9%	75.8%	76.1%
Runway 7	70.1%	70.8%	71.1%	71.2%
Runway 25	55.4%	56.0%	56.3%	56.4%
Runway 13-31	94.6%	97.7%	99.2%	99.8%
Runway 7-25	97.8%	99.1%	99.7%	99.9%
Combined	99.4%	99.9%	100.0%	100.0%

Source: NOAA - National Climatic Data Center, Jacksonville International Airport, Jacksonville, Florida, October 1, 1998 - September 30, 2007 (73,882 observations)
Prepared by: Ricondo & Associates, Inc., December 2007

ALL WEATHER WIND ROSE



IFR WIND ROSE



Source: National Climatic Data Center, Jacksonville International Airport, Jacksonville, Florida, October 1, 1998 - September 30, 2007 (73,882 Observations)
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-7

0 N.T.S.

All Weather and IFR Windrose

Drawing: P:\JAX\Chapter II\Ex-II-07-AllWeatherAndIFRWindrose.dwg_Layout: Layout1_Apr 11, 2008, 4:36pm

2.3 Historic Data

This section provides a brief history of the Airport and includes a summary of historic aircraft operations and passenger activity data. The information provided in the following subsections is based on the review of the 2001 Master Plan Update and information provided by JAA.

2.3.1 Airport History[10]

Officially opened in October 1927, Thomas Cole Imeson Airport was Jacksonville's first commercial service airport. The Airport was located seven miles north of downtown Jacksonville on approximately 1,425 acres. Surrounded by three Naval facilities (Mayport Naval Station, Naval Air Station Jacksonville and Cecil Field), Imeson was constrained from a land and airspace standpoint. As a result, FAA opposed any expansion and improvement plans and consistently withheld the allocation of Federal funds.

In 1959, Jacksonville was one of three sites in Florida that was designated by FAA's National Airport Plan as an intercontinental airport. With the FAA's designation and a number of constraints with the existing site, the Jacksonville City Airports Commissioner, Louis H. Ritter, pressed for a new facility.

Three alternative sites were studied for the proposed airport site and the Airport Planning Advisory Committee selected an airport site that encompassed approximately 4,500 acres located about six miles northwest of the old Imeson Airport. The new airport site provided a larger area for growth and also a buffer zone to avoid airspace congestion problems.

Construction of Jacksonville International Airport moved forward and ultimately opened on October 27, 1968, replacing Imeson Airport as Jacksonville's commercial service airport. Imeson Airport was subsequently closed for aviation activity and the adjacent land areas were developed into a light industrial park. The new facility included a FAA control tower complex, an instrument landing approach system, and an airport lighting system.

Since its inception, JAX has continued to develop and improve its facilities to accommodate increasing activity levels. The improvements over the years have included major airfield, terminal, and landside development. Most notably is the terminal and landside development, which was initiated in 1982 when passenger traffic exceeded 2 million. In 1990, a new $100 million terminal was opened. The construction included the addition of twelve new airline gates, a new two level roadway system, and a multi-level parking garage. In 1998, ten years after this project was completed, the JAA embarked on another terminal expansion program that also incorporated parking improvements. The ongoing program consists of four different stages. Complete details of the ongoing terminal program are provided in the following subsections of this report.

2.3.2 Historic Aircraft Operations and Passenger Activities

JAX mostly accommodates passengers beginning or ending their air travel at the airport (Origin & Destination traffic), as compared to hub airports that handle a large volume of connecting passengers. The Airport provides significant low-fare service to many large markets and legacy carrier service to

[10] Source: Parsons Transportation Group, Jacksonville International Airport 2001 Airport Master Plan Update, April 2002.

most U.S. hubs. In 2007, when the Master Plan was initiated, the Airport enplaned approximately 3.1 million passengers and accommodated approximately 120,000 aircraft operations, as shown in **Table II-4** and **Table II-5**. Carriers that provided service at JAX in 2007 included American Airlines, AirTran Airways, Continental Airlines, Delta Airlines, jetBlue Airways, Northwest, Southwest, US Airways, ExpressJet Airlines, Frontier Airlines, and United Airlines. Express Jet stopped flying out of Jacksonville in September 2008, ending non-stop service to New Orleans, Austin, Texas, and Kansas City, Missouri. Frontier Airlines also ended its non-stop service between Jacksonville and Denver at the end of May 2008. Finally, on October 2008, Delta completed its merger with Northwest Airlines.

Since 2000, passenger enplanements at the Airport have increased at an average annual rate of 2.8 percent. Regional/commuter enplanements have shown the most growth increasing from 274,962 in 2003 to 695,866 in 2007, representing an annual compounded growth rate of 14.2 percent. Air carrier enplanements have shown moderate growth with enplanements increasing from 2.3 million in 2000 to approximately 2.4 million in 2007, representing an annual compounded growth rate of 0.8 percent.

As shown in Table II-5, aircraft operations have actually decreased since 2000 from 149,705 operations to 120,255 operations in 2007, representing a decline at an annual compounded growth rate of 3.1 percent. Historically, only regional/commuter aircraft operations have increased since 2000, however both air carrier and cargo aircraft operations have begun to rise since 2004.

The decrease in the number of air carriers operations can be attributed to the capacity reductions that followed the September 11 terrorist attacks, the Severe Acute Respiratory Syndrome (SARS) epidemic, and the start of the Iraq War which began in 2003. Even as the number of scheduled seats declined, enplanements were up from 2.6 million in 2000 to nearly 3.2 million in 2007. Reduced capacity and increased demand resulted in higher load factors and, overall, enplanements have actually increased in the past 7 years. Reduced capacity also resulted in an increase in the number of operations conducted by regional airlines which serve as feeder carriers to the larger "legacy" airlines. Thus, after 2001, mainline operations decreased but regional/commuter operations, increased.

General aviation operations at JAX have decreased significantly between 2000 and 2007 as a result of the repositioning of light piston aircraft operators to neighboring airports, such as Craig Municipal Airport, Herlong Airport, and Cecil Field, all of which serve the Jacksonville area and are better suited for general aviation activity. The general aviation industry has also been impacted by the challenges faced by the aviation industry in recent years, including soaring fuel prices.

2.4 Airfield System

The following section presents an overview of the existing airfield system at JAX. The airfield system generally incorporates those facilities that are necessary to support the movement and operation of aircraft including runways, taxiways, instrumentation/navigational aids, airfield lighting, pavement markings, visual aids, and airfield signage. A graphic illustrating the existing airfield system at the Airport, including taxiway or taxilane designations, is depicted in **Exhibit II-8**. In addition, **Exhibit II-9** illustrates pavement construction history at JAX

Table II-4

Historical Enplaned Passengers

Fiscal Year	Air Carrier Enplanements	Regional/Commuter Enplanements	Total
2000	2,328,206	274,962	2,603,168
2001	2,378,720	266,831	2,645,551
2002	2,140,283	285,451	2,425,734
2003	2,041,968	391,349	2,433,317
2004	1,985,537	582,049	2,567,586
2005	2,199,116	649,714	2,848,830
2006	2,264,047	655,747	2,919,794
2007	2,453,549	707,280	3,160,829
2008	2,486,428	568,175	3,054,603
2009	2,234,129	575,455	2,809,584
Compounded Annual Growth Rate			
2000 - 2007	0.8%	14.2%	2.8%
2000-2009	-0.4%	8.6%	0.9%

Note: The projections of aviation activity included in Section III of this Master Plan are based on a review of historic data for the years 2000 thru 2007. The 2008 and 2009 data included in this table are for record purposes only.

Source: Jacksonville Aviation Authority (JAA) Records
Prepared by: Ricondo & Associates, Inc., December 2007

Table II-5

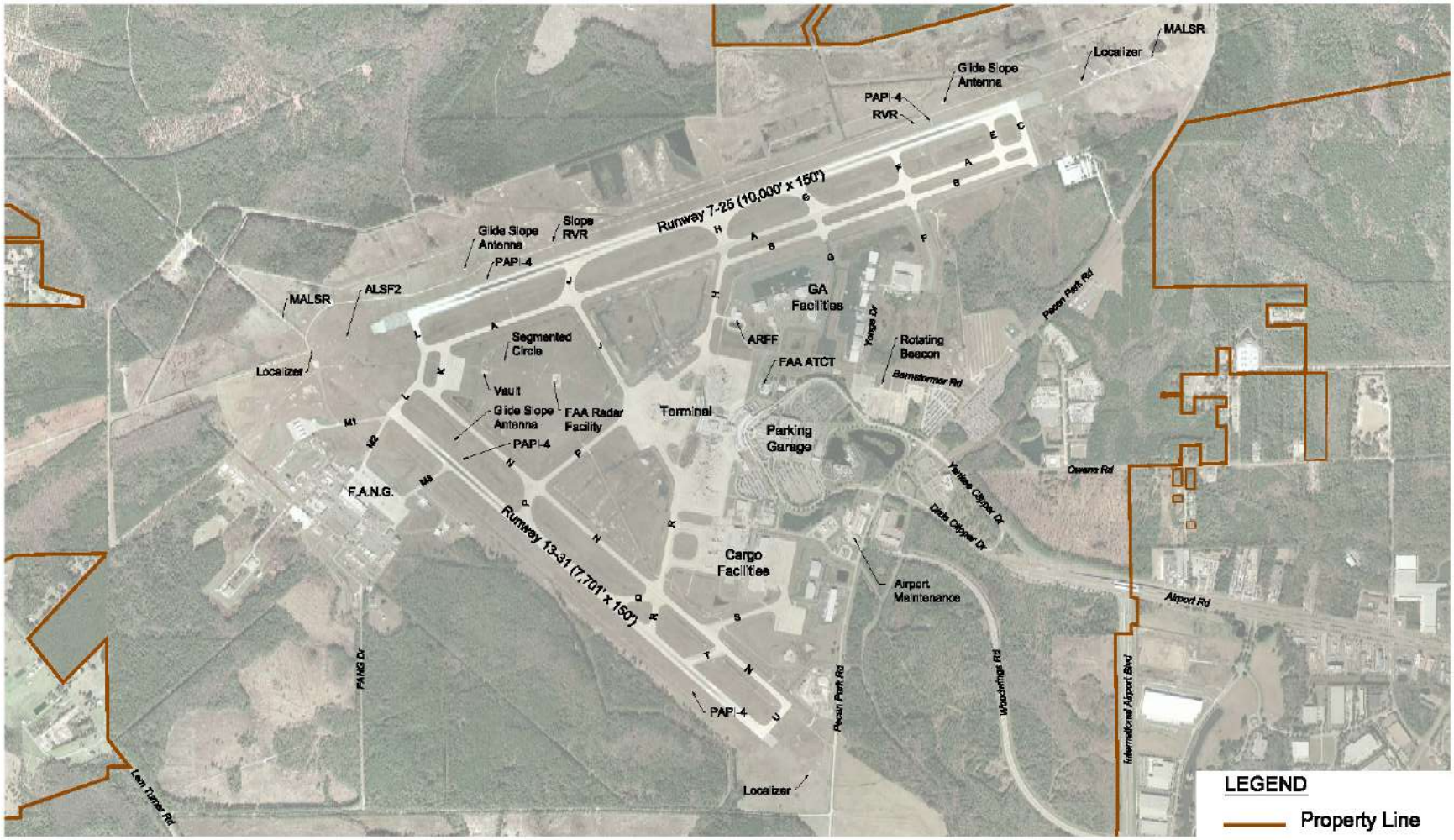
Historical Aircraft Operations

	Aircraft Operations						
Fiscal Year	Air Carrier	Regional/ Commuter	General Aviation	All-Cargo	Other Air Taxi	Military	Total
2000	53,696	19,268	40,993	5,646	12,489	17,613	149,705
2001	55,528	18,164	35,415	5,856	12,139	15,459	142,561
2002	47,844	20,146	29,699	4,512	9,658	13,391	125,250
2003	43,790	22,830	27,965	3,726	9,525	12,665	120,501
2004	40,606	33,030	24,369	3,900	8,912	12,583	123,400
2005	42,596	35,170	21,293	4,100	10,121	9,180	122,460
2006	44,144	33,514	17,647	4,158	12,348	6,612	118,423
2007	48,192	34,738	18,291	4,572	8,612	5,850	120,255
2008	46,263	23,205	8,911	4,436[1/]	8,167[2/]	3,557	94,539
2009	43,157	16,188	8,726	4,305[1/]	7,744[2/]	4,716	84,836
Compounded Annual Growth Rate							
2000 – 2007	-1.5%	8.8%	-10.9%	-3.0%	-5.2%	-14.6%	-3.1%
2000-2009[1/]	-2.4%	-1.9%	-15.8%	-3.0%	-5.2%	-13.6%	-6.0%

Note: 1/The projections of aviation activity included in Section III of this Master Plan are based on a review of historic data for the years 2000 thru 2007. The 2008 and 2009 data included in this table are for record purposes only.

2/ Estimated numbers based on the annual average growth rates recorded between 2000 and 2007.

Source: Jacksonville Aviation Authority (JAA) Records
Prepared by: Ricondo & Associates, Inc., December 2007



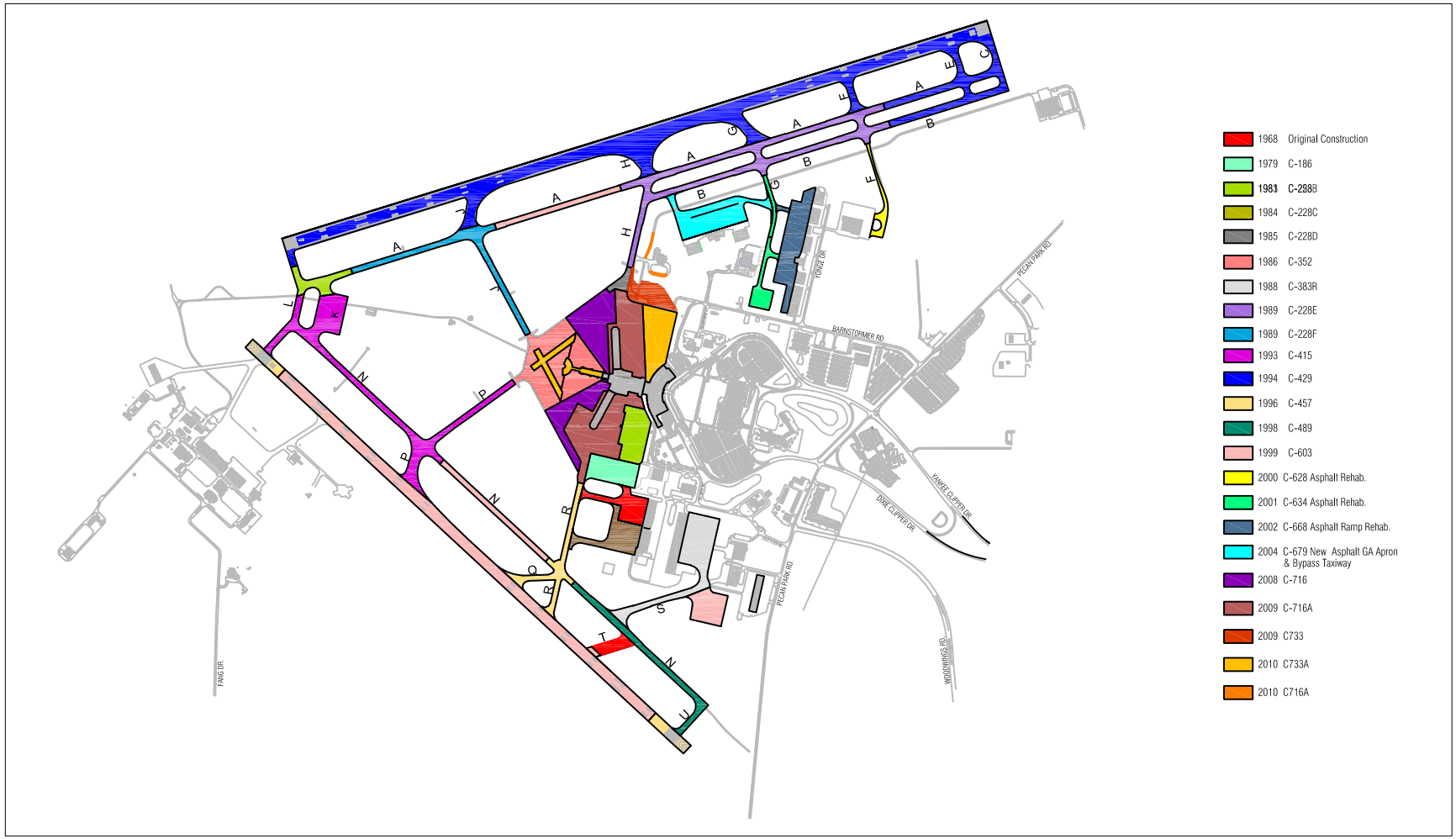
Source: Jacksonville Aviation Authority Aerial, November 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-8

0 2,500 ft

north

Airfield Layout



Source: Jacksonville Aviation Authority, Pavement Construction History, November 2004
Prepared by: Ricondo & Associates, Inc., May 2008

Exhibit II-9

0 N.T.S

north

Pavement Construction History

2.4.1 Runway Layout and Taxiway Network

The Airport is currently configured with two diverging runways, both of which are 150 feet wide. **Table II-6** summarizes the dimensional and physical characteristics of each runway. The two runways and the combination of taxiways, apron edge taxiways, and taxilanes that serve them, are described in the subsequent sections.

Table II-6

Runway Characteristics

	Runway	
Description	7-25	13-31
Length (feet)	10,000	7,701
Width (feet)	150	150
Runway End Elevations (feet)	Runway 7 – 30	Runway 13 – 28
	Runway 25 – 27	Runway 31 – 25
Touch Down Zone Elevation (feet)	Runway 7 – 27	Runway 13 – 27
	Runway 25 - 27	Runway 31 – 25
Shoulder Width (feet)	35	n/a
Load Bearing Capacity (lbs)		
Single Wheel	100,000	100,000
Dual Wheel	208,000	190,000
Dual Tandem	358,000	330,000
Gradient (%)	0.05%	0.04%
Runway Composition	Grooved-Concrete	Grooved-Concrete
Runway Markings	Precision	Precision
Blast Pad Length (feet)	400	200
Blast Pad Width (feet)	220	150

Source: Jacksonville International Airport – 2001 ALP, FAA Form 5010 (October 2007)
Prepared by: Ricondo & Associates, Inc., December 2007

The runway designators, which represent the runway magnetic headings (i.e. the takeoff direction it is pointing towards) are scheduled to be changed sometime between 2010 and 2012. Because the magnetic poles slowly drift on the Earth's surface, but the runways stay fixed, the magnetic bearings change over time. At JAX, the magnetic heading of the earth changes by approximately 0.4 of a degree every year, which will require the runway designators to be updated by 2010. Besides changing the pavement markings, all directional signage on the airport would have to be changed and all airport publications (including approach/departure charts and airport diagrams) concerning the runway would also have to be changed. This will delay implantation beyond 2010.

2.4.1.1 Runway 7-25

Commercial air carriers predominantly use Runway 7-25, which is the longer of the two runways and is also considered the primary runway at JAX. Runway 7-25 is 10,000 feet in length and 150 feet wide, with paved shoulders of 35 feet, and has a southwest/northeast orientation. The runway is classified as a precision instrument runway and is marked accordingly with precision markings at both ends.

Designed to accommodate Boeing 747 type aircraft, Runway 7-25 is constructed of concrete and grooved for increased traction during wet conditions. The runway is currently rated at strength to

accommodate aircraft with a single wheel bearing capacity of 100,000 pounds, dual wheel capacity of 208,000 pounds, and a dual tandem wheel strength of 358,000 pounds[11]. According to the Florida Department of Transportation (FDOT) Airport Pavement Evaluation Report[12], the runway is in good condition.

Both ends of the runway have blast pads that are 400 feet in length and 220 feet in width. These paved surfaces serve to decrease the likelihood of loose material being blown at high velocities by engine blast. Although this area does not have the full strength of the runway pavement it does serve as an overrun area should an aircraft fail to stop.

2.4.1.2 Runway 13-31

Runway 13-31 is the secondary or crosswind runway at JAX with a published length of 7,701 feet and a width of 150 feet. Both ends of the runway have blast pads that are 200 feet in length and 150 feet in width. Runway 13-31 is also classified as a precision instrument runway with precision markings at both ends. According to JAA maintenance personnel, the Runway 13-31 markings are currently in good condition.

Like Runway 7-25, Runway 13-31 is constructed of concrete and designed to accommodate the Boeing 747 aircraft. The pavement surface is also grooved for increased traction during wet conditions. Runway 13-31 is currently rated at strength to accommodate aircraft with a single wheel bearing capacity of 100,000 pounds, dual wheel capacity of 190,000 pounds, and a dual tandem wheel strength of 330,000 pounds. According to the FDOT Airport Pavement Evaluation Report, the runway is in good condition.

2.4.1.3 Taxiways and Taxilanes

As depicted in Exhibit II-8, the current taxiway system at JAX is comprised of two full length parallel taxiways that serve Runways 7-25 and 13-31, and a combination of 18 exit/entry taxiways. This taxiway system provides for the movement of aircraft between the runways and terminal area, air cargo ramp, general aviation and military ramp areas. **Table II-7** identifies each taxiway including dimensions, pavement condition, Pavement Condition Index (PCI)[13], and the associated airfield area which they serve.

As shown, Taxiways A and N are the full length parallel taxiways associated with each runway at JAX. Taxiway A runs parallel to Runway 7-25 and is located on the southeast side of the runway. The taxiway maintains a runway to taxiway centerline separation of 600 feet and has a width of 75 feet in compliance with the design standards required for the accommodation of large aircraft, such as Boeing 747-400. Seven connector taxiways link Taxiway A with Runway 7-25, identified as Taxiways C, E, F, G, H, J and L. Taxiways C, E, F and L are all right-angled exits, while Taxiways G, H and J are angled exit taxiways.

---

[11] The load bearing capacity of the runway refers to the strength of the runway surface and the weight, which can be supported at an average level of activity. It is commonly categorized by the type of landing gear of aircraft that use the runway.

[12] State of Florida, Department of Transportation, Aviation Office, *Statewide Airfield Pavement Management Program, Jacksonville International Airport (Primary), Jacksonville, Florida (District 2)*, December 10, 2007.

[13] The Pavement Condition Index is a number which represents the condition of a pavement segment at an instant in time. It is based on visual identification and measurements of specific distress types commonly found in pavement which has been in service for a period of time. The PCI is the national standard when evaluating airport conditions at the state level. The PCI measures pavement quality on a scale of 0 to 100. A pavement with a PCI score of 100 is in great condition; a pavement with a PCI of 0 is essentially rubble.

Table II-7

Taxiway Data Summary Table

Taxiway	Taxiway Width (feet)	Associated Runway	Pavement Condition	PCI Index[1/]	Taxiway Type
A	75	7-25	Satisfactory/Good	89	Parallel Taxiway (to Runway 7-25)
B	75	7-25	Satisfactory/Good	85	Parallel Taxiway (to Taxiway A)
C	90	7-25	Good	97	Entrance Taxiway (Runway 25)
E	90	7-25	Good	96	Bypass Taxiway
F	90 / 75	7-25	Satisfactory/Good	81	Exit Taxiway
G	90 / 50	7-25	Varies (from Fair to Good)	85	Angled Exit Taxiway / Taxiway leading to the GA ramp
H	75	7-25	Satisfactory/Good	93[2/]	Exit Taxiway / Taxiway leading to the terminal ramp
J	75	7-25	Good	91	Angled Exit Taxiway / Taxiway leading to the terminal ramp
K	90	Not Applicable	Good	96	Bypass Taxiway (to Taxiway L)
L	90	7-25 & 13-31	Satisfactory/Good	88	Entrance Taxiway (Runway 7 & 13)
M1	50	13-31	N/A	N/A	Exit Taxiway leading to the FANG facilities
M2	50	13-31	N/A	N/A	Exit Taxiway leading to the FANG facilities
M3	50	13-31	N/A	N/A	Exit Taxiway leading to the FANG facilities
N	75	13-31	Good	94	Parallel Taxiway (to Runway 13-31)
P	75	13-31	Good	92	Angled Exit Taxiway / Taxiway leading to the terminal ramp
Q	90	13-31	Good	96	Angled Exit Taxiway
R	90	13-31	Good	93[2/]	Angled Exit Taxiway / Taxiway leading to the terminal ramp
S	75	Not Applicable	Good	81	Taxiway leading to the Cargo area
T	150	13-31	Fair	67	Angled Exit Taxiway
U	90	13-31	Good	95	Entrance Taxiway (Runway 31)

Notes:
1/ Indicates area-weighted average PCI
2/ Indicates area-weighted average PCI for Taxiways H and R combined.
Taxiway lengths were rounded to the nearest 10.
GA stands for General Aviation
FANG stands for Florida Air National Guard
N/A stands for Non-Applicable

Sources: Jacksonville International Airport – 2001 ALP, Florida Department of Transportation, Pavement Evaluation Report, December 2007.
Prepared by: Ricondo & Associates, Inc., December 2007

Taxiway N runs parallel to Runway 13-31 and is located on the northeast side of the runway. Taxiway N also maintains a runway to taxiway separation of 600 feet and has a width of 75 feet. Runway 13-31 and Taxiway N are connected by six taxiways that are identified as Taxiways L, P, Q, R, T and U. These taxiways consist of both right-angled (Taxiways L and U) and angled taxiways (Taxiways P, Q, R and T).

In addition to the airfield taxiways, a network of taxilanes located on the terminal ramp provides access and circulation for air carrier aircraft within the terminal area. These taxilanes are currently

being reconfigured as part of the Terminal Expansion Program. The "baseline" configuration will be designed to allow for the movement of aircraft with a wingspan that does not exceed 214 feet[14], such as Boeing 777 and Boeing 747, on the outer perimeter of the terminal ramp. The inner taxilanes that serve the concourses and stem off the outer perimeter taxilane will be designed to allow for the movements of aircraft with a wingspan that does not exceed 171 feet[15], such as a Boeing 767.

2.4.2 Instrument Approach Procedures

During times of inclement weather, instrument approaches allow pilots to safely navigate and land at airports. Different types of instrument approaches are available, each offering different sets of performance. The most advanced systems allow pilots to land with extremely low visibility conditions. As the clouds ceiling decreases and visibility deteriorates, the necessity for instrument approach capability increases. There are two basic categories for instrument approaches: precision and non-precision.

Both precision and non-precision approaches provide course guidance to runway ends. The precision component, or horizontal guidance, increases with the sophistication of the instrument approach aid. The primary difference between a precision and non-precision approach is that in addition to horizontal guidance, the precision approach provides vertical guidance to a specific runway end, which allows an aircraft to descend safely on a fixed glide slope signal, even though no visual reference to the runway environment can be confirmed. Runways 7, 13 and 25 at JAX are designated as precision, and Runway 31 is designated as a non-precision instrument runway.

2.4.2.1 Precision Instrument Approaches

There are three general categories for precision instrument approaches. The defining characteristics of each are based upon the decision height and visibility minimums, expressed in statute miles, under which a pilot can operate an aircraft. These three categories are described in **Table II-8**. CAT II and CAT III approaches require pilots and aircraft to have specific certifications to execute these approaches.

Table II-8

Precision Approach Categories

Category	Decision Height	Visibility Minimum
CAT I	200 feet	Greater than ½ mile
CAT II	100 feet	RVR of at least 1,200 feet
CAT III	Less than 100 feet	RVR lower than 1,200 feet

Note: RVR stands for Runway Visual Range. RVR is an instrumentally derived value that represents the horizontal distance a pilot may see down the runway.

Source: FAA AC 5300-13, Change 11, "Airport Design".
Prepared by: Ricondo & Associates, Inc., December 2007

JAX currently has five published instrument landing system (ILS) approaches. The ILS system, which provides both vertical and horizontal guidance to pilots on approach to the runways, is

[14] FAA Airplane Design Group (ADG) V Taxilane. Design groups will be discussed in the Facility Requirements section of the Master Plan.

[15] FAA ADG IV Taxilane

composed of a localizer antenna, glide slope antenna, marker beacons, and the runway approach lighting system. With these four components, an aircraft is guided to a touchdown point just beyond the approach end of a runway. **Table II-9** summarizes the ILS approaches and visibility minimums published for JAX. The approach plates associated with the JAX precision instrument approaches are shown in **Exhibit II-10** through **II-13**.

Table II-9

Precision Instrument Approaches

Instrument Procedure[1]/	Decision Height for Straight-in Approach (in feet above ground level)	Visibility (in statute miles)[2]/
Runway 7 ILS CAT I	230	1/2 (A, B, C, D, E)
Runway 7 ILS CAT II	130	RVR of at least 1,200 feet
Runway 7 ILS CAT III a	N/A	RVR of at least 700 feet
Runway 7 ILS CAT III b	N/A	RVR of at least 600 feet
Runway 13 ILS CAT I	227	1/2 (A, B, C, D)
Runway 25 ILS CAT I	227	1/2 (A, B, C, D)

Notes:
1/ ILS CAT I – Instrument Landing System Category I; ILS CAT II/III – Instrument Landing System Category II/III.
2/ Visibility letters refer to aircraft approach categories as defined by the FAA.

Source: FAA, Southeast US Terminal Procedures, October 25, 2007
Prepared by: Ricondo & Associates, Inc., December 2007

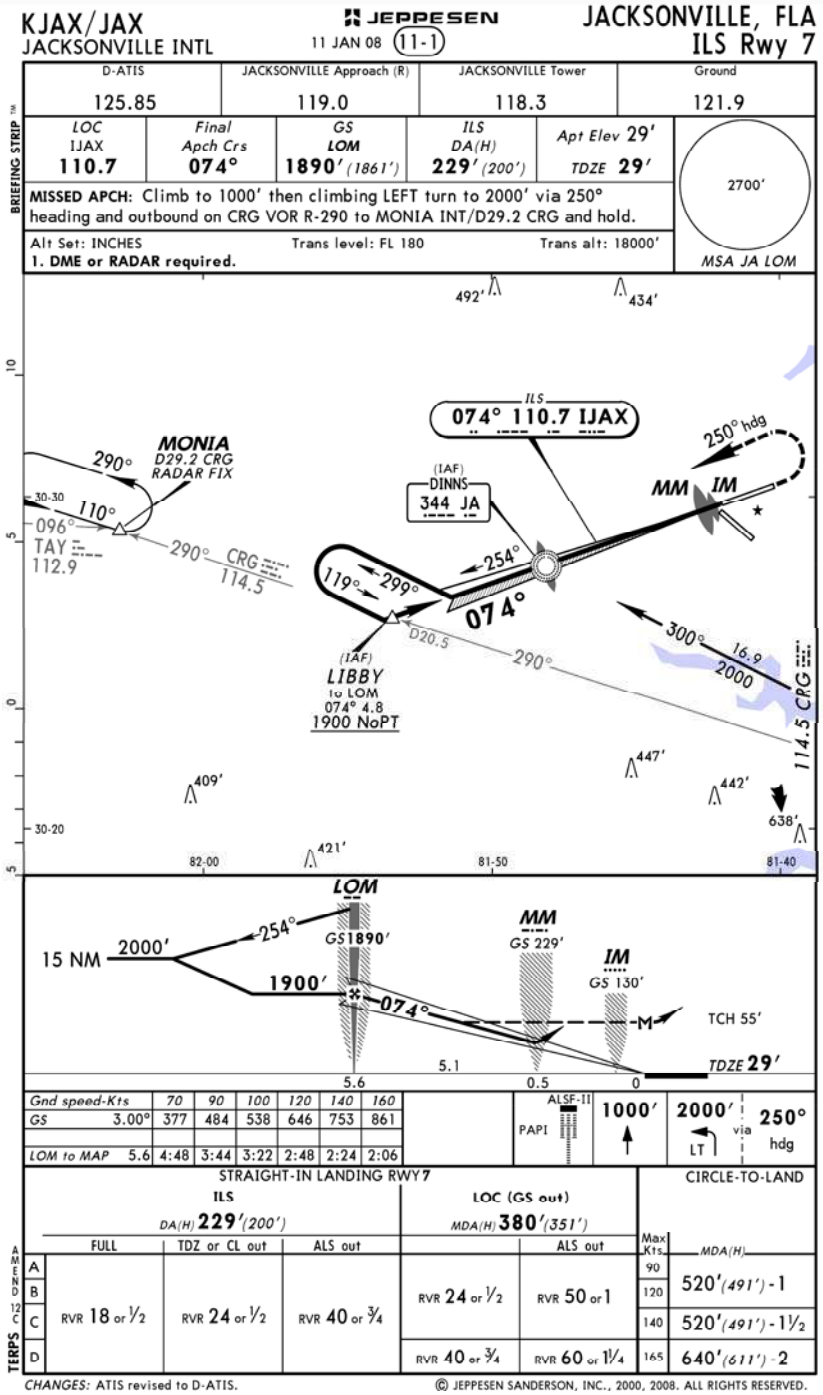
As shown in Table II-9, Runway 7 is equipped with a CAT I, II, and III ILS approaches, while Runway 13 and 25 are only equipped with a CAT I ILS. The CAT I ILS provides for approaches to a decision height of 230 feet and visibility of not less than ½-statute mile. In comparison, the CAT II ILS system provides lower minimums with a decision height of not less than 130 feet and a RVR of at least 1,200 feet. Lastly, the CAT III approaches allow the execution of landings in extremely poor weather conditions and a RVR of at least 600 feet.

2.4.2.2 Non-Precision Instrument Approaches

Non-precision instrument approaches can be provided at airports through a number of different navigational aids, including the localizer component of an ILS system. The localizer can be used independent of the other ILS components to provide course guidance or non-precision approach capability. In addition, three other navigational systems offer non-precision approaches to JAX: Very High Frequency Omnidirectional Radio Range (VOR), Global Positioning Satellites (GPS), and Non-Directional Beacon (NDB).

A VOR is a ground-based electronic navigation aid transmitting signals, 360 degrees in azimuth, called radials. The VOR[16] used to conduct approaches at JAX is a located at Craig Municipal Airport, approximately seven nautical miles southeast of JAX. This VOR is also equipped with a Distance Measuring Equipment (DME). This equipment allows pilots to determine their distances to or from the VOR as various radials are flown.

[16] The VOR located at Craig Municipal Airport is a Very High Frequency Omnidirectional Radio Range and/or Tactical Air Navigation (VORTAC) facility, identified on aeronautical charts as CRG.



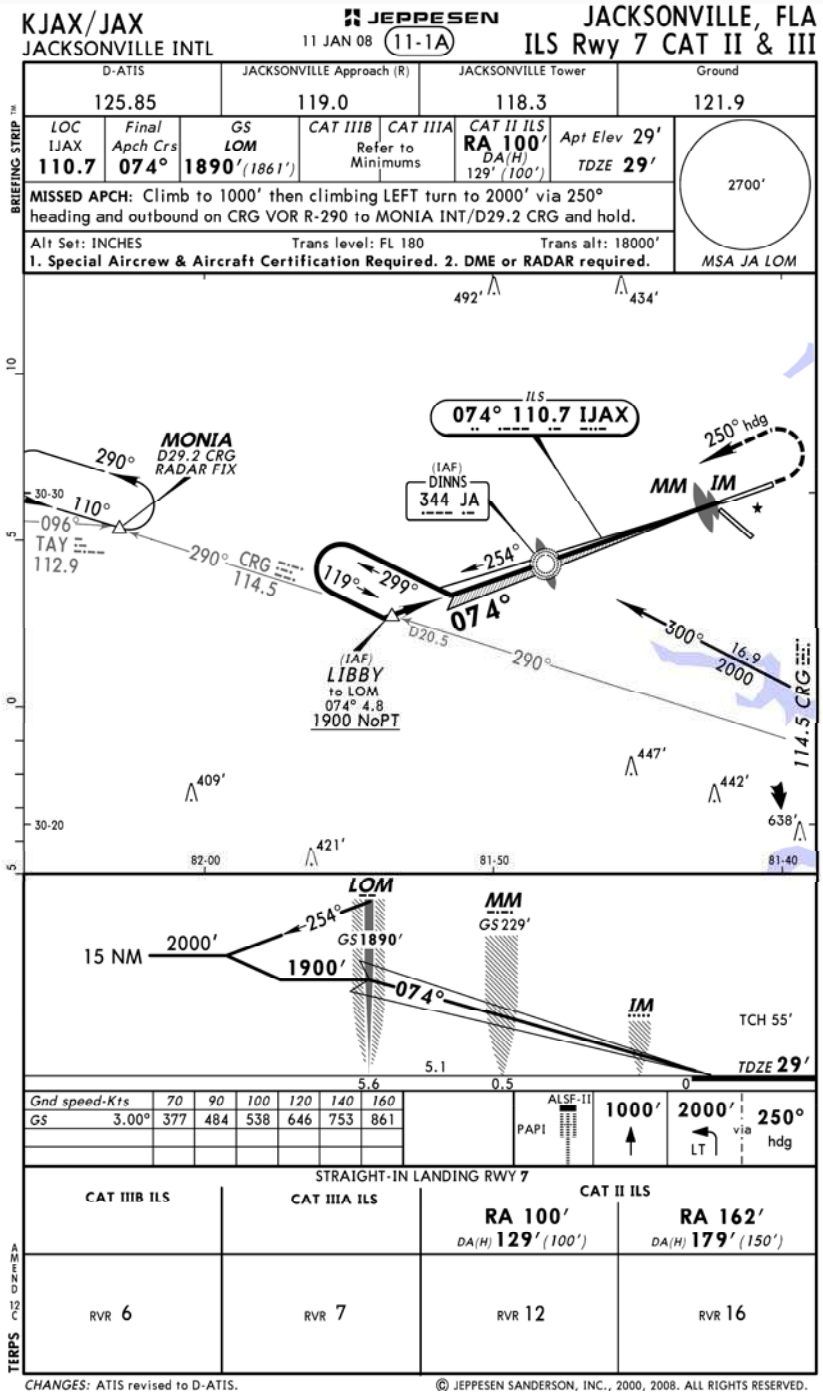
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-10

Not To Scale

Approach Plate
ILS Runway 7



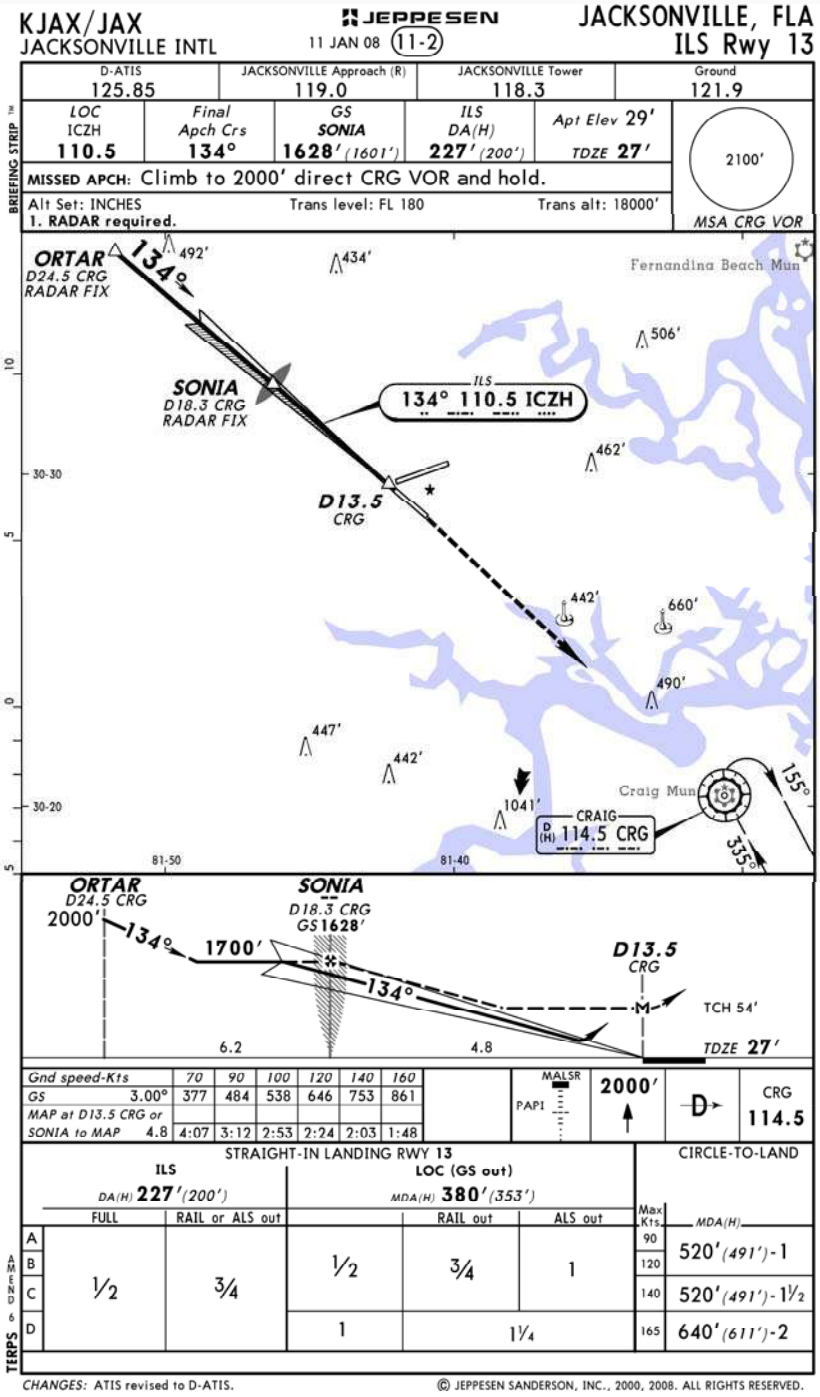
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-11

Not To Scale

Approach Plate
ILS Runway 7 CAT II & III



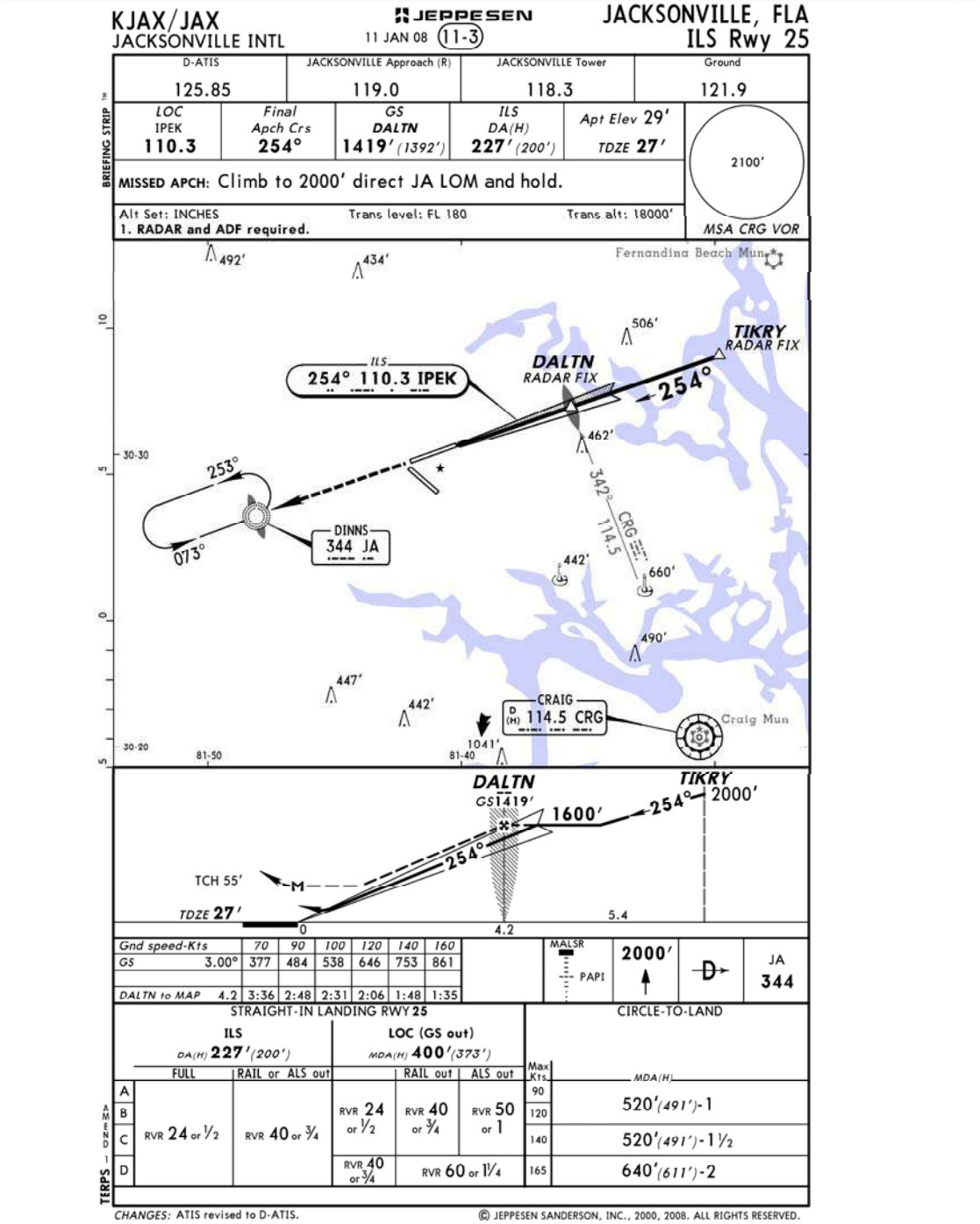
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-12

Not To Scale

Approach Plate
ILS Runway 13



Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-13

Not To Scale

Approach Plate
ILS Runway 25

Unlike VOR and NDB approaches that rely on ground equipment, the GPS navigation system relies on a network of satellites. These satellites provide a celestial reference for determining the position of any point on or above the Earth's surface. By analyzing the time delays of signals received from some of these satellites, receivers installed in aircraft are able to determine latitude, longitude, and altitude.

A Non-Directional Radio Beacon (NDB) facility provides bearing information to or from the beacon, allowing pilots to track their location with respect to the Airport, such as when conducting an NDB instrument approach. There are two NDB facilities located in proximity of the Airport. The NDB identified as ESAPORT is located 5.9 nautical miles southwest of the Airport, and the NDB identified as DINNS is situated 6.1 nautical miles east/southeast of the Airport.

The non-precision approaches and the minimums associated with these approaches at JAX are summarized in **Table II-10** and illustrated on **Exhibits II-14 t**hrough **II-19.**

Table II-10

Non-Precision Instrument Approaches

Instrument Procedure[1]/	Minimum Descent Altitude (MDA)	Visibility (miles)[2]/
Runway 7 LOC	380	1/2 (A, B, C) 3/4 (D, E)
Runway 7 NDB	520	3/4 (A, B, C) 1 1/4 (D)
Runway 7 GPS/RNAV	460	1 (A, B, C, D)
Runway 13 LOC	380	1/2 (A, B, C) 1 (D)
Runway 13 GPS/RNAV	460	1 (A, B, C, D)
Runway 25 LOC	400	1/2 (A, B, C) 3/4 (D)
Runway 25 GPS/RNAV	380	3/4 (A, B, C, D)
Runway 31 GPS/RNAV	392	1 1/4 (A, B, C, D)
Runway 31 VOR/DME	440	1 (A, B) 1 1/4 (C, D) 1 1/2 (E)

Notes:
1/ LOC – Localizer; NDB – Non-Directional Beacon; GPS – Global Positioning System; VOR – Very High Frequency Omnidirectional Radio Range; DME – Distance Measuring Equipment
2/ Visibility letters refer to aircraft approach categories as defined by the FAA.

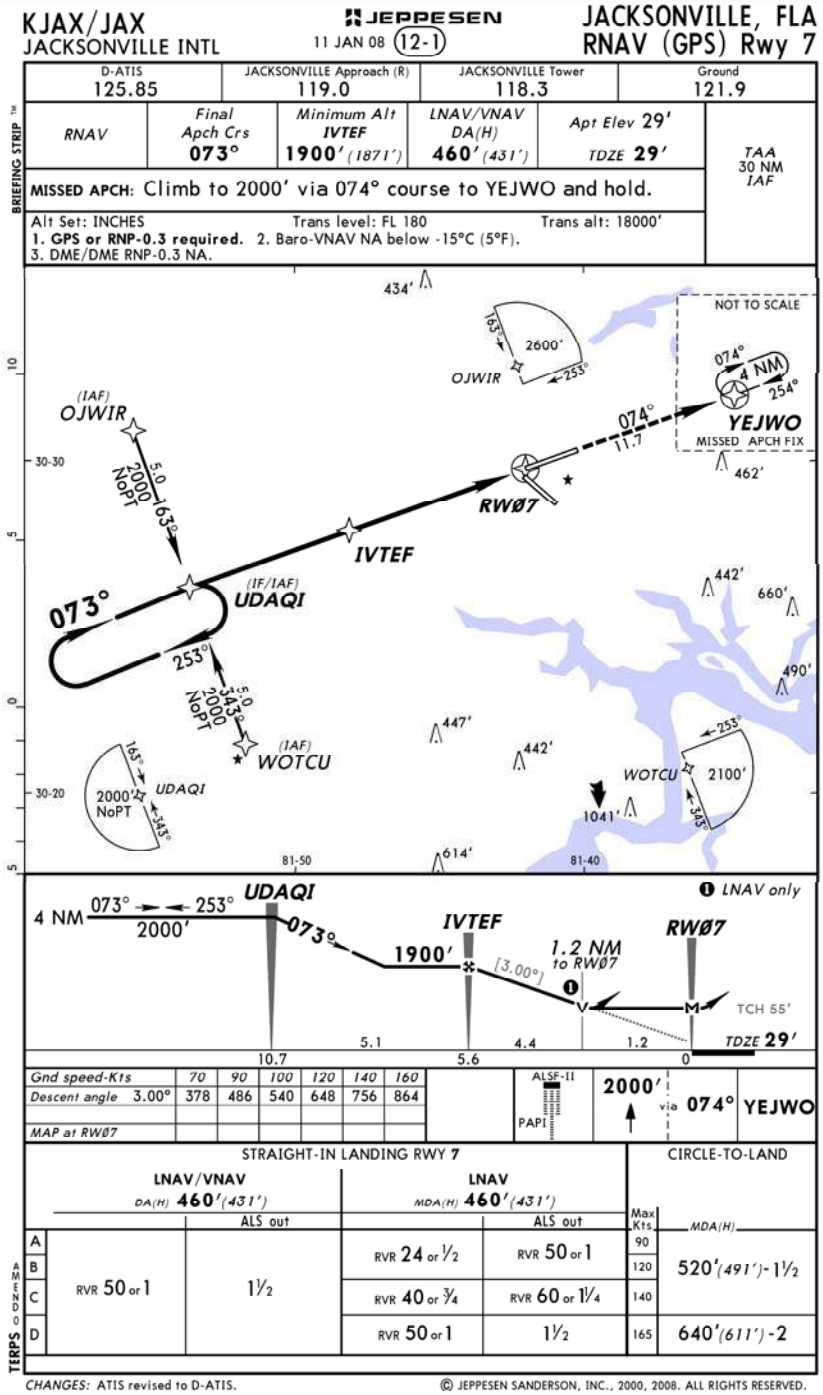
Source: FAA, Southeast US Terminal Procedures, October 25, 2007
Prepared by: Ricondo & Associates, Inc., December 2007

2.4.3 Airfield Lighting

All airfield lighting electrical systems at JAX receive power from the electrical vault located on the west side of the airfield near the ends of Runway 7 and 13, just east of Taxiway K. This section details the various airfield lighting components that currently exist at JAX.

2.4.3.1 Identification Lighting

Pilots are aided in locating airports that operate at night or during very adverse weather conditions by rotating lighted beacons. At JAX, the rotating beacon is situated on top of a water tower (elevation 184.3 feet MSL) that is located on the east side of the airfield and adjacent to the overflow parking lot located on the south side of Barnstormer Road. The beacon, which is in good condition, is continuously operated during nighttime hours and when the airfield is under instrument conditions.



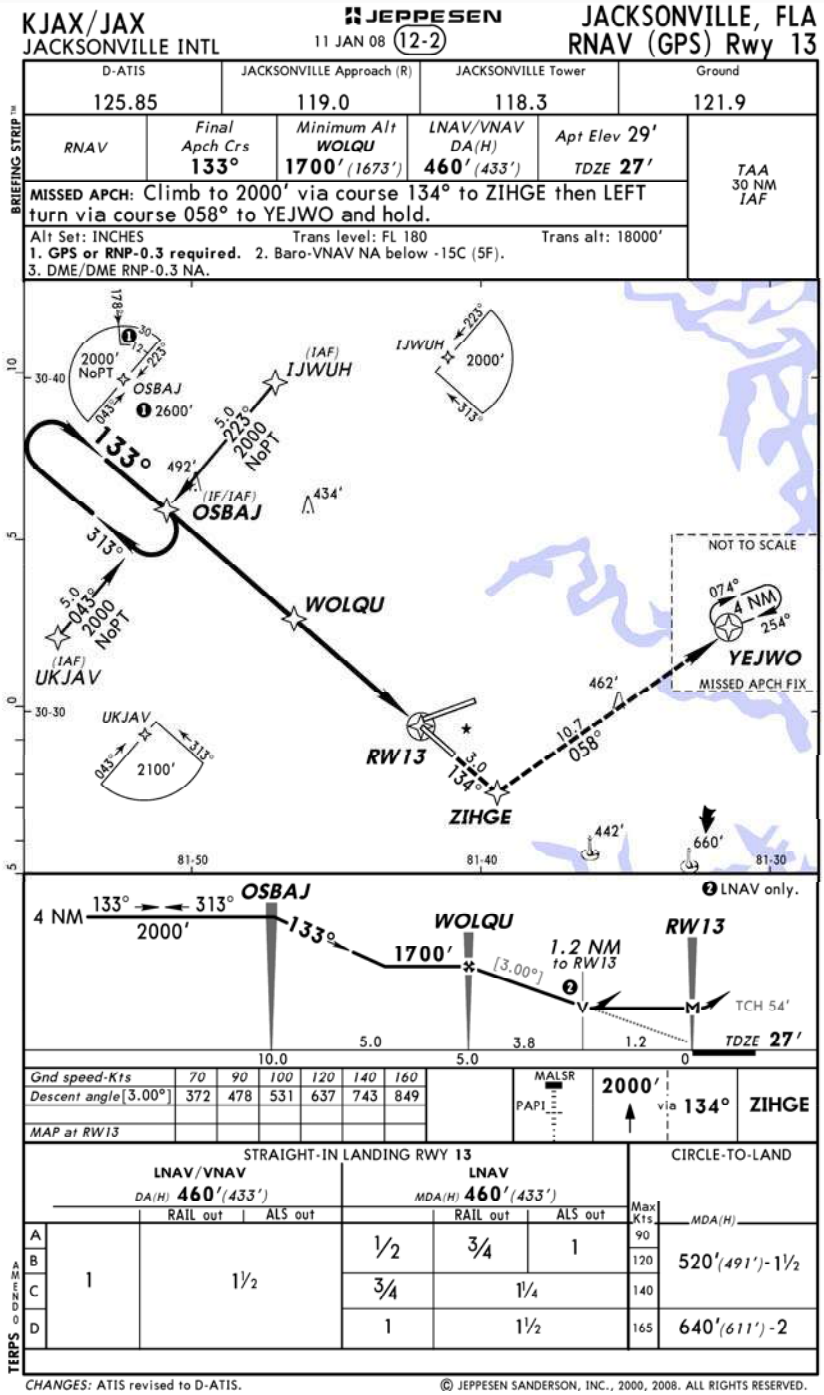
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-14

Not To Scale

Approach Plate
Runway 7 RNAV (GPS)



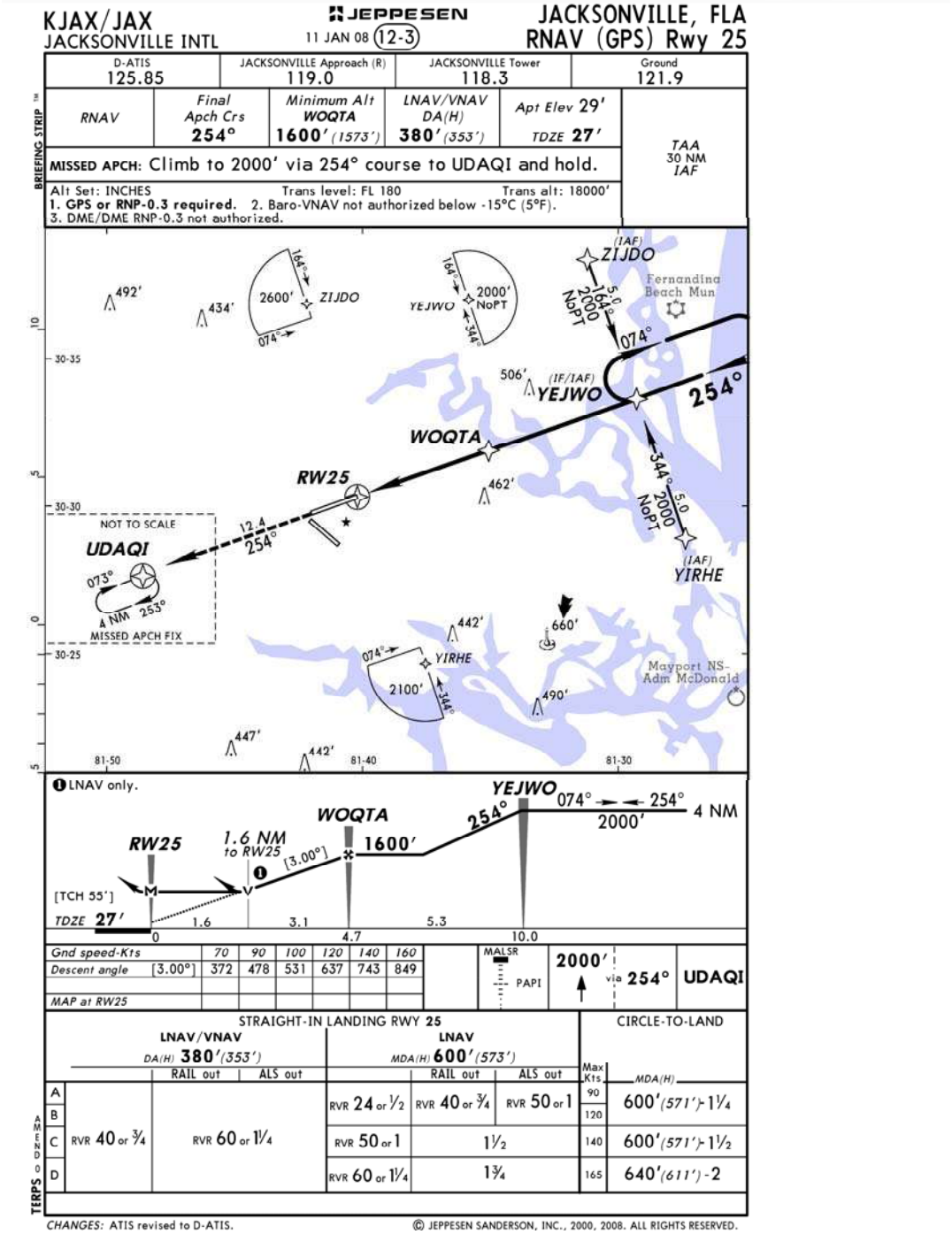
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-15

Not To Scale

Approach Plate
Runway 13 RNAV (GPS)



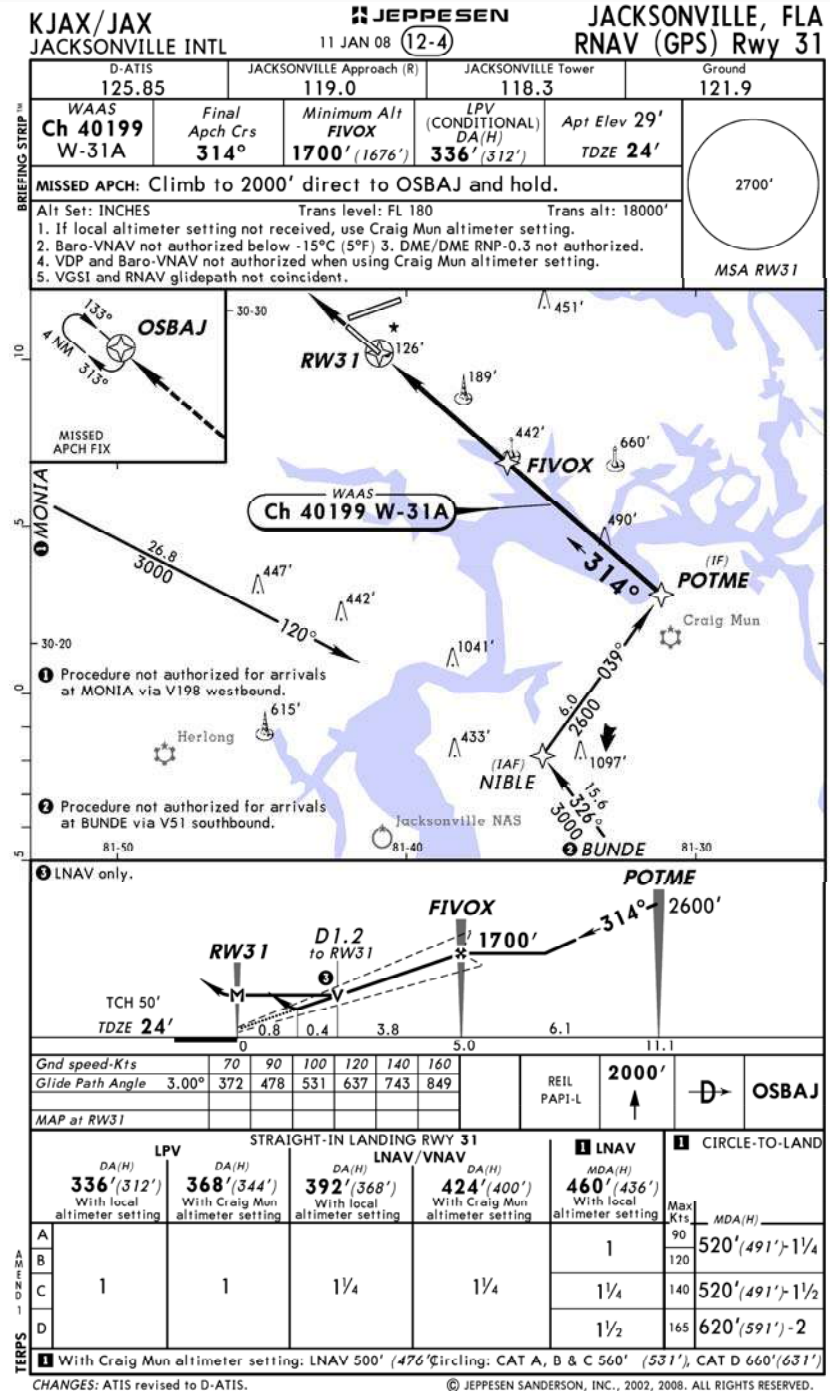
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-16

Not To Scale

Approach Plate
Runway 25 RNAV (GPS)



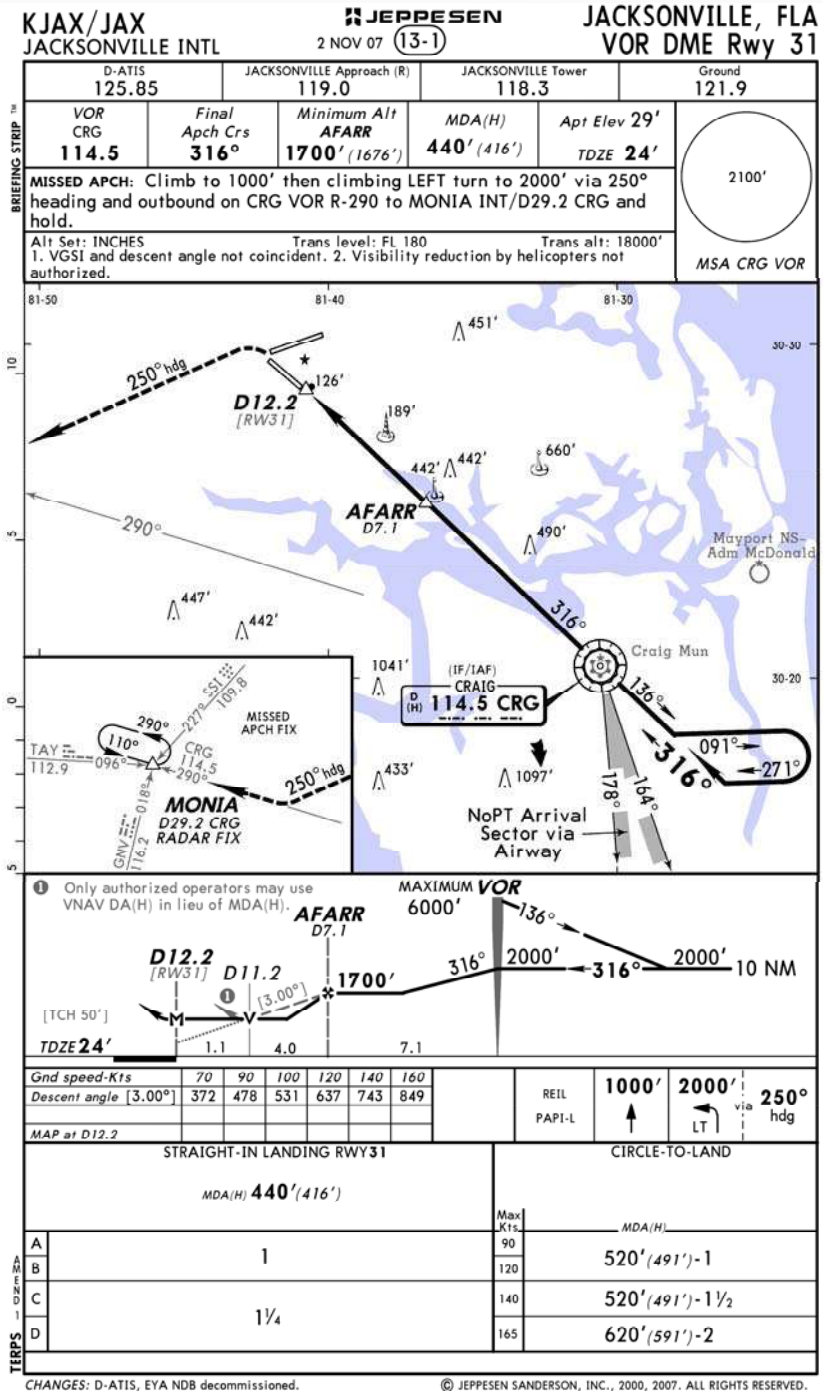
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-17

Not To Scale

Approach Plate
Runway 31 RNAV (GPS)



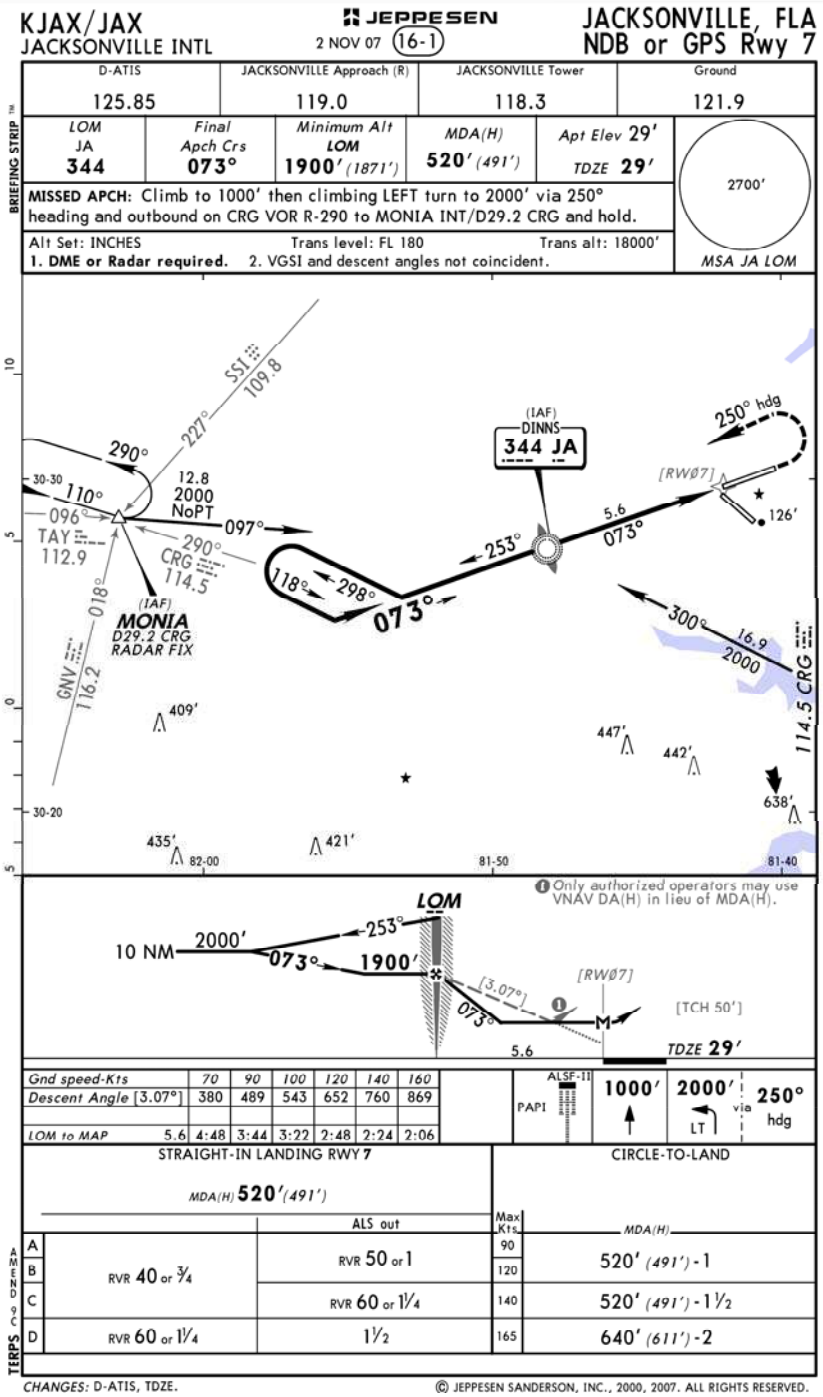
Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-18

Not To Scale

Approach Plate
Runway 31 VOR



Note: Reproduced with permission from Jeppesen Sanderson, Inc. NOT FOR NAVIGATIONAL USE.

Source: © Jeppesen Sanderson, Inc. 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-19

Not To Scale

Approach Plate
Runway 7 NDB

2.4.3.2 Runway Lighting

Runways 7-25 and 13-31 are both equipped with High Intensity Runway Lights (HIRL) and bi-directional centerline lighting. In addition, Runways 7, 13 and 25 are equipped with touch down zone lights (TDZL), and Runway 31 is equipped with runway end identifier lights (REIL).

The TDZL systems are variable-intensity white lighting in the touchdown zone of the associated runway. The systems consist of bars of three inset lights per bar situated on either side of the runway centerline at 100-foot intervals, commencing 100 feet from the threshold and extending 3,000 feet down the runway. The REILs on the end of Runway 31 consist of two synchronized flashing lights, located on each side of the runway threshold, that provide rapid and positive identification of the runway end.

Table II-11 summarizes the runway lighting systems that are available at JAX. These systems are functional and, based on discussion with JAA maintenance personnel, considered to be in good condition.

Table II-11

Runway Lighting Systems

System[1/]	Runway 7	Runway 25	Runway 13	Runway 31
HIRL	X	X	X	X
Centerline Lighting	X	X	X	X
TDZ Lights	X	X	X	
REIL				X

Note:
1/ HIRL – High Intensity Runway Lights; TDZ Lighting – Touch Down Zone Lighting; REIL – Runway End Identifier Lights.

Source: FAA Form 5010 (October 2007)
Prepared by: Ricondo & Associates, Inc., December 2007

2.4.3.3 Approach Lighting

Approach lighting systems are located along the extended runway centerline and serve to enhance the runway visibility upon approach. A variety of systems can be used based upon the types of IFR approaches to that runway. As a requirement to conducting CAT II or CAT III instrument approaches, runways must be equipped with approach lighting systems that have sequenced flashers. Currently, two runways are equipped with such systems at the JAX.

Runway 7 is equipped with a 2,400-foot high intensity approach lighting system with sequential flashing lights (ALSF-2). Runways 13 and 25 are both equipped with a 2,400-foot medium intensity approach lighting system with runway alignment indicator lights (MALSR). The ALSF-2 is an advanced system that allows CAT II and CAT III precision approaches, while the MALSR is an economy approach lighting system approved for CAT I precision approaches. According to JAA maintenance personnel, the existing systems are functional and in good condition.

2.4.3.4 Taxiway and Apron Lighting

All taxiways at JAX are equipped with Medium Intensity Taxiway Lights (MITL) and the angled taxiways located off of Runway 7-25 are equipped with centerline lighting. Apron edge lighting is

also provided on the terminal and cargo ramps. In 2008, JAA intends to upgrade some of the taxiway lighting systems, including the installation of new conduits and light-emitting diode (LED) lights.

2.4.4 Navigational and Approach Aids

In addition to the ILS systems available at JAX, all four runway ends are equipped with 4-box Precision Approach Path Indicator (PAPI) lighting systems that provide aircraft with a visual descent reference during approach. The PAPIs are located on the left side of Runways 7, 13 and 31, and on the right side of Runway 25.

2.4.5 Airfield Signage

JAX has a number of illuminated airfield signs to display instruction and guidance information to aircraft, as stipulated in FAA AC 150/5340-18D, titled "Standards for Airport Sign Systems." Standard airfield signage is used to indicate an intersection of an entrance to a runway, taxiway or critical movement area. In addition to standard signage, Runways 7-25 and 13-31 are also equipped with runway distance remaining signs, which are characterized by single, double-sided white numerical inscriptions that are used by pilots as a reference to indicate the remaining distance of runway available in thousands of feet. Runway 7-25 is equipped nine runway distance remaining signs, while Runway 13-31 is equipped with six.

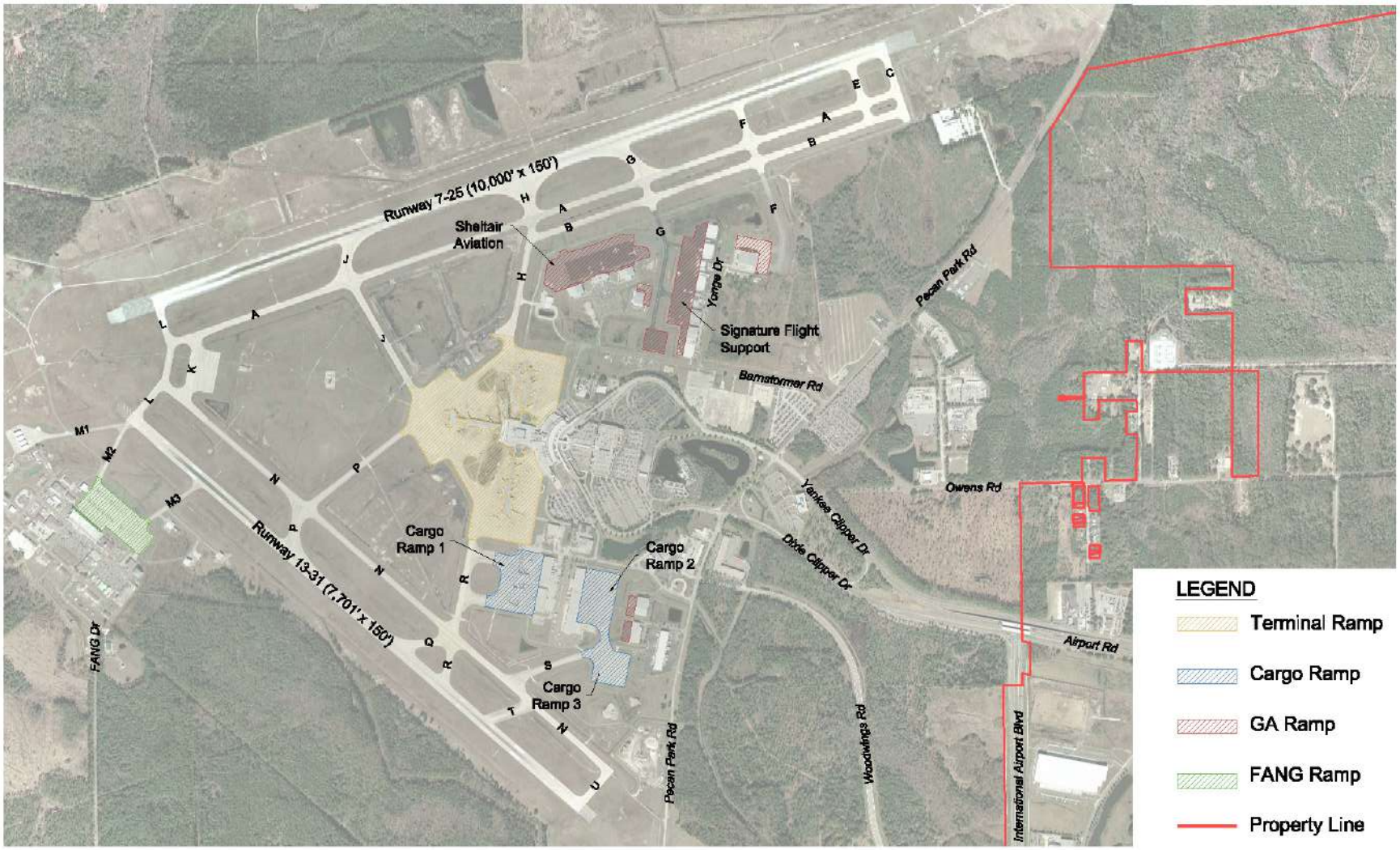
According to JAA representatives, several signs would need to be upgraded to meet the requirements of FAA AC 150/5340-18D. In addition, the majority of the sign panels are faded and should be replaced. The number of signs that must be replaced will be assessed in the Demand Capacity and Facility Requirements Chapter.

2.4.6 Ramp and Apron Areas

For the purposes of this discussion, four categories of ramps and aprons are identified. These include:

- the passenger terminal ramp,
- the air cargo ramps (ramps 1, 2 and 3),
- the FANG apron,
- the GA ramps (Sheltair Aviation Services, Signature Flight Support).

Each of the ramp areas are depicted in **Exhibit II-20**. The terminal ramp surrounds the terminal building providing access for air carrier aircraft to and from the taxiways. As part of the ongoing Terminal Expansion Program, the terminal ramp is currently being rehabilitated and expanded. Once completed, the ramp will provide a total area of approximately 2,000,000 square yards, designed with a series of taxilanes to allow safe maneuvering of air carrier aircraft to and around the concourse gates. In addition, the redesigned terminal ramp will also provide a total of ten remote aircraft parking positions, capable of accommodating a mix of aircraft ranging from small regional jets (e.g. CRJ 200) to widebody aircraft (e.g. Boeing 767-300). Access to the terminal ramp is provided by Taxiways H, J, P and R.



Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-20

0 2,000 ft
north

Ramp and Apron Areas

Located to the south of the terminal area are the cargo ramps, identified as Air Cargo Ramps 1, 2 and 3. Ramp 1 is located directly south of the terminal area and can be accessed via Taxiway R. This ramp serves principally serve UPS and DHL and provides an apron area of approximately 38,000 square yards.

Both cargo Ramps 2 and 3 are located to the east of Ramp 1. Access to these ramps is provided solely by Taxiway S. Ramp 2 currently serves Federal Express and provides an apron area of approximately 36,700 square yards. Ramp 3 provides an area of approximately 22,000 square yards and is used for the accommodation of charter aircraft and large air cargo aircraft, such as the Antonov 124.

The FANG apron is located on the west side of the airfield near the end of Runway 13. The apron is approximately 45,000 square yards and accommodates the F-15 fleet of the FANG-125th Fighter Group. Access to the FANG apron is currently provided by Taxiways M2 and M3. Both taxiways provide direct access to Runway 13-31.

The aprons located on the north side of the terminal and south of Runway 7-25 are generally dedicated to general aviation aircraft, and, on occasion military aircraft that come to be refueled and serviced by one of the FBOs. In total, the general aviation area include five different aprons that provide approximately 122,000 square yards of space for aircraft parking and ground support equipment staging. The overall condition of the pavement utilized by the GA tenants is good. Further discussion about the condition and use of the general aviation ramp is provided in Section 2.11.

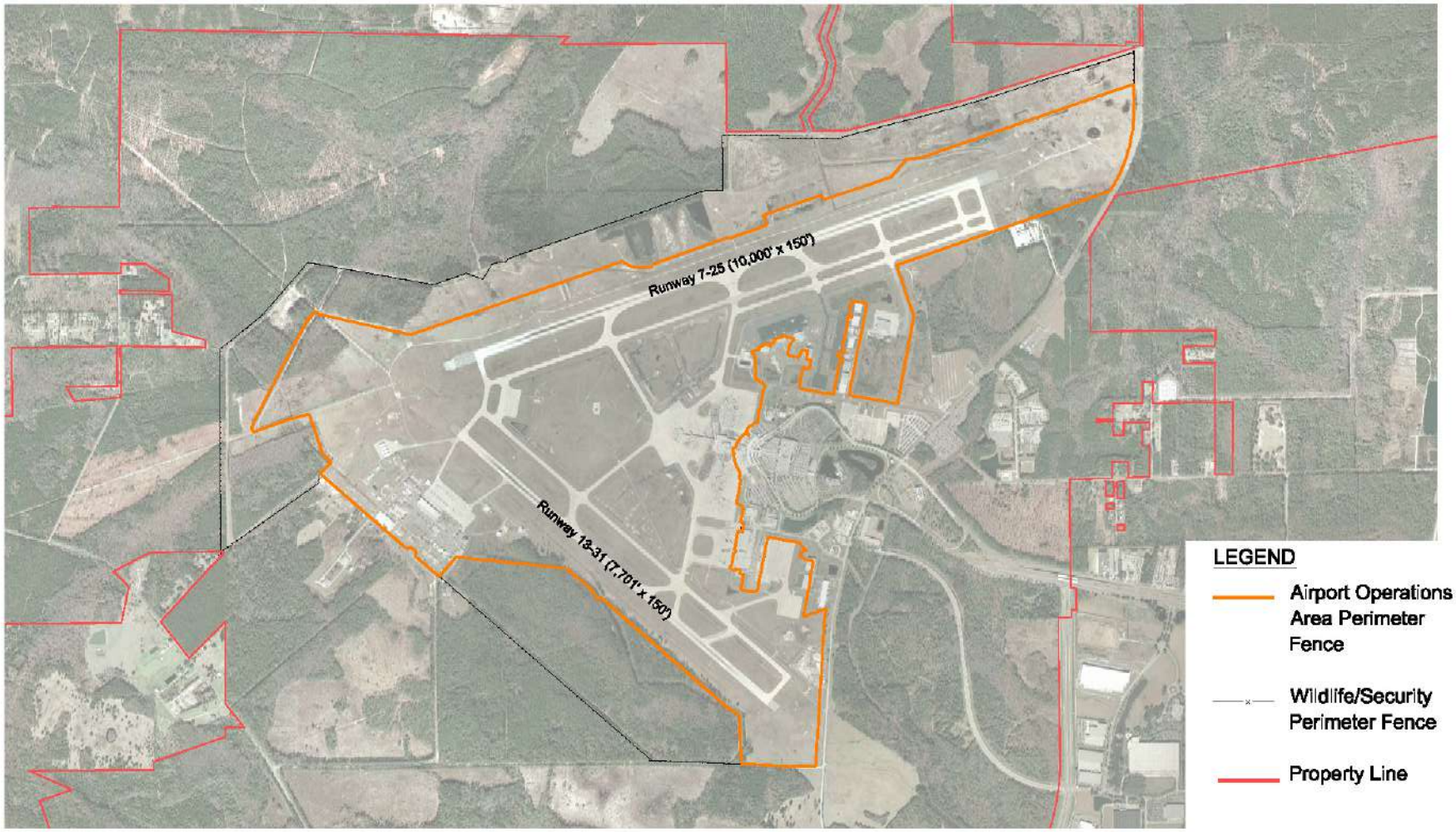
2.4.7 Service Road

The service roads at JAX consist of both gravel and paved surfaces. This network of secured roads allows Airport personnel to access a number of different facilities located within or in the vicinity of the AOA for the purposes of maintenance and security. In addition, these roads also allow the general circulation of vehicles around the Airport without affecting the flow of aircraft.

With the completion of the Terminal Expansion Program, the terminal ramp will provide a two lane service road for the circulation of ground support equipment (GSE) around each concourse. The terminal ramp service roads will be strategically located just outside the taxilane object free areas, allowing the safe circulation of GSE vehicles without affecting aircraft traffic flows within the terminal area.

2.4.8 Fencing and Security Gates

The Airport is currently secured by two perimeter fencing systems consisting of both wildlife and security fencing, as depicted in **Exhibit II-21**. The wildlife perimeter fence consists of an 8-foot high chain link fence. The primary purpose of this system is to prohibit wildlife from accessing the Airport. The perimeter security fence secures the Airport Operations Area (AOA) and also consists of an 8-foot high chain link fence. The AOA at JAX includes all runways, taxiways, and apron areas. According to JAA maintenance personnel, both fencing systems are in good condition. The AOA access control includes vehicle gates with keypad access for highly utilized areas of vehicular ingress and egress. Private use gates to FBO areas and associated hangars are also controlled by keypads.



Source: Jacksonville Aviation Authority Aerial, November 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-21

0 3,000 ft north

Perimeter Fencing

2.5 Airspace Environment

The airspace for JAX incorporates two elements: (1) airport approach surfaces and (2) the regional airspace. Each of these uses is further described below.

2.5.1 Airport Approach Surfaces

Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace,* defines imaginary surfaces surrounding an airport. These surfaces, depicted in **Exhibit II-22**, must be kept clear of natural and man-made obstructions that may compromise the safety of approaching or departing aircraft. **Table II-12** provides a summary of the existing surfaces and related dimensional requirements at JAX as stipulated by the FAA.

Table II-12

Existing FAR Part 77 Imaginary Surfaces

	Runway Approach End			
	7 (feet)	25 (feet)	13 (feet)	31 (feet)
Approach Type	Precision	Precision	Precision	Non-Precision
Primary Surface Width	1,000	1,000	1,000	1,000
Horizontal Surface Radius	10,000	10,000	10,000	10,000
Approach Surface Width (inner)	1,000	1,000	1,000	500
Approach Surface Width (outer)	16,000	16,000	16,000	3,500
Approach Surface Length	50,000	50,000	50,000	10,000
Approach Slope [1/]	50:1	50:1	50:1	34:1

Note:
1/ First 10,000 feet the slope is 50:1, remaining 40,000 feet is sloped at 40:1

Source: FAA Regulations Part 77; Jacksonville International Airport – 2001 ALP
Prepared by: Ricondo & Associates, Inc., December 2007

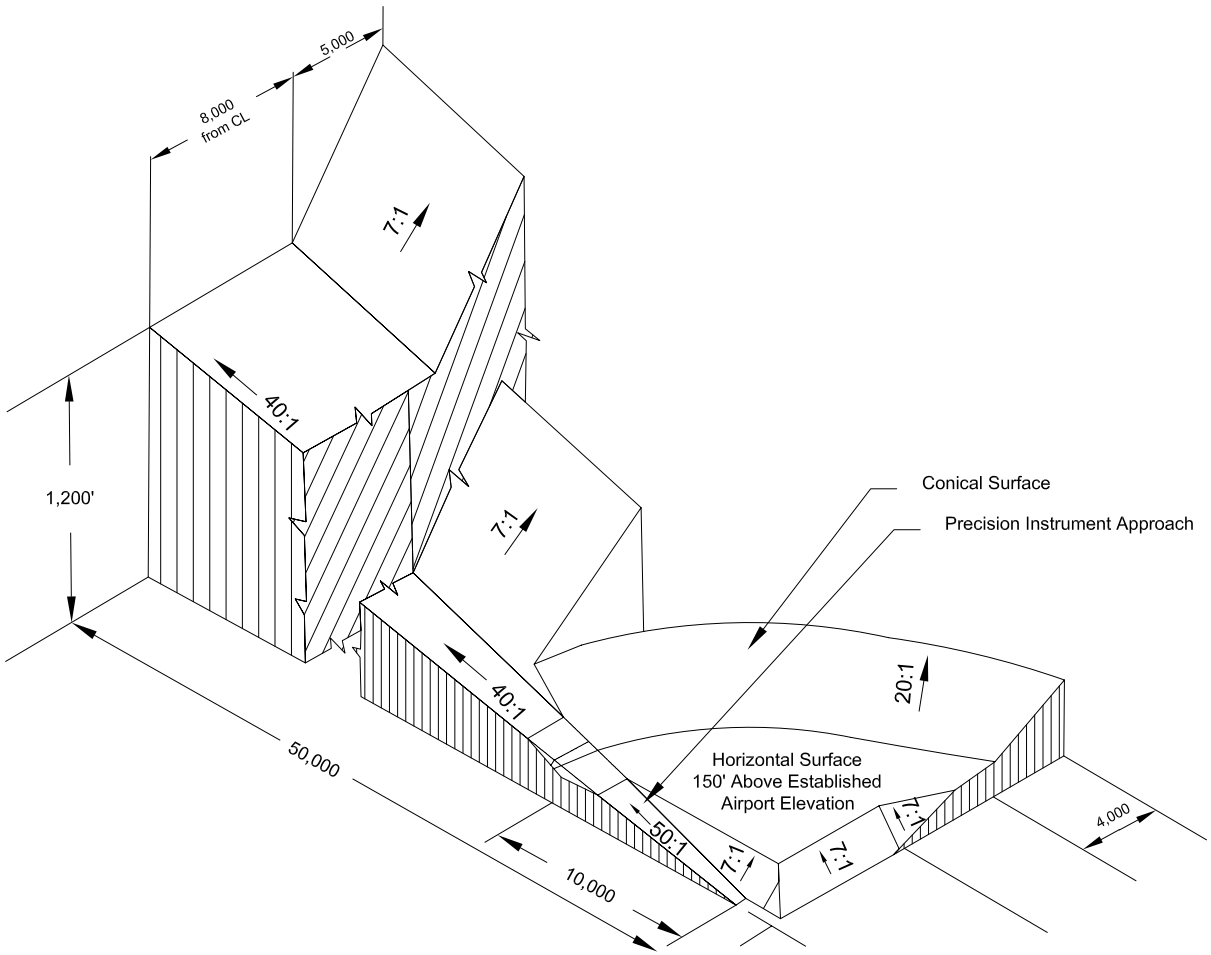
According to the Airport Obstruction Chart that was published in February of 2004, there are vegetative obstructions located at both ends of Runway 7-25 and Runway 13-31.[17] The vegetative obstructions at the ends of Runways 7, 25 and 13 are located within the 50:1 approach surface, while the vegetative obstructions at the end of Runway 31 are located within the 34:1 approach surface. In addition, there are also vegetative obstructions located on the southwest side of Runway 13-31 within the primary surface and the 7:1 transitional surface.

These obstructions will be evaluated in further details in the development of the Airport Layout Plan (ALP). Depending on the severity of the imaginary surfaces encroachments, trimming or removal of these obstructions may be required.

2.5.2 Regional Airspace

The immediate airspace surrounding JAX is shown in **Exhibit II-23,** and is categorized as a Class C airspace. Class C airspace is controlled and includes the surface up to 4,000 feet above the airport elevation. The Class C airspace surrounding JAX is controlled by the Air Traffic Control Tower (ATCT), which supervises, directs and monitors the arrival and departure traffic from the Airport and in the airspace within five miles of the Airport.

[17] Airport Obstruction Chart, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, February 2004



Source: Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*, April 1971
Prepared by: Ricondo & Associates, Inc., December 2007

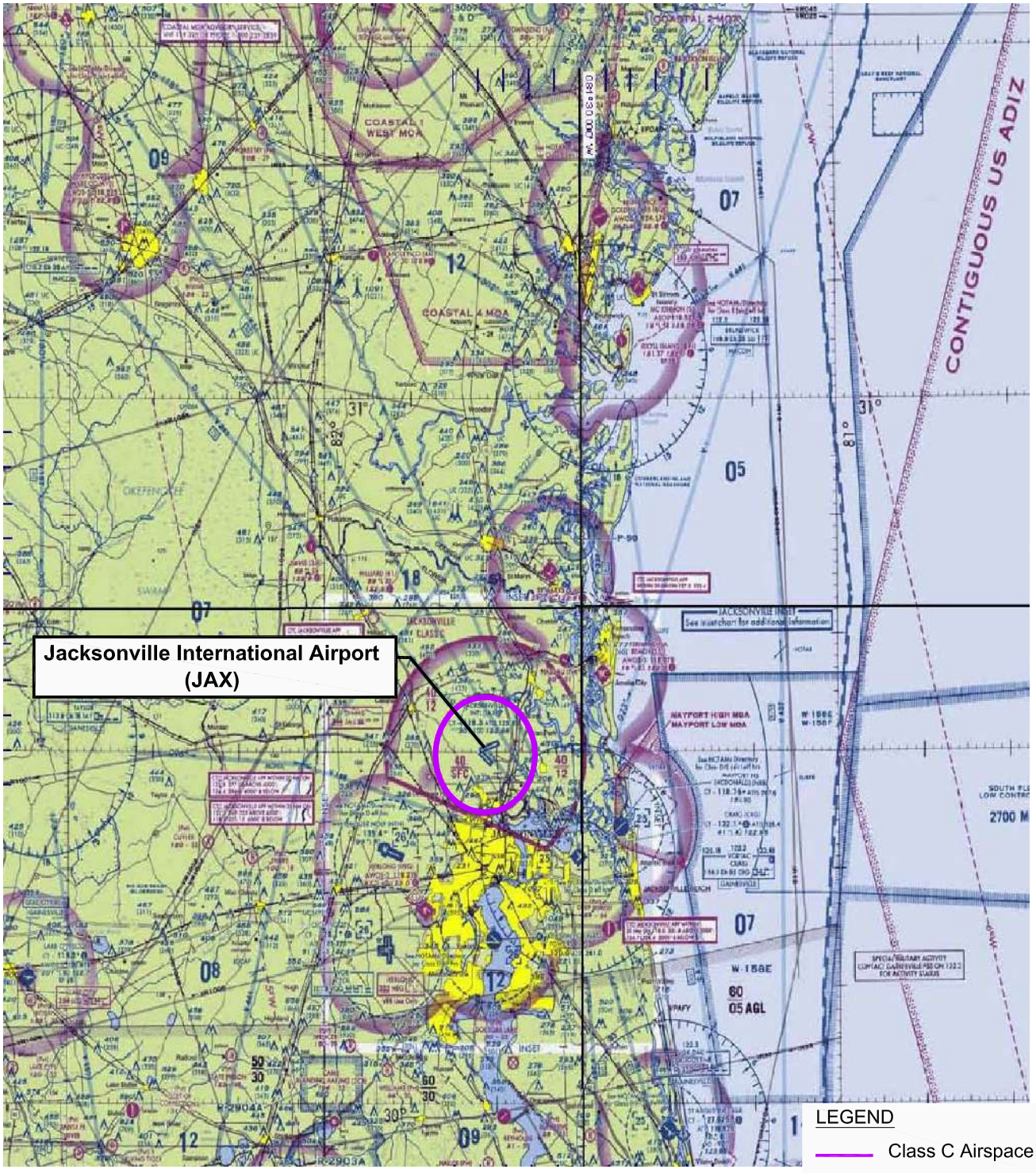
Exhibit II-22

0 N.T.S.

north

FAR Part 77 Imaginary Surfaces

Drawing: C:\Documents and Settings\nleroux\My Documents\Nicolas Projects\JAX\Master Plan Update\Inventory\CAD JAX Inventory\Ex-II-22nl-FARPart77Surfaces.dwg, Layout: Layout1, Jul 08, 2008, 4:34pm



Source: National Aeronautical Charting Office (www.naco.faa.gov) Expires February 14, 2008
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-23

0 N.T.S.

north

Jacksonville Sectional Chart

Drawing: C:\Documents and Settings\nleroux\My Documents\Nicolas Projects\JAX\Master Plan Update\Inventory\CAD JAX Inventory\Ex-II-23nl-JAXSectionalChart.dwg_Layout: Layout1_Jul 08, 2008, 4:36pm

In addition to the ATCT facility, other air traffic control services and communications are provided by the Jacksonville air route traffic control center (ARTCC) and the terminal approach control facilities (TRACON). The FAA's JAX ARTCC, located in Hilliard, Florida, controls the airspace that overlays the northeast Florida area from the ground surface to 60,000 feet MSL, except in areas where control is delegated to another air traffic control station. ARTCC's are established primarily to provide ATC services to aircraft operating under IFR flight plans within controlled airspace, principally during the enroute phase of flight.

The Jacksonville TRACON facility is located at JAX and has jurisdiction over aircraft operating in low altitude airspace from the surface up to as high as 15,000 feet MSL. The TRACON monitors air traffic in the airspace surrounding airports with moderate to high-density traffic and uses inputs from airport surveillance radars installed at JAX and Gainesville Regional Airport (GNV).

2.6 Passenger Terminal Facilities

In the past months, JAA has been in the process of modernizing the terminal complex at the Airport as part of a four-stage Terminal Expansion Program designed to provide the capacity for eventually serving up to 8 million annual passengers. This is the second major upgrade to the terminal facilities since the facility opening in 1968. The Program maintains the location of the terminal area at the center of Airport property, between the Airport's runways. **Exhibit II-24** depicts the location and configuration of the passenger terminal facilities as they existed prior to the replacement of the Concourses A & C.

As of 2004, the airside passenger terminal facilities, consisting of a Terminal Courtyard and three concourses (Concourses A, B, and C), provided a total area of approximately 172,100 square feet. **Table II-13** provides a breakdown of the terminal courtyard and concourses as they existed prior to the replacement of Concourses A & C (Stage 3 of the Terminal Expansion Project).

Table II-13

2004 Terminal Areas (square feet)

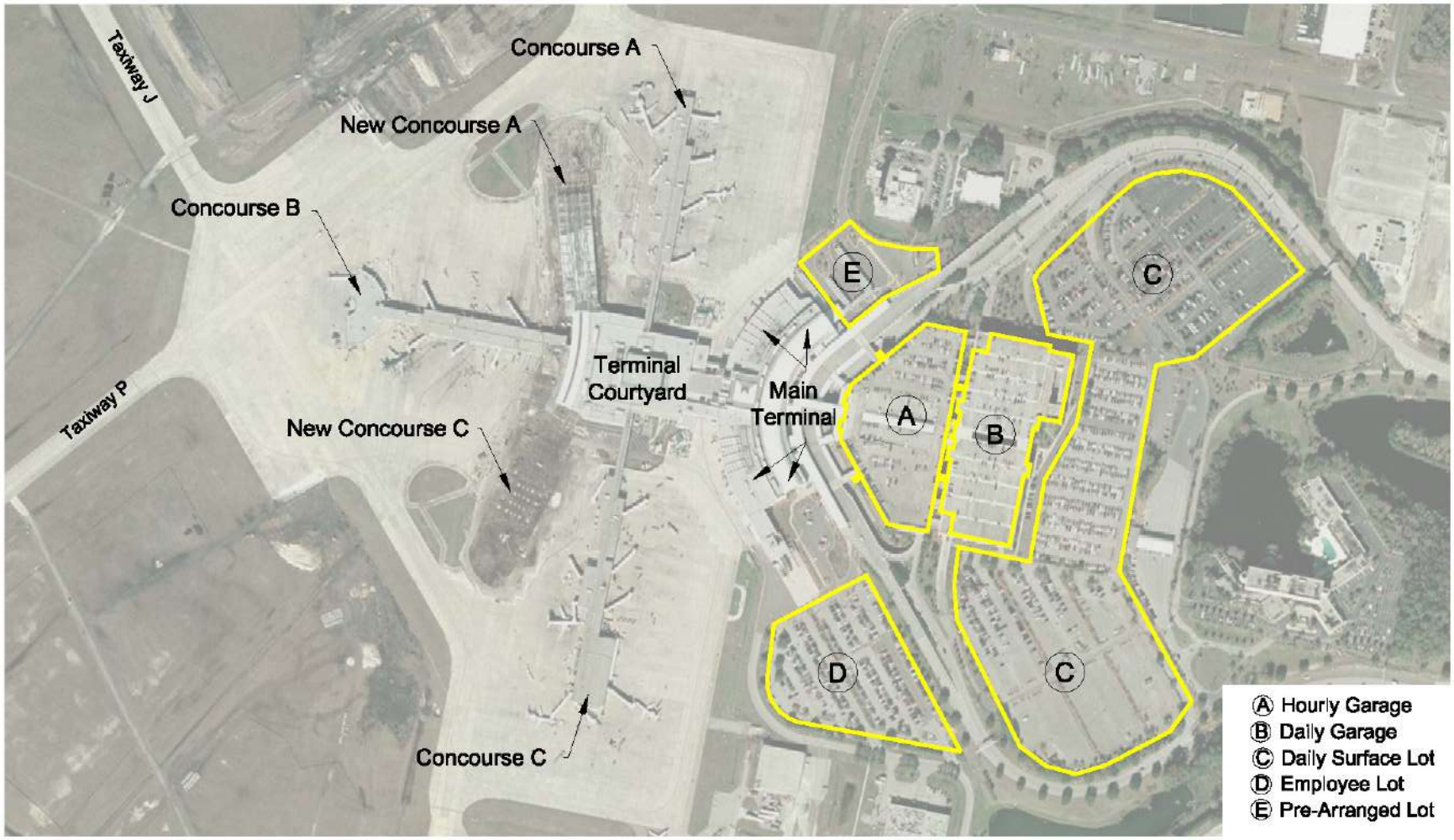
	Terminal Courtyard	Concourse A	Concourse B	Concourse C	Total
Holdroom Areas and Airline Club	N/A	14,400	11,200	16,100	41,700
Concessions	18,500	2,600	1,800	2,500	25,400
Airline Club	N/A	2,500	N/A	N/A	2,500
Circulation	32,500	10,800	8,700	15,000	67,000
Restrooms	2,500	1,600	1,400	3,000	8,500
Security Screening/TSA	N/A	1,700	1,500	1,400	4,600
Building Support/JAA	7,100	3,600	4,400	9,700	24,800
Total	60,600	34,700	29,000	47,700	172,000

Notes:
1/ Terminal areas shown incorporate the additional areas that were associated with the construction of Stages 1 and 2 of the Terminal Expansion Project.
2/ Terminal areas have been rounded to the nearest hundredth.

TSA – Transportation Security Administration

FIS – Federal Inspection Services

Source: JIA Terminal Expansion Project, Stages 3 and 4 Concourse Replacement Project Concept Report, 2003
Prepared by: Ricondo & Associates, Inc., December 2007



Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-24

0 500 ft

north

Passenger Terminal Complex (Prior to the Replacement of Concourses A & C)

To date, Stages 1, 2 and 3 have been completed. Stage 1, completed in March 2003, provided approximately 95,000 square feet of additional space, and included an expansion of the baggage claim/makeup processing space, as well as additional ticketing and rental car counter space. Stage 2 of the program, completed in late 2004, added an additional 46,500 square feet, and included an expansion of the main courtyard to accommodate a new centralized security checkpoint and provide more concession space.

The final two stages, Stage 3 and 4, of the Program involve the replacement of Concourses A, B, and C, which were originally constructed in 1968. Stage 3, involving the replacement of Concourses A and C, is now completed. JAA will begin replacing Concourse B as part of Stage 4 once Concourses A and C are fully operational and demand growth necessitates further gate capacity beyond that offered by two new concourses. In June 2009, the JAA took the first step toward the completion of the Stage 4 expansion program by closing Concourse B and initiating its demolition.

For the purposes of this Master Plan Update, the terminal facilities that result from the completion of Stage 3 (illustrated in **Exhibit II-25**) of the Terminal Expansion Program represent the baseline scenario and will be evaluated as such in the demand capacity assessment included in this Master Plan Update. A more detailed description of the baseline terminal facilities (Main Terminal, Terminal Courtyard, Concourse A, Concourse B, and Concourse C), organized by functional area is provided in the following subsections.

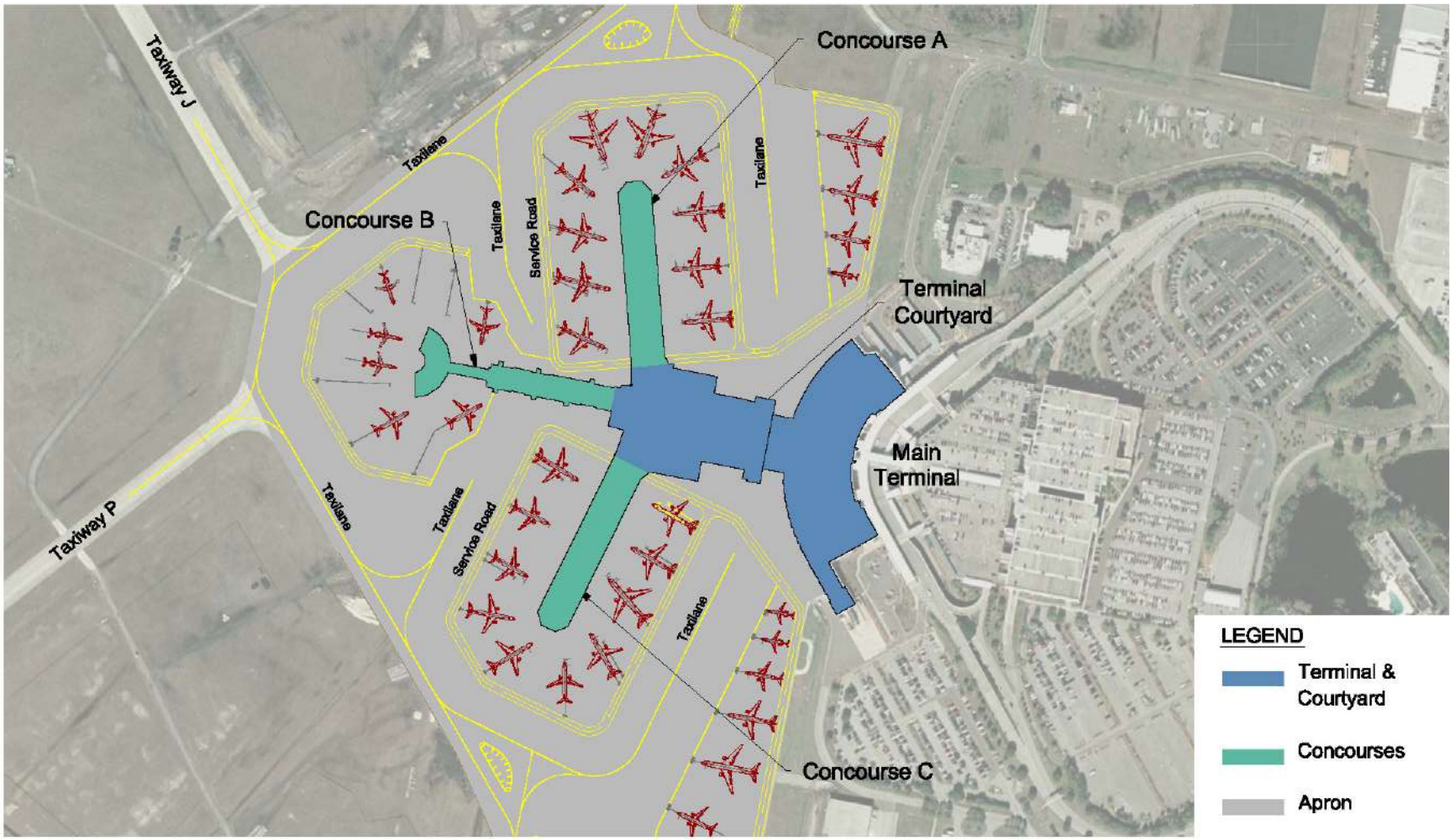
After completion of the Master Plan analysis, JAA determined to demolish Concourse B and operate with 20 aircraft gates until the construction of a new Concourse B. The current (2009) terminal facility is illustrated in **Exhibit II-26**.

2.6.1 Main Terminal

The Main Terminal at JAX is a two-level, curvilinear building that was constructed in 1990 as an expansion to the original terminal. This facility supports the various passenger processing functions and provides a total building area of approximately 238,000 square feet. As part of Stage 1, the Main Terminal was expanded to the north and south to provide approximately 95,000 square feet of additional space. **Table II-14** summarizes the building areas within the Main Terminal by level and functional category.

The main terminal is linked to the central courtyard and airside concourses via a sloping corridor located on the second level. In the fall 2009, this corridor will be rehabilitated to include new roof and flooring, an elevator, four escalators, and glass exterior wall. This project is designed to improve circulation efficiency, make better use of exterior lighting and improve customer safety.

Level 1, which is illustrated in **Exhibit II-27**, provides a total area of approximately 152,800 square feet. Level 1 of the Main Terminal primarily houses the baggage claim area (claim lobby and conveyor belts), which can be accessed from the curbside and the first floor of the hourly/daily garage through one of three entry vestibules. In addition, Level 1 also houses the in-line baggage screening system, rental car counters, airline baggage claim offices, and the baggage make up area.



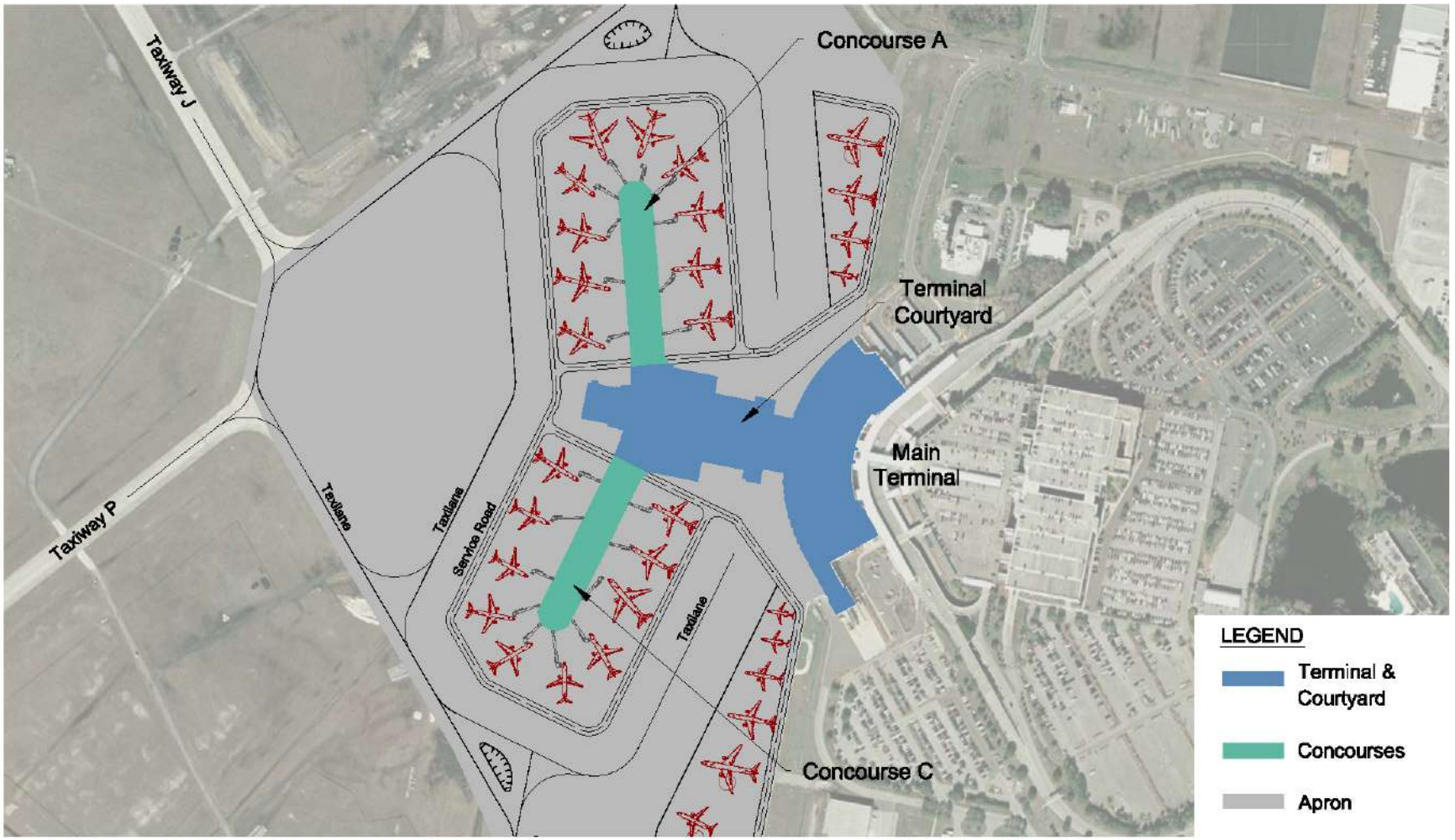
Source: Reynold, Smith & Hills, Inc. Terminal Drawings; Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-25

0 500 ft

north

Passenger Terminal Complex - Baseline Scenario (After the Replacement of Concourses A & C)



Source: Reynold, Smith & Hills, Inc. Terminal Drawings; Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-26

0 500 ft

north

Existing Passenger Terminal Facilities

Table II-14

Main Terminal Areas (square feet)

	Level 1	Level 2	Total
Airline Ticket Offices and Counter Work Area	N/A	20,400	20,400
Concessions - Food/Beverage	N/A	N/A	0
Concessions - Retail	N/A	N/A	0
Concessions - Rental Cars	5,100	N/A	5,100
Concessions - Others (Storage and Support Areas)	N/A	9,700	9,700
Passenger Baggage Claim Area	30,000	N/A	30,000
Passenger Baggage Processing, Conveyor, and Tug Lane Areas	67,000	N/A	67,000
Airline Functions (Operations, support, and storage area)	1,700	N/A	1,700
Circulation	30,400	50,550	80,950
Restrooms	1,900	1,600	3,500
Non-Public Areas (Airport administration, operations, and other areas)	11,700	N/A	11,700
Building Support (Mechanical/Electrical Building Systems)	5,000	3,600	8,600
Total	152,800	85,580	238,380

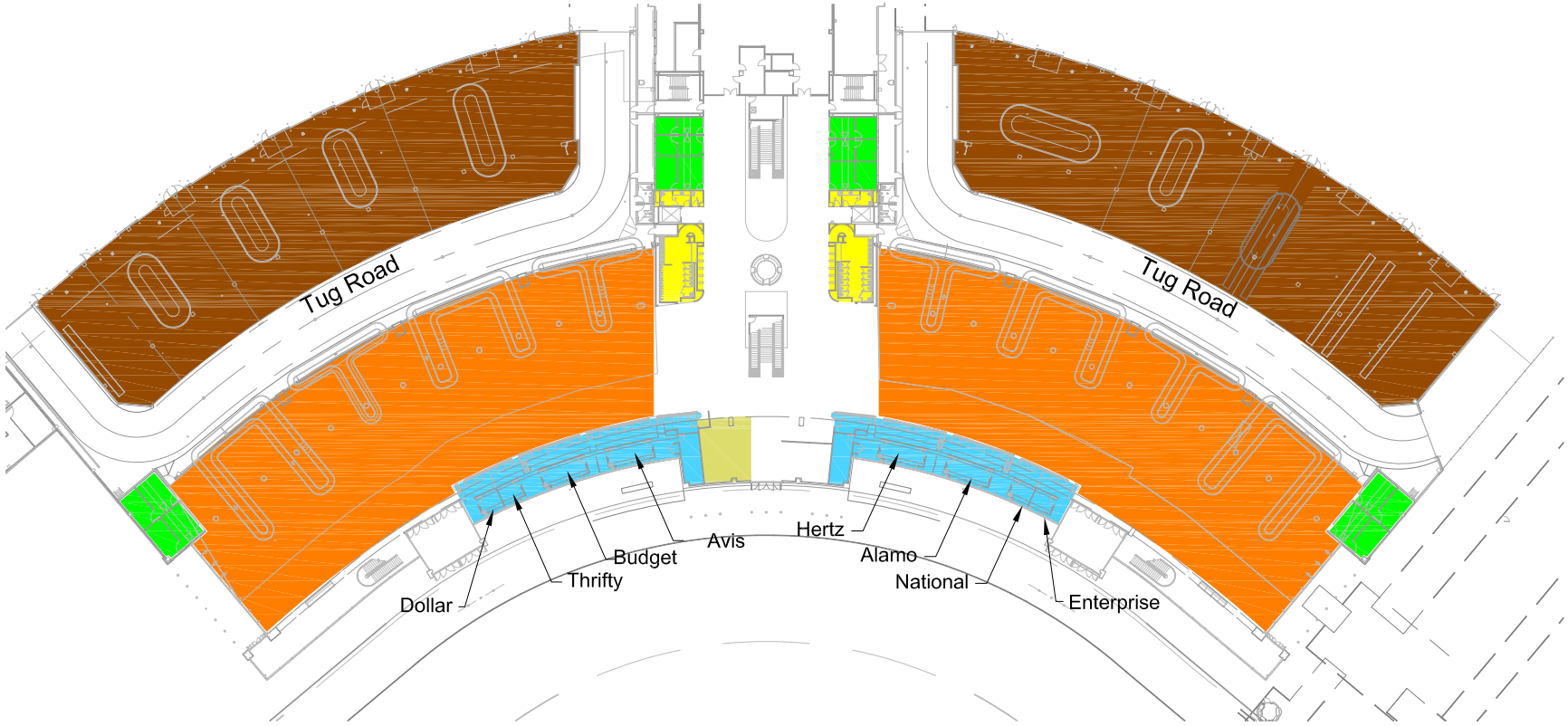
Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., January 2008

As shown on **Exhibit II-28**, Level 2 of the Main Terminal provides a total area of approximately 88,200 square feet. Level 2 is comprised of the ticketing lobby, ticket counter area and airline ticket offices (ATO). Like Level 1, Level 2 can be accessed from the associated curbside and the second floor of the hourly/daily garage through one of three entry vestibules. One of the vestibules accesses the central vertical circulation core within the Main Terminal while the two other vestibules access the north and south wings of the ticket lobby. Details pertaining to the specific areas within the Main Terminal are provided in the following subsections.

2.6.1.1 Baggage Claim

The inbound bag operations are located in the lower level of the terminal, on the east side (airside) of the building. Inbound bags are delivered by baggage tugs from the aircraft and placed on one of eight re-circulating flat plate conveyor devices which loop from the airside incoming bag operations area into the baggage claim area.

The baggage conveyor devices are grouped into north and south wing groupings. In 2008, the north grouping of four conveyor devices included AirTran, Continental, Delta, jetBlue, Northwest and United Airlines. The south grouping of four conveyor devices included American, ExpressJet, Frontier, Southwest and US Airways. Baggage claim offices for each of the airlines are clustered at the north and south ends of the baggage claim lobby, as well as the central corridor near the down escalators leading from the departure level. The baggage claim lobby contains a total area of approximately 40,381 square feet and the claim devices provide 1,284 linear feet of frontage for passenger pickup.



LEGEND

- Baggage Make-up Area[1]
- Baggage Claim Area
- Rental Car Ticket Counters
- Restrooms
- Circulation
- Baggage Claim Offices/ Storage Area
- USO Welcome Center

Note: [1]The baggage make-up areas include mezzanines that serve the inline EDS baggage screening functions.

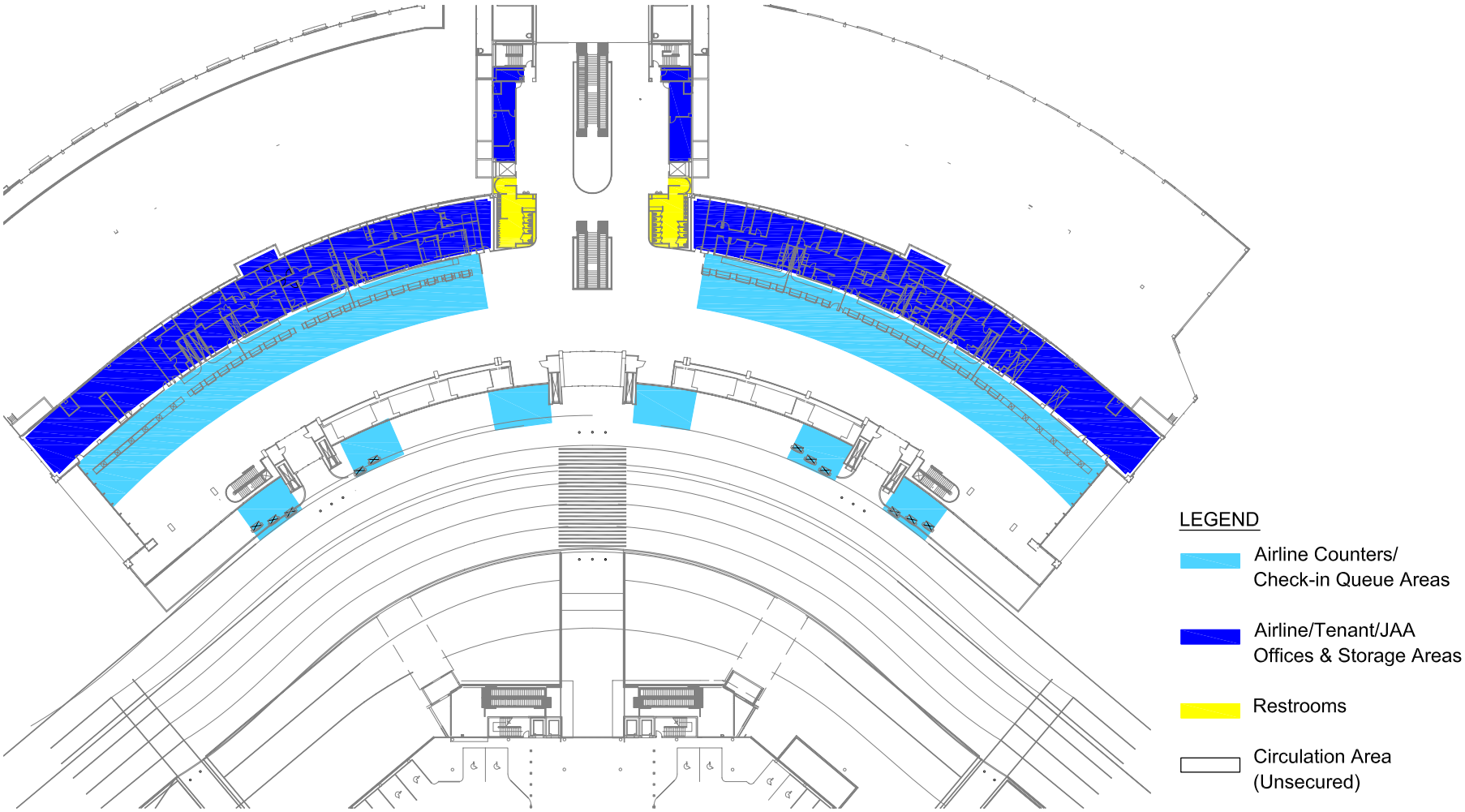
Source: Reynolds, Smith & Hills, Inc., Existing Terminal Drawing, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-27

0 1000 ft

north

Main Terminal Level 1



Source: Reynolds, Smith & Hills, Inc., Existing Terminal Drawing, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-28

0 N.T.S.

north

Main Terminal Level 2

2.6.1.2 Baggage Screening

Since the last Master Plan Update in 2001, JAX has introduced the first all-airport, fully automated, integrated in-line baggage screening system in the United States. The system was put into place in 2002, after the Airport was one of five airports selected to participate in a Transportation Security Administration (TSA) baggage screening pilot program. Unlike other small and medium-size hub airports that were forced to meet TSA's 100 percent hold baggage screening requirement by placing Explosive Detection Systems (EDS) in their ticket lobbies or other public spaces, all of the Airport's baggage screening is performed in a dedicated facility that is away from the public's view.

As part of the check-in process at JAX, all checked bags are tagged with a standard International Air Transport Association (IATA) bar-code tag. The bags then enter a holding loop via a conveyor belt system and are directed to an EDS machine. The EDS machines are located in north and south wings (three in each wing) in the mezzanines of the Main Terminal above the outgoing baggage make-up areas located on Level 1. If they pass the automated screening process, bags are directed to a conveyor belt that takes them to the outgoing baggage makeup piers, where they are delivered to waiting aircraft by tugs and carts. If the bags do not pass the automated screening process, they are directed to a secondary inspection area where a manual inspection is performed by TSA representatives.

The inline baggage screening system is currently configured for six EDS machines which can screen up to 400 bags respectively per hour each. Thus, the existing system is designed for a maximum processing capacity of 2,400 bags per hour. The existing configuration will allow a new EDS machine to be added to both the north and south wings when additional capacity is needed.

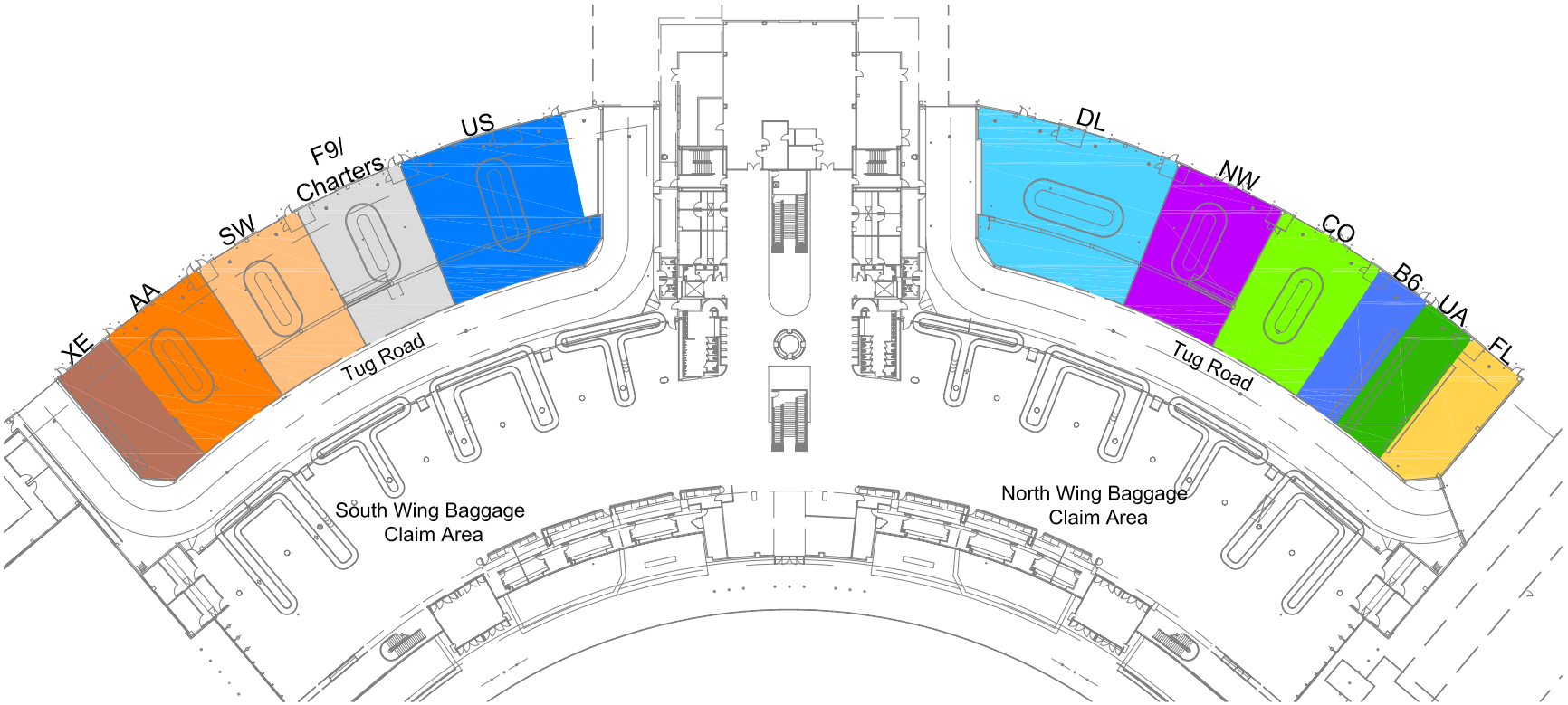
Because oversize bags cannot pass through the sortation conveyor or the EDS machine, these bags are routed directly to the secondary inspection area for manual inspection/screening. The bags must then be picked up for delivery to their respective baggage make up areas. The secondary inspection area is located on the south side of the terminal courtyard on the lower level.

2.6.1.3 Baggage Make Up

The baggage make up area is located behind the baggage claim area on the lower level of the main terminal, as depicted in **Exhibit II-29**. Upon completion of screening, the bags are directed to one of 11 make-up devices, including six sloped carrousel belts, one flat plate carrousel, and four single pier belts. The north wing includes two sloped carrousel, one flat plate carrousel, and three single pier belts, which are allocated to Delta Airlines, Northwest Airlines, Continental Airlines, jetBlue Airways, United Airlines, and AirTran Airways. The south wing includes four carrousels and one single pier belt, which are allocated to Express Jet, American Airlines, Southwest Airlines, US Airways, Frontier Airlines, and all charter operations. In total, the baggage make-up area, not including the tug lanes that serve the baggage make-up devices, provides approximately 39,200 square feet of space. As of December 2007, there was no excess baggage make up areas in the current configuration for any new entrant carriers. It should be noted that as of 2008, Express Jet and jetBlue Airways left the Jacksonville market. These airlines are still referenced in this Master Plan because the analysis was completed prior to their departures.

2.6.1.4 Rental Car Counters

For the convenience of arriving passengers, rental car counters are located adjacent to the baggage claim area located on Level 1 of the Main Terminal. The on-airport rental car agencies are: Alamo, Avis, Budget, Dollar, Enterprise, Hertz, National and Thrifty. These rental car companies have ready and return parking located on the first floor of the hourly and daily parking garages, located directly



Source: Reynolds, Smith & Hills, Inc., Existing Terminal Drawing, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-29

0 N.T.S.

north

Baggage Makeup Area

across from the Level 1 curbside. **Table II-15** summarizes the cumulative counter and office space along with the number of ready return parking spaces occupied by each provider.

Table II-15

Rental Car Counter and Office Space and Ready / Return Parking

Operator	Total Area (square feet)	Ready / Return Spaces
Alamo/National	1,041	159
Avis	1,193	149
Budget	695	101
Dollar / Thrifty	713	98
Enterprise	366	76
Hertz	1,193	161
Total	5,201	744

Source: Jacksonville Aviation Authority (JAA) Records, January 2008.
Prepared by: Ricondo & Associates, Inc., January 2008

2.6.1.5 USO

The lower level of the passenger terminal also houses a United Service Organization (USO) Welcome Center. This 900-square foot facility is meant to comfort military personnel shipping out and/or returning home. The center is run by volunteers who assist military personnel with information, comfort items and transportation. The USO center is located adjacent to the Avis counter, a few feet away from the stairwell located in the centered of the floor and leading to the departure level.

2.6.1.6 Ticket Lobby and Ticket Counters

The ticketing area is located on Level 2 and is configured similar to the baggage claim area by providing a north and south wing. This portion of the terminal is comprised of a ticketing lobby, ticket counter area and ATOs. In 2008, there were 36 traditional (staffed) ticketing positions and 52 kiosk check-in positions. In addition, there were also 22 curbside check-in positions available adjacent to the enplaned (departure) level roadway for passenger use. **Table II-16** summarizes the available ticketing positions located within the terminal and at the curbside by airline.

Table II-16

Ticketing Positions and Self-Service Kiosks By Airline

Airline	Traditional Ticketing Positions	Self-Service Kiosk (no bag check)	Agent-Assisted Kiosk	Curbside Ticketing Positions	Total
AirTran	2	-	4	-	6
American	4	-	3	2	9
Continental	-	-	6	2	8
Delta	4	-	10	6	20
ExpressJet	2	-	2	-	4
Frontier	4	-	-	-	4
jetBlue	2	-	4	2	8
Northwest	5	-	5	2	12
Southwest	4	2	4	2	12
United Express	2	-	6	2	10
US Airways	7	-	6	4	17
Total	36	2	50	22	110

Source: Ricondo & Associates, Inc., December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

2.6.1.7 Terminal Curbside

The terminal curbside is arranged with two levels that are located on the east side of the Main Terminal. The innermost lane is used primarily by vehicular traffic dropping off departing passengers. The outer four lanes are used as circulation lanes for through traffic. Although the curbside in front of the ticketing lobby contains 650 linear feet of space, some of these areas are marked for pedestrian crossings and for emergency vehicles and are not usable for passenger loading/unloading. In 2006, the Airport completed a project that added canopies over the north and south entrances to the ticketing lobby, increased sidewalk space for curbside check-in, and improved the curbside baggage conveyor belt system.

The lower (arrivals) level curbside is located in front of the baggage claim area and is signed for arriving passenger pickup. The first level curbside consists of seven total lanes, four inner lanes and three outer lanes, which are separated by a large concrete curb. The inner four lanes are used primarily by non-commercial vehicles that are picking up arriving passengers. The outer three lanes are used by commercial vehicles (hotel shuttles, taxi, etc.) that are picking up arriving passengers and as circulation lanes for through traffic. The curb closest to the baggage claim area contains approximately 600 linear feet of curbfront.

2.6.2 Terminal Courtyard

The Terminal Courtyard was the original terminal facility prior to the construction of the Main Terminal. This facility has two levels and now connects the Main Terminal to Concourses A, B, and C. As previously mentioned, the Terminal Courtyard was expanded in late 2004 to accommodate a new centralized security checkpoint and provide additional concession space. With the completion of Concourses A and C, the Terminal Courtyard will comprise a total building area of approximately 244,000 square feet. **Table II-17** summarizes the areas within the Terminal Courtyard by level and functional category.

Table II-17

Terminal Courtyard Areas (square feet)[1/]

	Level 1	Level 2	Total
Concessions - Food/Beverage	N/A	18,490	18,490
Concessions - Retail	N/A	19,420	19,420
Airline Functions (Operations, lounge, support, and storage area)	N/A	3,130	3,130
Circulation	N/A	44,190	44,190
Restrooms	N/A	2,280	2,280
Security Check Points/Processing Area	25,080	12,280	37,360
Non-Public Areas (Unenclosed Area)	61,950	N/A	61,950
Non-Public Areas (Airport administration, operations, and other areas)	53,860	3,300	57,160
Total[1]/	140,890	103,090	243,980

Note:
1/ Terminal areas were rounded to the nearest hundredth.

Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., January 2008

Level 1 (illustrated in **Exhibit II-30**) of the terminal courtyard, which provides a total area of approximately 103,300 square feet, is only accessible to badged JAA employees and Department of Homeland Security (DHS) personnel. Level 1 of the terminal courtyard mainly accommodates offices, workshops, conference rooms, restrooms, as well as TSA secondary screening area for checked baggage.

The second level of the terminal courtyard (illustrated in **Exhibit II-31**) provides a total area of approximately 87,900 square feet and consists of both public and limited access areas. Public areas on Level 2 include the centralized security checkpoint area, retail concessions, a food court, restrooms and public circulation areas. The limited access area of the Courtyard is beyond the security screening checkpoint and contains additional retail and food concessions. The limited access area also provides an interconnected corridor allowing passengers to access either Concourse A, B, or C. In addition, Level 2 of the Courtyard provides access to various non-public areas including TSA and JAA offices and the Airport's operations control center.

The security checkpoint includes eight X-ray machines and four magnetometers. TSA representatives indicated that they have the ability to process between 175 and 200 passengers per lane per hour, providing with a maximum capacity of approximately 1,400 to 1,600 passengers per hour. The average maximum passenger wait time from the beginning of the queue to the unvest area from January to November was estimated at 7.15 minutes. During peak periods, TSA indicated that delays may be experienced but do not usually exceed 20 minutes.

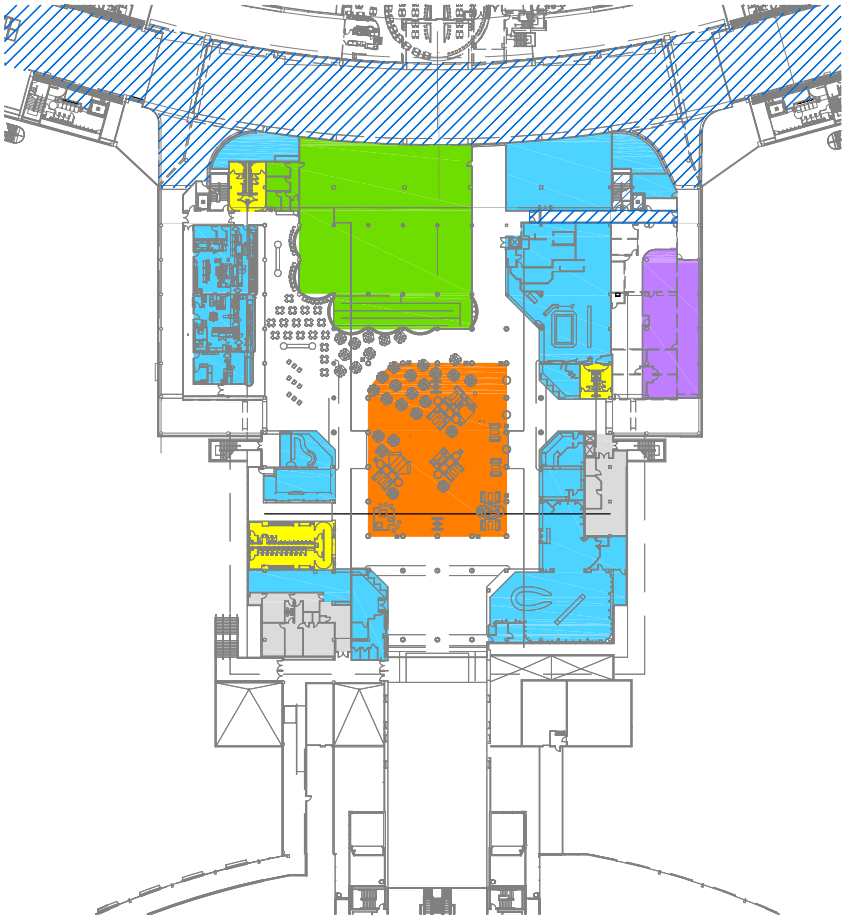
Source: Reynolds, Smith & Hills, Inc., Existing Terminal Drawing, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-30

0 N.T.S.

north

Terminal Courtyard Level 1



LEGEND

- TSA (Passenger Security Screening Checkpoints and Offices)
- Circulation (Secure)
- Circulation (Unsecured)
- Restrooms
- Concessions
- Airline Operations, Crown Room
- Public Seating
- Non-Public Areas (Airport Admin, Operations, etc.)

Source: Reynolds, Smith & Hills, Inc., Existing Terminal Drawing, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-31

0 N.T.S.

north

Terminal Courtyard Level 2

2.6.3 Concourse A

Concourse A is a linear pier that was completed as part of Stage 3 of the Terminal Expansion Program. Once completed, Concourse A will be comprised of two levels and will provide a total building area of approximately 111,000 square feet as summarized in **Table II-18**. The concourse extends to the north for a distance of approximately 725 linear feet from the Terminal Courtyard. Concourse A will provide ten gates (A1-A10) with jetways, consisting of both narrowbody and widebody positions. **Table II-19** provides a breakdown of the gates that will be available on Concourse A by the anticipated lessee and the aircraft type that can be accommodated at each gate.

Table II-18

Concourse A Areas (square feet)[1/]

	Level 1	Level 2	Total
Holdroom Areas	N/A	26,110	26,110
Concessions - Food/Beverage	N/A	3,060	3,060
Concessions - Retail	N/A	3,660	3,660
Airline Functions (Operations, support, and storage area)	9,540	N/A	9,540
Circulation	3,100	19,140	22,240
Restrooms	N/A	3,690	3,690
Security Check Points/Processing Area	N/A	N/A	0
Non-Public Areas (Unenclosed Area)	24,260	N/A	24,260
Non-Public Areas (Airport administration, operations, and other areas)	14,030	N/A	14,030
Building Support (Mechanical/Electrical Building Systems)	4,390	N/A	4,390
Total[2/]	55,320	55,660	110,980

Notes:
1/ Assumes that Stage 3 of the Terminal Expansion Program has been completed.
2/ Terminal areas were rounded to the nearest hundredth.

Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., December 2007

Table II-19

Concourse A Gate Allocation

Gate	Anticipated Lessee	Anticipated Aircraft Type to be Accommodated
A1	Northwest	Narrow Body
A2	AirTran	Narrow Body
A3	Northwest	Narrow Body/Regional Jet
A4	JAA	Wide Body (B767)
A5	JAA / Frontier	Narrow Body
A6	Continental	Narrow Body
A7	Delta	Narrow Body/Regional Jet
A8	Continental	Narrow Body/Regional Jet
A9	Delta	Wide Body (B767)
A10	Delta	Wide Body (B767)

Source: Reynolds, Smiths and Hills, Inc, Final Stage 3 Aircraft Parking Positions First Floor Layout, November 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Level 1 (illustrated in **Exhibit II-32**) of Concourse A provides an area of approximately 70,500 square feet and is comprised of areas that support airline operations and various building/JAA support functions.

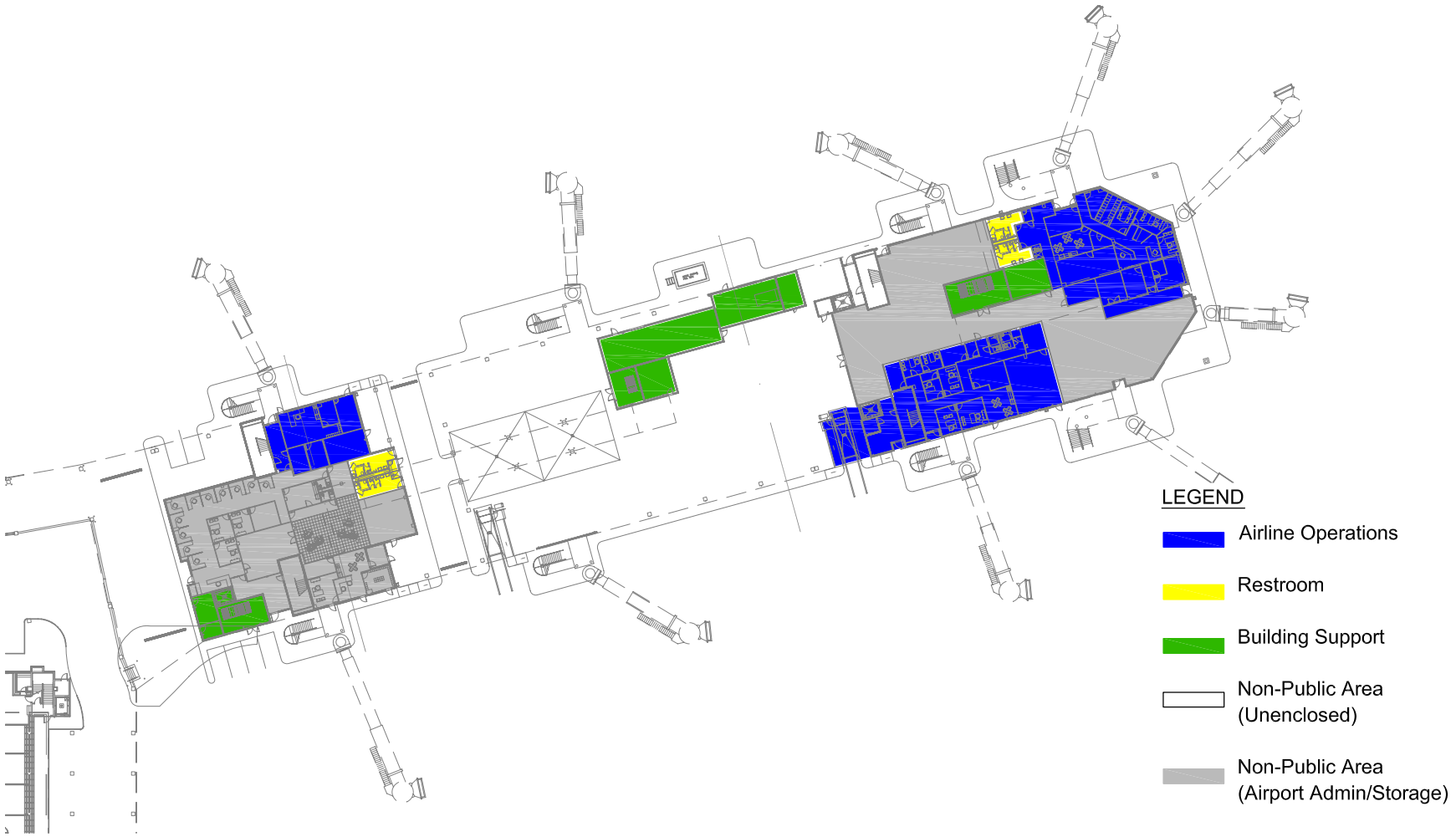
Level 2 (illustrated in **Exhibit II-33**) of Concourse A serves as the primary area for processing enplaning (departing) passengers with public circulation corridors, departure gates and their respective hold rooms, boarding pass counters, and storage areas. The circulation corridor is located along the middle of the concourse and provides one bi-directional automated walkway. There are two concession areas within Concourse A located on the south side and near the middle of the concourse, and include retail and food/beverage concessions. Restroom facilities are also available on the north and south portions of the concourse. Concourse A will be occupied by AirTran, Continental, Delta, and Northwest Airlines on a preferential-use basis.

2.6.4 Concourse B

Concourse B is a two-level linear pier, originally constructed in 1968, that extends west from the Terminal Courtyard. Located at the end of the pier is a crescent-shaped ground level extension that contains four commuter/regional jets gates (B9C, B9D, B10, and B11) and three narrowbody gates (B9A, B12 and B13). Level 1 (illustrated in **Exhibit II-34**) is primarily used for airline and airport operational space while the upper level (illustrated in **Exhibit II-35**) provides departures lounges, a public circulation area, restroom facilities, and concession areas. Concourse B provides a total building area of approximately 71,000 square feet as summarized in **Table II-20.**

In addition to the commuter gates, Concourse B also provides two narrowbody gates (B7 and B8) on the second level of the linear pier. In 2007 and 2008, these gates were assigned to jetBlue Airways. **Table II-21** provides a breakdown of the gates that will be available on Concourse B by the anticipated leaseholder and the aircraft type that it can accommodate.

Concourse B was demolished in 2009 after this analysis was completed. After the demolition of Concourse B, both jetBlue and United moved to gates in Concourse A.



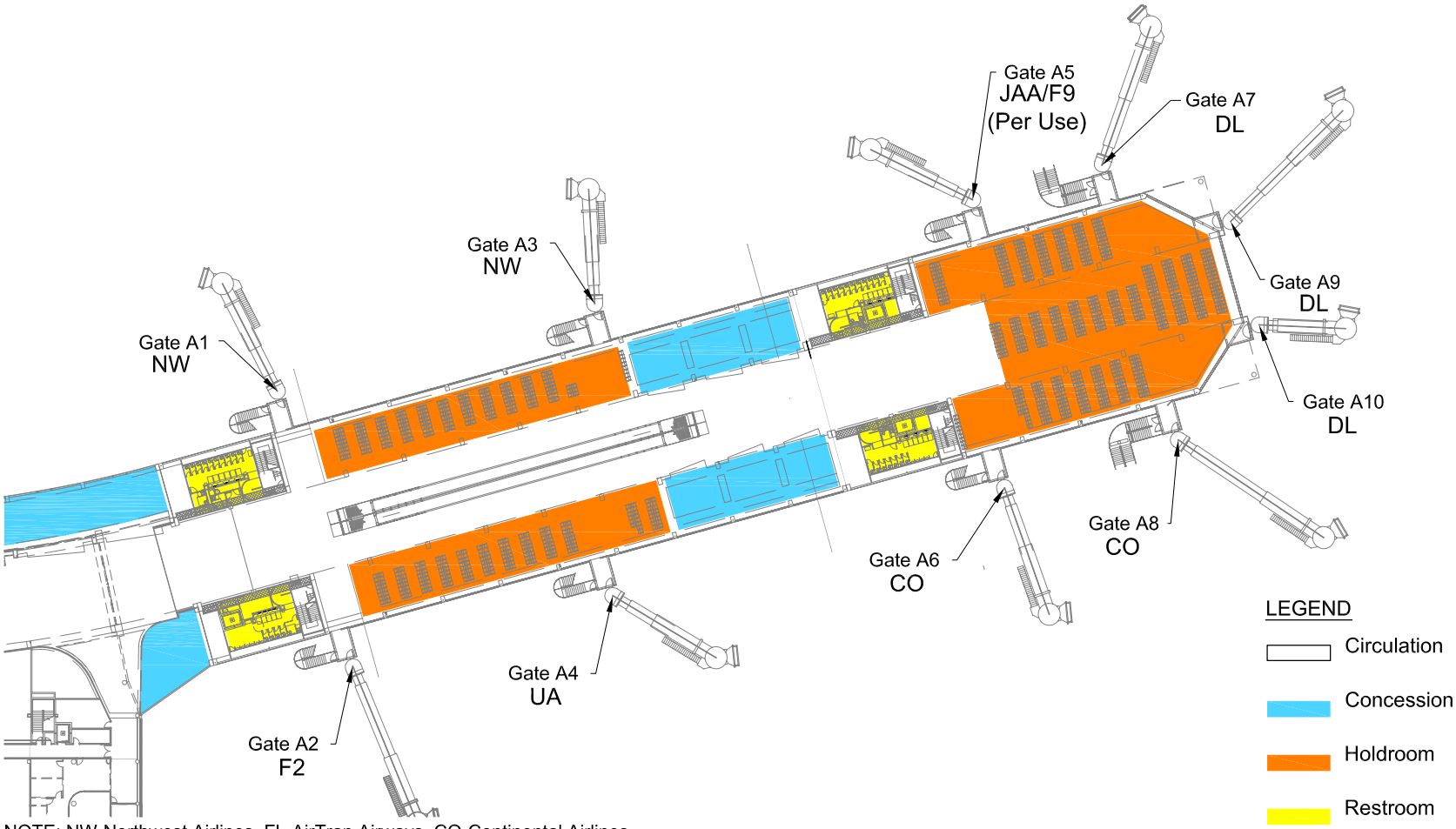
Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-32

0 N.T.S.

north

Concourse A
Level 1



NOTE: NW-Northwest Airlines, FL-AirTran Airways, CO-Continental Airlines, DL-Delta Air Lines, F9-Frontier Airlines, JAA-Jacksonville Aviation Authority

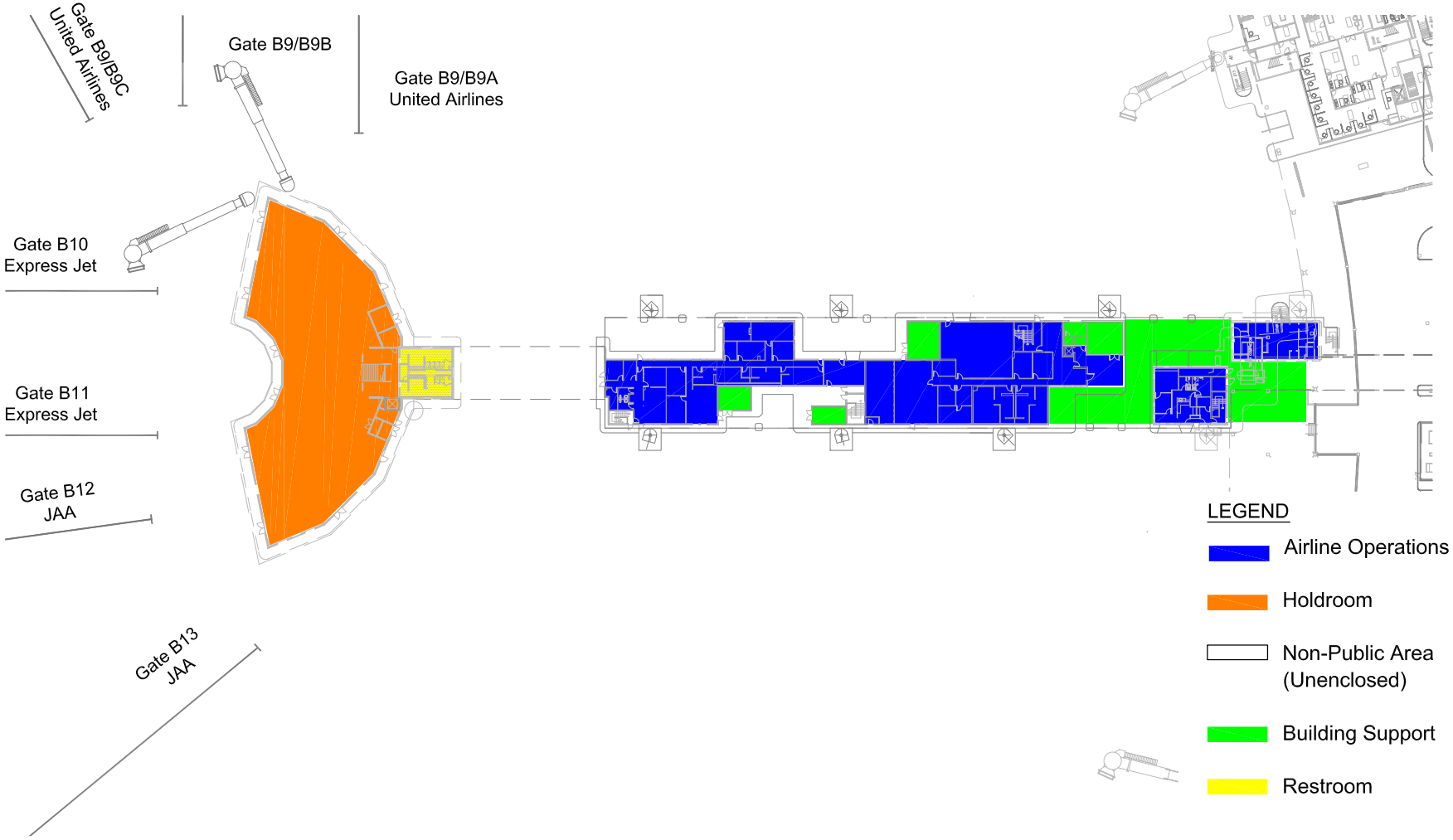
Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-33

0 N.T.S.

north

Concourse A
Level 2



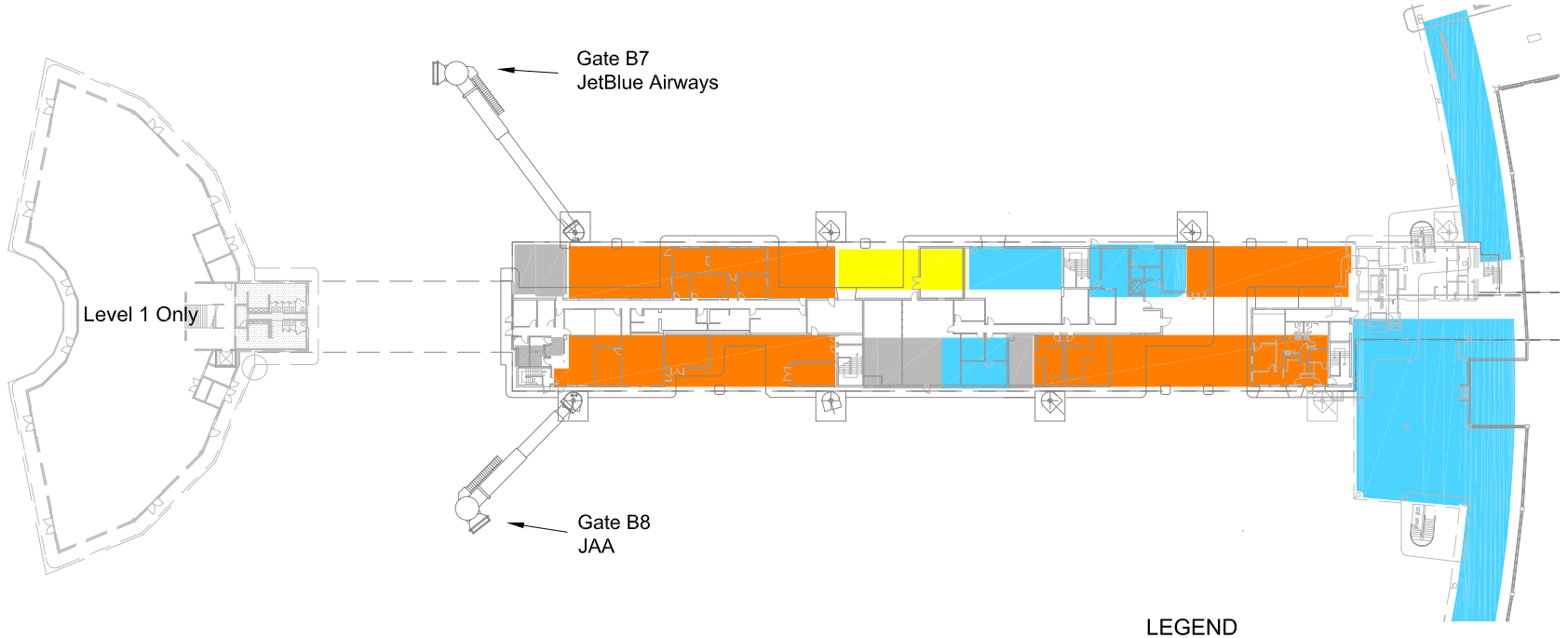
Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-34

0 1,200 ft

north

Concourse B
Level 1



LEGEND

- Circulation
- Concession
- Holdroom
- Restroom
- Non-Public Area (Airport Admin, Operations, etc.)

NOTE: NW-Northwest Airlines, FL-AirTran Airways, CO-Continental Airlines, DL-Delta Air Lines, F9-Frontier Airlines, JAA-Jacksonville Aviation Authority

Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-35

0 1,000 ft

north

Concourse B
Level 2

Table II-20

Concourse B Areas (square feet)

	Level 1	Level 2	Total
Holdroom Areas	13,350	N/A	13,350
Concessions - Food/Beverage	N/A	750	750
Concessions - Retail	N/A	2,000	2,000
Concessions – Other (Storage and support areas)	N/A	N/A	0
Airline Functions (Operations, support, and storage area)	13,290	10,930	24,220
Circulation	1,840	12,970	14,810
Restrooms	1,020	1,480	2,500
Security Check Points/Processing Area	N/A	N/A	0
Non-Public Areas (Unenclosed Area)	9,100	N/A	9,100
Non-Public Areas (Airport administration, operations, and other areas)	N/A	2,000	1,980
Building Support (Mechanical/Electrical Building Systems)	2,170	N/A	2,170
Total[1/]	40,770	30,110	70,880

Notes:
1/ Terminal areas were rounded to the nearest hundredth.

Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., December 2007

Table II-21

Concourse B Gate Allocation

Gate/Parking Position	Anticipated Lessee	Anticipated Aircraft Type to be Accommodated
B7	jetBlue	Narrow Body
B8	JAA	Narrow Body
B9/B9A	United Airlines	Narrow Body
B9/B9C	United Airlines	Regional Jet
B9/B9D	United Express	Regional Jet
B9D	United Express	Regional Jet
B10	ExpressJet	Regional Jet
B11	ExpressJet	Regional Jet
B12	JAA	Narrow Body
B13	JAA	Narrow Body

Source: Reynolds, Smiths and Hills, Inc, Final Stage 3 Aircraft Parking Positions First Floor Layout, November 2007
Prepared by: Ricondo & Associates, Inc., December 2007

It should be noted that in June 2009, Concourse B was closed to initiate its demolition as part of the Stage 4 terminal expansion. Since then, jetBlue and United Airlines have relocated their operations to Concourse A. As previously indicated, ExpressJet ceased their operations at JAX in September 2008. The layout of the terminal, concourses, and apron areas after the demolition of the Concourse B is depicted on the Existing Airport Layout Plan that is being developed as part of this Master Plan.

2.6.5 Concourse C

Like Concourse A, Concourse C is also a linear pier that is under construction as part of Stage 3 of the Terminal Expansion Program. This concourse is virtually the same in terms of configuration to that of Concourse A, providing two levels and a total building area of approximately 112,000 square feet as summarized in **Table II-22**. Concourse C extends to the south at a distance of approximately 725 linear feet from the Terminal Courtyard. Concourse C will also provide ten gates (C1-C10) with jetways, consisting of both narrowbody and widebody positions. **Table II-23** provides a breakdown of the gates that will be available on Concourse C and the aircraft type that can be accommodated.

Table II-22

Concourse C Areas (square feet)

	Level 1	Level 2	Total
Holdroom Areas	N/A	26,110	26,110
Concessions - Food/Beverage	N/A	2,930	2,930
Concessions - Retail	N/A	3,670	3,670
Airline Functions (Operations, support, and storage area)	9,380	N/A	9,380
Circulation	2,830	19,060	21,890
Restrooms	N/A	3,910	3,910
FIS Facility/Security Check Points/Processing Area	25,070	480	25,550
Non-Public Areas (Unenclosed Area)	11,660	N/A	11,660
Non-Public Areas (Airport administration, operations, and other areas)	570	N/A	570
Building Support (Mechanical/Electrical Building Systems)	6,280	N/A	6,280
Total[2/]	55,790	56,160	111,950

Notes:
1/ Assumes that Stage 3 of the Terminal Expansion Program has been completed.
2/ Terminal areas were rounded to the nearest hundredth.

Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., December 2007

Table II-23

Concourse C Gates

Gate	Anticipated Lessee[1/]	Anticipated Aircraft Type to be Accommodated
C1	Southwest	Narrow Body
C2	Southwest	Narrow Body
C3	JAA	Narrow Body
C4	Southwest	Narrow Body
C5	JAA	Wide Body (B767)
C6	JAA	Narrow Body
C7	American	Narrow Body
C8	US Airways	Narrow Body
C9	American	Narrow Body/Regional Jet
C10	US Airways	Wide Body (B767)

Notes:
1/ Following the completion of Stage 3

Source: Reynolds, Smiths and Hills, Inc, Final Stage 3 Aircraft Parking Positions First Floor Layout, November 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Level 1 (illustrated in **Exhibit II-36**) of Concourse C provides approximately 71,000 square feet of space and is comprised of areas that support airline operations and support functions. In addition, Level 1 also includes a Federal Inspection Services (FIS) facility for the clearance of international arriving passengers entering the United States. This facility has mainly been planned and designed to accommodate international charter aircraft and encompasses approximately 25,100 square feet.

Arriving passengers are directed to one of the two immigration and passport control counters and then cleared to a baggage claim area that include one claim device to retrieve their baggage. Arriving passengers and their baggage are then directed to a customs control checkpoint, where they are inspected through two security lanes. Their baggage are then tugged to the baggage claim area that is located on the lower level of the passenger terminal. The FIS facility is also used for the processing of international general aviation arrivals. On average, a total of 10 to 12 international general aviation arrivals are accommodated at Concourse C per week.

Level 2 (illustrated in **Exhibit II-37**) of Concourse C serves as the primary area for processing enplaning (departing) passengers with a public circulation corridor, departure gates and their respective hold rooms, and boarding pass counters. The circulation corridor is located along the center of the concourse and provides bi-directional automated walkways. Two concession areas are included within Concourse C. These areas are located on the south side and near the middle of the concourse, and include retail and food/beverage concessions. Restroom facilities are also available on the north and south portions of the concourse. Concourse C will be occupied by Southwest, American, and US Airways on a preferential-use basis.

2.6.6 Terminal Summary

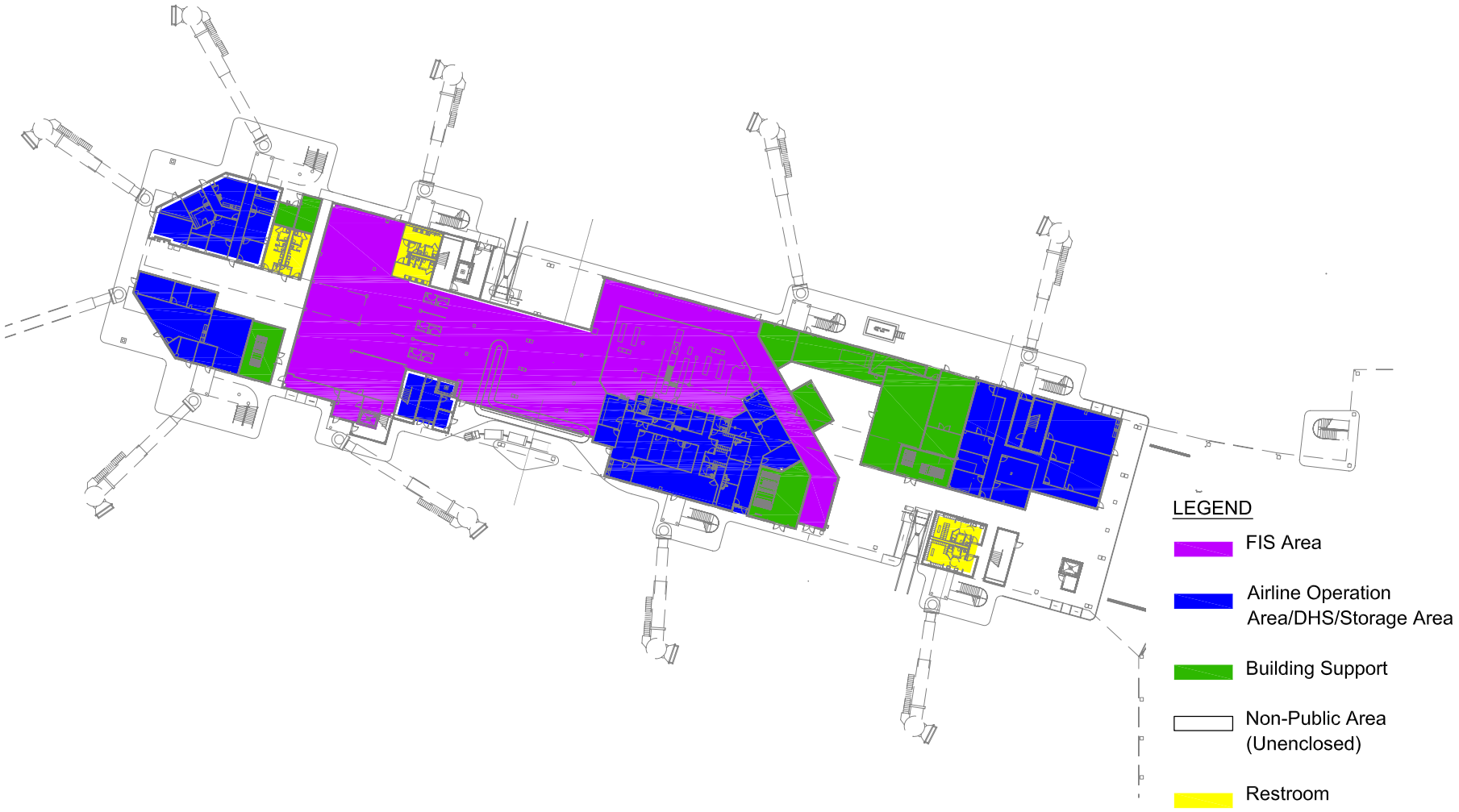
The information gathered and presented in this section provides the basis for determining if deficiencies exist within the "baseline" passenger terminal complex (assumes that Stage 3 of the Terminal Expansion Program has been completed) and the timing for implementing Stage 4 of the Terminal Expansion Program in subsequent tasks of the Master Plan Update. **Table II-24** provides a detailed breakdown of all the baseline spaces within the terminal along with its associated uses.

2.7 Ground Access, Commercial Transportation, Parking and Rental Car Services

This section presents an inventory of the surface transportation network, ground transportation service providers, automobile parking facilities, and rental car operators that serve the commercial passenger terminal area. Each of these is discussed individually below.

2.7.1 Existing Ground Access Roadway Network

The local roadway network surrounding the Airport is illustrated on **Exhibits II-38** and **II-39**. Interstate 95 (I-95), which is situated approximately 2.5 miles east of the Airport, is a major north-south artery for the eastern United States, and one of the main airport access roads. Going south, I-95 leads to downtown Jacksonville, Daytona Beach and the Fort Lauderdale/Miami area. Going north, I-95 leads to northern states and major cities of the eastern US including New York, Boston, and Washington, DC. Between Interstate 295 (I-295), and Airport Road, I-95 is currently an eight-lane highway. The I-95 exit leading to the Airport is identified as Exit 363B, also known as the Duval Road west (SR 102) or Airport Road.



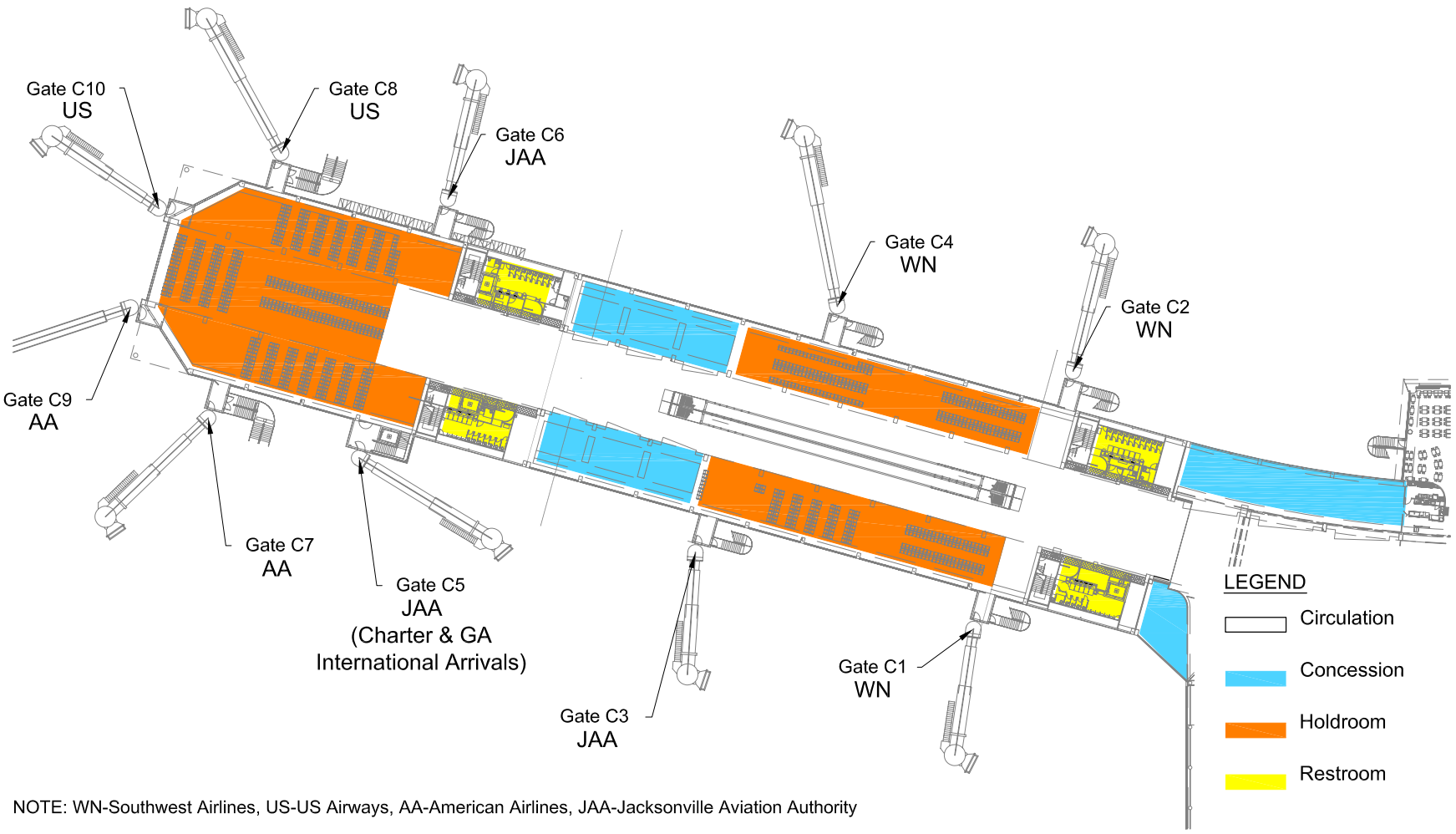
Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-36

0 N.T.S.

north

Concourse C
Level 1



NOTE: WN-Southwest Airlines, US-US Airways, AA-American Airlines, JAA-Jacksonville Aviation Authority

Source: Reynolds, Smith & Hills, Inc., Proposed Concourses A & C Drawings, December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-37

0 N.T.S.

north

Concourse C
Level 2

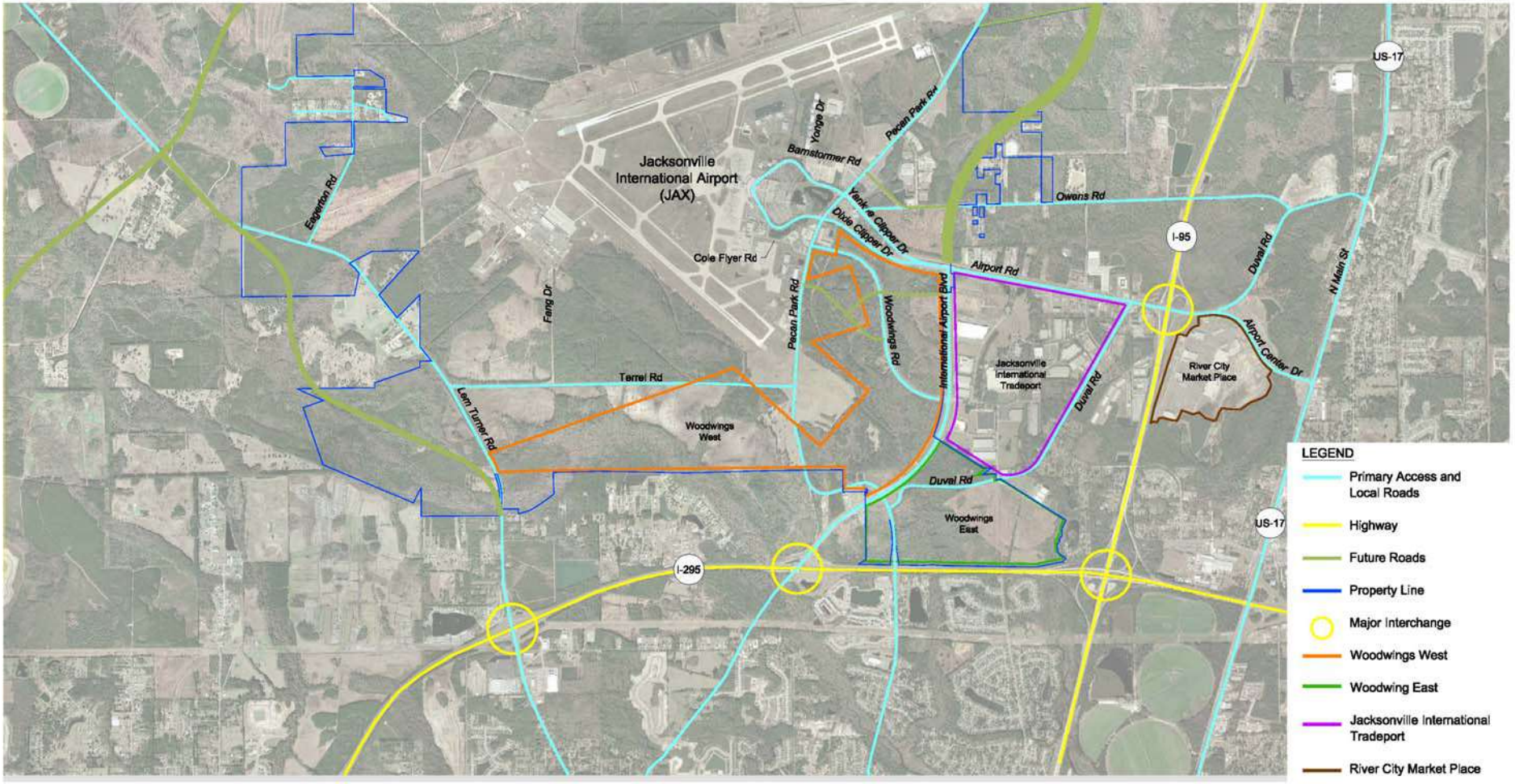
Table II-24 *(11x17)*

Summary of Terminal Areas (Baseline)

	Functional Use	Terminal		Courtyard		Concourse A		Concourse B		Concourse C		Total		Grand Total
		Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	Level 1	Level 2	
Airline Functions:														
	Airline Ticket Offices and Counter Work Area (sf.ft)	N/A	20,400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	20,400	20,400
	Holdroom Areas and Airline Club (sq.ft.)	N/A	N/A	N/A	3,130	N/A	26,110	13,350	10,930	N/A	26,110	13,350	66,280	79,630
	Passenger Baggage Claim Area (sq.ft.)	30,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30,000	-	30,000
	Baggage Processing, Conveyor & Tug Lane Areas (sq.ft.)	67,000	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	67,000	-	67,000
	Airline Operations, Support, and Storage Areas (sq.ft.)	1,700	N/A	N/A	N/A	9,540	N/A	13,290	N/A	9,380	N/A	33,910	-	33,910
Concessions:														
	Food/Beverage (sq.ft.)	N/A	N/A	N/A	18,490	N/A	3,060	N/A	750	N/A	2,930	-	25,230	25,230
	Retail (sq.ft.)	N/A	N/A	N/A	19,420	N/A	3,660	N/A	2,000	N/A	3,670	-	28,750	28,750
	Rental Car (sq.ft.)	5,100	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5,100	-	5,100
	Other (Storage and Support Areas) (sq.ft.)	N/A	9,700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-	9,700	9,700
Security:														
	Security Check Points/Processing Area	N/A	N/A	25,080	12,280	N/A	N/A	N/A	N/A	25,070	480	50,150	12,760	62,910
Public Areas:														
	Circulation (Secure & Non-Secure Areas)	30,400	50,550	N/A	44,190	3,100	19,140	1,840	12,970	2,830	19,060	38,170	145,910	184,080
	Restrooms	1,900	1,600	N/A	2,280	N/A	3,690	1,020	1,480	N/A	3,910	2,920	12,960	15,880
Non-Public Areas:														
	Airport Administration, Operations, Restrooms, Stairwells and other Areas (sq.ft.)	11,700	N/A	53,860	3,300	14,030	N/A	N/A	1,980	570	N/A	80,160	5,280	85,440
	Mechanical/Electrical/Building Systems (sq.ft.)	5,000	3,600	N/A	N/A	4,390	N/A	2,170	N/A	6,280	N/A	17,840	3,600	21,440
	Unenclosed Area (sq.ft.)	N/A	N/A	61,950	N/A	24,260	N/A	9,100	N/A	11,660	N/A	106,970	-	106,970
	Total	152,800	85,850	140,890	103,090	55,320	55,660	40,770	30,110	55,790	56,160	445,570	330,870	776,440

Notes: In June 2009, Concourse B was closed to initiate its demolition as part of the Stage 4 terminal expansion.
The Concourses A and C footprints are similar but the functional areas (concessions, restrooms, etc.) were not designed symmetrically. Thus, the total areas for Concourses A and B are not exactly the same.

Source: Reynolds, Smiths and Hills, Inc, Stage 3 Concourse Replacement, January 2008
Prepared by: Ricondo & Associates, Inc., December 2007

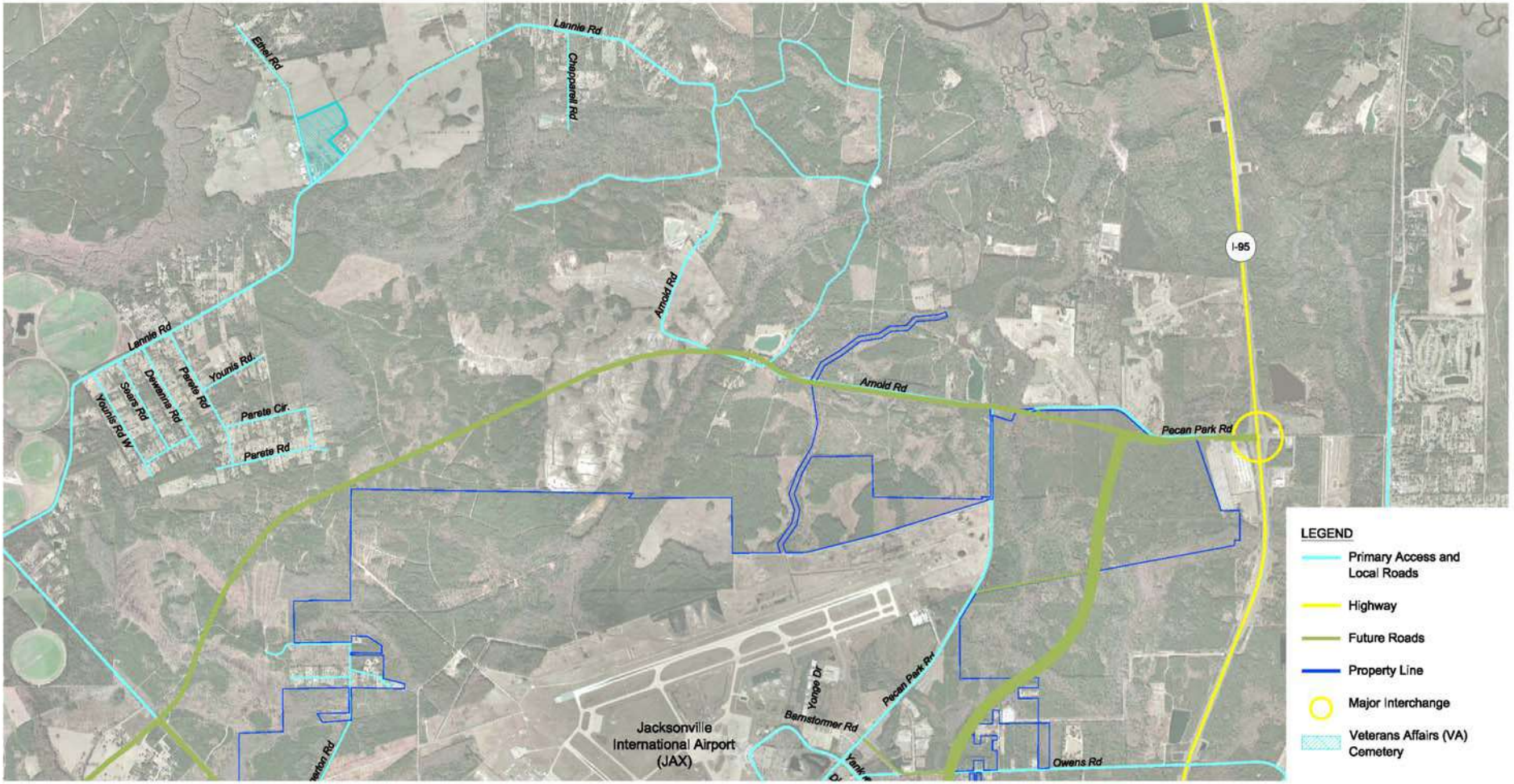


Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-38 *(11x17)*

0 3,000 ft north

Ground Access Roadway Network
South Side of the Airport



Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-39 *(11x17)*

0 2,000 ft north

Ground Access Roadway Network
North Side of the Airport

Airport Road, also identified as Duval Road west or SR 102, is currently a four-lane divided highway that serves as the primary entrance road between JAX and I-95. Between I-95 and Yankee Clipper Drive, Airport Road is paralleled on its north and south sides by two bi-directional frontage roads that serve hotels and off-airport parking lots.

West of International Airport Boulevard (SR110), the eastbound and westbound lanes of Airport Road split into a loop road. From this point on, the westbound lanes leading to the passenger terminal are identified as Yankee Clipper Drive. Past the passenger terminal, the eastbound lanes become Dixie Clipper Drive, forming the exit leg from the terminal area complex.

The inbound roadway, Yankee Clipper Drives serves the passenger terminal, hourly and daily parking garages, daily surface lots, and rental car return facility located in the lower level of the hourly and daily parking garages. The outbound road, Dixie Clipper Drive, exits the arrival and departure levels of the passenger terminal on the south side of the terminal complex and provides access to the Airport Clarion Hotel and Pecan Park Road.

International Airport Boulevard is also a major access road leading to the Airport. This boulevard runs in a north-south direction, stretching from the I-295-Duval Road interchange to Airport Road, allowing travelers to bypass I-95 and the sometimes congested traffic lights on Airport Road just west of the I-95 airport exit. International Airport Boulevard is a four-lane divided highway that opened in May 2004[18].

Beyond providing access to the Airport, International Airport Boulevard also provides access to non-aviation development, and facilitates access to the Jacksonville International Tradeport, home to several businesses. Tracts of undeveloped lands that JAA plans to develop along International Airport Boulevard are generally referred to as Woodwings East and Woodwing West. These areas are described in further details in subsequent section.

The local roadway system also includes several bi-directional roads. Pecan Park Road stretches from the I-95–Pecan Park Road North interchange about 2.6 miles north of the Airport Road exit, to International Airport Boulevard, just north of I-295.

Pecan Park Road North provides access to the general aviation area, FAA Air Traffic Control Tower, the ARFF station, JAA Engineering Annex, and the Prearranged Transportation Commercial Parking Lot, via Barnstormer Road. Pecan Park Road also provides direct access to the economy parking lots, the U.S. Postal Service, and Rental Car Road, which provides direct access to the car rental service facilities.

South of Airport Road, Pecan Park Road South provides direct access to the Flex Office/Warehouse Building, JAA office maintenance facilities, Air Cargo Building #4, Cole Flyer Road, and Woodwings Road. Cole Flyer Road provides direct access to the air cargo area, the main airport fuel farm, and JAA employee parking lot. Woodwings Road cut through the Woodwing west proposed area of development, stretching from Pecan Park Road South to International Airport Boulevard.

[18] Prosser Hallock, 2006 Annual Traffic Monitoring Report, Jacksonville International Airport, June 2007.

Lem Turner Road (SR 115), which is situated on the west side of the Airport's property also provides access to the airport for those coming from the northwest. The road stretches from the town of Callahan, which is located 10 miles northwest of the Airport, to I-95, just south of the Trout River.

Terrell Road, which runs in an east-west direction and south of the airfield, links Lem Turner Road and Pecan Park Road. This bi-directional road provides access to FANG drive, which is the main access road to the Florida Air National Guard (FANG) facilities.

2.7.2 On-going Roadway Construction and Planned Improvements

Several on-going roadways projects should improve travel to and from the Airport. These include, but are not limited to:

- I-95 widening from south of Lem Turner Road (SR115) to I-295: Interstate 95 is being widened from four to six lanes between south of Lem Turner Road and I-295. This project should be completed in the summer of 2008.
- I-295, I-95 and S.R 9A Interchange Reconstruction: The interchange will be improved to accommodate the proposed widening of I-295 and I-95, the completion of SR 9A to the east as an interstate facility, and the projected increase in traffic. One lane will be added in each direction to I-295/SR 9A from I-95 to US 17. Design and construction will occur in phases. Phase 1 is a flyover ramp that connects southbound I-95 traffic to southbound SR 9A. Phase 2 will construct the ramp connecting northbound SR 9A with northbound I-95. Realignment of SR 9A from US 17 and I-95 and the Cole Road bridge over I-95 will also occur in Phase 2.[19] This project was initiated in October 2007 and scheduled for completion by the summer 2010. Upon completion of interchanges at SR 9A and SR 202 (J. Turner Butler Boulevard), the entire Jacksonville beltway will be signed as I-295.

In addition, the following roadway improvements are also expected to take place in the future.

- I-295 widening west of I-95: In the future, I-295, west of I-95, will likely be widened from four to six lanes. At this time, there are no indications as to when this project could be initiated.
- International Airport Boulevard Expansion: In the future, International Airport Boulevard will be expanded from Airport Road to the Pecan Park Road North –I-95 interchange. This road will replace the functions currently provided by Pecan Park Road.
- Realignment of Cole Flyer Road: This roadway is expected to be realigned so that the entrance is directly across from the entrance to Woodwings Road. It should be noted that this realignment will require the relocation of the JAA Maintenance facilities and could potentially impact the fuel farm.
- I-95/Airport Road Flyover: In the future, a flyover ramp from I-95 northbound to Airport Road westbound toward the Airport will be constructed. The new ramp will provide easier access for traffic going to the Airport and ease some of the congestion on Airport Road.

[19] Florida Department of Transportation, http://www.nflroads.com/projects/details.asp?ProjectID=16, accessed December 17, 2007.

2.7.3 Commercial Transportation Services

Limousines/airport shuttle services, taxi operators, hotel shuttles, and the AirJTA bus service provided by the Jacksonville Transportation Authority (JTA) comprise the various ground transportation services available at the Airport.

The AirJTA bus, which began operating in June 2006, provides service for approximately 17 hours a day, Monday through Friday between the Airport and downtown Jacksonville. JTA also offers a special Ride-Request Service. This "as-needed" service, also called the "Highlands-Airport Service" transports workers from Dunn Avenue, the neighborhoods of Harts and Biscayne Blvd, to the hotels and businesses in the area of the Airport, including JAX and the Jacksonville International Tradeport.

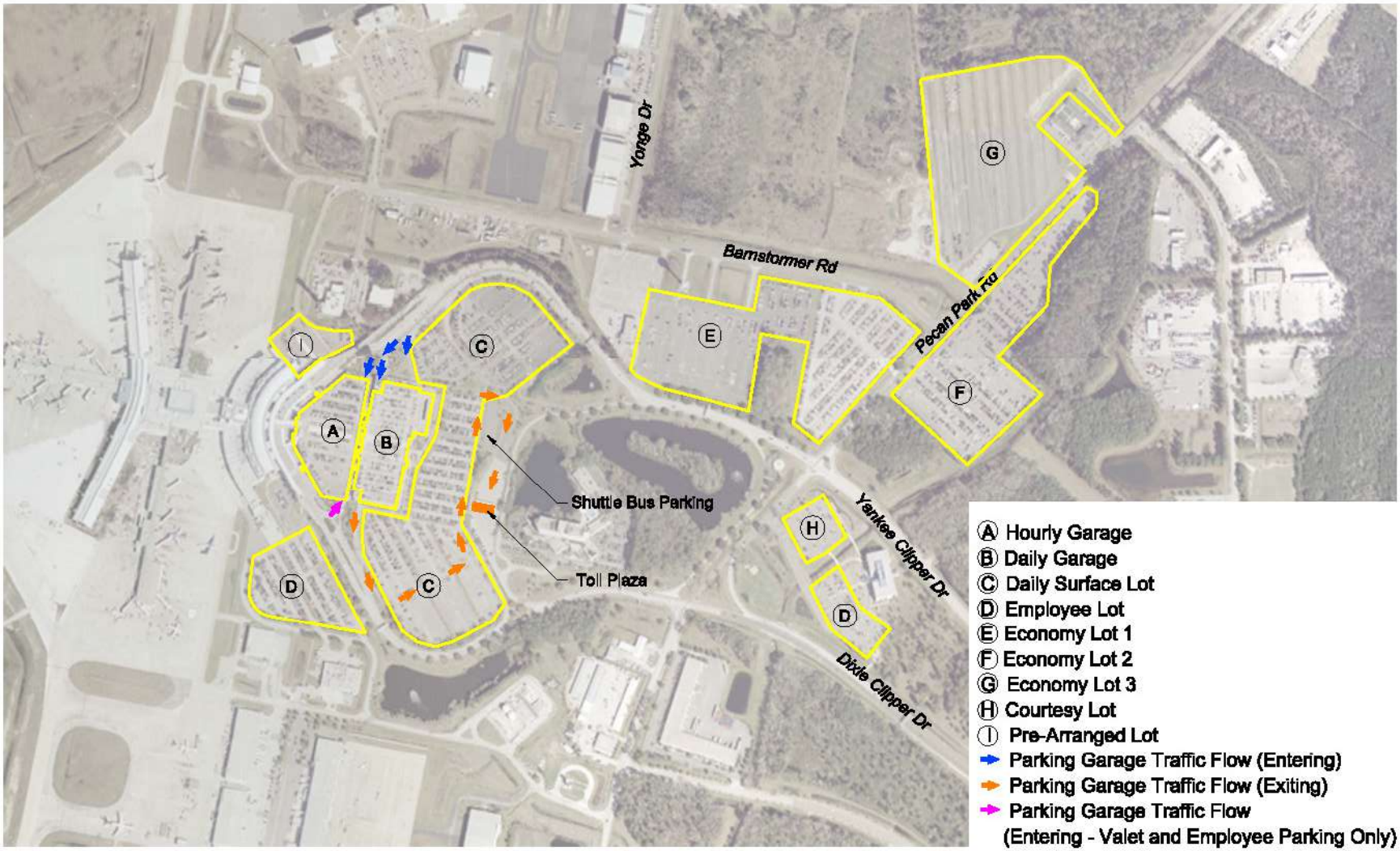
Taxi services are provided by Gator City Taxi under an exclusive concession agreement with the JAA. Off-airport taxicab service providers are also available for airport pick-up; however, prior arrangements must be made directly with the provider. Courtesy shuttle services are also provided by several local area hotels, including:

- Courtyard Jacksonville Airport – Northeast
- Fairfield Inn and Suites Jacksonville Airport
- Hilton Garden Inn Jacksonville Airport
- Holiday Inn Jacksonville Airport
- Jacksonville Plaza Hotel and Suites
- Wingate Inn Jacksonville Airport

The designated pick-up area for pre-arranged ground transportation providers is a dedicated parking lot located adjacent to the north end of the terminal baggage claim area. The pickup areas for ground transportation service that has not been pre-arranged (e.g. hotel shuttles, taxis, etc.) are located along the commercial transportation curbside outside of the baggage claim.

2.8 Parking

There are currently seven public parking facilities available at JAX including an hourly garage, a daily garage, a daily surface lot, three economy lots, and one courtesy lot. The majority of the JAA personnel working at JAX are accommodated in three designated employee parking facilities: a parking lot located adjacent to and south of the terminal, a parking lot adjacent to the administration building, and at the top level of the hourly parking garage. There is also a shuttle bus parking area and a pre-arranged transportation commercial parking lot. The locations of the public and non-public parking facilities at JAX are depicted on **Exhibit II-40** and summarized in **Table II-25**. Table II-25 also provides the rates and number of spaces available for the parking facilities, as applicable.



Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-40

0 1,000 ft

north

Parking Facility Locations

Table II-25

Parking Facilities

Facility	Total Capacity[1/]	Rate
Hourly Garage[2/]	1,317[3/]	$16.00 (daily max)
Daily Garage[4/]	2,323	$12.00 (daily max)
Daily Surface Lot	1,722	$10.00 (daily max)
Economy Lot 1	1,905	$6.00 (daily max)
Economy Lot 2	1,276	$6.00 (daily max)
Economy Lot 3 (special events)	900	$25.00 (flat rate)
Courtesy Lot	160	Non-Revenue
Employee Lot south of the passenger terminal	471	Non-Revenue
Employee Lot adjacent to the administration building	190	Non-Revenue
Shuttle Bus Parking Area	47	Non-Revenue
Prearranged Transportation Commercial Parking Lot	36	Non-Revenue
Total	10,347	

Note: [1]Indicates total capacity, including revenue and non-revenue parking spaces
[2]Facility provides the combination of public parking, employee parking, valet parking, and rental car ready/ return parking.
[3]733 parking spaces are dedicated to public parking.
[4]Facility provides the combination of public parking and rental car ready/ return parking.

Source: Jacksonville Aviation Authority (JAA) Records, November 2007.
Prepared by: Ricondo & Associates, Inc., December 2007

2.8.1 Hourly Garage

The Hourly Garage is a four level facility that is located just east of the Main Terminal. Of the four levels, only Levels 2 and 3 (733 spaces) are available for public parking at a maximum daily rate of $16. Level 1 of the facility is used solely for the parking of rental cars (384 spaces) and Level four is split between valet (100 spaces) and employee parking (100 spaces). The valet parking is available to passengers at a daily rate of $20. The valet parking booth, located on the south side of the departure curb (Level 2), is the drop off location for passengers who choose to use the valet service. Once the vehicle is dropped off, it is then parked on the top level of the hourly garage by an on-duty attendant. JAA personnel indicated that approximately 100 spaces are currently dedicated to valet parking.

2.8.2 Daily Garage

Located to the east, and adjacent to the Hourly Garage is the Daily Garage, which is currently the largest parking facility at JAX. This garage was constructed as part of Stage 1 of the Terminal Expansion Program. The Daily Garage has six levels and provides a total of 2,323 parking spaces. Like the Hourly Garage, Level 1 is used solely for the parking of rental cars, with a total of 360 spaces. Levels 2 through 6 are available for public parking (1,963 spaces) at a daily maximum rate of $12.

2.8.3 Daily Surface Lot

The Daily Lot is a combination of four surface lots that are located on the east, north, and south sides of the Daily Garage. Together, these lots provide a total of 1,722 parking spaces at a maximum daily

rate of $10. The Daily Lot can be accessed off Yankee Clipper Drive and exited through an eight-booth toll plaza that allows passenger traffic to exit the Airport on Dixie Clipper Drive.

2.8.4 Economy Lots

There are currently three surface Economy Lots available at JAX. Economy Lots 1 and 2 remain open all year long while Economy Lot 3 is only available during the holidays and special events (i.e. Tournament Players Club (TPC), Super Bowl). As indicated in Exhibit II-40, Economy Lot 1 is bound on the south by Yankee Clipper Drive, on the north by Barnstormer Road, and to the east by Pecan Park Road. This lot provides 1,905 parking spaces and can be accessed/exited from either Pecan Park Road or Barnstormer Road. Economy Lot 2 is located on the east side of Pecan Park Road and provides 1,276 parking spaces. Economy Lot 2 has two access/exit points located along Pecan Park Road. As previously mentioned, Economy Lot 3 is only used as an overflow lot during special events. Lot 3 is located north of the intersection between Barnstormer Road and Pecan Park Road and provides 900 parking spaces. Economy Lot 3 has one entrance/exit that is located along Pecan Park Road. Lots 1 and 2 are available to passengers at a daily maximum rate of $6, while Lot 3 provides a flat rate of $25, when available.

2.8.5 Courtesy Lot

The Courtesy Waiting Lot or “cell phone” parking lot is located adjacent to and northeast of the JAA administration building, between Yankee Clipper Drive and Dixie Clipper Drive. It currently provides approximately 160 parking spaces and serves as a waiting area for persons and vehicles traveling to the Airport to pick up arriving passengers. A large screen display provides continuous updated flight arrival information allowing drivers to see when their passenger's flight has arrived and inform them as to when the passenger is ready for pick up. There is no cost associated with the use of this parking facility.

2.8.6 Employee Lots

There are two main employee lots at the Airport. The larger lot is located on the south side of the passenger terminal and currently provides 471 parking spaces. Access to this facility is provided by Delivery Road and indirectly Cole Flyer Road, which also serves the air cargo area. The second employee lot is located adjacent to the administration building and provides approximately 190 parking spaces.

As indicated before, employees can also park in the top level of the hourly garage, where approximately 100 parking spaces are assigned to them. These spaces are generally used by the tenants and JAA employees who operate within the terminal and concourses.

2.8.7 Shuttle Bus Parking Area

The shuttle bus parking area is a staging and parking area for the shuttles that serve the Economy Lots. This parking facility provides an area of approximately 19,000 square feet and 47 parking spaces. This lot is located just east of the Daily Surface Lot along the exit road that leads to the toll plaza.

2.8.8 Prearranged Transportation Commercial Parking Lot

This facility is located on the north side of the Main Terminal and serves as a staging area for commercial vehicles, such as Limos and Taxis. The Commercial Parking Lot currently provides 36 parking spaces that can be accessed from Barnstormer Road. The layout of the facility is such that

commercial transportation vehicles can exit the lot directly on Yankee Clipper Drive when called upon for service. **Exhibit II-41** depicts the existing prearranged transportation commercial parking lot.

2.9 Rental Car and Ground Transportation Facilities

2.9.1 Rental Car Facilities

The rental car companies maintain ready/return spaces on the first floor of the hourly and daily parking garages. However, their maintenance and vehicle fleet storage facilities are located east of the passenger terminal and general aviation facilities areas, directly off Rental Car Lane, which connects to Pecan Park Road North. The location of the rental car facilities is depicted on **Exhibit II-42** and the space breakdown for each rental car company is presented in **Table II-26**.

During a site visit, JAA maintenance personnel indicated that the construction of a center turn lane or concrete pad on the side of Rental Car Lane for the parking of trucks that desire to load/unload rental cars would be beneficial. This additional lane or pad would protect the roadway shoulders/grass strip from being damaged while loading/unloading cars and decrease congestion in this area.

Table II-26

Rental Car Facilities

Rental Car Company	Main Building Size (Sq. Ft)	Secondary Building Size (Sq. Ft)	Vehicular Parking/Available Space (SY)	Total Leased Space (Sq. Ft)
Avis	8,600	N/A	13,000	125,00
Budget	6,200	1,500	16,600	157,000
Dollar	4,200	N/A	4,000	40,000
Hertz	9,000	2,200	22,000	208,900
National	4,000	1,200	14,600	136, 700
Enterprise	5,700	2,200	Unknown	128,500

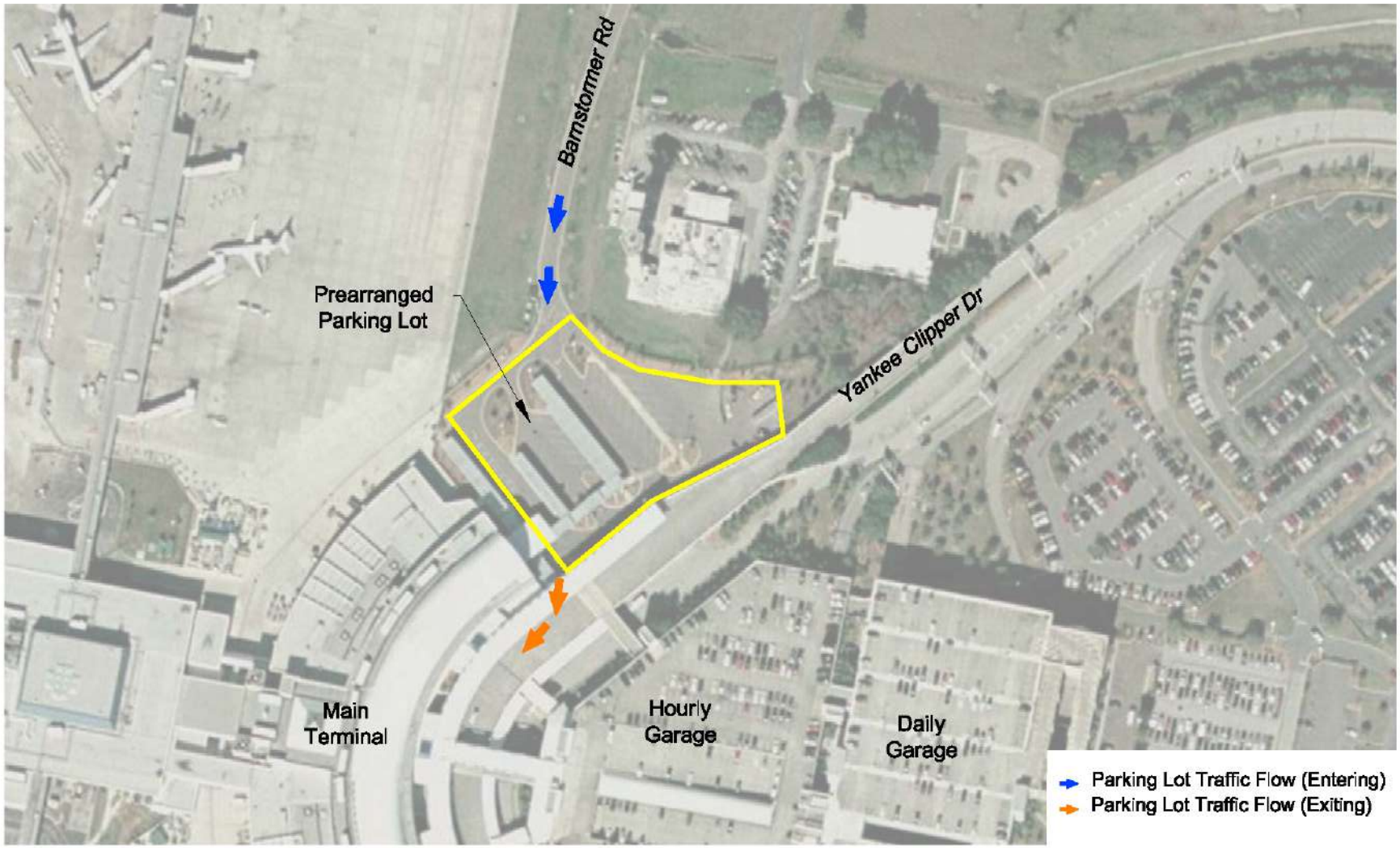
Source: Avcon, Inc, January 2008.
Prepared by: Avcon, Inc, January 2008.

2.9.2 Ground Transportation Facility

As depicted in Exhibit II-42, this 6,640-square foot building is located at the end of Rental Car Lane, just south of the rental car facilities. Half of the building is currently being rented to a local taxi company and the other half is vacant. The building, which opened in 2001, is in good condition.

2.10 Air Cargo Facilities

The air cargo area is located southeast of the passenger terminal area and north of Runway 31 end. This area encompasses approximately 24 acres and consists of four main buildings, three ramps, and associated landside facilities. As shown on **Exhibit II-43,** the area is accessible via Cole Flyer Road, which connects to Pecan Park Road. The cargo buildings are used by airlines and freight forwarders for the processing of belly cargo.



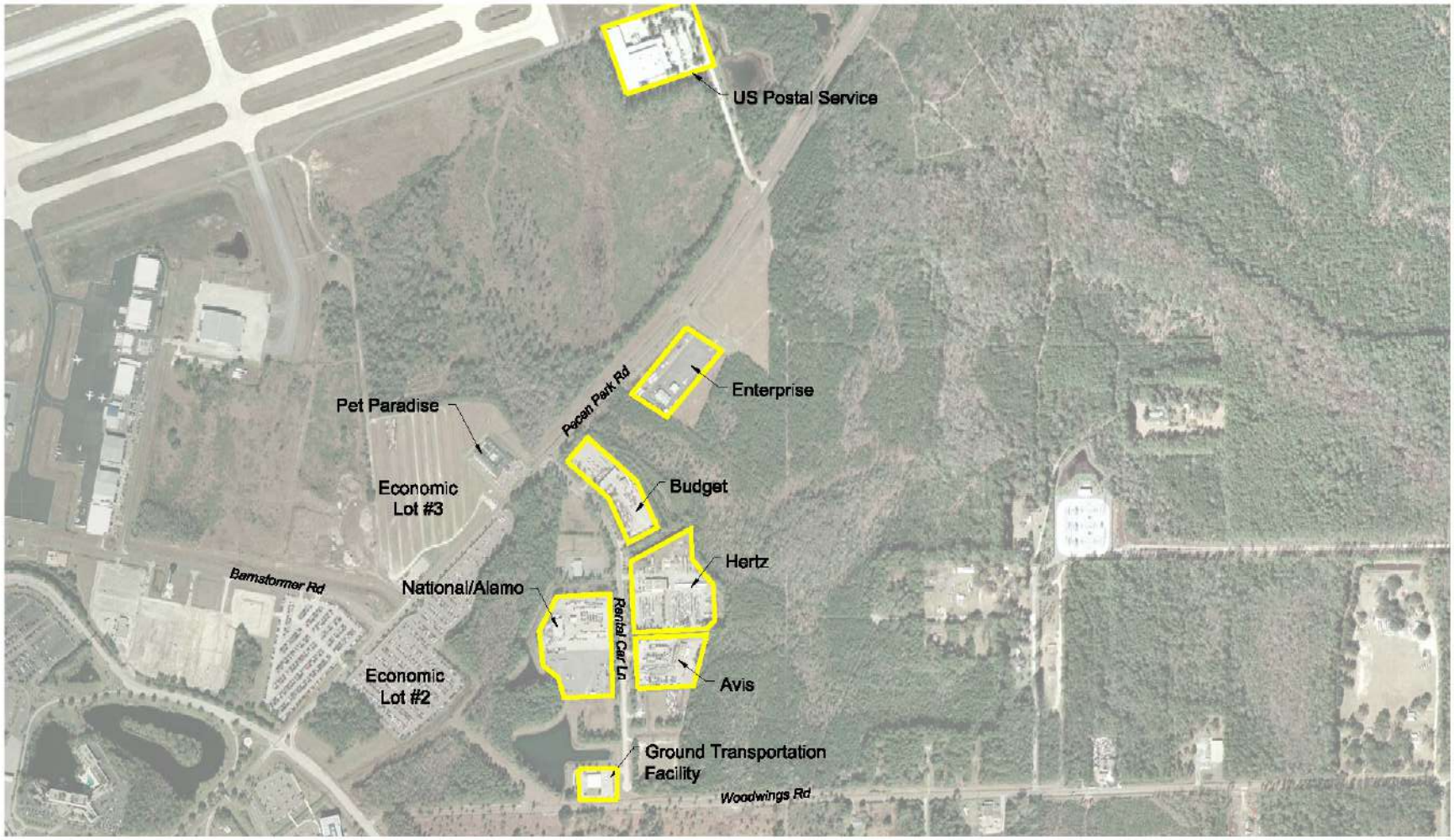
Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-41

0 200 ft

north

Prearranged Transportation Commercial Parking Lot



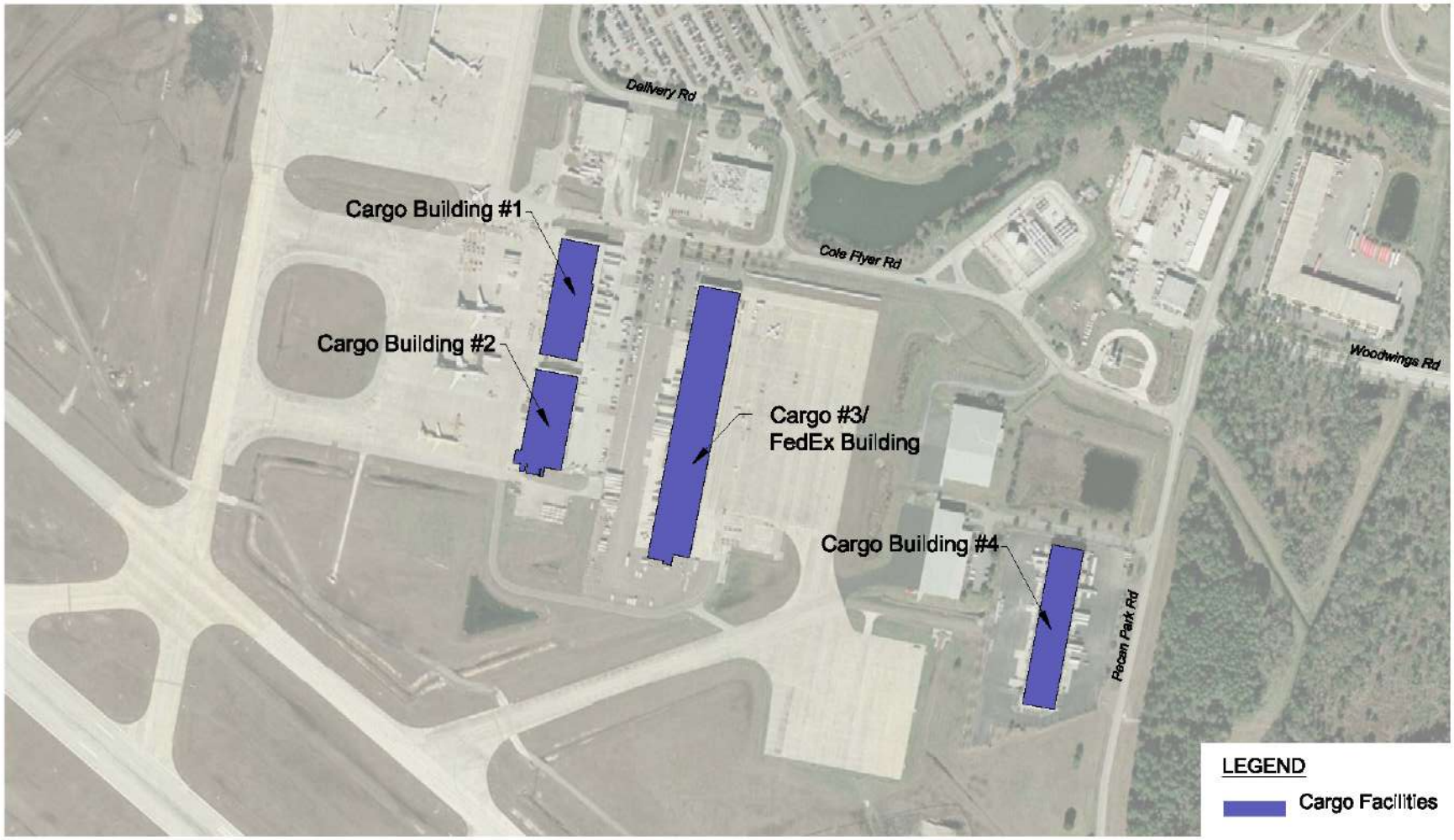
Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-42

0 500 ft

north

Airport/Airline Support Facilities



Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-43

0 500 ft
north

Air Cargo Facilities

2.10.1 Air Cargo Building #1

Building #1 has 38,000 square feet of floor and is located southeast of existing Concourse C at the end of Cole Flyer Road. In 2008, this building was occupied by eight tenants, including Southwest Airlines, Delta Airlines, the FAA, Freedom Interstate Shippers, WEBB, Quantem, Miller Electric, and Air-Ground Logistics. **Table II-27** and **Exhibit II-44** show the space and tenant allocations within the Air Cargo Building #1.

Table II-27

Cargo Space Utilization (square feet) by Tenant – Building #1

Lessee	Office Space	Warehouse Space	Airside Loading Space	Landside Loading Space	Total Leased
Southwest Airlines	N/A	3,425	1,580	N/A	5,005
Delta Airlines	N/A	8,879	6,503	2,109	17,491
F.A.A.	N/A	3,006	N/A	N/A	3,006
Freedom Interstate Shippers	940	1,188	N/A	3,021	5,149
WEBB	128	1,339	1,661	N/A	3,128
Quantem	824	5,123	3,280	3,374	12,601
Miller Electric	N/A	1,467	N/A	N/A	1,467
Air-Ground Logistics	N/A	2,127	2,390	N/A	4,517
Vacant Space	890	2,776	N/A	N/A	3,666
Total	2,782	29,330	15,414	8,504	56,030

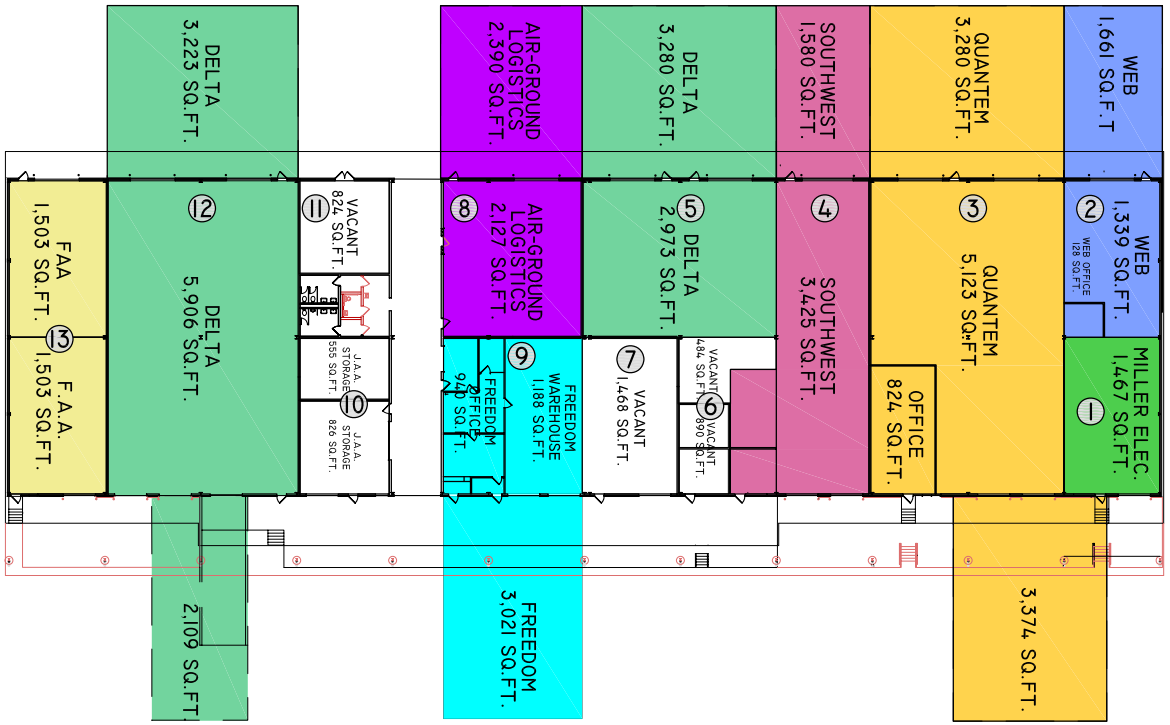
Source: JAA Records, Master Lease Layout, Air Cargo Building #1; Avcon, Inc, January 2008.
Prepared by: Avcon, Inc, January 2008

2.10.2 Air Cargo Building #2

Building #2 has 38,500 square feet of floor and is located adjacent to and south of Air Cargo Building #1. Building #2 houses three tenants, including U.S. Airways, ABX Air, which carries freight for DHL, and United Parcel Service (UPS). **Exhibit II-45** and **Table II-28** shows the space and tenant allocations within the Air Cargo Building #2.

During an interview with UPS representatives, it was stated that, on occasion, commercial passenger aircraft park in proximity of the cargo ramp while waiting for a gate at Concourse C to become available. The jet blasts resulting from these aircraft can pose a safety hazard to both equipment and employees. This problem, however, should be alleviated once the new Concourse C becomes operational. Tenants also reported plumbing issues, leaks in the roof, and the lack of restrooms.

A parking lot is situated east of Buildings #1 and #2 encompasses approximately 45,000 square feet. This parking lot is used for employees and visitors parking, the storage of trailers, and also accommodates trucks backing up to the docks for loading and/or unlading of cargo. This mix of trucks and automobiles with no clear delineation has been noted as a concern by the majority of the tenants.



NO.	LEASEE	OFFICE SPACE SQ. FT.	WAREHOUSE SPACE SQ. FT.	AIRSIDE LOADING SPACE SQ. FT.	LANDSIDE LOADING SPACE SQ. FT.	TOTAL LEASED S.F.
④	SOUTHWEST		3,425	1,580		5,005
⑤	DELTA		8,879	6,503	2,109	17,491
⑬	F.A.A.		3,006			3,006
⑧	FREEDOM INTERSTATE SHIPPERS	940	1,188		3,021	5,149
②	WEBB	128	1,339	1,661		3,128
③	QUANTEM	824	5,123	3,280	3,374	12,601
①	MILLER ELECTRIC		1,467			1,467
⑦	AIR-GROUND LOGISTICS		2,127	2,390		4,517
	VACANT SPACE	890	2,776			3,666

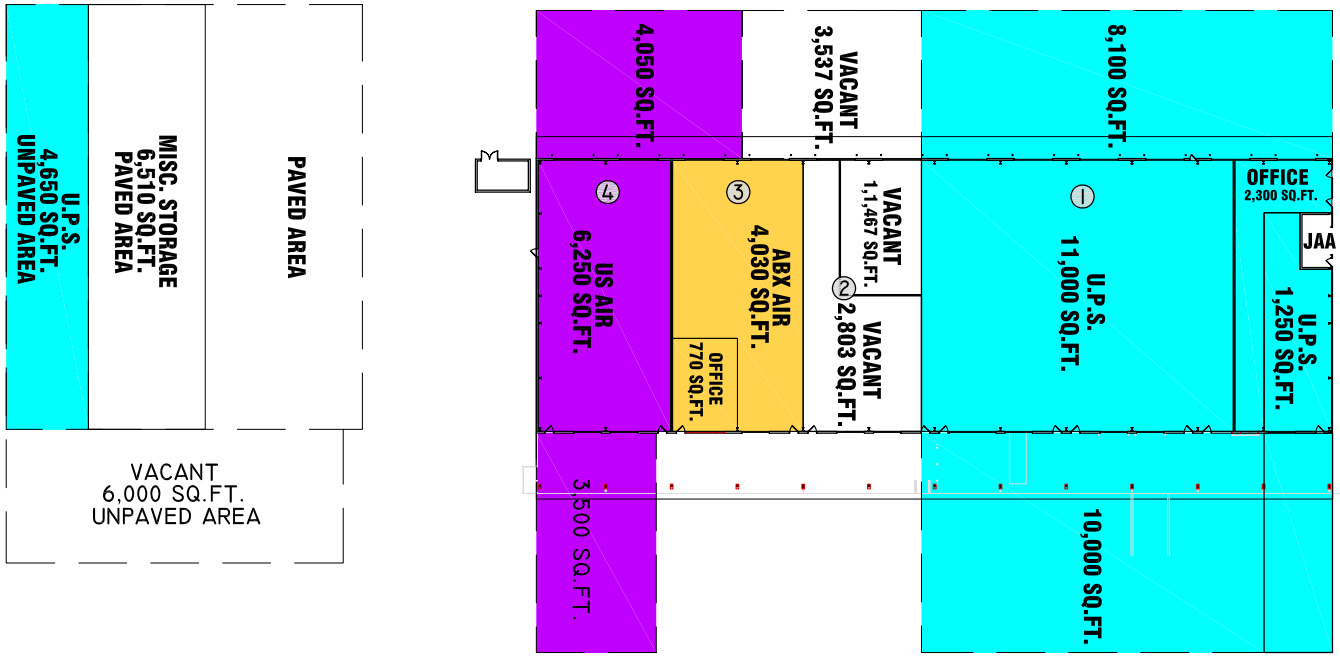
Sources: JAA Records, Master Lease Layout, Air Cargo Building #1
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-44

0 60 ft

north

Air Cargo Building #1
Lease Layout



NO.	LEASEE	OFFICE SPACE SQ. FT.	WAREHOUSE SPACE SQ. FT.	AIRSIDE LOADING SPACE SQ. FT.	LANDSIDE LOADING SPACE SQ. FT.	PAVED GROUND STORAGE SPACE SQ. FT.	UNPAVED GROUND STORAGE SPACE SQ. FT.	TOTAL LEASED S.F.
④	U.S. AIRWAYS		7,750	5,670	3,500			16,920
③	ABX AIR		4,800					4,800
①	UNITED POSTAL SERVICE (UPS)	2,300	12,250	8,100	10,000	6,510	13,800	51,710
	TOTAL LEASEABLE BUILDING SPACE:	30,554 SQ.FT.						
	TOTAL BUILDING SPACE AVAILABLE :	4,704 SQ.FT.						

Sources: JAA Records, Master Lease Layout, Air Cargo Building #1
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-45

0 70 ft

north

Air Cargo Building #2
Lease Layout

Table II-28

Cargo Space Utilization (square feet) by Tenant – Building #2

Lessee	Office Space	Warehouse Space	Airside Loading Space	Landside Loading Space	Paved Ground Storage Space	Unpaved Ground Storage Space	Total Leased
U.S. Airways	N/A	7,750	5,670	3,500	N/A	N/A	16,920
ABX Air (DHL)	N/A	4,800	N/A	N/A	N/A	N/A	4,800
United Parcel Service (UPS)	2,300	12,250	8,100	10,000	6,910	13,800	51,710
Total Building Space Available				4,704			

Source: JAA Records, Master Lease Layout, Air Cargo Building #2; Avcon, Inc, January 2008.
Prepared by: Avcon, Inc, January 2008

As indicated in Table II-28, UPS is the largest tenant in Cargo Building #2. The number and type of aircraft utilized by UPS fluctuates with the amount of cargo they haul into and out of JAX. But on a regular basis, they operate four cargo planes (one Airbus A300-600 and three Boeing 757s). There are 50 to 60 full-time staff members on shift during the day, with approximately 40 employees on duty during the evening/night. DHL generally operates one Boeing 727 for their operations at JAX.

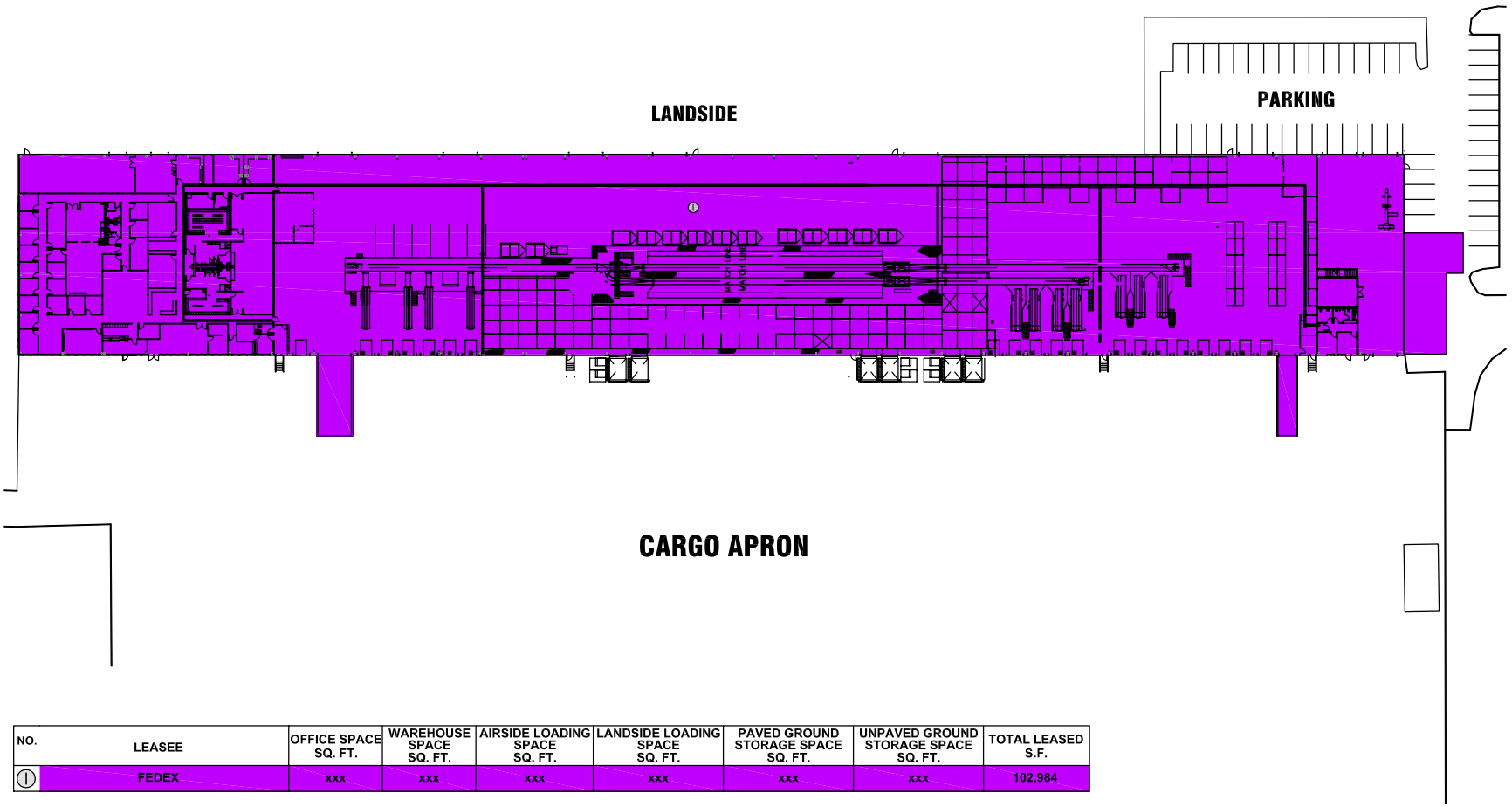
UPS conducts very limited sorting operations at the Airport. Instead, the majority of UPS cargo is processed at a sorting facility located off-airport property. To meet their delivery commitments, UPS stages trailers on the ramp so that cargo containers can be transferred directly from the aircraft to the trailer, and vice versa, without having to pass through the cargo building.

The cargo ramp adjacent to Cargo Buildings #1 and #2 provides approximately 37,500 square yards, which is used for the staging of trailers and other ground support equipment, the parking of aircraft, and the loading/unloading of cargo. UPS representatives noted a lack of ramp space, which oblige them to sequence their aircraft loading operations instead of conducting simultaneous operations. In the event of a mechanical problem or other unforeseen event that oblige UPS aircraft to be staged for a longer period of time on the cargo ramp, the lack of space becomes a key issue. Finally, UPS representatives noted the lack of movable loading platform apparatus for the elevated loading dock, which renders loading/unloading operations at the docks impracticable.

2.10.3 Air Cargo Building #3

Air Cargo Building #3, which is located east of the Air Cargo Buildings #1 and #2 is entirely leased by FedEx (see **Exhibit II-46**). This 100,000 square foot building, which was constructed in 1997, is in good condition and provides space for additional growth.

On the landside, Building #3 has 26 truck docks and approximately 500 linear feet of loading dock frontage available for cargo operations on both sides of the building. FedEx's parking lot can accommodate up to 60 vehicles. Based on discussion with representative from FedEx, this 2,300-square yard parking has limited parking spaces to accommodate employees, customers, and visitors. To meet their vehicular parking requirements, FedEx was leasing half of the flight kitchen facility's parking lot in 2008.



NO.	LEASEE	OFFICE SPACE SQ. FT.	WAREHOUSE SPACE SQ. FT.	AIRSIDE LOADING SPACE SQ. FT.	LANDSIDE LOADING SPACE SQ. FT.	PAVED GROUND STORAGE SPACE SQ. FT.	UNPAVED GROUND STORAGE SPACE SQ. FT.	TOTAL LEASED S.F.
①	FEDEX	xxx	xxx	xxx	xxx	xxx	xxx	102,984

Sources: JAA Records, Master Lease Layout, Air Cargo Building #3
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-46

0 100 ft

north

Air Cargo Building #3
Lease Layout

On a daily basis, FedEx operates two MD-11 and three Cessna Caravan aircraft. The Cessna Caravans are small turboprop aircraft used to distribute parcels to smaller airports throughout Florida (i.e. Gainesville). Given the limited number of aircraft operations conducted by FedEx at the Airport, the 39,000 square yard ramp located east of the building currently exceeds FedEx's requirements.

2.10.4 Air Cargo Building #4

This building was constructed and is owned by AMB Property Corporation who leases the property from JAA. The building is situated on 5.9 acres has a total floor area of 50,000 square feet with truck loading docks on the east and west sides. As illustrated on Exhibit II-43, Cargo Building #4 is located along Pecan Park, east of the FedEx facilities. The landside area provides 18,900 square yards for the parking and staging of automobile and trucks. A parking lot situated south of Building #4 provides 80 automobile parking spaces.

2.11 General Aviation Facilities

General aviation typically refers to those facilities and operations of aviation users other than scheduled commercial airlines, cargo and the military. General aviation activities include recreational and flight training; for hire charter flights, including those used for aerial observation, news reporting, traffic observation, environmental surveys, wildlife counts, police patrol, emergency medical evacuation, pipeline patrol, crop dusting, and business air travel.

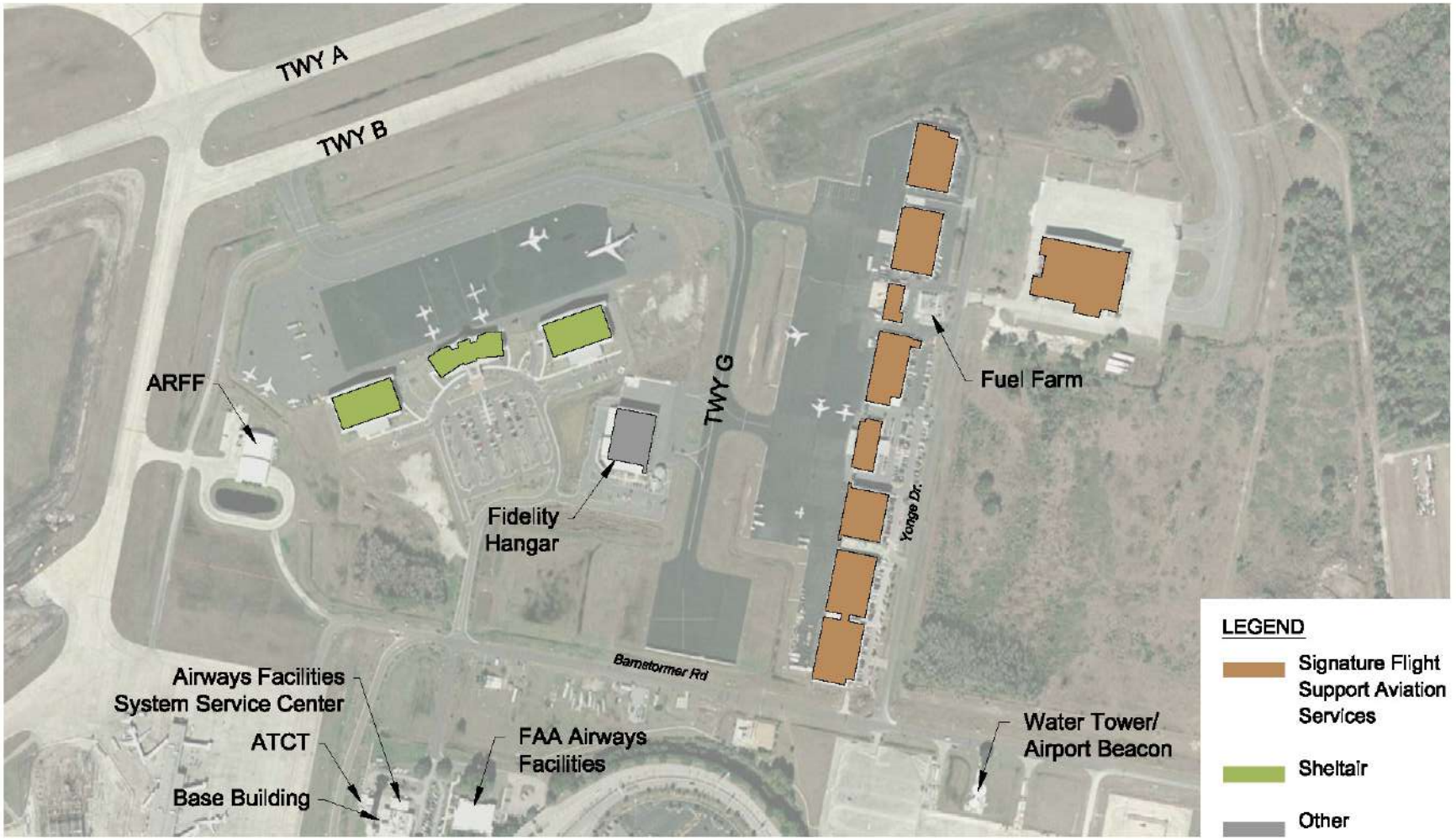
As depicted on **Exhibit II-47**, the majority of the general aviation facilities are located on the north side of the terminal area and south of Runway 7-25. This general aviation area, including apron, hangar facilities, executive terminal, automobile parking, and access road, encompasses approximately 100 acres. The fixed base operators (FBOs) that own the general aviation hangars and executive terminals, manage the ramp, and lease the tiedown positions include Signature Flight Support and Sheltair Aviation Services.

2.12 Signature Flight Support

Signature Flight Support is a full-service FBO that operates 24 hours a day. According to Signature Flight Support representatives, the facility accommodates about 300 transient aircraft a month, mostly consisting of jet aircraft. The majority of Signature Flight Support facilities, including its executive terminal, are located on the north side of the airfield, north of Barnstormer Road. In addition, the FBO operates two hangars in the air cargo area, which is located southeast of the passenger terminal and north of Runway 31 end. Signature Flight Support representative indicated a lack of parking spaces in the north area, which has led the FBO to use the turf areas located along Yonge Drive for automobile parking.

On the north side, Signature Flight Support facilities include:

- One (1) executive terminal which encompasses approximately 9,795 square feet of space and is located between its hangars. This facility was completed in the fall of 2004.
- Eight (8) aircraft/maintenance hangars which are reported in good condition and have no structural problems.
- An apron which encompasses approximately 42,000 square yard.
- An automobile parking lot located east of the hangars which encompasses approximately 8,600 square yard.



Source: Jacksonville Aviation Authority Aerial Photo, January 2007; Avcon Inc., December 2007
Prepared by: Ricondo & Associates, Inc., December 2007; Avcon Inc., December 2007

Exhibit II-47

0 500 ft

north

General Aviation/Airport Support Facilities

On the south side, Signature Flight Support facilities include:

- One (1) hangar which encompasses approximately 32,000 square feet of space According to the 2001 Master Plan Update, approximately 22,000 square feet are configured for aircraft storage and maintenance and the remaining 10,000 square feet provide space for offices, restrooms, kitchen, conference room, and other common areas.
- One (1) 35,000-square foot hangar which was formerly used by USAir (Piedmont Airlines) as an aircraft hangar. It is currently used to accommodate charter flights passengers, such as the Jaguars football team. The hangar is used for the storage of vehicles, as well as the processing of passengers thru security screening checkpoints.

2.13 Sheltair Aviation Services

Sheltair Aviation Services started its operations at JAX in 2005. The two-story executive terminal/office building is approximately 32,000 square feet in size, with vacant office space available on the second floor. On each side of the executive terminal is a clearspan hangar. Each hangar provides 20,000 square feet of aircraft parking and storage space. These hangars were constructed by Sheltair's parent company, Holland Builders, in 2006. According to a Sheltair Aviation Services representative, a total of 15 jet aircraft are based in these hangars. Like Signature Flight Support, Sheltair mainly accommodates general aviation activity, specifically business jet traffic. On occasion, Sheltair also serve military aircraft, such as KC 135 Stratotanker.

As indicated in Exhibit II-47, Sheltair's facilities are accessible via Barnstomer Road. Sheltair's parking lot includes approximately 200 automobile parking spaces, most of which are located in close proximity to the executive terminal. Overall, the parking area provides 72,500 square feet of space. Sheltair's facilities are in excellent conditions.

2.14 Fidelity National Financial Airport Hangar

In 2005, Fidelity National Financial Inc. built a 27,000 square foot corporate hangar at the Airport to accommodate business jet aircraft. This hangar is located between Sheltair Aviation Services facilities to the west and Signature Flight Support facilities to the east. This hangar provides approximately 19,000 square feet of space for aircraft storage and maintenance and 8,000 square feet of office space, pilot lounges, conference room, restrooms, and other common areas. As depicted on Exhibit II-47, this hangar and Signature Flight Support facilities are linked to the airfield via Taxiway G, a 50-foot wide taxiway, leading to parallel Taxiways A and B.

2.15 Airport/Airline Support Facilities

Airport and airline support facilities include the administration building, fuel storage, the Airport traffic control tower, Airport maintenance and equipment storage, the flex office/warehouse building, and aircraft rescue and fire fighting (ARFF). These facilities are depicted on Exhibit II-47 and **Exhibit II-48**.

Source: Jacksonville Aviation Authority Aerial Photo, January 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-48

0 500 ft

north

Airport/Airline Support Facilities

2.15.1 Administration Building

The JAA administrative building is a three-story facility that was completed in 2002, and is in excellent condition. The facility is located between the airport entrance and exit roadways east of the passenger terminal. The office building offers approximately 75,000 square feet of office space with two (2) parking lots in the vicinity. The lot located in front of the JAA office building serves as the parking facility for the administration building and is approximately 10,500 square yards with 192 available parking spaces. The smaller lot is approximately 6,520 square yard with 160 available parking spaces which serves as a courtesy lot for people waiting to pick-up passengers.

2.15.2 Fuel Storage Facilities

The airport FBOs, Signature Flight Support and Sheltair Aviation Services provide fuel for all commercial and general aviation aircraft at JAX. Sheltair serves Northwest Airlines, American Airlines, jetBlue Airways, United Airlines, and UPS while Signature Flight Support provides fuel to all other airlines. The main fuel farm is located southeast of the passenger terminal building, adjacent to and west of the JAA maintenance facilities. The location of the fuel farm is on Exhibit II-48.

As of December 2007, Sheltair Aviation Services was operating two 50,000 gallon Jet A fuel tanks and one 10,000 gallon AVGAS tank. In the future, Sheltair plans to add one 50,000-gallon tank of Jet A fuel.

The second Airport fuel farm is located in the general aviation area in between Yonge Drive and Signature Flight Support Hangar. The location of this fuel farm is depicted on Exhibit II-47. According to the 2001 Master Plan, the aboveground tanks located in this area provide a total capacity of 90,000 gallons for the storage of Jet-A fuel and 20,000 gallons for the storage of Avgas.

2.15.3 Flight Kitchen/Sign Shop

The Gourmet Kitchen and the Old Sign Shop are in poor condition. The sign shop is slated to be demolished in the near future to make room for a future airport maintenance facility. The Gourmet Kitchen building may also be demolished in the future for airport-related activities. As indicated on Exhibit II-48, the buildings are accessible directly off Cole Flyer road.

2.15.4 Aircraft Rescue and Firefighting Facility (ARFF)

As illustrated on Exhibit II-47, the 14,000-square foot ARFF facility is located east of Taxiway H between Runway 7-25 and the passenger terminal. The ARFF facility is staffed by firefighters of the City of Jacksonville and the JAA provides the facilities and equipment required by the FAA. The ARFF facility, including employee and visitor parking, are located within the Security Identification Display Area (SIDA). Thus, individuals that do not have authorized access media to enter the SIDA must be escorted. Access to the ARFF facility is provided through a security gate located off Barnstormer Road, near the FAA ATCT facilities.

FAR Part 139 sets forth minimum safety standards for emergency response personnel and equipment needed at commercial service airports. ARFF departments provide emergency response activities. The minimum personnel, equipment, and aqueous film forming foam (AFFF) agent is based upon the longest commercial passenger aircraft having an average of five or more daily operations. The categories with the aircraft length requirements are given below:

- Index A includes aircraft less than 90 feet in length;
- Index B includes aircraft at least 90 feet, but less than 126 feet in length;
- Index C includes aircraft at least 126 feet, but less than 159 feet in length;
- Index D includes aircraft at least 159 feet, but less than 200 feet in length; and,
- Index E includes aircraft at least 200 feet in length.

JAX is rated as an ARFF Index D airport based upon the current level of scheduled air service. This index level requires the department to have a minimum of three vehicles that carry at least 500 pounds of sodium-based dry chemical and can produce 4,000 gallons of AFFF. Presently, the airport's ARFF department has the following vehicles: three trucks for on- and off-airport fire and emergency medical services (EMS) response, one quick-response unit vehicle known as a combined agent vehicle (CAV), one fire combat truck (Ford E-150), one F350 brush truck that is small enough to operate in the parking garage, and one Dodge pickup utility truck.

2.15.5 Airfield Electrical Vault

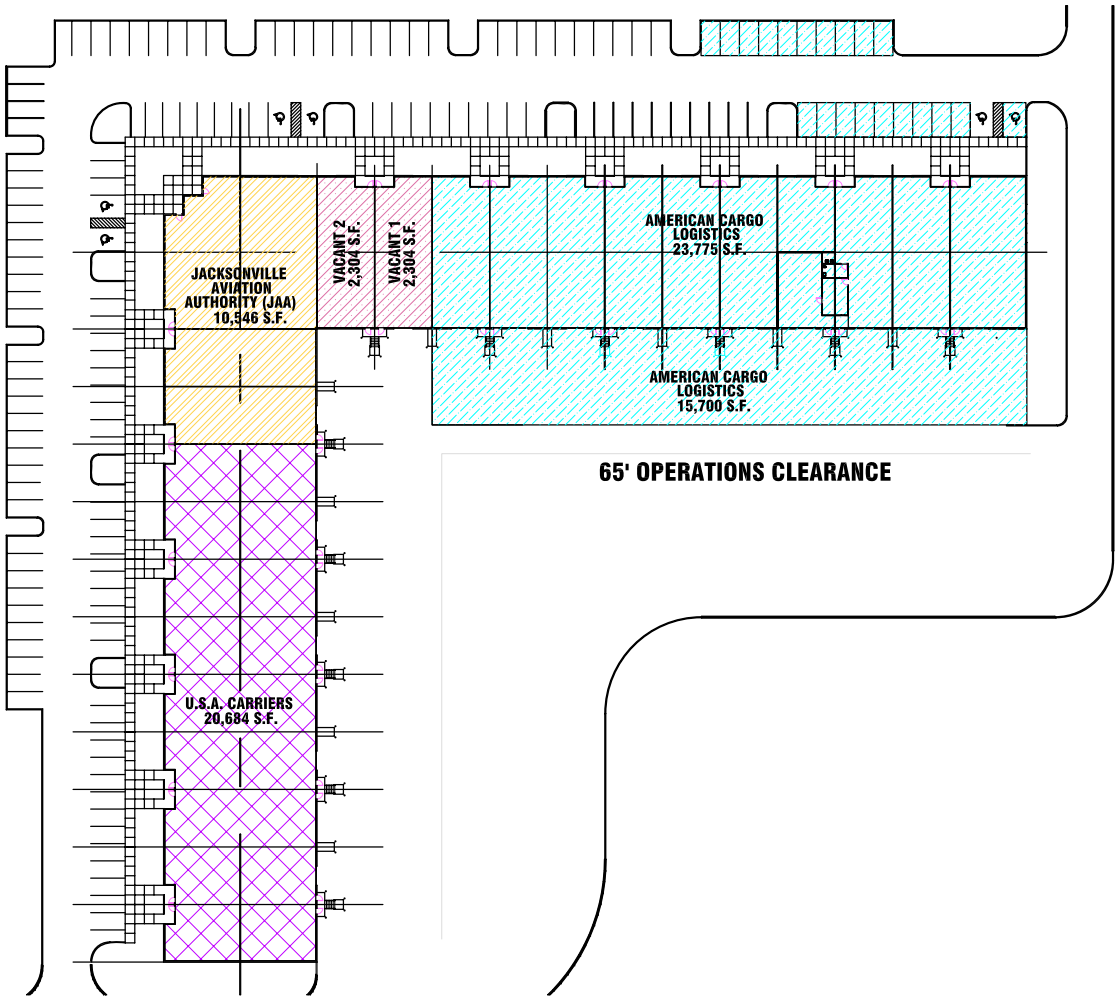
This facility is located in the western end of the infield area, approximately 1,500 feet southeast of Runway 7 end. The building was constructed in 2000 and, according to JAA personnel, is in excellent condition. In the future, the old electrical vault, which is located approximately 1,300 feet east of the new vault, will be renovated to become a staging area for airfield equipment and maintenance personnel.

2.15.6 FAA Air Traffic Control Tower and Airways Facilities

The FAA facilities are located north of the main terminal building and accessible via Barnstormer road that connects to Pecan Park Road. The main facilities consists of an Air Traffic Control Tower (ATCT), a "base" building which encompasses 12,600 square feet of space, an airways facilities system service center, and a 10,900-square foot building that houses air traffic non-operational offices, also referred to as the FAA Airways facility. The vehicle parking located in between the base building and the FAA Airways facility offers 66 parking spaces. Additional parking is also provided east of the FAA Airways facility. According to air traffic controllers, the tower cab provides adequate visibility to the airfield and the area behind Concourse C is the only area where the controllers have limited visibility.

2.15.7 Flex-Office/Warehouse Building

This building was constructed in 1999 and is located at the northeast corner of the Woodwings Road and Pecan Park Road South intersection. JAA currently leases 75 percent of the Flex Building to two (2) air trucking freight companies, U.S.A. carriers and American Cargo Logistics. The remaining area consists of warehouse space. The JAA uses most of the remaining space for storage of equipment and as the Authority's material receiving warehouse. The 60,000 square-foot Flex Building is in excellent condition and has an approximate 9,000 square yard area for truck loading/unloading, including 21 loading docks. The 5,700 square yard vehicular parking lot, located in front of the building provides approximately 150 vehicle parking spaces. The lease layout for the Flex-Office/Warehouse building is illustrated on **Exhibit II-49**.



Sources: JAA Records, Master Lease Layout, Flex Office and Warehouse Building
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-49

0 100 ft

Flex Office and Warehouse Building Lease Layout

2.15.8 JAA Airport Maintenance Facilities

As shown on Exhibit II-48, the Airport maintenance facilities are located in between Pecan Park Road to east, Cole Flyer Road to the south, the fuel farm to the west, and Dixie Clipper Drive to the north. The site encompasses an area of approximately 6.3 acres and includes six main buildings. These buildings house maintenance and storage areas, as well as electrical, mechanic, welding, and sign shops.

2.15.9 Executive Hangar

This 35,000-ssquare foot hangar was formerly used by USAir (Piedmont Airlines) as an aircraft hangar. It is currently used to accommodate charter flights passengers, such as the Jaguars football team. The hangar is used for the storage of vehicles, as well as the processing of passengers thru security screening checkpoints.

2.15.10 Water Tower/Airport Rotating Beacon

The water tower, located just north of Economy Lot #1 on Barnstormer Road, is currently being maintained by the Jacksonville Electric Authority (JEA). The Airport rotating beacon and several cell phone antennas are mounted on top of this water tower. Following construction of a new JEA water treatment plant, JEA will stop maintaining the water tower. JAA may subsequently demolish the tower, which would require a new location for the rotating beacon and cell phone antennas.

2.16 Other Facilities

2.16.1 Florida Air National Guard (FANG) Facilities

As previously noted, JAX is home to the FANG 125th Fighter Group. The FANG complex based at JAX is currently located near the approach end of Runway 13. The complex encompasses approximately 332 acres with 36 buildings. As previously shown on Exhibit II-9, airfield access is provided by three taxiways, two of which (Taxiway M1 and M2) are directly linked to Runway 13 departure end. The FANG facilities include, among others, a maintenance hangar, engine testing facilities, munitions dump, bulk fuel supplies, an armory, and an aircraft apron. Automobile access to the FANG facilities is via FANG road, which is accessed from Terrell Road.

2.16.2 US Postal Service

The US Postal Service (USPS) operates a mail facility located on-airport property. The building, which is located south of Runway 25, measures approximately 47,300 square feet in space. Overall, the USPS site encompasses approximately 5 acres. A 20-foot wide service road, that runs parallel to and south of Taxiways B and H, allows for the transfer of mail between the USPS facility and the commercial service apron.

2.16.3 Clarion Hotel

The Clarion Airport Hotel and Conference Center is located east of the hourly and daily parking garages, within the terminal complex loop roadway system. The hotel site encompasses approximately 3.2 acres. In 2009, JAA initiated a facilities condition survey to determine the long-term future of this building.

2.16.4 Pet Paradise

Pet Paradise is a 14,000-square foot facility that provides luxury accommodations and services for pets. As shown on Exhibit II-42, the facility is located along Pecan Park Road North, adjacent to Economy Parking lot #3.

2.17 Non-Aviation Related Development

A Development of Regional Impact (DRI) that was implemented in 1990 governs many of the planning and environmental issues at the Airport. That DRI was subsequently amended in 1991 to clarify land use categories and amended again in 1997 to include new real estate purchased by the Airport. A major revision to the DRI was filled in 1999 to incorporate 10 parcels of land purchased since 1990 and update development progress and conditions. City Council Resolution 2000-286 formally approved this Substantial Deviation to the DRI in 2000. The approved DRI Development Schedule and Master Plan drawing are summarized and illustrated in **Table II-29** and **Exhibit II-50**, respectively. Several recent changes in Florida's Growth Management Laws may impact the JIA DRI. This issue is being examined in the ongoing JIA Highest and Best Use Study.

Additionally, an Environmental Resource Permit (ERP Permit Number 4-031-17756-3) was issued in April 10, 2001 to provide for a conceptual approval of future modifications to the Airport stormwater management system and to provide wetland mitigation for planned development projects.

An environmental overview was undertaken for the preferred alternatives following the guidelines contained in FAA Order 5050.4A, Environmental Handbook. The Substantial Deviation to the DRI covers a broad range of environmental topics from noise to endangered species to air emissions to stormwater and wastewater management. Key requirements of the Substantial Deviation to the DRI include construction of traffic improvements consistent with the proposed development of air quality studies if traffic exceeds certain thresholds. Another requirement already fulfilled was that the airport mitigates the future impacts to gopher tortoises by purchasing 7.5 acres for the habitat in the regional wildlife mitigation park.

The ERP for the stormwater and wetlands was approved in 2001. This ERP outlines the stormwater management requirements and provides for a 1,347-acre conservation area, with areas set aside for a wetland mitigation bank located in the northwest corner of the Airport, as depicted in Exhibit II-50. This mitigation bank is intended to provide mitigation for the following projects:

- Extension of the proposed North International Boulevard from Airport Road to the I-95/Pecan Park Road interchange.
- Woodwings East
- Woodwings West
- General Aviation Area Development

Wetland mitigation required for construction of the south parallel was identified. However, a detailed Environmental Impact Study will be required for this development. This will include St. John's River and Water Management District (SJRWMD) and Army Corps of Engineers (ACOE) permitting.

As indicated before, JAA is pursuing the development of several parcels of land that are currently undeveloped. The two largest parcels of land that are being offered to potential developers include Woodwings East and Woodwings West, which are depicted on **Exhibit II-51**.

Table II-29

Approved DRI Development Schedule

Land Use/Improvement	Development As of 1998 (Phase 1)	Phase 2 (1992-2010)	Phase 3 (2011-2020)	Phase 4 (2021-2030)
International Aviation Complex (Airport)[1/]				
Aircraft Gates	23 jet gates	35 jet gates	45 jet gates	60 jet gates
Runway 7-25	10,000' x 150' runway with parallel taxiways	10,000' x 150' runway with parallel taxiways	10,000' x 150' runway with parallel taxiways	10,000' x 150' runway with parallel taxiways
Runway 13-31	Completed Rehabilitation	Extension of runway by 2,300' with parallel taxiways	10,000' x 150' runway with parallel taxiways	10,000' x 150' runway with parallel taxiways
Runway 7R-25L	No Activity	Construction of 7R-25L (10,000' x 150' with parallel taxiways)	10,000' x 150' runway with parallel taxiways	10,000' x 150' runway with parallel taxiways
Runway 7L-25R[2/]	No Activity	No Activity	No Activity	Construction of 7L-25R (10,000' x 150' with parallel taxiways)
Residential[3/]	0	110 DU	110 DU	110 DU
Hotel Rooms	200 rooms	675 rooms	875 rooms	875 rooms
Light Industrial	63,000 s.f.	3,557,923 s.f.	4,300,000 s.f.	5,500,000 s.f.
Retail Service	No Activity	100,000 s.f.	200,000 s.f.	300,000 s.f.
Office	No Activity	431,500 s.f.	1,000,000 s.f.	1,500,000 s.f.
Golf Course	No Activity	18 holes	18 holes	18 holes

Notes:

1/ In addition to the airport primary uses listed above, additional customary ancillary uses such as, but no limited to, air maintenance and support uses, general aviation, air cargo and passenger terminal uses and automobile parking garages and surface lots associated with the airport primary uses are permitted.

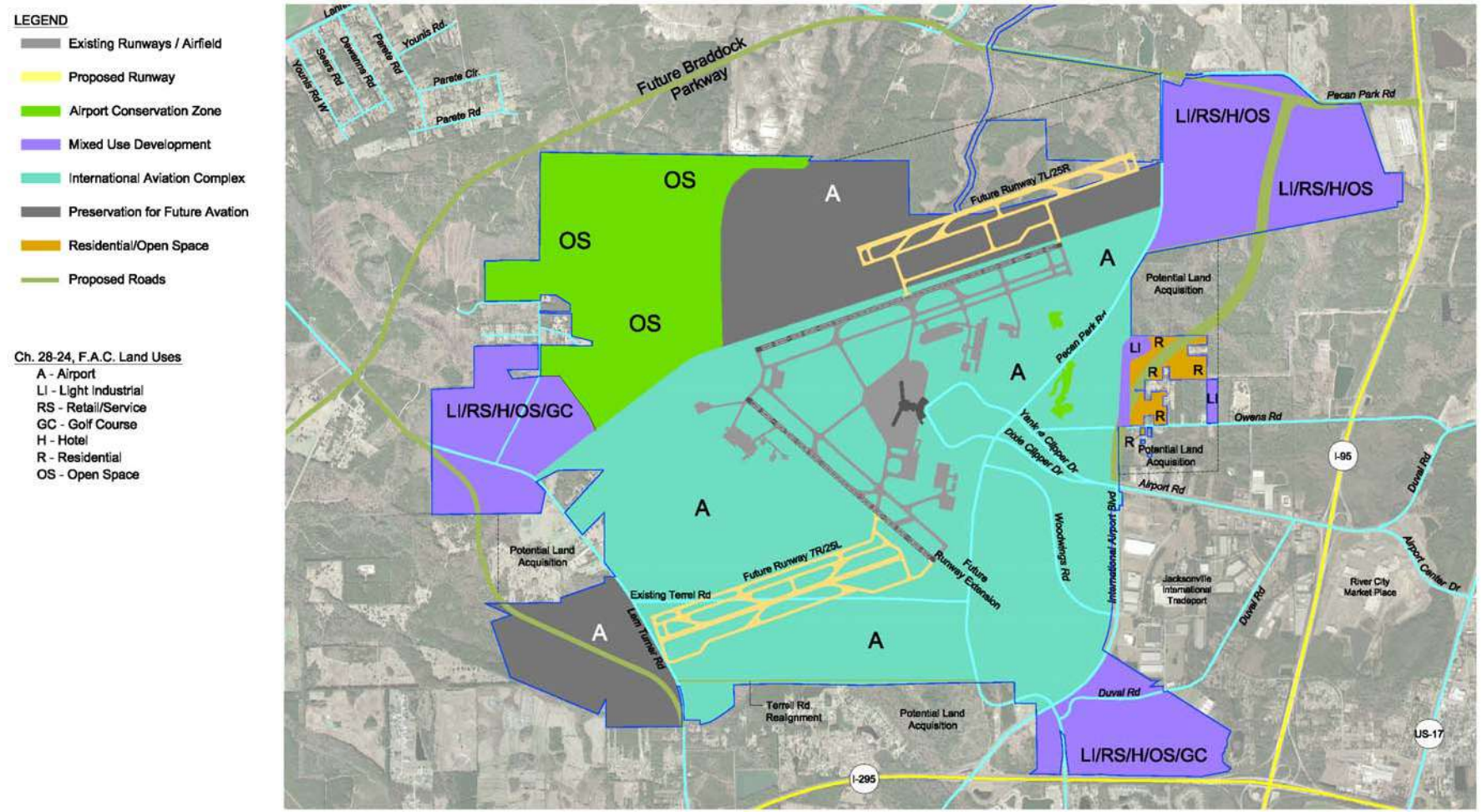
2/ A modification of the Airport DRI pursuant to the criteria in Section 380.05 (19), Florida Statutes, will be required prior to construction of Runway 7L-25R

3/ Residential development may occur in Phase 2 through 4, but in no case will exceed 110 dwelling units.

Source: Airport Master Plan Update, Parsons Transportation Group, 2001; Approved DRI Development Schedule, DRI Development Order #2000-286-A, May 16, 2000.
Prepared by: Ricondo & Associates, Inc., December 2009

The Woodwing East property, which consists of approximately 328 acres, is bound by the Jacksonville International Tradeport facilities on the north, I-95 to the east, I-295 on the south, and International Airport Boulevard on the west. As of December 2007, Majestic Realty Co. had acquired exclusive rights to develop the Woodwings East property and plan to develop more than 3 million square feet of office and industrial space on the land, which would be used for warehouses, distribution centers, and light industrial projects.

The Woodwing West property is bound by International Airport Boulevard on the east and Terrell Road on the south. To the north and east, the limit of the property that is available for non-aviation related development is defined by the proposed airfield layout as included in the previous Master Plan, including the extension of Runway 13-31 to 10,000 feet, and the provision for a new 10,000-foot long runway, parallel to and south of Runway 7-25 alignment. This parcel of land includes 890 acres. JAA is currently reviewing several development proposals for the area. The Board approved a general ground lease of 2.2 acres at the intersection of International Airport Boulevard and Airport Road to Jax Lodging Inc. in 2007 and the 78-room Microtel Hotel Inn and Suite opened in 2008.

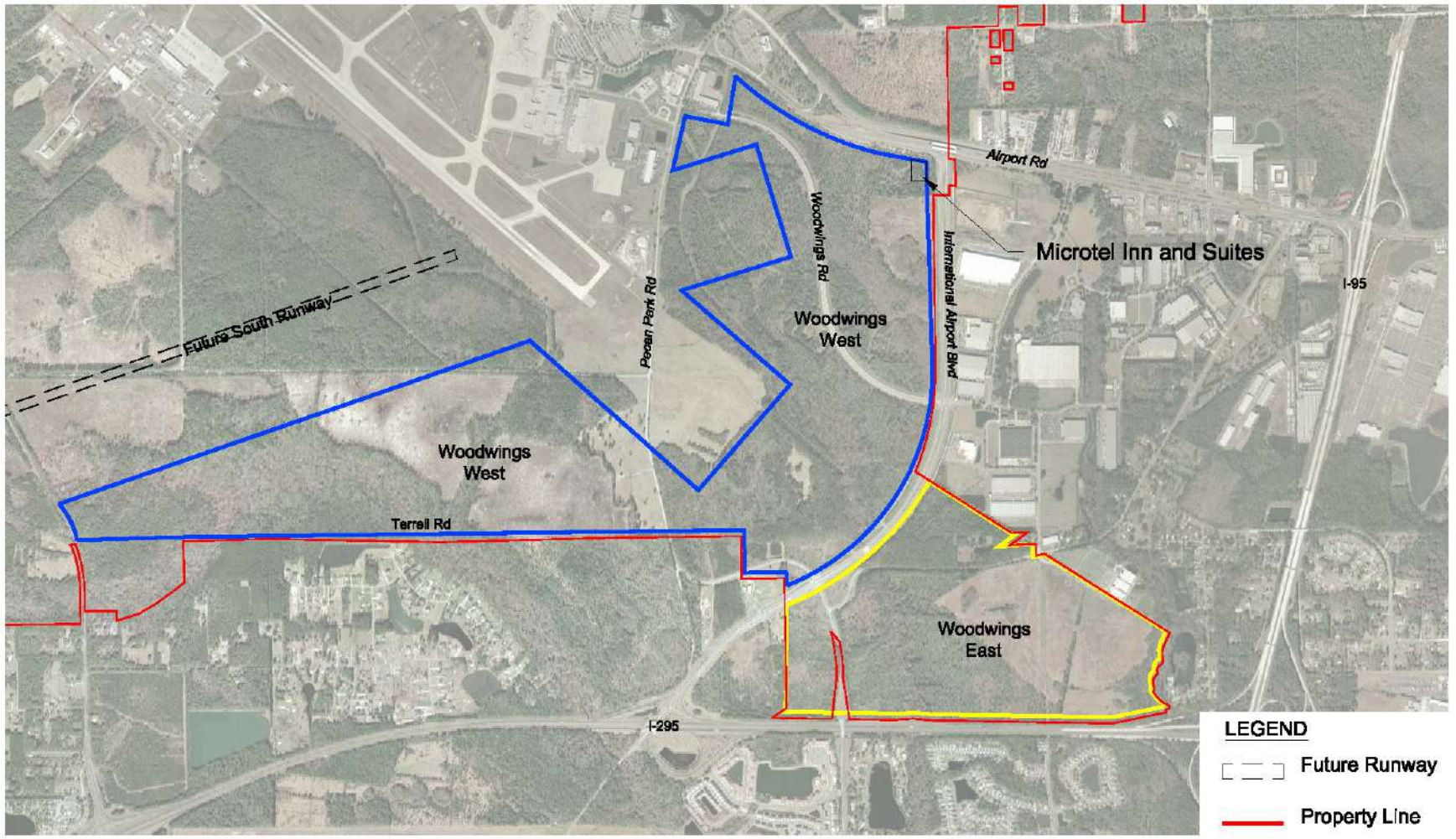


Source: Adapted from Prosser Hallock, Conceptual Master Plan, Map H,1999.
Prepared by: Ricondo & Associates, Inc.

Exhibit V-50 *(11x17)*

0 3,200 ft north

Conceptual Master Plan



Sources: Jacksonville Aviation Authority Aerial Photo, January 2007; Parsons Transportation Group, Airport Layout Plan, 2001;
RS&H, Highest and Best Use Analysis, Woodwings East and West, Final Report, September 2004
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-51

0 2,500 ft

north

Woodwings East and West

2.18 Environmental settings

The following section includes the results of Environmental Resource Solutions, Inc (ERS) baseline environmental assessment report (Refer to **Appendix A** for the full document report). It provides an overview of the existing environmental conditions that exists at the Airport and its environs and identify the approximate limits of any jurisdictional wetlands/surface waters regulated by St. Johns River Water Management District (SJRWMD) and U.S. Army Corps of Engineers (COE), as well as the occurrence of any faunal species listed as endangered, threatened, or of special concern, by the U.S. Fish and Wildlife Service (FWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC).

Documentation consulted in preparation of ERS's baseline environmental assessment report included:

- Section 18 of the Application for Development Approval submitted during the Development of Regional Impact (DRI) process for JAX (1989)
- Wildlife surveys and baseline environmental conditions reported during the State and Federal permitting process (2000-2001)
- SJRWMD Conceptual Environmental Resource Permit (ERP) No. 4-031-17756-3 (2001)
- COE Individual Permit No. 200005079 (IP-BAL) (2001)
- JIA Mitigation Management Area Plan (2003)
- Annual JAX Assessment Report (2007)

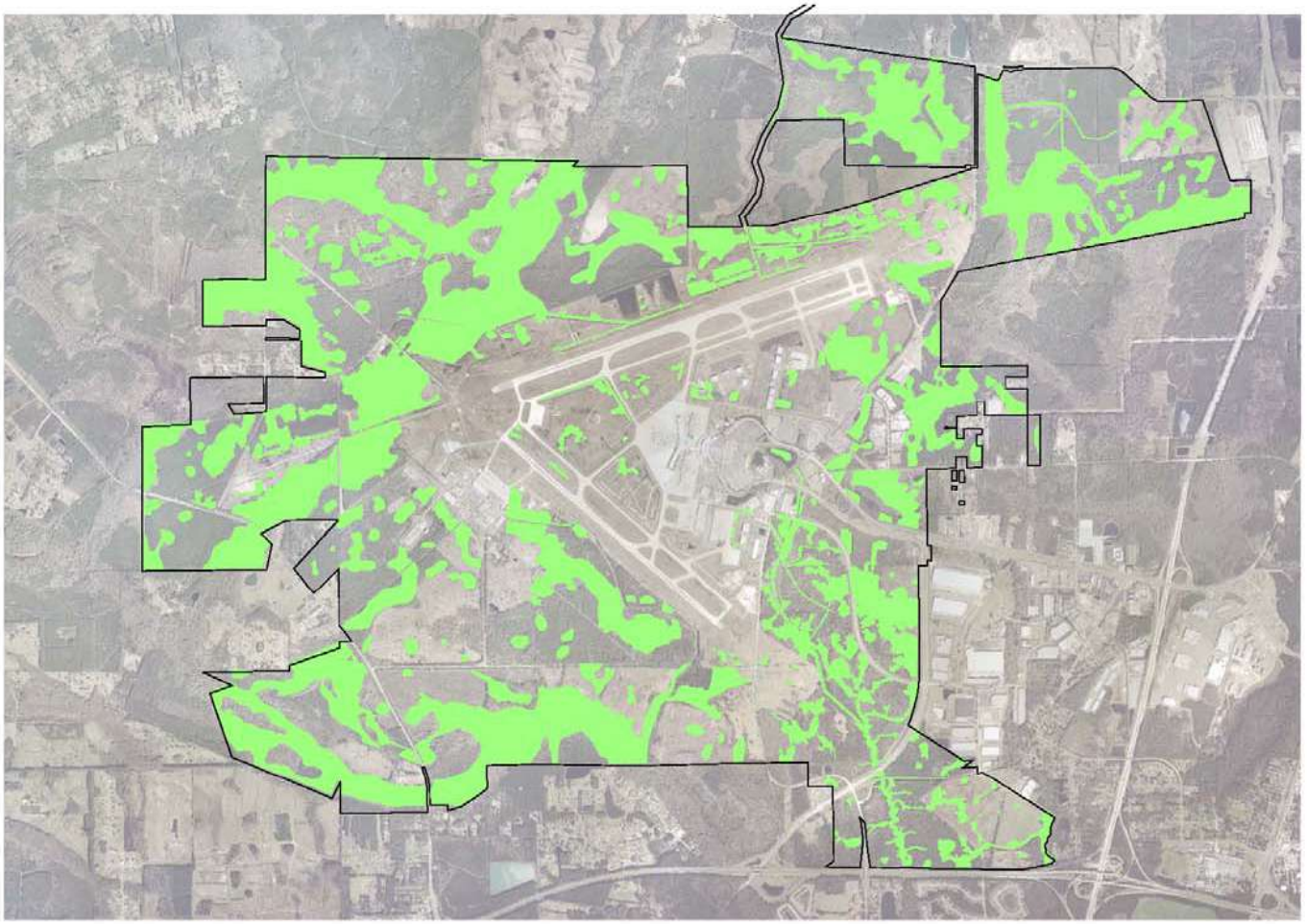
2.18.1 Wetlands Land Use/Cover

The majority of the on-site wetlands associated with the JAX property were approximated through aerial interpretation and limited ground-truthing as a part of the past permitting efforts. The exception is a portion of the property in the southeast, bounded by Airport Road to the north and Pecan Park Road to the west, which was subject to a formal Jurisdictional Declaratory Statement (JDS) issued by SJRWMD. Permits from SJRWMD and COE mandate that the remaining approximated wetlands are to be delineated and verified prior to development that would impact wetlands.

Based on a consolidation of previous studies on the property, six wetland or surface water land use types comprise the project area: Streams and Waterways (FLUCFCS Code 510), Stream and Lake Swamps (615), Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), and Freshwater Marshes (641). These communities are described below, and their approximate locations on the site are illustrated on **Exhibit II-52**.

2.18.1.1 Streams and Waterways

This community includes all on-site canals, creeks, ditches, and other linear water bodies. The majority of the vegetation within these communities, if present, includes species that proliferate well in deep water conditions. These species include water lily (*Nymphaea ordorata)*, pickerel weed (*Pontederia cordata)*, arrowhead (*Sagittaria latifolia*), golden canna (*Canna flaccida)*, lizard tail (*Scleranthus annuus),* and others.



Source: Florida Fish and Wildlife Conservation Commission Digital National Inventory Maps, 1996; Aerials Express, 2007
Environmental Resource Solutions, Inc., December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-52 *(11x17)*

0 N.T.S. north

Wetland Maps

2.18.1.2 Stream and Lake Swamps

This community type is associated with the bottomlands of river, creek, and lake flood plains. The JIA property exhibits this community in association with Pickett Branch in the southeast. Species common within this habitat type include swamp tupelo (*Nyssa sylvatica* var. *biflora)*, cypress (*Taxodium* spp.), laurel oak (*Quercus laurifolia)*, red maple (*Acer rubrum)*, swamp bay (*Persea palustris)*, and pop ash (*Fraxinus caroliniana)*. The understory of this community is generally sparse, and is populated by immature canopy species, buttonbush (*Cephalanthus occidentalis)*, blue flag iris (*Iris virginica shrevei),* and royal fern (*Osmunda regalis).*

2.18.1.3 Mixed Wetland Hardwoods

This community is similar to the Stream and Lake Swamps classification, differing mostly in hydrologic regime. The mixed wetland hardwood areas has a larger diversity of wetland hardwood species. In addition to the canopy species found in the Stream and Lake Swamps community, the Mixed Wetland Hardwoods communities also contain loblolly bay (*Gordonia lasianthus*), sweet bay (*Magnolia virginiana*), ironwood (*Carpinus caroliniana*), sugarberry (*Celtis laevigata*), and others. Subcanopy and groundcover species include wax myrtle (*Myrica cerifera*), cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), fetterbush (*Lyonia lucida*), and others.

2.18.1.4 Hydric Pine Flatwoods

The Hydric Pine Flatwoods communities occur throughout the study area, generally in conjunction with the Wetland Forested Mixed communities and as isolated pockets. Many of these areas present as pine plantations. The canopy of this community consists of predominantly slash pine. Immature slash pine, as well as myrtle-leaf holly (*Ilex myrtifolia)*, swamp bay, and wax myrtle comprise the subcanopy. The groundcover comprises herbaceous vegetation such as cinnamon fern, Virginia chain fern, and sphagnum moss (*Sphagnum* spp.).

2.18.1.5 Wetland Forested Mixed

The majority of the on-site wetlands are described as Wetland Forested Mixed. The canopy is composed of a mixture of conifers and hardwoods including slash pine, pond pine (*Pinus serotina*), cypress, black gum, red maple, sweetgum (*Liquidambar styraciflua*), elm (*Ulmus* spp.), and swamp bay. Subcanopy species consist of immature canopy species as well as wax myrtle, bitter gallberry (*Ilex glabra*), and others. Ground cover is dominated by fetterbush, maidencane (*Panicum hemitomon*), St. Johns wort (*Hypericum* spp.), chain fern (*Woodwardia* spp.), cinnamon fern, and royal fern.

2.18.1.6 Freshwater Marshes

The Freshwater Marsh communities are dominated by various sedges (*Carex* spp.), umbrella sedges (*Cyperus* spp.), maidencane, rushes (*Juncus* spp.), and beakrushes (*Rhynchospora* spp.). No canopy or subcanopy layers exist in these communities.

2.18.2 Upland Communities

The remainder of the vegetative community types on the property are classified as uplands, which are generally not regulated by the State and Federal agencies. The most prevalent of these upland communities is Coniferous Plantation (441), as most of the uplands associated with the airport property are used to generate revenue from ongoing silvicultural operations. Relatively minor upland community inclusions scattered throughout the property are listed as follows: Industrial (150), Open Land (190), Pastureland (210), Shrub and Brushland (320), Pine Flatwoods (411), Hardwood Hammock (425), Hardwood-Conifer Mixed (434), Mixed Hardwoods (438). The upland community types are not illustrated on Exhibit II-52 in order to provide a clearer depiction of the wetland and surface water areas that are subject to regulation.

2.18.3 Listed Species

A list of all wildlife species designated as Endangered, Threatened, or of Special Concern likely to occur in Duval County is attached as **Table II-30**. All documented occurrences of listed wildlife species on or in the vicinity (within a 3-mile distance) of the airport property are depicted on **Exhibit II-53** and described in the following paragraphs.

The most prevalent listed species documented on the site is the gopher tortoise (*Gopherus polyphemus*), which appears to be concentrated in three locations throughout the site according to previous wildlife studies. These locations include: (1) south of Terrel Road between Lem Turner Boulevard and Pecan Park Road; (2) in the southwestern property corner west of Lem Turner Boulevard; and (3) in the northeastern airport operations area and Mitigation Management Area. Two inactive gopher tortoise burrows were also identified in the eastern portion of the property, east of Pecan Park Road.

Based on the reviewed studies and published information on land use and soil drainage, it is unlikely that a significant occurrence of critical gopher tortoise habitat is associated with this property. Many of the identified burrows locations indicate that the tortoises are utilizing trail roads and other disturbed areas.

At the time when previous studies were completed, gopher tortoises were listed by the State of Florida as a Species of Special Concern. Recently, this species has received increased protection from the State and is now listed as Threatened, with increasingly stringent permitting requirements including mandatory relocation. Commensal species known to use gopher tortoise burrows include the gopher frog, Florida mouse, Florida pine snake, and eastern indigo snake.

Table II-30

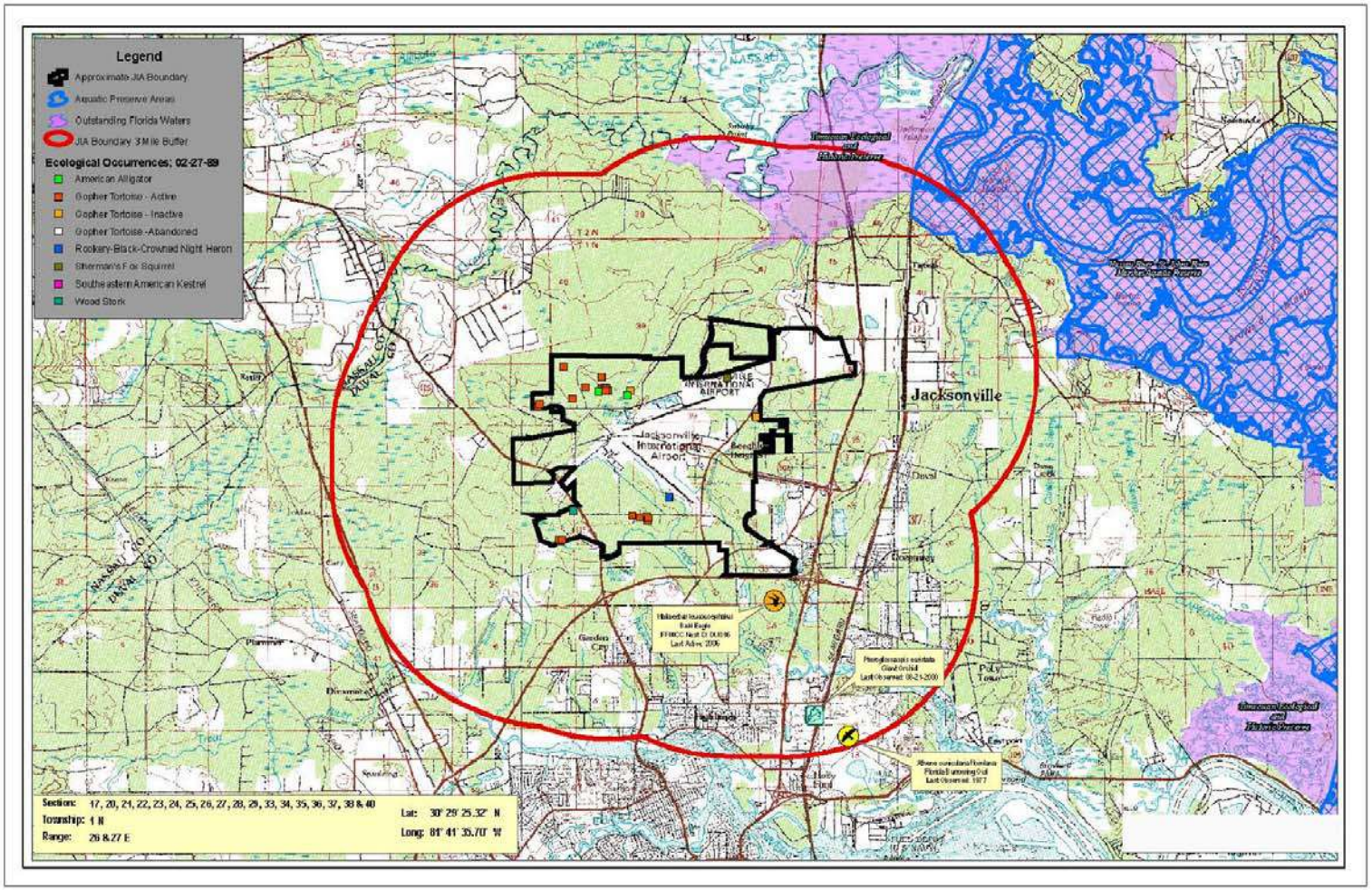
Threatened and Endangered Species of Duval County

Scientific Name	Common Name	Federal Status	State Status	Preferred Habitat	Habitat Observed in Study Area	Prob. of Occurrence in Study Area	Occurrence Status in County Area
Amphibians							
Ambystoma cingulatum	flatwoods salamander	T	SSC	Pine flatwoods-wire grass habitat, with proximity to cypress heads and naturally occurring ponds	No	Low	P
Rana capito	gopher frog	N	SSC	Sandhill, pine flatwoods, sand pine scrub. Needs marshes for breeding	No	Low	C
Reptiles							
Drymarchon corais couperi	eastern indigo snake	T	T	Mesic areas to xeric pinelands and scrub; typically winters in gopher tortoise burrows	Yes	Moderate	C
Gopherus polyphemus	gopher tortoise	N	SSC	Sandhills, sand pine scrub, live oak hammocks, palmetto prairie, pine flatwoods, and disturbed areas	Yes	High	C
Pituophis melanoleucus mugitus	Florida pine snake	N	SSC	Xeric pinelands with open canopies	No	Moderate	C
Birds							
Falco sparverius paulus	SE Am. kestrel	N	T	Open pine forests and clearings	Yes	High	P
Haliaeetus leucocephalus leucocephalus	Southern Bald Eagle	T	T	Lake or river shorelines, nesting near water bodies	No	Low	C
Mycteria americana	wood stork	E	E	Forage in freshwater and brackish marsh; nest in cypress and mangrove swamps	Yes	Moderate	C
Picoides borealis	red-cockaded woodpecker	E	T	Mature longleaf and slash pine forests with open midstory	No	Low	C
Speotyto cunicularia floridana	Florida burrowing owl	N	SSC	Open, well drained areas; prairies, sandhills, pastures, disturbed areas	No	Low	C
Mammals							
Podomys floridanus	Florida mouse	N	SSC	Sand pine scrub, coastal scrub, scrubby flatwoods, sandhill	No	Low	C
Sciurus niger shermani	Sherman's fox squirrel	N	SSC	Longleaf pine-turkey oak sandhills, flatwoods	No	Low	C

Key: N = Not listed; T = Threatened; T(S/A) = Threatened/Similarity of Appearance; E = Endangered; SSC = Species of Special Concern; C = Confirmed in Duval County; G = GIS data base; P = Potential;

Notes: Confirmed Occurrence status (C) is derived from FWS (July, 2000), (FGFWFC, August, 1997), and FNAI (December, 1997). Occurrence GIS database (G) is derived from FWC and FNAI occurrence data for the study area. High, Medium, and Low probability of occurrence is based upon the amount of observed habitat and rarity of the species occurrence.

Source: Florida Natural Areas Inventory (FNAI), *Species and Natural Community Summary for Duval County*, http://www.fnai.org/PDF/county_summaries.pdf, accessed November 2007
Prepared by: Environmental Resources Solutions, Inc, December 2007



Source: St. Johns River Water Management District, Digital Orthophoto Quads, 1984, 2000, 2004; Florida Fish and Wildlife Conservation Commission, November 2007; Florida Natural Areas Inventory Wildlife and Vegetation Database, September 2007
Environmental Resource Solutions, Inc., December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-53 *(11x17)*

0 N.T.S. north

Ecological Occurences and Location Map

Additional listed wildlife species documented on the site include:

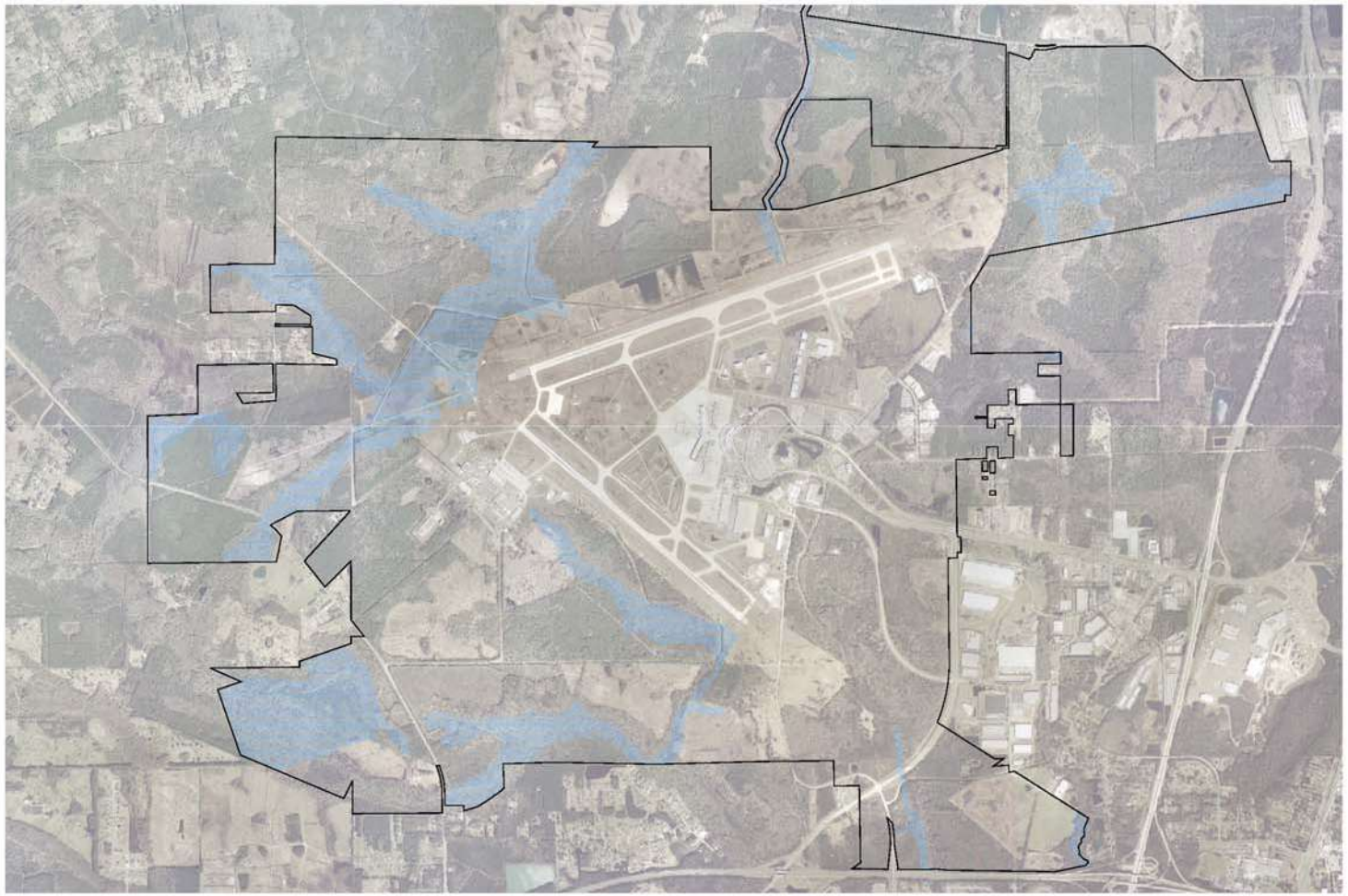
- Black-Crowned Night Heron (Rookery) – This rookery is centrally located on the property. It was identified in a 1989 study, but was not mentioned in any follow-up wildlife studies on the property nor is it listed in any published wildlife occurrence records.
- American Alligator – This species has been identified in inundated portions of the property, particularly to the north.
- Sherman's Fox Squirrel – This species was identified in a 1989 study in the northeastern portion of the property. It was not mentioned in any subsequent wetland studies nor is it listed in any published wildlife occurrence records on or in the vicinity of the property.
- Wood Stork – This species was identified in the southeastern portion of the site in the 1989 study, and has been observed subsequently. Additionally, an active Rookery was identified from 1986 through 1989 within 18 miles of the airport property. This rookery, however, was deemed inactive in a follow-up survey in 1999.
- Southeastern American Kestrel – This species was observed during the 1989 study in the extreme northeastern portion of the property. No documented follow-up sightings have occurred, nor has any occurrence been documented in published records on the site or in the project vicinity.
- Wading Birds – Various wading birds, including listed egrets and herons, have been observed on the property utilizing open and inundated areas for forage.

No other state or federally listed fauna, nor their sign (e.g., scat, tracks, nests, etc.) have been documented on the site.

One documented occurrence of a listed vegetative species was identified in 2000 and is depicted on Exhibit II-53.

2.19 Floodplains

Based on digital flood mapping obtained from FEMA (**Exhibit II-54**) several areas within Airport property limits that are within the 100-year floodplain for the project area. These areas could present a constraint to future Airport development. If floodplain impacts are to occur as a result of proposed projects at the Airport, floodplain compensation may be required.



Source: Federal Emergency Management Agency (FEMA), 1995
Environmental Resource Solutions, Inc., December 2007
Prepared by: Ricondo & Associates, Inc., December 2007

Exhibit II-54*(11x17)*

0 3,000 ft north

Floodplain Map

2.20 Land Use and Aircraft Noise Contours

Exhibits II-55 presents a generalized land use map for the area that surrounds the Airport. As shown, the majority of land surrounding JAA is used for agricultural purposes. The area located along the western edge of the Airport property is mainly made of parcels devoted to agriculture but also include two pockets of rural residential areas located northwest and southwest of the Airport. The rural residential area located northwest of the Airport encompasses approximately 915 acres located along Lannie Road, between Lem Turner Road to the west and Ethel Road to the east. The rural residential located southwest of the existing Airport property encompasses approximately 145 acres. This area is located northwest of the I-295 and Lem Turner Road intersection, on the west side of Lem Turner Road. However, before the economic downturn in 2008, there was considerable pressure by developers to turn this area into planned unit housing developments.

Land use categories included along the southern edge of the Airport property and north of I-295 include low density residential (between Lem Turner Road to the west and Sampson Road to the east) and light industrial use, just north of the intersection between I-295 and Duval Road. Commercial and industrial developments make up the majority of the area located on the east side of the Airport property but small conservation areas also exist.

The area located along the northern edge of the Airport property is devoted to agricultural purposes except for the area located northwest of the North Pecan Park Road and I-95 intersection. This area includes a mix of residential, commercial, and business park uses.

Recent aircraft noise impact studies that were conducted at the Airport include the *2001 Airport Master Update* and a study conducted by the Air Force titled "*Aircraft Noise Environmental Management Resource Book, 125th Fighter Wing, Jacksonville International Airport*" dated July 2006. As indicated in both of those studies, and as shown on **Exhibit II-56**, the noise exposure areas outside the Airport property limits remain small. The areas subject to sound intensities of 65 dB or higher, which are intrusive to inhabitants, remain for the most part on-airport property. In 2001, there were no areas beyond the Airport property limits falling within the 65 dB noise contour. In the future, as air traffic increases, the residential areas located northwest of the Airport are the most likely to fall within the 65 dB noise contour. Noise impact on the population surrounding the Airport could also increase based on future military aircraft operations. Increased operations by the FANG 125th Fighter Wing and/or the introduction of the Lockheed Martin/Boeing F-22 Raptor or F-35 Joint Strike Fighter (JSF) Lightning II could have an impact on the noise contours and further residences could be exposed to noise levels exceeding 65 dB. The FANG will need to conduct an Environmental Assessment (EA) before any change in mission including the type of aircraft they fly.

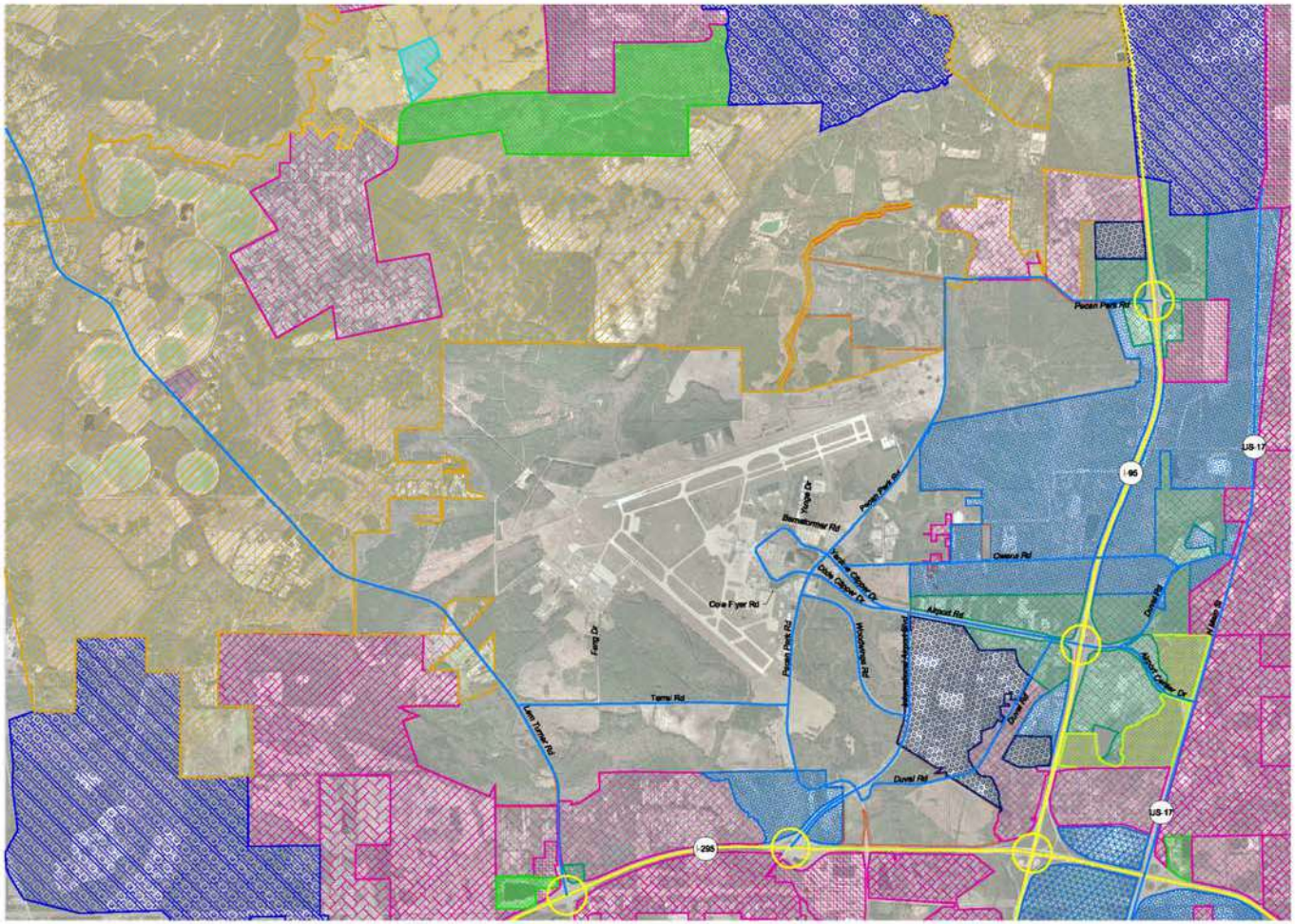
The existing noise contours for the Airport will be reviewed in a later section of this Master Plan Update. The validity of these contours will be also assessed based on a review of the types of aircraft (air carrier, general aviation, cargo, military and helicopters), the itinerant and local activity, the locations of primary flight corridors, and the percentage of aircraft assigned to these corridors used in the past noise modeling effort.

2.20.1 City of Jacksonville Land Use and Zoning Code

In 2007, the City of Jacksonville (COJ) adopted a new Part 10 of the COJ Land Use and Zoning Code (Regulations related to airports and lands adjacent thereto). The Code recognizes Airport Environs Zones which include all property within a Height and Hazard Zone, Noise Zone, Notice

Zone, School Regulation Zone, Miscellaneous Use Zone, Runway Safety Area and Runway Protection Zone.

The Height and Hazard zones are based on the limits defined in Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace*. The Airport Notice Zone includes all parcels of land within the 60 to 64.99 DNL (Average Day Night Sound Level) contour. Airport Noise Zone B includes all parcels of land within 65 to 69.99 DNL contour and Noise Zone A includes all parcels of land within the 70 of greater DNL contour. The Airport Notice Zone and the Airport Noise Zones require all property owners within the zones to execute an Airport Notice Zone Acknowledgment. All development except for entertainment facilities, amphitheater, music shell and similar uses are allowed in the Notice Zone. Residential development is allowed in Noise Zone B conditioned on an average minimum noise level reduction of an average minimum 30 dBA throughout the dwelling and no residential development is allowed in Noise Zone A unless it was an approved Planned Unit Development (PUD) or site plan prior to March 23, 2007. All of the zones are published on the COJ website at www.coj.net under Land Use Maps with the Notice Zone, Noise Zone and Height and Hazard Zone features selected. This allows every land owner or potential owner to see what the potential impacts are to an individual parcel of land.

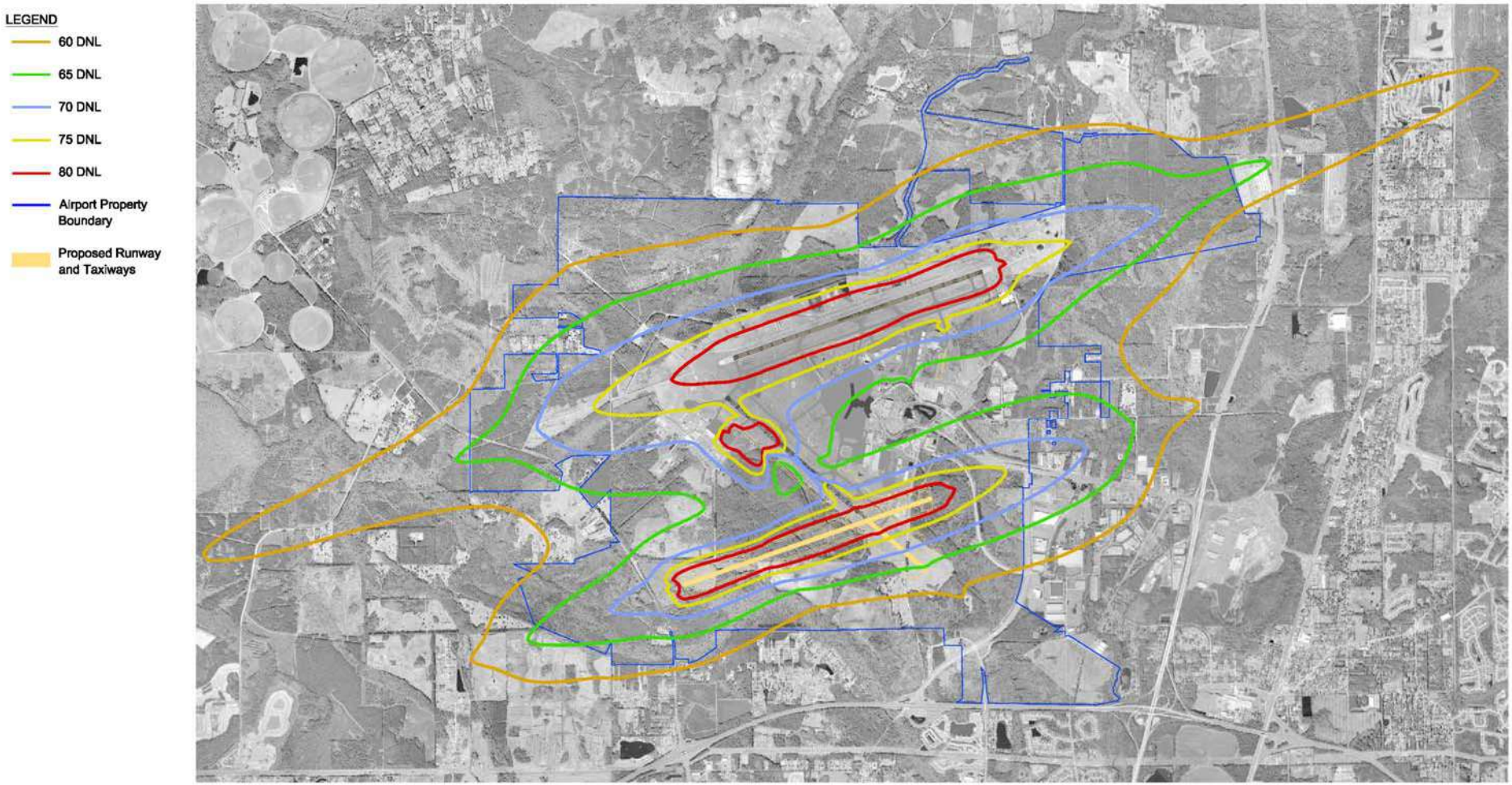


Sources: City of Jacksonville, http://maps.coj.net/jaxgis/, accessed April 15, 2008
Prepared by: Ricondo & Associates, Inc., April 2008

Exhibit II-55*(11x17)*

0 4,400 ft north

Surrounding Airport Land Use



Source: Ricondo & Associates, Inc., September 2009 ; Airport Layout Plan, 2001.
Prepared by: Ricondo & Associates, Inc.

Exhibit II-56 *(11x17)*

0 3,600 ft north

JIA Future Noise Contour (2021)

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background

Environmental Resource Solutions, Inc. (ERS) recently conducted a screening of the baseline environmental conditions of Jacksonville International Airport (JIA) utilizing existing studies, maps, and permits. JIA comprises approximately 8,000 acres and is located in Sections 17, 20 - 29, 33 - 38, and 40; Township 1 North; Ranges 26 and 27 East; Duval County, Florida (Exhibit 1).

The purpose of the assessment was to identify the approximate limits of any jurisdictional wetlands/surface waters regulated by St. Johns River Water Management District (SJRWMD) and U.S. Army Corps of Engineers (COE). In addition, the occurrence of any faunal species listed as endangered, threatened, or of special concern and their critical habitat, by the U.S. Fish and Wildlife Service (FWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC) was identified.

Documentation consulted in preparation of this screening report includes:

- Section 18 of the Application for Development Approval submitted during the Development of Regional Impact (DRI) process for JIA (1989)
- Wildlife surveys and baseline environmental conditions reported during the State and Federal permitting process (2000-2001)
- SJRWMD Conceptual Environmental Resource Permit (ERP) No. 4-031-17756-3 (2001)
- COE Individual Permit No. 200005079 (IP-BAL) (2001)
- JIA Mitigation Management Area Plan (2003)
- Annual JIA Assessment Report (2007)

1.2 Soils

According to the U.S. Department of Agriculture-Natural Resource Conservation Service (USDA-NRCS) *Soil Survey of City of Jacksonville, Duval County, Florida* (1998), the following soil types are associated with the site (Table 1 and Exhibit 2):

Table 1: On-site soils and descriptions

Soil Type	Hydric Component Percentage	Drainage	Landform
Albany fine sand (2)	2%	Somewhat poor	Rises and knolls
Arents nearly level (7)	0%	Poor	Flatwoods
Mascotte fine sand (38)	3%	Poor	Flatwoods
Maurepas muck, frequently flooded (40)	100%	Very poor	Flood plains
Mascotte-Pelham complex (44)	1%	Poor	Flatwoods
Pelham fine sand (51)	40%	Poor	Flats
Sapelo fine sand (63)	4%	Poor	Flatwoods
Surrency loamy fine sand, depressional (66)	100%	Very poor	Depressions
Surrency loamy fine sand, frequently flooded (67)	100%	Very poor	Flood plains
Urban land (69)	4%	Variable	Flats, rises, and knolls
Yonges fine sandy loam (78)	90%	Poor	Flats
Yulee clay, frequently flooded (79)	100%	Very poor	Flood plains
Stockade fine sandy loam, depressional (81)	100%	Very poor	Depressions
Pelham fine sand, depressional (82)	100%	Very poor	Depressions
Yulee clay, depressional (86)	100%	Very poor	Depressions
Water (99)	100%	N/A	N/A

2.0 METHODOLOGIES

2.1 On-site Habitats and Land Use/Cover

On-site land use, land cover, and State- or Federally-regulated habitats were identified and classified according to the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, Florida Department of Transportation, 1999). Each vegetative community is described in the following section. The approximate limits of each land cover type on the site are depicted on Exhibit 3. Additionally, on-site wetlands were identified and classified using definitions and guidelines contained in the *Wetlands Delineation Manual* (COE, 1987) and *The Florida Wetlands Delineation Manual* (Gilbert, et al., 1995). The attributes of the three parameters of vegetative composition, hydrologic regime, and soil classification determine the presence and type of wetland system.

In addition to the previously listed documentation, the following map and image source(s) aided in the assessment process:

- Digital orthophoto quads at 1 m^2 pixel resolution [source data: SJRWMD, 1984, 2000, 2004]
- Digital true color aerial photographs at 0.56 m^2 pixel resolution (source data: Aerials Express, 2007)
- *Soil Survey of City of Jacksonville, Duval County, Florida* maps (source: USDA-NRCS, 1998)
- Digital National Wetlands Inventory maps (source data: FWS, 1996)
- Existing SJRWMD Formal Jurisdictional Declaratory Statement (JDS) for the southeastern portion of airport

2.2 Listed Species

A GIS database search, map review, and literature search were conducted for the study area and surrounding areas. Official lists of state listed species [FWC, November, 2007; Florida Natural Areas Inventory (FNAI) wildlife and vegetation database, September, 2007] and federally listed species (FWS, July, 2000) were obtained. The Florida Administrative Codes for native fauna (68A-27.003- 68A-27.005, F.A.C.) were also researched. The latest GIS data documenting the occurrences of State- and Federally-listed species were reviewed. Additionally, previous documentation such as wildlife and vegetation surveys conducted for previous permitting and DRI efforts were reviewed to provide information regarding historic on-site occurrences of these species.

3.0 RESULTS

3.1 Wetlands Land Use/Cover

The majority of the on-site wetlands associated with the JIA property were approximated through aerial interpretation and limited ground-truthing as a part of the past permitting efforts. The exception is a portion of the property in the southeast, bounded by Airport Road to the north and Pecan Park Road to the west, which was subject to a Formal JDS issued by SJRWMD. Permits from SJRWMD and COE mandate that the remaining approximated wetlands are to be delineated and verified prior to development that would impact wetlands.

Based on a consolidation of previous studies on the property, six wetland or surface water land use types comprise the project area: Streams and Waterways (FLUCFCS Code 510), Stream and Lake Swamps (615), Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), and Freshwater Marshes (641). These communities are described below, and their approximate locations on the site are illustrated on Exhibit 3.

Streams and Waterways (510)

This community includes all on-site canals, creeks, ditches, and other linear water bodies. The majority of the vegetation within these communities, if present, includes species that proliferate well in deep water conditions. These species include water lily (*Nymphaea ordorata)*, pickerel weed (*Pontederia cordata)*, arrowhead (*Sagittaria latifolia*), golden canna (*Canna flaccida)*, lizard tail (*Scleranthus annuus),* and others.

Stream and Lake Swamps (615)

This community type is associated with the bottomlands of river, creek, and lake flood plains. The JIA property exhibits this community in association with Pickett Branch in the southeast. Species common within this habitat type include swamp tupelo (*Nyssa sylvatica* var. *biflora)*, cypress (*Taxodium* spp.), laurel oak (*Quercus laurifolia)*, red maple (*Acer rubrum)*, swamp bay (*Persea palustris)*, and pop ash (*Fraxinus caroliniana)*. The understory of this community is generally sparse, and is populated by immature canopy species, buttonbush (*Cephalanthus occidentalis)*, blue flag iris (*Iris virginica shrevei),* and royal fern (*Osmunda regalis).*

Mixed Wetland Hardwoods (617)

This community is similar to the Stream and Lake Swamps classification, differing mostly in hydrologic regime. The mixed wetland hardwood areas has a larger diversity of wetland hardwood species. In addition to the canopy species found in the Stream and Lake Swamps community, the Mixed Wetland Hardwoods communities also contain loblolly bay (*Gordonia lasianthus*), sweet bay (*Magnolia virginiana*), ironwood (*Carpinus caroliniana*), sugarberry (*Celtis laevigata*), and others. Subcanopy and groundcover species include wax myrtle (*Myrica cerifera*), cinnamon fern (*Osmunda cinnamomea*), Virginia chain fern (*Woodwardia virginica*), fetterbush (*Lyonia lucida*), and others.

Hydric Pine Flatwoods (625)

The Hydric Pine Flatwoods communities occur throughout the study area, generally in conjunction with the Wetland Forested Mixed communities and as isolated pockets. Many of these areas present as pine plantations. The canopy of this community consists of predominantly slash pine. Immature slash pine, as well as myrtle-leaf holly (*Ilex myrtifolia)*, swamp bay, and wax myrtle comprise the subcanopy. The groundcover comprises herbaceous vegetation such as cinnamon fern, Virginia chain fern, and sphagnum moss (*Sphagnum* spp.).

Wetland Forested Mixed (630)

The majority of the on-site wetlands are described as Wetland Forested Mixed. The canopy is composed of a mixture of conifers and hardwoods including slash pine, pond pine (*Pinus serotina*), cypress, black gum, red maple, sweetgum (*Liquidambar styraciflua*), elm (*Ulmus* spp.), and swamp bay. Subcanopy species consist of immature canopy species as well as wax myrtle, bitter gallberry (*Ilex glabra*), and others. Ground cover is dominated by fetterbush, maidencane (*Panicum hemitomon*), St. Johns wort (*Hypericum* spp.), chain fern (*Woodwardia* spp.), cinnamon fern, and royal fern.

Freshwater Marshes (641)

The Freshwater Marsh communities are dominated by various sedges (*Carex* spp.), umbrella sedges (*Cyperus* spp.), maidencane, rushes (*Juncus* spp.), and beakrushes (*Rhynchospora* spp.). No canopy or subcanopy layers exist in these communities.

Upland Communities

The remainder of the vegetative community types on the property are classified as uplands, which are generally not regulated by the State and Federal agencies. The most prevalent of these upland communities is Coniferous Plantation (441), as most of the uplands associated with the airport property are used to generate revenue from ongoing silvicultural operations. Relatively minor upland community inclusions scattered throughout the property are listed as follows: Industrial (150), Open Land (190), Pastureland (210), Shrub and Brushland (320), Pine Flatwoods (411), Hardwood Hammock (425), Hardwood-Conifer Mixed (434), Mixed Hardwoods (438). The upland community types are not illustrated on Exhibit 3, in order to provide a clearer depiction of the wetland and surface water areas that are subject to regulation.

3.2 Listed Species

A list of all wildlife species designated as Endangered, Threatened, or of Special Concern likely to occur in Duval County is attached as Table 2.

All documented occurrences of listed wildlife species on or in the vicinity (within a 3-mile distance) of the airport property are depicted on Exhibit 1 and described in the following paragraphs.

The most prevalent listed species documented on the site is the gopher tortoise (*Gopherus polyphemus*), which appears to be concentrated in three locations throughout the site according to previous wildlife studies. These locations include: (1) south of Terrel Road between Lem Turner Boulevard and Pecan Park Road; (2) in the southwestern property corner west of Lem Turner Boulevard; and (3) in the northeastern airport operations area and Mitigation Management Area. Two inactive gopher tortoise burrows were also identified in the eastern portion of the property, east of Pecan Park Road.

Based on the reviewed studies and published information on land use and soil drainage, it is unlikely that a significant occurrence of critical gopher tortoise habitat is associated with this property. Many of the identified burrows locations indicate that the tortoises are utilizing trail roads and other disturbed areas.

At the time when previous studies were completed, gopher tortoises were listed by the State of Florida as a Species of Special Concern. Recently, this species has received increased protection from the State and is now listed as Threatened, with increasingly stringent permitting requirements including mandatory relocation. Listed commensal species known to use gopher tortoise burrows include the gopher frog, Florida mouse, Florida pine snake, and eastern indigo snake.

Additional listed wildlife species documented on the site include:

- Black-Crowned Night Heron (Rookery) – This rookery is centrally located on the property. It was identified in a 1989 study, but was not mentioned in any follow-up wildlife studies on the property nor is it listed in any published wildlife occurrence records.

- American Alligator – This species has been identified in inundated portions of the property, particularly to the north.

- Sherman's Fox Squirrel – This species was identified in a 1989 study in the northeastern portion of the property. It was not mentioned in any subsequent wetland studies nor is it listed in any published wildlife occurrence records on or in the vicinity of the property.

- Wood Stork – This species was identified in the southeastern portion of the site in the 1989 study, and has been observed subsequently. Additionally, an active Rookery was identified from 1986 through 1989 within 18 miles of the airport property. This rookery, however, was deemed inactive in a follow-up survey in 1999.

- Southeastern American Kestrel – This species was observed during the 1989 study in the extreme northeastern portion of the property. No documented follow-up sightings have occurred, nor has any occurrence been documented in published records on the site or in the project vicinity.

- Wading Birds – Various wading birds, including listed egrets and herons, have been observed on the property utilizing open and inundated areas for forage.

No other state or federally listed fauna, nor their sign (e.g., scat, tracks, nests, etc.) have been documented on the site.

One documented occurrence of a listed vegetative species was identified in 2000 and is depicted on Exhibit 1.

4.0 DISCUSSION

The 8,000-acre± JIA site contains six wetland/surface water land cover types as classified by the *Florida Land Use, Cover and Forms Classification System* (FLUCFCS, Florida Department of Transportation, 1999): Streams and Waterways (FLUCFCS Code 510), Stream and Lake Swamps (615), Mixed Wetland Hardwoods (617), Hydric Pine Flatwoods (625), Wetland Forested Mixed (630), and Freshwater Marshes (641). Upland on-site communities include Coniferous Plantation (441), Industrial (150), Open Land (190), Pastureland (210), Shrub and Brushland (320), Pine Flatwoods (411), Hardwood Hammock (425), Hardwood-Conifer Mixed (434), and Mixed Hardwoods (438).

State- and Federally-listed wildlife species within the site boundaries include gopher tortoise, a black-crowned night heron rookery, American alligator, Sherman's fox squirrel, wood stork, and southeastern American kestrel.

No recent occurrences for the black-crowned night heron, Sherman's fox squirrel, wood stork, or the southeastern American kestrel are documented on or near the site.

Several permitting options are available for impacting gopher tortoise occupied habitat, including capture/relocation, on-site habitat preservation, and monetary contribution to a wildlife mitigation bank.

Most of the non-listed species observed were avifauna. This is probably due to the variety of available foraging habitats.

5.0 REFERENCES

Florida Department of Transportation (FDOT). 1999. Florida Land Use, Cover and Forms Classification System. FDOT, Tallahasse, Florida.

Florida Game and Fresh Water Fish Commission (FWC). November, 2007. Florida's Endangered Species, Threatened Species and Species of Special Concern – Official Lists. FL Nongame Wildlife Program, Tallahassee, Florida. 18pp.

Florida Natural Areas Inventory (FNAI). September, 2007. Species and Natural Community Summary for Duval County. Available: http://www.fnai.org/PDF/county_summaries.pdf. FNAI, Tallahassee, Florida.

Gilbert, K.M., J.D. Tobe, R.W. Cantrell, M.E. Sweeley, and J.R. Cooper. 1995. The Florida Wetlands Delineation Manual. FDEP, Tallahassee, Florida.

Section 18. Environment and Natural Resources: Vegetation and Wildlife. 27 February 1989. JIA Development of Regional Impact.

St. Johns River Water Management District. Permit No. 4-031-17756-3.

St. Johns River Water Management District. 2004. Land Use/Cover – SJRWMD digital GIS data. SJRWMD, Palatka, Florida.

U.S. Army Corps of Engineers. 2001. Permit No. 200005079(IP-BAL).

U.S. Army Corps of Engineers, Waterways Experiment Station. January, 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. USACE/WES, Vicksburg, Mississippi.

U.S. Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS). 1998. Soil Survey of City of Jacksonville, Duval County, Florida.

U.S. Fish and Wildlife Service (FWS). March 2007. Endangered Species. Available: http://www.fws.gov/endangered.wildlife/html#species. USFWS – Jacksonville Field Office, Jacksonville, Florida.

6.0 EXHIBITS

Legend

- Approximate JIA Boundary
- Aquatic Preserve Areas
- Outstanding Florida Waters
- JIA Boundary 3 Mile Buffer

Ecological Occurrences; 02-27-89

- American Alligator
- Gopher Tortoise - Active
- Gopher Tortoise - Inactive
- Gopher Tortoise -Abandoned
- Rookery-Black-Crowned Night Heron
- Sherman's Fox Squirrel
- Southeastern American Kestrel
- Wood Stork

Timucuan Ecological and Historic Preserve

Nassau River - St. Johns River Marshes Aquatic Preserve

Haliaeetus leucocoephalus
Bald Eagle
FFWCC Nest ID: DU016
Last Active: 2006

Pteroglossaspis ecristata
Giant Orchid
Last Observed: 08-21-2000

Athene cunicularia floirdana
Florida Burrowing Owl
Last Observed: 1977

0 8,000 '

Section: 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 33, 34, 35, 36, 37, 38 & 40
Township: 1 N
Range: 26 & 27 E

Lat: 30° 29' 25.32" N
Long: 81° 41' 35.70" W

Environmental Resource Solutions Inc.
1597 The Greens Way, Suite 200
Jacksonville Beach, FL 32250

JIA Master Plan
Ecological Occurrences & Location Map

Source: FDEP, FNAI (2006), FFWCC (2006)

By: ML

Project No.:	07184
Exhibit No.:	1
Date:	12-13-07
Rev. Date:	

X:\GIS Projects\07184\MXD\07184_Occurence_map_121207.mxd

Legend

- JIA Boundary
- (2) Albany fine sand, 0 to 5% slopes
- (7) Arents, nearly level
- (38) Mascotte fine sand, 0 to 2% slopes
- (40) Maurepas muck, 0 to 1% slopes, frequently flooded
- (44) Mascotte-Pelham complex, 0 to 2% slopes
- (51) Pelham fine sand, 0 to 2% slopes
- (63) Sapelo fine sand, 0 to 2% slopes
- (66) Surrency loamy fine sand, depressional, 0 to 2% slopes
- (67) Surrency loamy fine sand, 0 to 2% slopes, frequently flooded
- (69) Urban Land
- (78) Yonges fine sandy loam, 0 to 2% slopes
- (79) Yulee clay, 0 to 2% slopes, frequently flooded
- (81) Stockade fine sandy loam, depressional, 0 to 2% slopes
- (82) Pelham fine sand, depressional, 0 to 2% slopes
- (86) Yulee clay, depressional, 0 to 2% slopes
- (99) Water

0 3,000 '

Environmental Resource Solutions Inc.
1597 The Greens Way, Suite 200
Jacksonville Beach, FL 32250

JIA Master Plan
Soils Map

Source: Aerials Express (2007), USDA-NRCS (2006)

By: ML

Project No.:	07184
Exhibit No.:	2
Date:	12-12-07
Rev. Date:	

X:\GIS Projects\07184\MXD\07184_Soils_121207.mxd

Legend

- 510 Ditches (±18.20 ac.)
- 615 Stream and Lake Swamps - Bottomland (±81.64 ac.)
- 617 Mixed Wetland Harwoods (±705.24 ac.)
- 625 Hydric Pine Flatwoods (±107.73 ac.)
- 630 Vegetated Non-Forested Wetlands (±1472.78 ac.)
- 641 Freshwater Marshes(±23.68 ac.)
- JIA Conservation Easement

0 3,000 '

Environmental Resource Solutions Inc.
1597 The Greens Way, Suite 200
Jacksonville Beach, FL 32250

JIA Master Plan
Wetlands Map

Project No.:	07184
Exhibit No.:	3
Date:	12-13-07
Rev. Date:	

Source: Aerials Express (2007) | By: ML

®

X:\GIS Projects\07184\MXD\07184_wet_Fluc_121207.mxd

Jacksonville International Airport

2008 Master Plan Update

Airfield & Landside Demand/Capacity
and Facility Requirements Analysis

JACKSONVILLE AVIATION AUTHORITY

September 4, 2008

RICONDO & ASSOCIATES

Meeting Agenda

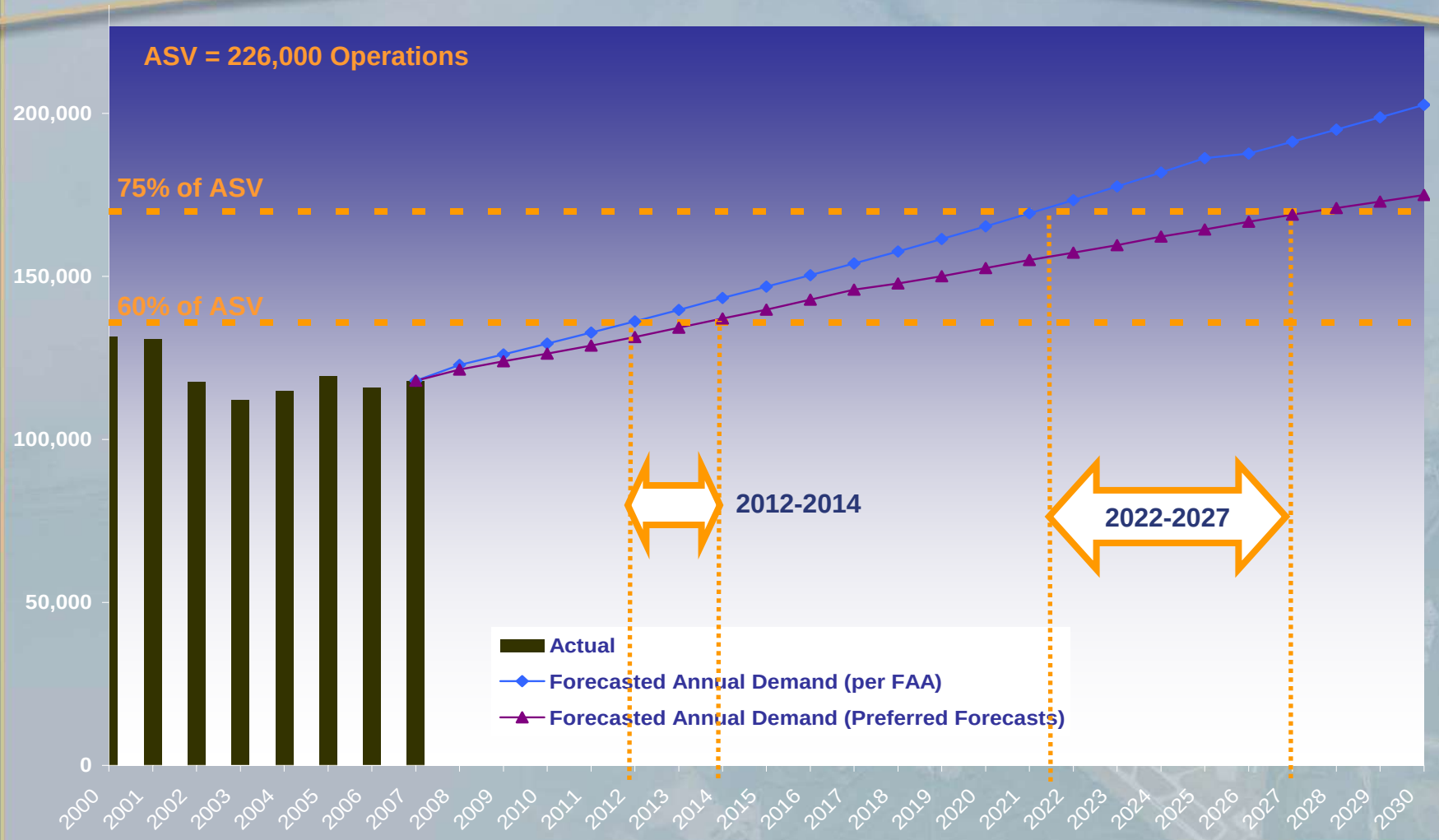
- Preliminary Results of the Airfield Demand/Capacity and Facility Requirements Analysis
  - Annual Service Volume
  - Existing and Future Markets
  - Existing and Future Fleet Mix
  - Runway Length Requirements
- Review of Preliminary Airfield Alternatives
- Preliminary Results of the Landside Demand/Capacity and Facility Requirements Analysis
  - Landside Demand/Capacity Analysis

Airfield Demand/Capacity and Facility Requirements Analysis

JACKSONVILLE AVIATION AUTHORITY

RICONDO & ASSOCIATES

Annual Service Volume (ASV) vs. Projected Demand



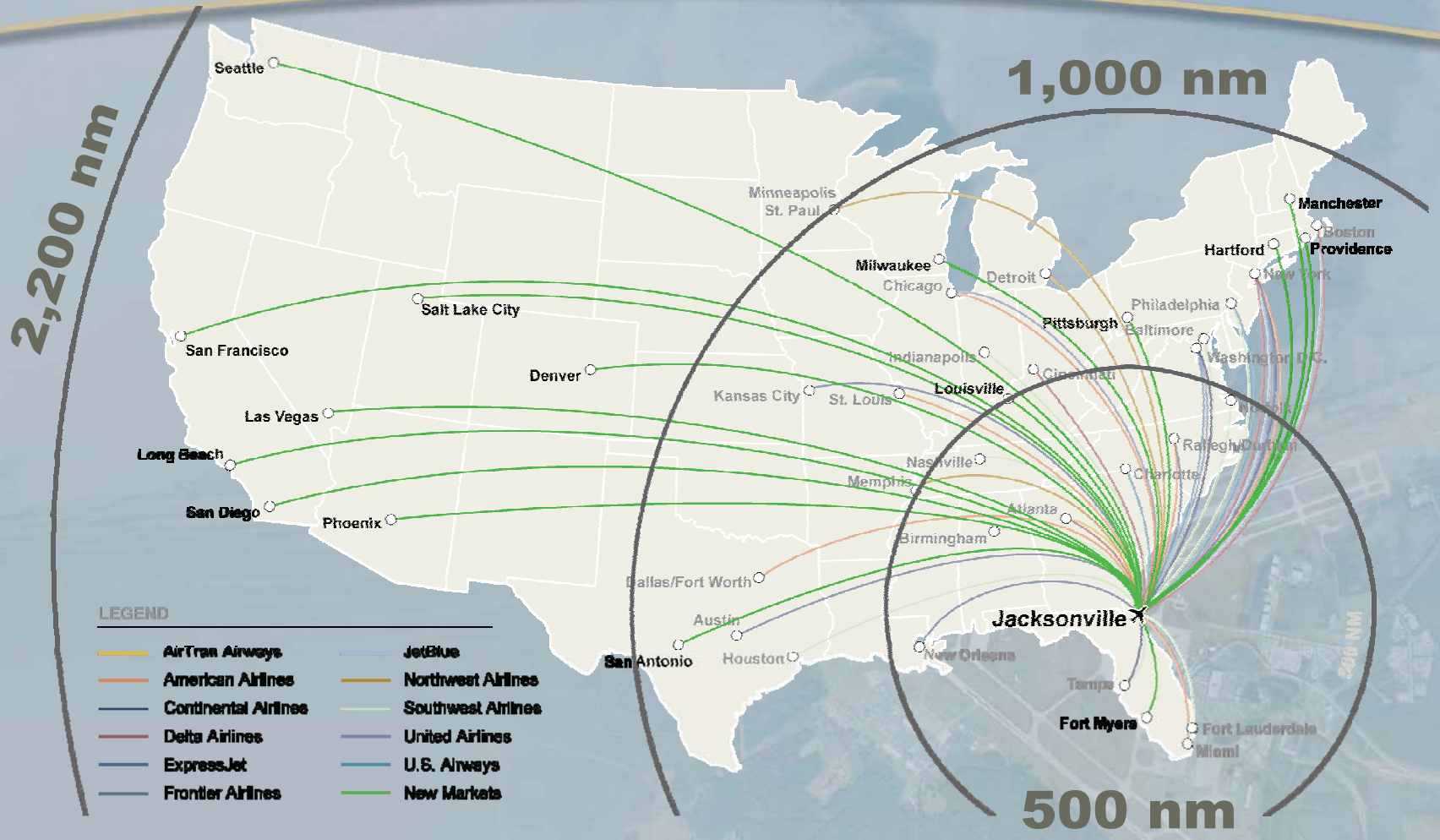
Notes: 1) The FAA, in the National Plan for Integrated Airport System (NPIAS) Order 5090.3C, recommends airports to initiate planning/design for new runways when existing facilities reach 60 to 75 percent of their capacity.

2) Even though it is shown as constant, the Airport's ASV is expected to decrease overtime.

Existing Markets

JACKSONVILLE AVIATION AUTHORITY

Potential Markets*
(Continental U.S. Only)



***Source:** Sabre Airline Solutions, Air Service Assessment Study: Update, February 2007*

JACKSONVILLE AVIATION AUTHORITY

Potential Markets

- Other potential markets include:
  - Canada (e.g. Toronto, Montreal) - 1,000 nm
  - Mexico (e.g. Cancun, Mexico City) – 1,150 nm
  - Europe (charter flights to England and/or Germany) – up to 4,000 nm

JACKSONVILLE AVIATION AUTHORITY

Existing Aircraft Fleet

- Turboprop Aircraft:
  - Beech 1900
  - ATR-72
- Regional Jets and Narrowbody:
  - ERJ-135 and -145
  - CRJ-200 and -700
  - Boeing 717
  - McDonnell Douglas MD88 and DC9-30
  - Boeing 737 Series (including -300, -400, -500, -700)
  - Airbus A320 Series (including A319, A320, and A321
- Widebody:
  - Boeing 757-200
  - Boeing 767-300

JACKSONVILLE AVIATION AUTHORITY

Projected Aircraft Fleet

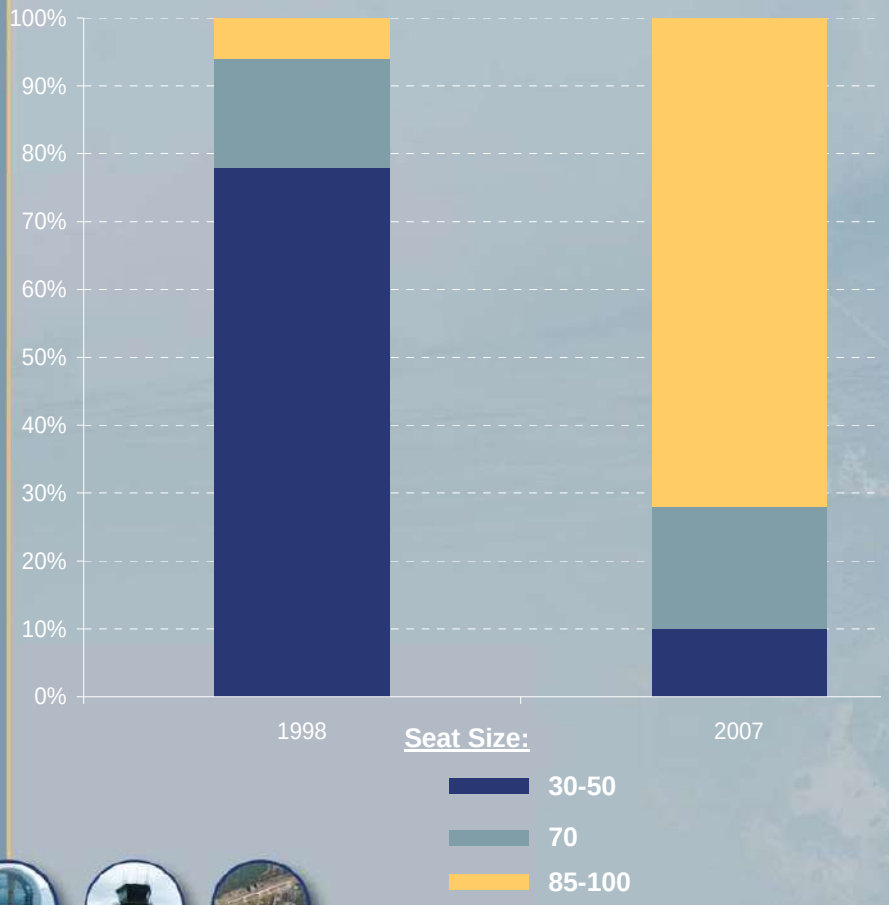
- Turboprop Aircraft
  - Q8-300
  - Q8-400
- Regional Jets and Narrowbody :
  - CRJ-700, -900, and -1000 NexGen (including ER, and LR series)
  - E-170 and E-190 (including ER, LR, and AR series)
  - C110 and C130 (including ER series)
  - Boeing 737 Next Generation (including B737-600, -700, -800, and -900 series)
  - Airbus A320 Series (including A319, A320, and A321)
- Widebody:
  - Boeing 767-400ER
  - Boeing 787-3

Future Aircraft Fleet Mix Assumptions

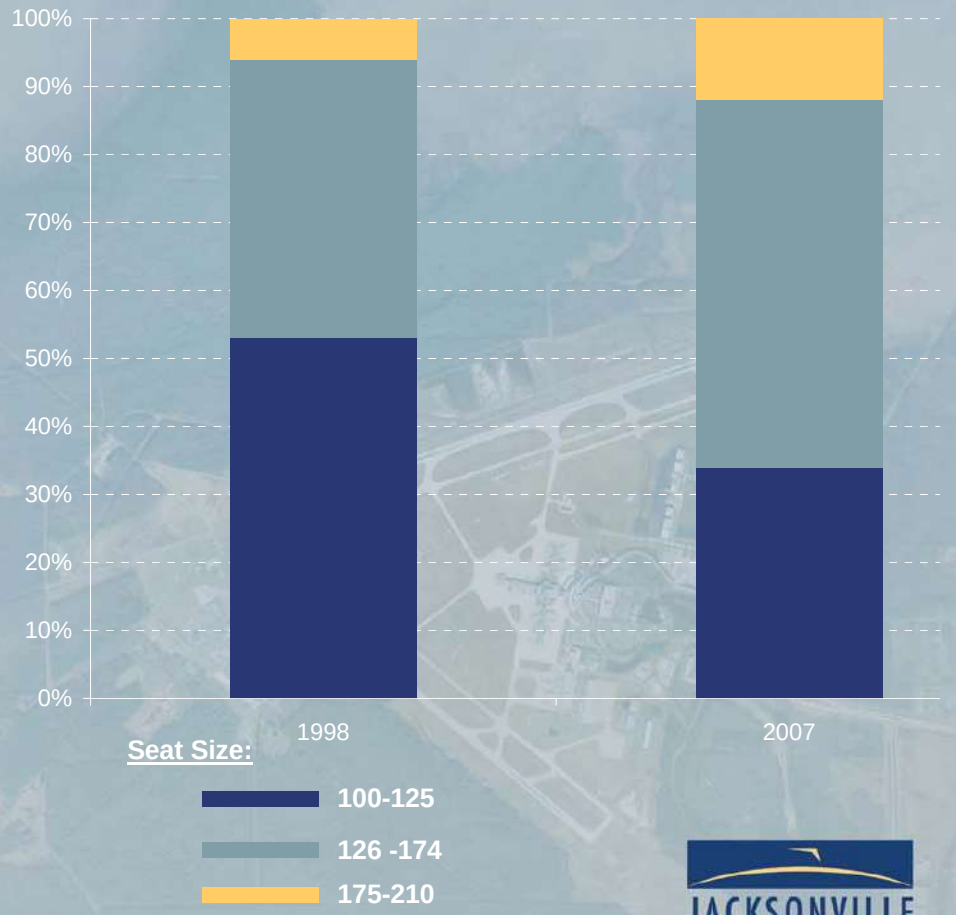
- 50-seat regional jets will be gradually withdrawn from service.
- New regional jets and narrowbody aircraft will be introduced including the CRJ-1000, C110, and C130 aircraft.
- The Boeing 737-200, 300, 400, and -500 series will be withdrawn from service and replaced by the 737 Next Generation (NG) Series.
- The Boeing 787-3 will replace the Boeing 757, B767-200, and B767-300 series.
- A new generation of narrowbody aircraft will be developed to replace today's Airbus A320 and Boeing 737NG.

Trends in Aircraft Fleet Sizes

- Regional Jets are getting bigger.



- The backlog of larger single-aisle types is growing.



Source: Global Market Forecast, 2007-2026, Airbus, S.A.S.

Trends in Aircraft Orders (Boeing Orders Only)

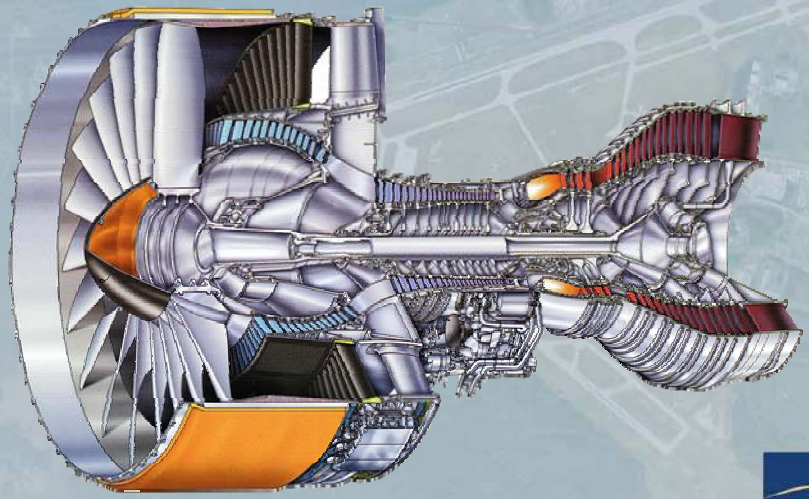
Note: Does not include the Boeing 747 series and freighter deliveries.

Source: Boeing' website, accessed July 2008, Orders from July 1998 to July 2008.

JACKSONVILLE AVIATION AUTHORITY

Future Aircraft Fleet

- Fuel efficiency will come from:
  - The engines
    - End of conventional bleed-air-based heating, anti-icing and pneumatic systems
    - Introduction of next generation engines
  - Aerodynamic improvements (e.g. new wing design)
  - The use of lighter weight composite materials
  - The use of Biofuels

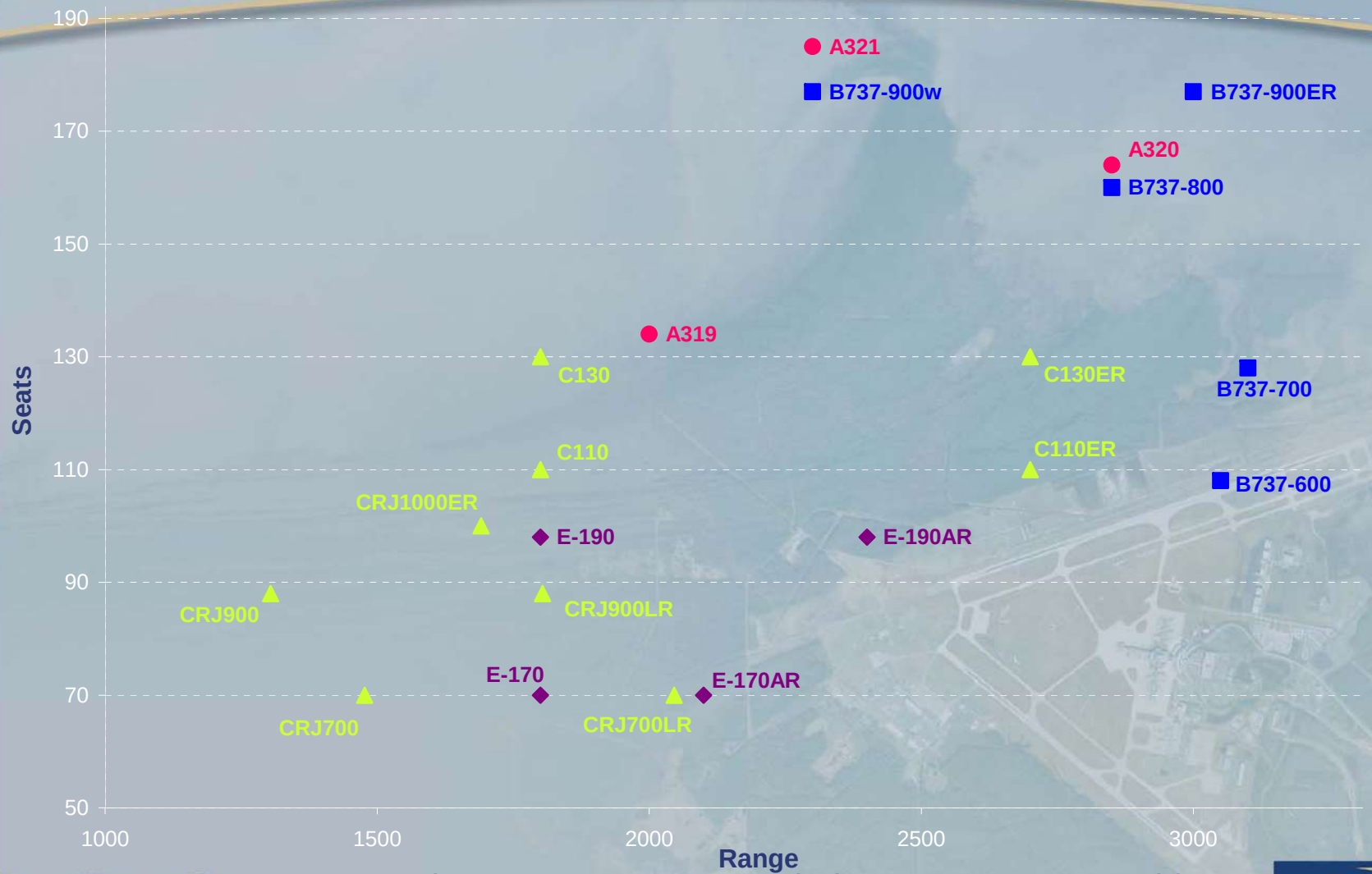


Future Aircraft Fleet

- The long-term trend is toward higher engine bypass ratios and powerful engines. In comparison:
  - The CF6-80C2B1 engines, which equip 747-400, produces 57,000 pounds of thrust.
  - The GE90-115 engines, which equip 777-200LR and 777-200ER, produces 115,000 pounds of thrust.
- Technological improvements including higher engine bypass ratios, higher wing lift, and reduced weight, will reduce or level off takeoff runway length requirements.

JACKSONVILLE AVIATION AUTHORITY

Future Aircraft Fleet (Seats and Range)
Narrowbody & Regional Jet Aircraft



Note: Range data assumes 100% passenger payload, an average per passenger weight of 225 pounds to include baggage and cargo, and typical seating configuration.

Source: Airplane Characteristics for Airport Planning, The Boeing Company, Bombardier Inc., Embraer , S.A., and Airbus, S.A.S.

Future Aircraft Fleet (Seats and Range)
Widebody Aircraft

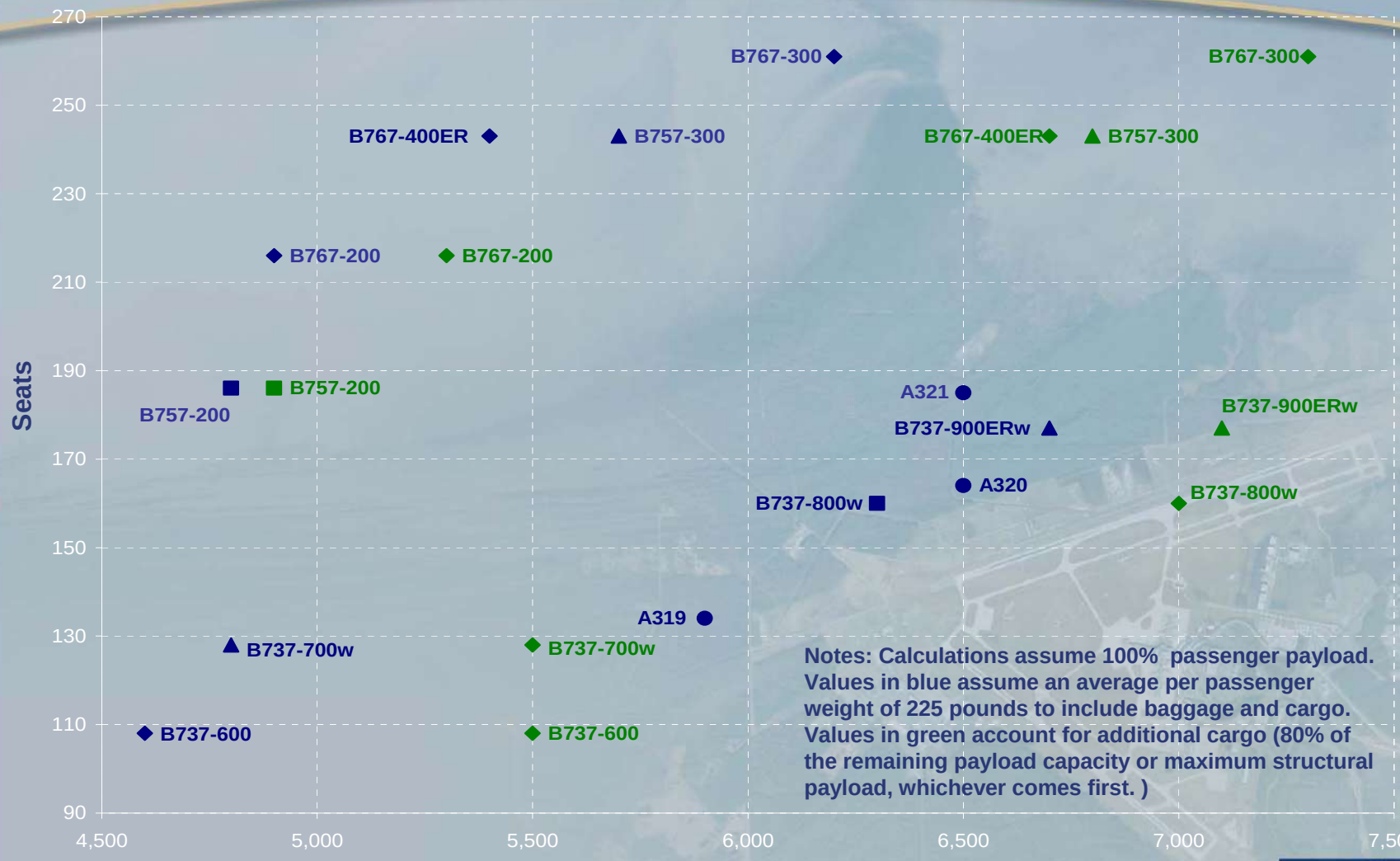
Note: Range data assumes 100% passenger payload, an average per passenger weight of 225 pounds to include baggage and cargo, and typical seating configuration.

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.

JACKSONVILLE AVIATION AUTHORITY

Takeoff Runway Length Requirements

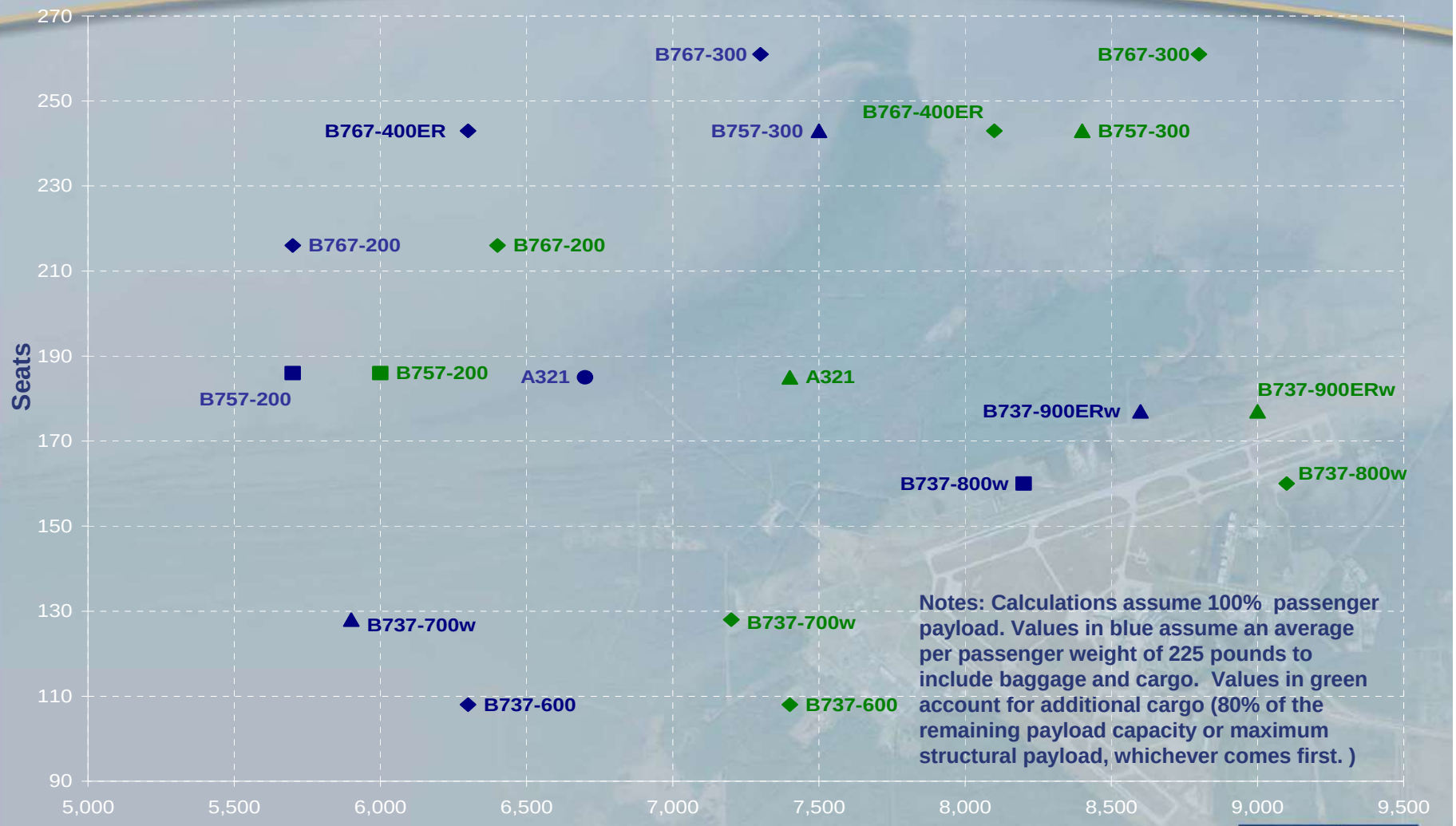
(1,000 NM range, 92 Deg. F.)



Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.

Takeoff Runway Length Requirements

(2,000 – 2,200 NM range, 92 Deg. F.)

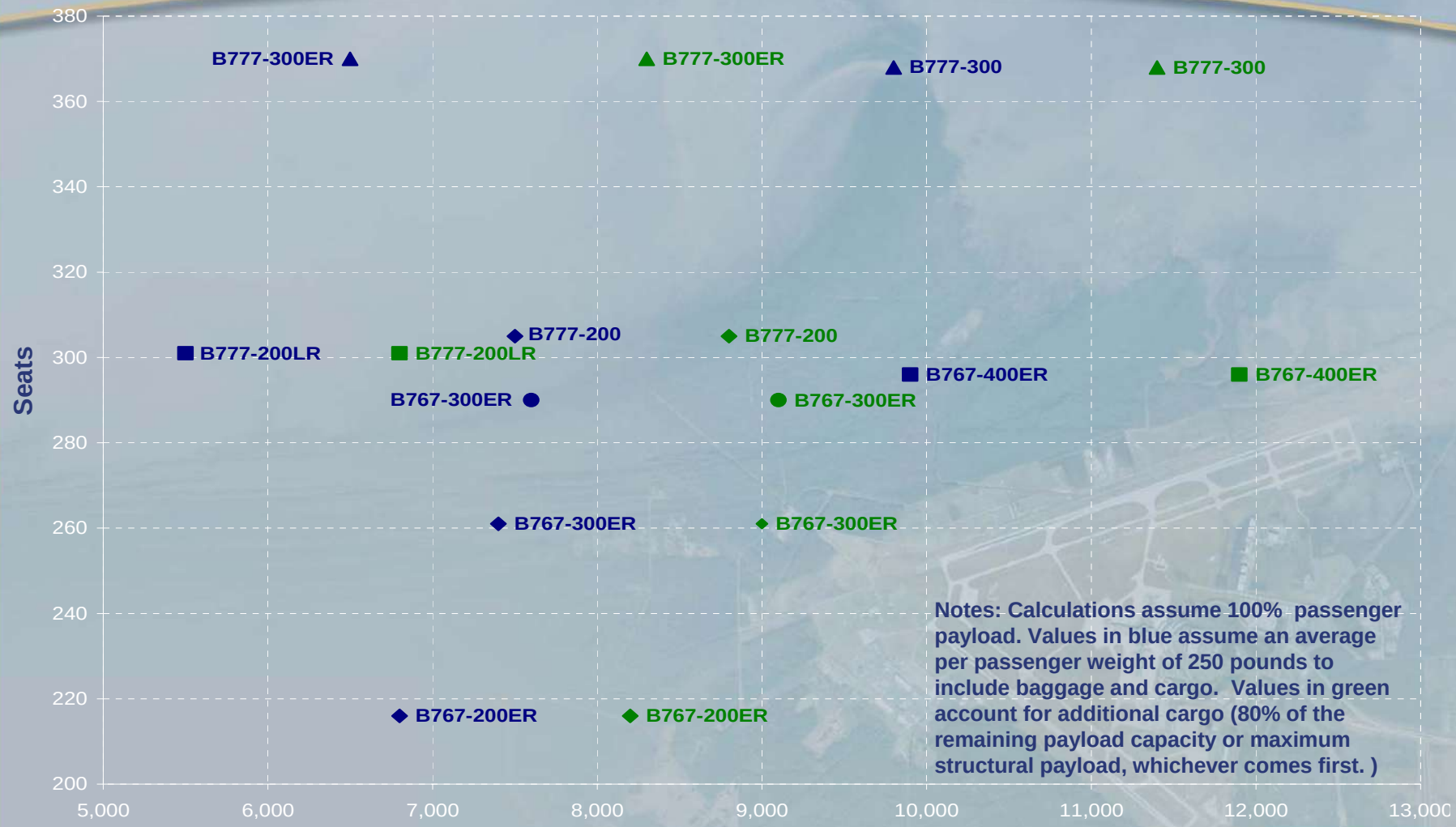


Notes: Calculations assume 100% passenger payload. Values in blue assume an average per passenger weight of 225 pounds to include baggage and cargo. Values in green account for additional cargo (80% of the remaining payload capacity or maximum structural payload, whichever comes first.)

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.

Takeoff Runway Length Requirements

(4,000 NM range, 92 Deg. F.)

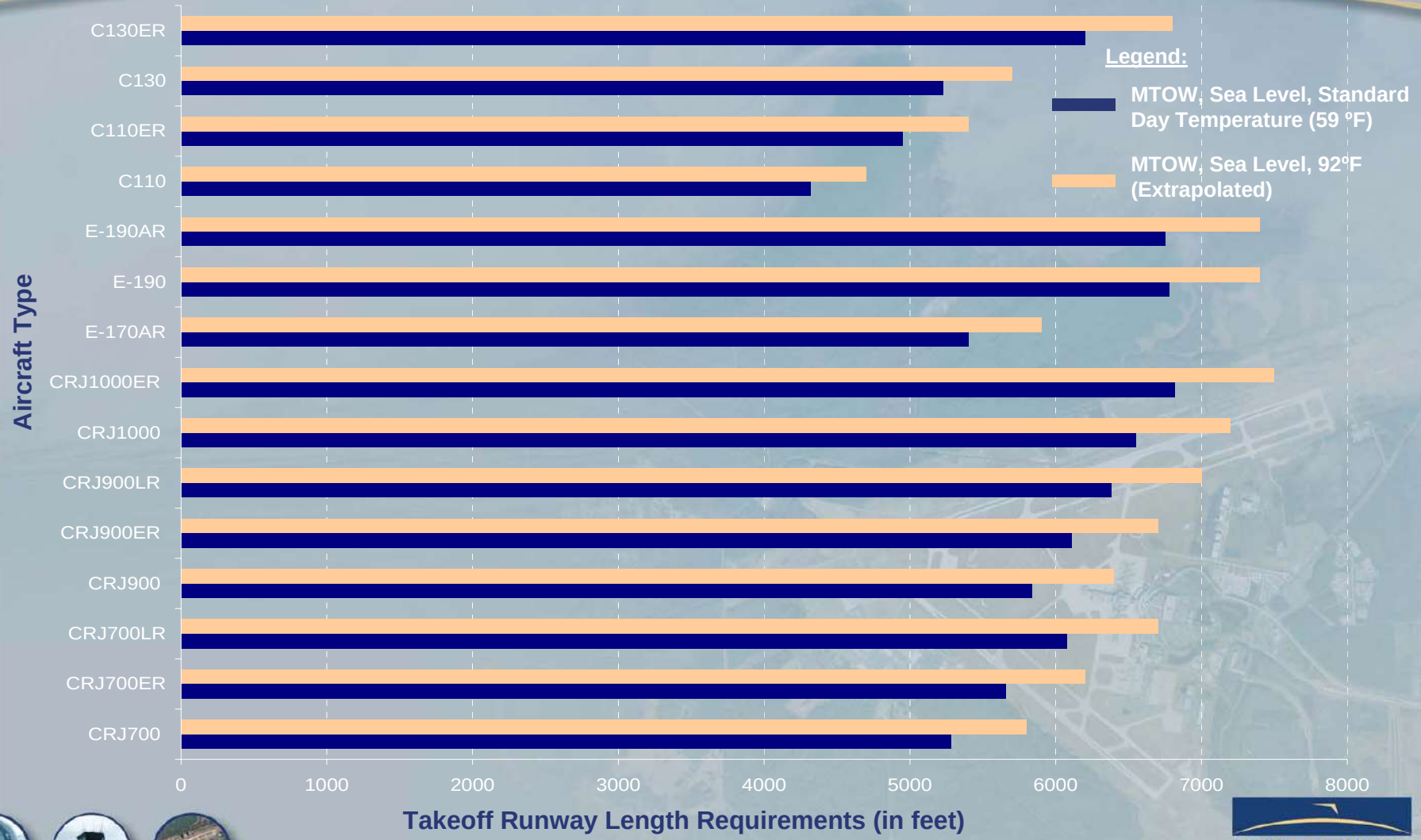


Takeoff Runway Length Requirements (in feet)

Note: Values in parentheses indicate engine thrust.

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.

New Generation Aircraft (Large Regional Jet Aircraft)
Takeoff Runway Length Requirements



Source: Aircraft Manufacturers' websites, accessed June 2008.

Summary of Runway Length Requirements

Aircraft Type	Destination/Range	Percentage of Operations at PAL 3 (10 MAP) Individual	Cumulative	Departure Runway Length Required Minimum	Maximum
		Domestic Operations			
737 & A320 Family	West Coast / 2,000 nm	5%	5%	8,200	9,100
767	West Coast / 2,000 nm	1%	6%	7,300	8,800
767	East Coast / 1,000 nm	1%	7%	6,200	7,300
737	East Coast / 1,000 nm	27%	34%	6,700	7,100
757	East Coast / 1,000 nm	4%	39%	5,700	6,800
320/321	East Coast / 1,000 nm	15%	54%	N/A	6,500
Regional Jets	East Coast / 1,000 nm	46%	100%	Less than 7,000'	Less than 7,500'
		International Operations			
B777-200	Europe / 4,000 nm	N/A	N/A	7,500	8,800
B777-300	Europe / 4,000 nm	N/A	N/A	9,800	11,400
B777-200LR	Europe / 4,000 nm	N/A	N/A	5,500	6,800
B777-300ER	Europe / 4,000 nm	N/A	N/A	6,500	8,300
B767-400ER	Europe / 4,000 nm	N/A	N/A	9,900	11,900
B767-200ER	Europe / 4,000 nm	N/A	N/A	6,800	8,200
B767-300ER	Europe / 4,000 nm	N/A	N/A	7,600	9,100

Notes:

- Minimum departure runway length values assumes full passenger payload and an average per passenger weight of 225 pounds to include baggage and cargo.

*- **Maximum departure runway length values assume full passenger payload and an average per passenger weight of 225 pounds to include baggage and cargo plus 80% remaining payload capacity or maximum structural payload, whichever comes first.***

Source: Airplane Characteristics for Airport Planning, The Boeing Company & Airbus, S.A.S.

JACKSONVILLE AVIATION AUTHORITY

Summary of Runway Length Requirements

- Over 90 percent of the domestic market aircraft fleet mix to be accommodated at JAX would be able to utilize a 7,300-foot runway for departure at PAL 2.
- To serve the west coast, narrowbody aircraft operating from JAX will require up to 9,100 feet for takeoff.
- The few narrowbody aircraft that would require more than 9,000 feet to serve the west coast at full structural payload could still operate from existing Runway 7-25
- Existing Runway 7-25, which provides 10,000 feet of departure runway length, can accommodate the majority of widebody aircraft that could potentially serve the European market from JAX.

JACKSONVILLE AVIATION AUTHORITY

Summary of Runway Length Requirements

- To maximize the operational efficiency and flexibility of the airfield, and to minimize the need for Air Traffic to segregate aircraft by providing the ability for the vast majority of aircraft to depart from any given runway, the new parallel runway at JAX should be at least 7,000 feet in length.

- A 9,000-foot long runway meets the long-term needs of the Airport. Because technological improvements may reduce or level off takeoff runway length requirements, provision for a new runway that extends beyond 9,000 feet is not deemed necessary.

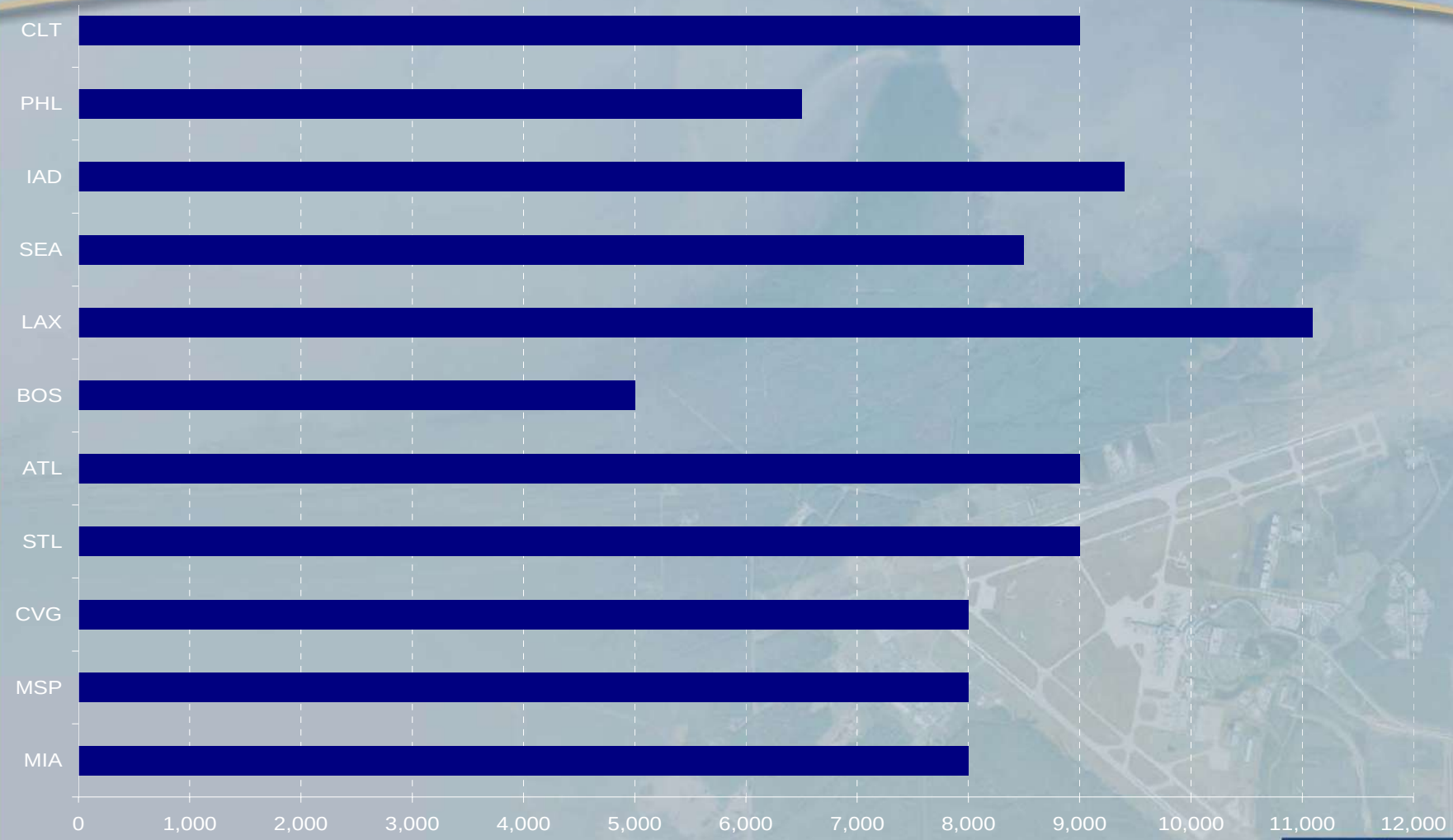
- Based on the analysis and comments presented above, the recommended runway length is 9,000 feet.

- Since the Runway 7-25 alignment provides more than 95 percent wind coverage for any aircraft forecasted to use the airport on a regular basis, the extension of Runway 13-31 beyond 9,000’ is not deemed necessary.

Recently Constructed or Currently Under Construction Runways Statistics

- MIA – Runway 8L-26R - 8,000 feet (opened August 2003)
- MSP – Runway 17-35 – 8,000 feet (opened October 2005)
- CVG – Runway 18R-36L – 8,000 feet (opened December 2005)
- STL – Runway 11-29 – 9,000 feet (opened April 2006)
- ATL – Runway 8-26 – 9,000 feet (opened May 2006)
- BOS – Runway 14-32 - 5,000 feet (opened November 2006)
- LAX – Runway 25L-7R – 11,095 feet (opened April 2007)
- SEA – Runway 16R-34L – 8,500 feet (opening November 2008)
- IAD – Runway 1L-19R – 9,400 feet (opening November 2008)
- PHL – Runway 17-35 Extension to 6,500 feet (opening March 2009)
- CLT – Runway 18-36 – 9,000 feet (opening January 2010)

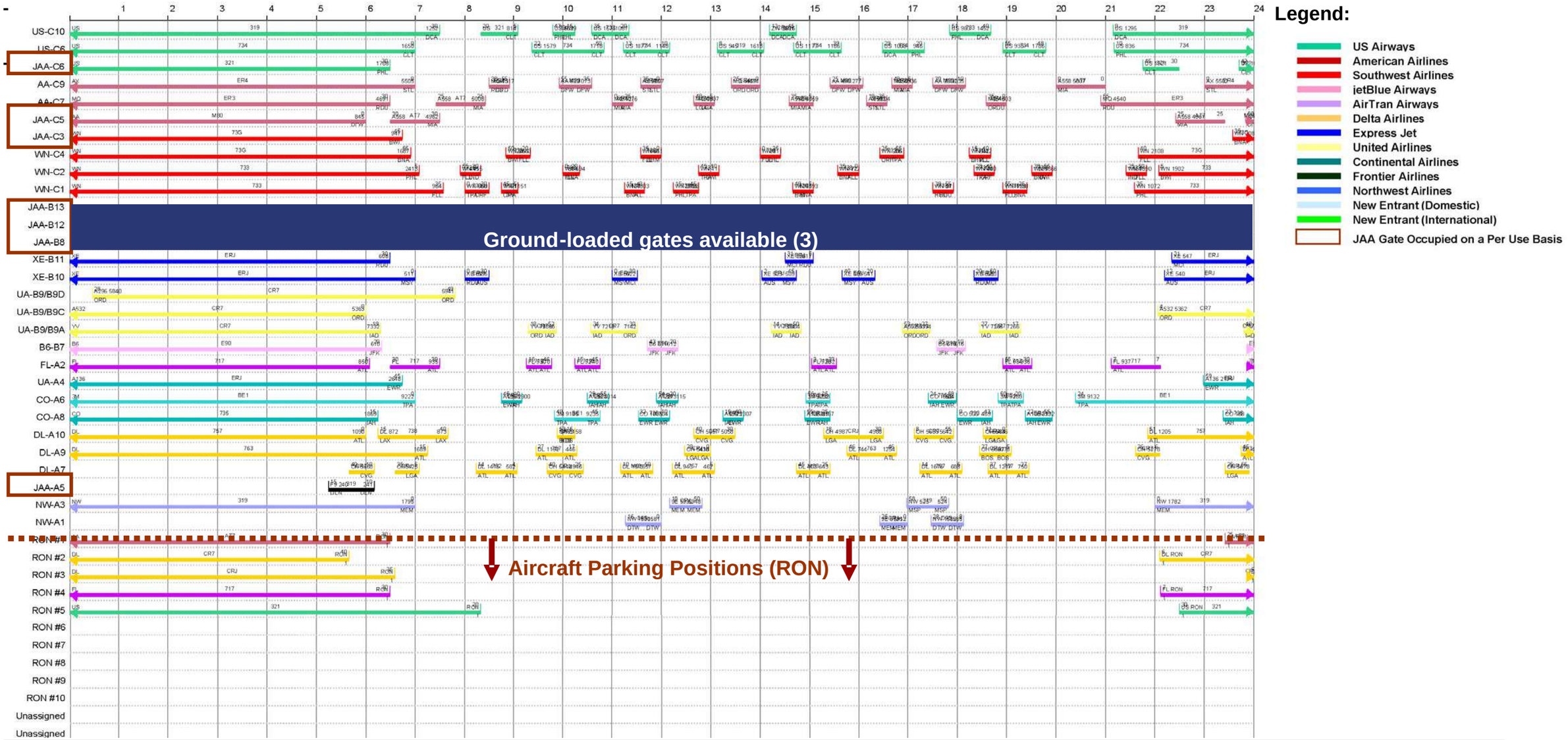
Recently Constructed or Currently Under Construction Runways Statistics



Source: Airports' websites, accessed June 2008.

Exhibit B-1

Baseline Ramp Chart (including Concourse B)

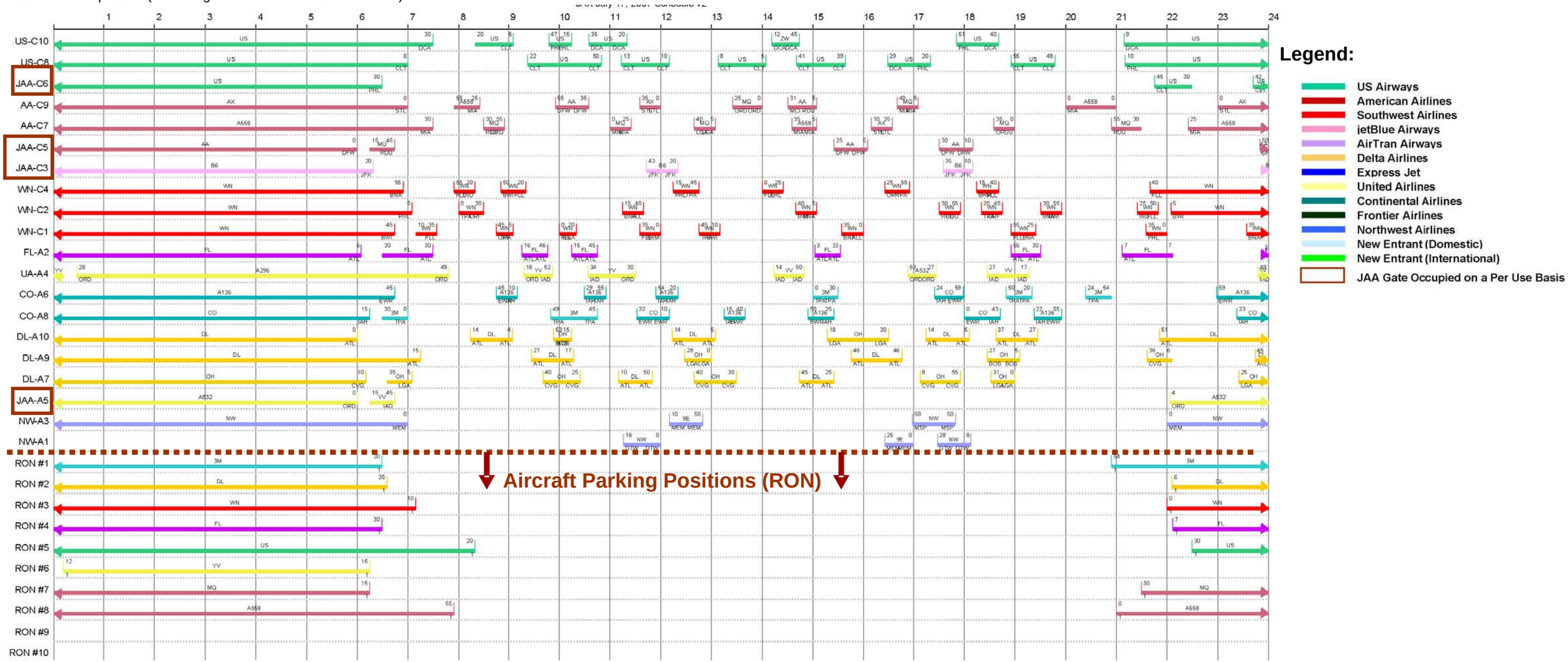


Source: Ricondo & Associates, Inc., February 2008

Prepared by: Ricondo & Associates, Inc.

Exhibit B-2

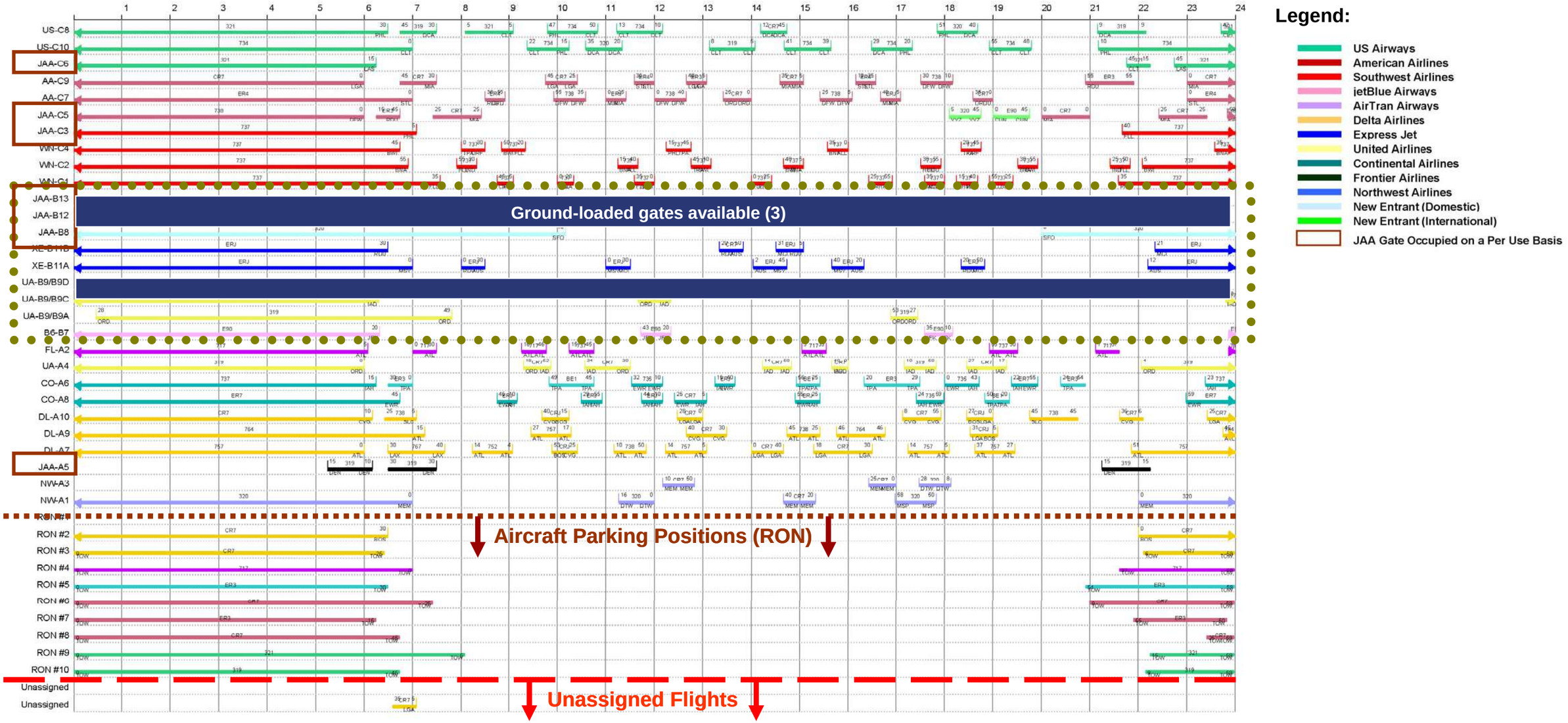
Baseline Ramp Chart (assuming the demolition of Concourse B)



Source: Ricondo & Associates, Inc., June 2008
Prepared by: Ricondo & Associates, Inc.

Exhibit B-3

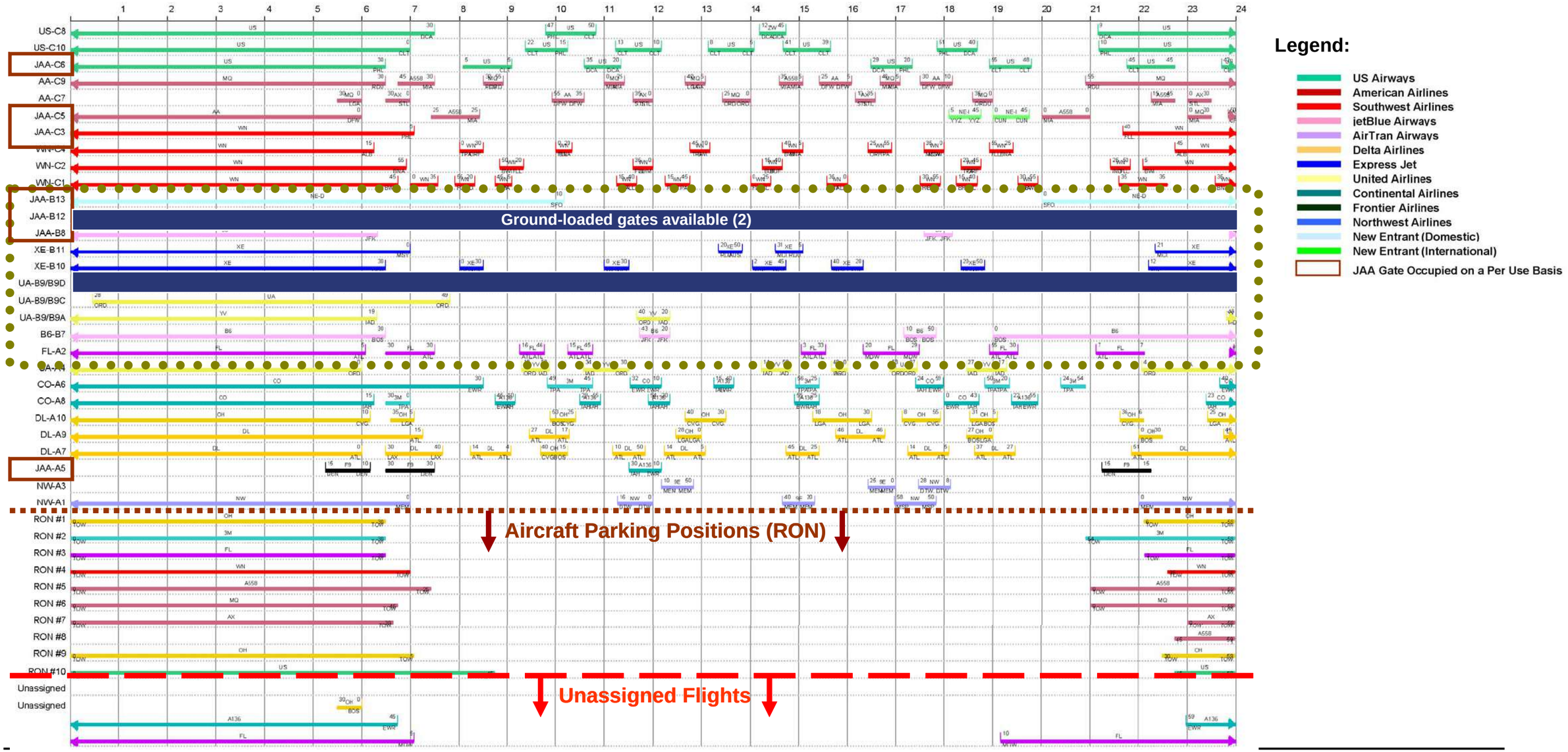
PAL 2 Ramp Chart (Scenario 1)



Source: Ricondo & Associates, Inc., February 2008
Prepared by: Ricondo & Associates, Inc.

Exhibit B-4

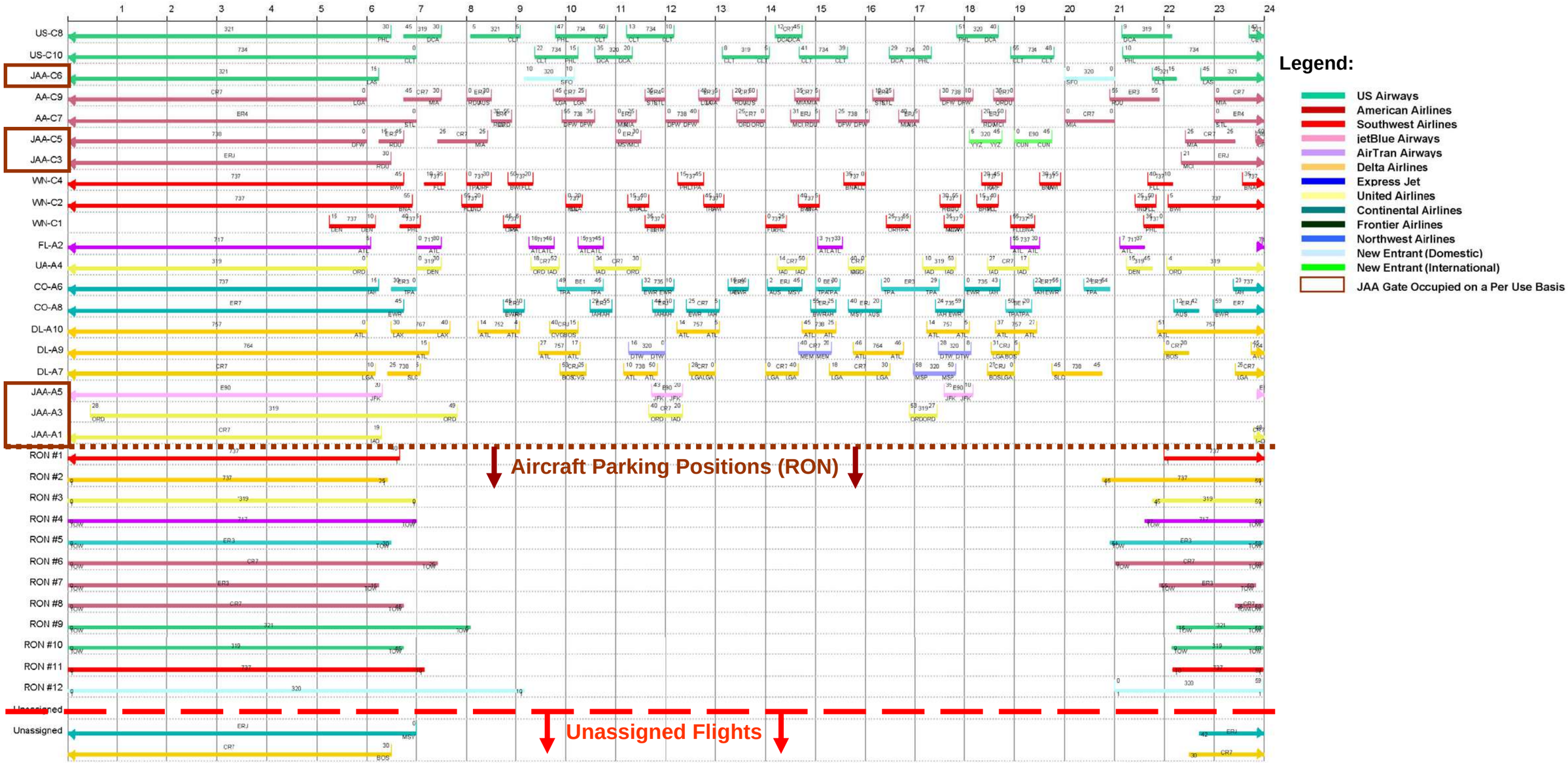
PAL 2 Ramp Chart (Scenario 2)



Source: Ricondo & Associates, Inc., February 2008
Prepared by: Ricondo & Associates, Inc.

Exhibit B-5

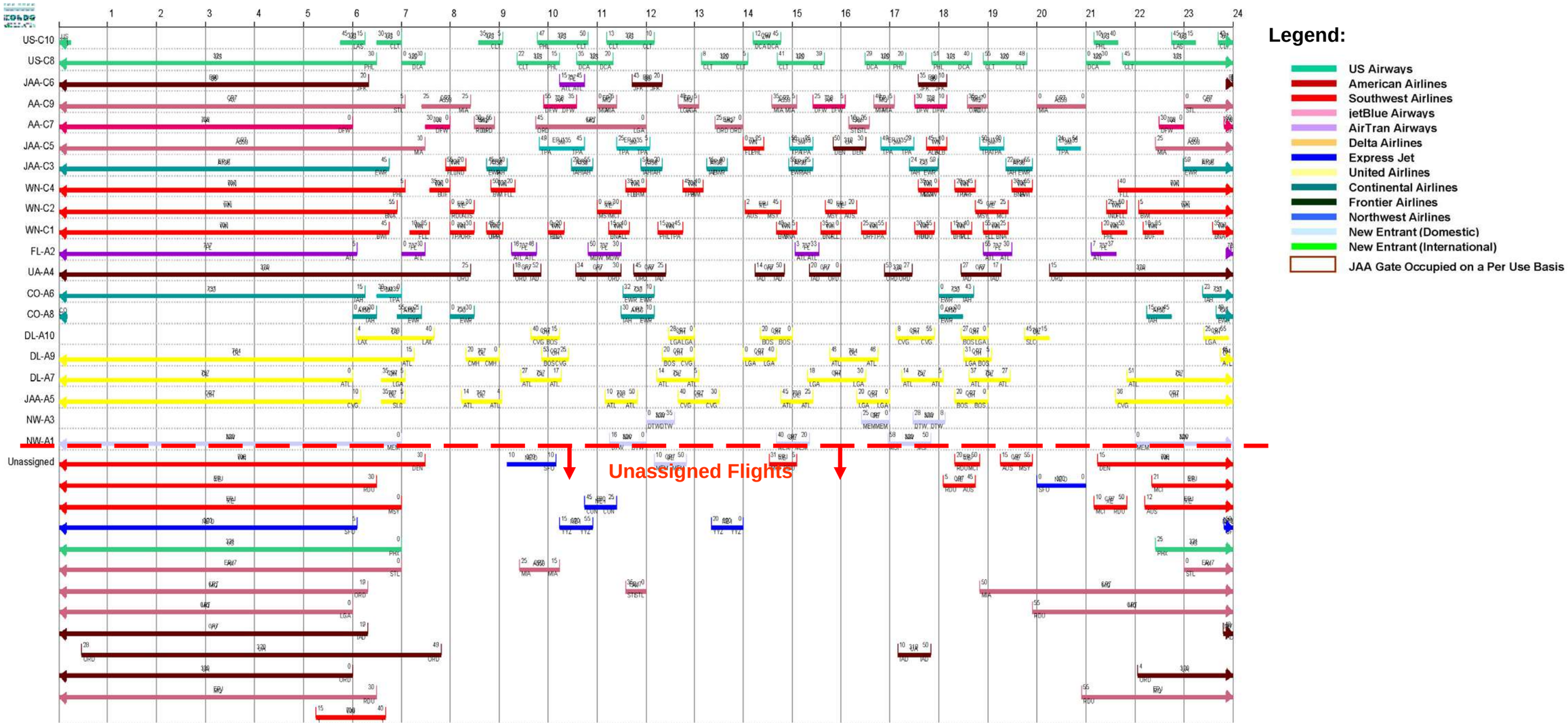
PAL 2 Ramp Chart (Scenario 3)



Source: Ricondo & Associates, Inc., February 2008
Prepared by: Ricondo & Associates, Inc.

Exhibit B-6

PAL 3 Ramp Chart



Legend:

- US Airways
- American Airlines
- Southwest Airlines
- jetBlue Airways
- AirTran Airways
- Delta Airlines
- Express Jet
- United Airlines
- Continental Airlines
- Frontier Airlines
- Northwest Airlines
- New Entrant (Domestic)
- New Entrant (International)
- JAA Gate Occupied on a Per Use Basis

Source: Ricondo & Associates, Inc., February 2008

Prepared by: Ricondo & Associates, Inc.

APPENDIX I -

JIA CONCEPTUAL ENVIRONMENTAL RESOURCE PERMIT AND TECHNICAL STAFF REPORT

ISSUED BY

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

4/10/2001

Henry Dean, Executive Director
John R. Wehle, Assistant Executive Director

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

POST OFFICE BOX 1429 PALATKA, FLORIDA 32178-1429
TELEPHONE 904-[illegible]500 SUNCOM 904-860-4500
TDD 904-[illegible]4450 TDD SUNCOM 860-4450
FAX (Executive) 329-4125 (Legal) 329-4486 (Permitting) 329-4315 (Administration/Finance) 329-4506

SERVICE CENTERS

616 E. South Street
Orlando, Florida 32801
407-897-4300
TDD 407-897-5960

7775 Baymeadows Way
Suite 102
Jacksonville, Florida 32256
904-730-6270
TDD 904-448-7900

PERMITTING:
305 East Drive
Melbourne, Florida 32904
407-984-4940
TDD 407-722-5368

OPERATIONS:
2133 N. Wickham Road
Melbourne, Florida 32935-6109
407-752-3100
TDD 407-752-3102

April 10, 2001

Jacksonville Port Authority
John Clark
PO Box 3005
Jacksonville, FL 32208

SUBJECT: Permit Number 4-031-17756-3
Jacksonville International Airport - Conceptual System

Dear Sir/Madam:

Enclosed is your permit as authorized by the Governing Board of the St. Johns River Water Management District on April 10, 2001.

This permit is a legal document and should be kept with your other important documents. The attached MSSW/Stormwater As-Built Certification Form should be filled in and returned to the Palatka office within thirty days after the work is completed. By so doing, you will enable us to schedule a prompt inspection of the permitted activity.

In addition to the MSSW/Stormwater As-Built Certification Form, your permit also contains conditions which require submittal of additional information. All information submitted as compliance to permit conditions must be submitted to the Palatka office address.

Permit issuance does not relieve you from the responsibility of obtaining permits from any federal, state and/or local agencies asserting concurrent jurisdiction for this work.

In the event you sell your property, the permit can be transferred to the new owner, if we are notified by you within thirty days of the sale. Please assist us in this matter so as to maintain a valid permit for the new property owner.

Thank you for your cooperation and if this office can be of any further assistance to you, please do not hesitate to contact us.

Sincerely,

Gloria Lewis, Director
Permit Data Services Division

Enclosures: Permit with EN Form(s), if applicable

cc: District Permit File
Consultant: ERM-Southeast, Inc.
4110 Southpoint Boulevard Suite 226
Jacksonville, FL 32216

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
Post Office Box 1429
Palatka, Florida 32178-1429

PERMIT NO. 4-031-17756-3 **DATE ISSUED:** April 10, 2001

PROJECT NAME: Jacksonville International Airport - Conceptual System

A PERMIT AUTHORIZING:

Conceptual approval of a surface water management system to serve expansion and commercia development at the Jacksonville International Airport (JIA).

LOCATION:

Section(s):	7, 8, 17, 18, 19, 20, 21, 22, 23,	Township(s):	1N	Range(s):	26E
	19, 21, 22, 23, 24, 25, 26, 27, 30,		1N		27E

Duval County

ISSUED TO:
Jacksonville Port Authority
PO Box 3005
Jacksonville, FL 32208

Permittee agrees to hold and save the St. Johns River Water Management District and its successors harmless from any and all damages, claims, or liabilities which may arise from permit issuance. Said application, including all plans and specifications attached thereto, is by reference made a part hereof.

This permit does not convey to permittee any property rights nor any rights of privileges other than those specified therein, nor relieve the permittee from complying with any law, regulation or requirement affecting the rights of other bodies or agencies. All structures and works installed by permittee hereunder shall remain the property of the permittee.

This permit may be revoked, modified or transferred at any time pursuant to the appropriate provisions of Chapter 373, Florida Statutes:

PERMIT IS CONDITIONED UPON:

See conditions on attached "Exhibit A", dated April 10, 2001

AUTHORIZED BY: St. Johns River Water Management District

Department of Water Resources

By: _____
(Director)
Jeff Elledge

Governing Board

By: _____
(Assistant Secretary)
Henry Dean

"EXHIBIT A"
CONDITIONS FOR ISSUANCE OF PERMIT NUMBER 4-031-17756-3
JACKSONVILLE PORT AUTHORITY
DATED APRIL 10, 2001

1. All activities shall be implemented as set forth in the plans, specifications and performance criteria as approved by this permit. Any deviation from the permitted activity and the conditions for undertaking that activity shall constitute a violation of this permit.

2. Should any other regulatory agency require changes to the permitted system, the permittee shall provide written notification to the District of the changes prior implementation so that a determination can be made whether a permit modification is required.

3. This permit does not eliminate the necessity to obtain any required federal, state, local and special district authorizations prior to the start of any activity approved by this permit. This permit does not convey to the permittee or create in the permittee any property right, or any interest in real property, nor does it authorize any entrance upon or activities on property which is not owned or controlled by the permittee, or convey any rights or privileges other than those specified in the permit and chapter 40C-4 or chapter 40C-40, F.A.C.

4. The permittee shall hold and save the District harmless from any and all damages, claims, or liabilities which may arise by reason of the activities authorized by the permit or any use of the permitted system.

5. Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this permit or a formal determination under section 373.421(2), F.S., provides otherwise.

6. The permittee shall notify the District in writing within 30 days of any sale, conveyance, or other transfer of ownership or control of the permitted system or the real property at which the permitted system is located. All transfers of ownership or transfers of a permit are subject to the requirements of section 40C-1.612, F.A.C. The permittee transferring the permit shall remain liable for any corrective actions that may be required as a result of any permit violations prior to such sale, conveyance or other transfer.

7. Upon reasonable notice to the permittee, District authorized staff with proper identification shall have permission to enter, inspect, sample and test the system to insure conformity with the plans and specifications approved by the permit.

8. If historical or archaeological artifacts are discovered at any time on the project site, the permittee shall immediately notify the District.

9. The permittee shall immediately notify the District in writing of any previously submitted information that is later discovered to be inaccurate.

10. This Conceptual Approval permit is valid from twenty years from the date of issuance, provided that construction of the initial phase of the system is permitted and construction undertaken within two years of the issuance of this conceptual approval permit, and provided that all phases of the system are designed and built in accordance with the terms of the conceptual approval permit and that all required permits for subsequent phases are obtained.

11. This permit approves the 25-Year Present and Future Conditions Floodplain Maps of the conceptual surface water management system as per plans received by the District on January 22, 2001.

12. This permit approves the discharge control structures of the conceptual surface water management system as per plans received by the District on January 22, 2001.

13. This permit approves the conceptual floodwater storage plan of the surface water management system as per calculations received by the District on June 9, 2000.

14. This permit approves the typical 10-acre Commercial Site conceptual stormwater treatment system as per plans and criteria received by the District on February 22, 2001.

15. The permittee must submit revised 25- and 100-year floodwater elevation calculations for each construction permit application which which uses the approved plan of this conceptual permit. The revised floodwater elevation calculations shall include all existing development, all phases with approved District construction permits and the work proposed by the construction permit application. The permittee shall implement as part of the construction permit application such 25- and 100-year flow control works so that the 25- and 100-year peak discharge rates from the revised 25- and 100-year floodwater elevation calcualtions shall not exceed the 25- and 100-year predevelopment peak discharge rates approved under this conceptual permit. The requirements of this condition may be waived subject to written District Staff approval for such minor works by the permittee which will not result in changes in 25- and 100-year peak discharge rates at the airport boundaries.

16. Compensating floodplain storage shall be required for any encroachment into the Future 25-Year Floodplain as shown on the permit drawings.

17. The permittee shall obtain written staff approval of the airport water quality monitoring plan prior to issuance of any construction permit which uses the approved conceptual plan of this permit, or the permittee shall submit as part of any construction permit application, a water quality monitoring plan for approval as part of the construction permit for the activities proposed in the construction permit application.

18. The permittee must submit site specific plans and calculations as part of any District construction permit applications to demonstrate that the conceptual stormwater treatment system will function under the specific site conditions of the site for which the construction permit application has been submitted.

19. Pursuant to section 3.5.2, Applicant's Handbook Management and Storage of Surface Waters (February 8, 1999), this permit does not authorize any construction, operation, or alteration of the proposed system.

20. As part of any construction permit application for each phase of this project, the permittee must provide:

    (a) an assessment of any new or continuing use by listed species of wetlands for nesting, denning, or critically important feeding habitat which will be impacted by the construction or reasonably use of the system proposed in that phase;

    (b) an assessment of any new or continuing use by aquatic or wetland dependent listed species of uplands for nesting or denning which will be impacted by the construction or reasonably expected use of the system proposed in that phase; and

    (c) an assessment of secondary impacts of adjacent upland development upon any wetlands that are used as nesting, denning, or critically important feeding habitat for listed species

    These assessments may necessitate the completion of a wildlife survey.

    If the assessments in (a), (b) or (c) demonstrate that listed species are using the site in the manner described in (a), (b) or (c), the permittee must provide an analysis demonstrating that (i) the mitigation plan approved in this conceptual permit will still provide greater long term ecological value than the area of wetlands and surface waters to be adversely affected under the construction permit application; and (ii) the mitigation plan will offset direct and secondary adverse impacts to the wetland functions provided to these

species. If this demonstration cannot be made by the permittee, the project phase must meet the criteria in sections 12.2.1-12.2.1.1, A.H. and the mitigation plan must be supplemented to achieve the required offset.

21. During the review for any construction permits, all on-site wetlands outside the limits of formal wetland determination permit 16-031-0092 must be delineated and surveyed. This will include any wetlands within the vicinity of any proposed wetland creation and/or restoration.

22. In areas proposed for wetland creation, the applicant must demonstrate that no impacts to wetlands will occur.

23. During the review for construction permits the applicant must submit detailed managmeent plans for the mitigation area.

24. This permit approves, in concept, the development plan and mitigation plans dated February 22, 2001 and March 29, 2001.

INDIVIDUAL ENVIRONMENTAL RESOURCE PERMIT
TECHNICAL STAFF REPORT
April 11, 2001
APPLICATION #: 4-031-17756-3

Applicant: Jacksonville Port Authority
Attn: John Clark
PO Box 3005
Jacksonville, FL
32208

Consultant: ERM-Southeast, Inc.
Attn: Warren Snyder P. E.
4110 Southpoint Boulevard Suite 226
Jacksonville, FL
32216
(904) 296-0434

Project Name: Jacksonville International Airport - Conceptual System
Acres Owned: 7915.000
Project Acreage: 7915.000
County: Duval

Section(s):	7, 8, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42	**Township(s):**	1N	**Range(s):**	26E
	19, 21, 22, 23, 24, 25, 26, 27, 30, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43		1N		27E

Authority: 40C-4.041(2)(b)2, 40C-4.041(2)(b)8

Existing Land Use: Airport with mixed forested, coniferous, freshwater marsh and wet prairie wetlands and pine flatwood uplands
Planning Unit: Nassau River Unit
North Mainstem Unit
Receiving Water Body: Cedar Creek **Class:** III Fresh.
Final O&M Entity: Jacksonville Port Authority
ERP Conservation Easements/Restrictions: Yes

LOCATION AND BRIEF DESCRIPTION OF SYSTEM:
This application is for conceptual approval of a surface water management system for future expansion and commercial development within the property limits of the Jacksonville International Airport. JIA is located near the I-95/I-295 interchange on the northside of the City of Jacksonville.

STAFF COMMENTS:

Overview

The expansion and future development was approved in the 1989 Development of Regional Impact and subsequent Substantial Deviation to the DRI which was approved by the City of Jacksonville under Ordinance 2000-286. The applicant has indicated future expansion at the airport includes extension of existing runway 13-31, possible construction of a new parallel runway denoted as 7R-25L, development of terminal and airport infrastructure to support the future expected increase in air traffic at the airport, and the future development of commercial areas for industries which may benefit by being located within the JIA site. The development plan proposed under this application represents no less than a twenty-year planning horizon at the airport and is dependent on the future air traffic growth and future demand for commercial space at the airport.

The applicant proposes a master stormwater planning strategy to address and streamline future permitting efforts for projects at the airport. Major elements of the stormwater strategy include floodwater storage for the 25- and 100-year design storm event, water quality management for development located near the airport terminal and runways, monitoring of water quality around the airport site, wetland impacts, proposed mitigation plan, and long term maintenance and operation for the components of the system necessary to implement the conceptual surface water management plan. The following sections describe the planning strategy and staff recommendations to implement the strategy.

Flood Control

The JIAsite is 7,915 acres in size. The existing floodwater resources of the area include wetland sloughs, creeks with their associated floodplains, and existing ditches constructed to serve the existing airport site. The applicant has elected to utilize these existing wetlands and floodplain resources for floodwater storage for the 25- and 100-year storm events. The applicant proposes to achieve additional onsite floodwater storage by increasing flood elevations along these features in areas of the airport site with little or no existing airport development. The applicant conceptually proposes culverts within the airport property as control structures to increase onsite floodwater elevations along Cedar Creek, Picket Branch, and an unnamed tributary to Seaton Creek. These three outfalls and their basins are the watersheds where the future development is proposed. The applicant has submitted a pre- and post-development floodwater study for both the 25- and 100-year, 24-hour storm events demonstrating the culvert sizes and floodwater containment elevations required for post-development peak floodwater discharges to be less than pre-development peak floodwater discharges. The applicant has also provided a delineation of the pre- and post-development 25-year and 100-year floodplains intended for floodwater storage. Given the 20+ year planning horizon for the airport and the uncertainty for all the development phases envisioned by the applicant, the applicant was unable to specify at this time when these control structures should be constructed. To address offsite flooding concerns with long term phasing, Other Condition 5 is recommended for updating and resubmital, of the 25- and 100-year floodwater study on every construction application which intends to utilize the floodwater storage resources of the conceptual plan. The requirements of Other Condition 5 are not intended to apply for development phases which elect to meet the District pre/post criteria and provide compensating floodplain storage for 25-year floodplain encroachments. Also, Other Condition 5 includes a provision for waiving the study requirements for minor works. Other Condition 6 is also recommended for

compensating floodplain storage for projects which encroach in the future 25-year floodplain as shown on the permit drawings.

Water Quality Treatment

The Federal Aviation Administration (FAA) has expressed safety concerns that wet stormwater ponds may attract birds and/or wildlife near airports. To satisfy FAA safety concerns, the applicant proposes an alternate stormwater treatment system which will allow the development of the airport commercial areas without open water areas using a combination (or treatment train) of swales and baffle boxes. The applicant also has committed to a monitoring plan to ensure the treatment system as proposed meets the treatment requirements of chapter 40C-42, F.A.C. for the area the treatment system serves. The following proposed elements of the treatment system apply to each commercial lot. Roof runoff will be treated by a baffle box then discharged to a final sediment removal facility located near an outfall wetland. Pavement runoff from the commercial lot will be collected by an on-lot swale which will percolate 40% of the runoff from the 3-year, one hour storm event, then be conveyed to a separate baffle box for treatment of the pavement runoff, then discharged to an outfall swale. The outfall swale serving the lot baffle boxes conveys the pavement runoff into the final sediment removal facility. The final sediment removal facility will be sized at a minimum of 50% of the treatment volume for the presumptive best management practices specified in chapter 40C-42.026, F.A.C. Sufficient area will be reserved at each final sediment removal facility which will allow implementation of a facility which complies with the District's criteria if monitoring of the treatment train indicates the system is not attaining its intended level of treatment. Roads accessing the commercial sites will be served by swales meeting the District's swale treatment criteria. The applicant believes each commercial site will be located near an outfall wetland such that this single site model is representative of future commercial development at the airport site. The applicant has submitted calculations demonstrating the proposed treatment train provides treatment equivalent to wet detention treatment. Other condition 8 is recommended to require submittal of calculations demonstrating the treatment concept will function for the specific site conditions of each construction permit application. If soil site conditions and the groundwater table make the proposed treatment train impracticable to implement, then the applicant will implement a treatment facility which will utilize the Specific Design and Performance Criteria of chapter 40C-42.026, F.A.C., and be constructed within FAA guidelines for wet ponds at airports.

Water Quality Monitoring

The applicant is preparing a water quality monitoring plan to document and verify that the long term development at the airport will not result in adverse water quality impacts. The plan includes long term monitoring stations along existing major conveyance ways at the airport to verify the water quality of surface runoff from the combinations of existing and proposed land uses from the airport site, and intensive monitoring of parts of the conceptual stormwater treatment plan to verify the conceptual treatment system meets state water quality standards. The applicant expects to end monitoring of the treatment system when sufficient data has been collected to affirmatively demonstrate that the conceptual treatment system meets its treatment requirements. Other Condition 7 is recommended for either staff approval of the monitoring plan prior to approval of construction permits which utilize any of the concepts approved under this conceptual permit application or submittal of a monitoring plan as part of future phase construction

permit applications. This condition is not intended to apply for projects which do not utilize any of the alternative stormwater treatment concepts of this application and provide 25-year compensating floodplain storage for encroachments into the floodplain areas delineated for floodwater storage.

Long Term Maintenance and Operation

The applicant will be the long term maintenance entity for the proposed system, except for pavements and buildings on commercial lots, and will be responsible for all water quality treatment on the project site. The applicant has committed to retaining consultants and additional staff to implement the design concepts of the surface water management system. This includes consultants to implement the water quality monitoring plan, maintain the flood control model to ensure that onsite and offsite adverse floodwater impacts from the 25- and 100-year storms do not result from the proposed long term development at the airport, provide staff to ensure that all commercial and airport development implements the conceptual water quality treatment plan, and to provide sufficient maintenance personnel to ensure proper function of the high maintenance elements of the water quality treatment system.

Vegetative Communities (Uplands)

The majority of the site is composed of pine flatwoods or pine plantation uplands. The dominant species within these communities includes slash pine, longleaf pine, gallberry, saw palmetto, and bracken fern. Scattered mesic fractions also occur within the pine dominated communities. These areas are dominated by oak, red maple, sweetgum, bay, and wax myrtle. The other on-site upland communities include mixed hardwoods, hardwood/conifer mixed, hardwood hammock, shrub and brushland, pasture, and open land. Three of these communities, mixed hardwoods, hardwood/conifer mixed, and hardwood hammock, are vegetated with similar species although in varying percentages. The mixed hardwoods support few conifers and do not have any one hardwood species that exceeds 66% coverage, the hardwood/conifer mixed generally has equal parts of hardwoods and conifers, and the hardwood hammock is typically dominated by one or two hardwood species, typically oak and has very few pines. Shrub and brush land is typically the result of pine harvesting without replanting. These areas are vegetated with gallberry, saw palmetto, wax myrtle, bracken fern, greenbriar, and blackberry. Pasture and open lands are are similarly vegetated with bahia, bermuda, and St. Augustine grasses along with clover and other legumes. The difference between the two is that the pasture is maintained by grazing cattle and the open land is maintained by mowing.

Vegetative Communities (Wetlands/Surface Waters)

The project also includes approximately 613.12 acres of wetlands and 57.90 acres of surface waters. The wetlands are represented by eight communities that include bay swamp, gum swamp, bottomland, mixed hardwoods, wetland forested mixed, wetland coniferous forest, freshwater marsh, and wet prairie. The wetlands in the southeast portion of the project were reviewed and approved under formal wetland determination permit no. 16-031-0090. The wetlands in the remaining project area were approximated using aerial photography , National Wetland Inventory maps, and the Duval County soil survey.

The bay swamps are dominated by swamp bay, sweet bay, loblolly bay, fetterbush, wax myrtle, fetterbush, royal fern, cinnamon fern, and chain ferns. The gum swamps are dominated by tupelo and scattered cypress. Other species present include buttonbush, Virginia willow, fetterbush, and royal fern. Although the bottomland and mixed hardwoods have similar vegetative compositions, they do differ in hydrologic regime. Bottomland is typically associated with a stream, creek, or other water course and its associated floodplain. Mixed hardwoods are often isolated and irregularly shaped. Typical vegetation within these systems includes tupelo, laurel oak, water oak, red maple, ashes, sweetgum, bays, willows, wax myrtle, buttonbush, royal fern, and chain ferns. The wetland forested mixed community is vegetated with a mixture of hardwood and coniferous species that include laurel oak, water oak, tupelo, sweet bay, swamp bay, cypress, slash pine, and pond pine. The freshwater marshes and wet prairies generally lack a canopy and subcanopy. The freshwater marshes have areas that are typically inundated for long durations. The marshes are vegetated with pickerel weed, arrowhead, fragrant water lily, sand cordgrass, and various panic grasses. The wet prairies have shorter periods of inundation and are typically saturated. These areas are vegetated with soft rushes, beak rushes, sedges, and panic grasses.

Wetland/Surface Water Impacts

The applicant has requested conceptual approval to dredge/fill approximately 151.04 acres of wetlands and 16.12 acres of surface waters. The impacts include approximately 80.82 acres for general widespread airport development, 27.71 acres for roadways and roadway improvement, and 58.63 acres for commercial development in the southeast (Woodwings East/West). Under this application, the applicant is not proposing any impacts associated with new runways, extension of existing runways, or a skeet range. The direct impacts associated with the development of the Woodwings are located within the formal wetland determination area and are therefore fairly accurate. The wetland impact areas outside the Woodwings area are approximate. These areas will be delineated on the ground and surveyed during review of the construction permit applications.

Mitigation

To compensate for the proposed impacts the applicant has proposed an onsite mitigation plan that includes 147.24 acres of wetland creation/restoration and 1133.85 acres of wetland and upland preservation. Although all adverse secondary impacts have not been addressed, the applicant has proposed several measures to address these impacts. The measures include preserving upland buffers where available, bridge or install large culverts at road crossings and installation of deer reflectors at the road crossings. The remaining adverse impacts will be mitigated for within the 1133.85 acre mitigation area. The applicant has conceptually provided reasonable assurance the project will not result in adverse cumulative impacts to the functions provided by wetlands and surface waters within the drainage basin 4. The impacts and the mitigation are proposed within the same drainage basin. The proposed mitigation is conceptual and specific mitigation details will be finalized during review of the first construction permit.

The adverse impacts associated with this project including the adverse secondary impacts, have been approximated. To address these impacts, the applicant has proposed a mitigation plan that conceptually compensates for those impacts. All of the impacts will be accurately determined during the review of the construction permit

applications. It also appears that, if during the construction permit review process it is determined that adverse impacts remain, the applicant has other on-site mitigation opportunities to compensate for those adverse impacts. The project also meets the requirements of section 12.2.8, A.H.

Wetland Summary Table Jacksonville International Airport - Conceptual

Total Wetlands On-site	**613.12 acres**
Total Surface Waters On-site	**57.90**
Impacts that Require Mitigation	**167.16 acres**
Impacts that Require No Mitigation	**0.00 acres**
Mitigation	
Wetland Creation/Restoration:	**147.24 acres**
Wetland/Upland Preservation:	**1133.85 acres**

Interested Parties: No
Objectors: No

Recommendation: Approval

Conditions for Application Number 4-031-17756-3:

ERP General Conditions by Rule (October 03, 1995):
1, 12, 13, 14, 15, 16, 17, 18, 19

ERP/MSSW/Stormwater Special Conditions (November 09, 1995):
3

Other Conditions:

1. This permit approves the 25-Year Present and Future Conditions Floodplain Maps of the conceptual surface water management system as per plans received by the District on January 22, 2001.

2. This permit approves the discharge control structures of the conceptual surface water management system as per plans received by the District on January 22, 2001.

3. This permit approves the conceptual floodwater storage plan of the surface water management system as per calculations received by the District on June 9, 2000.

4. This permit approves the typical 10-acre Commercial Site conceptual stormwater treatment system as per plans and criteria received by the District on February 22, 2001.

5. The permittee must submit revised 25- and 100-year floodwater elevation calculations for each construction permit application which which uses the approved plan of this conceptual permit. The revised floodwater elevation calculations shall include all

existing development, all phases with approved District construction permits and the work proposed by the construction permit application. The permittee shall implement as part of the construction permit application such 25- and 100-year flow control works so that the 25- and 100-year peak discharge rates from the revised 25- and 100-year floodwater elevation calcualtions shall not exceed the 25- and 100-year predevelopment peak discharge rates approved under this conceptual permit. The requirements of this condition may be waived subject to written District Staff approval for such minor works by the permittee which will not result in changes in 25- and 100-year peak discharge rates at the airport boundaries.

6. Compensating floodplain storage shall be required for any encroachment into the Future 25-Year Floodplain as shown on the permit drawings.

7. The permittee shall obtain written staff approval of the airport water quality monitoring plan prior to issuance of any construction permit which uses the approved conceptual plan of this permit, or the permittee shall submit as part of any construction permit application, a water quality monitoring plan for approval as part of the construction permit for the activities proposed in the construction permit application.

8. The permittee must submit site specific plans and calculations as part of any District construction permit applications to demonstrate that the conceptual stormwater treatment system will function under the specific site conditions of the site for which the construction permit application has been submitted.

9. Pursuant to section 3.5.2, Applicant's Handbook Management and Storage of Surface Waters (February 8, 1999), this permit does not authorize any construction, operation, or alteration of the proposed system.

10. As part of any construction permit application for each phase of this project, the permittee must provide:

    (a) an assessment of any new or continuing use by listed species of wetlands for nesting, denning, or critically important feeding habitat which will be impacted by the construction or reasonably use of the system proposed in that phase;

    (b) an assessment of any new or continuing use by aquatic or wetland dependent listed species of uplands for nesting or denning which will be impacted by the construction or reasonably expected use of the system proposed in that phase; and

    (c) an assessment of secondary impacts of adjacent upland development upon any wetlands that are used as nesting, denning, or critically important feeding habitat for listed species

    These assessments may necessitate the completion of a wildlife survey.

    If the assessments in (a), (b) or (c) demonstrate that listed species are using the site in the manner described in (a), (b) or (c), the permittee must provide an analysis demonstrating that (i) the mitigation plan approved in this conceptual permit will still provide greater long term ecological value than the area of wetlands and surface waters to be adversely affected under the construction permit application; and (ii) the mitigation plan will offset direct and secondary adverse impacts to the wetland

functions provided to these species. If this demonstration cannot be made by the permittee, the project phase must meet the criteria in sections 12.2.1-12.2.1.1, A.H. and the mitigation plan must be supplemented to achieve the required offset.

11. During the review for any construction permits, all on-site wetlands outside the limits of formal wetland determination permit 16-031-0092 must be delineated and surveyed. This will include any wetlands within the vicinity of any proposed wetland creation and/or restoration.

12. In areas proposed for wetland creation, the applicant must demonstrate that no impacts to wetlands will occur.

13. During the review for construction permits the applicant must submit detailed managmeent plans for the mitigation area.

14. This permit approves, in concept, the development plan and mitigation plans dated February 22, 2001 and March 29, 2001.

Reviewers: Walter Esser,III
William Wilson

APPENDIX II -

JIA INDIVIDUAL PERMIT NO. 200005079 (IP-BAL)

ISSUED BY

U.S. ARMY CORPS OF ENGINEERS

11/18/2003

DEPARTMENT OF THE ARMY PERMIT
(DUPLICATE)

Permittee: JACKSONVILLE AVIATION AUTHORITY

Permit Number: 200005079(IP-BAL)

U.S. Army Engineer District, Jacksonville

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Location: The proposal is located adjacent to waters of the United States, including wetlands associated with Cedar Creek and Seaton Creek near the Jacksonville International Airport (JIA). More specifically, the proposed work is located north of Interstate 295 and west of Interstate 95, in Sections 7, 8, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, and 43, Township 1 North, Range 26 East and 27 East, Jacksonville, Duval County, Florida. Latitude 30°29'N, Longitude 81°39'W

Project Description: To discharge fill material into 87.40 acres of waters of the United States, including wetlands for the expansion of the airport facilities and accompanying infrastructure. The project includes the construction of an Air Cargo Alternate Access Road, General Aviation Development, Phase A, (includes CSX Corporate Hanger), General Aviation Development, Phase B, Car Rental Facility, Woodwings East, Woodwings West, Northeastern Development, Southwestern Development, and associated roadways and infrastructure. All work is to be completed in accordance with the attached plans numbered 200005079(IP-BAL) in 12 sheets dated 29 October 2003.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on **18 November 2013**. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

SPECIAL CONDITIONS:

1. All reports and submittals that are a requirement of this authorization shall be sent to the U.S. Army Corps of Engineers, Regulatory Division, Enforcement Section, P.O. Box 4970, Jacksonville, Florida 32232-0019 and **shall reference the permit number 200005079(IP-BAL)**.

2. Within 60 days of the date of this permit, the permittee shall submit an attorneys' opinion of title that the permittee has the requisite ownership rights to the JIA Mitigation Management Area (northwest corner of the JIA property), shown on drawing page 2 and 3 of 12, to ensure that the mitigation easement deeds will be primary to any other interests over the property. The opinion of title shall be submitted to the address in Special Condition 1 above and shall reference the permit number 200005079(IP-BAL).

3. The permittee acknowledges that the mitigation easement will be a formal recorded encumbrance on the land. Prior to the issuance of a certificate of occupancy or prior to the use of the infrastructure for its intended use for each portion of the overall project the permittee will record the mitigation easement for that project. The easement shall include provisions for the perpetual maintenance of any boundary markers and/or structures, posting of boundary notices, maintenance of onsite structures, planting of the 104 acre creation area, conversion of silviculture areas to a naturally-managed and diversely sized/aged canopy, prescribed burning, wetland enhancement and restoration activities (through trail road removal and uneven-stand management activities) remedial measures in support of the mitigation area (includes the removal of nuisance and/or exotic vegetative species) required by this permit and/or authorized by the U.S. Army Corps of Engineers. The permittee will prepare each proposed mitigation easement, including a description, and scaled drawings, of the area(s) in question and furnish the same to the Jacksonville District Office of Counsel, C/O the Regulatory Division, Enforcement Section for legal review and approval. Within 30 days of the Corps approval of the proposed easement, the permittee will record the easement in the public records of Duval County, Florida, and a certified copy of the recorded document, with the plat will be forwarded to the Regulatory Division of Jacksonville District Office at the address in Special Condition 1 above within 30 days of recordation.

4. The permittee acknowledges that the compensatory mitigation plan will provide 154.11 credits to be used to mitigate for direct and secondary impacts to waters of the United States once the below mentioned mitigation activities are completed and determined successful. There are four main components in the release schedule: placement of 1,320 acres under a mitigation agreement, enhancement of 849.24 acres of wetlands, restoration of 1.6 acres of wetlands and creation of 104 acres of wetlands. Recording the mitigation easement and completing the restoration and creation work will be done in phases and credits released accordingly. The mitigation credits will be made available based on completion of the following schedule of mitigative steps:

Activity	Mitigation credits released
Opinion of Title letter submitted and approved on the 1,320 acre JIA Mitigation Management Area	29.515
1,320 acre management area placed under mitigation easements	29.515
Removal of 1.6 acres of trail roads	1.44
Complete plantings in the 2.52-acre herbaceous creation area	0.63
1 year of monitoring indicating successful establishment in the creation area	0.63
2 years of monitoring indicating successful establishment in the creation area	0.63
3 years of monitoring indicating successful establishment in the creation area	0.63
Complete plantings in the 101.48-acre forested creation area	22.77
1 year of monitoring indicating successful establishment in the creation area	13.67
2 years of monitoring indicating successful establishment in the creation area	13.67
3 years of monitoring indicating successful establishment in the creation area	13.67
4 years of monitoring indicating successful establishment in the creation area	13.67
Achievement of final success after 5 years of monitoring which indicates successful establishment in the creation area	13.67
Total	154.11

Please note, one-half of the mitigation easement credits will be released once the Corps approves the attorneys' opinion of title letter. The remaining available mitigation easement credits will be released in phases at the equivalent of 0.02235 credits per acre placed in a mitigation easement. The removal of 1.6 acres of trail roads will result in 1.44 credits, which is equivalent to 0.9 credits per acre of trail road removed. The wetland creation areas will be released in phases as the areas are created and determined successful.

5. The permittee shall submit a "working" ledger and project status report for review and approval each October. The information should reference permit number 200005079(IP-BAL) and be sent to the address referenced in Special Condition 1 above. The ledger shall include the number of credits released and debited with corresponding back-up information, if needed. The project status report will consist of a summary of the number of acres recorded in the mitigation easement, restoration and creation work that has been started during the past year and as-built drawings. The summary should describe the work and expected results (acres of restored, enhanced and created wetlands).

6. The permittee acknowledges that there is a potential for additional mitigation credits as a result of the mitigation efforts. The credits will be used to offset future wetland impacts within the boundaries of the Jacksonville International Airport at depicted on page 1 of the attached drawings.

7. The permittee shall commence the mitigation work for the herbaceous wetland creation, which is depicted on permit drawing 11 dated 29 October 2003. The wetland creation will consist of 2.52 acres of herbaceous wetlands, per the following:

a. The wetland creation area will be excavated to an elevation suitable to support the installation and proliferation of 12,197 bare-root herbs. The herbaceous vegetation will be randomly planted, not in rows and installed on equivalent 3' centers. The plantings may include, based on availability: soft rush (*Juncus effusus*), sand cord grass (*Spartina bakeri*), beakrush (*Rynchospora* spp.), lance-leaf arrowhead (*sagittaria lancifolia*), golden canna (*Canna flaccida*), and/or additional species.

b. The proposed mitigation area will be monitored for a period of 3 years after planting to ensure proliferation of installed species, and control of invasion by nuisance/exotic

species. Herbaceous coverage and composition will be evaluated through random sampling of approximately 1% of the overall area. To accomplish the annual sampling, 11- 5' X 5' sample areas will be randomly established with corner stakes during a baseline monitoring event.

c. Monitoring reports will be prepared and submitted to the address in Special Condition 1 above detailing percent coverage and composition of desirable species, as well as the status of nuisance/exotics as necessary, on an annual basis in the fall. Credits will be available for release upon planting of the area, as well as when success criteria are met during annual monitoring, according to the credit-release schedule. The success criteria will be as follows: 10% coverage of desirable wetland herbaceous species and <5% exotic/nuisance species coverage at year 1; and 40% desirable coverage and <5% nuisance/exotic species at year 2. The herbaceous wetland creation area will be considered successful when 80% coverage of desirable species and less than 5% coverage of nuisance/exotic species is established within the 3-year monitoring period.

8. The permittee shall commence the mitigation work for the wetland creation, which is depicted on permit drawing 2 dated 29 October 2003. The wetland creation will consist of 101.48 acres of coniferous hardwood wetlands, per the following:

a. The wetland creation area will be randomly planted, not in rows, to mimic the historic natural conditions of the existing, adjacent wetlands. The trees will be 3-gallon size and will be installed on equivalent 10-foot centers to allow a density of approximately 436 trees per acre. The transitional area or side slopes of the wetland creation areas will be planted with wetland species including (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), sweetbay (*Magnolia Virginiana*), wax myrtle (*Myrica cerifera*) and fetterbush (Lyonia lucida). The floor or the main portion of the creation area will be planted, based on availability, with inundation-tolerant cypress (*Taxodium distichum*), blackgum (*Nyssa sylvatica var. biflora*), buttonbush (Cephalanyhus occidentalis), and Virginia willow (Itea virginica).

b. The transitional species will be evenly distributed and planted on the creation area side slopes and will include, based on availability, a total of 10,900 trees (25%) as follows: 3,924 red maple (9%), 3,488 sweet bay (8%) and 3,488 sweetgum (8%). The remaining 32,700 trees (75%) will be out of the inundation-tolerant variety and will be planted in clusters on the floor of

the wetland creation areas. These trees will include, based on availability, 16,132 blackgum (37%) and 16,568 cypress (38%). In addition to the trees, 43,600 1-gallon shrubs will be installed on 10-foot centers within the creation mitigation areas (436 shrubs/acre). As with the trees, 10,900 (25%) of the shrubs will consist of transitional species planted on the creation area slopes. These will include 5,450 wax myrtle (12.4%) and 5,450 fetterbush (12.5%)). The remaining 32,700 (75%) shrubs will be installed at the bottom of the mitigation areas and will include 16,350 buttonbush (37.5%) and 16,350 Virginia willow (37.5%). Desirable herbaceous wetland species are expected to proliferate in the wetland creation areas, as the top soil material to be transferred from the impacted wetlands will contain a suitable seed source for these species.

9. The field sampling will be conducted between the months of August to October of each year for 5 years after the initial planting to determine the success of the created wetland. The field sampling shall be conducted as follows:

a. A pedestrian survey will be conducted on 100% of the creation area. The field sampling reports will include the following information:

(1) a count of live stems of survived planted vegetation by species within the enhancement area,

(2) assessment of growth (height) of planted tree species within the enhancement area,

(3) relative health of plantings observed within the enhancement area, indicating any problems such as fungal infection, insect damage, etc.

(4) percentage (aerial coverage) of exotic, undesirable or nuisance species present within each transect,

(5) wildlife utilization (qualitative) observed during a survey of each transect,

(6) recruitment of hydrophytic vegetation observed in each belt transect,

(7) a recordation of additional plant species observed in each of the belt transects that were not present in the previous sample, and

(8) an observation of hydric soil indicators within the upper 6 inches of the substrate, including measurements of any organic detritus accumulation on the soil surface.

b. These reports shall be submitted within 60 days of the completion of the monitoring event. The report shall include the quantitative or qualitative data, narrative description, and one page summary. The one page summary shall highlight any potential problems. Some examples of potential problems are concerns with the hydrological conditions, a decline in wetland species (less than 80% obligate wetland and/or facultative species in each area), an increase in nuisance, undesirable, or invasive species (more than 10% in any transect, poor average growth of woody tree plantings), and any other potential problems that may cause the creation area to fail.

c. Credits will be available for release upon planting of the area, as well as when success criteria are met during annual monitoring, according to the credit-release schedule. The success criteria will be as follows: >80% survivorship of installed tree species, <5% nuisance/exotic species, and a demonstrated mean growth rate of 1 foot per year. The mitigation will be considered successful if at the end of the 5-year monitoring period, the created wetlands have achieved the following results:

(1) Sustained a minimum 80% obligate wetland and/or facultative wetland species as defined by the "1988 List of Vascular Plants occurring in the Southeast Region."

(2) Does not contain more than 10% nuisance, undesirable, or invasive species. Updated lists of invasive species in the state of Florida can be found at the following Internet site: *www.fleppc.org*. Additionally, at a minimum the following will be considered nuisance species: *Sapium sebiferum* (Chinese tallow), *Salix* sp. (Willows) and *Typha* sp. (Cattails), and *Pinus elliottii* (slash pine) are considered an undesirable species.

(3) Plantings have achieved an 80% survivability rate.

(4) Woody tree plantings have achieved a mean growth rate of approximately 1 foot per year (Denton 1990 reports average growth rate for Cypress in mitigation sites as 1.7 feet per year).

10. If the mitigation efforts within the creation and restoration areas fail to indicate a reasonable degree of success at any time after the initial planting or the removal of the trail road has occurred, the permittee shall submit a contingency plan that details corrective actions to be taken within 30 days of notification by the Corps. The restoration success criteria are the same as the forested creation criteria. The Corps reserves the right to fully evaluate, amend, and approve the contingency plan. Within 30 days of Corps approval, the permittee will execute the contingency plan in full.

11. The permittee shall provide as-built drawings of the authorized work, and a completed As-Built Certification Form. The drawings and Certification Form are to be submitted within 60 days of completion of the authorized work, or at the expiration of the construction authorization of the permit, whichever comes first. The drawings and As-Built Certification Form must be signed and sealed by a professional engineer registered in the State of Florida. The submitted As-Built Certification Form and drawing shall include the following:

a. The Department of the Army permit number on each sheet.

b. A plan view of the overall footprint of the project showing all "earth disturbance", including wetland impacts.

c. Clear indication of any deviations, which have been described on the As-Built Certification Form. In the event that the completed work deviates from the approved permit drawings and special conditions, the permittee shall describe, on the Certification Form, the deviations between the work authorized by the permit and the work as constructed. Please note that the depiction and description of the deviations on the drawings and Certification Form does not necessarily mean that the Corps will approve of them.

12. The Corps permit does not authorize you to take an endangered species, in particular the eastern indigo snake. In order to legally take a listed species, you must have separate authorization in the Biological Opinion (BO) under the Endangered Species Act (ESA), section 7, with "incidental take" provisions with which you must comply. The enclosed BO from FWS contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions

associated with incidental take of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. However, the FWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA. For further clarification on this point, you should contact the FWS. Should the FWS determine that the conditions of the BO have been violated, normally the FWS will enforce the violation of the ESA, or refer the matter to the Department of Justice.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

(X) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization:

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal projects.

3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (see 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR

209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

(PERMITTEE) 11/25/03 (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

(DISTRICT ENGINEER) 1 December 2003 (DATE)
Robert M. Carpenter
Colonel, U.S. Army

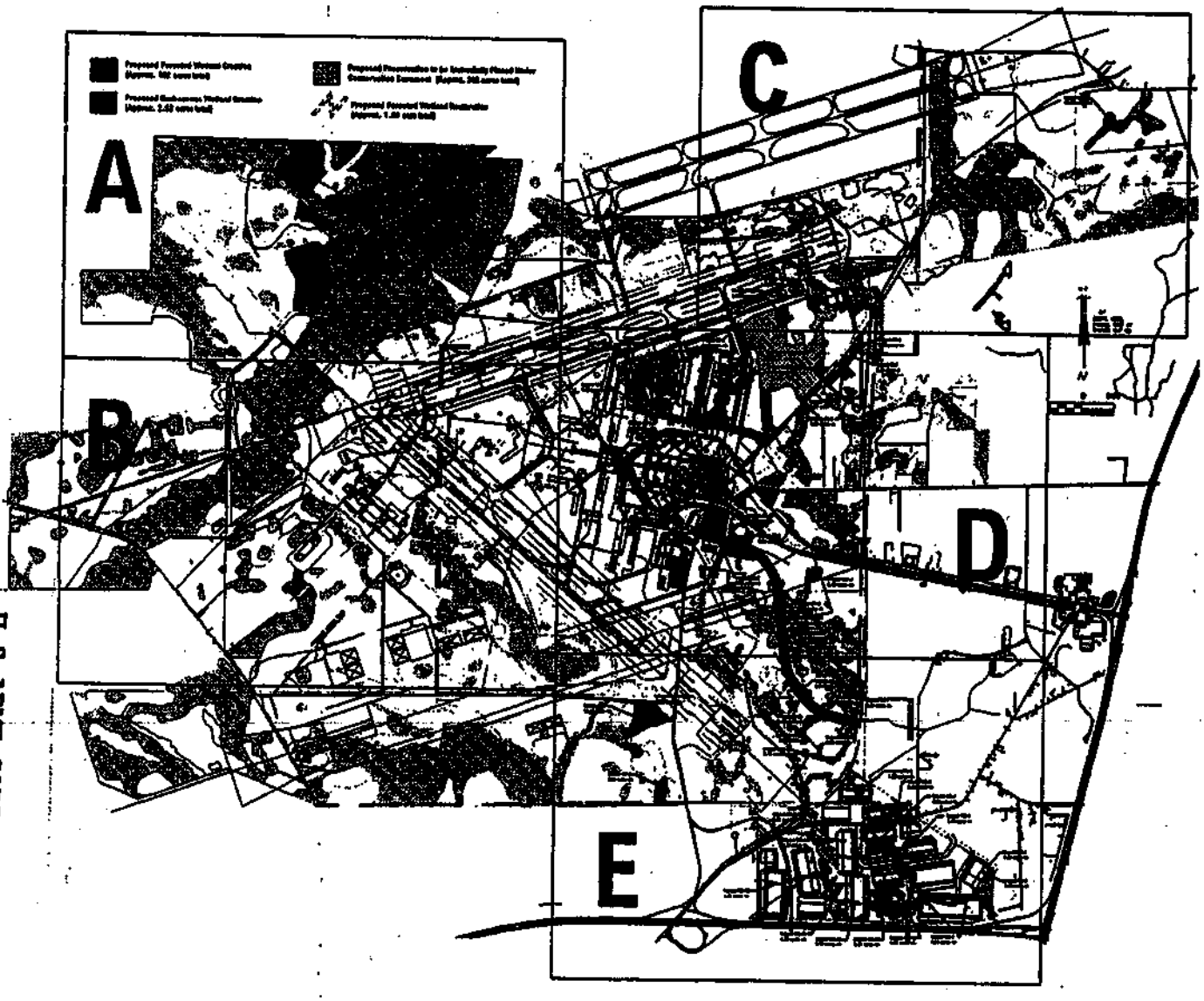
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) (DATE)

(NAME-PRINTED)

(ADDRESS)

(CITY, STATE, AND ZIP CODE)



U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE: 29 October 2003
DRAWING PAGE 1 OF 12

Environmental Resource Solutions Inc.
1967 The Greenway
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Key Map

Source:

File: 00267 COE IM R8

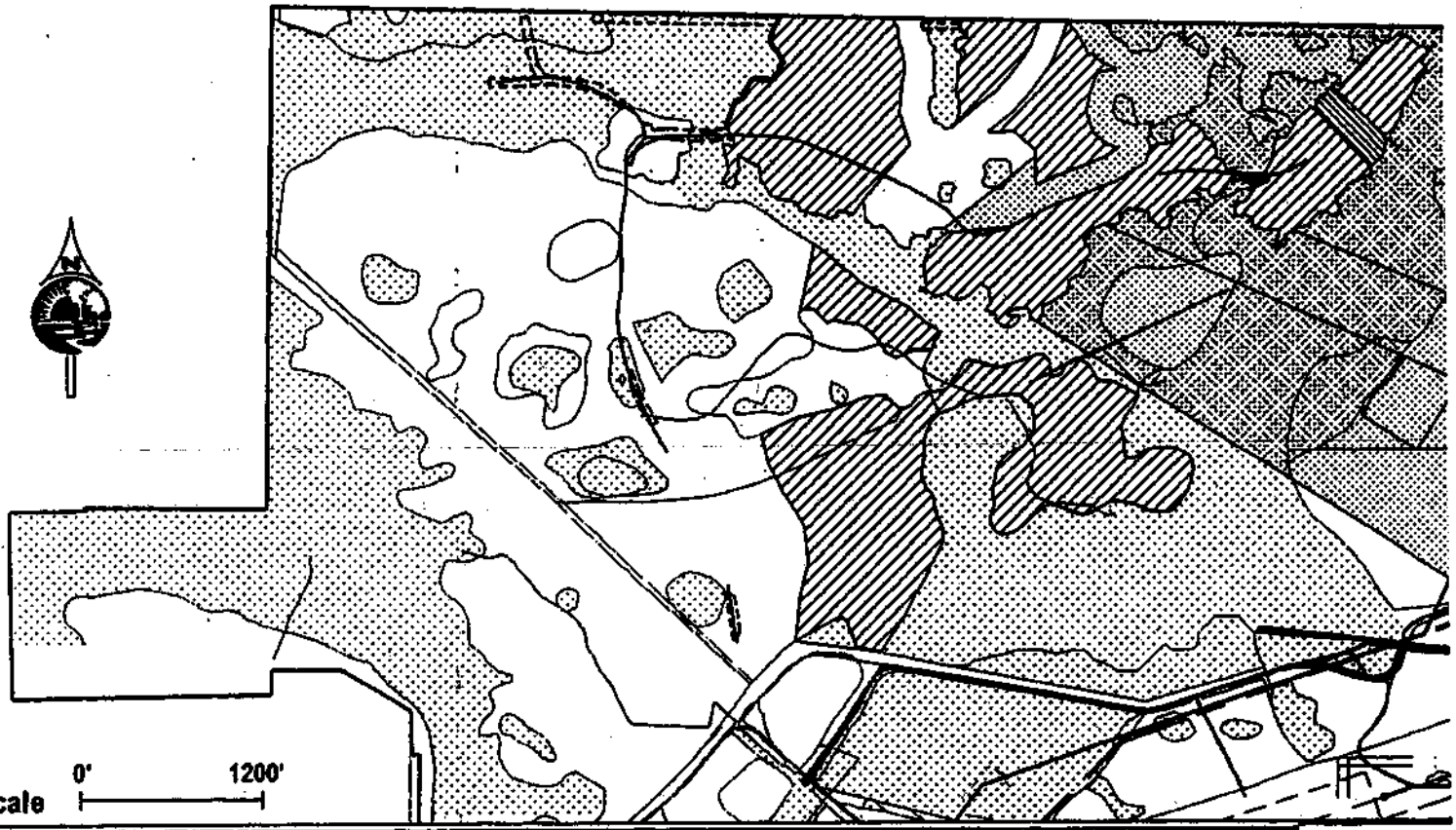
Proje
Date:
By: JEN

Proposed Forested Wetland Creation
(Approx. 102 acres total)

Proposed Herbaceous Wetland Creation
(Approx. 2.52 acres total)

Proposed Preservation to be Immed
Conservation Easement (Approx. 2(

Proposed Forested Wetland Restor
(Approx. 1.60 acre total)



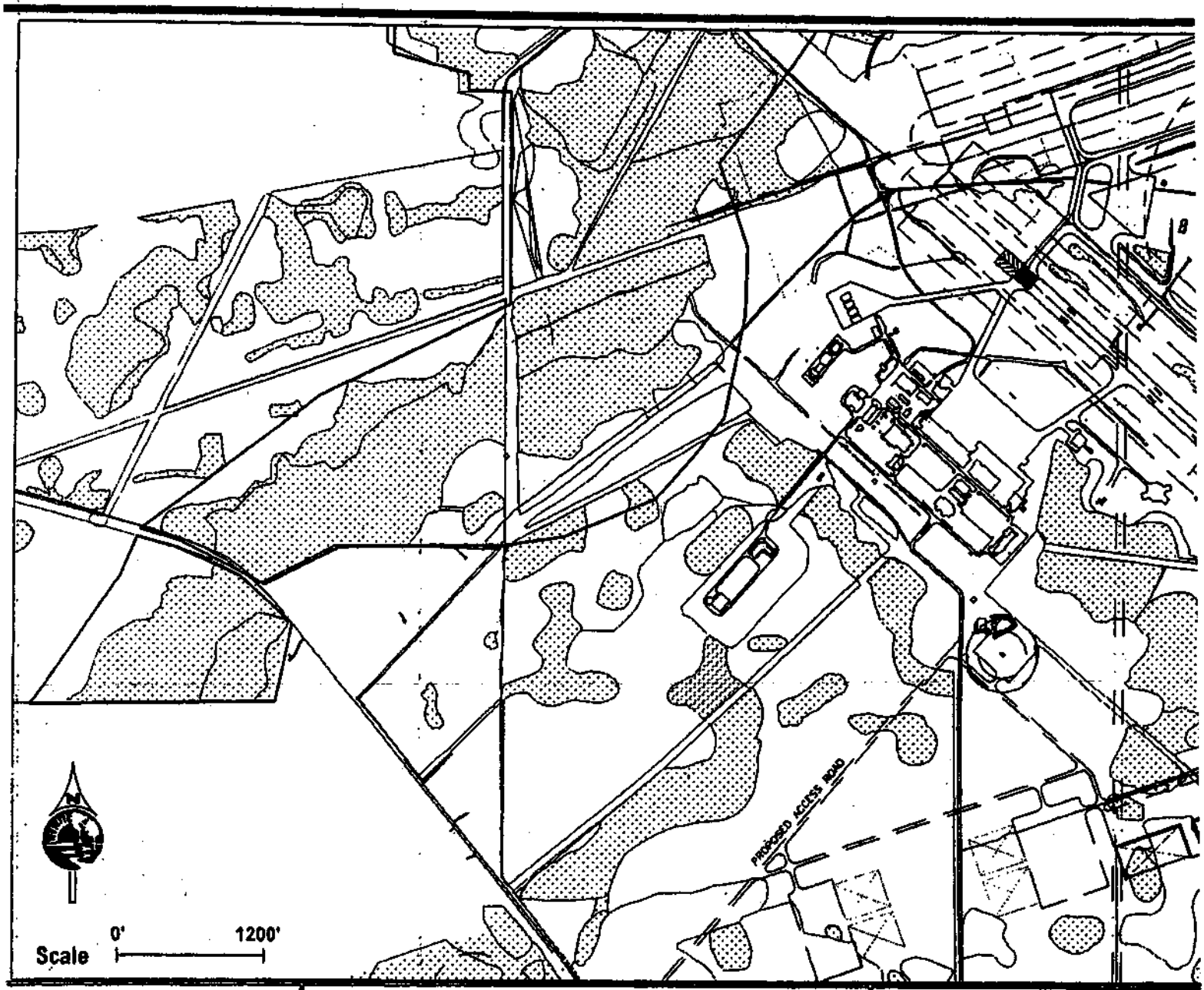
Environmental Resource Solutions Inc.
1607 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map A

Source:

File: 00267 COE IM R8

U.S ARM
PERMIT
DATE... 2
DRAWING



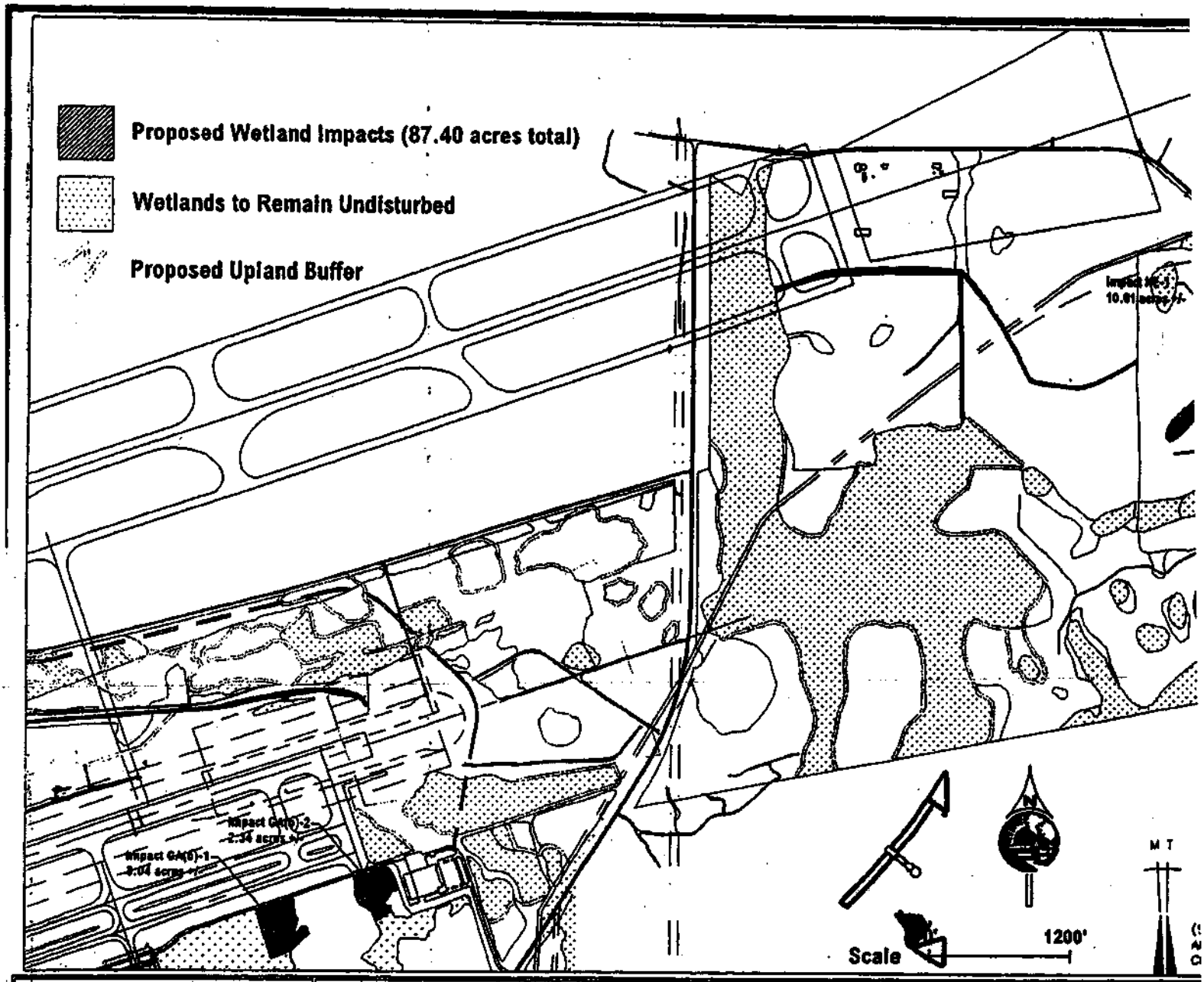
Environmental Resource Solutions Inc.
2687 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map B

Source:

File: 00267 COE IM R

U.S ARM
PERMIT 2
DATE... 29
DRAWING



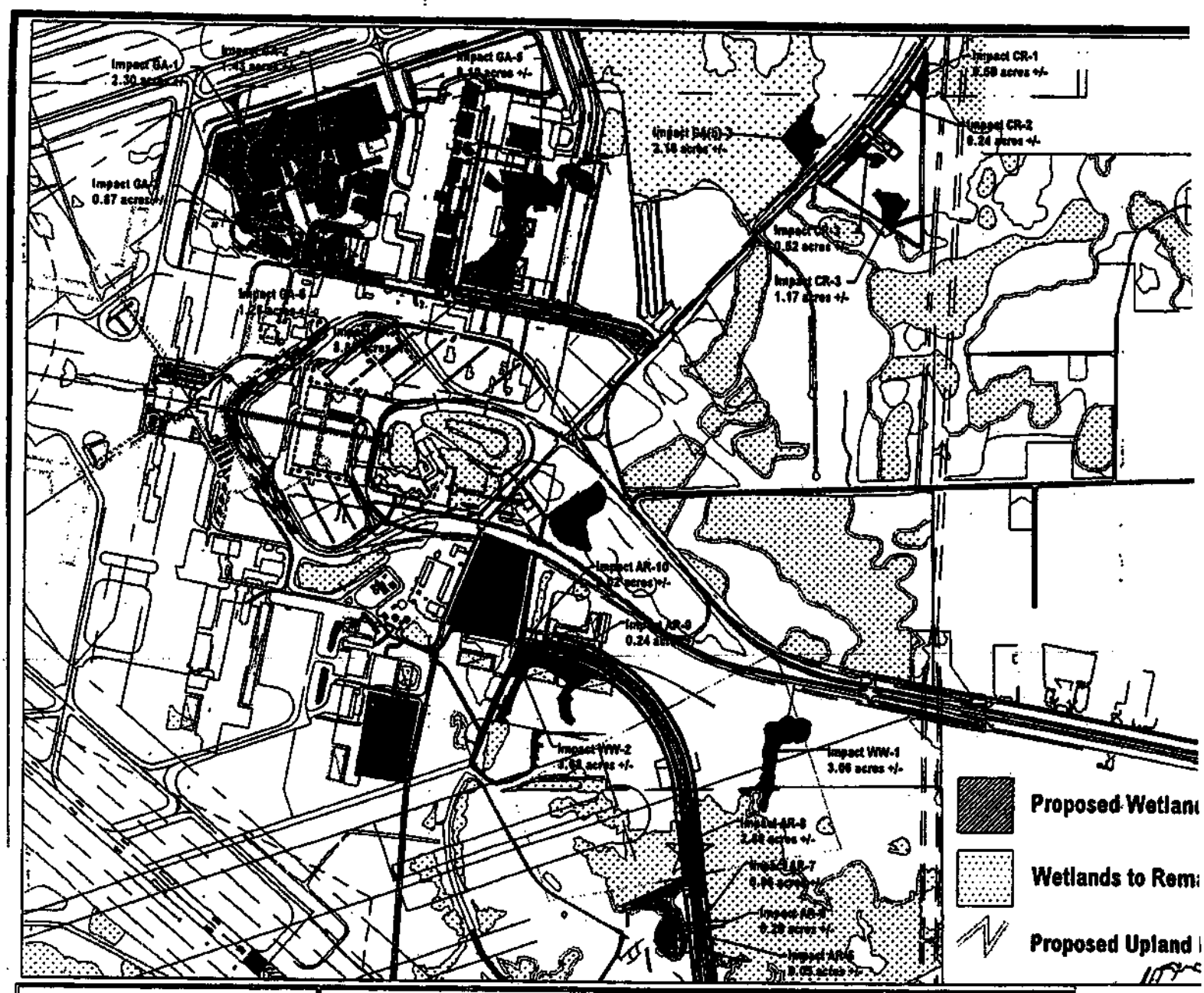
Environmental Resource Solutions Inc.
1697 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map C

Source:

File: 00267 COE IM R8

U.S AR
PERMIT
DATE...
DRAWIN



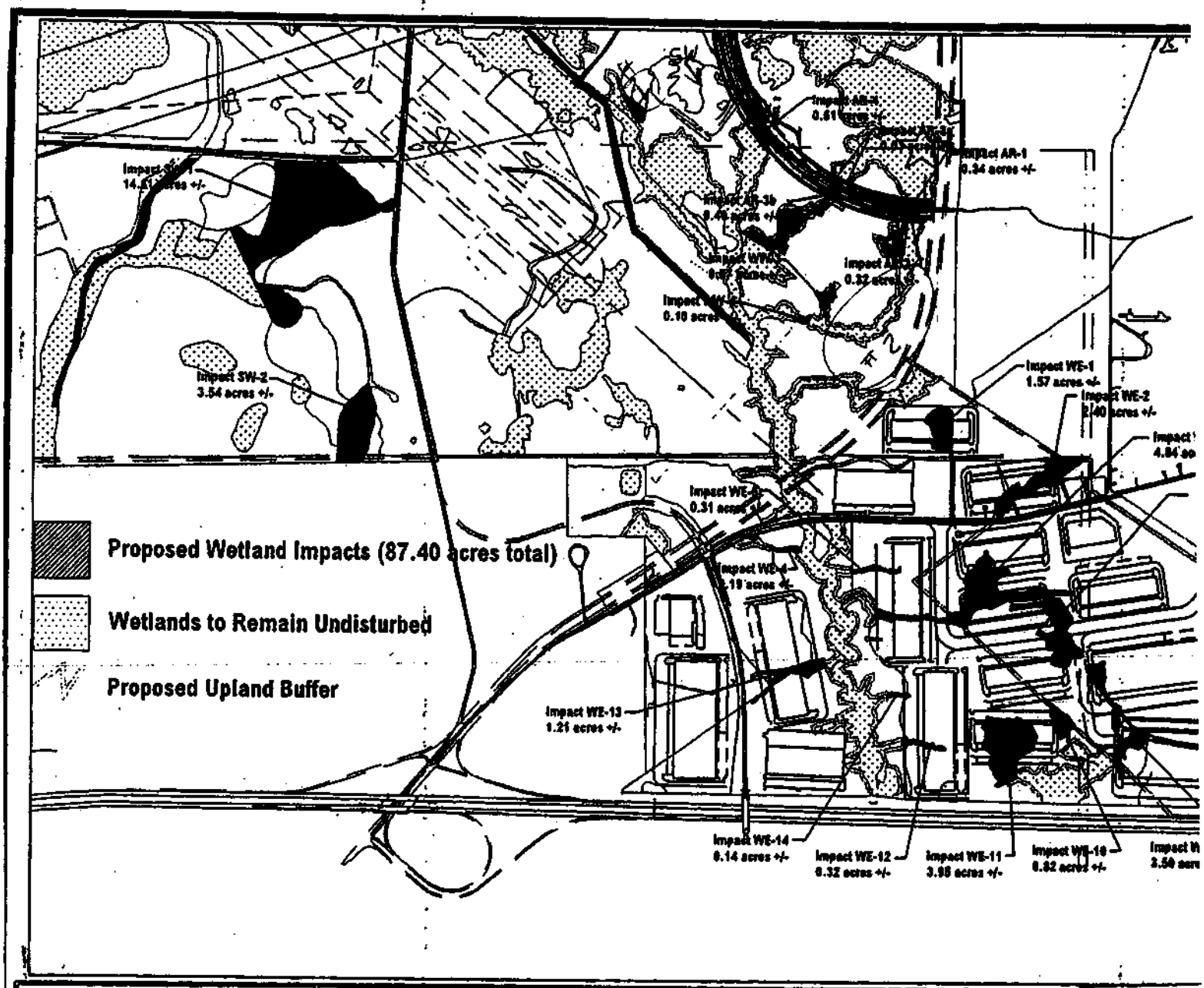
Environmental Resource Solutions Inc.
1577 The Greens Way
Suite 600
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map D

Source:

File: 00267 COE IM R

U.S AR
PERMIT
DATE...
DRAWING



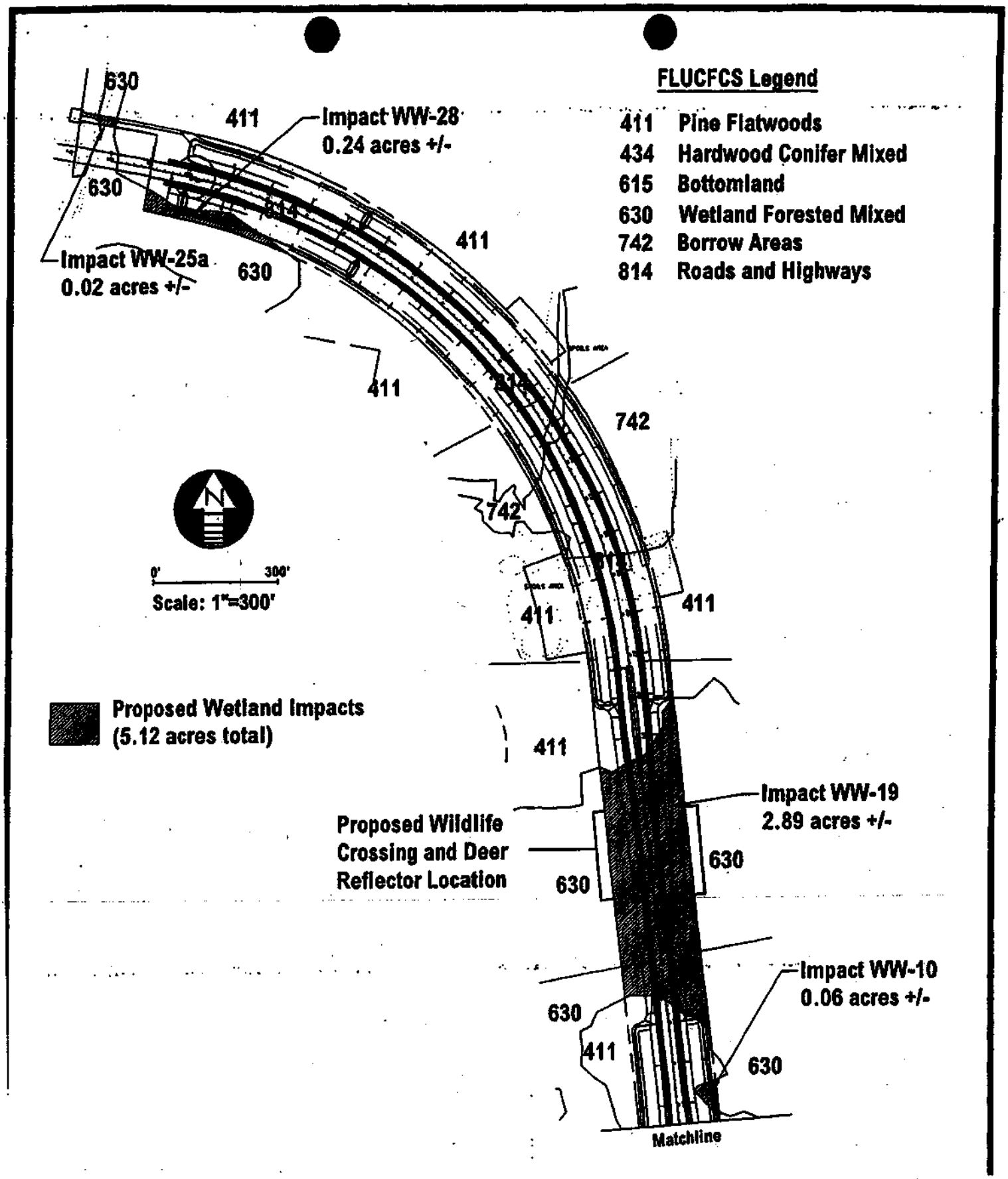
Environmental Resource Solutions Inc.
1597 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map E

Source:

File: 00267 COE IM R

U.S AR
PERMIT
DATE
DRAWIN



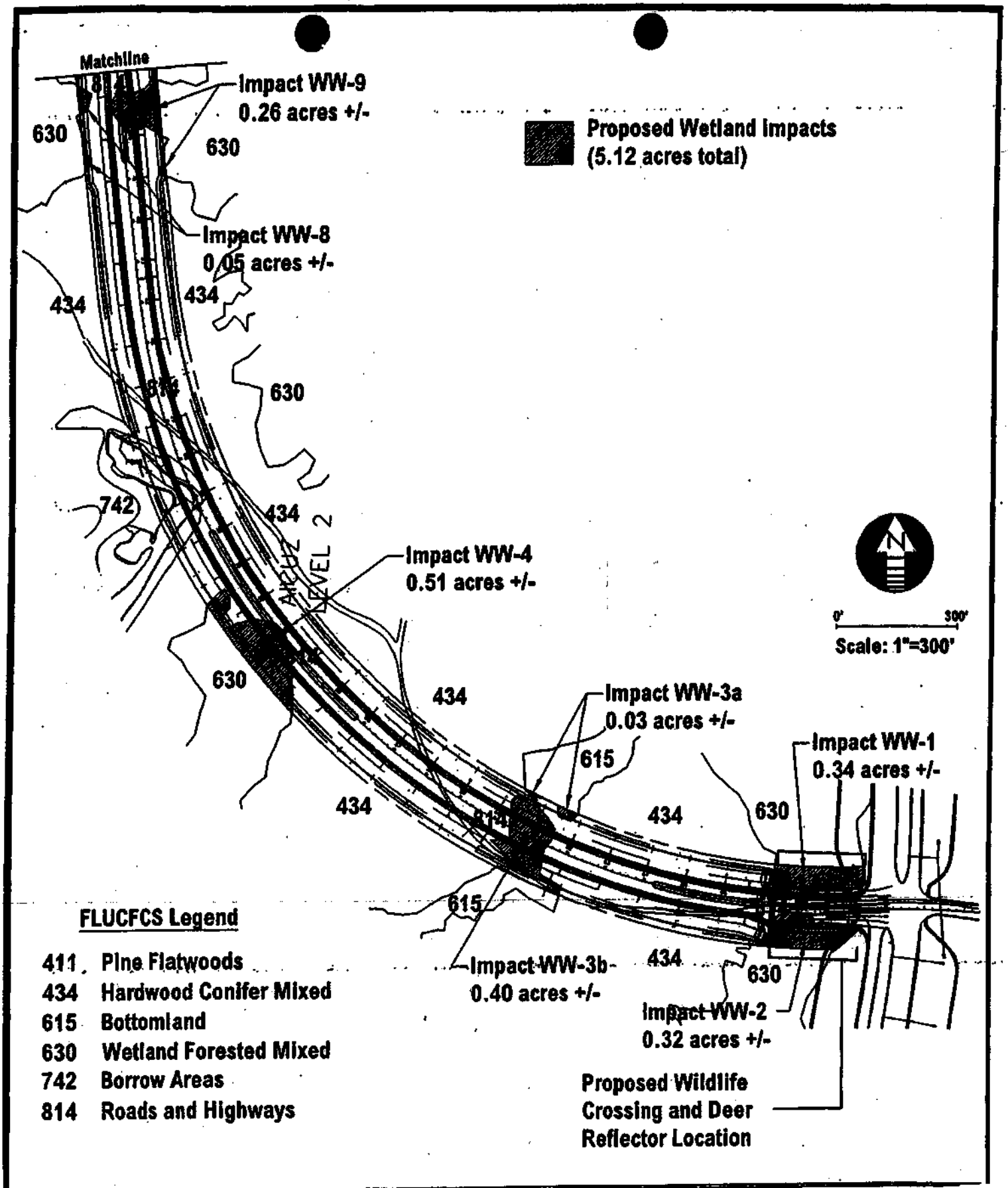
Environmental Resource Solutions Inc.
1607 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA Air Cargo Alternate Access Road
Site Plan/Proposed Conditions FLUCFC

Source: Preiser, Halfhill, Inc.

File: 002674aCOE.dwg

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE... 29 October 2003
DRAWING PAGE 7 OF 12



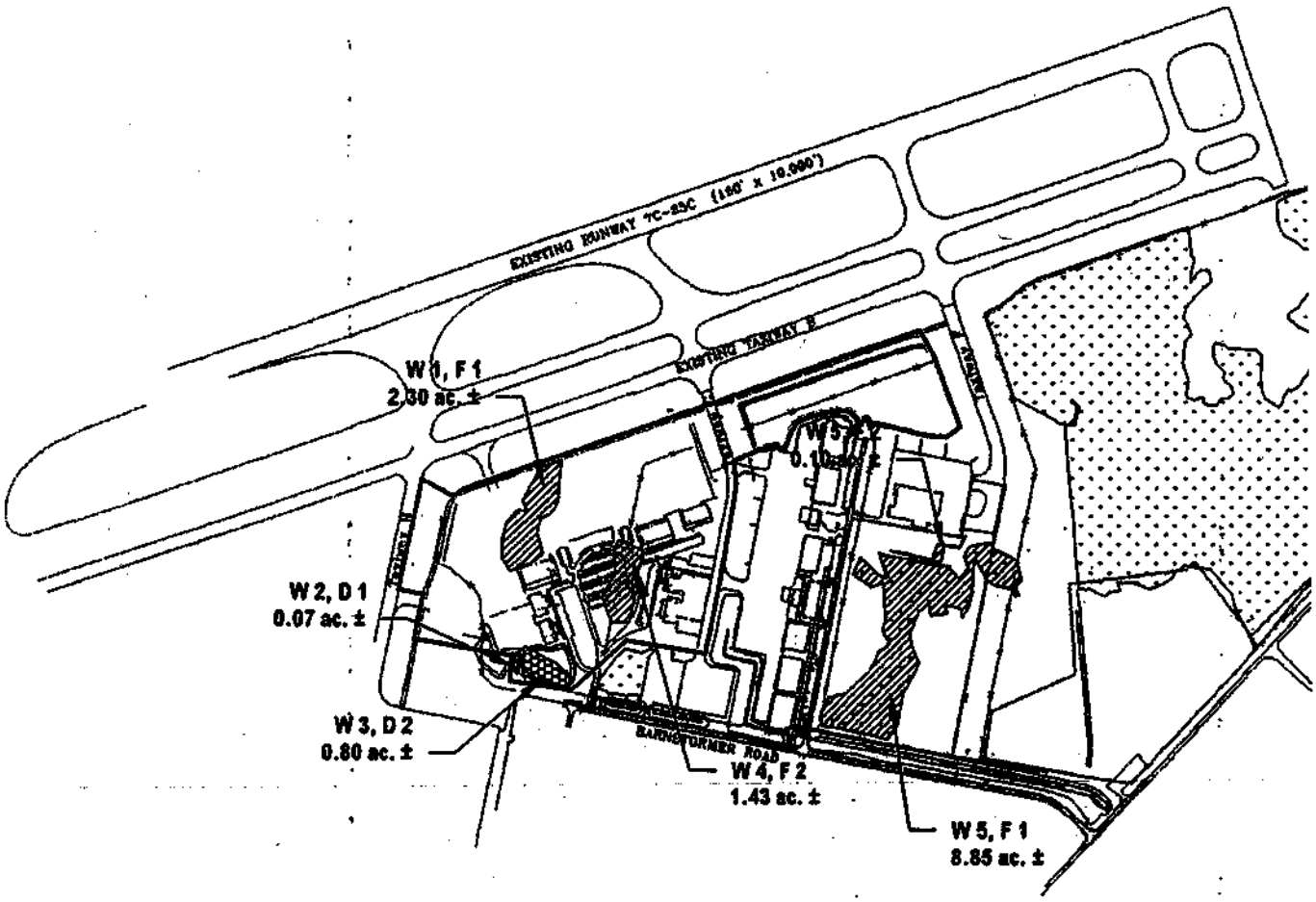
Environmental Resource Solutions Inc.
1697 The Greens Way, Suite 205, Jacksonville Beach, FL 32250

JIA Air Cargo Alternate Access Road
Site Plan/Proposed Conditions FLUCFC

Source: Prosser, Kellett, Inc.

File: 002674bCOE.dwg

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE... 29 October 2003
DRAWING PAGE 8 OF 12



Legend	
Wetland Fill Impact	3.73 ac. ±
Wetland Dredge Impact	0.87 ac. ±

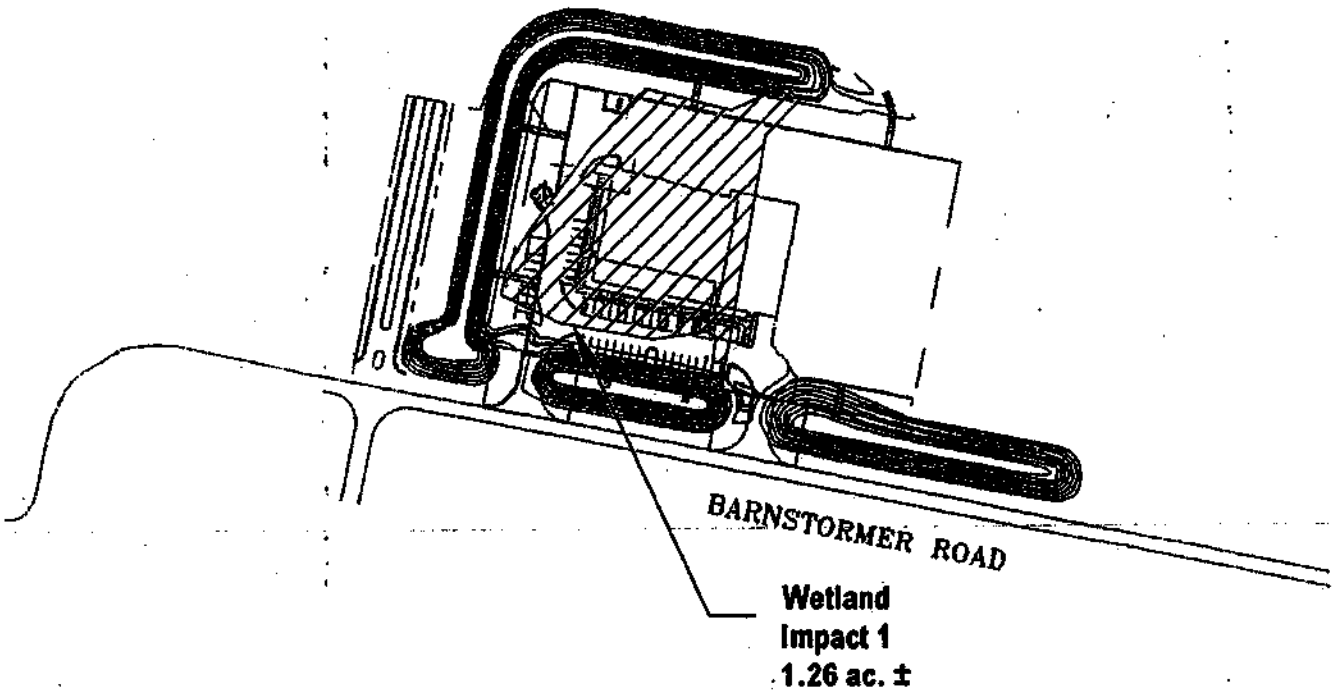
Environmental Resource Solutions Inc.
1089 The Greens Way
Suite 290
Jacksonville Beach, FL 32250

JIA GA Development
Wetland Impact Map

Source:

File: 02311 Impact R4

Pro
Date
By: J



Environmental Resource Solutions Inc.
1607 The Greens Way
Suite 250
Jacksonville Beach, FL 32250

CSX Development
Wetland Impact Map

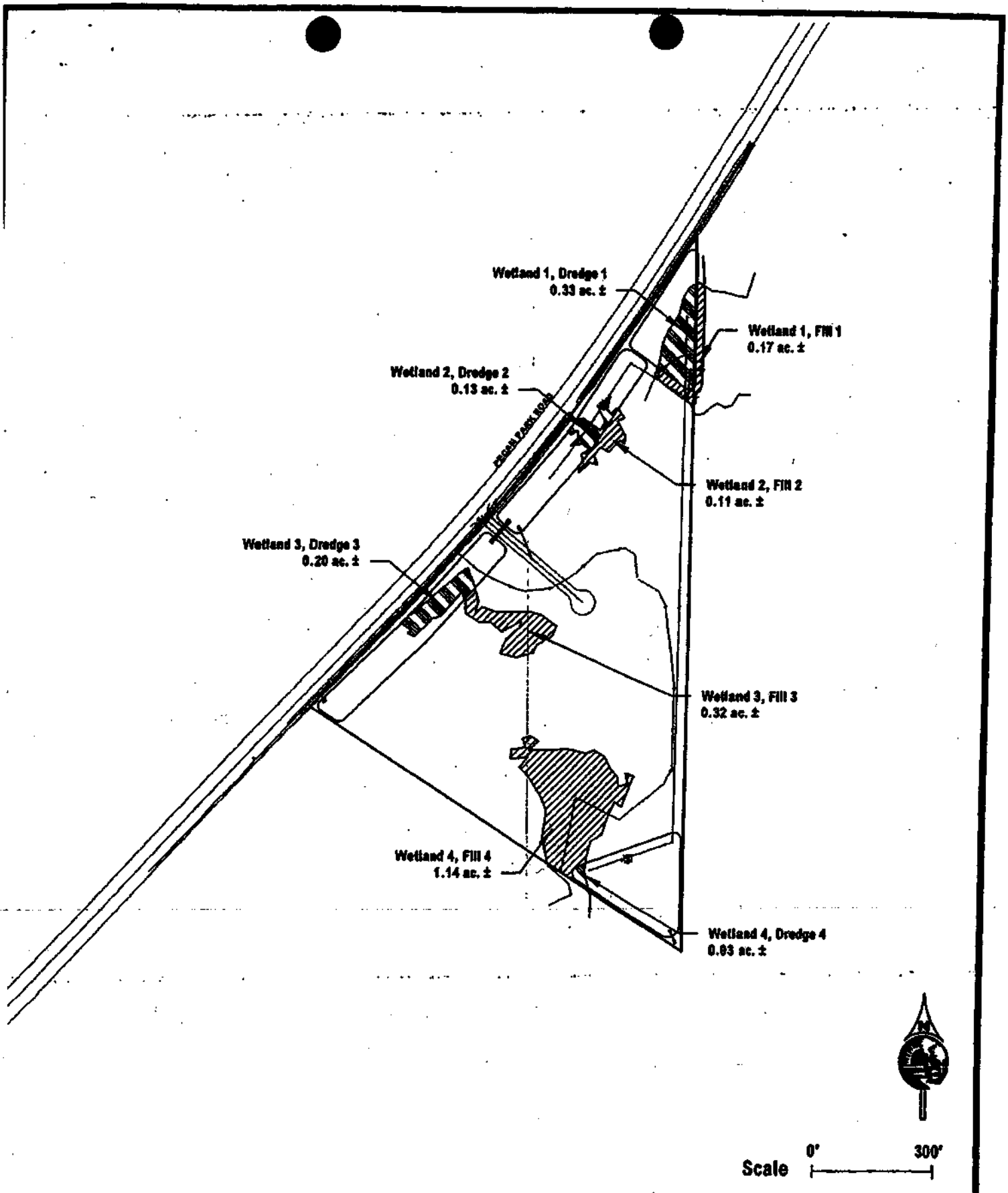
Source:

File: 02311 csximpact

Proj

Date

By: J



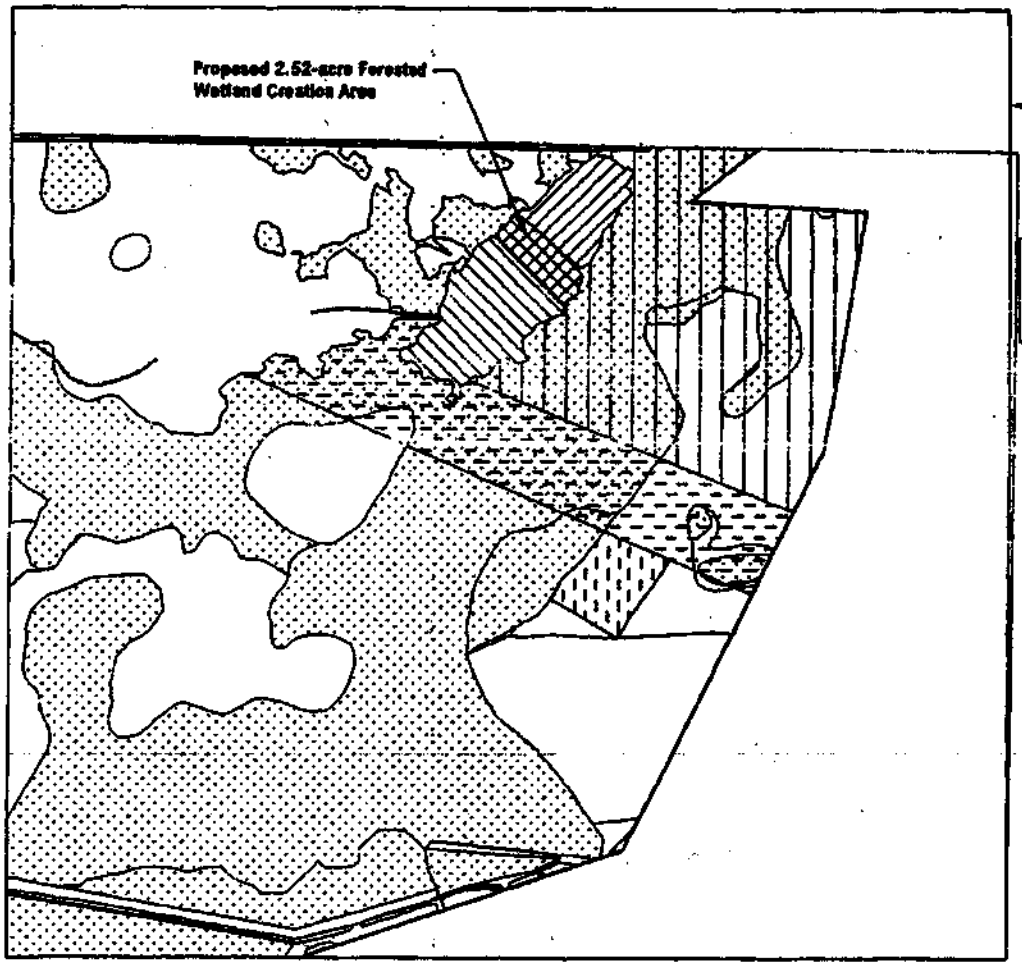
Environmental Resource Solutions Inc.
1007 The Greens Way
Suite 600
Jacksonville Beach, FL 32250

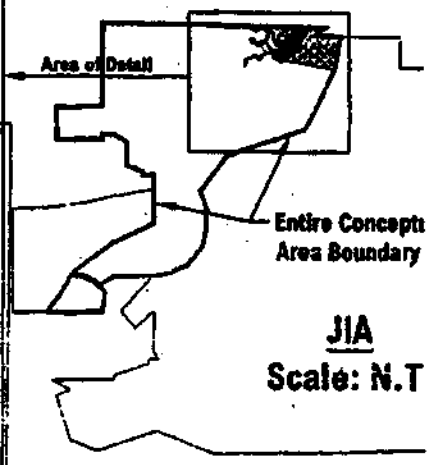
JIA Car Rental Facility
Impact Map

Source:

File: 02311 Car Imp

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE.. 29 October 2003
DRAWING PAGE 11 OF 12





2.52-acre Herbaceous Wetland Cr
Proposed for CSX Corporate Hange

59.33-acre Preservation Area Prev
Under Permit No. 4-031-17758-4

6.14-acre Forested Wetland Creati
Previously Permitted Under Permit

9.08-acre Excess Forested Wetlan
Previously Permitted Under Permit

32.10-acre Wetland/Upland Preser
Permitted Under Permit No. 4-031-

5.09-acre Additional Upland Preser
Permitted Under Permit No. 4-031-

Approximate Extent of Mitigation A

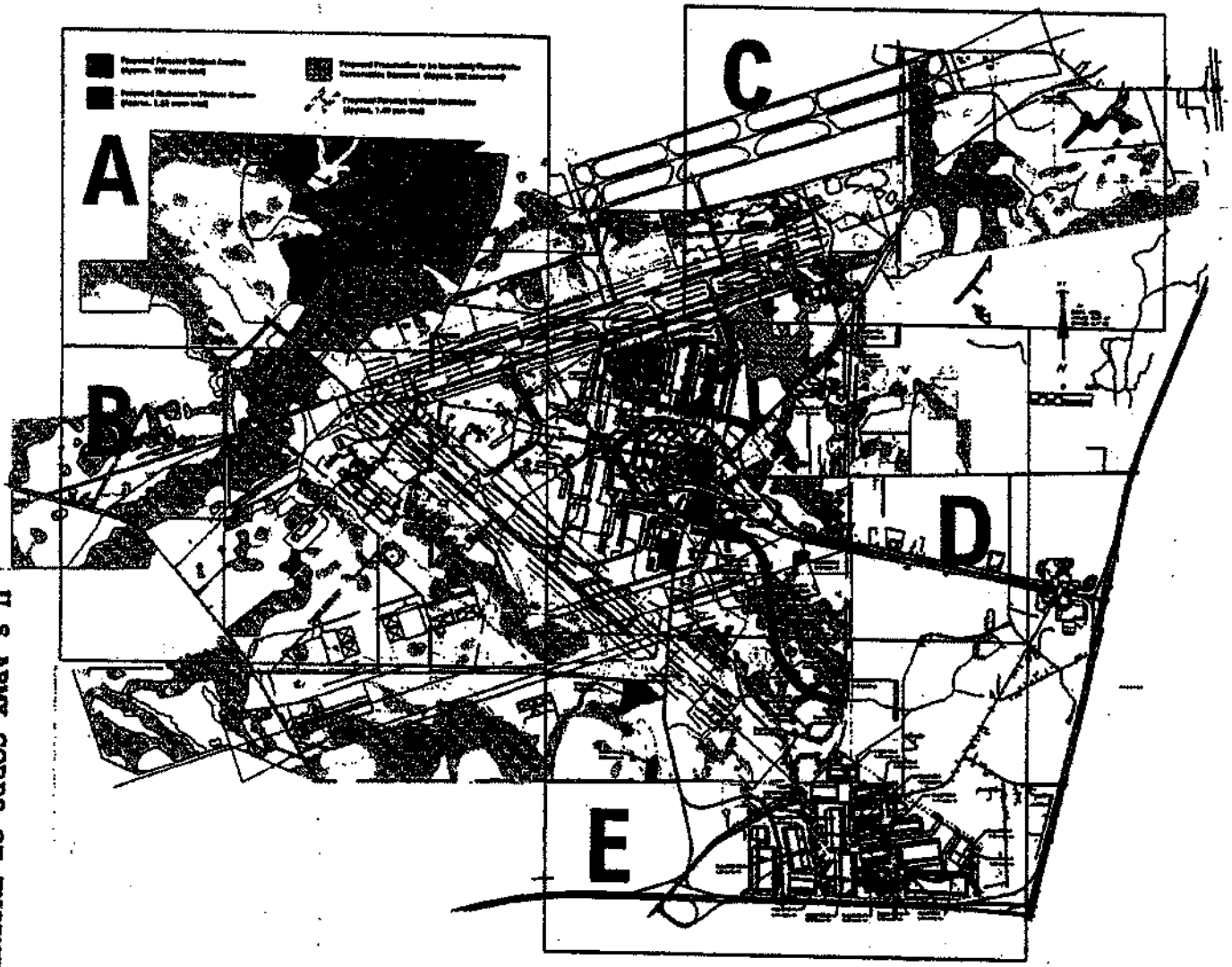
Environmental Resource Solutions Inc.
3049 The Greens Way, Suite 2
Jacksonville Beach, FL 32250

CSX Corporate Hangar Mitigation Plan Exhibit

Source:

File: 02311CSXMHPI

U.S ARI
PERMIT
DATE... 2
DRAWING



U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE 29 October 2003
DRAWING PAGE 1 OF 12

Scale 0' 4000'

Environmental Resource Solutions Inc.
1897 The Greens Way
Suite 206
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Key Map

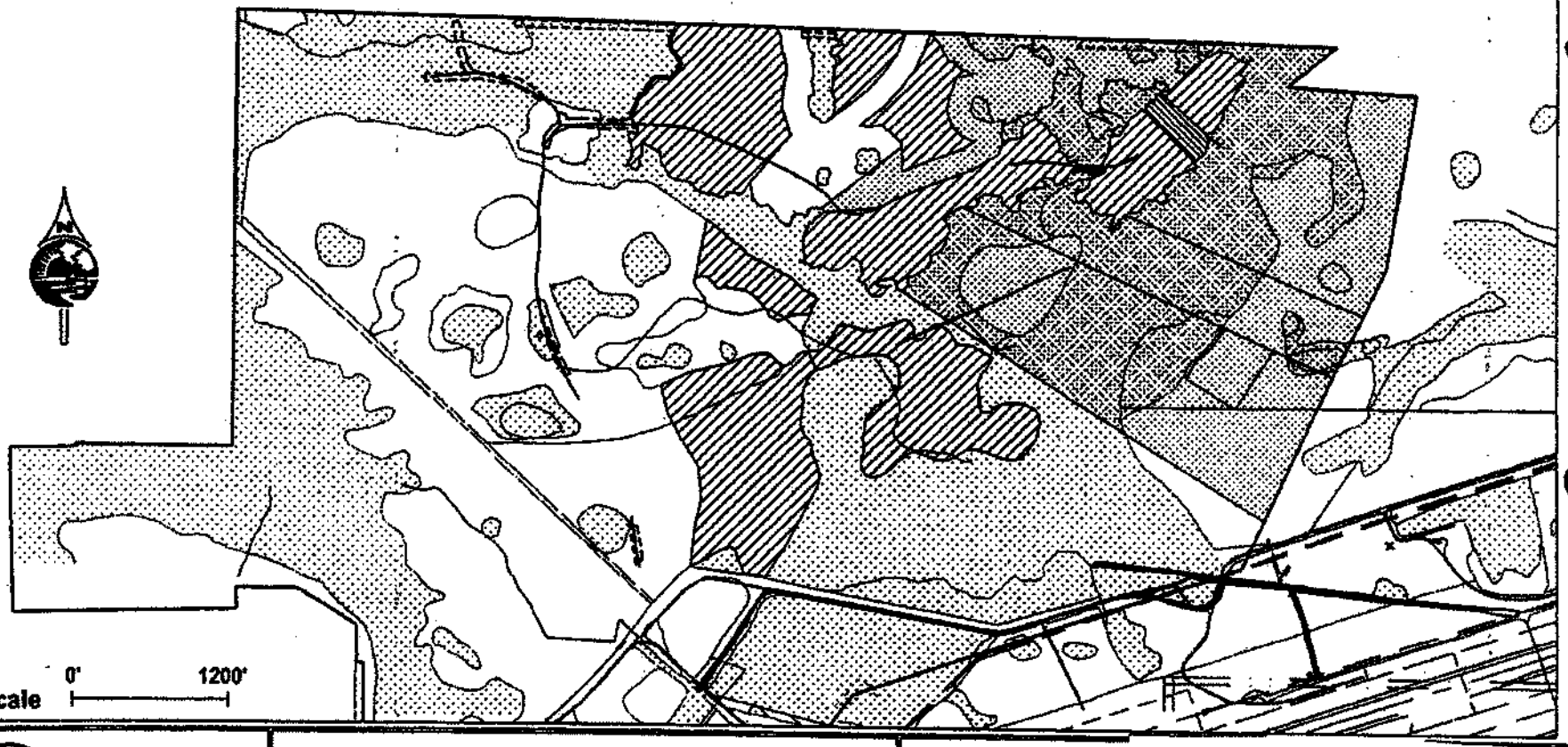
Source:	Project No.: 00267	
	Date: 5-4-01	Rev: 10-13-03
File: 00267 COE IM R8	By: JEM	Exhibit No: 3

Proposed Forested Wetland Creation
(Approx. 102 acres total)

Proposed Herbaceous Wetland Creation
(Approx. 2.52 acres total)

Proposed Preservation to be Immediatly Placed Under Conservation Easement (Approx. 202 acres total)

Proposed Forested Wetland Restoration
(Approx. 1.60 acre total)



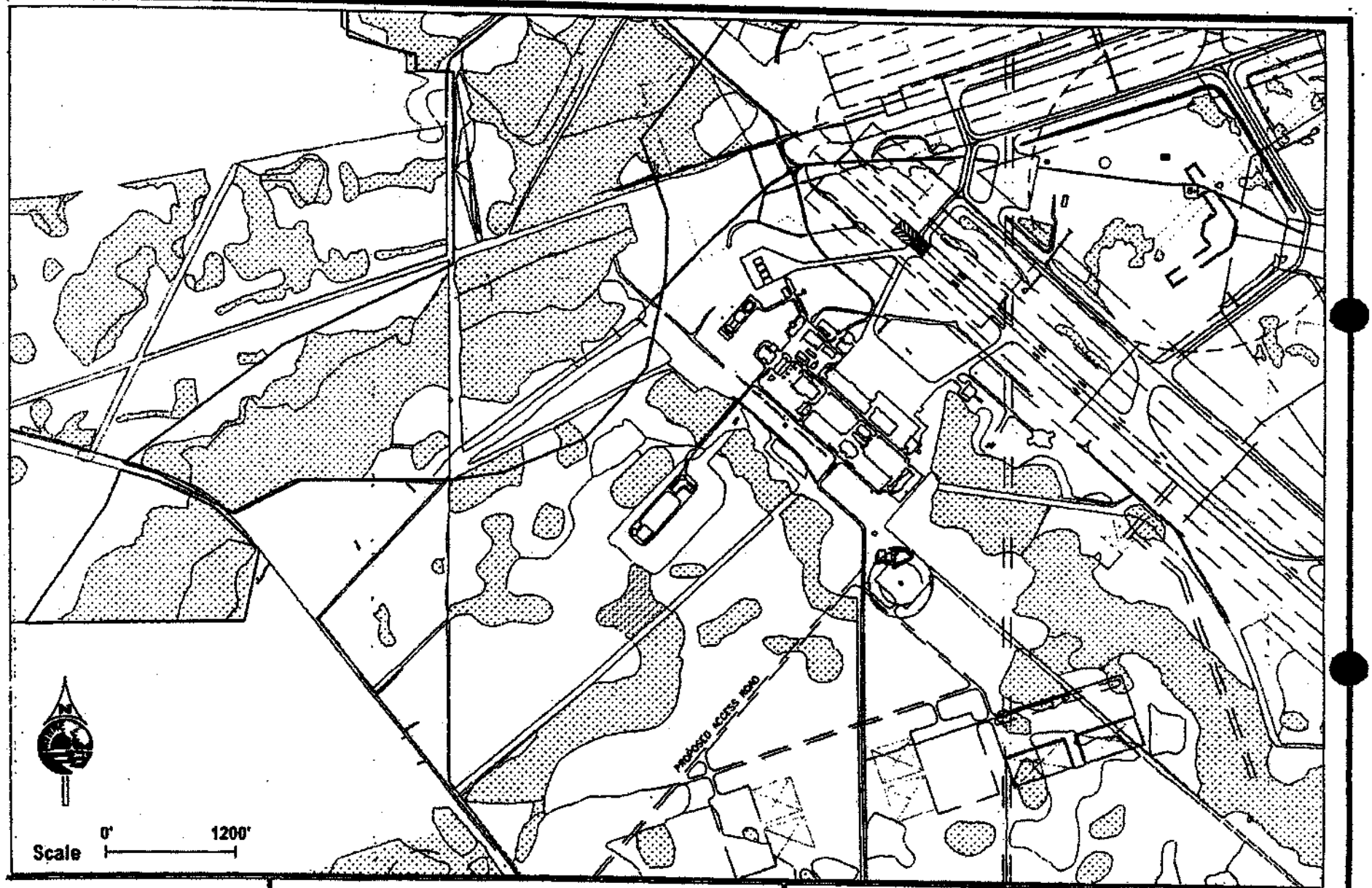
Environmental Resource Solutions Inc.
1597 The Greens Way
Suite 100
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map A

Source:

File: 00267 COE IM R8

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE 29 October 2003
DRAWING PAGE 2 OF 12



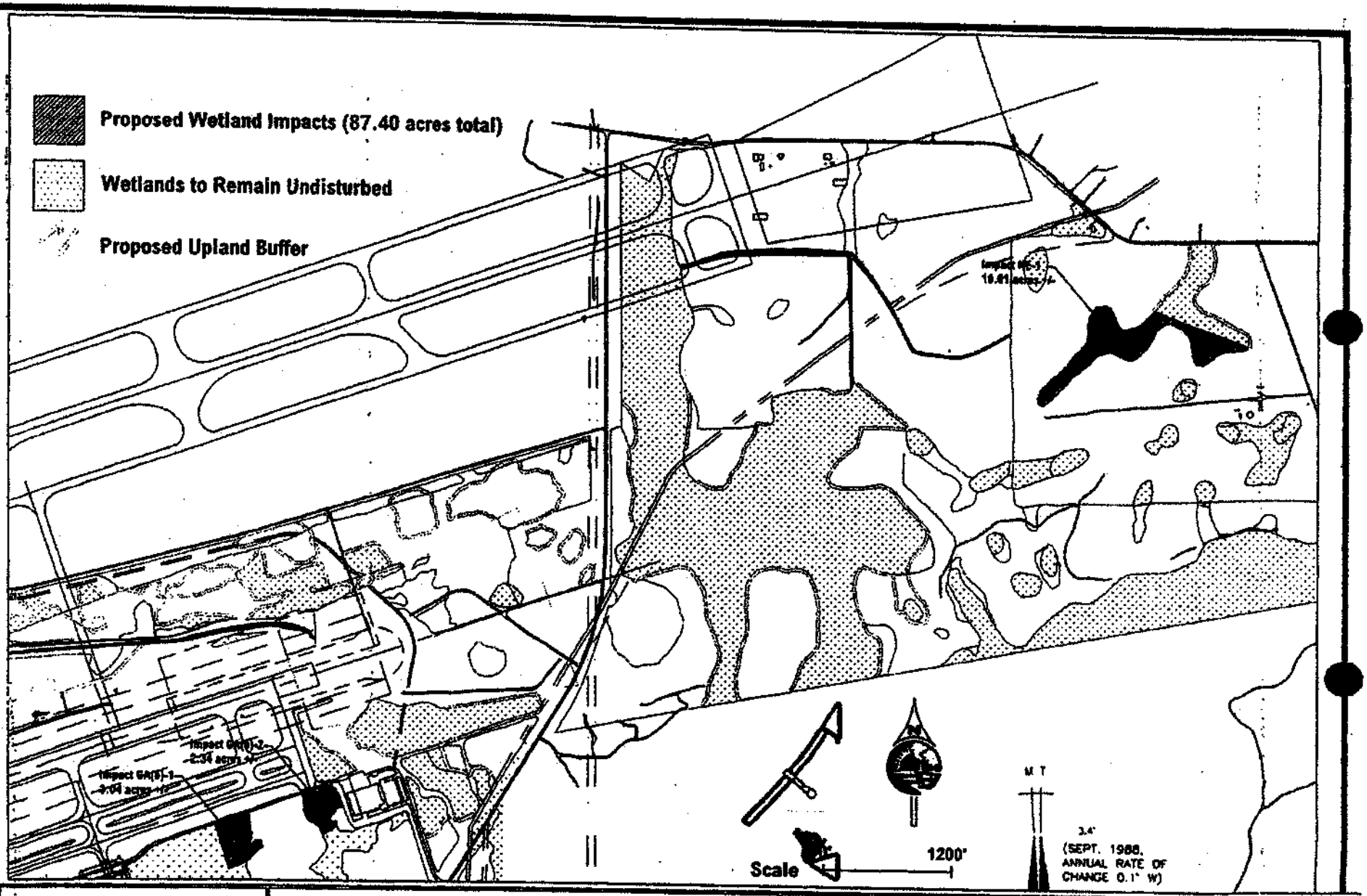
Environmental Resource Solutions Inc.

JIA
Impact/Mitigation Map B

Source:

File: 00267 COE IM R

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE.. 29 October 2003
DRAWING PAGE 3 OF 12



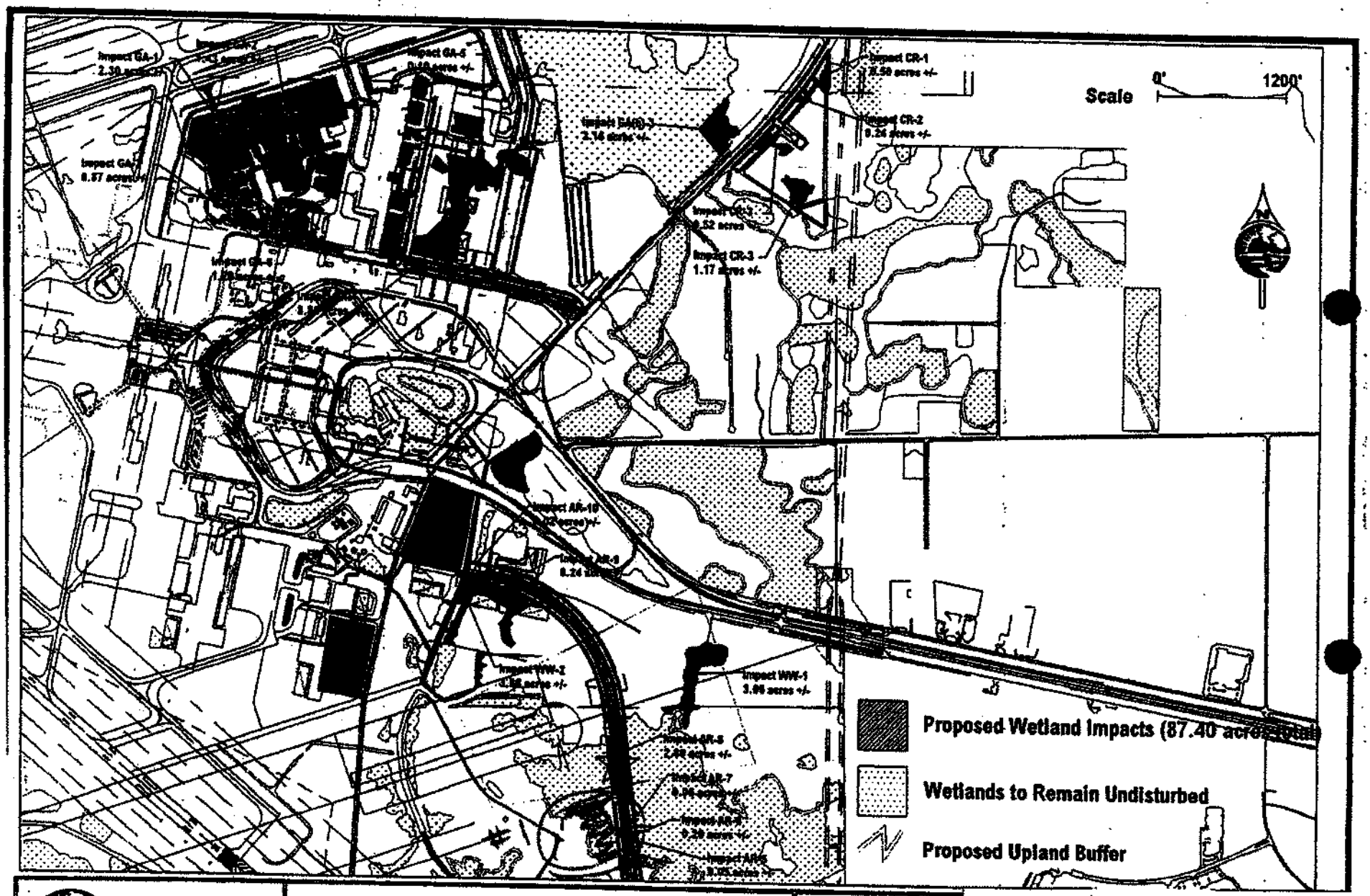
Environmental Resource Solutions Inc.
1967 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA
Impact/Mitigation Map C

Source:

File: 00267 COE IM R8

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE.. 29 October 2003
DRAWING PAGE 4 OF 12



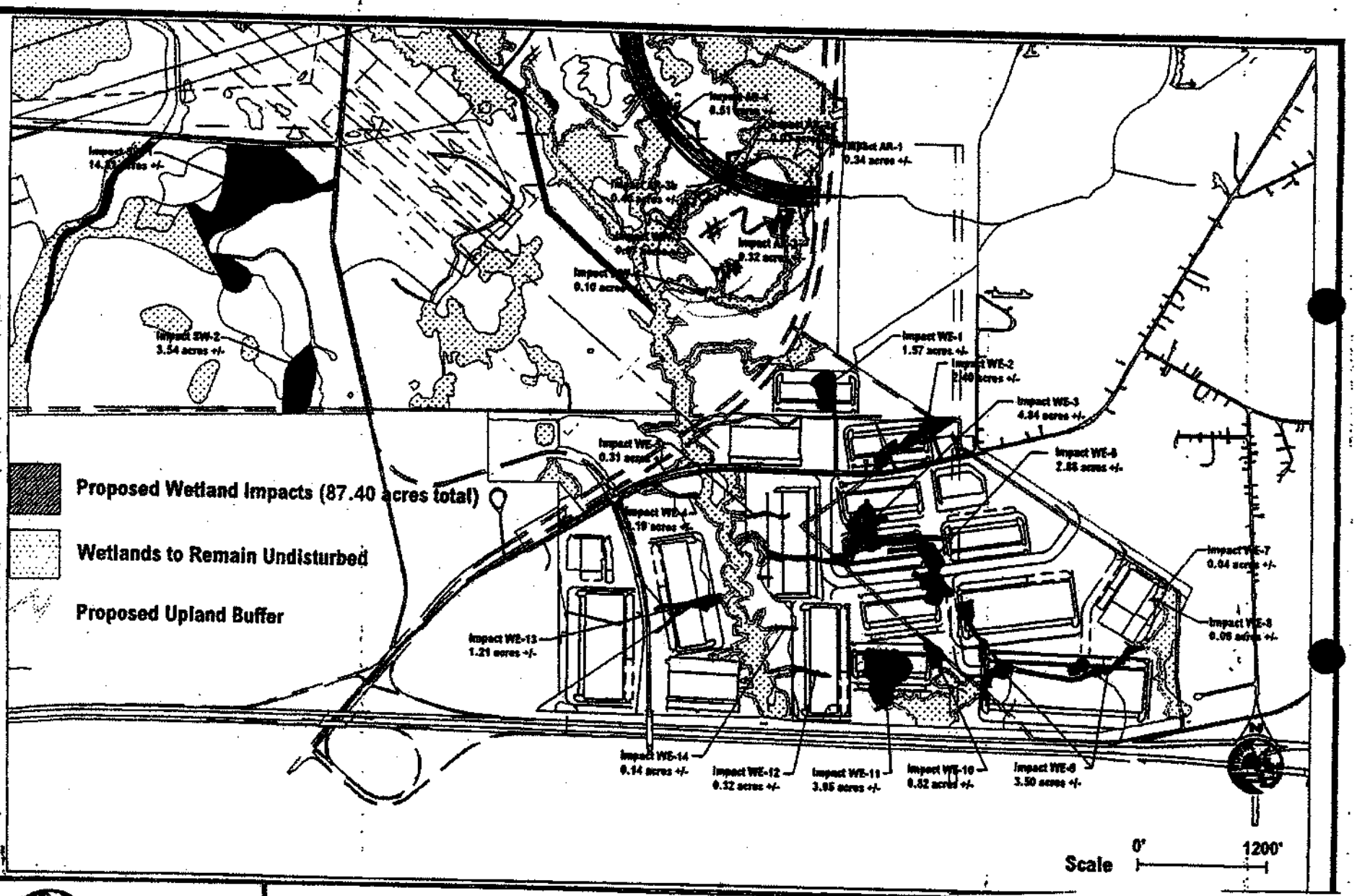
Environmental Resource Solutions Inc.

JIA
Impact/Mitigation Map D

Source:

File: 00267 COE IM R

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE 29 October 2003
DRAWING PAGE 5 OF 12



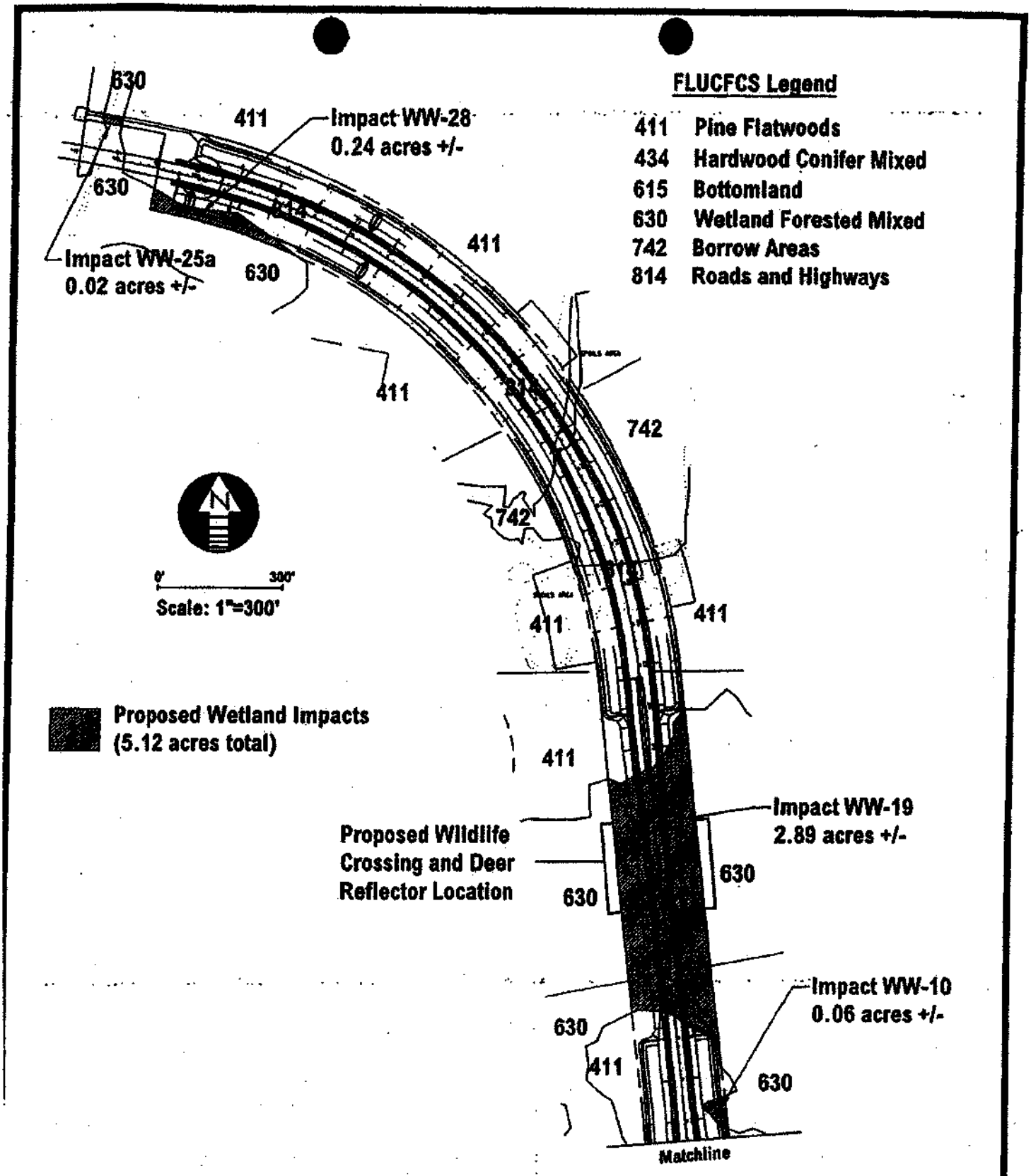
Environmental Resource Solutions, Inc.

JIA
Impact/Mitigation Map E

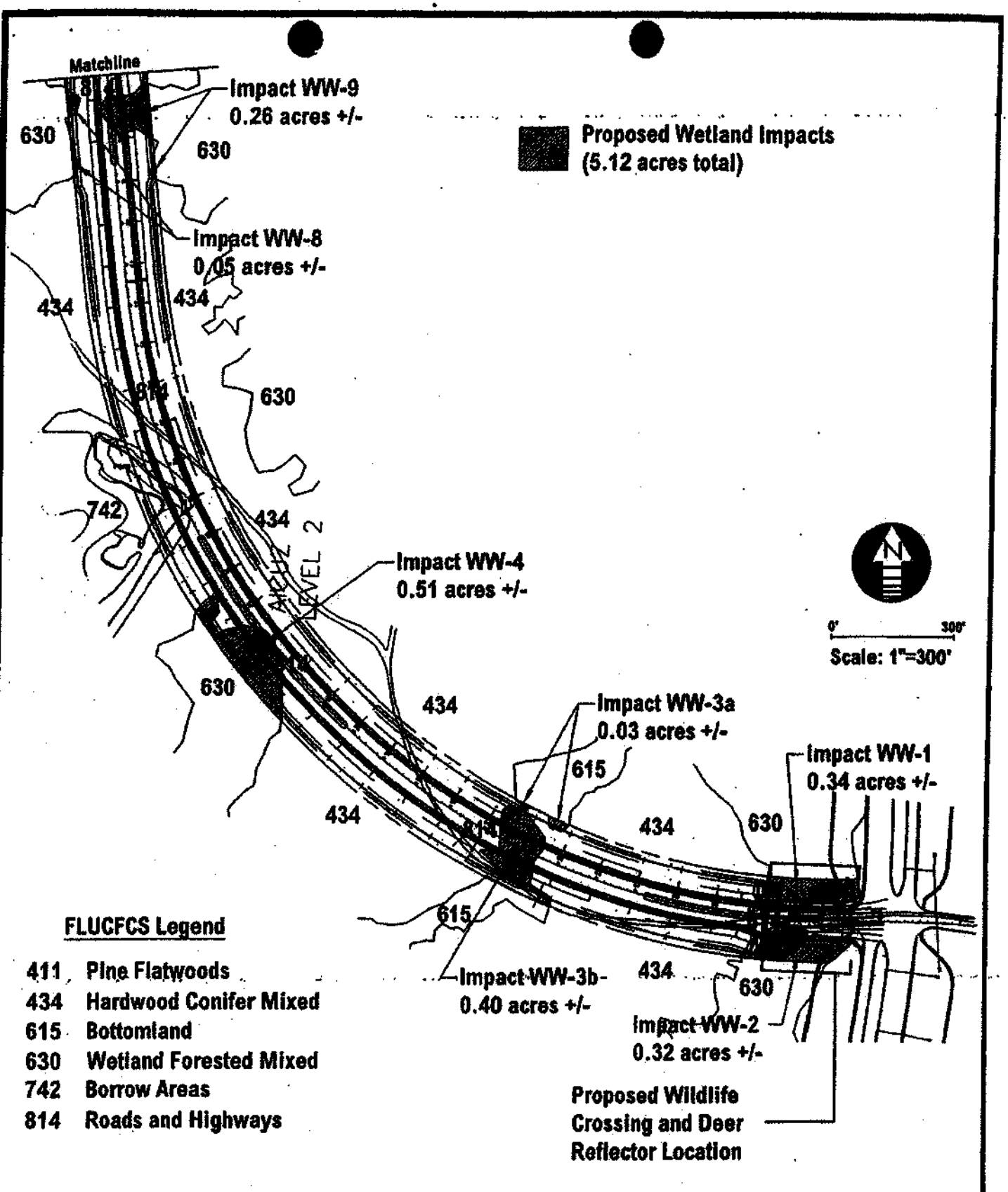
Source:

File: 00267 COE IM R8

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE... 29 October 2003
DRAWING PAGE 6 OF 12



Environmental Resource Solutions Inc. 1007 The Greens Way, Suite 100 Jacksonville Beach, FL 32250	JIA Air Cargo Alternate Access Road Site Plan/Proposed Conditions FLUCFC	U.S ARMY CORPS OF ENGINEERS PERMIT 200005079(IP-BAL) DATE... 29 October 2003 DRAWING PAGE 7 OF 12
	Source: Preiss, Hafner, Inc. File: 002674aCOE.dwg	



Environmental Resource Solutions Inc.
1807 The Greens Way, Suite 200, Jacksonville Beach, FL 32250

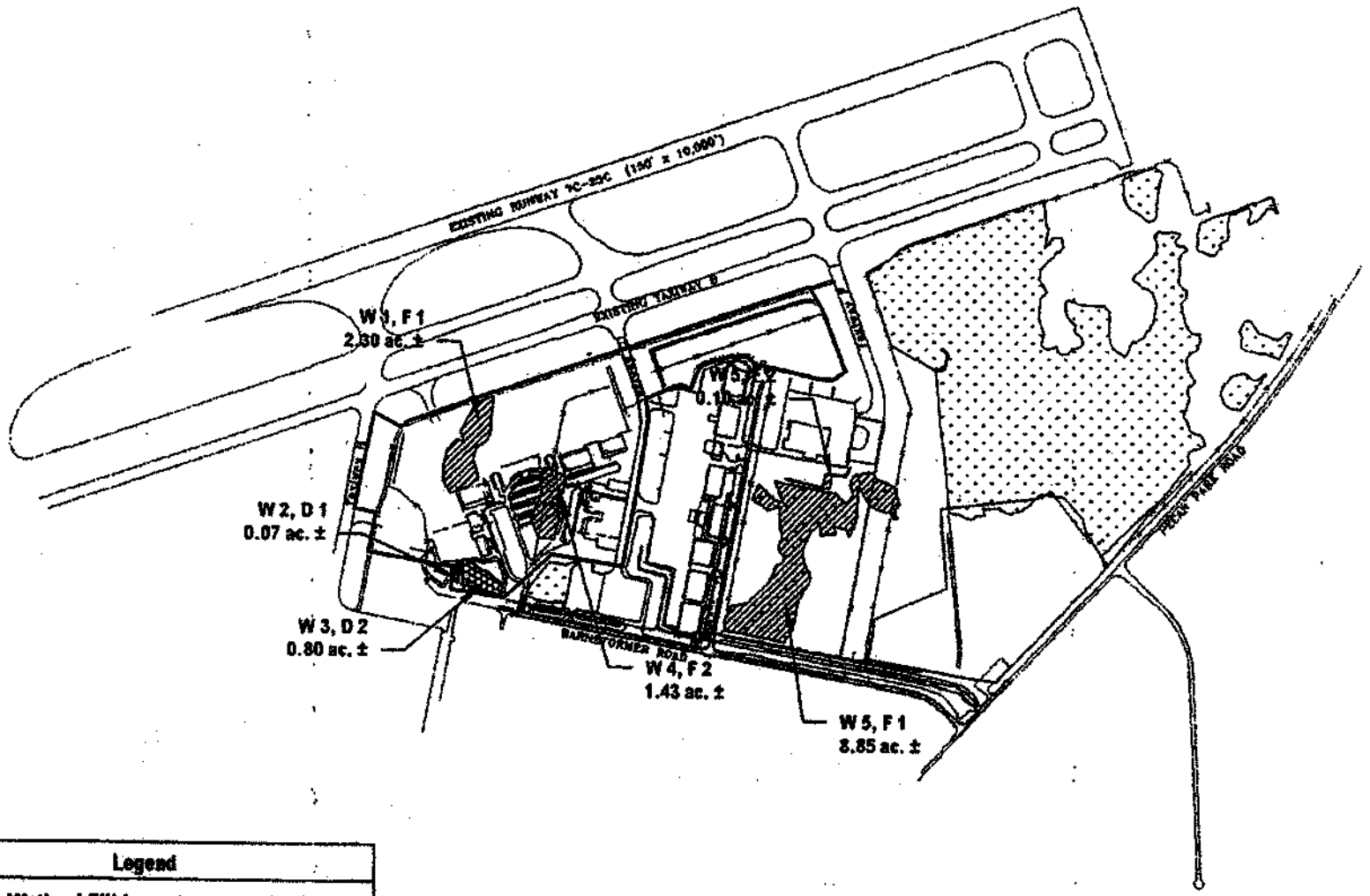
JIA Air Cargo Alternate Access Road
Site Plan/Proposed Conditions FLUCF

Source:

File: 002674bCOE.dwg

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE 29 October 2003
DRAWING PAGE 8 OF 12

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-EAL)
DATE: 29 October 2003
DRAWING PAGE 9 OF 12



Legend	
Wetland Fill Impact	3.73 ac. ±
Wetland Dredge Impact	0.87 ac. ±

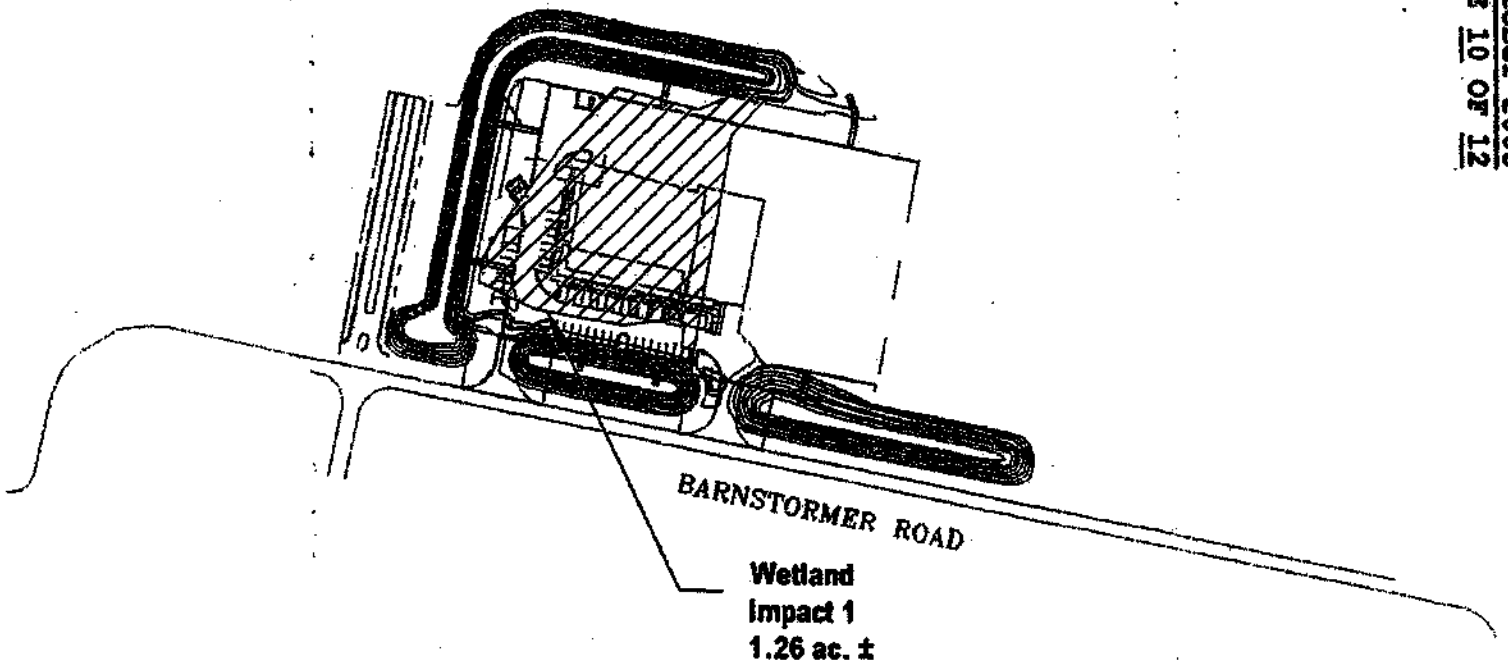
Scale: 1"=1000'

Environmental Resource Solutions Inc.
1607 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

JIA GA Development
Wetland Impact Map

Source:	Project No.: 02311	
	Date: 4-22-03	Rev: 9-24-03
File: 02311 Impact R4	By: JEM	Exhibit No: 4

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE: 29 October 2003
DRAWING PAGE 10 OF 12

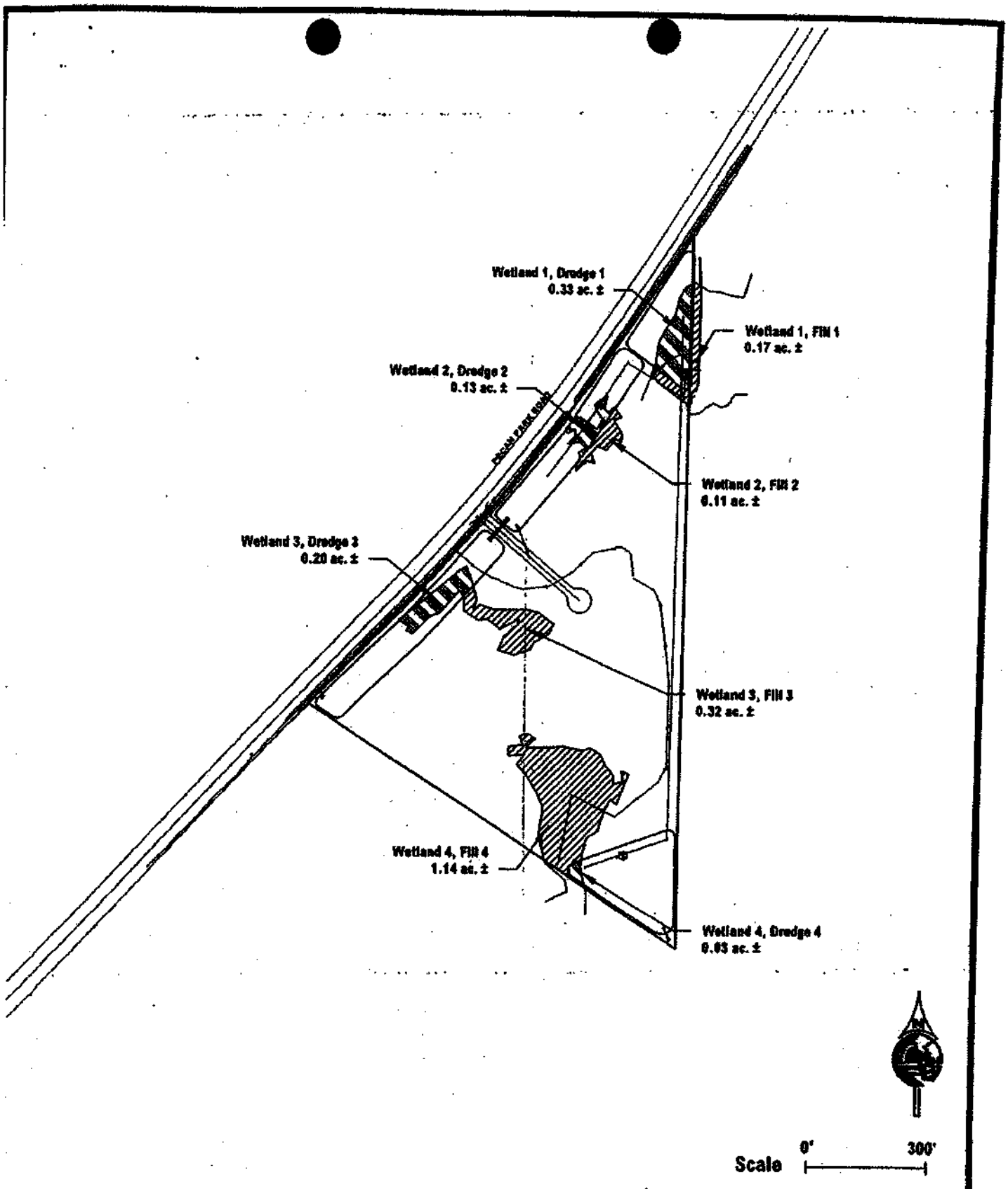


Scale: 1"=200'

Environmental Resource Solutions Inc.
1927 The Greens Way
Suite 200
Jacksonville Beach, FL 32250

CSX Development
Wetland Impact Map

Source:	Project No.: 02311	
	Date: 5-6-03	Rev:
File: 02311 csximpact	By: JK	Exhibit No: 4



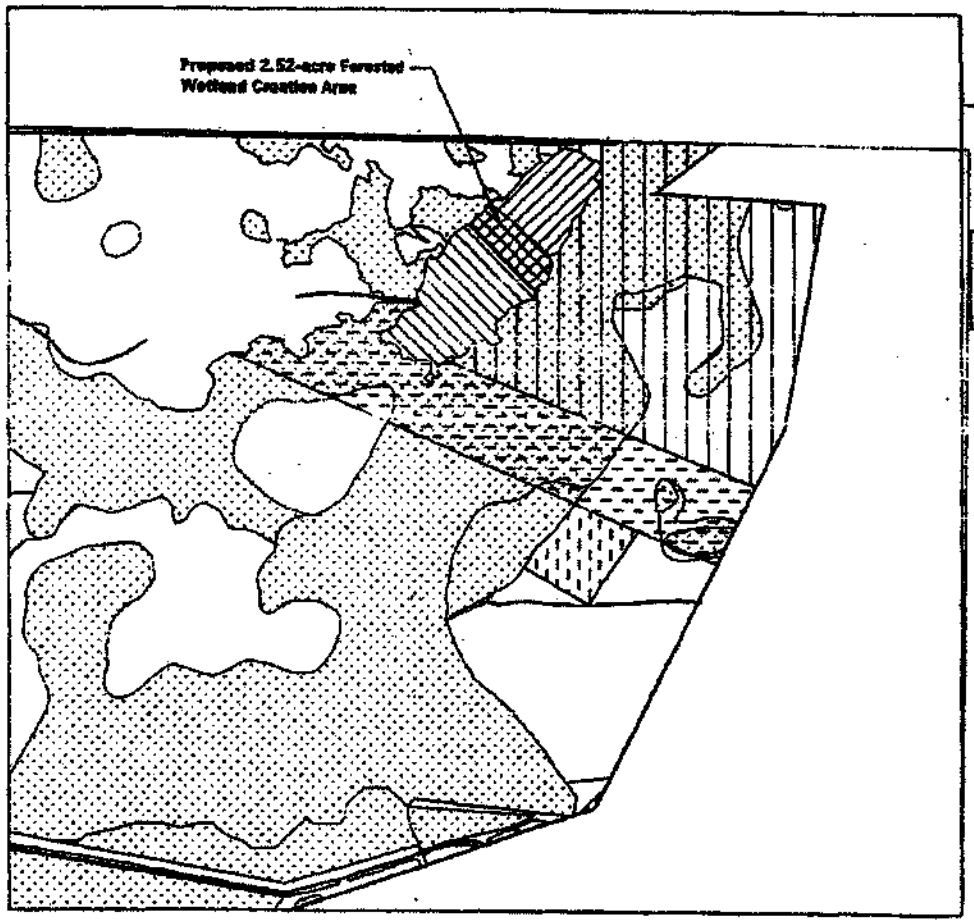
Environmental Resource Solutions Inc.
1597 The Greens Way
Suite 600
Jacksonville Beach, FL 32250

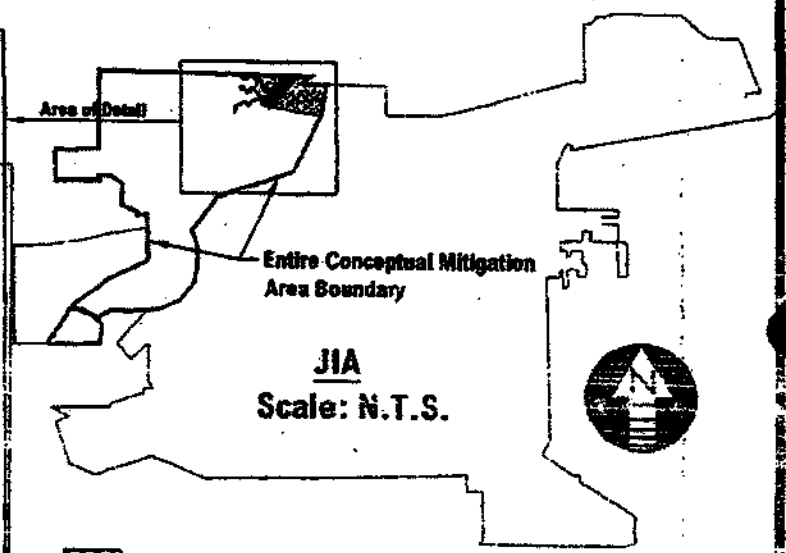
JIA Car Rental Facility
Impact Map

Source:

File: 02311 Car Imp

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079(IP-BAL)
DATE 29 October 2003
DRAWING PAGE 11 OF 12





2.52-acre Herbaceous Wetland Creation Area Proposed for CSX Corporate Hangar Project

59.33-acre Preservation Area Previously Permitted Under Permit No. 4-031-17758-4

5.14-acre Forested Wetland Creation Area Previously Permitted Under Permit No. 4-031-17758-4

9.06-acre Excess Forested Wetland Creation Area Previously Permitted Under Permit No. 4-031-17758-4

32.10-acre Wetland/Upland Preservation Area Previously Permitted Under Permit No. 4-031-17758-6

5.00-acre Additional Upland Preservation Area Previously Permitted Under Permit No. 4-031-17758-6

Approximate Extent of Mitigation Area Wetlands

0' 1000'

Scale: 1"=1000'

Environmental Resource Solutions Inc.
8348 The Greens Way, Suite 2
Jacksonville Beach, FL 32250

CSX Corporate Hangar Mitigation Plan Exhibit

Source:

File: #2311CSXMMP1

U.S ARMY CORPS OF ENGINEERS
PERMIT 200005079 (IP-BAL)
DATE... 29 October 2003
DRAWING PAGE 12 OF 12

Table 4 - Hillsdale Management Area

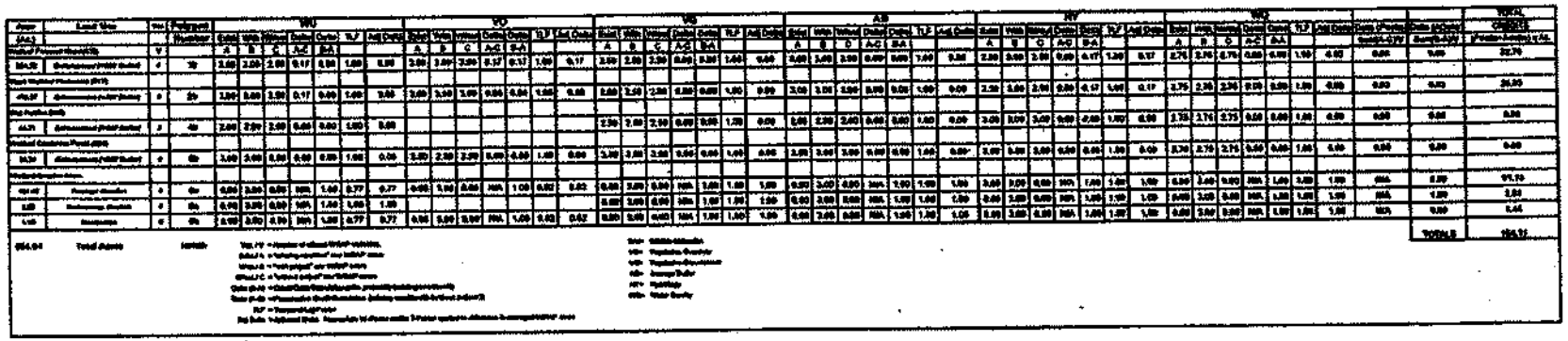


Table 2s - WRAP Credit/Debit Calculations for the Air Cargo Alternate Access Road

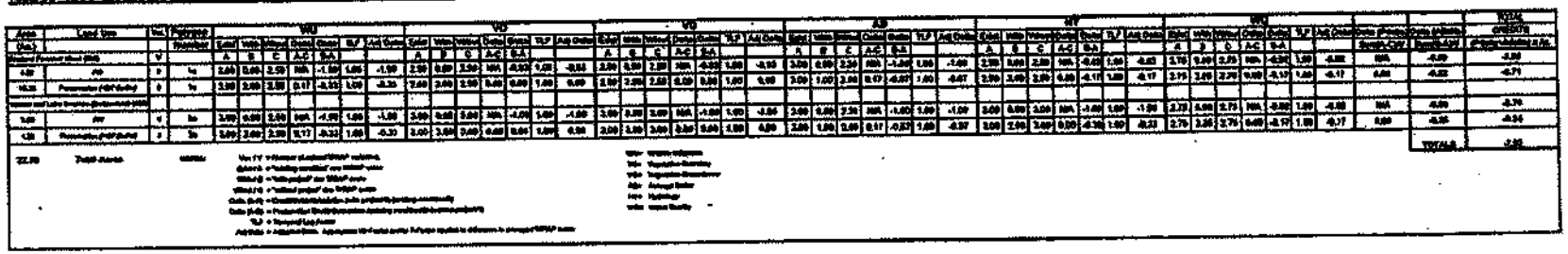


Table 3b - WRAP Credit/Debit Calculations for the General Aviation Development

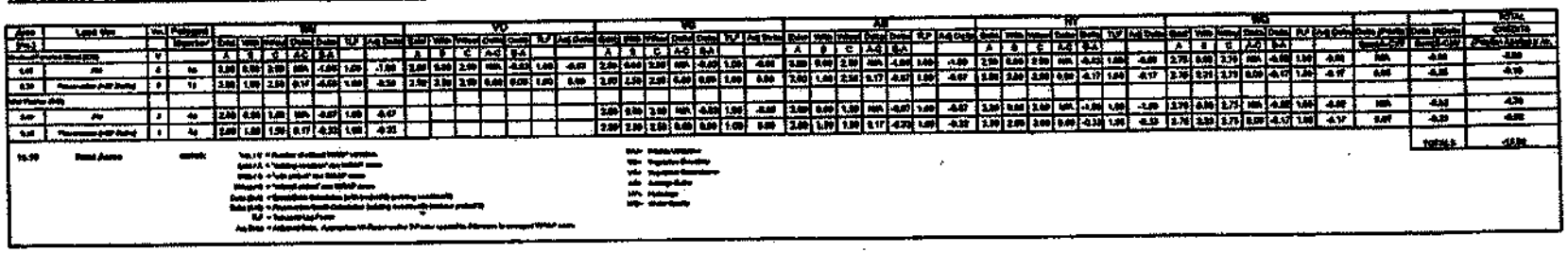


Table 3c - WRAP Credit/Debit Calculations for the Woodvines East Development

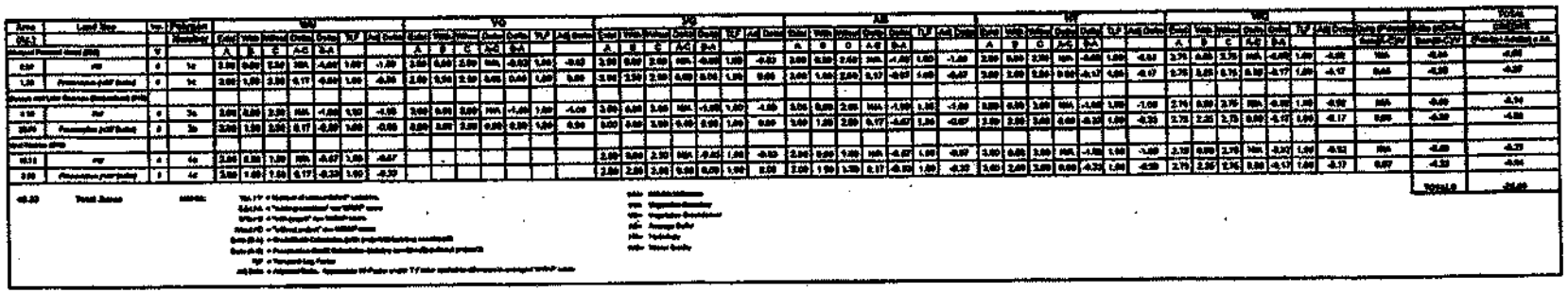


Table 34 - WRAP Credit/Debit Calculations for the Car Rental Facility

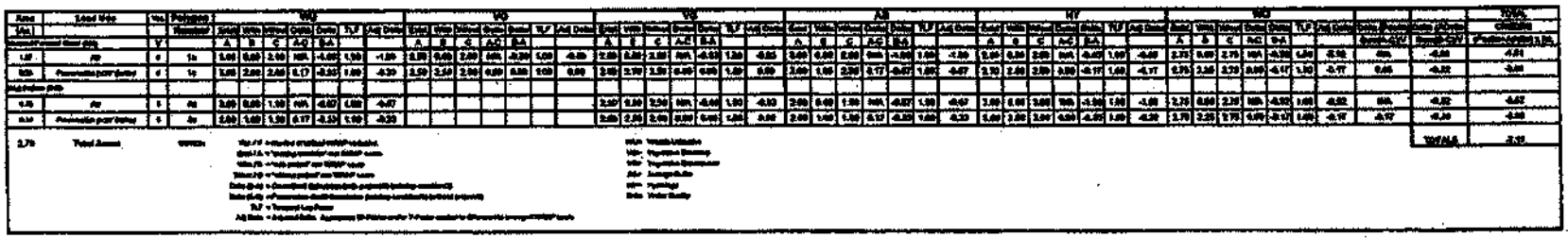


Table 3e - WHAF Credit/Debit Calculations for the General Aviation Development Phase (B) Development

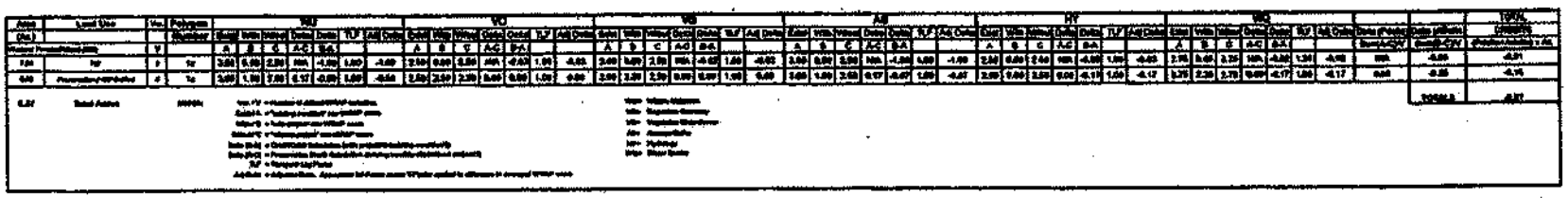


Table 21 - WRAP Credit/Debit Calculations for the Woodridge Wind Development

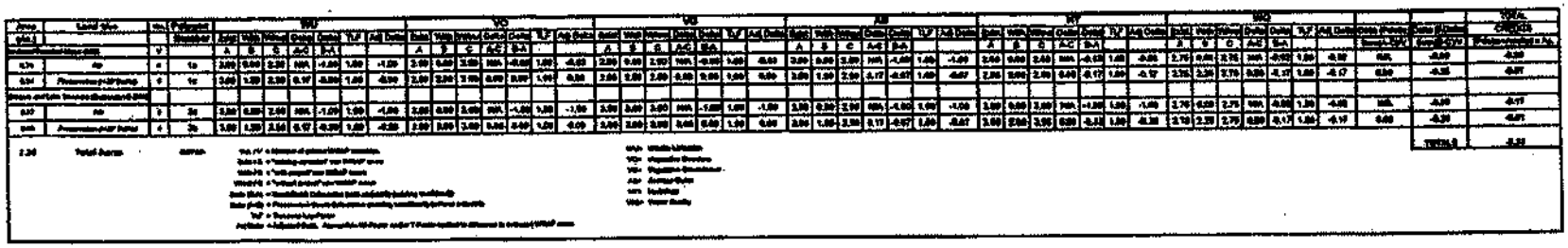


Table 3a - WRAP Credit/Debit Calculations for the Northpoint Development

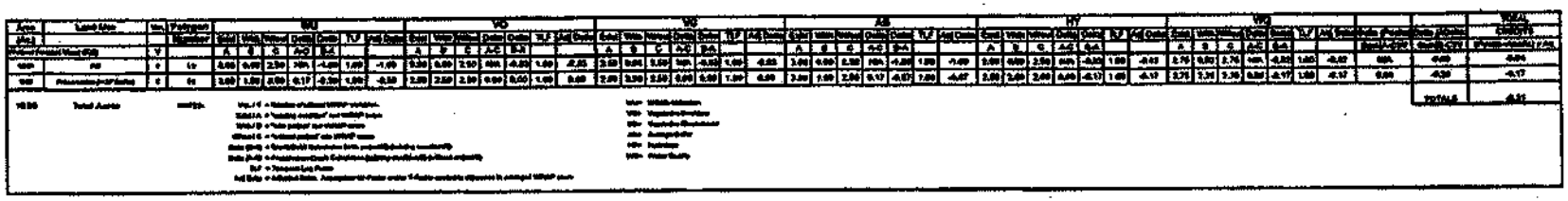


Table 2b - WVAP Credit/Debit Calculations for the Southwest Development