PREPARED FOR:
City of
Belle Glade

PREPARED BY:
Kimley-Horn and Associates, Inc.
in association with Ricondo & Associates

Belle Glade State Municipal Airport Master Plan Update

DECEMBER 2013

Kimley-Horn and Associates, Inc.

BELLE GLADE STATE MUNICIPAL AIRPORT MASTER PLAN UPDATE

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SECTION 1 - EXECUTIVE SUMMARY

1.1 INTRODUCTION

Belle Glade State Municipal Airport (X10 or the Airport) is a general aviation airport operated by the City of Belle Glade, Florida. The Airport is located in western Palm Beach County, approximately four miles southeast of Lake Okeechobee and one mile northeast of the City of Belle Glade downtown area.

The master planning study is intended to span approximately a 20-year period; however, certain aspects of the recommended plan will take into consideration expansion beyond the final planning horizon. The intent is to maintain a flexible framework, to allow for contingencies which are increasingly a part of airport development, and to not in any way propose a rigid program which would inhibit the City's ability to respond to circumstances that cannot be reasonably predicted at this time.

The master plan elements were conducted in accordance with FAA guidelines established in Advisory Circulars AC 150/5070-6B, Airport Master Plans, and AC 150/5300-13A, Airport Design. Specific elements included as part of this master plan are:

- Inventory,
- Activity forecasts,
- Demand/capacity analysis and facility requirements,
- Alternatives development,
- Environmental overview,
- Financial plan, and
- Airport layout plan drawing set preparation.

Master Plan study activities and coordination during the life of the project occurred at various strategic milestones throughout the project's life cycle. Final approval of the Airport Development Plan was made by the City of Belle Glade Commission prior to submittal of this report.

The following subsections briefly outline the major findings and recommendations presented in this Master Plan Update.

1.2 AVIATION ACTIVITY FORECASTS

Projections of aviation activity at the Airport were developed in order to evaluate the capability of the existing Airport facilities to meet current and future demand and to estimate the extent to which facilities should be provided in the future. The forecasts were developed for the 20-year planning period. **Table 1.1** summarizes the projections developed for the Airport for based aircraft and annual operations.

Table 1.1 – Projected Based Aircraft and Aircraft Operations Summary

Year/ (Planning Level)	Based Aircraft	Total Annual Operations
2012	11	1,800
2017/(PAL 1)	12	3,900
2022/(PAL 2)	14	6,500
2027/(PAL 3)	15	9,600
2032/(PAL 4)	17	13,300

Source: Kimley-Horn and Associates, Inc., 2012

1.3 FACILITY REQUIREMENTS

The components of the facility requirements analysis is to ensure that each of the Airport's functional areas has long-term flexibility and growth potential that will enable it to respond to changing demand scenarios.

1.3.1 AIRFIELD FACILITY REQUIREMENTS

The components of the airfield including runways, taxiways and navigational aids were analyzed with respect to the airfield's adequacy to accommodate the anticipated demand. As a result, the following facility requirements were determined:

- Consider extension to length of 4,300 feet
- Upgrade airfield design standards to ARC A-II
    - Widen Runway 9-27 from a current width of 50 feet to 75 feet
    - Increase associated runway safety and object free areas as necessary
- Addition of full-length parallel taxiway

1.3.2 LANDSIDE FACILITY REQUIREMENTS

Landside facility requirements to meet the demand for each of the planning activity levels through the planning period were determined. The facility requirements were based upon the forecast activity and determined through an application of FAA guidelines, industry standards and design criteria. The following landside requirements were determined:

- Development of approximately 26,000 square feet of hangar space
- Development of approximately 79,000 square feet of apron area
- Development of 34 additional vehicular parking spaces.
- Plan for development of an FBO facility
- Plan for development of aircraft fueling facility
- Construction of modest airport equipment storage building

1.4 ALTERNATIVES ANALYSIS

The alternatives analysis examined ways in which to provide the airport facilities identified in the Facility Requirements as well as those identified by the City and key stakeholders. The overall goal of the Alternatives Analysis was to provide a balanced airside and landside complex. The recommended overall airport development concept was developed through a collaborative process with City staff, which

identified alternative ways to satisfy facility requirements. The Airport Development Plan formed the basis for the future development of the Airport Layout Plan and the airport capital improvement program, presented in Sections 9 and 8, respectively.

1.5 FINANCIAL PLAN

The Financial Plan outlines the programmed improvements scheduled to occur at the Airport over the ensuing 20-year planning period in the Capital Improvement Program presented in **Table 1.2**.

Table 1.2 – Proposed Capital Improvement Program Summary (2013 Dollars)

Functional Area	Phase I Total (2013-2017)	Phase II Total (2018-2022)	Phase III Total (2023-2032)	Program Total
Airfield	$2,661,000	$8,910,000	$0	$11,571,000
General Aviation & Surface Transportation	$0	$351,700	$500,000	$851,700
Miscellaneous & Maintenance	$2,043,500	$1,260,000	$675,500	$3,979,000
Capital Improvement Program Totals	**$4,704,500**	**$10,521,700**	**$1,175,500**	**$16,401,700**

Source: Kimley-Horn and Associates, Inc., 2013

1.6 AIRPORT LAYOUT PLANS

The major improvements outlined in the preferred alternative are incorporated into the updated Airport Layout Plan (ALP) drawing set. The ALP is a group of drawings that serve as the primary tool for the guidance of future growth at the Airport. The various drawings depict the recommendations contained within this Master Plan Update with regard to aviation development at Belle Glade State Municipal Airport. The ALP drawing set consists of seven (7) unique plan sheets and specifically includes the following:

- Cover Sheet
- Airport Layout Drawing (ALD)
- Airport Airspace Plan and Profiles
- Inner Portion of the Approach Surface Drawings
- Land Use Drawing
- Airport Property Map

The ALP reflects improvements recommended in this Master Plan Update through the 20-year planning horizon for the Airport, including airfield improvements, such as the relocation, widening, upgrading, and extension of the primary runway, provision of parallel taxiways to the north and south of the runway, and areas reserved for future landside development.

SECTION 2 - INTRODUCTION

Belle Glade State Municipal Airport (X10 or the Airport) is a general aviation airport operated by the City of Belle Glade, Florida. The Airport is located in western Palm Beach County, approximately four miles southeast of Lake Okeechobee and one mile northeast of the City of Belle Glade downtown area. **Exhibit 2.1** depicts the general location of the Airport.

The master planning study is intended to span approximately a 20-year period; however, certain aspects of the recommended plan will take into consideration expansion beyond the final planning horizon. The intent is to maintain a flexible framework, to allow for contingencies which are increasingly a part of airport development, and to not in any way propose a rigid program which would inhibit the City's ability to respond to circumstances that cannot be reasonably predicted at this time.

The master plan elements were conducted in accordance with FAA guidelines established in Advisory Circulars AC 150/5070-6B, Airport Master Plans, and AC 150/5300-13A, Airport Design. Additionally, Florida Department of Transportation requirements were reviewed and incorporated in the master plan process, as described in the Department's "Guidebook for Airport Master Planning". Specific elements included as part of this master plan are:

- Inventory,
- Activity forecasts,
- Demand/capacity analysis and facility requirements,
- Alternatives development,
- Environmental overview,
- Financial plan, and
- Airport layout plan drawing set preparation.

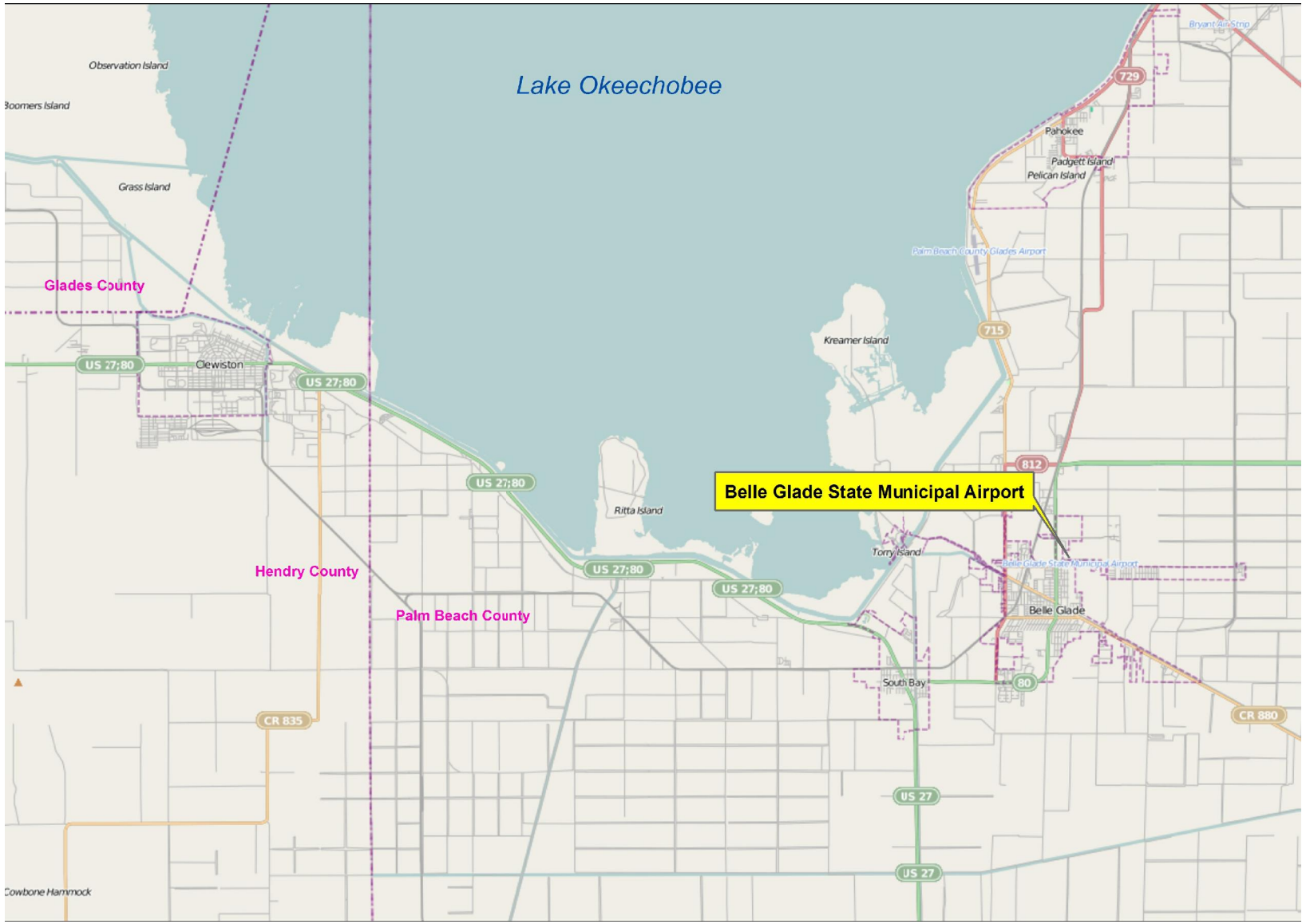
The remainder of this Section discusses previous Master Plan efforts, a brief history of the Airport, and discussion of the current Master Plan goals and objectives.

2.1 AIRPORT BACKGROUND

2.1.1 AIRPORT HISTORY

The Airport was founded on state land in the early 1930s. Through the 1960s it consisted of a turf landing strip used by crop-dusters and local pilots. It has since evolved into a general aviation facility with a paved east-west runway with aircraft maintenance and repair services, fuel, aircraft tie downs, and undercover storage for planes and chemicals. The Airport has been assigned the identifier "X10" by the International Air Transportation Association (IATA).[1]

[1] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.



Not to Scale

Source: ESRI, 2011

Exhibit 2.1

Airport Location Map

2.1.2 FLORIDA AVIATION SYSTEM PLAN (FASP)

The FASP 2025 is the Florida Department of Transportation's (FDOT) strategic 20-year plan for developing 131 public use airports within the State of Florida. Of these airports, 112 serve general aviation needs and provide critical services to their communities. They are referred to as community airports in keeping with their role. X10 is one of these community airports within the FASP whose current role includes relatively high agricultural spraying activity. The FASP 2025 identifies that funding priorities need to be placed on several aspects of the plan including maintaining a system of community airports that protect commercial airport capacity within the state. Under the Continuing Florida Aviation System Planning Process (CFASPP), the future service role of the Airport anticipates increasing capabilities in terms of runway/taxiway development in support of additional business and recreational activity at the facility.

2.1.3 AIRPORT ADMINISTRATION

The Airport is currently managed by the City of Belle Glade on land leased from the State of Florida. An Airport Advisory Board is in the process of being reactivated. In the past, an Airport Board has advised the Mayor and City Commission in the planning and development of the Airport. The Airport Board is currently inactive, but based on discussions with City staff in August 2011, it is being reactivated.

The Airport property is owned by the State of Florida and managed by the Department of Environmental Protection (DEP), Bureau of Lands. The property has been leased to FDOT since January 1975, and is currently set to expire on January 4, 2019. FDOT subleases the airport property to the City of Belle Glade to manage, operate, and maintain the property. FDOT has subleased the property to the City of Belle Glade since February 1975. The current sublease agreement has been in effect since April 1996, and is set to expire on January 4, 2019.

FDOT has suggested ending the lease with DEP after the current term expires, allowing a direct long-term lease agreement between the City of Belle Glade and DEP to be executed.

The current lease agreements and FDOT correspondence mentioned above are included in **Appendix E** for reference purposes.

2.1.4 PREVIOUS STUDIES

The following previous studies and reports were obtained from the City of Belle Glade and other sources during the inventory phase of this project:

- Master Plan and Work Program, Belle Glade Municipal Airport, Airport One, Inc., August 22, 1991.
- Strategic Business Plan, Belle Glade Municipal Airport, Kimley-Horn and Associates, Inc. and Ricondo & Associates, Inc., August 9, 2010.

These documents were reviewed for historical data and insight into the process of long-range planning at Belle Glade State Municipal Airport.

2.2 GOALS AND OBJECTIVES

Master planning success largely depends on the effectiveness of established goals and objectives. Goals and objectives serve as the tie between technical evaluations of developmental plans and the explicit needs of the City, County and region.

Traditionally, airport master plans share a number of implicit goals that are adhered to throughout the planning process. More specific objectives evolve during the conduct of the study itself. The following list of goals and objectives were identified to provide direction to the study process:

- Provide an Airport that is safe, secure, efficient, and reliable.
- Ensure the Airport is consistent with regulations.
- Provide Airport facilities that meet the current and future needs of the operators.
- Ensure that Airport development is sensitive to the local growth and environmental concerns of the community.
- Provide an Airport that is capable of meeting the need of being fiscally self-sufficient.

SECTION 3 - INVENTORY OF EXISTING CONDITIONS

3.1 INTRODUCTION

Belle Glade State Municipal Airport is a general aviation airport operated by the City of Belle Glade, Florida. The Federal Aviation Administration (FAA) through the National Plan of Integrated Airport Systems (NPIAS) has designated Belle Glade State Municipal Airport as a general aviation airport.

The Airport's property encompasses approximately 86 acres[2] and is home to 11 based aircraft[3]. Currently, there are no fixed base operators (FBOs) at the Airport.

This section presents an overview of the existing facilities and operational areas of the Airport. The following topics are discussed in the remainder of this section:

- Airfield Facilities
- Landside Facilities
- Airport Support and Other Facilities
- Airport Access and Circulation
- Airport Utilities
- Environmental Considerations
- Meteorological Data
- Airspace Environment

3.2 AIRFIELD FACILITIES

The existing facilities on the Airport property that generally serve an aviation function are described in the following sections and are shown on **Exhibit 3.1**.

3.2.1 AIRFIELD DESIGN CRITERIA

The FAA classifies airports according to the size of aircraft that typically operate at an airport. As contained in FAA Advisory Circular, (AC) 150/5300-13A, this classification is the Airport Reference Code (ARC). This is what provides the overall planning and design criteria for the airport, based on the aircraft wingspan or tail height, and approach speed. The ARC provides the guidelines for pavement surfaces, safety area, runway lengths, separations standards, as well as taxiway criteria, in an attempt to ensure that the airfield layout and geometry provide a safe and efficient operating environment for the aircraft they typically use the airport. The ARC consists of a letter and a numeric identifier. The first is the letter, which represents the approach speed of the aircraft; the second is the number which represents the wingspan and tail height of the aircraft. **Table 3.1** summarizes the classifications for determining the ARC at an airport.

[2] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.
[3] Federal Aviation Administration, Form 5010 for Belle Glade State Municipal Airport, September 2012.

Scale: 1" = 400'

Exhibit 3.1

Existing Airfield Facilities

Table 3.1 – FAA Aircraft Classifications

Aircraft Approach Category	Approach Speed (knots)	Airplane Design Group	Wing Span (feet)	Tail Height (feet)
A	Less than 91	I	Less than 49	Less than 20
B	91 to 120	II	49 to 78	21 to 29
C	121 to 140	III	79 to 117	30 to 44
D	141 to 165	IV	118 to 170	45 to 59
E	166 or Greater	V	171 to 213	60 to 65
		VI	214 up to but less than 262	66 up to but less than 80

Source: FAA Advisory Circular 150/5300-13A, *Airport Design*.

Aircraft approach speeds included in categories A and B are typically small, piston-engine aircraft, whereas C, D, and E are normally larger turboprop or turbine powered aircraft. Similarly, the wingspan and tail height of small, piston-engine aircraft normally correspond to design group I. Typical aircraft in design group II would be a Beechcraft King Air, Cessna Citation, or smaller Gulfstream business jets. Design groups III, IV, and V would represent air carrier aircraft, such as Boeing 737, B-757, and B-747, respectively. Group VI would include the largest of aircraft, such as an Airbus A-380 or a large military cargo aircraft such as the C-5. Based on existing runway and associated safety area dimensions, **the ARC for the Airport is currently A-I, small aircraft.** The small aircraft designation indicates that the Airport is primarily suited to handle aircraft weighing less than 12,500 pounds.

3.2.2 RUNWAYS AND NAVIGATIONAL AIDS

The existing airfield configuration at the Airport consists of one runway, designated Runway 9-27. **Table 3.2** summarizes existing runway data.

Runway 9-27 is 3,750 feet long and 50 feet wide and is oriented in a west/east direction. The runway is constructed of asphalt, and can accommodate up to 12,500-pound single-wheel gear aircraft. According to the Form 5010 Airport Master Record for the Airport, the runway is listed in poor condition. Runway 9-27 has basic runway markings, also listed in poor condition. Runway 9-27 does not have a lighting system.

Table 3.2– Existing Runway Data

Item	Runway 9-27
Length (feet)	3,750
Width (feet)	50
Effective Runway Gradient	< 0.1%
Runway Surface Type	Asphalt
Runway Condition	Poor
Load Bearing Capacity (lbs)	12,500 - Single Wheel Gear
Aircraft Approach Category	A
Airplane Design Group	I (Small Aircraft)
Navigational Aids	None
Visual Aids	None
Runway Lighting	None
Runway Markings	Basic

Source: FAA Airport Master Record #5010, Effective September, 2012; X10 ALP, September 25, 1990.

The airfield has an unlit wind cone located south of Runway 9. **Exhibit 3.2** shows a photograph of the existing wind cone.

Exhibit 3.2 Wind Cone

Source: Kimley-Horn and Associates, Inc., April 2011

3.2.3 TAXIWAYS

Runway 9-27 does not currently have a parallel taxiway system. Two entrance/exit taxiways provide access to the runway to and from tenant facilities on the Runway 9 end.

3.2.4 INSTRUMENT APPROACHES

The Airport does not have any instrument approaches.

3.2.5 AIRCRAFT STORAGE FACILITIES

Existing aircraft hangar storage facilities consist of a single 2,200 square feet hangar. This hangar is located approximately 820 feet east of the Runway 9 threshold. Vehicular access is provided via a turn off from Airport Road approximately 1,400 feet east of the Airport Road and SR 80 intersection. The hangar was previously on a lease held by Blue Hole Helicopters, but is not on a current lease document with the City of Belle Glade.

3.2.6 APRON AREAS

Existing aircraft apron areas include aircraft tie-down storage facilities and circulation areas for general aircraft movement. The existing apron storage areas are on leaseholds with existing tenants, and solely accommodate based aircraft parking. There are two apron areas on the Airport property. **Exhibits 3.3 and 3.4** show photographs of existing apron areas, and Exhibit 3.1 indicates where the individual tenants are located on the Airport.

There are eight aircraft tie-down spaces at the Airport, all located on leased property of the airport commercial tenants. Seven tie-down spaces are located south of Runway 9-27 (3 for Glades Ag Service, 3 for Roma, Inc., and 1 for Aerial Crop Protection). The final tie-down space is located north of Runway 9-27 along SR 80 on the Leon Mills lease property. The apron areas for Glades Ag Service, Roma, and Aerial Crop Protection are all paved. The Leon Mills lease area is a turf area. **Table 3.3** below shows the Airport's commercial tenants and their tie-down spaces.

Table 3.3 – Tie-Down Spaces

Tenant	Tie-Downs
Glades Ag Service	3
Roma, Inc.	3
Aerial Crop Protection	1
Leon Mills	1

Exhibit 3.3 Existing Tie-Down Area (Aerial Crop Protection Ramp Area)

Source: Kimley-Horn and Associates, Inc., April 2011

Exhibit 3.4 Existing Apron Facilities and Tie-Down Area (Glades Ag Services Ramp Area)

Source: Kimley-Horn and Associates, Inc., April 2011

3.2.7 AIRCRAFT FUELING FACILITIES

There are existing fueling facilities on the Airport. Various tanks and dispensing equipment are operated by many of the commercial tenants located at the Airport. The number of tanks and storage capacity is unknown at this time. Fuel is dispensed through self-serve pumps. **Exhibit 3.5** shows photographs of aircraft fueling tanks/facilities.

Exhibit 3.5 Fuel Tanks

Source: Kimley-Horn and Associates, Inc., April 2011

Source: Kimley-Horn and Associates, Inc., April 2011

3.3 LANDSIDE FACILITIES

3.3.1 AUTOMOBILE PARKING

Automobile parking facilities are provided on the south side of the Airport, between the two aircraft apron areas. There are seven parking spaces with wheel stops provided on the Airport's property at this time.

3.3.2 COMMERCIAL TENANTS

There are four commercial tenants with airfield access at the Airport. All facilities are tenant owned and on property leased to the tenant by the City of Belle Glade. All four existing tenants provide agriculture/aerial crop dusting services.

3.3.2.1 Leon Mills

Leon Mills facilities are located along SR 80 north of Runway 9-27, approximately half-way between Airport Road and Belle Glade Airport Road. The Leon Mills facilities include containers for the storage of aerial crop dusting chemicals, and a turf tie-down area for aircraft.

3.3.2.2 Glades Ag Services

Glades Ag Services facilities are located along Airport Road near the Runway 9. Access to Glades Ag facilities is provided through an access point on Airport Road approximately 800 feet east of the SR 80 intersection. Glades Ag facilities include fueling facilities, storage buildings, aerial crop dusting chemical storage, a mobile office, and a paved ramp area with 3 aircraft tie-down positions.

3.3.2.3 Roma, Inc.

Roma, Inc. facilities are located along Airport Road approximately 750 feet east of the Runway 9 end. Access to the Roma facilities is provided through an access point on Airport Road approximately 1,300 feet east of the SR 80 intersection. Roma facilities include fueling facilities, and a paved ramp area with 3 aircraft tie-down positions.

3.3.2.4 Aerial Crop Protection

Aerial Crop Protection facilities are located along Airport Road approximately 950 feet east of the Runway 9 end. Access to the Aerial Crop Protection facilities is provided through an access point on Airport Road approximately 1,300 feet east of the SR 80 intersection. Aerial Crop Protection facilities include fueling facilities, and a paved ramp area with 1 aircraft tie-down position.

3.4 AIRPORT SUPPORT AND OTHER FACILITIES

3.4.1 AIRPORT ADMINISTRATION

The Airport property is leased by the City of Belle Glade from the Florida Department of Transportation who in turn has a lease with the Board of Trustees of the Internal Improvement Trust Fund (TIITF) of the State of Florida. The lease is scheduled to expire in 2019. Currently, the City is working with the State to expand its leased areas (currently consisting of approximately 86 acres) to include an additional 200 acres to the north adjacent to the Airport.

The Airport currently does not have an individual serving exclusively as the airport manager. The Deputy City Manager is responsible for the day-to-day operations of the airport, fiscal management, and coordinating with entities such as the Florida Department of Transportation, the FAA, and City Commission[4].

3.4.2 AIRPORT SECURITY

The Airport maintains a partial perimeter fence line along the outer limits of the southern and western portions of airport-owned property. The fence is approximately eight feet tall. Three gates along Airport Road provide vehicular access to the tenant areas of the Airport.

3.4.3 AIRPORT MAINTENANCE

The City of Belle Glade maintains the Airport with ½ to 1 full-time-equivalent employees. No maintenance equipment is stored on airport property.

3.5 AIRPORT ACCESS AND CIRCULATION

The Airport has access to SR 80 (North Main Street) via Airport Road (NE Avenue L). SR 80 leads directly into the central area of the City of Belle Glade. To the north, SR 80 intersects US 441 providing access to Pahokee and continues along the eastern perimeter of Lake Okeechobee. SR 80 also connects to US 441/SR 80/SR 98 north of the Airport leading to eastern Palm Beach County. To the south of the Airport, SR 80 connects to US 27 on the other side of the City of Belle Glade. To the west US 27 provides access to Hendry and Glades County and eventually the west coast of Florida. To the south, US 27 provides access to southern Palm Beach County and Interstate 75 in central Broward County.

The Airport has frontage along SR 80 and Airport Road. The current access to the Airport consists of two driveways on Airport Road located in the western half of the site. There are no access points to aviation areas along SR 80. A vehicular access driveway along SR 80 at the northern property boundary provides access to the City's Airport Park.

3.6 AIRPORT UTILITIES

The Airport has access to water, sanitary sewer, and electric infrastructure. A water line is located along Airport Road and extends north along SR 80. A force main is located along Airport Road. Gravity mains are located within the residential area to the south of Airport Road. Overhead power runs along SR 80.

SR 80 has curb and gutter tied to a stormwater management system along the roadways. Airport Road is drained by parallel stormwater management ditches along the roadway.

Telephone and communications service is provides through AT&T.

3.7 ENVIRONMENTAL CONSIDERATION

The airport has served for many years as the home to many aircraft that perform crop dusting activities. As such, chemicals used to treat agricultural areas in the region have been stored and dispensed into aircraft for several years. Consequently, toxaphene and other chlorinated pesticide impacts have been

[4] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.

found within the property boundaries on the west side of the Airport, east of SR 80. These impacts were generally from crop-dusting activities in support of local agricultural users. The assessment and remediation of these contaminants are being conducted by WRS Infrastructure and Environment, Inc. (WRS) under contract with the State of Florida. According to WRS in 2009 (see **Appendix A**), concentrations of toxaphene in the soil exceed the residential and commercial direct exposure Soil Cleanup Target Level (SCTL). The concentrations of toxaphene also exceed the default leachability SCTL. However, there are no impacts to groundwater on the property. No contamination has been identified on the east portion of the property.[5]

3.8 METEOROLOGICAL DATA

Weather conditions play an important role in determining an airport's capacity and facility requirements. Important measures are temperature and precipitation, ceiling and visibility, as well as local wind conditions. Temperature information is used to determine runway length requirements, while precipitation, ceiling, and visibility data are used to determine the capacity of the existing airfield. Wind data is used to determine runway orientation and the need for additional runways.

3.8.1 TEMPERATURE AND PRECIPITATION

Temperature and precipitation conditions in Belle Glade were analyzed using the National Oceanic and Atmospheric Administration's *Climatography of the United States Report No. 81* for the State of Florida, which covers the 30-year period from 1971 to 2000.

The normal maximum 30-year mean temperatures at the Airport range between 51.9 degrees Fahrenheit (degrees) in January to 92.6 degrees in July, the hottest month of the year. The 30-year annual mean maximum temperature is 85.1 degrees.

Precipitation varies throughout the year, with drier conditions typical from December through February and wetter conditions typical from May through September. December is the driest month with a normal average rainfall of 1.82 inches, while July is the wettest month with a normal average rainfall of 7.34 inches. The mean annual precipitation in Belle Glade is 51.56 inches.

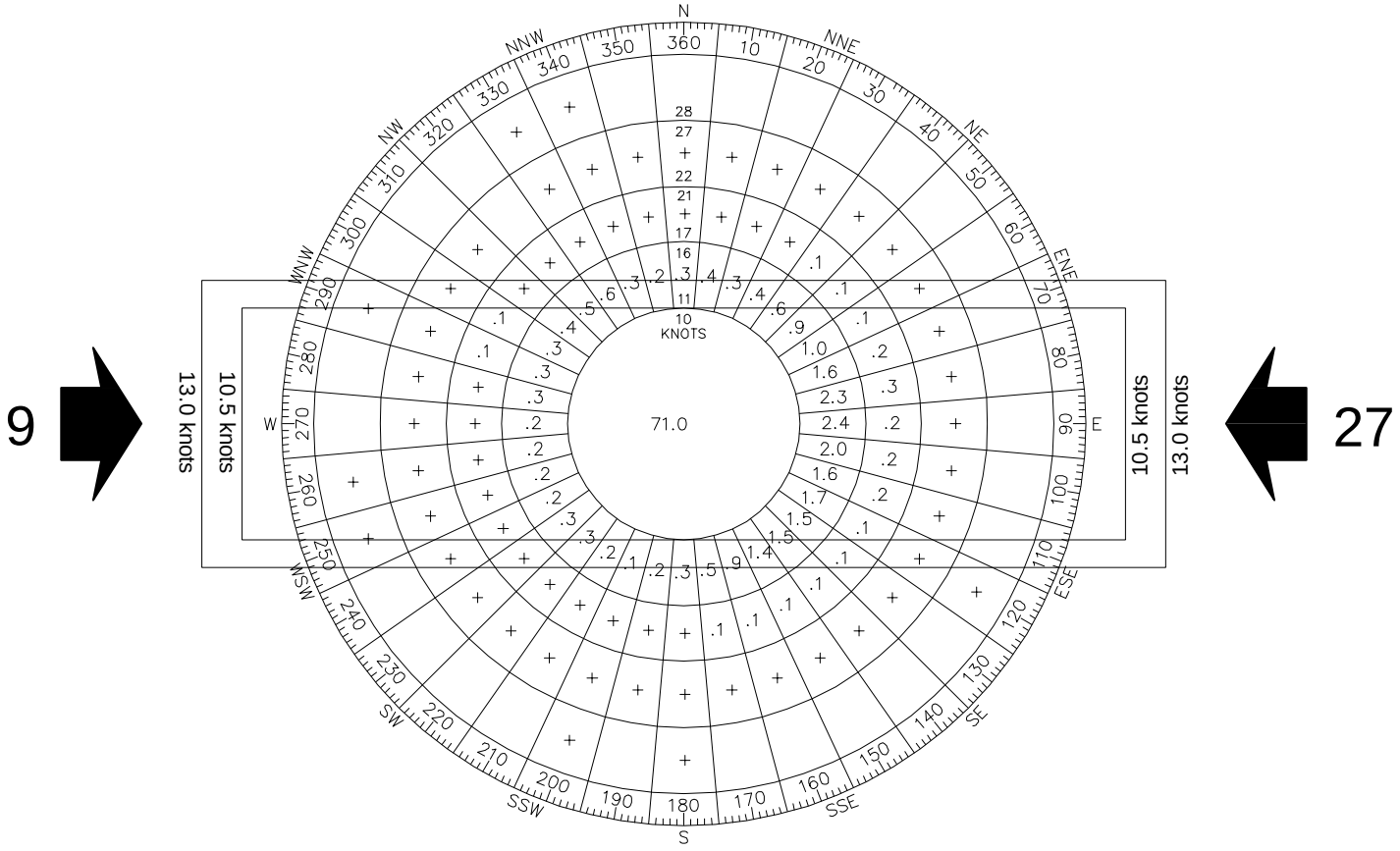
3.8.2 WIND DATA

Weather information obtained from the National Climatic Data Center (NCDC) for the closest station covered 84,113 weather observations at Palm Beach International Airport (35 miles to the east) for a 10-year period from 2000 to 2009. The Wind Rose will be studied later in this report to determine the runway orientation's level of adequacy in terms of wind coverage for the type of operations projected to occur at the Airport. **Exhibit 3.6** shows the All-Weather Wind Rose.

3.9 AIRSPACE

The airspace surrounding the Airport is shown on **Exhibit 3.7**. The Airport is located within Class G airspace, and beneath the floor of the Class E airspace surrounding Palm Beach County Glades Airport. Class G airspace is uncontrolled airspace that includes the entire airspace that is not classified as either A, B, C, D, or E, and has no special restrictions with respect to pilot or aircraft equipment rules.

[5] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.



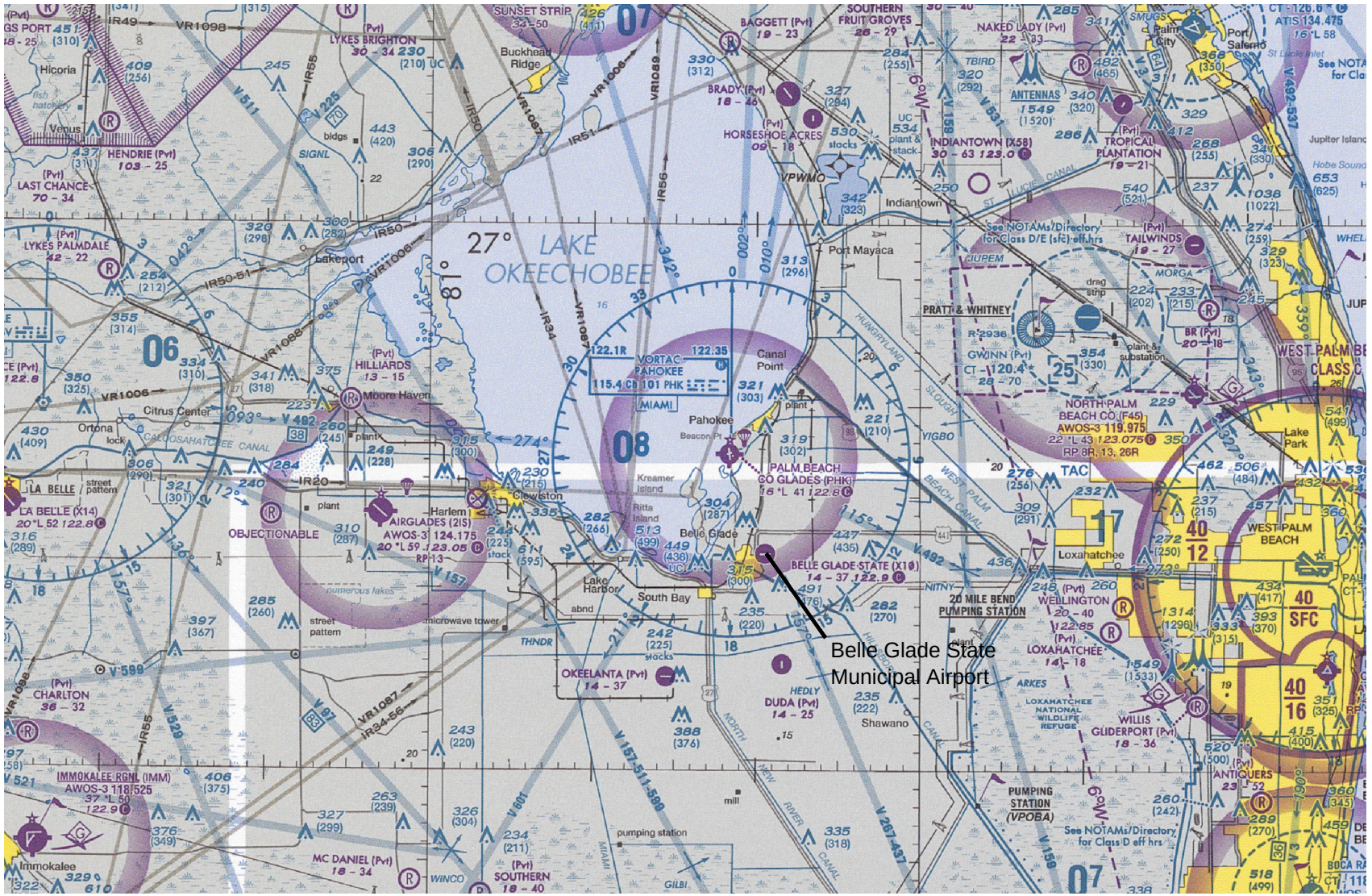
All Weather Wind Rose				
Runway(s)	Crosswind Component (knots)			
	10.5	13.0	16.0	20.0
9-27	91.75%	96.30%	99.25%	99.84%

Source: National Climatic Data Center, 2011; Station 72203 (Palm Beach International Airport); Period 2000-2009, 84,113 observations

N

Exhibit 3.6

Belle Glade Wind Rose



Source: Miami Sectional Aeronautical Chart, 91st Edition, effective dates 23 August 2012 to 7 February 2013

Not to Scale

Exhibit 3.7

Belle Glade Airspace

3.10 CITY OF BELLE GLADE COMPREHENSIVE PLAN

The City of Belle Glade Comprehensive Plan was reviewed to determine if existing and/or future development at the Airport was considered. The Airport is identified in the Transportation Element of the 2007 Comprehensive Plan as one of the objectives to the goal of providing "for a safe, convenient, effective, and efficient multimodal transportation system which moves people, goods and, services in an economical manner with minimal adverse impacts to the environment".

Based on the policies outlined in the Comprehensive Plan in relation to the Airport, all future improvements need to be coordinated with the improvement plans of the various affected agencies, including FDOT, metropolitan planning organizations, Palm Beach County, and the FAA. Additionally, the plan specifies that all development at the Airport shall be made with proper consideration for the adjacent population, environment, and planned future land use. The following list includes the policies for development according to Objective 2.1.4 of the 2007 Belle Glade Comprehensive Plan Transportation Element[6]:

- Policy 2.1.4.1
- Policy 2.1.4.2
- Policy 2.1.4.3
- Policy 2.1.4.4
- Policy 2.1.4.5

[6] City of Belle Glade Comprehensive Plan, Goals Objectives, and Policies, September 2007, Prepared by Kimley-Horn and Associates, Inc.

SECTION 4 - AVIATION ACTIVITY FORECASTS

4.1 INTRODUCTION

This section presents projections of aviation activity at Belle Glade State Municipal Airport. These projections are used for evaluating the capability of the existing Airport facilities to meet the current and future demands and to estimate the extent to which facilities should be provided in the future.

Aviation activity forecasting is an analytical and subjective process. Actual activity that develops in future years may differ from the forecasts developed in this section as a result of future changes in local conditions, the dynamics of the general aviation industry, as well as economic and political changes for the local service area and the nation as a whole. Future facility improvements should be implemented as demand warrants rather than at set future timeframes. This will allow the Airport to respond to changes in demand, either higher or lower than the forecast, regardless of the year in which those changes take place.

4.2 REGIONAL DEMOGRAPHICS

Socioeconomic characteristics were collected and examined to develop an understanding of the growth within the Airport's service area. The types of socioeconomic data that are presented include population, employment, and personal income. These metrics are used to gain an understanding of growth or an increase in activity that can be anticipated at the Airport.

Though the City of Belle Glade is within Palm Beach County, there are significant socioeconomic differences between the coastal and inland regions of the County. Inland counties surrounding Lake Okeechobee include Glades, Hendry, Highlands, and Okeechobee. Based on discussions with representatives from the City of Belle Glade during the Strategic Business Plan process, these counties are believed to have similar socioeconomic characteristics to the City of Belle Glade. The Palm Beach County socioeconomic factors reflect a more wealthy and diverse economic base, which truly is not representative of the City of Belle Glade. Consequently, socioeconomic factors specific to the four inland counties are used to define the region's economic profile. For comparison purposes and because Belle Glade lies in Palm Beach County, the socioeconomic factors for Palm Beach County are also presented along with those for the four inland Counties.[7]

The service area generally refers to the geographic area served by the airport and from within which most of the airport's users come. The Airport service area is defined as the Air Trade Area and consists of Glades, Hendry, Highlands, and Okeechobee Counties.

[7] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.

4.2.1 DEMOGRAPHIC AND SOCIOECONOMIC TRENDS

The historical trends and future projections of the region's population, employment, and personal income were examined based on several data sources.

Table 4.1 summarizes the population growth trends experienced between 1990 and 2010 for the Air Trade Area previously defined, Palm Beach County, the State of Florida, and the United States.

Table 4.1 – Population Statistics

Year	Air Trade Area	Palm Beach County	State of Florida	United States
1990	131,423	863,503	12,938,071	249,622,814
2000	170,062	1,131,191	15,982,824	282,171,936
2010	190,806	1,320,134	18,801,310	308,745,538
Annual Growth (1990-2010)	1.9%	2.1%	1.9%	1.1%

Source: United States Census Bureau, 2011

As shown, the Air Trade Area's population increased at an average annual growth rate of 1.9 percent between 1990 and 2010. This growth in the Air Trade Area's population is consistent with the growth in population for the State of Florida and is more than the 1.1 percent growth for the nation between 1990 and 2010.

Table 4.2 summarizes the employment trends experienced between 1997 and 2007 for the Air Trade Area, Palm Beach County, Glades County, Hendry County, Highland County and Okeechobee County.

Table 4.2 – Employment Statistics

Year	Air Trade Area	Palm Beach County	Glades County	Hendry County	Highlands County	Okeechobee County
1997	67,490	569,050	2,180	18,610	33,260	13,440
2000	70,110	647,410	2,840	19,780	34,340	13,150
2007	83,120	826,850	4,270	21,440	43,020	14,390
Annual Growth (1997-2007)	2.1%	3.8%	7.0%	1.4%	2.6%	0.7%

Source: Belle Glade Municipal Airport Strategic Business Plan, Table 2.4, August 2010

Table 4.3 summarizes the personal income per capita trends experienced between 2000 and 2008 for the Air Trade Area, Palm Beach County, the State of Florida and the United States.

Table 4.3– Personal Income per Capita (PIPC) (in 2010 dollars)

Year	Air Trade Area[1]	Palm Beach County	State of Florida	United States
2000	$18,841	$43,116	$29,080	$30,318
2001	$20,103	$43,964	$29,810	$31,145
2002	$20,497	$44,195	$30,479	$31,462
2003	$20,820	$43,974	$31,283	$32,271
2004	$21,710	$48,422	$33,540	$33,881
2005	$22,460	$51,374	$35,605	$35,424
2006	$23,896	$55,812	$38,161	$37,698
2007	$24,776	$59,147	$39,036	$39,392
2008	$25,520	$60,453	$39,064	$40,166
Annual Growth (2000-2008)	3.9%	4.3%	3.8%	3.6%

Note:
1) The PIPC of the Air Trade Area is a population weighted average

Source: Belle Glade Municipal Airport Strategic Business Plan, Table 2.2, August 2010

As shown in Table 4.2, the Air Trade Area growth in employment averaged 2.1% annually from 1997 to 2007, showing a growth rate lower than that of Palm Beach County (3.8 percent). Table 4.3 shows the personal income per capita (PIPC) growth in the region. PIPC is a composite measure of market potential and indicates the general ability to purchase on available product or service. The Air Trade Area growth in PIPC averaged 3.9% from 2000 to 2008, showing a similar growth rate as the employment statistics.

Population and employment growth is anticipated to continue at more conservative levels in comparison to the previous 20-year period. The per capita income growth is expected to continue at strong levels of just over 5 percent annual growth throughout the study period. **Table 4.4** shows the Air Trade Area projections over the next 20 year period.

Table 4.4 – Air Trade Area Demographic Projections

Year	Population	Employment	Personal Income Per Capita
2010	193,700	87,810	$26,754
2015	206,800	98,420	$33,506
2020	218,900	108,890	$42,863
2025	230,500	119,900	$55,783
2030	241,400	131,960	$73,328
Annual Growth (2010-2030)	1.1%	2.1%	5.2%

Source: Belle Glade Municipal Airport Strategic Business Plan, (population – Table 2.1, employment – Table 2.4, PIPC – Table 2.2), August 2010

4.3 BASED AIRCRAFT FORECAST

Based aircraft are those aircraft that are permanently stored at an airport. Based aircraft estimates over the 20-year planning period impacts future airport facility and infrastructure requirements, such as hangar storage space and apron tie-down areas. The following methodologies were utilized for selecting a preferred based aircraft forecast for the Airport:

- Population Growth – Based aircraft forecast to increase at a rate consistent with the historical growth rate of the Air Trade Area population (1.9%).
- Employment Growth – Based aircraft forecast to increase at a rate consistent with the projected employment growth rate of the Air Trade Area (2.1%).
- Personal Income Growth – Based aircraft forecast to increase at a rate consistent with the projected per capita income growth rate of the Air Trade Area (5.2%).
- FAA Active Aircraft – Based aircraft forecast to increase at a rate corresponding to the rate forecast by the FAA for active general aviation aircraft (1.1%).

Table 4.5 and **Exhibit 4.1** show the results of each methodology and compare them to the FAA Terminal Area Forecast for Belle Glade State Municipal Airport.

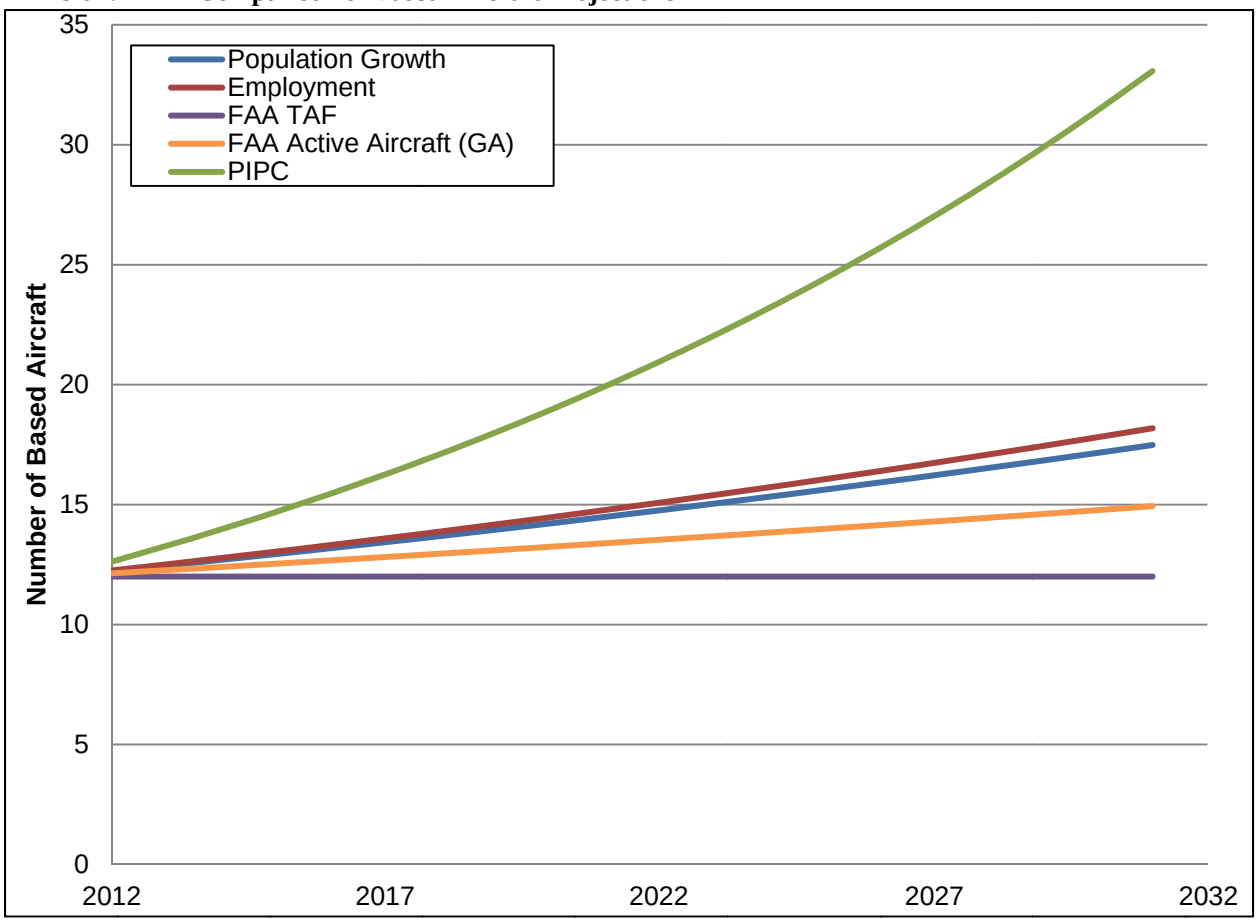
Growth rates in the based aircraft projections range from 1.1 to 5.2 percent per year when applying the various growth rates described above. Based on the analysis, the preferred based aircraft forecast for Belle Glade State Municipal Airport is the employment growth based projection, which assumes a 2.1 percent growth over the planning period applied to the based aircraft number of 11 aircraft. This projection was selected because it anticipates a reasonable amount of growth between the envelope of extreme low and high projections.

Table 4.5 – Comparison of Based Aircraft Projections

Year	Population Growth	Employment	PIPC	FAA Active Aircraft	FAA TAF
2012	11	11	12	11	12
2017	12	12	15	12	12
2022	14	14	19	12	12
2027	15	15	25	13	12
2032	16	17	32	14	12
Compounded Annual Growth Rate 2012 – 2032	1.9%	2.1%	5.2%	1.1%	0.0%

Sources: Kimley-Horn and Associates, FAA Terminal Area Forecast, FAA Aerospace Forecast FY 2011-2031

Exhibit 4.1 Comparison of Based Aircraft Projections



The total based aircraft projections were further allocated according to aircraft type. The fleet mix projections were developed based on the fleet mix percentages exhibited at the Airport in January 2011 and consideration of the rates of growth by aircraft type in the FAA Aerospace Forecasts.

Based on projected U.S. general aviation trends found in the FAA Aerospace Forecast (FY 2009-2025), single and multi-engine piston aircraft are anticipated to maintain or slightly lose their current market share of the active general aviation aircraft fleet in the country. Jet aircraft and helicopters are expected

to continue to represent a growing percentage of the market share. The projected trends in the national GA fleet were used as a guide to develop fleet mix projections for Belle Glade State Municipal Airport. The based aircraft fleet mix projections for the planning period are presented in **Table 4.6**.

Table 4.6 – Based Aircraft Fleet Mix Projection

Year	Single-Engine	Multi-Engine	Turboprop & Jet	Helicopter	Total
2012	7	0	0	4	11
2017	8	0	0	4	12
2022	10	0	0	4	14
2027	9	1	0	5	15
2032	10	1	0	6	17

Source: Kimley-Horn and Associates, Inc. (2011 – Airport Site Visit, January 2011; 2017 – 2032 projections).

4.4 AIRCRAFT OPERATIONS FORECAST

Aircraft operations were forecast using the operations per based aircraft (OPBA) methodology. OPBA is calculated by dividing the annual total number of general aviation operations by the number of based aircraft at the airport for the same year. Future operations at the airport are calculated by applying the Airport's OPBA ratio to the based aircraft forecast through the planning period.

This forecast provides a range of future growth projections based on an increasing OPBA and a constant OPBA. First, the 2011 OPBA ratio of 164 was increased linearly to an OPBA ratio of 800 by 2032. The OPBA ratio of 800 represents a typical value seen at similar airports with agricultural operations and limited itinerant activity. Based on discussions with City staff in August 2011, during the peak operating months of April through October, crop dusting aircraft are flying every day at dusk and dawn. Given this assumed level of activity, based aircraft are anticipated to conduct at least 800 operations during the peak seven months of the year. Therefore, an assumed 800 OPBA in 2032 is potentially a conservative estimate. Growth in this scenario is achieved by both an increase in based aircraft and an increased level of activity per based aircraft. In the second scenario, the OPBA ratio was held constant at 164, reflecting actual conditions in 2011, while based aircraft increased at 2.1% annually to provide a minimum growth forecast.

This approach results in a projected maximum of 13,300 operations per year at the end of the planning period in 2032. The results of the preferred operations forecast are summarized in **Table 4.7**. **Exhibit 4.2** displays graphically the FAA Terminal Area Forecast (TAF) and recommended operations forecast through the planning period.

An alternative aviation forecast was developed as part of the Belle Glade Municipal Airport Strategic Business Plan, completed in 2010. This forecast used the 2008 TAF as a baseline and adjusted it upwards with activity estimates obtained from local pilots and tenants. It assumed a constant historical and future activity forecast of 7,500 local and 300 itinerant operations through 2025. This forecast is also depicted on Exhibit 4.2 and in Table 4.7

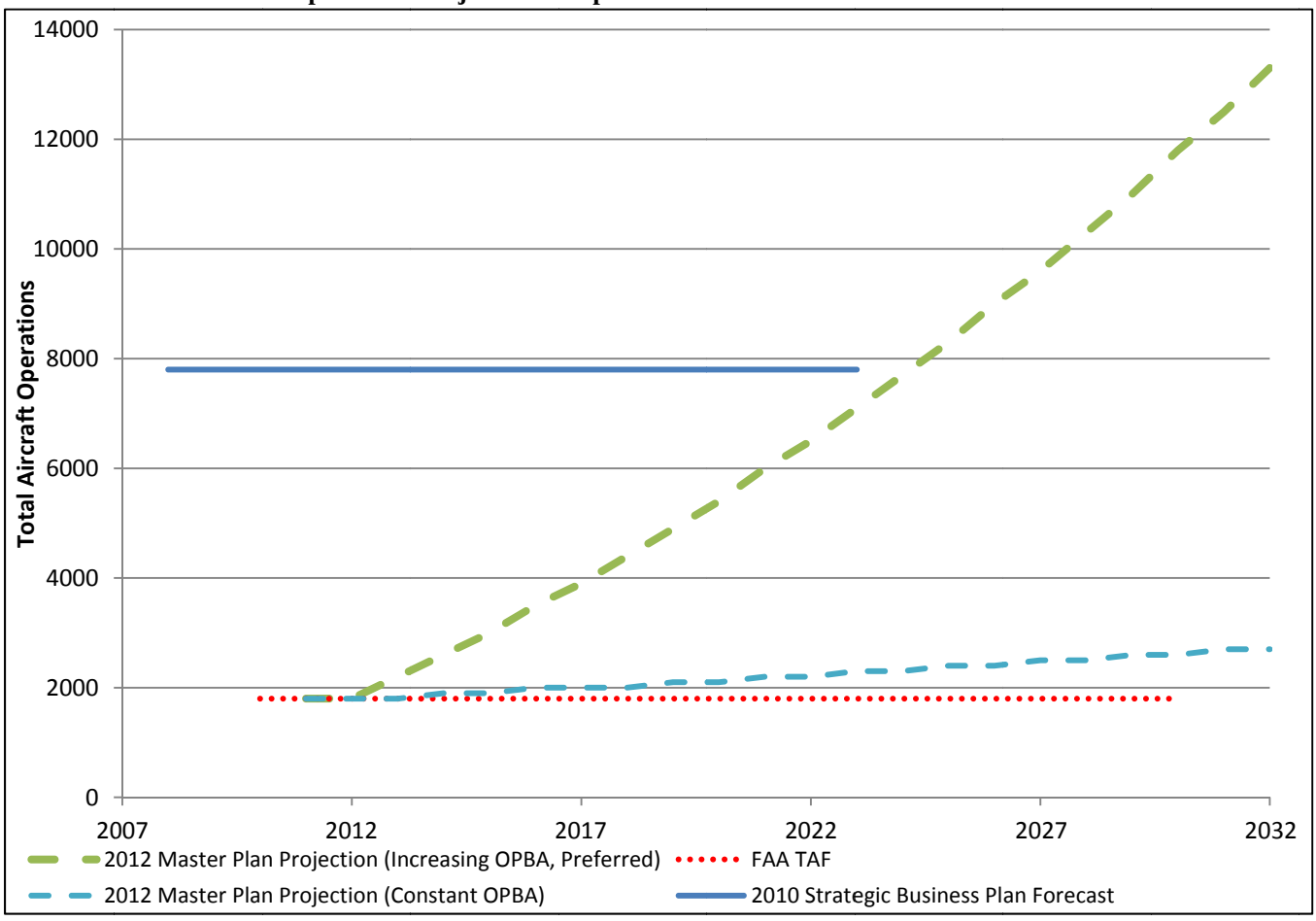
Table 4.7– Aircraft Operations Forecast

Year	Based Aircraft	OPBA (Increasing)	OPBA (Constant)	Total Operations		
				2010 Strategic Business Plan[(1)]	Increasing OPBA	Constant OPBA
2012	11	164	164	7,800	1,800	1,800
2017	12	323	164	7,800	3,900	2,000
2022	14	482	164	7,800	6,500	2,200
2027	15	641	164	-	9,600	2,500
2032	17	800	164	-	13,300	2,700
Compounded Annual Growth Rate						
2011 – 2031	2.1%	8.3%	0.0%	0%	10.5%	2.0%

Notes:
(1) Forecast only through 2025

Source: Based Aircraft – Table 4.6
2012 – 2032 Projections – Kimley-Horn and Associates, Inc., 2012
Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.

Exhibit 4.2 Aircraft Operations Projection Comparison



4.5 AIRCRAFT OPERATIONS PEAKING

A primary consideration for facility planning at airports relates to peak hour (or design level) activity. Aircraft aprons, terminal areas, and other facilities should be sized to accommodate peaks in activity. Standard practice uses the peak hour of the peak month of the average day (PMAD) for planning purposes.

Peak operating periods at the Airport occur between April and October at dawn and dusk when crop dusters are flying every day. As the Airport is primarily used for dawn and dusk crop dusting activities, it is reasonable to assume that the majority of daily operations occur during these times. For the purposes of this analysis, peak month operations have been assumed to represent 13 percent of annual operations. Average day conditions for the peak month are estimated by dividing the peak month operations by 30 (the average number of days in any month of the year). Peak hour operations are estimated to consist of 30 percent of the daily operations.

Based on these assumptions and the operations forecast developed in this section, the PMAD peak hour operations for 2032 conditions are estimated to be 17 operations.

4.6 LOCAL/ITINERANT DISTRIBUTION

Local operations are those conducted by aircraft remaining in the airport's traffic pattern. Itinerant operations are those conducted by aircraft coming from outside the traffic pattern.

According to the TAF data for the Airport, between 1990 and 1991, the percentage of local flights at the airport was approximately 77% of all airport operations. Starting in 1992, the TAF data shows the percentage of local flights decreasing to 67% of all airport operations, with this percentage holding in the forecast until 2030.

For the projection of itinerant and local traffic, it was assumed that the TAF ratio of 33/67, itinerant/local split respectively, would continue throughout the planning period.

4.7 SUMMARY

It is anticipated that the Airport will see a relatively substantial amount of growth during the 20-year planning period. Based aircraft are expected to increase from 11 in 2012 to 17 in 2032. The airport's operations are projected to increase from 1,800 in 2012 to 13,300 in 2032. **Table 4.8** summarizes the projections contained in this section.

Table 4.8 – Preferred Aviation Activity Forecast Summary

Year	Based Aircraft	Total Annual Operations	Peak Month Operations	PMAD Operations	Peak Hour Operations (PMAD)
2012	11	1,800	234	8	2
2017	12	3,900	507	17	5
2022	14	6,500	845	28	8
2027	15	9,600	1,248	42	13
2032	17	13,300	1,729	58	17

Source: Kimley-Horn and Associates, Inc., 2012

SECTION 5 - DEMAND/CAPACITY ANALYSIS & FACILITY REQUIREMENTS

This section provides a technical presentation of demand versus capacity and facility requirements for the Airport. The primary purpose of this analysis is to compare existing airport capacities to the projected aviation-related demand in order to determine the timeframe in which capacity constraints could occur. The facility requirements for each horizon year (2017, 2022, 2027, and 2032) are based on forecast levels of aviation activity for those years. **It should be noted that the timing of the development of any new facilities should depend on the rate of growth that actually occurs at the Airport**.

This section addresses functional areas of the Airport separately. The following topics are discussed in the remainder of this section:

- Airfield Requirements
- General Aviation Facility Requirements
- Support Facility Requirements

For the purpose of the analysis in the remainder of this report, references to specific years will be minimized in this and subsequent sections, and instead Planning Activity Levels (PALs) will be emphasized. The purpose of the PALs is to guide Airport staff and officials, in determining when airport facilities need expansion or upgrades according to activity levels instead of calendar years. By referencing decisions to activity levels and not specific dates, airport operators can be flexible and responsible with regard to development needs.

PAL 1 (estimated to occur in 2017) is associated with the short-term planning horizon, PAL 2 (estimated to occur in 2022), is associated with the mid-term planning horizon, and PAL 3 (estimated to occur in 2027) and PAL 4 (estimated to occur in 2032) represent the long-term planning horizon. For the purpose of determining timing of Airport improvements in this and subsequent sections, PALs are not correlated to a specific calendar year.

5.1 AIRFIELD REQUIREMENTS

Evaluation of an airport's runways and taxiways with respect to various factors such as capacity, geometrics, and strength, plays a key role in the function of an airport within the regional and national system of airports. Thus, operational enhancements and airfield requirements (if any) for the Airport were identified through a review of the existing airspace environment, a determination of existing and future airfield capacity as well as future runway and taxiway requirements.

5.1.1 AIRSPACE CAPACITY

As presented in Section 3.9, the airspace surrounding the Airport is defined as Class G. Class G airspace or uncontrolled airspace, includes the entire airspace that is not classified as either A, B, C, D, or E, and has no special restrictions with respect to pilot or aircraft equipment rules. There is no air traffic control tower, and pilots utilize a common traffic advisory frequency (CTAF) to announce their take-off and landing intentions to other aircraft that may be operating in the area.

Current obstacles near the Airport include existing 26' power lines approximately 300 feet from the threshold of Runway 9 and a 60' pole approximately 1400' from the threshold of Runway 27[8]. Palm Beach County Glades Airport is located approximately 6 NM north of the Airport. The closest public airport with an operational control tower is the Palm Beach International Airport, located 30 nautical miles east of the Airport. No Military Operations Areas (MOAs) are located within the immediate vicinity of the Airport.

Given the low level of projected aircraft operations and the Airport's distance from busier airports, it is concluded that airspace in the vicinity of the Airport should be capable of accommodating projected levels of aircraft operations without incurring significant airspace delays.

The FAA recommends that the Sponsor acquire or obtain control of land encompassed by the extents of all proposed Runway Protection Zones (RPZs) through fee simple acquisition or avigation easements. Presently, portions of the existing RPZs associated with both runway ends fall beyond airport property. In addition to the RPZs, the Sponsor should make every effort to specifically control the approaches of all surrounding airspace per FAR Part 77, either by way of acquisition, easement, or local zoning. As part of the airport layout plan, recommendations will be delineated for fee simple or avigation easement acquisition of all RPZs as well as adjacent properties which may have an adverse impact on the primary and transitional surfaces (typically denoted by the Building Restriction Line) associated with the runway.

5.1.2 AIRFIELD CAPACITY

The calculations of airfield capacity and delay are the basis for evaluating the adequacy of the runway and taxiway system to meet existing and future airport activity levels. The following analysis was conducted using the FAA's Airport Capacity and Delay Manual (AC 150/5060-5).

According to AC 150/5060-5, the Airport is classified as a single runway airport which almost exclusively serves class A and B aircraft. Class A aircraft refer to single-engine aircraft less than 12,500 pounds, and class B aircraft refer to multi-engine aircraft less than 12,500 pounds. In addition, the Airport has no radar coverage or Instrument Landing System (ILS). Meeting these criteria, the Airport falls into special applications of airport capacity, and its capacity is presented in terms of a range of hourly Visual Flight Rules (VFR) operations.

The general physical configuration of the Airport is a single runway with no parallel taxiway, and a basing area for aircraft located at one end of the airfield. According to AC 150/5060-5, this particular configuration has an hourly capacity range of 40-66 operations per hour, depending on direction of operation. This hourly capacity assumes that less than 25 percent of the Airport's operations are touch-and-go operations (T&G). A T&G operation refers to one where an aircraft lands, and immediately takes off again without stopping or exiting the runway.

As discussed in Section 4 of this report, the PMAD peak hour operations for the Airport are forecast to reach approximately 17 hourly operations by the end of the planning period, representing 42.5% percent of the lowest range of the Airport's VFR hourly capacity. As a result, additional runway capacity improvements are not anticipated within the planning period, based on capacity constraints.

[8] FAA Airport Master Record #5010, March 2013.

5.1.3 RUNWAY REQUIREMENTS

Future runway requirements at the Airport were addressed for the overall runway length, dimensional standards and pavement strength. Runway requirements are planned in accordance with design criteria presented in FAA AC 150/5300-13A, Airport Design. The first criterion is the approach speed of critical design aircraft and provides information on the operational capabilities of aircraft using the airport. The airplane design group (ADG), which is the second criterion, is the wingspan range of critical design aircraft using the airport. These two design criteria identifiers are then used together to define the Airport Reference Code (ARC).

To assist in determining the appropriate spatial requirements and operational capabilities for the Airport in the future, airport design criteria are based on the critical design aircraft that will regularly use the airport during the planning period. Section 3, Table 3.1 presents the various aircraft approach categories and airplane design groups.

5.1.3.1 Critical Design Aircraft

Use of an airport on a regular basis is considered to be 500 or more annual operations conducted by a particular aircraft or aircraft group. A review of aircraft forecast to use the Airport reveals that aircraft in approach category A will be the most demanding aircraft to regularly use the airport. This would include operations by aircraft such as the Cessna 172, Piper PA-25, and the Beech Bonanza V35B.

The largest aircraft from the standpoint of wingspan to regularly use the Airport currently, and in the future, fall within ADG II and include the Air Tractor AT-502, which is an agricultural crop dusting aircraft. This aircraft makes up the majority of based aircraft at the Airport, and as such, most of the Airport's annual operations are from this aircraft. Based on FAA planning guidelines, the Airport should be designed to accommodate the spatial requirements of ADG II aircraft and have the operational capabilities to accommodate aircraft in approach category A. The preceding combination of requirements results in an ARC of A-II. Thus, the airport design parameters associated with an ARC of A-II will be used for planning airfield facilities at the Airport.

Based on the FAA registered aircraft database and preliminary conversations with the airport commercial tenants, the critical design aircraft for runway length, pavement strength, and wingspan purposes for Runway 9-27 is assumed to be the Air Tractor AT-502, which is a single engine turboprop aircraft primarily used for crop dusting, and has an ARC of A-II.

5.1.3.2 Runway Orientation

The orientation of runways at an airport is primarily a function of wind direction and velocity. FAA guidance recommends that an airport's runway configuration provide runway availability of at least 95 percent on the basis of the crosswind component not exceeding 10.5 knots for Airport Reference Codes A-I and B-I, and 13.0 knots for A-II and B-II. The Airport's wind rose, depicting the wind orientation and velocity, is shown in Section 3, Exhibit 3.6.

Runway 9-27 provides 91.75 percent coverage for the 10.5 knot crosswind component, and 96.3 percent coverage for 13 knots. By itself, Runway 9-27 can provide 95 percent coverage for A-II and B-II aircraft. Based on this wind data, typically a crosswind runway would be explored as potential airfield improvement so that 95% wind coverage for the 10.5 knot crosswind component can be obtained. However, as identified in Section 3.8.2, the weather information obtained from the NCDC was for observations at the nearest available station at Palm Beach International Airport, located 35 miles to the

east of the Airport. Also, Lake Okeechobee is located approximately 4 miles to the northeast of the Airport, which likely has a significant impact on wind conditions at the Airport.

As a result, wind observations at Palm Beach International Airport may not be representative of meteorological conditions at Belle Glade State Municipal Airport. Further study would be required to estimate local wind coverage at Belle Glade and its effect on runway orientation. If this is pursued, it is recommended that wind data be collected through surveys and/or placement of measuring devices on Airport property for extended periods of time.

For the purposes of this Master Plan and the alternatives development process, it is assumed that the orientation of the current runway is acceptable for the purposes of the types of operations currently handled at the Airport and those anticipated within the study period of this Master Plan.

5.1.3.3 Runway Length Requirements

FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, provides guidance for determining runway length. According to this document, the following criteria are identified:

> *"The recommended length for the primary runway is determined by considering either the family of airplanes having similar performance characteristics or a specific airplane needing the longest runway. In either case, the choice should be based on airplanes that are forecast to use the runway on a regular basis. A regular basis is considered to be at least 250 takeoffs a year."*

The FAA's computer program, Airport Design 4.2D, calculates runway length requirements based on families of airplanes having similar performance characteristics. The program's results are categorized for small aircraft less than 12,500 pounds, large aircraft of less than 60,000 pounds, and large aircraft more than 60,000 pounds. The large aircraft category of 60,000 pounds or less is further subdivided into groups of aircraft at payload capacities of 60 and 90 percent useful load.

Table 5.1 presents the runway length requirements determined using the FAA program. As the table indicates, a runway length of approximately 3,670 feet is required to satisfy the requirements for all small aircraft with less than 10 seats. Aircraft with more than 10 seats are not anticipated to regularly operate at the Airport. The current primary runway length of 3,750 feet exceeds this criterion for take-offs. Runway 9 has a displaced threshold of 225 feet, leaving 3,525 feet available for landing. Runway 27 has a displaced threshold of 75 feet, leaving 3,675 feet available for landing. Runway 9 currently does not meet the requirements for minimum runway length due to a displaced threshold necessitated by a power line. As a result, an extension to this runway and/or relocation/burial of the existing above ground utilities located off the runway ends should be explored as part of the Airport development alternatives analysis.

Large aircraft with maximum takeoff weights of 60,000 pounds or less would require a runway length between 5,380 and 8,690 feet, depending on payload and fuel loads. Large aircraft with maximum takeoff weights of 60,000 pounds or more are not projected to operate at the Airport.

Table 5.1– Runway Length Analysis

Category	Recommended Minimum Runway Length
Small Aircraft (less than 12,500 pounds)	
Less than 10 passenger seats	
75% of these small airplanes	2,530 feet
95% of these small airplanes	3,100 feet
100% of these small airplanes	3,670 feet
More than 10 passenger seats	4,300 feet
Large Aircraft (60,000 pounds or less)	
75% of these aircraft at:	
60% useful load	5,380 feet
90% useful load	7,000 feet
100% of these aircraft at:	
60% useful load	5,540 feet
90% useful load	8,690 feet

Notes:
Parameters used in calculations:

- Airport Elevation = 11 feet
- Mean daily maximum temperature of the hottest month = 92.6°F.
- Maximum difference in runway centerline elevation – 2 feet.
- Assumes wet runway conditions for planning purposes.

Source: FAA Advisory Circular 150/5325-4B, Airport Design Program 4.2d.
Kimley-Horn and Associates, Inc., 2012

5.1.3.4 Runway Widths and Dimensional Standards

Runway width requirements are determined by the ARC, in particular the ADG standards. Dimensional standards pertaining to runways and runway-related separations are essential to provide clearances from potential hazards affecting routine aircraft movements taking place on the runways. These standards relate to separations for parallel runways, hold lines, parallel taxiways, aircraft parking, object free areas, and safety areas.

Runway 9-27 dimensional standards are determined based on an ARC of A-II because this is the critical approach category and design group of the family of airplanes that are anticipated to use the runway on a regular basis. **Table 5.2** presents the existing runway-related separations at the Airport and compares them to ARC A-II dimensional standards. Currently, based on the critical design aircraft, the Airport is deficient in several runway dimensional standards.

Table 5.2 – Runway Dimensional Standards

Design Criteria	FAA A-II Design Standard(1)	Runway 9-27
Runway Design		
Runway Width	75	50
Runway Protection		
Runway Safety Area		
Length Prior to Landing Threshold	300	240
Length Beyond R/W End	300	240
Width	150	120
Runway Object Free Area (OFA)		
Width	500	250
Length Beyond R/W End	300	240
Length Prior to Threshold	300	240
Runway Obstacle Free Zone (OFZ)		
Width	250	250
Length Beyond R/W End	200	200
Length Prior to Threshold	200	200
Runway Separation		
Runway Centerline to:		
Parallel Runway Centerline	700	N/A
Taxiway/Taxilane Centerline	240	N/A
Aircraft Parking Area	250	230

Notes:
(1) Runway design standards for runways with not lower than ¾-statute mile visibility minimums.

Grey shading indicates deficiency in dimensional standards
All dimensions shown in feet.

Source: FAA Advisory Circular 150/5300-13A
Kimley-Horn and Associates, Inc., 2012

5.1.4 TAXIWAY REQUIREMENTS

Taxiway requirements are addressed to maintain and/or improve existing and future airfield capacity levels previously identified, and to provide more efficient and safe ground traffic movements. Taxiways, which provide vital links between independent airport elements, should optimize airport utility by providing free movement to and from the runway, general aviation terminal areas, and aircraft parking areas. The desirability of maintaining a uniform flow, with a minimum number of points necessitating a change in aircraft taxiing speed, is of paramount concern.

Dimensional standards pertaining to taxiways/taxilanes and taxiway/taxilane-related separations are necessary to ensure FAA recommended clearances between taxiing aircraft and fixed or movable objects during routine operations. These standards relate to separations for parallel taxiways/taxilanes, aircraft parking, service roads, object free areas, wingtip clearances, safety areas, and shoulders. Also addressed are recommended taxiway widths.

Currently, the Airport does not contain a paved connected taxiway network. Rather, there are a few paved connectors which provide runway access to aircraft located at tenant facilities. There is no full-length parallel taxiway for Runway 9-27; aircraft that wish to access Runway 27 for departure must back-taxi on the runway and utilize the turnaround pavement. Future development of the Airport should consider the addition of a parallel taxiway with standard ADG II dimensions and separations. The addition of a parallel taxiway allows improved aircraft circulation on the airfield while also increasing safety, since aircraft are not required to utilize the runway for taxiing maneuvers. A parallel taxiway also increases airport capacity and allows the Airport to meet the requirements for an instrument approach.

All dimensional standards are determined based on the ARC established for the Airport. **Table 5.3** presents all taxiway dimensional standards to be applied at the Airport, relative to the separations currently in existence.

Table 5.3 – Taxiway Dimensional Standards

Item	Existing Dimensions	Standard ADG II Dimensions
Taxiway Width	N/A	35’
Taxiway Shoulder Width	N/A	10’
Taxiway Safety Area Width	N/A	79’
Taxiway OFA Width	N/A	131’
Taxilane OFA Width	N/A	115’
Taxiway Centerline to:		
Parallel Taxiway/Taxilane Centerline	N/A	105’
Fixed or Moveable Object	N/A	65.5’
Taxilane Centerline to:		
Parallel Taxiway/Taxilane Centerline	N/A	97’
Fixed or Moveable Object	N/A	57.5’

Source: FAA Advisory Circular 150/5300-13A
Kimley-Horn and Associates, Inc., 2012

5.1.5 PAVEMENT STRENGTH REQUIREMENTS

Pavement capacity requirements are related to three primary factors:

- The operating weight of aircraft anticipated to use the Airport;
- The landing gear type and geometry; and
- The volume of annual aircraft operations, by type.

According to the current Airport Layout Plan, Runway 9-27 has a pavement strength rating of approximately 12,500 lbs. single wheel loading. The Airport’s critical aircraft, the Air Tractor AT-502, has a typical operating weight of approximately 9,400 pounds, according to the aircraft’s manufacturer. Based on the requirements of the critical aircraft, the current pavement strength is anticipated to be adequate for the remainder of the planning period.

5.1.6 FLORIDA STATE LICENSING STANDARDS

The State of Florida requires all public or private airports licensed by the state meet minimum airfield standards outlined in Chapter 14-60 of the Florida Administrative Code (FAC). Airfield standards are covered in Section 14-60.007 of the FAC. Each airport in the state system undergoes a facility inspection annually and deficiencies in the airfield standards as they relate to FAC Section 14-60.007 are identified.

The Airport was last inspected on January 29, 2013. In the issuance of the Airport License for Belle Glade State Municipal it was determined that while the Airport did not meet all the minimum state airport standards currently, FDOT also determined pursuant to Chapter 330.306 Florida Statues that "an exception is justified by unusual circumstances or is in the interest of public convenience and does not endanger the public health, safety, or welfare."[9] As a result, the Airport is currently issued a Public Special Airport License.

Table 5.4 presents the existing Florida Licensed Airport Minimum Standards deficiencies at the Airport. Based on the inspection record, the following improvements are recommended in order to meet state minimum airfield standards:

- Attain minimum runway width of 60 feet.
- Mitigate existing topography issues in the runway safety area and primary surface area.
- Maintain existing displaced thresholds or mitigate existing approach slope obstructions to maintain/attain a 20:1 approach surface ratio for each runway end.
- Rehabilitate existing runway pavement.
- Ensure East/West turf taxiway connector south of Runway 9-27 is not being used as a runway.
- Update runway markings to current FDOT minimum standards.

[9] State of Florida Department of Transportation, Airport License, Belle Glade State Municipal Airport, Issue Date: February 19, 2013. Accessed from Florida Aviation Database on July 9, 2013.

Table 5.4 – Runway Deficiencies (Florida Licensed Airport Minimum Standards)

FAC Section	Facility/Category	Deficiency
14-60.007(1)(a)	Minimum Landing Area	Runway 9-27 width is 50 feet. Minimum Standard is 60 feet.
14-60.007(2)(b)1.b	Landing and Surface Areas	Berm north of Runway 9-27 located within the Primary Surface.
14-60.007(2)(c)1.b	Landing and Surface Areas	1) Runway 9 approach ratio is 9:1 due to obstruction. 225-foot displaced threshold mitigates approach ratio to 20:1. 2) Runway 27 approach ratio is 19:1 due to obstruction. 62-foot displaced threshold mitigates approach ratio to 20:1.
14-60.007(8)(c)	Additional Responsibilities	1) Grass encroaching onto Runway 9-27. 2) Ensure East/West turf taxiway south of Runway 9-27 is not being used as a runway.
14-60.007(9)(b)	Airport Markings	Runway designation number lines are 4 feet wide. Standard is five feet wide.
14-60.007(9)(c)	Airport Markings	Runway centerline stripe markings begin 150 feet from top of runway designation marking. Standard is 40 feet.
14-60.007(9)(e)	Airport Markings	1) Runway arrowheads and tails do not overlap five feet. 2) Runway arrow markings are not white. 3) Displaced arrow head markings are not visible.
14-60.007(9)(f)	Airport Markings	Runway hold position markings dashed lines and spaces are 5 feet long. Standard is 3 feet.
14-60.007(9)(l)1	Airport Markings	Runway designation, centerline stripe, hold position, displaced arrow and arrow head, and displaced bar markings do not have glass beads.
14-60.007(9)(l)2	Airport Markings	Runway designation, centerline stripe, displaced bar, displaced arrow and arrow head, and hold position markings not outlined with black border six inches or greater in width.

Source: FDOT Airport Inspection Record, Belle Glade State Municipal Airport, Inspection Date: January 29, 2013.

5.2 GENERAL AVIATION FACILITY REQUIREMENTS

The purpose of this evaluation is to determine the aggregate capacity of the existing general aviation facilities and their ability to meet forecast levels of demand during the planning period. The term "General Aviation Facility" refers to a facility that provides aviation services to airport users and aircraft operators, such as hangar space, terminal space, fuel sales, and aircraft apron space. In this analysis, the following facilities were evaluated:

- Aircraft Storage Hangars
- Based & Itinerant Apron Areas
- Vehicular Parking Facilities

5.2.1 AIRCRAFT STORAGE HANGARS

The demand for storage hangars is dependent upon the number and types of aircraft based at the Airport, as well as local climate conditions, airport security, availability, rates and charges, and owner preferences. The percentage of based aircraft that are stored in hangars varies from state to state, but is usually greatest in regions that are subject to extreme weather conditions. For the purposes of this study, the following assumptions were used:

Table 5.5 – Aircraft Storage Location Assumptions

PAL	Itinerant		Based	
	Apron	Hangar	Apron	Hangar
Existing (2012)	100%	0%	100%	0%
PAL 1	100%	0%	75%	25%
PAL 2	100%	0%	75%	25%
PAL 3	100%	0%	50%	50%
PAL 4	100%	0%	50%	50%

Source: Kimley-Horn and Associates, Inc., 2012

These assumptions provide for the equal storage of based aircraft in hangars and on the apron by the end of the planning period, and storage of itinerant aircraft completely on the apron. These assumptions were based on the more utility-type role of the airport as a base for agricultural crop dusting operations, and less of a destination for itinerant aircraft. Currently, there is virtually no usable hangar space, which necessitates apron storage for aircraft. The assumption is that, given the addition of hangar storage space over the planning period, some based aircraft operators would prefer protective storage for their aircraft. In addition, the Belle Glade Municipal Airport Strategic Business Plan has identified private hangar development as a future action for airport business development.

Storage hangar requirements will be developed in the following sub-section. Hangar requirements will be developed based on a conservative approach utilizing a weighted average area per aircraft. Hangar requirements will be developed based on number of aircraft demand combined with an average area per aircraft assumption in order to produce a total demand in terms of square footage.

5.2.1.2 Hangar Area Required

To develop the required hangar area per aircraft, a safety clearance is added to the aircraft wingspan and length to calculate an average hangar area required. For the purposes of this analysis, aircraft in ADG I and II were considered. An average of 3,100 square feet of hangar per aircraft was calculated for the storage hangars. **Table 5.6** summarizes the hangar area per aircraft requirements.

Table 5.6 – Hangar Area Required per Aircraft

ADG	Average Length (ft)	Average Wingspan (ft)	Additional Clearances (ft)(1)	Average Hangar Area Required (SF)(2)	Average Fleet Mix	Weighted Average Area by ADG (SF)(1)
I	28	40	5	1,900	50%	1,000
II	35	55	10	4,125	50%	2,100
				Weighted Average		**3,100**

Notes:
(1) Operational safety area around aircraft.
(2) Aircraft area plus additional clearances on all four sides of the aircraft (5 ft for ADG I).
(3) Calculated by multiplying fleet mix percentages and associated area requirement by ADG type. then summing the two ADG requirements. All numbers rounded to nearest 100 square feet.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.1.3 Aircraft Storage Hangar Demand

Future demand for aircraft storage hangars by number of aircraft, based on the assumptions listed previously is presented below in **Table 5.7.**

Table 5.7 – Aircraft Storage Hangar Demand

PAL	Based Aircraft(1)	Based Aircraft in Storage Hangars(2)	Itinerant Aircraft	Itinerant Aircraft in Storage Hangars	Total Aircraft in Storage Hangars	Hangar Space Requirement (SF)(3)
PAL 1	12	4	2	0	4	12,400
PAL 2	14	4	2	0	4	12,400
PAL 3	15	8	3	0	8	24,800
PAL 4	17	9	4	0	9	27,900

Notes:
(1) Data from Table 4.8 – Aviation Activity Forecast Summary.
(2) Assumptions of based aircraft stored in hangars (See Section 5.2.1). Numbers rounded up to nearest integer.
(3) Total aircraft in hangars multiplied by 3,100 square feet (See Section 5.2.1.2)

Source: Kimley-Horn and Associates, Inc., 2012

5.2.1.4 Hangar Requirements Summary

Based on the analysis, the existing hangar capacity does not accommodate demand beginning in PAL 1, with a deficiency of approximately 25,700 square feet by the end of the planning period. A summary of aircraft storage hangar requirements is shown in **Table 5.8.**

Table 5.8 – Summary of Aircraft Hangar Requirements

PAL	Required Area (SF)[1]	Existing Area (SF)	Net Surplus/ (Deficiency)
PAL 1	12,400	2,200	(10,200)
PAL 2	12,400	2,200	(10,200)
PAL 3	24,800	2,200	(22,600)
PAL 4	27,900	2,200	(25,700)

Notes:
(1) Data presented in Table 5.7.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.2 APRON REQUIREMENTS

While the general aviation apron area is currently intended to accommodate both based and itinerant aircraft parking, it is not currently well-suited suited for itinerant aircraft parking. Itinerant aircraft typically require a greater area for shorter amounts of time (usually less than 24 hours). Based aircraft require a smaller area for longer amounts of time. Currently, there are 8 tie-down areas located on the airport for use by based aircraft only, with little to no area for aircraft circulation. There is also no terminal or FBO at the Airport to provide public fuel sales and itinerant aircraft parking. The following analysis assumes that the Airport will provide an itinerant apron for such purposes.

5.2.2.1 Itinerant Aircraft Apron Area Requirements

For itinerant aircraft, consideration must be made for the aircraft parking area, taxilanes leading into and out of the parking positions, and circulation areas. This analysis assumes that itinerant parking will consist of single rows, wing-to-wing, pull-through and/or back-in parking, depending on the row location. In addition to the required parking area for the aircraft, taxilane, taxilane object free area, and aircraft clearances on all sides of the aircraft are included in the area requirements. ADG I aircraft are assumed to have a 5-foot clearance on all sides, and ADG II aircraft are assumed to have a 10-foot clearance.

Table 5.9 summarizes the weighted average parking apron requirements per itinerant aircraft by type. The analysis results in a weighted average of 6,800 square feet per itinerant aircraft.

Table 5.9 – Itinerant Aircraft Parking Apron Requirements per Aircraft

Airplane Design Group	Average Length (ft)	Average Wingspan (ft)	Additional Clearances (ft)[1]	TOFA Clearance (ft)	Average Parking Area Required (SF)[2]	Fleet Mix	Weighted Average Parking Area (SF)[3]
I	28	40	5	79	5,850	80%	4,700
II	35	55	10	115	12,750	15%	1,900
					Weighted Average		**6,600**

Notes:
(1) Operational safety area around aircraft.
(2) Parking for fixed-wing aircraft assumes wing-to-wing parking, in single rows. Parking area includes full width of taxilane and object free area in front of aircraft parking to accommodate back-in parking (wingspan + additional clearance multiplied by TOFA clearance). Taxilane and OFA area added to aircraft area plus additional clearances on all four sides of aircraft.
(3) Calculated by multiplying fleet mix percentages and associated area requirement by ADG type, then summing the ADG requirements. All numbers rounded to nearest 100 SF.

Source Kimley-Horn and Associates, Inc., 2012
FAA Advisory Circular 150/5300-13A

5.2.2.2 Itinerant Aircraft Apron Area Demand

The annual itinerant operations are assumed to be consistent with the FAA TAF ratio of itinerant to local operations, which in the case of Belle Glade State Municipal Airport is 33% itinerant to 67% local. To calculate demand for itinerant fixed wing aircraft and helicopters, the following assumptions were applied to the annual operations forecast developed in Section 3:

- Itinerant Operations – 33% of total
- Peak Month Itinerant Operations – 13% of annual itinerant operations
- PMAD Itinerant Operations – peak month itinerant operations divided by 30
- PMAD Itinerant Aircraft – PMAD itinerant operations divided by 2 (1 aircraft performing one take-off and one landing)
- Itinerant Aircraft Parking Stalls – 50% of PMAD Itinerant Aircraft multiplied by assumed itinerant percentage for apron storage (identified in Section 5.2.1)

Table 5.10 summarizes the itinerant aircraft parking demand based on the assumptions outlined above.

Table 5.10 – Itinerant Aircraft Parking Apron Demand

Year	Annual GA Operations[(1)]	Annual Itinerant Operations[(2)]	Peak Month Itinerant Operations[(3)]	PMAD Itinerant Operations[(4)]	Average Day Itinerant Aircraft[(5)]	Itinerant Aircraft Parking Stalls[(6)]
PAL 1	3,900	1,300	200	7	4	2
PAL 2	6,500	2,100	300	10	5	3
PAL 3	9,600	3,200	400	13	7	4
PAL 4	13,300	4,400	600	20	10	5

Notes:
(1) Data presented in Table 4.7.
(2) Annual itinerant aircraft operations calculated by taking 39 percent of annual operations (See Section 5.2.2.2) Numbers rounded to nearest 100.
(3) Peak month itinerant operations equals 13 percent of annual itinerant operations. Numbers rounded to nearest 100.
(4) Peak month average day itinerant operations equals peak month itinerant operations divided by 30. Numbers rounded to nearest integer.
(5) Equals PMAD operations divided by 2 (assumes one take-off and one landing per aircraft). Numbers rounded to nearest integer.
(6) Calculated by dividing average day itinerant aircraft by 2 (assumes 50% of aircraft on the ground at a given time, see Table 5.5). Numbers rounded to nearest integer.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.2.3 Based Aircraft Apron Area Requirements

For based aircraft, consideration must be made for the aircraft parking area, taxilanes leading into and out of the parking positions, and circulation areas. This analysis assumes that based aircraft parking will consist of double rows, wing-to-wing, back-in parking, where aircraft in the two rows face in opposite directions and are parked tail-to-tail. In addition to the required parking area for the aircraft, one-half the taxilane and taxilane object free area width, and aircraft clearances on all sides of the aircraft are included in the area requirements. ADG I aircraft are assumed to have a 5-foot clearance on all sides, and ADG II aircraft are assumed to have a 10-foot clearance on all sides.

Table 5.11 summarizes the weighted average parking apron requirements per based aircraft by type. The analysis results in a weighted average of 6,100 feet per based aircraft.

Table 5.11– Based Aircraft Parking Apron Requirements per Aircraft

Airplane Design Group	Average Length (ft)	Average Wingspan (ft)	Additional Clearances (ft)[(1)]	TOFA Clearance (ft)	Average Parking Area Required (SF)[(2)]	Fleet Mix	Weighted Average Parking Area (SF)[(3)]
I	28	40	5	79	3,875	50%	1,900
II	35	55	10	115	8,438	50%	4,200
					Weighted Average		**6,100**

Notes:
(1) Operational safety area around aircraft.
(2) Parking for aircraft assumes double rows of back-in parking. Parking area includes one-half the width of taxilane and object free area in front of aircraft parking to accommodate back-in parking (wingspan + additional clearance multiplied by TOFA Clearance). Taxilane and OFA area added to aircraft area plus additional clearances on all four sides of aircraft.
(3) Calculated by multiplying fleet mix percentages and associated area requirement by ADG type, then summing the ADG requirements. All numbers rounded to nearest 100 SF.

Source: Kimley-Horn and Associates, Inc., 2012
FAA Advisory Circular 150/5300-13A

5.2.2.4 Based Aircraft Apron Area Demand

The percentages presented in Table 5.4 assume that, by the end of the planning period, 50% of based fixed wing aircraft will be stored at tie-down positions on the apron, with the remaining aircraft in hangars. **Table 5.12** summarizes the based aircraft demands for the apron area.

Table 5.12 – Based Aircraft Parking Apron Demand

Year	Based Aircraft[(1)]	Based Aircraft Stored on Apron[(2)]
PAL 1	12	12
PAL 2	14	11
PAL 3	15	7
PAL 4	17	9

Notes:
(1) Data presented in Table 4.6.
(2) Assumption from Table 5.5, number rounded to nearest integer.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.2.5 Aircraft Apron Area Requirements

Table 5.13 presents the summary of the aircraft apron area requirements. As shown, the existing apron area is insufficient throughout the planning period. Based on the analysis and projected demand, the Airport will require an additional 77,200 square feet of apron space by the end of the planning period. The square footage requirements for apron area initially decrease due to a presumed relocation of aircraft currently based on the apron to hangars.

Table 5.13 – Summary of Aircraft Parking Apron Area Requirements

PAL	Aircraft Storage Requirements		Apron Area Required (SF)			Circulation Area Required[5] (SF)	Total Apron Required[6] (SF)	Existing Apron (SF)	Net Surplus/ (Deficiency) (SF)
	Based[1]	Itinerant[2]	Based[3]	Itinerant[4]	Total				
PAL1	12	2	74,400	13,200	87,600	21,900	109,500	30,200	(79,300)
PAL 2	11	3	64,300	19,800	84,100	21,025	105,125	30,200	(74,925)
PAL 3	7	4	42,800	26,400	69,200	17,300	86,500	30,200	(56,300)
PAL 4	9	5	52,900	33,000	85,900	21,475	107,375	30,200	(77,175)

Notes:

(1) Data presented in Table 5.12.
(2) Data presented in Table 5.10.
(3) Equals number of based aircraft times 6,100 SF (apron requirement per based aircraft presented in Table 5.10). Numbers rounded to nearest 100.
(4) Equals number of itinerant aircraft times 6,600 SF (apron requirement per itinerant aircraft presented in Table 5.8). Numbers rounded to nearest 100.
(5) Circulation area equals 25 percent of required apron area based on general aviation aprons at similar airports. Numbers rounded to nearest integer.
(6) Total apron required equals sum of required based and itinerant aircraft apron areas and circulation areas.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.3 General Aviation Vehicular Parking Facilities

There are eight marked vehicular parking spaces currently provided at the Airport, in a small lot located next to the Roma, Inc. tenant facility.

To determine future vehicle parking requirements, a planning metric of 1 space per 1,000 square feet of aircraft storage hangar space was applied. It was also assumed that each vehicle parking space would be 20 feet deep by 9 feet wide, and include half of a 26 foot wide drive aisle for circulation. These assumptions result in an area planning metric of 300 square feet per parking space.

A factor of 1.5 was applied to the required hangar area in order to account for potential parking demand associated with the increased itinerant aircraft, which is not captured by hangar space alone. **Table 5.14** summarizes the results of the vehicular parking analysis, which indicates that existing parking facilities at the Airport are insufficient to meet anticipated demand. By the end of the planning period an additional 10,200 square feet of vehicular parking areas are necessary to accommodate anticipated demand.

Table 5.14 – Vehicular Parking Area Requirements

Year	Required Hangar Area	Required Vehicle Parking Stalls[(1)]	Existing Vehicle Parking Stalls	Additional Vehicle Parking Stalls Required	Additional Vehicle Parking Area Required (SF)[(2)]
PAL 1	12,400	19	8	11	3,300
PAL 2	12,400	19	8	11	3,300
PAL 3	24,800	37	8	29	8,700
PAL 4	27,900	42	8	34	10,200

Notes:
(1) Assumes planning metric of 1 space per 1,000 SF of hangar area. Hangar area multiplied by 1.5 to account for projected increase in itinerant aircraft. Numbers rounded to nearest integer.
(2) Calculated by multiplying required number of additional parking stalls by 300 SF per space. 300 SF per space assumes stall dimensions of 9 ft. wide X 20 ft. deep plus one half of a 26 ft. wide drive aisle for vehicle circulation.

Source: Kimley-Horn and Associates, Inc., 2012

5.2.4 General Aviation Facility Requirements Summary

Based on anticipated aircraft operations and growth in GA activity, and aircraft storage location assumptions detailed previously, additional hangars, apron areas, and vehicular parking are required through the end of the planning period. **Table 5.15** presents the overall summary for general aviation facilities throughout the planning period.

Table 5.15– General Aviation Facility Requirements Summary

PAL	Hangar Area Requirements[1]			Apron Area Requirements[2]			Vehicle Parking Requirements[3]		
	Existing Hangar Area (SF)	Required Hangar Area (SF)	Additional Required Area (SF)	Existing Apron Area (SF)	Required Apron Area (SF)	Additional Required Area (SF)	Existing Spaces	Required Spaces	Additional Required Spaces
PAL 1	2,200	12,400	10,200	30,200	109,500	79,300	8	19	11
PAL 2	2,200	12,400	10,200	30,200	105,125	74,925	8	19	11
PAL 3	2,200	24,800	22,600	30,200	86,500	56,300	8	37	29
PAL 4	2,200	27,900	25,700	30,200	107,375	77,175	8	42	34

Notes:
(1) Data presented in Table 5.8.
(2) Data presented in Table 5.13.
(3) Data presented in Table 5.14.

Source: Kimley-Horn and Associates, Inc., 2012

5.3 SUPPORT FACILITY REQUIREMENTS

This subsection examines ancillary facilities at the Airport. Specific support functions that will be reviewed include airport administration facilities, fuel storage facilities, and instrument approach procedures.

5.3.1 AIRPORT ADMINISTRATION

The Airport does not have an onsite administration building. There is no individual exclusively serving as airport manager, and day-to-day operations and fiscal management of the Airport are overseen by the Deputy City Manager.[10] With the relatively low level of projected aircraft operations and based aircraft through the planning period, there is not an anticipated need for the construction of an onsite airport administration facility.

5.3.2 FIXED BASE OPERATOR

There is currently no FBO located at the Airport, and public aviation services such as fuel sales and other aircraft services are not offered. The lack of an FBO significantly decreases the ability of the Airport to accommodate itinerant aircraft, since they are unable to park or purchase fuel. In order to accommodate the projected growth in itinerant aircraft, a modest FBO facility should be planned for and constructed during the planning period. This facility should include passenger waiting areas, a means of purchasing fuel, and pilot services, such as a flight planning area. The implementation of an FBO was also identified as a future strategy in the Belle Glade Municipal Airport Strategic Business Plan.

5.3.3 FUEL STORAGE FACILITIES

The tenant facilities currently manage their own fuel inventories for the purpose of their own operations. Since there is no FBO present on the Airport, general public fuel sales are not offered. Should an FBO be constructed at the Airport, a fuel storage facility will need to be constructed as well. This facility should be capable of storing 100LL fuel, with the potential to expand to include Jet A fuel as well, should the need arise. The fuel storage facility should have a minimum capacity of 10,000 gallons of 100LL fuel, and depending on the FBO's needs, the facility may either be capable of allowing pilots to self-serve their aircraft, or be used to store fuel for mobile refuelers.

5.3.4 AIRPORT LIGHTING AND NAVIGATIONAL AIDS

The Airport does not currently have runway lighting, runway end lighting, or approach lighting installed. As such, the Airport is limited to operations during daylight hours. The addition of runway lighting and runway end lighting, such as Medium Intensity Runway Lighting (MIRL) and Runway End Identifier Lights (REILs) would greatly enhance the operational safety of the Airport, as well as allow usage of the Airport during nighttime. Visual glideslope indicators, such as Precision Approach Path Indicator (PAPI) lighting, should also be considered for increased airport safety and utility. As the Airport is unattended, it is recommended that the lighting systems be pilot-controlled, which allows for reduced energy costs by only operating the lighting when needed. Should runway lighting be installed, a rotating airport beacon will be required. This lighting device consists of an alternating green and white light beam, 180 degrees apart, used to identify a lighted civil airport at night.

[10] Belle Glade Municipal Airport, Strategic Business Plan, Kimley-Horn and Associates, Inc., Ricondo & Associates, Inc., August 2010.

5.3.5 AIRPORT MAINTENANCE

Currently, no airport maintenance equipment is stored onsite. It is recommended that a modest facility for equipment and tool storage be planned for and/or constructed during the planning period so that airport maintenance may be done without having to acquire equipment from off-site locations for airport maintenance purposes.

5.3.6 INSTRUMENT APPROACH PROCEDURES

The Airport does not currently have any published instrument approach procedures (IAPs). These procedures allow aircraft to approach and land at the Airport in instrument meteorological conditions (IMC), which refer to weather conditions where the visibility is less than 3 miles, and the cloud ceiling is less than 1,000 feet above ground level (AGL). According to climactic data obtained from the NCDC for the period ranging from 2000-2009, IMC is encountered approximately 1% of the time at the nearest reporting station, which is the Palm Beach International Airport.

With the growing presence and expansion of IAPs that utilize Global Positioning System (GPS) technology, the addition of a non-precision GPS IAP should be considered at the Airport. GPS approaches do not require the installation and maintenance of ground-based navigational aids that would normally be required with traditional instrument approaches such as the ILS or Very High Frequency Omnidirectional Range (VOR) approach.

The implementation of an IAP at the Airport would not only allow aircraft to utilize the airport during IMC, but also allows the Airport to support Instrument Flight Rules (IFR) flight training operations by allowing pilots and flight students to conduct practice approaches without having to fly to other airports. The requirements for an IAP at the Airport are listed in **Table 5.16** for different types of approaches and visibility minimums. The table lists requirements for three different categories of IAPs:

- ILS or Localizer Performance with Vertical Guidance (LPV)
- Non-Precision Approach with Vertical Guidance (APV)
- Non-Precision Approach without Vertical Guidance

It is recommended that the Airport consider the implementation of a non-precision approach with not less than 3/4 mile visibility minimums. In order to meet the requirements for this type of approach, the Airport must install runway edge lighting as well as construct a full-length parallel taxiway (if visibility minimums less than 1 mile are desired).

A precision approach, such as an ILS, is not recommended due to high cost of implementation and maintenance and relatively small benefit for the types of operations expected at the Airport during the planning period.

Table 5.16 – Instrument Approach Requirements

Criteria	Approach Type							
	ILS or LPV		APV			Non-Precision		
Visibility Minimums	<3/4 Mile	>3/4 Mile	<3/4 Mile	< 1 Mile	1 Mile	<3/4 Mile	< 1 Mile	1 Mile
Height Above Threshold (HAT)	200 feet		250 feet	300 feet	350 feet	300 feet	340 feet	400 feet
TERPS Precision "W" Surfaces	Clear	Increase HAT as required	N/A					
TERPS Glidepath Qualification Surface (GQS)	Clear[1]		Clear[2]			N/A		
TERPS Obstacle Clearance Slope	34:1	20:1	34:1	20:1	20:1	34:1	20:1	20:1
Precision Obstacle Free Zone	Required	Not Required	Required	Required	Required	Not Required	Not Required	Not Required
Minimum Runway Length	4,200 feet		4,200 feet	3,200 feet	3,200 feet	4,200 feet	3,200 feet	3,200 feet
Parallel Taxiway	Required		Required			Required		Recommended
Runway Edge Lights	HIRL/MIRL		HIRL/MIRL		MIRL/LIRL	HIRL/MIRL		MIRL/LIRL
Approach Lights	Required	Recommended	Required	Recommended	Recommended	Required	Required[3]	Recommended
Runway Design Standards	<3/4 mile vis. minimums	>3/4 mile vis. minimums	<3/4 mile vis. minimums	>3/4 mile vis. minimums	>3/4 mile vis. minimums	< 3/4 mile vis. minimums	>3/4 mile vis. minimums	>3/4 mile vis. minimums
Survey Requirements	V. Guided Airport Airspace Analysis Survey AC 150/5300-18b				Non V. Guided	V. Guided	Non V. Guided	

Notes: 1) See AC 150/5300-13A for specific criteria
2) See AC 150/5300-13A for specific criteria
3) ODALS or MALS Acceptable

5.4 SUMMARY

The vision of the airport, as contained within the recently completed Strategic Business Plan, is to continue to support its existing agricultural operations, but also strive to become a full-service general aviation airport, and operate as an economic asset to the City of Belle Glade. The preceding analysis of demand/capacity and airport facility requirements considered this future vision during the process. The following is a summary of recommended improvements to the Airport's existing facilities throughout the planning period. The airfield improvements section is categorized by immediate design standard deficiency mitigation requirements, and ultimate requirements.

Airfield – Immediate Design Standard Deficiency Mitigations

- Mitigate existing topography issues in the runway safety area and primary surface area;
- Maintain existing displaced thresholds or mitigate existing approach slope obstructions to maintain/attain a 20:1 approach surface ratio for each runway end;
- For the existing Runway 9-27 runway surface:
    - Rehabilitate existing runway pavement
    - Update runway marking to current FDOT minimum standards;
    - Ensure East/West turf taxiway connector south of Runway 9-27 is not being used as a runway.

Airfield – Ultimate Facility Requirements

- Maintain existing runway length of 3,750 feet;
- Consider extension to length of 4,300 feet;
- Upgrade airfield design standards to ARC A-II;
    - Widen Runway 9-27 from a current width of 50 feet to 75 feet;
    - Increase associated runway safety and object free areas as necessary;
- Addition of full-length parallel taxiway;
- Consider addition of crosswind runway to obtain 95% 10.5 knot crosswind component coverage;

General Aviation Facilities

- Development of approximately 26,000 square feet of hangar space
- Development of approximately 79,000 square feet of apron area
- Development of 34 additional vehicular parking spaces.

Support Facilities

- Plan for development of an FBO facility
- Plan for development of aircraft fueling facility
- Construction of modest airport equipment storage building
- Consider addition of MIRL and REIL systems, along with rotating airport beacon
- Consider implementation of GPS-based IAP

Development strategies and alternatives to meet these requirements will be addressed in the next section.

SECTION 6 - ALTERNATIVES ANALYSIS

6.1 INTRODUCTION

This section presents airport development alternatives for satisfying the facility requirements described in Section 5 of this report, which are further disseminated into airfield development alternatives and general aviation (GA) facility development alternatives. The overall goal of this analysis is to provide a balanced airfield and GA facility complex that safely meets aircraft performance requirements and provides for airport tenant, user, and local community needs. The airfield alternatives analysis includes discussion of existing and future runway and taxiway layouts. The GA alternatives analysis evaluates the development of hangar and apron space, vehicular parking, and aircraft support facilities such as FBOs and fuel facilities.

6.2 ALTERNATIVES DEVELOPMENT PROCESS

The existing airport property is such that physical space for airport growth and development is significantly limited unless additional property is acquired. Currently, the airport leases approximately 86 acres of land along Airport Road and SR 80 from the State of Florida. At the time of this report's publication, the Airport has been working with the State to expand its leased areas to include an additional 200 acres north of Runway 9-27. The additional property would provide additional areas to develop facilities to satisfy the requirements generated in Section 5 of this report, as well as provide areas for potential non-aeronautical business development. The majority of this alternatives analysis will be developed around the assumption that the Airport is able to expand its leased property to include an additional 200 acres north of the existing Runway 9-27.

The process for developing airport alternatives consists of assessing the future airport requirements and generating concepts that satisfy those requirements. These concepts include both airfield alternatives and GA facility alternatives. The output of the process is as follows, airfield alternatives, GA facility alternatives, and an overall airport development plan which combines the preferred elements of the airfield and GA facility alternatives.

6.3 AIRFIELD ALTERNATIVES

This section presents the alternatives that were generated to satisfy the various airfield facility requirements presented in Section 5. During the alternative development process, the consideration of a crosswind runway was discussed, but set aside at the present time due to limited north/south spacing availability and lack of accurate wind data at a facility closer to the Airport than Palm Beach International. Consideration of runway lighting and a GPS-based IAP were also initially discussed during the process and not considered further primarily due to the existing use of the facility and the expected development pace over the next 10-20 years.

In addition to a no-build scenario, three general airfield and land use alternatives were identified during the alternatives development process, and were expanded to multiple scenarios for each general alternative.

- **Alternative 1: No-Build Scenario**
- **Alternative 2: Upgrade to Standards**
    - 2A: Upgrade in Place
    - 2B: Relocate Runway 9-27

- **Alternative 3: Runway Extension**
  - 3A: Extend in Place
  - 3B: Relocate Runway 9-27
- **Alternative 4: Maximum Development**
  - 4A: Extend in Place
  - 4B: Relocate Runway 9-27

The main land use categories and associated functions identified in the alternatives below include the following:

- **General Aviation Areas** – includes land areas designated for aviation related functions, facilities, and activities, including storage/maintenance hangars, T-hangars, terminal facilities, aircraft parking apron, and automobile parking. These facilities may be associated with FBO functions as well as other properties used for aeronautical purposes including small corporate aviation, air taxi, and other charter operations.
- **Helicopter Training Areas** – area designated for potential use as a helicopter training facility.
- **Non-Aviation Revenue Generating Areas** – includes properties utilized for a variety of commercial purposes that are not aviation related, do not require direct airfield access, and serve to generate revenue for the Airport.

6.3.1 AIRFIELD ALTERNATIVE 1 – NO BUILD SCENARIO

Alternative 1, shown in **Exhibit 6.1**, represents the no-build scenario, which leaves the airfield facilities "as-is" for the remainder of the planning period. The no-build scenario leaves Runway 9-27 in a state of deficiency to current minimum FAA design standards for RDC A-I (small aircraft) and RDC A-II. Without a parallel taxiway, the Airport will also be limited in terms of aircraft type and operations capacity in the future.

Additional general aviation development within the existing airport property would be restricted to the south side of the runway with frontage along Airport Road, and the area north of the Runway 9 end fronting State Road 80 totaling approximately 32 acres.

6.3.2 AIRFIELD ALTERNATIVE 2 – UPGRADE TO STANDARDS

The overall goal of Alternative 2 is to upgrade the airfield from its current state to compliance with RDC A-II design standards. This upgrade requires a widening of the runway to 75 feet, increases in size of the runway safety area, runway object free area, and runway protection zones to more safely and effectively serve aircraft types that are in approach category A or B or in ADG II.

In addition, this alternative also proposes a full-length parallel taxiway to support aircraft operations. The taxiway allows aircraft to circulate more efficiently around the airfield, as well as more safely, since aircraft will not be required to back-taxi on the runway as they currently do.

Alternative Summary

Developable GA Area: 32 Acres
Property Acquisition: 0 Acres

Notes:
1. Runway 9-27 width remains deficient to FAA standards for RDC-II

Legend

- Property Line
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- GA Land Use Area

Florida East Coast Rail Company
Belle Glade Airport Rd
GA Land Use Area
(11 Acres)
East State Road 80
Sugar House Rd
9
RUNWAY 9-27 (3,750' x 50')
27
GA Land Use Area
(21 Acres)
Airport Rd
N

Scale: 1" = 500'

Exhibit 6.1

Airfield Alternative 1: No Build Scenario

Alternative 2 generated two sub-alternatives, which are described below.

Alternative 2A: Upgrade Runway 9-27 in Place

Alternative 2A, shown in **Exhibit 6.2**, proposes the following major improvements:

- Widening of Runway 9-27 from 50 to 75 feet in its current location.
- Provides full-length parallel taxiway on north side of Runway 9-27 with a runway-taxiway centerline separation of 240 feet.

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to eliminate the need for displaced thresholds on both runway ends, and increase the available landing distance to aircraft.

Additional general aviation development would be located to the northwest of the airfield with primary vehicular access via State Road 80. Approximately 71 acres of development area are shown on Exhibit 6.2, along with a property acquisition area for GA development and airfield expansion of approximately 66 acres.

Alternative 2B: Relocate Runway 9-27

Alternative 2B, shown in **Exhibit 6.3**, proposes the following major improvements:

- Construction of replacement Runway 9-27 (3,750' x 75') 240 feet north of the existing runway.
- Reconstruction and conversion of existing Runway 9-27 to a full-length parallel taxiway.

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to ensure displaced thresholds on both runway ends are not needed, maximizing the available landing distance to aircraft.

Additional general aviation development, totaling approximately 39 acres, would be located to the south and northwest of Runway 9-27, all within existing airport boundaries. Approximately 46 acres of property acquisition is required for airfield expansion purposes for this alternative.

6.3.3 AIRFIELD ALTERNATIVE 3 – RUNWAY EXTENSION

The overall goal of Alternative 3 is to address the issue of future runway length, building upon the improvements identified in Alternative 2. Based on the runway length requirements analysis in Section 5, an extension to 4,300 feet should be considered in order to accommodate all small aircraft less than 12,500 pounds.

Alternative 3 generated two sub-alternatives, which are described below.

Alternative 3A: Extend Runway 9-27 in Place

Alternative 3A, shown in **Exhibit 6.4**, proposes the following major improvements:

- Incorporates all airfield development proposed for Alternative 2A.
- Provides 550-foot extension of Runway 9-27 to the east for a total length of 4,300 feet.

Alternative Summary

Developable GA Area: 71 Acres
Property Acquistion: 66 Acres

Notes:

1. Electric lines located off Runway 9 approach end and light poles off Runway 27 approach end will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

Florida East Coast Rail Company

Belle Glade Airport Rd

East State Road 80

Sugar House Rd

OVERHEAD ELECTRIC LINES

LIGHT POLES

GA Land Use Area
(56 Acres)

RUNWAY 9-27 (3,750' x 75')

9

27

GA Land Use Area
(15 Acres)

Airport Rd

N

Scale: 1" = 500'

Exhibit 6.2

Airfield Alternative 2A - Upgrade Airfield Standards - Upgrade Runway 9-27 in-Place

Alternative Summary

Developable GA Area: 39 Acres
Property Acquistion: 46 Acres

Notes:
1. Electric lines located off Runway 9 approach end will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

Florida East Coast Rail Company

Belle Glade Airport Rd

East State Road 80

OVERHEAD ELECTRIC LINES

GA Land Use Area
(11 Acres)

6

RUNWAY 9-27 (3,750' x 75')

27

GA Land Use Area
(28 Acres)

Airport Rd

Sugar House Rd

N

Scale: 1" = 500'

Exhibit 6.3

Airfield Alternative 2B - Upgrade Airfield Standards - Relocate Runway 9-27

Alternative Summary

Developable GA Area: 71 Acres
Property Acquistion: 65 Acres

Notes:

1. Electric lines located off Runway 9 and Runway 27 approach ends and light poles off Runway 27 approach end will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

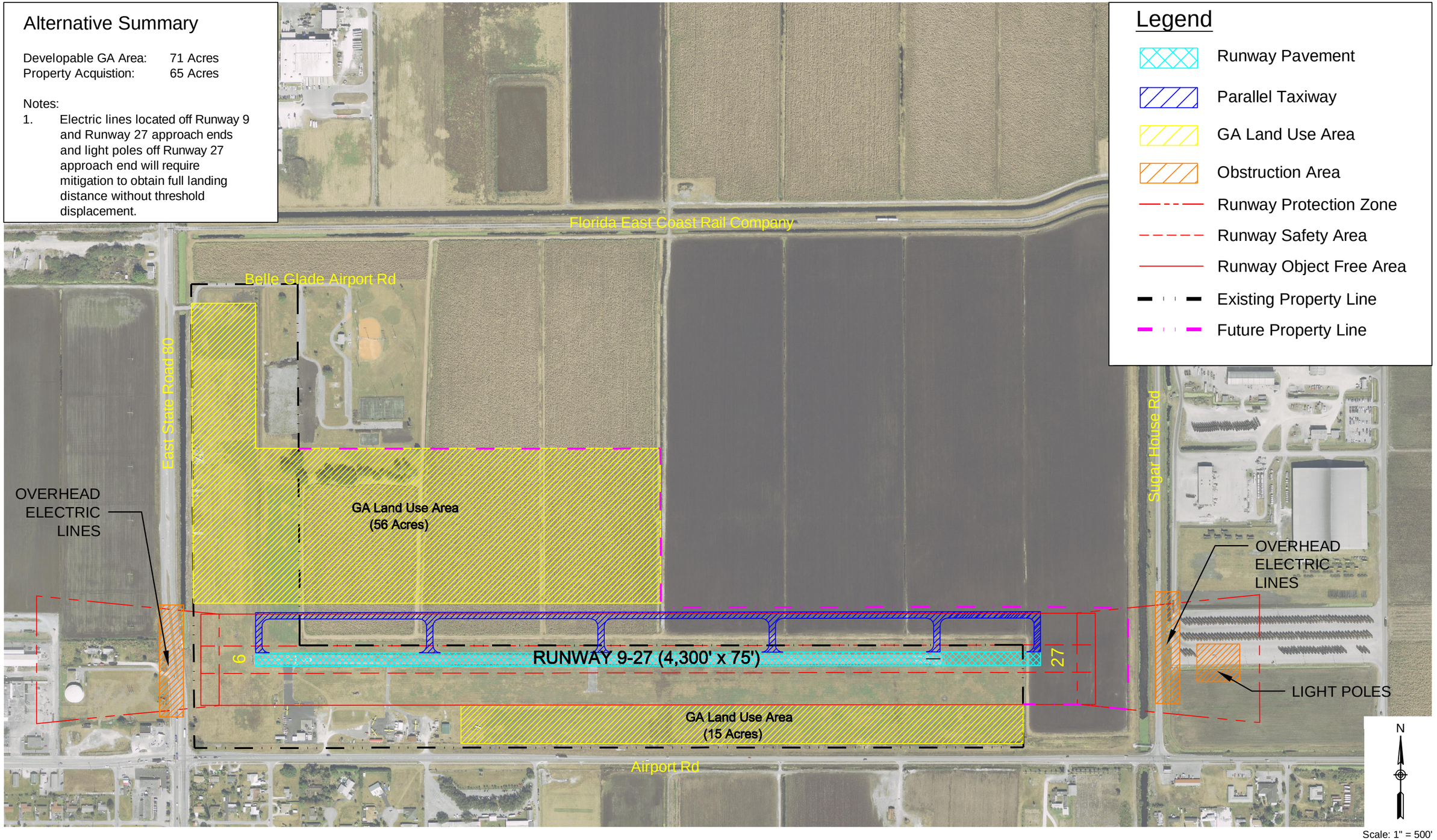


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Exhibit 6.4

Airfield Alternative 3A - Extend Runway 9-27 in Place

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to eliminate the need for displaced thresholds on both runway ends, and increase the available landing distance to aircraft.

Additional general aviation development would be located to the northwest of the airfield with primary vehicular access via State Road 80. Approximately 71 acres of development area are shown on Exhibit 6.4, along with a property acquisition area for GA development and airfield expansion of approximately 65 acres.

Alternative 3B: Relocate Runway 9-27 – Extended Length

Alternative 3B, shown in **Exhibit 6.5**, proposes the following major improvements:

- Construction of replacement Runway 9-27 (4,300' x 75') 240 feet north of the existing runway.
- Reconstruction and conversion of existing Runway 9-27 to a full-length parallel taxiway, and extended to full length of the replacement runway.

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to ensure displaced thresholds on both runway ends are not needed, maximizing the available landing distance to aircraft.

Additional general aviation development, totaling approximately 40 acres, would be located to the south and northwest of Runway 9-27, all within existing airport boundaries. Approximately 45 acres of property acquisition is required for airfield expansion purposes for this alternative.

6.3.4 AIRFIELD ALTERNATIVE 4 – MAXIMUM DEVELOPMENT

Alternative 4 addresses maximizing potential land uses to enhance the future economic viability of the airport. This alternative builds on the improvements identified in Alternative 3 to identify areas of opportunity for future growth in the Airport's vicinity.

Two sub-alternatives were generated for Alternative 4, which are described below.

Alternative 4A – Extend Runway 9-27 in Place

Alternative 4A, shown in **Exhibit 6.6**, incorporates all of the airfield development proposed for Alternative 3A.

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to eliminate the need for displaced thresholds on both runway ends, and increase the available landing distance to aircraft.

Alternative Summary

Developable GA Area: 71 Acres
Property Acquistion: 78 Acres

Notes:
1. Electric lines located off Runway 9 and Runway 27 approach ends will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

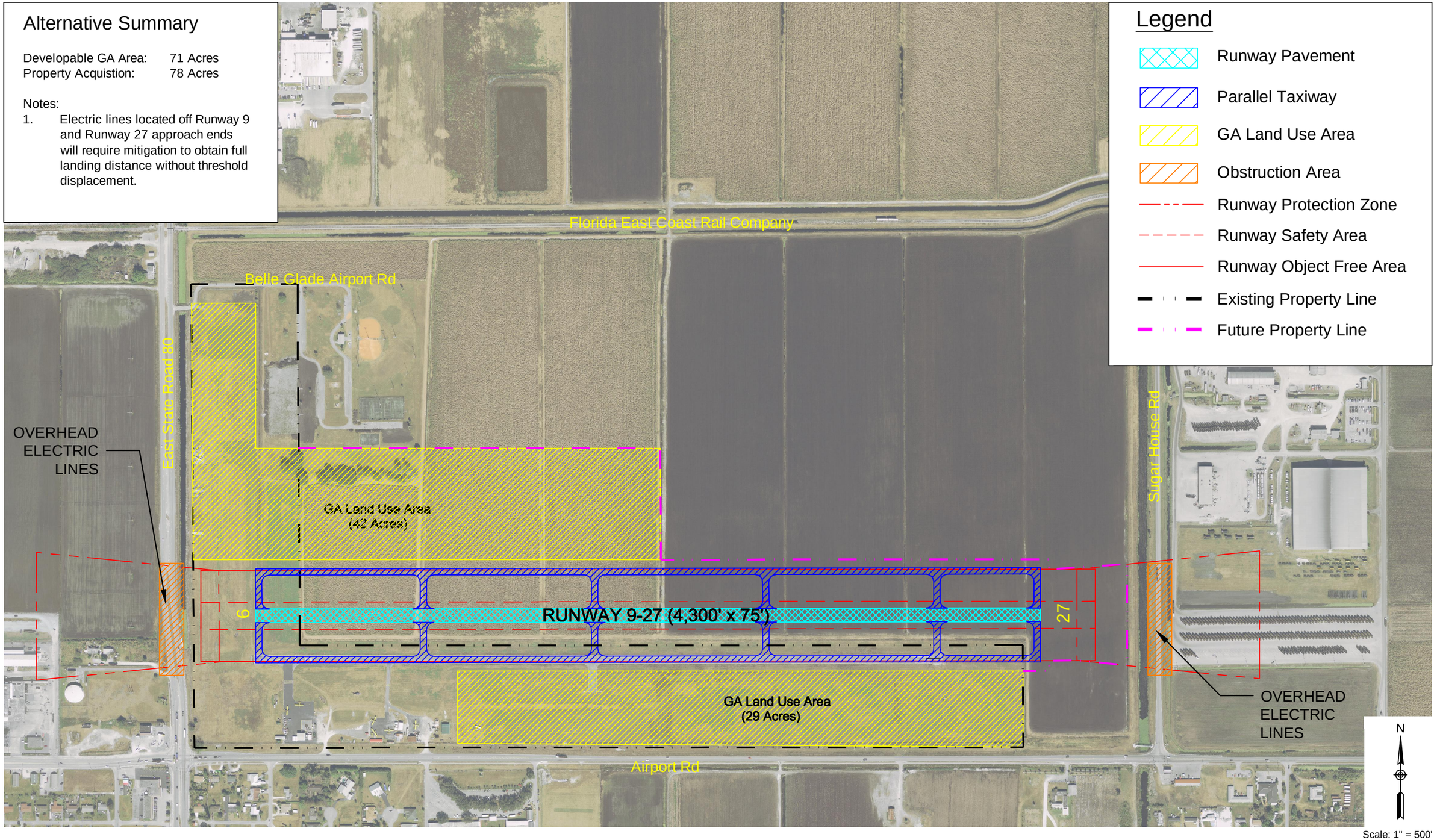

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Exhibit 6.5

Airfield Alternative 3B - Relocate Runway 9-27 - Extended Length

Alternative Summary

Developable GA Area:	108 Acres
Non-Aviation Area	89 Acres
Property Acquistion:	222 Acres

Notes:

1. Electric lines located off Runway 9 and Runway 27 approach ends and light poles off Runway 27 approach end will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Helicopter Training Area
- Non Aviation Development
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

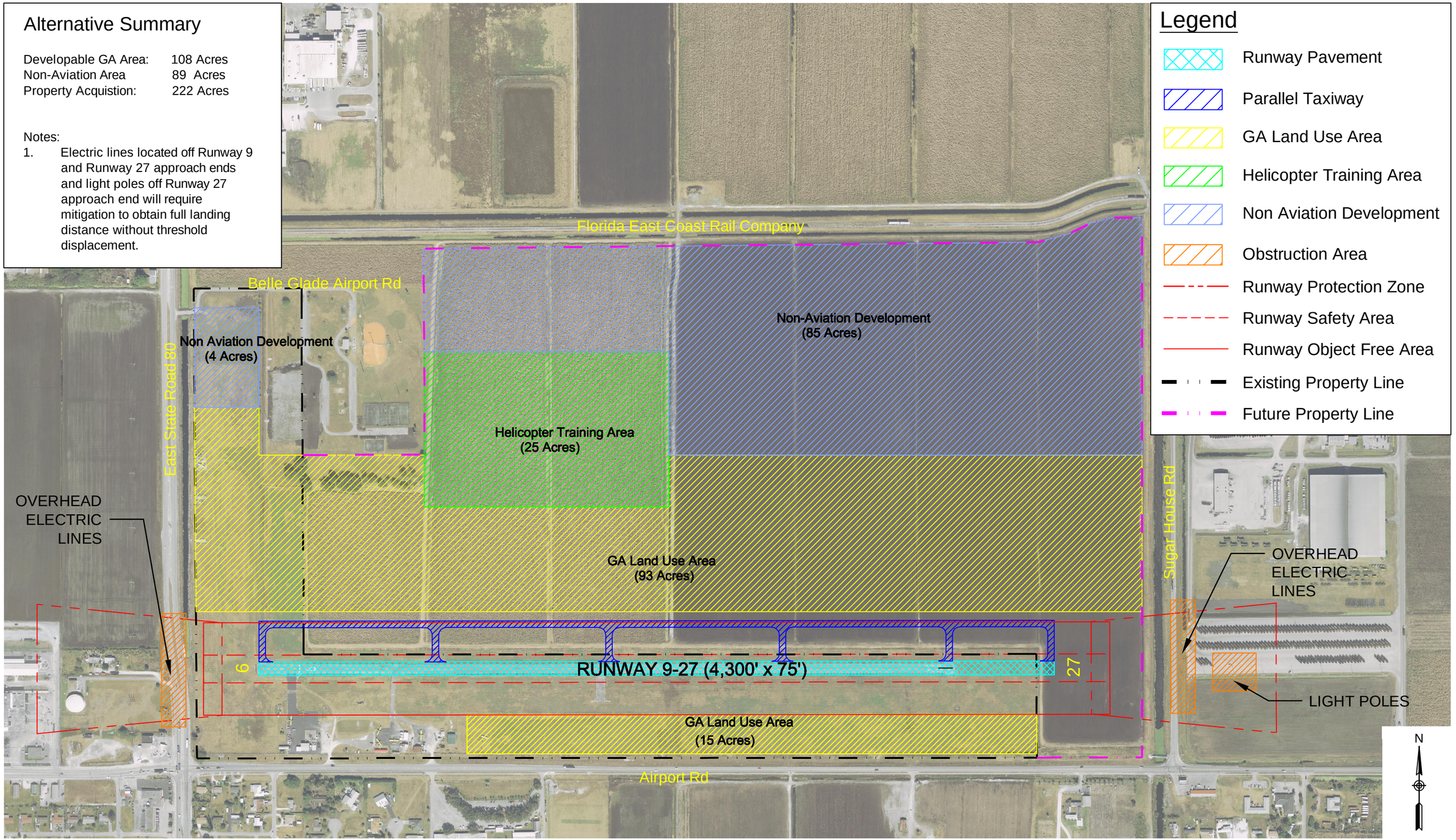

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Exhibit 6.6

Airfield Alternative 4A - Extend Runway 9-27 in-Place

Additional general aviation development would be located to the north and south of the airfield. The proposed helicopter training area would be located midfield, north of the existing airfield and proposed GA area. Primary vehicular access for the southern GA area would continue to be via Airport Road. Vehicular access for the northern GA and helicopter training areas would be achieved via State Road 80 and/or W. Sugar House Road. Approximately 108 acres of GA development area, and 25 acres of helicopter training area are shown on Exhibit 6.6. General aviation areas north of the airfield and the helicopter training area would be afforded immediate or direct taxiway/taxilane access to the airfield. GA areas south of the airfield would be limited to accessing the airfield through entrance/exit taxiways or turf access. It is intended that GA areas south of the airfield would be restricted to crop-dusting businesses/activities similar to existing uses.

The non-aviation revenue generating areas are located in the northeast and northwest portions of the airport. The northeast portion is afforded roadway access via W. Sugar House Road along the eastern airport boundary. The northwest portion is afforded roadway access via State Road 80 or Belle Glade Airport Road.

Alternative 4B – Relocate Runway 9-27 – Extended Length

Alternative 4B, shown in **Exhibit 6.7**, proposes the following major improvements:

- Incorporates all airfield development proposed for Alternative 3B.
- Provides additional full-length parallel taxiway on north side of ultimate Runway 9-27 with a centerline separation of 240 feet.

Existing above-ground utilities located on the east and west sides of the Airport would need to be mitigated in order to ensure displaced thresholds on both runway ends are not needed, maximizing the available landing distance to aircraft.

Additional general aviation development would be located to the north and south of the airfield. The proposed helicopter training area would be located midfield, north of the existing airfield and proposed GA area. Primary vehicular access for the southern GA area would continue to be via Airport Road. Vehicular access for the northern GA and helicopter training areas would be achieved via State Road 80 and/or W. Sugar House Road. Approximately 111 acres of GA development area, and 25 acres of helicopter training area are shown on Exhibit 6.7. General aviation areas and the helicopter training area would be afforded immediate or direct taxiway/taxilane access to the airfield.

The non-aviation revenue generating areas are located in the northeast and northwest portions of the airport. The northeast portion is afforded roadway access via W. Sugar House Road along the eastern airport boundary. The northwest portion is afforded roadway access via State Road 80 or Belle Glade Airport Road.

Alternative Summary

Developable GA Area: 111 Acres
Non-Aviation Area 73 Acres
Property Acquisition: 222 Acres

Notes:
1. Electric lines located off Runway 9 and Runway 27 approach ends will require mitigation to obtain full landing distance without threshold displacement.

Legend

- Runway Pavement
- Parallel Taxiway
- GA Land Use Area
- Helicopter Training Area
- Non Aviation Development
- Obstruction Area
- Runway Protection Zone
- Runway Safety Area
- Runway Object Free Area
- Existing Property Line
- Future Property Line

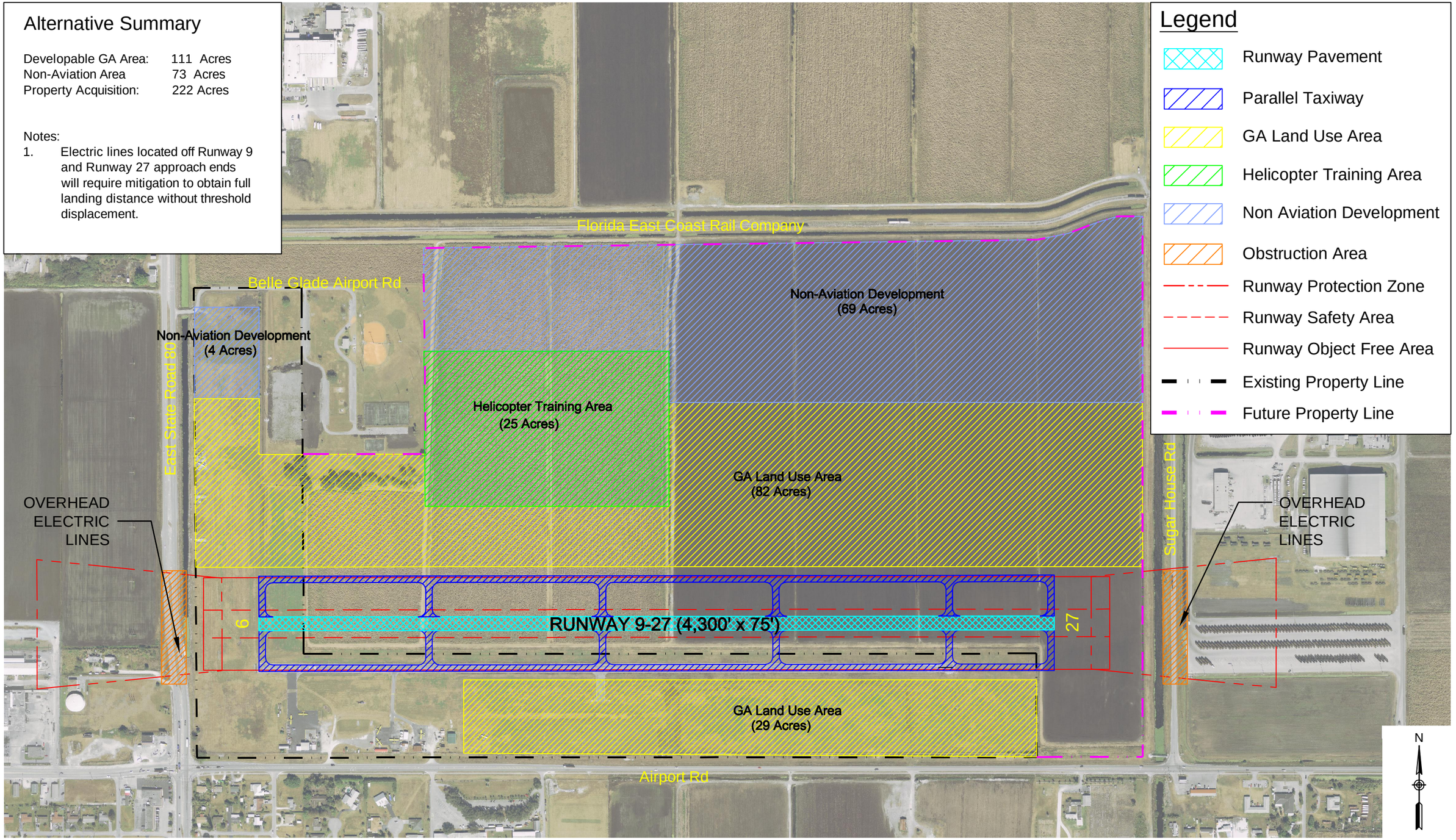

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Exhibit 6.7

Airfield Alternative 4B - Relocate Runway 9-27 - Extended Length

6.3.5 AIRFIELD ALTERNATIVES EVALUATION

The alternatives generation process resulted in the preceding seven airfield alternatives. Each alternative, with the exception of the no-build alternative) presents improvements intended to satisfy airfield facility requirements or user needs. This section presents an evaluation of the alternatives against the following set of criteria:

- **Design Standards** – The alternative should ensure that the Airport is in compliance with applicable airfield design standards for ARC A-II, including runway/taxiway separation, pavement widths, and safety and object free areas.
- **Meets Long-Term Demand** – The alternative should be able to accommodate existing and projected future aviation demand, both in terms of airfield capacity as well as facility capacity, such as being able to accommodate aircraft of varying sizes.
- **Ground Movements** – The alternative provides efficient aircraft movement and circulation around the airfield.
- **Landside Facility Expansion** – The alternative provides the ability to promote landside facility expansion.
- **Implementation Difficulty** – The alternative should minimize the cost of implementation and construction, and airport maintenance after plan implementation. Additionally, the alternative should minimize the relocations of existing businesses and/or structures and any adverse impacts on existing leaseholds.
- **Environmental Factors** – The alternative should minimize impacts to the natural environment, and consider the impacts of airport development on known environmental issues in the airport vicinity.

Based on the qualitative analysis, a rating or score was assigned to each alternative in order to quantify the results of the evaluation. The qualitative evaluation is described below, and the results are summarized in the evaluation matrix presented in **Table 6.1**.

Table 6.1 – Airfield Alternatives Evaluation Matrix

Evaluation Criteria	Airfield Alternatives						
	1 (No Build)	2A	2B	3A	3B	4A	4B
Design Standards	1	5	5	5	5	5	5
Meets Long-Term Demand	1	4	4	5	5	5	5
Ground Movements	1	3	3	3	3	3	5
Landside Facility Expansion	2	3	3	3	3	5	5
Implementation Difficulty	5	4	2	3	2	3	2
Environmental Factors	4	4	4	3	3	3	3
Totals	14	23	21	22	21	24	25
Ratings: 1 – Poor 2 – Satisfactory 3 – Good 4 – Very Good 5 – Excellent							

Source: Kimley-Horn and Associates, Inc. 2013

Design Standards

All alternatives except Alternative 1 are rated as excellent given that the airfields as shown are laid out to ARC A/B-II standards. Alternative 1 (No Build Scenario) is rated poor given the existing deficiencies in the existing airfield layout described earlier.

Meets Long-Term Demand

All alternatives except Alternative 1 are rated as either excellent or very good. Alternatives 3A, 3B, 4A, and 4B satisfy the runway length requirements in addition to meeting projected capacity. Alternatives 2A and 2B meet capacity requirements, but do not provide the extended length needed to accommodate additional aircraft sizes. Alternative 1 is rated poor given the lack of a parallel taxiway and reduced runway width.

Ground Movements

Alternative 1 is rated poor due to the lack of a taxiway system to efficiently move aircraft. Alternatives 2A through 4A are rated good by providing a parallel taxiway to the north or south of the runway; however some ground movements would still be somewhat restricted due to the need to cross the runway in order to use the parallel taxiway. Alternative 4B is rated excellent given the provision of parallel taxiways on both sides of the runway.

Landside Facility Expansion

Alternative 1 is rated satisfactory due to limited capability to expand facilities within the current property boundary. In addition, 11 of the 39 acres available for development are located within the environmental mitigation area north of the Runway 9 end. Alternatives 2A through 3B are rated good given the expanded areas available for development that meet future demand. Alternatives 4A and 4B are rated excellent due to the large additional GA areas available for development, and the provision of areas associated with potential helicopter training, and non-aviation development.

Implementation Difficulty

Alternative 1 is rated excellent because of the absence of additional facilities in the scenario. Alternative 2A is rated good due to the ability to construct the parallel taxiway without disturbing existing operations by the existing tenants on the south side of the runway. Alternatives 2B through 4B are rated either satisfactory or good due to the impact to existing operations required in order to implement the identified airfield improvements.

Environmental Factors

Alternatives 1 through 2B are rated very good due to the limited anticipated environmental impact. Alternatives 3A through 4B are rated good due to the additional runway length included in these alternatives which would likely require additional environmental study.

6.3.6 PREFERRED AIRFIELD ALTERNATIVE

The preferred airfield alternative, based on discussions between City of Belle Glade staff and the Consultant team (**Appendix B**), is Alternative 4B. This alternative provides the greatest amount of flexibility for future facility development, the longest runway length, and greatest airfield circulation with dual, full-length parallel taxiways.

6.4 GENERAL AVIATION FACILITY ALTERNATIVES

This section describes the GA facilities alternatives developed for the Airport. The alternatives development process considers the facility requirements that were generated from the aviation activity

forecast, as well as airport user needs. The GA alternatives include the development of apron space, hangar space, vehicular parking, and airport support facilities, such as fuel facilities and maintenance facilities. GA facility alternatives were developed in the GA land use areas identified on the preferred airfield alternative.

6.4.1 FACILITY REQUIREMENTS SUMMARY

The facility requirements analysis in Section 5 assumed a high growth scenario from the aviation forecast. **Table 6.2** summarizes the results of the facility requirements for general aviation facilities used to produce the general aviation area alternatives.

Table 6.2 – General Aviation Facility Requirements Summary

Functional Area	PAL 4 (2031) Requirement	Existing Facilities	Deficiency
Hangar Storage (SF)	17,100	2,200	(14,900)
Apron Area (SF)	80,800	30,200	(50,600)
Vehicular Parking (spaces)	26	8	(18)

Source: Kimley-Horn and Associates, Inc. 2013

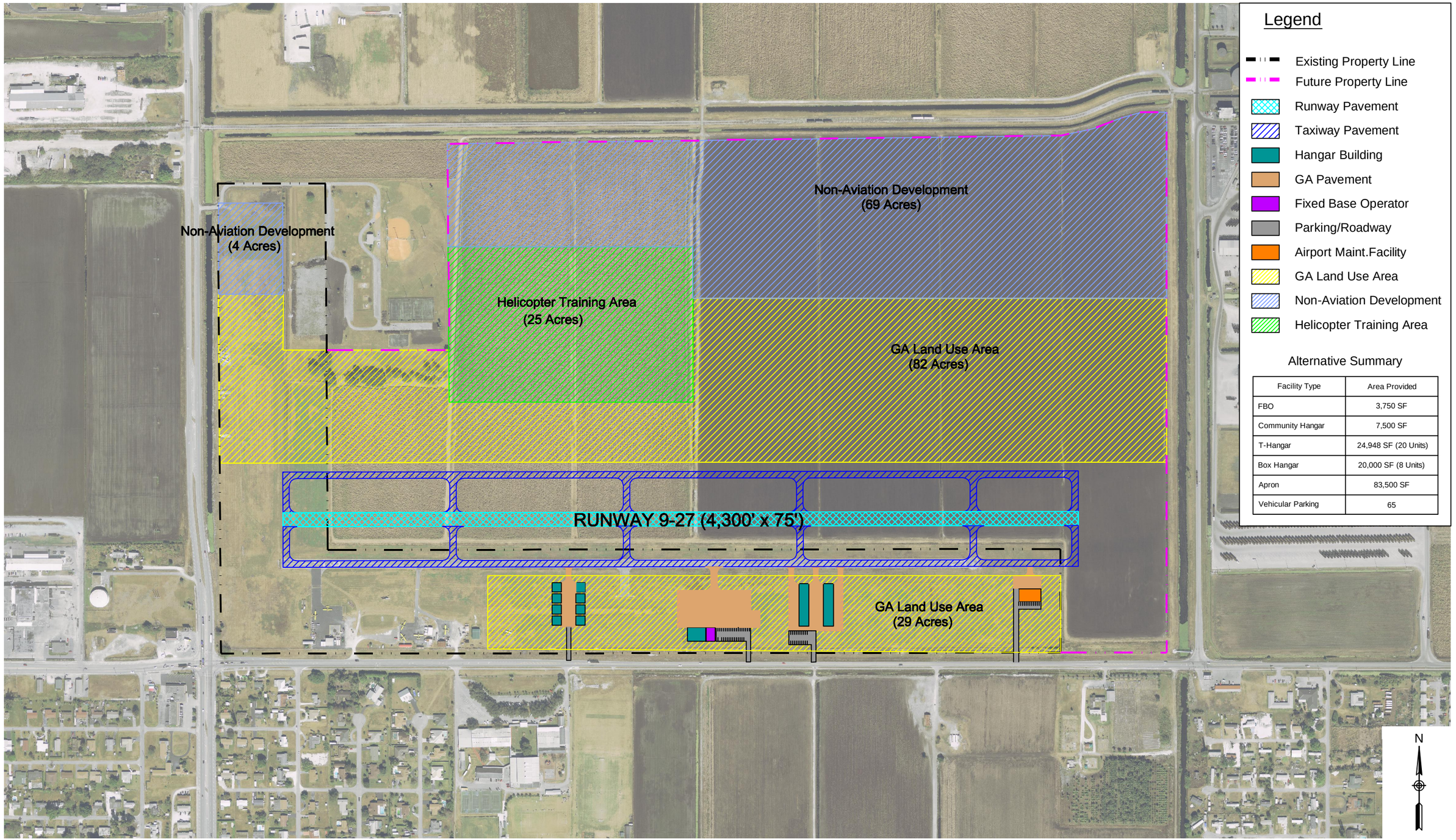
Three GA alternatives are described in detail in the following sub sections, plus a no-build GA alternative. The alternatives are independent of one another and do not reflect a progression from alternative to alternative.

6.4.2 GA NO BUILD ALTERNATIVE

This GA alternative is a no-build scenario, with no development of additional GA facilities or airport support facilities. Overall, this scenario is not recommended because of the limited utility of the Airport without space for itinerant aircraft to park and a facility from which to purchase fuel, such as an FBO or terminal. It also does not allow the Airport the opportunity to grow and become competitive in the general aviation market, or act as a catalyst for economic development in Belle Glade, which are goals identified in the Airport's Strategic Business Plan.

6.4.3 GA ALTERNATIVE 1 – SOUTHERN VICINITY DEVELOPMENT

GA Alternative 1 involves the development of new GA facilities in the area south of Runway 9-27. Proposed facilities include new double-nested T-hangars, box hangars, an FBO facility, apron space, vehicular parking, and an airport maintenance facility. All roadway access to these facilities is provided via curb cuts along Airport Road. All proposed development in this alternative assumes initial development on existing property. This alternative is shown on **Exhibit 6.8.**



Legend

- Existing Property Line
- Future Property Line
- Runway Pavement
- Taxiway Pavement
- Hangar Building
- GA Pavement
- Fixed Base Operator
- Parking/Roadway
- Airport Maint.Facility
- GA Land Use Area
- Non-Aviation Development
- Helicopter Training Area

Alternative Summary

Facility Type	Area Provided
FBO	3,750 SF
Community Hangar	7,500 SF
T-Hangar	24,948 SF (20 Units)
Box Hangar	20,000 SF (8 Units)
Apron	83,500 SF
Vehicular Parking	65

Scale: 1" = 500'

Exhibit 6.8

General Aviation Alternative 1

6.4.4 GA Alternative 2 – Northern Vicinity Development

GA Alternative 2 involves the development of GA facilities in the area north of Runway 9-27. The proposed facilities include the same as those described in GA Alternative 1, including T-hangars, box hangars, apron space, an FBO, and an airport maintenance facility. The development would be located primarily in the northwest vicinity of the airport along State Route 80, and would proceed east towards Sugar House Road. The airport maintenance facility would be located in the same area as GA Alternative 1, which is in the southeast vicinity of the Airport.

Roadway access to the northern facilities would be via Airport Park Road and State Route 80, leading to new airport access roads. One road would lead to the FBO and hangar facilities, while another road would lead to eventual non-aviation development in the northernmost area of the airport property. Roadway access from Sugar House Road is depicted as a potential future roadway connection. This alternative is shown on **Exhibit 6.9.**

6.4.5 GA Alternative 3 – North and South Vicinity Development

GA Alternative 3 is a combination scheme in which development would be located on both the north and south sides of Runway 9-27. This alternative provides a significantly greater amount of facility development, and attempts to more fully utilize the developable area. Facilities provided include double-nested T-hangar buildings, larger conventional hangars, an FBO facility, apron space, and an airport maintenance facility.

Roadway access to the facilities in the southern vicinity would be provided via direct cuts to Airport Road. Roadway access to the northern facilities would be provided via connections to Sugar House Road on the east and State Route 80 on the west. This alternative is shown on **Exhibit 6.10.**

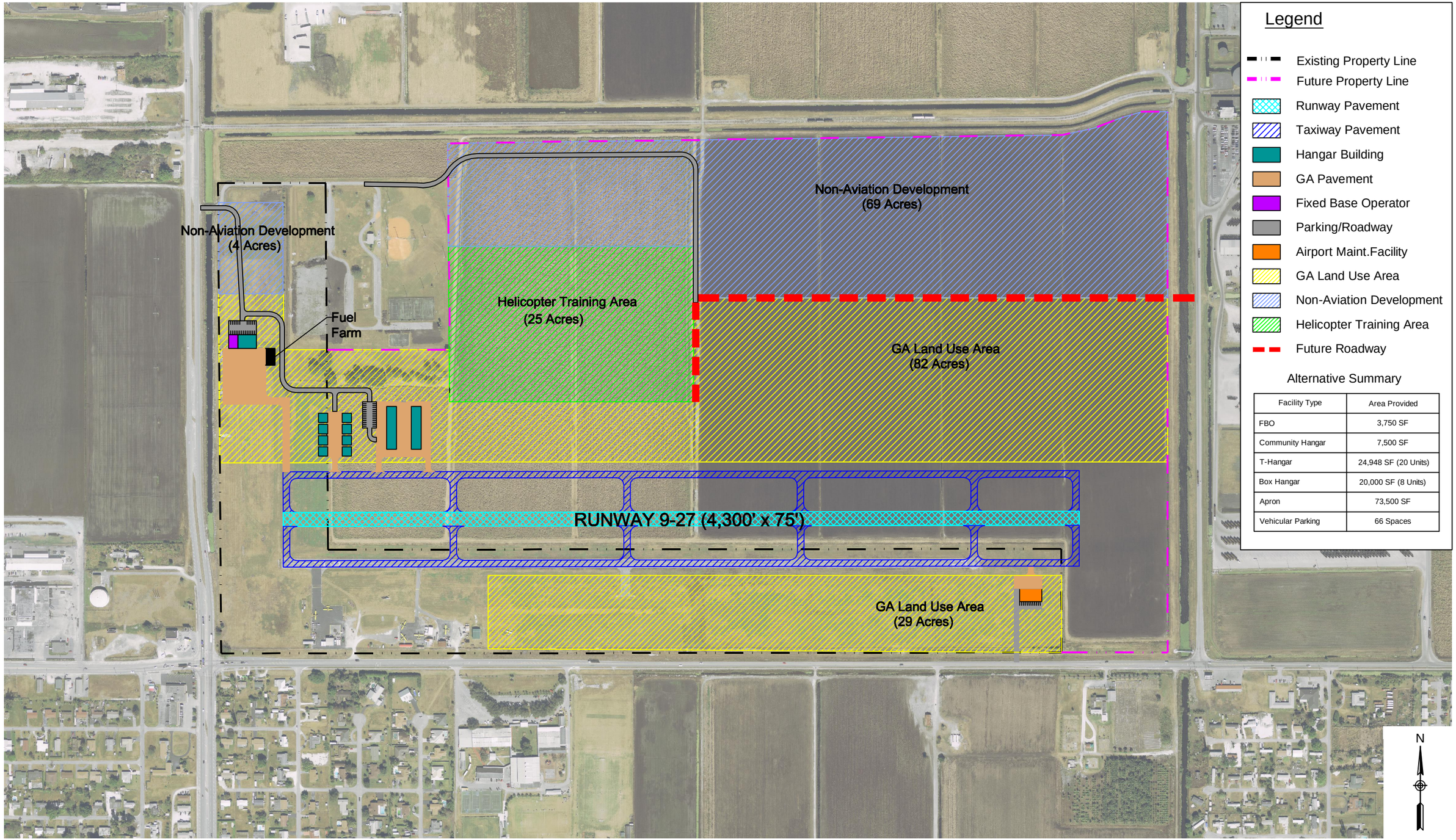
6.4.6 GA Alternatives Summary

Table 6.3 below provides a numerical summary of the features of each GA alternative.

Table 6.3 – General Aviation Alternatives Summary

Functional Area	No Build	Alternative 1	Alternative 2	Alternative 3
FBO (SF)	0	3,750	3,750	3,750
Hangar Storage (SF)	0	52,500	52,500	147,300
Apron Area (SF)	0	83,500	73,500	200,800
Vehicular Parking (spaces)	0	65	66	60

Source: Kimley-Horn and Associates, Inc. 2013



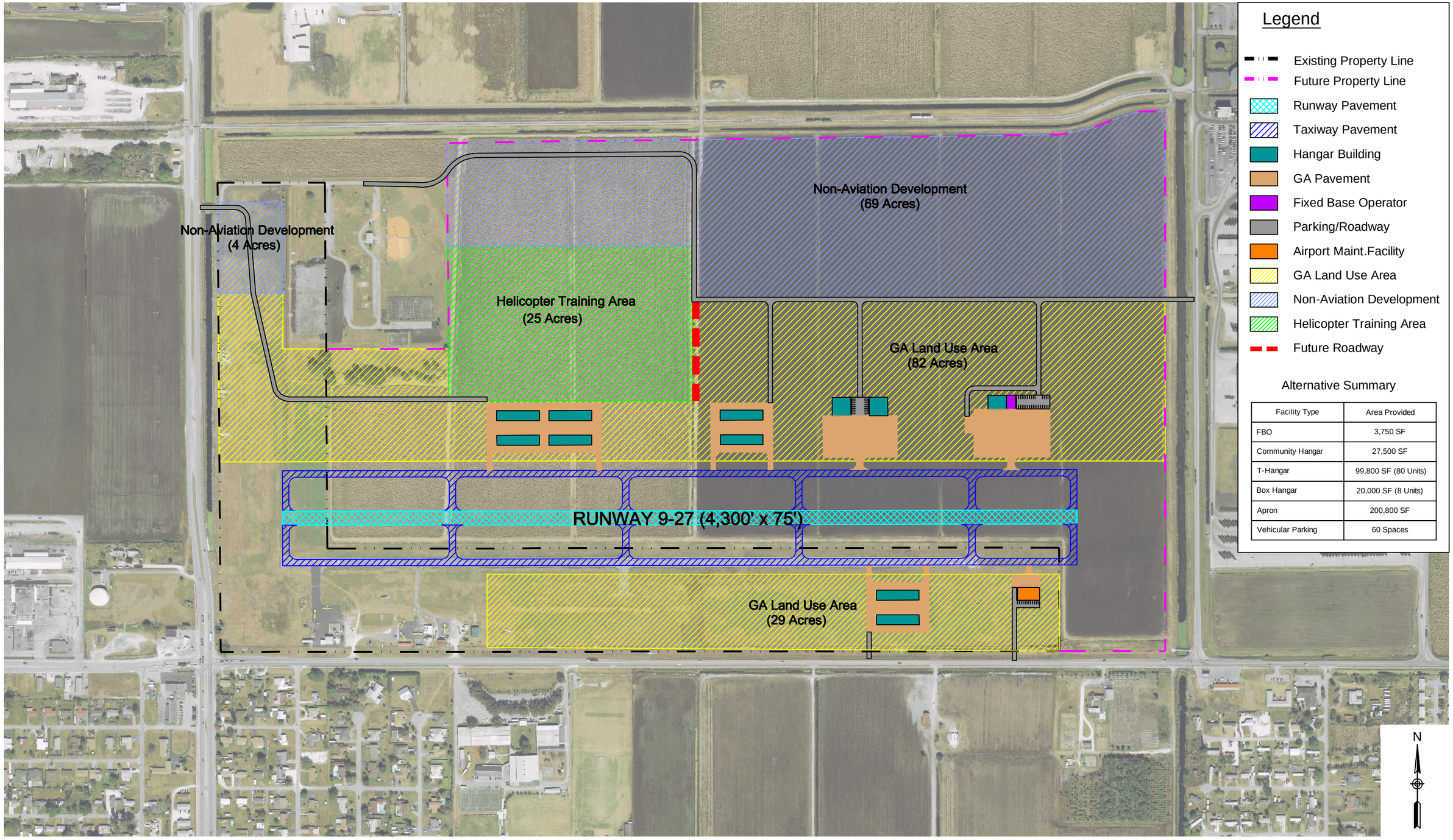
Alternative Summary

Facility Type	Area Provided
FBO	3,750 SF
Community Hangar	7,500 SF
T-Hangar	24,948 SF (20 Units)
Box Hangar	20,000 SF (8 Units)
Apron	73,500 SF
Vehicular Parking	66 Spaces

Scale: 1" = 500'

Exhibit 6.9

General Aviation Alternative 2



Legend

- Existing Property Line
- Future Property Line
- Runway Pavement
- Taxiway Pavement
- Hangar Building
- GA Pavement
- Fixed Base Operator
- Parking/Roadway
- Airport Maint.Facility
- GA Land Use Area
- Non-Aviation Development
- Helicopter Training Area
- Future Roadway

Alternative Summary

Facility Type	Area Provided
FBO	3,750 SF
Community Hangar	27,500 SF
T-Hangar	99,800 SF (80 Units)
Box Hangar	20,000 SF (8 Units)
Apron	200,800 SF
Vehicular Parking	60 Spaces

Scale: 1" = 500'

Exhibit 6.10

General Aviation Alternative 3

6.4.7 GA Alternatives Evaluation

The preceding GA alternatives were evaluated from a standpoint of flexibility, operational effectiveness, safety, and constructability/construction phasing. With the exception of the no-build alternative, all three GA alternatives provide a significant improvement over the existing conditions by providing space for based and itinerant aircraft, FBO services, aircraft fueling capability, and onsite airport maintenance capability. Additionally, roadway access to the proposed facilities is provided for each alternative.

The evaluation is presented in **Table 6.4** below in a matrix format.

Table 6.4 – GA Alternatives Evaluation Matrix

Evaluation Criteria	GA Alternatives			
	No Build	1	2	3
Flexibility	Poor	Good/Very Good	Excellent	Good/Very Good
Operational Effectiveness	Poor	Very Good	Very Good	Excellent
Safety Considerations	Poor	Excellent	Excellent	Excellent
Phasing/Constructability	Poor	Excellent	Very Good	Good

Source: Kimley-Horn and Associates, Inc. 2013

6.4.8 Preferred GA Alternative

The GA alternatives were presented to City of Belle Glade staff for review and input on the preferred GA alternative. It was determined that GA Alternative 2 would align best with the Airport and City's needs for the planning horizon for several reasons, which are described below.

- FBO and Hangar development is separated from existing tenants, reducing potential aircraft traffic congestion and/or conflicts.
- FBO and Hangar development would create a new gateway and entrance to the Airport.
- The location of initial development on the west/northwest side of the Airport allows for phased eastward future development.
- No additional access points and curb cuts along SR 80 are needed.

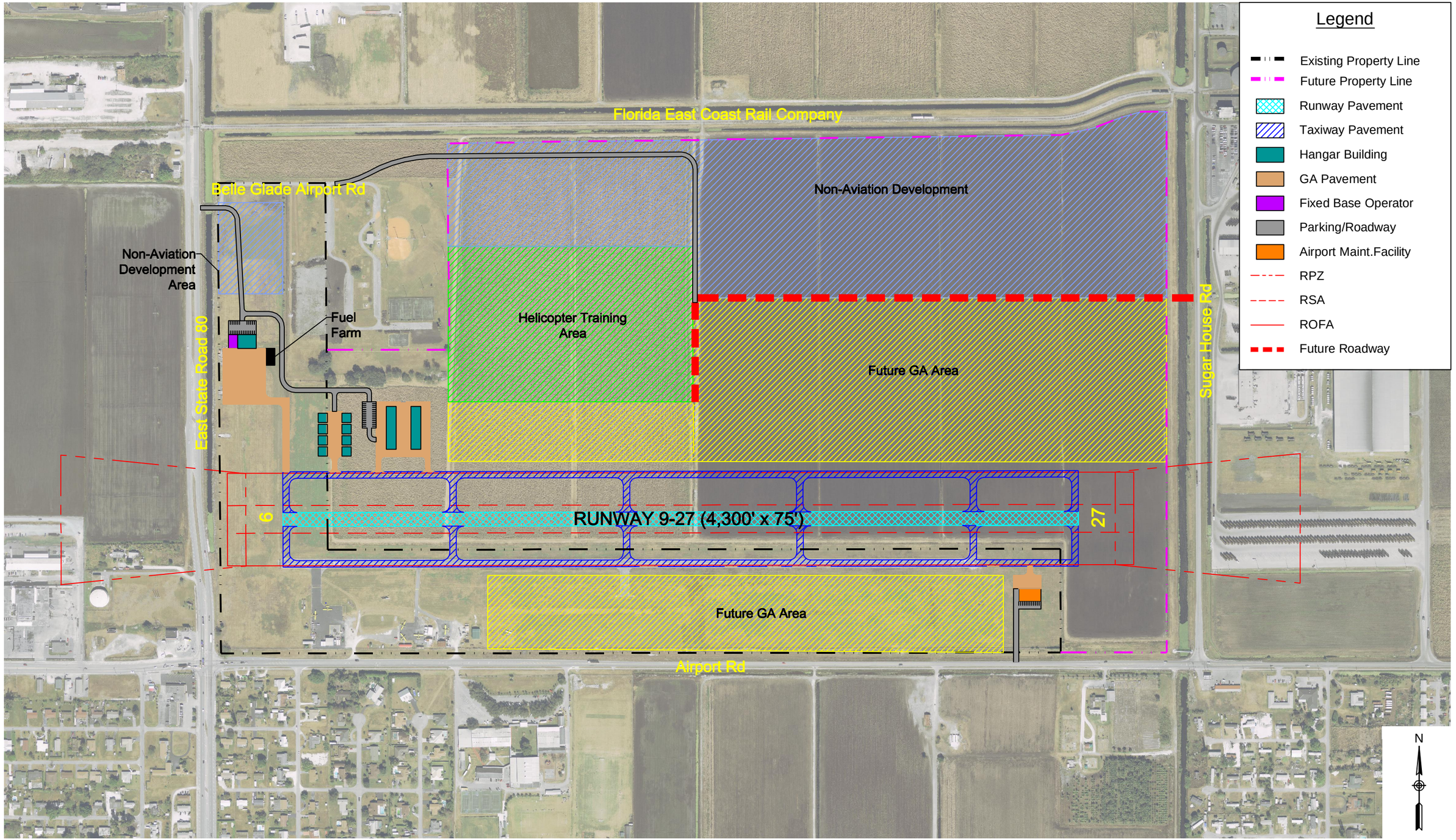
Therefore, GA Alternative 2 was recommended to (presentation in **Appendix C**) and accepted by the City Commission as the preferred General Aviation alternative.

6.5 AIRPORT DEVELOPMENT PLAN

The airport development plan (ADP) combines the preferred airfield alternative and preferred GA alternative into an overall future airport development strategy. As described in Section 6.3.6, the preferred airfield development alternative is Alternative 4B. The preferred GA alternative, which is GA Alternative 2, was combined with the preferred airfield alternative to produce the ADP.

The recommended airfield and general aviation facility components were combined to create the overall ADP, shown on **Exhibit 6.11**. The relocation, extension, and widening of Runway 9-27 to 4,300 x 75 feet will allow higher performance aircraft to utilize the Airport, and allow the City to maximize the potential development area to the north and south of the runway. Aviation support and general aviation facilities included in the ADP will provide nearly 130,000 additional square feet of apron, hangar space, and FBO development, along with additional vehicular parking facilities to accommodate anticipated growth in general aviation activity at the Airport over the next 20 years.

As outlined in Section 5.1.6, the Airport is currently deficient in several minimum Florida Licensed Airport Minimum Standards as defined in Chapter 14-60 of the FAC. The ADP and the constituent projects that will comprise the Capital Improvement Program (see **Section 8**) mitigate the current deficiencies in the Florida minimum standards. **Table 6.5** outlines the mitigation of each item previously identified in Table 5.4.



Scale: 1" = 500'

Exhibit 6.11

Airport Development Plan

Belle Glade State Municipal Airport

Master Plan Update

Table 6.5 – Mitigation of Runway Deficiencies (Florida Licensed Airport Minimum Standards)

FAC Section	Facility/Category	Deficiency	Proposed Interim Mitigation	ADP Mitigation
14-60.007(1)(a)	Minimum Landing Area	Runway 9-27 width is 50 feet. Minimum Standard is 60 feet.	Pavement Rehabilitation project will include widening to 60'	Relocated Runway 9-27 will be constructed to width of 75 feet per FAA A-II standard.
14-60.007(2)(b)1.b	Landing and Surface Areas	Berm north of Runway 9-27 located within the Primary Surface.	Interim mitigation for existing runway will occur with relocation of the North Drainage/Irrigation Ditch project (See Section 8.4, Project #10).	Relocated Runway 9-27 will ensure grade is outside of primary surface.
14-60.007(2)(c)1.b	Landing and Surface Areas	1) Runway 9 approach ratio is 9:1 due to obstruction. 225-foot displaced threshold mitigates approach ratio to 20:1. 2) Runway 27 approach ratio is 19:1 due to obstruction. 62-foot displaced threshold mitigates approach ratio to 20:1.	Existing utilities on east and west sides will be buried or relocated.	Existing utilities on east and west sides of airport are proposed to be buried or relocated, eliminating the obstruction and need for displaced threshold (See Section 8.4, Project #5 and 6).
14-60.007(8)(c)	Additional Responsibilities	1) Grass encroaching onto Runway 9-27. 2) Ensure East/West turf taxiway south of Runway 9-27 is not being used as a runway.	Interim mitigation for existing runway includes pavement rehabilitation project (See Section 8.4, Project #1).	Relocated Runway 9-27 will include parallel taxiway.
14-60.007(9)(b)	Airport Markings	Runway designation number lines are 4 feet wide. Standard is five feet wide.	Pavement Rehabilitation project (See Section 8.4, Project #1) of existing runway assumes updating runway markings to minimum standards.	Relocated Runway 9-27 will include markings per current standard.
14-60.007(9)(c)	Airport Markings	Runway centerline stripe markings begin 150 feet from top of runway designation marking. Standard is 40 feet.		
14-60.007(9)(e)	Airport Markings	1) Runway arrowheads and tails do not overlap five feet. 2) Runway arrow markings are not white. 3) Displaced arrow head markings are not visible.		
14-60.007(9)(f)	Airport Markings	Runway hold position markings dashed lines and spaces are 5 feet long. Standard is 3 feet.		
14-60.007(9)(l)1	Airport Markings	Runway designation, centerline stripe, hold position, displaced arrow and arrow head, and displaced bar markings do not have glass beads.		
14-60.007(9)(l)2	Airport Markings	Runway designation, centerline stripe, displaced bar, displaced arrow and arrow head, and hold position markings not outlined with black border six inches or greater in width.		

SECTION 7 - ENVIRONMENTAL OVERVIEW

7.1 INTRODUCTION

This section presents an Environmental Overview (EO) of the potential environmental impacts that may occur as a result of future development at the Airport. The Council on Environmental Quality (CEQ) regulation 1501.2 states that "Agencies shall integrate the NEPA process with other planning at the earliest possible time to insure that planning and decisions reflect environmental values, to avoid delays later in the process, and to head off potential conflicts." The following impact categories are considered in this review as outlined in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedure,* dated March 20, 2006.

- Air Quality
- Coastal Resources
- Compatible Land Use
- Construction Impacts
- Department of Transportation Act: Section 4(f)
- Farmlands
- Fish, Wildlife, and Plants
- Floodplains
- Hazardous Materials, Pollution Prevention, and Solid Waste
- Historical, Architectural, Archaeological, and Cultural Resources
- Light Emissions and Visual Impacts.
- Natural Resources, Energy Supply and Sustainable Design
- Noise
- Secondary (Induced) Impacts
- Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Water Quality
- Wetlands
- Wild and Scenic Rivers

This EO is not intended to be a formal Environmental Assessment (EA) or Environmental Impact Statement (EIS). The purpose of this EO is to ensure that environmental factors are considered during the master planning process, and to provide decision makers and the public with an understanding of potential environmental impacts associated with proposed airport development. This EO focuses on issues that could result from implementation of the Preferred Airport Development Plan at the Airport over the planning period.

7.2 ENVIRONMENTAL PROCESS

Airport improvement projects that are considered to be Federal actions or receive Federal funding must be assessed from an environmental standpoint in order to comply with the National Environmental Policy Act of 1969 (NEPA). The FAA environmental process consists of a determination of the appropriate review for the proposed action. The result of this determination is the selection of one of the three following procedures:

- **Environmental Impact Statement**

  An EIS is a tool that allows the federal agency to make an in-depth examination of the environmental impacts the proposed airport action and reasonable alternatives would cause. It also discloses information needed for the public to understand the proposed action and its environmental effects. Major airport actions such as a new commercial service airport or a new runway at a commercial service airport within a metropolitan statistical area normally require an EIS.

- **Environmental Assessment**

  An EA is prepared in order to determine whether a proposed action or its alternatives has the potential to significantly affect the environment. If completion of the EA indicates that the proposed airport action will not result in significant impacts, a Finding of No Significant Impact (FONSI) is prepared.

- **Categorical Exclusion**

  A categorical exclusion (CATEX) applies when a proposed action is included in one of the categories of categorical exclusion as outlined in paragraphs 307-312 of FAA Order 1050.1E. If it is determined that no extraordinary circumstances apply to the proposed action, the action may proceed without further environmental review. If an action cannot be categorically excluded, it is subject to an EA.

7.3 EXAMINATION OF ENVIRONMENTAL IMPACT CATEGORIES

7.3.1.1 Air Quality

The Federal Clean Air Act (CAA) established National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants. These six pollutants are: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM-10 and PM-2.5) and sulfur dioxide (SO_2). Geographic areas where these standards are not met for the preceding criteria pollutants are designated as “nonattainment areas”. Individual states containing nonattainment areas must prepare a State Implementation Plan (SIP) to meet or exceed NAAQS for the pollutants within the timeframes established by the CAA.

According to the U.S. Environmental Protection Agency (EPA), there is one non-attainment area in Florida, located in Hillsborough County, which is on the west coast of Florida, and encompasses the City of Tampa. This area is approximately 70 miles northwest of the Airport. Based on the relatively low amount of projected aircraft operations throughout the planning period, negative impacts to air quality are not anticipated.

7.3.1.2 Coastal Resources

Belle Glade State Municipal Airport is located approximately 40 miles inland from the east coast of Florida, therefore an evaluation of impacts to this resource is not considered applicable.

7.3.1.3 Compatible Land Use

According to FAA Order 1050.1E, existing or future land use compatibility in the vicinity of an airport is usually associated with noise impacts related to that airport. The Airport is surrounded by a mixture of agricultural, industrial, recreational, commercial, and residential land uses. Agricultural and industrial uses are located to the north, east, and west. Residential and commercial areas are located south of the Airport.

The proposed airport development does not include a directional realignment of the runway. As a result, airport traffic patterns are not expected to change significantly such that air traffic is introduced over new areas. According to the City of Belle Glade Comprehensive Plan and Palm Beach County Future Land Use information, all future land use surrounding the Airport is are expected to remain the same as the existing land use.

The county's future land use information indicates currently vacant fields south of the Airport are planned for residential uses. In order to ensure minimal noise impacts, any residential development in these areas immediately adjacent to the Airport should be closely coordinated with the City and any airport staff. **Exhibit 7.1** and **Exhibit 7.2** highlight future land use for the City of Belle Glade and Palm Beach County.

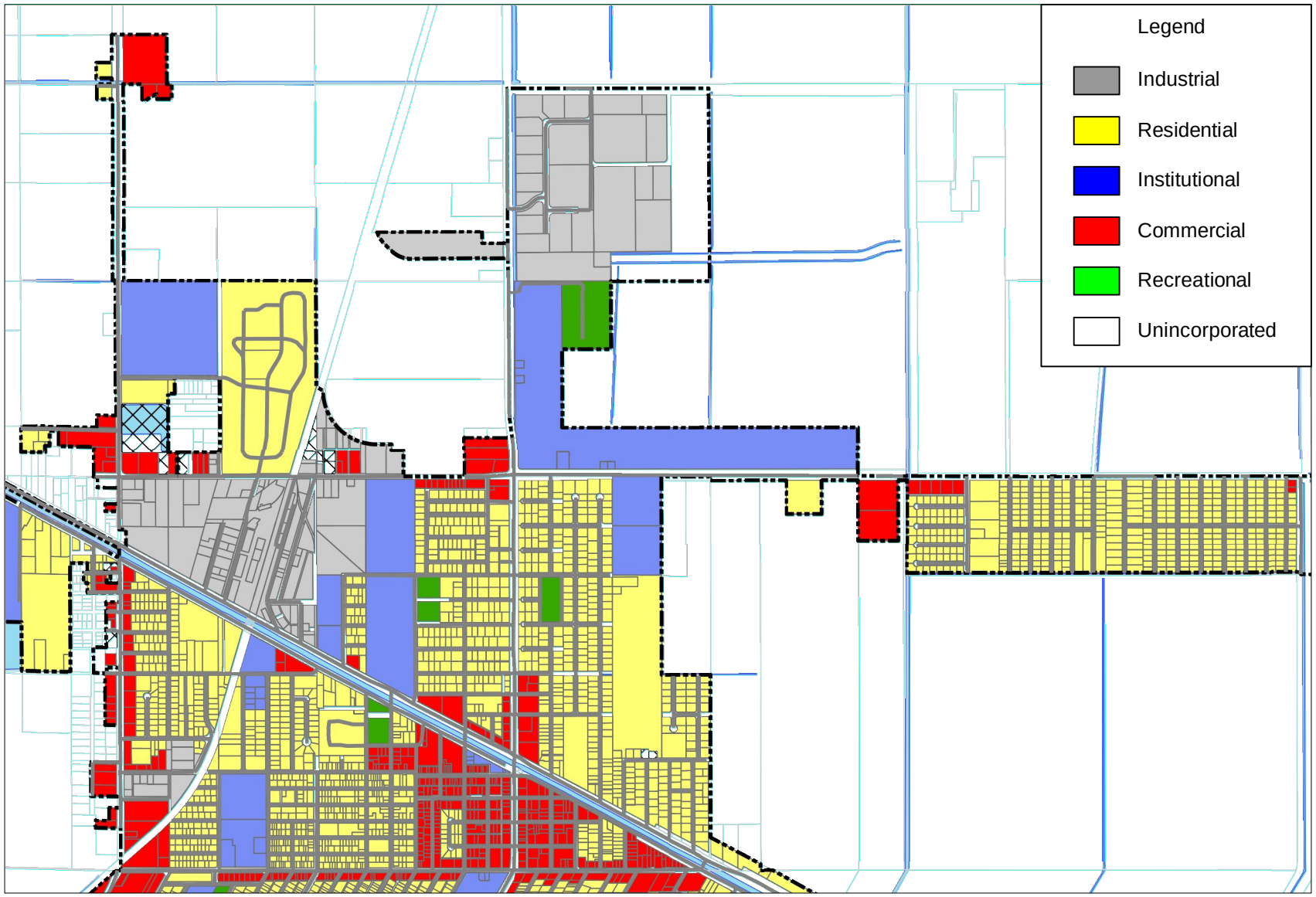
An Intergovernmental Plan Amendment Review Committee (IPARC) was established by Palm Beach County whose primary purpose is to achieve coordination of local comprehensive plans in accordance with Part II of Chapter 163, Florida Statutes[11]. The County's Department of Airports is responsible for coordination of the Comprehensive Airport Compatibility Ordinance, and coordination with municipal governments toward adoption and implementation of that ordinance. Pursuant to Chapter 333, Florida Statutes, Belle Glade State Municipal Airport has airport height and land use zone requirements established as part of the Palm Beach County Unified Land Development Code (ULDC)[12].

Upon adoption of this Master Plan Update, the City of Belle Glade should coordinate with Palm Beach County and IPARC to update the relevant portions of the ULDC to account for the applicable projects identified in the ADP. Additionally, future Comprehensive Plans completed for the City of Belle Glade and Palm Beach County should incorporate or adopt this Master Plan Update.

7.3.1.4 Construction Impacts

Construction impacts are commonly short term and temporary in nature and alone rarely cause significant environmental impacts. The typical impacts that result from airport construction projects are increased vehicular traffic on roadways, increased noise, dust, vehicle emissions, and increased energy consumption. Additionally, there will be construction workers and machinery operating in and about the airport environs. Short term impacts associated with construction can be mitigated with the use of Best Management Practices (BMPs) and proper construction management as outlined in FAA Advisory Circulars.

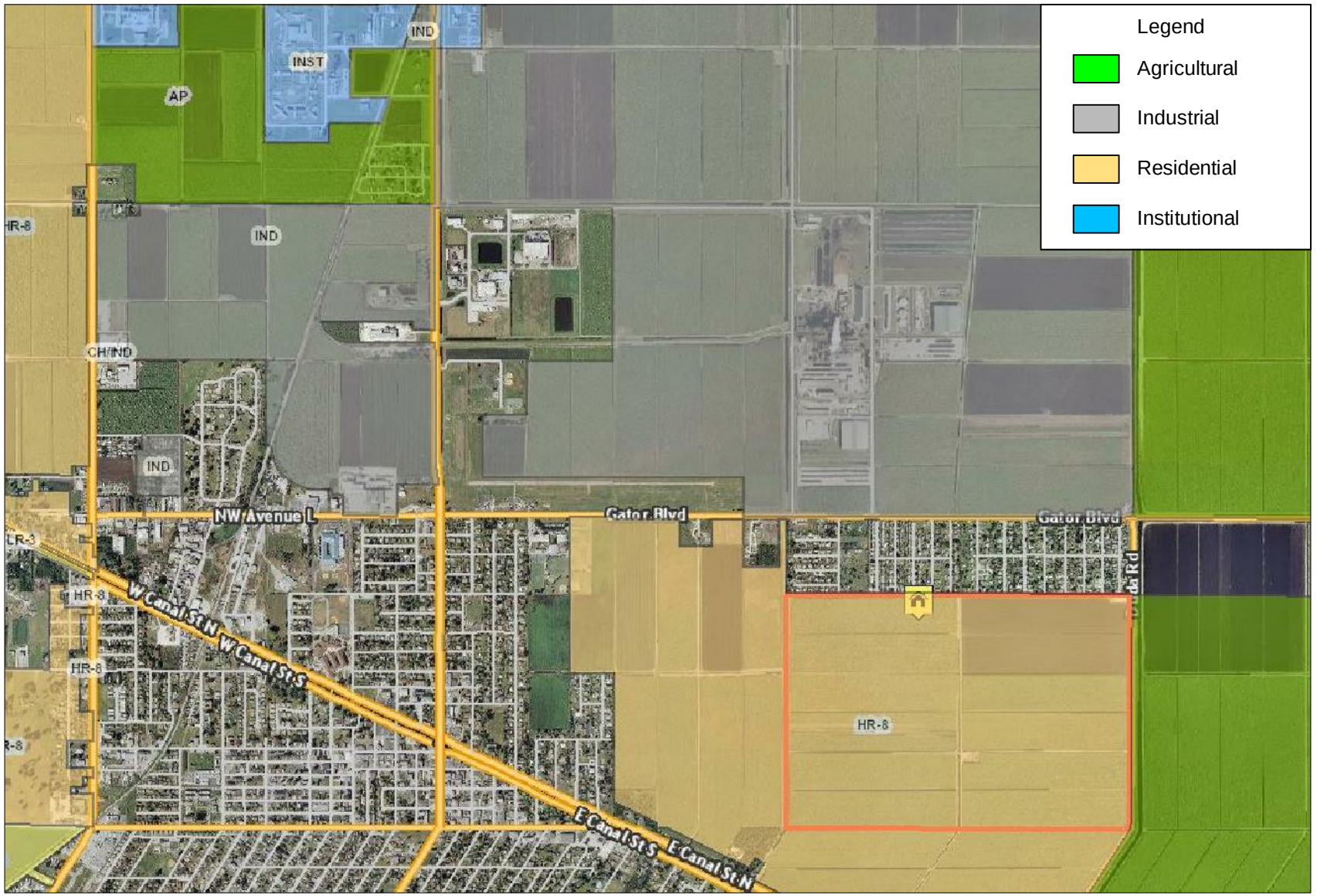
[11] Palm Beach County, 1989 Comprehensive Plan (Revised 10/29/12), Intergovernmental Coordination Element.
[12] Palm Beach County, Unified Land Development Code, Article 16 – Airport Regulations.



Source: City of Belle Glade Comprehensive Plan, 2007

Exhibit 7.1

Future Land Use - City of Belle Glade



Source:

Exhibit 7.2

Future Land Use - Palm Beach County

7.3.1.5 Department of Transportation Act Section 4(f)

Section 4(f) of the Department of Transportation Act provides that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance or land from a historic site of national, State or local significance as determined by the officials that have jurisdiction thereof, unless there is no feasible and prudent alternative to the use of such land and such program, and the project includes all possible planning to minimize harm resulting from the use.

There are no wildlife refuges or historical sites located in the proposed airport development area. There is a city-owned park located north of the airport, but no future airport development is proposed in place of the park.

7.3.1.6 Farmlands

Prime farmland, as identified by the US Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion.

According to the U.S. Department of Agriculture, there is no prime farmland located in the State of Florida.

7.3.1.7 Fish, Wildlife and Plants

Section 7 of the Endangered Species Act (ESA), as amended, applies to Federal agency actions and establishes requirements to determine if the proposed action may affect an endangered or threatened species. Additionally, agencies are required to consult with State wildlife agencies and the Department of the Interior concerning the conservation of wildlife resources where the water of any stream or other water body is proposed to be controlled or modified by a Federal agency.

According to the U.S. Fish and Wildlife Service, there are several endangered, threatened, or candidate species known to or believed to occur in Palm Beach County. The list of species is included as **Exhibit 7.3.**

7.3.1.8 Floodplains

Executive Order 11988 directs Federal agencies to take action to reduce the risk of flood loss, minimize the impact of floods on human safety, health, and welfare, and restore and preserve the natural and beneficial values served by floodplains. According to the most recently available Flood Insurance Rate Map (FIRM) available, effective October, 1982, the Airport and its surrounding environs lay within Zone B of the FIRM. Zone B includes areas between the limits of the 100-year flood and the 500-year flood; or certain areas subject to 100-year flooding with average depths less than one foot, or where the contributing drainage area is less than one square mile.

Based on available information, airport development is not expected to occur within a known 100-year floodplain, but in an area that could be subjected to 100-year flooding with depths of less than one foot. Erosion and sediment best management practices should be utilized during any airport construction to minimize flooding potential.

Exhibit 7.3 Threatened and Endangered Species List

Group	Name	Population	Status	Lead Office	Recovery Plan Name	Recovery Plan Stage
Birds	Whooping crane (Grus	U.S.A. (CO, ID, FL, NM, UT,	Experimental Population, Non-	Office Of The Regional Director		
Birds	Everglade snail kite	FL pop.	Endangered	South Florida Ecological	South Florida Multi-Species	Final
Birds	Kirtland's Warbler (Dendroica	Entire	Endangered	East Lansing Ecological	Kirtland's Warbler Recovery	Final Revision 1
Birds	Red-cockaded woodpecker	Entire	Endangered	Mississippi Ecological Services	Red-cockaded Woodpecker	Final Revision 2
Birds	Wood stork (Mycteria	AL, FL, GA, SC	Endangered	North Florida Ecological	Revised Recovery Plan for the	Final Revision 1
Birds	Audubon's crested caracara	FL pop.	Threatened	South Florida Ecological	South Florida Multi-Species	Final
Birds	Piping Plover (Charadrius	except Great Lakes watershed	Threatened	Office Of The Regional Director	Great Lakes & Northern Great	Final
Birds	Piping Plover (Charadrius	except Great Lakes watershed	Threatened	Office Of The Regional Director	Piping Plover Atlantic Coast	Final Revision 1
Birds	Florida scrub-jay (Aphelocoma	Entire	Threatened	North Florida Ecological	Florida Scrub Jay	Final
Birds	Red knot (Calidris canutus rufa)		Candidate	New Jersey Ecological Services		
Flowering Plants	Four-petal pawpaw (Asimina		Endangered	South Florida Ecological	South Florida Multi-Species	Final
Flowering Plants	Okeechobee gourd (Cucurbita		Endangered	South Florida Ecological	South Florida Multi-Species	Final
Flowering Plants	Beach jacquemontia		Endangered	South Florida Ecological	South Florida Multi-Species	Final
Flowering Plants	Tiny polygala (Polygala smallii)		Endangered	South Florida Ecological	South Florida Multi-Species	Final
Lichens	Florida perforate cladonia		Endangered	South Florida Ecological	South Florida Multi-Species	Final
Mammals	West Indian Manatee	Entire	Endangered	North Florida Ecological	Florida Manatee Recovery Plan,	Final Revision 3
Mammals	West Indian Manatee	Entire	Endangered	North Florida Ecological	Recovery Plan Puerto Rican	Final
Mammals	Florida panther (Puma (=Felis)	U.S.A.(LA and AR east to SC	Endangered	South Florida Ecological	Third Revision of the Florida	Final Revision 3
Mammals	Southeastern beach mouse	U.S.A.(FL)	Threatened	North Florida Ecological	Anastasia Island/Southeast	Final
Mammals	Puma (=mountain lion) (Puma	FL	Similarity of Appearance	Office Of The Regional Director		
Reptiles	American alligator (Alligator	Entire	Similarity of Appearance	Office Of The Regional Director		
Reptiles	Hawksbill sea turtle	Entire	Endangered	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Hawksbill sea turtle	Entire	Endangered	North Florida Ecological	Recovery Plan for the Hawksbill	Final Revision 1
Reptiles	Leatherback sea turtle	Entire	Endangered	North Florida Ecological	Recovery Plan for Leatherback	Final Revision 1
Reptiles	Leatherback sea turtle	Entire	Endangered	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Green sea turtle (Chelonia	FL, Mexico nesting pops.	Endangered	North Florida Ecological	Recovery Plan for U.S. Pacific	Final Revision 1
Reptiles	Green sea turtle (Chelonia	FL, Mexico nesting pops.	Endangered	North Florida Ecological	Recovery Plan for U.S.	Final Revision 1
Reptiles	Eastern indigo snake	Entire	Threatened	Mississippi Ecological Services	Eastern Indigo Snake	Final
Reptiles	American crocodile (Crocodylus	FL pop.	Threatened	South Florida Ecological	South Florida Multi-Species	Final
Reptiles	Gopher tortoise (Gopherus	eastern	Candidate			

7.3.1.9 Hazardous Materials, Pollution Prevention, and Solid Waste

FAA order 1050.1E states hazardous materials and solid waste impacts must be considered as part of NEPA documentation. The airport vicinity was researched using the U.S. Environmental Protection Agency's (EPA) Envirofacts database for existing hazardous materials generators and management facilities. A review of this database for 2011, the most recent reporting year, reveals that Glades Ag Service, an agricultural crop dusting operation tenant, currently is listed as a conditionally exempt small generator.

Solid waste and hazardous materials currently generated and disposed of by the airport include materials associated with aircraft operations and agricultural operations. The proposed airport development is not anticipated to create significant impacts from solid waste or hazardous materials. Industry and regulatory-standard practices should be used in fuel recovery and disposal for the proposed FBO fuel farm facility.

Additionally, the Airport currently has an environmentally contaminated area located on the western airport property. According to the Airport's Strategic Business Plan, toxaphene and other chlorinated pesticides have been found in the soil, generally from the crop-dusting activities in support of local agricultural activities. Remediation of the soil in this area may be required for significant construction activities. However, based on discussions with the Florida Department of Environmental Protection (DEP), solely paving of the area as a capping measure may not require total soil remediation. Prior to beginning construction in this area, an evaluation should be conducted of the soil to determine if the proposed development in this area, such as a paved apron, vehicular parking, and a hangar facility would require soil removal and site remediation.

7.3.1.10 Historical, Architectural, Archeological, and Cultural Resources

The National Historic Preservation Act of 1966 (NHPA), as amended, provides for the preservation of cultural resources that are eligible for inclusion in the National Register of Historic Places. Additionally, Section 106 of the NHPA directs heads of Federal agencies, Federal departments, or independent agencies that have direct or indirect jurisdiction over a Federal or federally assisted undertaking to "take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register."

A review of the National Register of Historic Places database reveals there are no registered or eligible places located in the City of Belle Glade.

7.3.1.11 Light Emissions and Visual Impacts

Light emissions are considered to the extent to which any lighting associated with an action will create annoyance among people in the vicinity or interfere with their normal activities. Small, general aviation airports like Belle Glade State Municipal Airport do not generally create significant light emissions due to the minimal amount of lighting equipment installed as compared to a commercial service airport. The Airport currently has no airfield lighting installed. Should airfield lighting be installed in the future, no adverse impacts are anticipated. A rotating airport beacon, if installed, may have a small impact on the residential areas immediately adjacent to the Airport.

7.3.1.12 Natural Resources, Energy Supply, and Sustainable Design

Airport development actions have the potential to change energy requirements or use consumable natural resources. Typical actions could cause such impacts in include airside/landside expansion, land acquisition, significant changes in air traffic, and significant construction activity. Guidance in FAA Order 1050.1E states that principles of environmental design, sustainability, including waste minimization, pollution prevention, and resource conservation should be followed in project or program planning.

For the proposed airport development, there may be an increase in energy demand during construction phases, but this increase would be temporary in nature and would likely not cause significant impacts to overall energy supply for the region. Any new airport stationary facilities, such as hangars and FBO facilities would not have significant energy requirements for operation. Energy use can be further minimized with sustainable design elements, such as high efficiency lighting and energy-efficient cooling, heating, and insulation.

7.3.1.13 Noise

Aircraft noise is usually considered to be one of the most prominent, controversial, and noticeable impacts associated with airports. According to FAA Order 1050.1E, the FAA uses the yearly day/night average sound level (DNL) as its primary metric. A significant impact from noise, by definition, occurs when a noise analysis performed using the FAA's Integrated Noise Model (INM) shows that noise-sensitive areas will experience an increase in noise by 1.5 decibels (dB) at or above DNL 65 dB. A significant impact like this would require further analysis of impacts from this noise exposure.

The forecasted aircraft operations through the remainder of the planning period are relatively low. However, the proposed airport development includes upgrading the Airport to higher design standards, increasing the runway length, and providing space for itinerant and based aircraft. These improvements have the potential to make the Airport a more attractive destination for itinerant and based aircraft, which may result in increased activity beyond forecasted levels. Should aircraft operations increase significantly beyond present and forecasted levels, development of an airport noise model and DNL contours may be necessary.

7.3.1.14 Secondary (Induced) Impacts

Major development proposals often involve the potential for induced or secondary impacts on surrounding communities. Some examples of these impacts include shifts in patterns of population movement and growth, public service demands, and changes in business and economic activity to the extent influenced by airport development.

The proposed airport development includes an extended, wider runway and an FBO to provide aircraft services and apron space. This development may have the potential influence economic activity in Belle Glade by allowing itinerant corporate aircraft to utilize the Airport. However, major changes in community and regional economic activities and population shift are not expected as a result of the proposed airport development.

7.3.1.15 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

Airport development actions can potentially have socioeconomic impacts on their surrounding regions. According to FAA Order 1050.1E, factors to be considered in determining socioeconomic impact include:

- Extensive relocation of residents without sufficient replacement housing
- Extensive relocation of community businesses, creating severe economic hardship for the affected communities
- Disruptions of local traffic patterns that substantially reduce the levels of service (LOS) of the roads serving the airport and surrounding communities
- A substantial loss in community tax base

The proposed airport development does not involve the relocation of residents or displacement of any community businesses. Additionally, the roadway LOS is not anticipated to be negatively affected as a result of airport development, given the relatively low levels of aircraft operations anticipated throughout the planning period. A loss in community tax base is also not anticipated, as no residential, commercial, or industrial property acquisition will be required.

7.3.1.16 Water Quality

Generally, as land is developed for airport purposes, it is covered with impervious surfaces such as asphalt or concrete. Without interception and depression storage, nearly all of the rainfall on the impervious surfaces becomes runoff, dissolving or dislodging pollutants and discharging into creeks, rivers, lakes, drainage ditches, and irrigation systems.

The proposed airport development will create new impervious surfaces with the proposed new runway and associated taxiways and apron areas. These new surfaces will create the potential for increased storm water runoff. Prior to construction of these facilities, proper permitting and compliance with state and local environmental agencies should be sought to minimize water quality impacts.

7.3.1.17 Wetlands

A review of the U.S. Fish and Wildlife Service National Wetlands Inventory mapping service revealed there is one wetland feature in the immediate vicinity of the airport property. A north-south riverine is located immediately west of W. Sugar House Road. It is classified as R2UBHx, meaning it is a lower perennial feature with an unconsolidated bottom. It is also permanently flooded, and has been excavated artificially by man. This feature is not currently on Airport property, but should the Airport proceed with proposed property acquisition, the riverine would abut the proposed airport property boundary.

The proposed airport development is not anticipated to negatively impact the function of this riverine, however, should an eastern airport access road be constructed from W. Sugar House Road, this riverine feature would need to be crossed.

7.3.1.18 Wild and Scenic Rivers

The Wild and Scenic Rivers Act, as amended, protects rivers listed on the National Inventory of Wild and Scenic Rivers. According to a review of the inventory, there are no wild or scenic rivers located within the airport vicinity or within Palm Beach County.

SECTION 8 - FINANCIAL PLAN

8.1 INTRODUCTION

The primary objective of this chapter is to outline the programmed improvements scheduled to occur at the Airport over the ensuing 20-year planning period and to analyze the financial feasibility of developing the projects included in the Capital Improvement Program (CIP). The proposed financial plan was developed after identifying potential funding sources available to fund capital improvement projects. These funding sources were then matched with projects based on understood eligibility guidelines over an estimated phasing schedule to determine the financial implications of undertaking the recommended capital improvements.

The implementation plan presented herein describes the staging of proposed improvements, based upon need, prerequisite projects and anticipated funding. It also provides the basic financial requirements of each project and identifies various means of funding these improvements. It is the intent of this implementation plan to provide general financial guidance to the City of Belle Glade (City) in Palm Beach County and the X10 staff in making policy decisions regarding the recommended development of the Airport over next 20-years and beyond.

8.2 AIRPORT FINANCIAL STRUCTURE

The City's overall financial policy includes the following general guidelines[13]:

- Current, recurring revenues equal current, ongoing expenses (Balanced Budget).
- Capital Improvements will be funding entirely from external funding sources discussed in a later section. It is assumed no operating revenues are available for capital projects.
- This analysis assesses the CIP and funding sources only. Projections of operating expenses and revenues were not included in this analysis.

8.3 PROGRAM PHASING AND COST ESTIMATING

An initial development schedule for the proposed improvements was prepared based upon facility requirements, which were determined through the estimates of operational forecasts. Since actual activity levels realized at the airport may vary over time, it is important that staging of these proposed improvement projects remain sensitive to such variations, and are reviewed periodically for changes.

Some projects may take precedence over others, depending on assigned priority levels and the changing importance of other relevant development projects. Thus, a list of prioritized improvements was established based upon the urgency of need, ease of implementation, logic of project sequencing, and Airport staff input. The objective was to establish an efficient order for project development and implementation that satisfied the forecast aviation activity at X10 and the needs expressed by airport staff. The development schedule is divided into three planning horizons:

[13] Source: City of Belle Glade Budgetary Policies & Basis.

- Phase I - 2013-2017
- Phase II - 2018-2022
- Phase III - 2023-2032

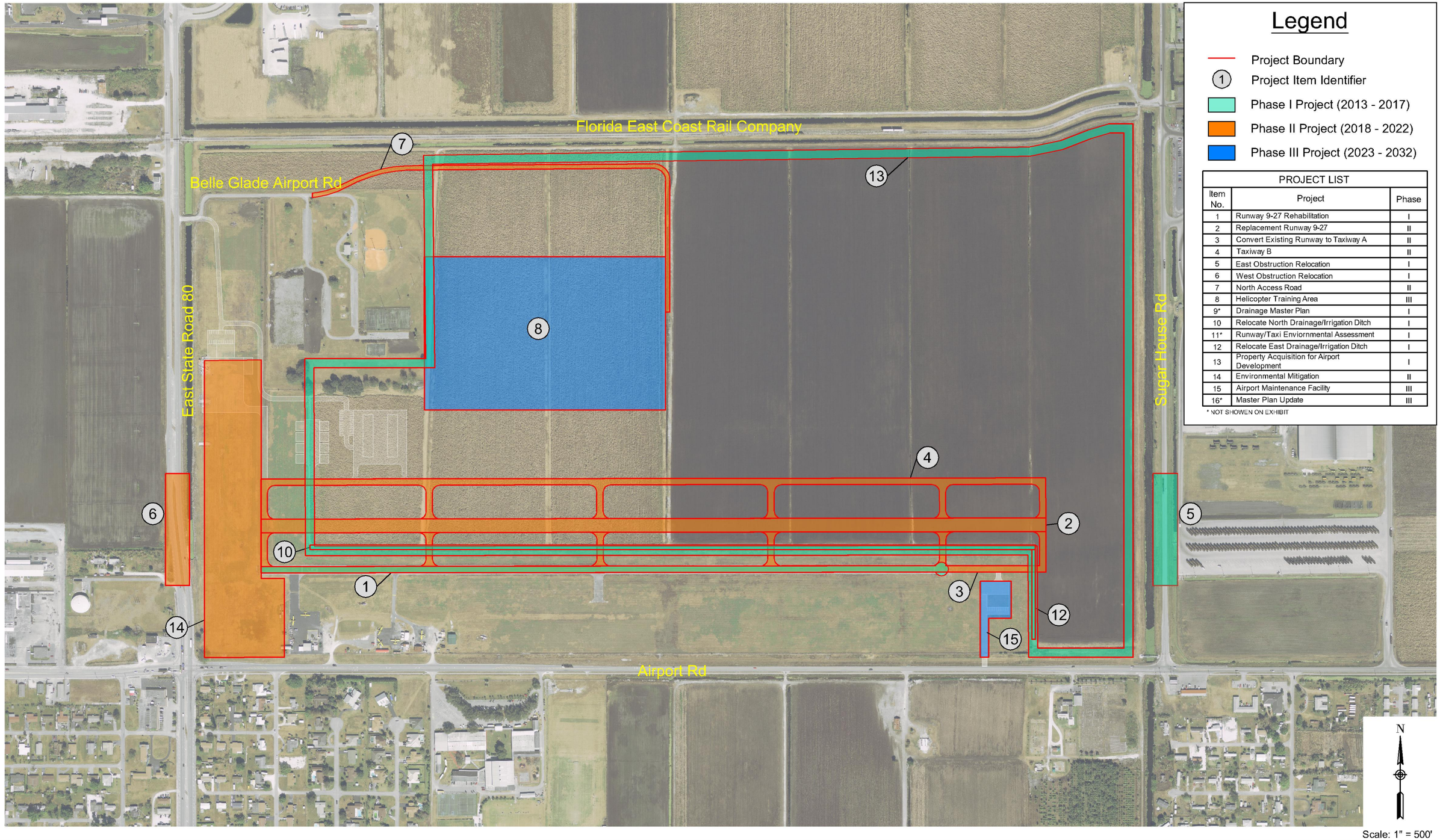
Cost estimates were developed for each project for the 20-year planning horizon 2013 through 2032. The projected costs were based on the preliminary layouts developed as part of the Alternatives Analysis and subsequently refined and presented in the Airport Development Plan. Estimated quantities of major items, such as pavement, fill material, or building structural areas were used in conjunction with localized unit cost values to determine construction costs and miscellaneous "soft costs", such as administrative, engineering, testing, and insurance services. Additionally, due to the preliminary nature of each project's definition, a contingency amount was added to account for items that were unknown at this time. The total project costs are expressed in 2013 dollars and are also presented as escalated annually at three percent to reflect project costs in future dollars that will be consistent with the operating expenses and operating revenues incorporated in the financial analysis.

8.4 CAPITAL IMPROVEMENT PROGRAM (CIP)

Based on the facility requirements, operational analysis, and alternatives developed in previous chapters of this report, a Capital Improvement Program (CIP) and phasing plan have been identified that incorporate the facility requirements during the 20-year planning horizon. Each project has been assigned to one of the three previously identified phases - Phase I, Phase II, and Phase III, as depicted in **Exhibit 8.1**.

Although this Airport Master Plan Update charts a course for planned development, it must be emphasized that the planning and development of an airport is a continuous process. The rehabilitation and maintenance of existing facilities and development of new facilities must be predicated on sustained demand and a positive return on investment, which justifies the costs of improvements. Therefore, periodic re-evaluation of the implied schedule of the CIP will be necessary to accommodate variations from the aviation forecasts and to adjust for other unforeseen factors. This will ensure that any change in aviation demand or within the local area will be fully considered as the development of X10 continues. It is also highly possible that other improvements not identified within the context of this study may also be required to facilitate safe and efficient airport operations or to accommodate some unforeseen demand. All future improvement projects identified in this report or otherwise shall be compatible with the development strategies proposed in the Airport Layout Plans for X10. If for whatever reason, a significant variance from those plans is highlighted, a careful compatibility review should be conducted along with performing possible strategic plan updates.

Table 8.1 presents the cost of each project in the CIP, in 2013 dollars, and indicates in which phase of the 20-year planning horizon, the project is expected to be undertaken. Probable costs were derived from various sources and are considered appropriate for planning purposes. For financial planning purposes, phasing for any project over multiple years is assumed to occur evenly over the horizon in which the project is anticipated to be undertaken**.** Actual spending patterns of each project are expected to vary once undertaken. Before construction of a specific project is commenced, detailed cost estimates should be developed as part of preliminary design and the financial feasibility (including funding eligibility) of the project re-examined. The total probable program costs for the 20-year planning period are estimated to be approximately $16.4 million, in 2013 dollars.



Legend

- Project Boundary
- (1) Project Item Identifier
- Phase I Project (2013 - 2017)
- Phase II Project (2018 - 2022)
- Phase III Project (2023 - 2032)

PROJECT LIST

Item No.	Project	Phase
1	Runway 9-27 Rehabilitation	I
2	Replacement Runway 9-27	II
3	Convert Existing Runway to Taxiway A	II
4	Taxiway B	II
5	East Obstruction Relocation	I
6	West Obstruction Relocation	I
7	North Access Road	II
8	Helicopter Training Area	III
9*	Drainage Master Plan	I
10	Relocate North Drainage/Irrigation Ditch	I
11*	Runway/Taxi Enviornmental Assessment	I
12	Relocate East Drainage/Irrigation Ditch	I
13	Property Acquisition for Airport Development	I
14	Environmental Mitigation	II
15	Airport Maintenance Facility	III
16*	Master Plan Update	III

* NOT SHOWEN ON EXHIBIT

N

Scale: 1" = 500'

Exhibit 8.1

Capital Improvement Program - Phasing Schematic

Belle Glade State Municipal Airport

Master Plan Update

Table 8.1 – CIP Summary (2013 Dollars)

Project Number	Description	Estimated Project Phase	Estimated Capital Costs
1	Runway 9-27 Rehabilitation	I	$1,770,000
2	Replacement Runway 9-27	I/II	$5,841,000
3	Convert Existing Runway to Taxiway A	II	$1,680,000
4	Taxiway B	II	$2,280,000
5	East Obstruction Relocation	I	$271,500
6	West Obstruction Relocation	II	$252,000
7	North Access Road	II	$351,700
8	Helicopter Training Area	III	$500,000
9	Drainage Master Plan	I	$100,000
10	Relocate North Drainage/Irrigation Ditch	I	$350,000
11	Runway/Taxiway Environmental Assessment	I	$450,000
12	Relocate East Drainage/Irrigation Ditch	I	$370,000
13	Property Acquisition for Airport Development	I	$250,000
14	Environmental Mitigation	II	$1,260,000
15	Airport Maintenance Facility	III	$475,500
16	Master Plan Update	III	$200,000
		Total Project Costs	**$16,401,700**

Sources: Belle Glade Municipal Airport; Kimley-Horn and Associates, and Ricondo & Associates, December 2013
Prepared By: Kimley-Horn and Associates and Ricondo & Associates, December 2013

Table 8.2, presents the 20-year CIP after escalating at an annual inflation rate of three percent and assuming even spending over the duration of the specified planning horizon. The escalated cost of the 20-year CIP is estimated to be approximately $19.7 million.

The projects and their estimated costs for each period are discussed in the following sections. The CIP, which includes the development schedule and project cost summaries, are presented in the following sections. The CIP for each period presents the improvements required during that period and estimates potential funding sources. The estimated costs, including estimated engineering fees and contingencies, were adjusted to reflect an estimated annual inflation rate. Multiplying the change ratio times any base cost or income figure yielded an adjusted dollar amount appropriate for future year evaluation.

These projections, however, should be used for planning purposes only and do not imply that funding for these will necessarily be available, nor does it imply that the City is committed to each of the projects outlined in each planning period. Each project cost reflects the design and/or environmental efforts necessary for project implementation, along with the probable construction costs.

Table 8.2 – CIP Summary (Escalated Dollars)

Project Number	Description	Estimated Capital Costs
1	Runway 9-27 Rehabilitation	$1,893,707
2	Replacement Runway 9-27	$6,827,311
3	Convert Existing Runway to Taxiway A	$2,066,188
4	Taxiway B	$2,974,883
5	East Obstruction Relocation	$305,576
6	West Obstruction Relocation	$283,628
7	North Access Road	$452,206
8	Helicopter Training Area	$723,574
9	Drainage Master Plan	$106,090
10	Relocate North Drainage/Irrigation Ditch	$360,500
11	Runway/Taxiway Environmental Assessment	$491,727
12	Relocate East Drainage/Irrigation Ditch	$416,438
13	Property Acquisition for Airport Development	$273,182
14	Environmental Mitigation	$1,620,072
15	Airport Maintenance Facility	$639,032
16	Master Plan Update	$276,847
	Total Project Costs	**$19,710,960**

Sources: Belle Glade Municipal Airport; Kimley-Horn and Associates, and Ricondo & Associates, December 2013
Prepared By: Ricondo & Associates, December 2013

8.4.1 PROBABLE DEVELOPMENT COSTS

The estimated total project costs presented for each identified airport improvement reflects a preliminary opinion of the probable implementation cost for the project, including an allowance for project mobilization costs. In addition to the estimated construction costs, anticipated fees for design, inspection, permitting, surveying, testing and administration have also been included in the overall cost estimate where possible.

Each opinion or probable project cost is presented in 2013 dollars and generally includes a contingency for budgeting purposes. The contingency may range from 20 percent to 30 percent based on the level of detail possible for the respective project, and the anticipated complexities to be encountered during implementation. In instances where two or more of these projects can be funded and scheduled for implementation simultaneously, overall project costs may be reduced by avoiding a duplication of similar items.

Phase I Improvements - As presented in Table 8.1, the largest undertaking in the Phase I period is the rehabilitation of Runway 09/27 at a cost of approximately $1.77 million, in 2013 dollars. The total cost of projects in the Phase I planning horizon is projected to be approximately $4.70 million, in 2013 dollars, or approximately $5.13 million in escalated dollars.

Phase II Improvements - As presented in Table 8.1, the largest undertaking in the Phase II period is the further replacement of Runway 09/27 and the replacement of Taxiway B. The total cost of projects in the Phase II planning horizon is projected to be approximately $10.5 million, in 2013 dollars, or approximately $12.9 million, in escalated dollars.

Phase III Improvements - Priority for Phase III projects will be determined as the timeframe draws near, especially since a master plan update is planned during Phase II. The total cost of projects in the Phase III planning horizon is projected to be approximately $1.18 million, in 2013 dollars, or approximately $1.64 million, in escalated dollars.

8.5 FUNDING SOURCES

Airport development is often funded by a combination of public and private sources. Funding sources for the X10 CIP in the past have been the Federal Aviation Administration's (FAA) Airport Improvement Program (AIP) and the Florida Department of Transportation (FDOT) grants. Private investment may be sought for any specially financed projects.

The sequencing of key projects in the CIP, recognizes that permitting, utility infrastructure, environmental planning studies, drainage studies and plans, and similar work must first be funded before actual design and construction of certain larger facilities projects can proceed (such as runway and taxiway enhancements, hangar construction and others).

Table D.1, Appendix D presents the CIP for the entire 20-year planning horizon by funding source in 2013 dollars. **Table D.2, Appendix D** presents the CIP in escalated dollars. The following sections discuss the funding sources and how they can contribute to the successful implementation of X10's CIP.

8.5.1 FEDERAL FUNDING SOURCES

The United States Congress has long recognized the need to develop and maintain a system of aviation facilities across the nation for the purpose of national defense and promotion of interstate commerce. Various grants-in-aid programs to public airports have been established over the years for this purpose. The primary sources for federal aviation-related funds are those associated with the Airport Improvement Program (AIP), was established by the Airport and Airway Improvement Act of 1982 (Public Law 97-248). Since then, the AIP has been amended several times, most recently with the passage of the FAA Modernization and Reform Act of 2012. Funds obligated for the AIP are drawn from the Airport and Airway Trust fund, which is supported by user fees, fuel taxes, and other similar revenue sources. Funds deposited into the Airport and Airway Trust fund are distributed to eligible airports throughout the United States and its territories through grants administrated by the FAA under appropriations limits established by the United States Congress.

To be eligible for an AIP grant, airports must meet the following criteria: 1) publicly owned, or privately owned, but designated by the FAA as a reliever or 2) privately owned, but having scheduled commercial service and at least 2,500 annual enplanements and 3) further, an airport must be included in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS is published every two years and identifies public-use airports that are important to public transportation and contribute to the needs of civil aviation, national defense and the postal service. .

In general, sponsors can use AIP funds on most airfield capital improvements or repairs. AIP grants cannot be used on exclusive-use areas in terminals, revenue producing areas of terminals, hangars and non-aviation development. Any professional services that are necessary for eligible projects, such as planning, surveying and design, are also eligible; however, operating expenses of AIP projects are not eligible. Aviation demand at the airport must justify the projects, which must also meet federal environmental and procurement requirements.

The assignment of AIP funding is done on a priority basis. X10 will be competing with other airports throughout the State of Florida and the FAA Southern Region, as well as the remainder of the country for development grants. When a grant offer is received for a project, the City should be prepared to act quickly and efficiently during the start-up and completion phases of the project. Slow performance in carrying out an FAA grant project can have a serious impact on the ability to secure future funds.

As in the past, Federal grants are expected to play a role in the financing of the Airport's projected capital expenditures. Historically, projects at the Airport have been eligible for 90 – 95 percent AIP participation. Also, in the case of security related projects, airports may be eligible for 100 percent of AIP funding. With respect to discretionary grants, it is very difficult to predict reasonable levels that can be applied to the CIP given today's status concerning federal funding of airport-related capital projects. To the extent that projected discretionary grants are not received, the City may have to reevaluate the phasing of the CIP and/or its funding eligibility under other sources. As shown in Table D.1, Appendix D, approximately $14.8 million (2013 dollars) in project costs are eligible for AIP funding from the entitlement and discretionary programs. Table D.2, Appendix D reflects the AIP funding eligibility in escalated costs, approximately $17.7 million, for those projects.

8.5.2 STATE FUNDING SOURCES

In support of the State of Florida (the State) airport system, the Florida Department of Transportation (FDOT) also participates in the development of airport improvements. Historically, the State has contributed between five percent and 100 percent of the cost of projects.

As shown in Table D.1, Appendix D, approximately $1.64 million (2013 dollars) in project costs are expected to receive state funding. Table D.2, Appendix D reflects the escalated funding sources ($1.97 million) for those projects.

Section 288.0656, Florida Statutes, establishes the Rural Economic Development Initiative (REDI) to better serve Florida's rural communities by providing a more focused and coordinated effort among state and regional agencies that provide programs and services for rural areas. Belle Glade has been designated one of the Rural Areas of Critical Economic Concern (RACEC), which is defined as rural communities, or a region composed of rural communities, that have been adversely affected by extraordinary economic events or natural disasters. The Governor by executive order may designate up to three RACECs, which establishes each region as a priority assignment for REDI agencies and allows the Governor to waive criteria of any economic development incentive including, but not limited to: the Qualified Target Industry Tax Refund Program under section 288.106 F.S.

Due to its RACEC status, the Airport may be eligible, when federal funding is proposed, for state funding up to 100% of that portion not paid for by FAA, however, this analysis does not assume additional funding specifically attributable to the REDI statute.

8.6 CONCLUSIONS

As presented in Table D.1, Appendix D, approximately $14.8 million of the CIP is eligible for AIP funding with the balance, approximately $1.6 million, required to be funded from FDOT, in 2013 dollars, respectively. As presented in Table D.2, Appendix D, approximately $17.7 million of the CIP is eligible for AIP funding with the balance, approximately $2.0 million, required to be funded from FDOT, in escalated dollars, respectively. Should all AIP and FDOT funding not be secured, the City will be required to revisit the priority and phasing of the projects included in this Master Plan Update.

SECTION 9 - AIRPORT PLANS

The major improvements outlined in the preferred alternative are incorporated into the updated Airport Layout Plan (ALP) drawing set. The ALP is a group of drawings that serve as the primary tool for the guidance of future growth at the Airport. The various drawings depict the recommendations contained within this Master Plan Update with regard to aviation development at Belle Glade State Municipal Airport. The ALP set was reduced from its working size of 22-inch x 34-inch to be incorporated here for easy reference. The ALP drawing set consists of seven (7) unique plan sheets and specifically includes the following:

- Cover Sheet
- Airport Layout Drawing (ALD)
- Airport Airspace Plan and Profiles
- Inner Portion of the Approach Surface Drawings
- Land Use Drawing
- Airport Property Map

These drawings are presented in 11-inch x 17-inch (half-size) format at the end of this section. Subsequent sections provide brief descriptions of their elements.

9.1 COVER SHEET

The Cover Sheet lists the contents of the drawing set and identifies the airport owner and the parties responsible for preparing the plans. Graphic representations of the airport location and the airport vicinity are also presented on the cover sheet for orientation purposes.

9.2 AIRPORT LAYOUT DRAWING (ALD)

The ALD depicts existing facilities and ultimate improvements recommended as a result of this Master Plan Update. The ALD was developed in accordance with FAA AC 150/5070-6B Change 1, Airport Master Plans and the FAA's Airport Layout Plan Drawing Set Checklist.

The Airport Data Table includes information related to the overall airport such as elevations, airport reference point (ARP) coordinates, mean maximum daily temperature in the hottest month, airport NAVAIDS, and acreage.

The Runway Data Table presents information for each runway such as runway end coordinates, approach category, dimensions, airfield surface and pavement strengths, instrumentation, lighting and marking, approach aids, and safety area dimensions.

The ALD reflects future improvements recommended in this Master Plan Update through the 20-year planning horizon for the Airport including airfield improvements, such as the relocation, widening, and extension of the runway, and areas reserved for future landside development.

9.3 AIRPORT AIRSPACE PLAN

This sheet incorporates a graphic representation of the Imaginary Surfaces as described within FAR Part 77, identifying and defining imaginary surfaces intended to protect airspace in the vicinity of airports. The Imaginary Surfaces are established in relation to the airport elevation and to each runway end. They define those areas where the safe operation of aircraft necessitates that the height of objects be

regulated. This regulation typically occurs through the establishment of height zoning ordinances by local governments. Penetration of these surfaces by an object or structure can result in an obstruction affecting navigable airspace. The size of each imaginary surface is based on the runway category and type of existing or planned approach. It is recommended that local jurisdictions incorporate any modifications to the Imaginary Surfaces as part of applicable zoning ordinances. USGS quadrangle maps were used as the base map for this sheet. The Airport Airspace Plan depicts the FAR Part 77 imaginary surfaces for the Airport.

The ultimate runway configuration is analyzed as part of this airspace plan, in which the relocated 4,300 x 75 foot is included.

The runway plans and profiles provide an overview of known significant obstructions along the runway length and in the approach zones off the ends of each runway. Anticipated ultimate approach slopes are noted as well as the ground profile along the runway centerline and beneath the approach surfaces to provide guidance in calculating exact distances between ground surfaces and approach surfaces. This drawing should be used by airport management to ensure that all obstructions that penetrate the imaginary surfaces are either removed or marked in an appropriate manner.

The surfaces shown in the Airspace Plan include:

- Primary Surface
- Approach Surfaces
- Horizontal Surface
- Transitional Surfaces
- Conical Surface

The following subsections provide a more detailed discussion of each surface.

9.3.1 PRIMARY SURFACE

The primary surface is longitudinally centered on each runway. When a runway is paved, the primary surface extends 200 feet beyond each end of the usable runway. When the runway is unpaved, the primary surface coincides with each end of the runway. The width of primary surfaces applicable to the Airport's relocated Runway 9-27 is 250 feet.

9.3.2 APPROACH SURFACES

The approach surfaces are longitudinally centered on the extended runway centerlines, and extend outward and upward from each end of the primary surface. The slopes and dimensions of these surfaces are determined for each runway end based on the type of approach to be provided. The future development scenario at the Airport includes visual approaches for both ends of Runway 9-27.

Table 9.1 summarizes the dimensions of the approach surfaces for Runway 9-27 for future levels of development.

Table 9.1 – Approach Surface Dimensions by Runway End

Approach Surface Dimension	Runway 9	Runway 27
Inner Width	250’	250’
Outer Width	1,250’	1,250’
Length beyond Primary Surface	5,000’	5,000’

Source: Code of Federal Regulations (CFR) Title 14: Aeronautics and Space, Part 77, Subpart C

9.3.3 HORIZONTAL SURFACE

The horizontal surface is a horizontal plane 150 feet above the established airport elevation. At the Airport, the ultimate airport elevation is estimated to be 14 feet above MSL; therefore, the horizontal surface’s elevation will be 164 feet MSL. In plan view, the dimensions of the horizontal surface are established by striking arcs from a point at the intersection of the extended runway centerlines and the lines designating the end of the primary surface for each runway; the arcs are then connected by lines tangent to these arcs. The radii of the arcs are 5,000 feet for all visual runways and 10,000 for all other runways.

9.3.4 TRANSITIONAL SURFACE

The transitional surfaces are inclined planes with slopes of 7:1; they extend outward and upward from the sides of the primary surface up to the horizontal surface and from the sides of the approach surfaces. The width of the transitional surface provided from each edge of the approach surface is 5,000 feet.

9.3.5 CONICAL SURFACE

The conical surface is an inclined plane extending outward and upward from the outer boundary of the horizontal surface at a slope of 20:1; it extends for a horizontal distance of 4,000 feet. The top of the conical surface is at a height of 364 feet MSL.

9.4 INNER PORTION OF THE APPROACH SURFACE DRAWINGS

These drawings provide plan and profile view depictions of the existing and ultimate approach areas and detailed views of the physical features near each runway’s extended centerline. These include topography, roads, structures, obstructions, and incompatible objects in these critical areas. A table summarizes the existing or anticipated penetrations to the inner approach surfaces and their proposed disposition.

9.5 LAND USE DRAWING

The Land Use Drawing is a graphic representation indicating general developmental guidelines for all existing on-airport property, any proposed acquisition areas, and surrounding off-airport property. The plan provides guidelines for on-airport land uses in order to ensure compatibility with existing and future airport operations, and provides a general roadmap to follow as development options arise. This "overview planning" is critical, because planned projects may be constructed ahead of schedule, and unanticipated but beneficial projects (e.g., aviation-related) may be desired. The Land Use Drawing provides for such guidance by categorizing all areas of the Airport by specific functional use.

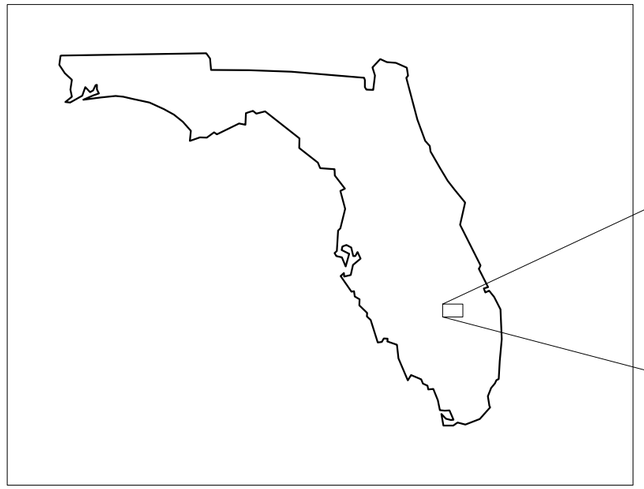
The other principal purpose of this plan is to provide overall developmental guidance for areas immediately adjacent to, but off the airport and influenced by airport operation. The off-airport areas illustrate relationships with the boundaries of the airport property, land use as designated by the controlling jurisdictions.

9.6 AIRPORT PROPERTY MAP

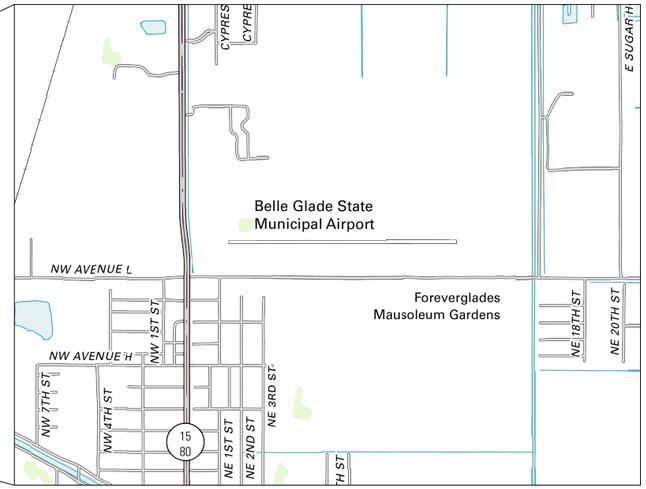
The Airport Property Map identifies land comprising the Airport and provides details concerning the way various parcels of land were acquired or disposed of in past years. The existing airport property is currently leased by the City of Belle Glade from the Florida Department of Transportation. Acquisition areas for future airfield and landside development are also identified.

BELLE GLADE STATE MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN
BELLE GLADE, FLORIDA

NOVEMBER 2013



LOCATION MAP



VICINITY MAP

N.T.S

SHEET INDEX

SHEET NO.	TITLE
1 OF 7	COVER SHEET
2 OF 7	AIRPORT LAYOUT DRAWING
3 OF 7	AIRPORT AIRSPACE PLAN
4 OF 7	INNER PORTION OF THE APPROACH SURFACE DRAWING - EXISTING RUNWAY 9-27
5 OF 7	INNER PORTION OF THE APPROACH SURFACE DRAWING - ULTIMATE RUNWAY 9-27
6 OF 7	ULTIMATE AIRPORT LAND USE MAP
7 OF 7	AIRPORT PROPERTY MAP

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
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COVER SHEET

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

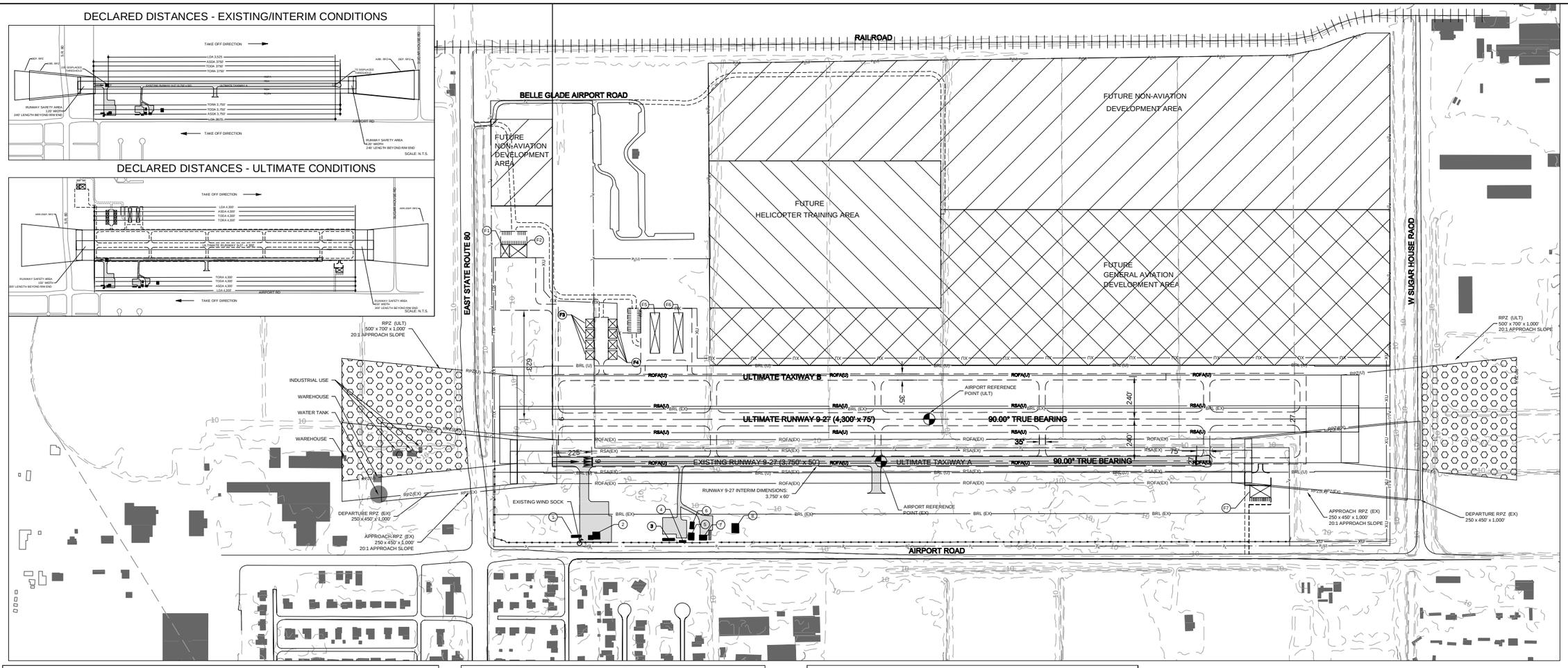
PROJECT NO.
144086007

SHEET NUMBER
1 OF 7

Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_01-COVER.dwg Cover Nov 25, 2013 9:19am by: jacob.bowers

DECLARED DISTANCES - EXISTING/INTERIM CONDITIONS

DECLARED DISTANCES - ULTIMATE CONDITIONS



RUNWAY DATA

ITEM		RUNWAY 9-27				
		EXISTING		INTERIM	ULTIMATE	
RUNWAY LENGTH x WIDTH (FT.)		3,750' x 50'		3,750' x 60'	4,300' x 75'	
EFFECTIVE GRADIENT		0.0%		SAME	0.0%	
% WIND COVERAGE	12 MPH / 10.5 KNOTS)	91.75%		SAME	SAME	
	15 MPH / 13 KNOTS)	96.30%		SAME	SAME	
RUNWAY PAVEMENT DESIGN STRENGTH (000 LBS)		12.5 SWG		SAME	12.5 SWG	
RUNWAY SURFACE TYPE		ASPHALT		SAME	ASPHALT	
MAXIMUM RUNWAY ELEVATION (AMSL)		14' (EST)		SAME	14' (EST)	
RUNWAY LIGHTING		NONE		SAME	NONE	
RUNWAY MARKING		BASIC		SAME	BASIC	
RUNWAY ENDS		9	27	SAME	9	27
RUNWAY END ELEVATION (AMSL)		14' (EST)	14' (EST)	SAME	14 ' (EST)	10' (EST)
DECLARED DISTANCES						
TAKE-OFF RUN AVAILABLE (TORA)		3,750'	3,750'	SAME	4,300'	4,300'
TAKE-OFF DISTANCE AVAILABLE (TODA)		3,750'	3,750'	SAME	4,300'	4,300'
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)		3,750'	3,750'	SAME	4,300'	4,300'
LANDING DISTANCE AVAILABLE (LDA)		3,525'	3,675'	SAME	4,300'	4,300'
RUNWAY PROTECTION ZONE (RPZ) DIMENSIONS	LENGTH	1,000'	1,000'	SAME	1,000'	1,000'
	WIDTH (INNER/OUTER)	250'/450'	250'/450'	SAME	500'/700'	500'/700'
APPROACH LIGHTING		NONE	NONE	SAME	NONE	NONE
F.A.R. PART 77 IMAGINARY AIRSPACE SURFACES	APPROACH CATEGORY	A(V)	A(V)	SAME	A(V)	A(V)
	APPROACH SURFACE SLOPES	20:1	20:1	SAME	20:1	20:1
NAVAIDS	ELECTRONIC NAVAIDS	NONE	NONE	SAME	NONE	NONE
	VISUAL APPROACH AIDS	NONE	NONE	SAME	NONE	NONE
APPROACH VISIBILITY MINIMUMS		N/A	N/A	SAME	N/A	N/A
RUNWAY SAFETY AREA (RSA) WIDTH x LENGTH BEYOND RWY END		150' X 240'		SAME	150' X 300'	
RUNWAY OBJECT FREE AREA (OFA) WIDTH x LENGTH BRE		250' X 240'		SAME	500' X 300'	
RUNWAY OBJECT FREE ZONE (OFZ) WIDTH x LENGTH BRE		400' X 200'		SAME	400' X 200'	

AIRPORT DATA

		EXISTING	INTERIM	ULTIMATE
ESTABLISHED AIRPORT ELEVATION (NAVD 88)		14' (EST)	14' (EST)	14 ' (EST)
AIRPORT REFERENCE POINT COORDINATES (NAD ' 83)	LATITUDE	26°41'53.86" N	SAME	26°41'56.24" N
	LONGITUDE	80°39'38.85" W	SAME	80°39'35.82" W
MEAN TEMPERATURE - HOTTEST MONTH		92.7°F	SAME	SAME
AIRPORT & TERMINAL NAVAIDS		NONE	NONE	NONE
AIRPORT ACREAGE		85.89 AC	SAME	334.6 AC
		RUNWAY 9-27	RUNWAY 9-27	RUNWAY 9-27
RUNWAY REFERENCE CODE (BY ARC)		A-I (SMALL)	SAME	A-II
CRITICAL DESIGN AIRCRAFT		S2R	SAME	AT-502

NOTES:

DATUM COORDINATE SYSTEMS:
HORIZONTAL - NAD 1983 STATE PLANE FLORIDA EAST
VERTICAL - NAVD 88

NO SURVEY WAS COMPLETED DURING THIS ALP UPDATE. TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED FROM PALM BEACH COUNTY GIS, 2012

RUNWAY END COORDINATES

RUNWAY END	LATITUDE	LONGITUDE	ELEVATION
EXISTING/INTERIM RUNWAY 9	26° 41' 53.89" N	80° 39' 59.53" W	14' (EST)
EXISTING/INTERIM RUNWAY 9 - DISPLACED THRESHOLD	26° 41' 53.89" N	80° 39' 57.05" W	14' (EST)
EXISTING/INTERIM RUNWAY 27	26° 41' 53.84" N	80° 39' 18.18" W	14' (EST)
EXISTING/INTERIM RUNWAY 27 - DISPLACED THRESHOLD	26° 41' 53.84" N	80° 39' 19.01" W	14' (EST)
ULTIMATE RUNWAY 9	26° 41' 56.27" N	80° 39' 59.53" W	14' (EST)
ULTIMATE RUNWAY 27	26° 41' 56.21" N	80° 39' 12.11" W	10' (EST)

SOURCE: AIRPORT MASTER RECORD FORM 5010.

BUILDING/FACILITIES LIST

EXISTING BUILDINGS		FUTURE BUILDINGS	
NUMBER	USE / TENANT	NUMBER	USE / TENANT
1	GLADES AG SERVICE	F1	FBO
2	GLADES AG SERVICE	F2	FBO HANGAR
3	ROMA, INC.	F3	BOX HANGARS
4	ROMA, INC.	F4	BOX HANGARS
5	ROMA, INC.	F5	T-HANGARS
6	ROMA, INC.	F6	T-HANGARS
7	ROMA, INC.	F7	AIRPORT MAINTENANCE
8	AERIAL CROP PROTECTION		

LEGEND

	EXISTING	INTERIM	ULTIMATE
RUNWAY SAFETY AREAS (RSA)	RSA (EX)	N/A	RSA (U)
RUNWAY OBJECT FREE AREAS (ROFA)	ROFA (EX)	N/A	ROFA (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (EX)	N/A	RPZ (U)
BUILDING RESTRICTION LINE (25' CLEAR)	BRL (EX)	N/A	BRL (U)
PAVED AIRFIELD FACILITIES			
ROADWAYS		N/A	
BUILDING STRUCTURES		N/A	
AIRPORT REFERENCE POINT (ARP)		N/A	
GROUND CONTOUR	10	N/A	N/A
FENCE	XU XU XU	N/A	XU XU XU
AIRPORT PROPERTY LINE		N/A	
RPZ AVIGATION EASEMENT	N/A	N/A	

MARCH 2013 MAGNETIC DECLINATION
DECLINATION: 6° 6' 11" W
ANNUAL RATE OF CHANGE: 0° 5.6' W/YEAR
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), MARCH 2013

TRUE
MAGNETIC

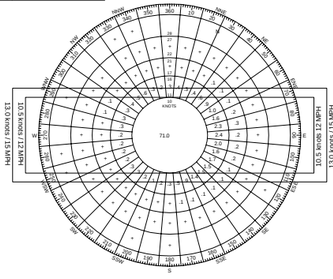
0 300 600 900

CONSTRUCTION NOTICE REQUIREMENT

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

FAA DISCLAIMER

THE CONTENTS OF THIS EXHIBIT REFLECT THE VIEWS OF THE CITY OF BELLE GLADE WHICH IS RESPONSIBLE FOR THE FACTS AND ACCURACY OF THE DATA PRESENTED HEREIN. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS EXHIBIT DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH PUBLIC LAWS 91-190, 91-258,94-353, AND/OR 90-495.



ALL WEATHER WIND ROSE

RUNWAY(S)	CROSSWIND COMPONENT (KNOTS)			
	10.5	13.0	16.0	20.0
9-27	91.75%	96.30%	99.25%	99.84%

SOURCE: NATIONAL CLIMATIC DATA CENTER, 2011;
PALM BEACH INT'L AIRPORT; STATION 72203
PERIOD: 2000-2009

APPROVALS

FAA APPROVAL SPACE

CITY OF BELLE GLADE

BY: _____

TITLE: _____ DATE: _____

NO.	DATE	BY	REVISIONS
1			
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928
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AIRPORT LAYOUT DRAWING

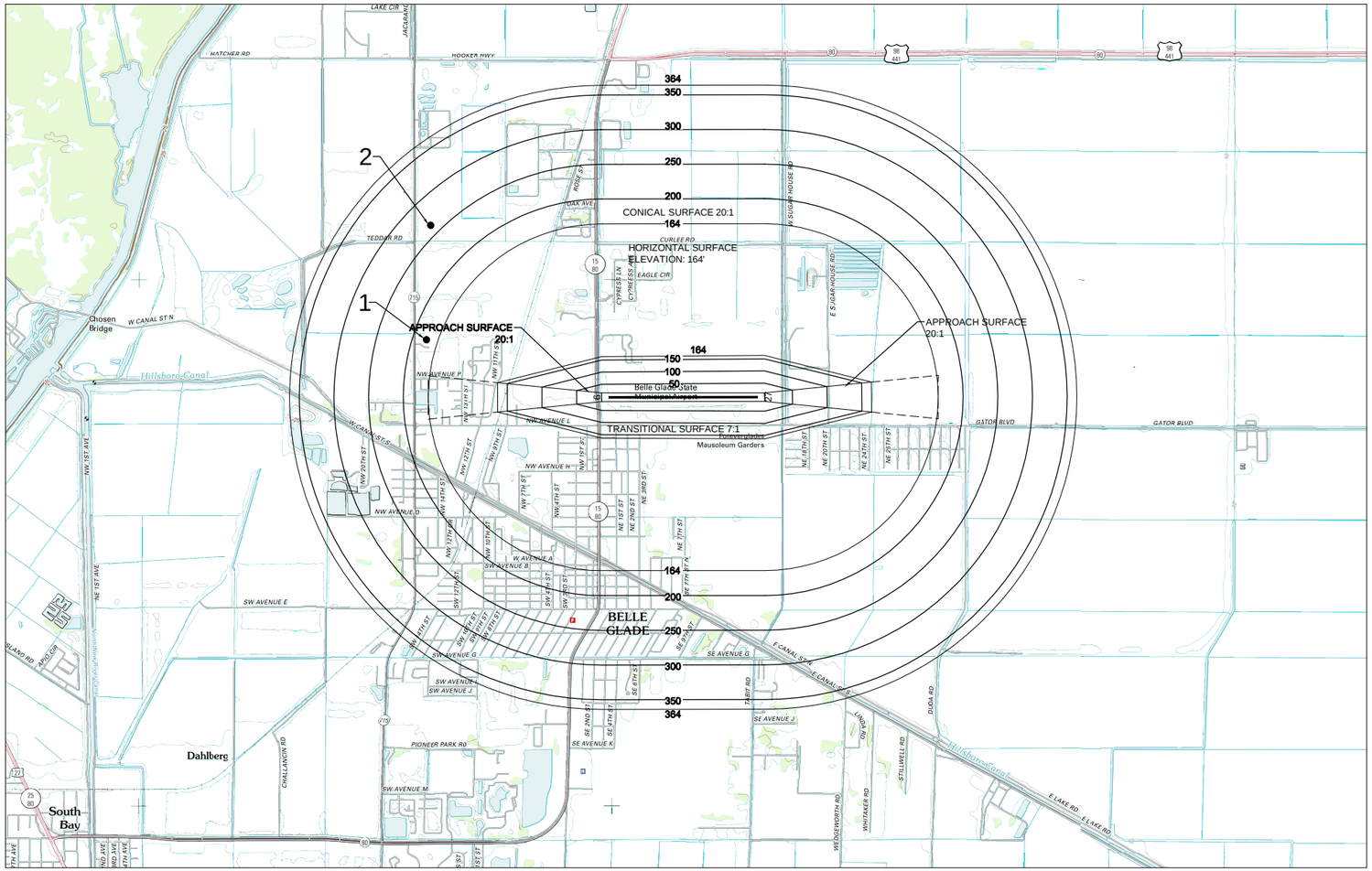
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

PROJECT NO.
144086007

SHEET NUMBER
2 OF 7

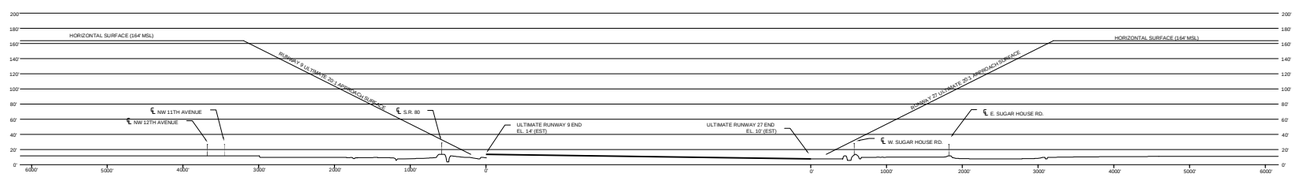
Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_02-ALD.dwg 2-ALD Nov 26, 2013 11:26am by: jacob.bowers



FAR PART 77 OBSTRUCTION DATA						
No.	DESCRIPTION	FAR PART 77 SURFACE	OBJECT ELEV.	PENETRATION (FEET)	LIGHTED	ACTION
1	COMMUNICATION TOWER	Conical	263	87	YES	NONE
2	COMMUNICATION TOWER	Conical	304	44	YES	NONE

* OBSTRUCTIONS IDENTIFIED FROM MIAMI FAA TERMINAL AREA CHART, EFFECTIVE 2-7-2013 THROUGH 8-22-2013

NOTE: REFER TO THE INNER PORTION OF THE APPROACH SURACE DRAWING PLAN VIEW DETAILS FOR CLOSE-IN OBSTRUCTIONS.



PROFILE VIEW RUNWAY 9-27 ULTIMATE

0 2000 4000
HORIZONTAL (ft)

GRAPHIC SCALE
PLAN VIEW

TRUE
MAGNETIC
N

100
VERTICAL (ft)
0
0 1000 2000
HORIZONTAL (ft)

GRAPHIC SCALE
PROFILES

No.	DATE	REVISIONS	BY
1			
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
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SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928
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AIRPORT AIRSPACE PLAN

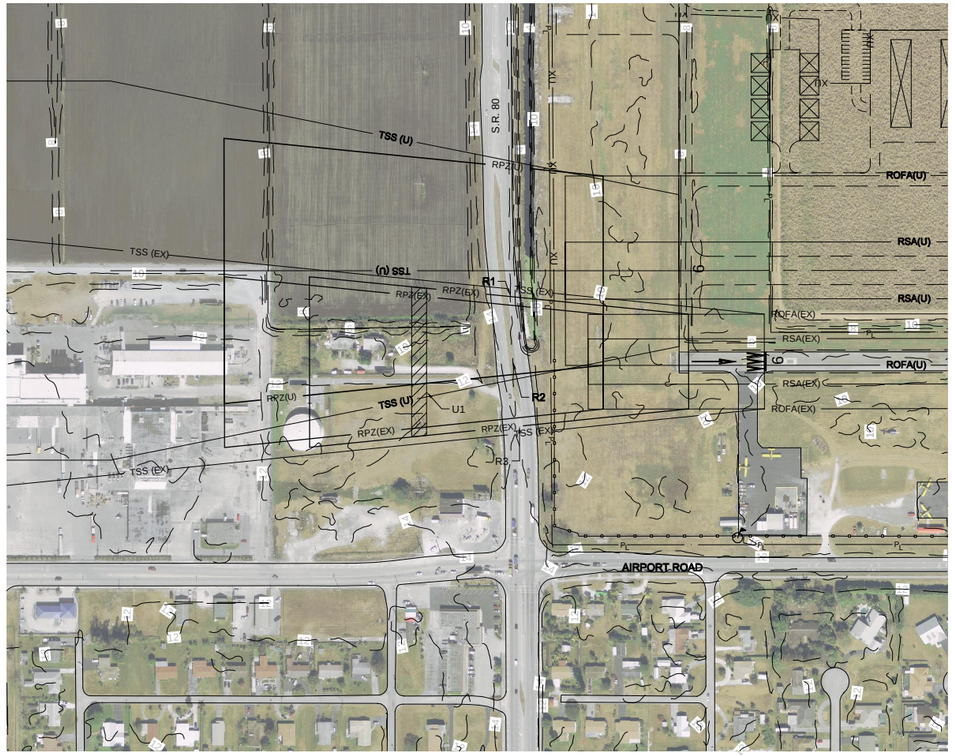
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

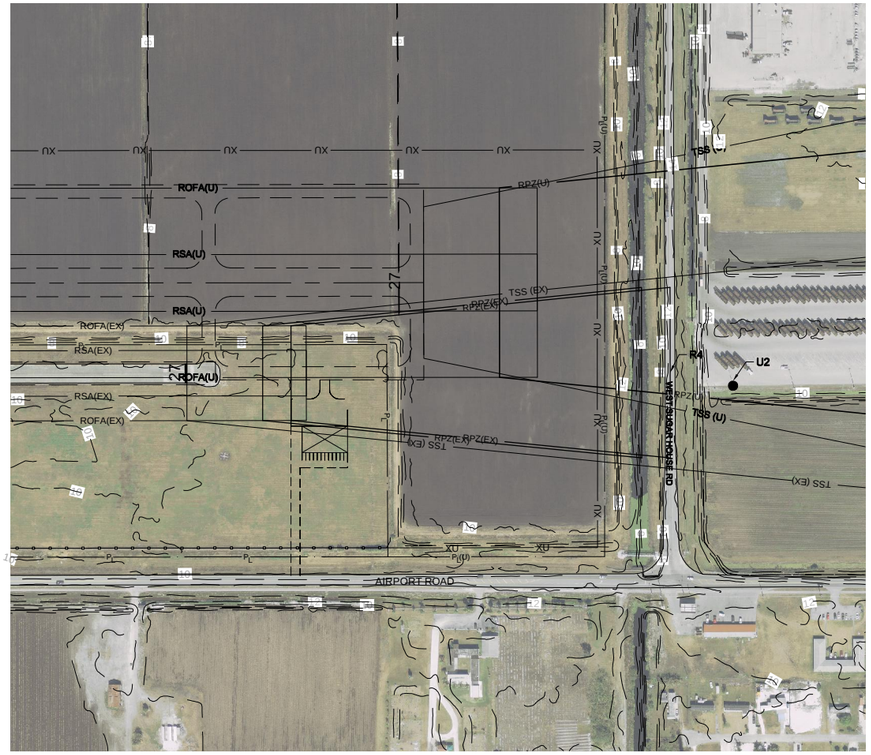
DATE
11/26/2013

PROJECT NO.
144086007

SHEET NUMBER
3 OF 7

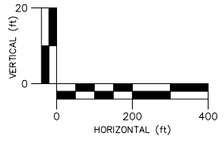
Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_03-AIRSPACE.dwg AIRSPACE PLAN Nov 25, 2013 9:26am by: jacob.bowers



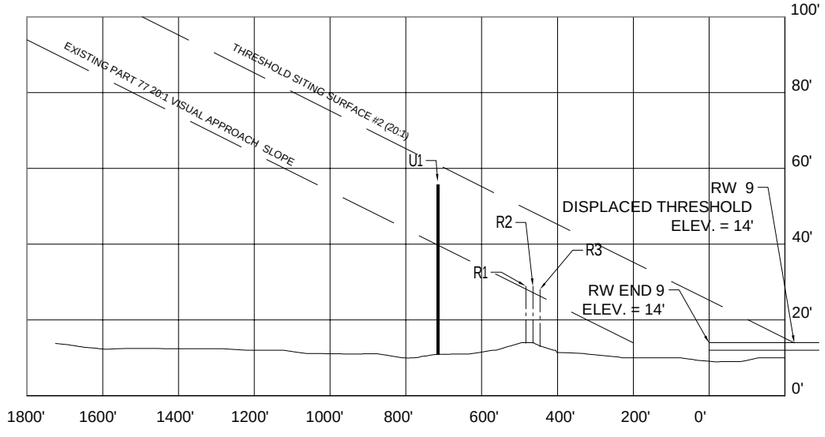


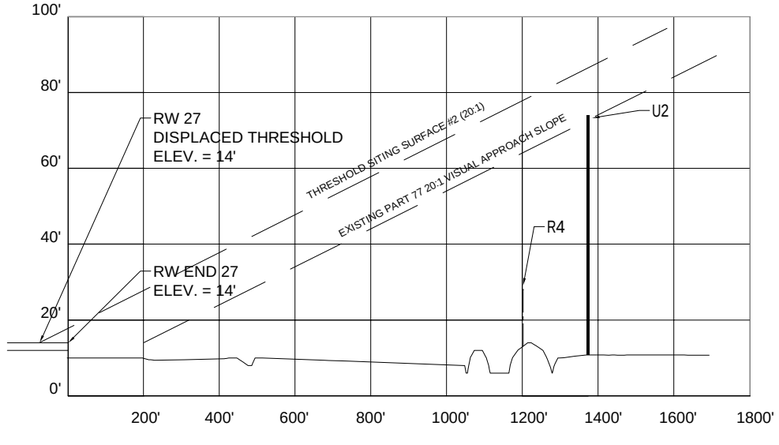
TRUE
MAGNETIC

EXISTING
RUNWAY 9–27



GRAPHIC SCALE





APPROACH SURFACE OBSTRUCTIONS RUNWAY END 9

No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U1	OHL ON POLE	16'	-	NONE/CURRENTLY MARKED AND LIT
R1	SR 80	1'	-	RUNWAY RELOCATION
R2	SR 80	2'	-	RUNWAY RELOCATION
R3	SR 80	2'	-	RUNWAY RELOCATION

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 27

No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
R4	W. SUGAR HOUSE ROAD	-	-	NONE
U2	POLE	1'	-	RELOCATE/REMOVE/LOWER

NOTES:
1. EXACT TREE AND UTILITY LOCATIONS AND ELEVATIONS IN THE X10 APPROACH SURFACES ARE UNAVAILABLE. TREE AND UTILITY LOCATIONS AND ELEVATIONS THAT AFFECT AIR NAVIGATION NEED TO BE IDENTIFIED.
2. UTILITY HEIGHTS ARE APPROXIMATE BASED ON FAA AIRPORT MASTER RECORD #5010, MARCH 2013
3. 15 FOOT VERTICAL CLEARANCE ADDED TO ROAD ELEVATIONS.

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928
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INNER PORTION OF THE APPROACH SURFACE DRAWING - EXISTING RUNWAY 9-27

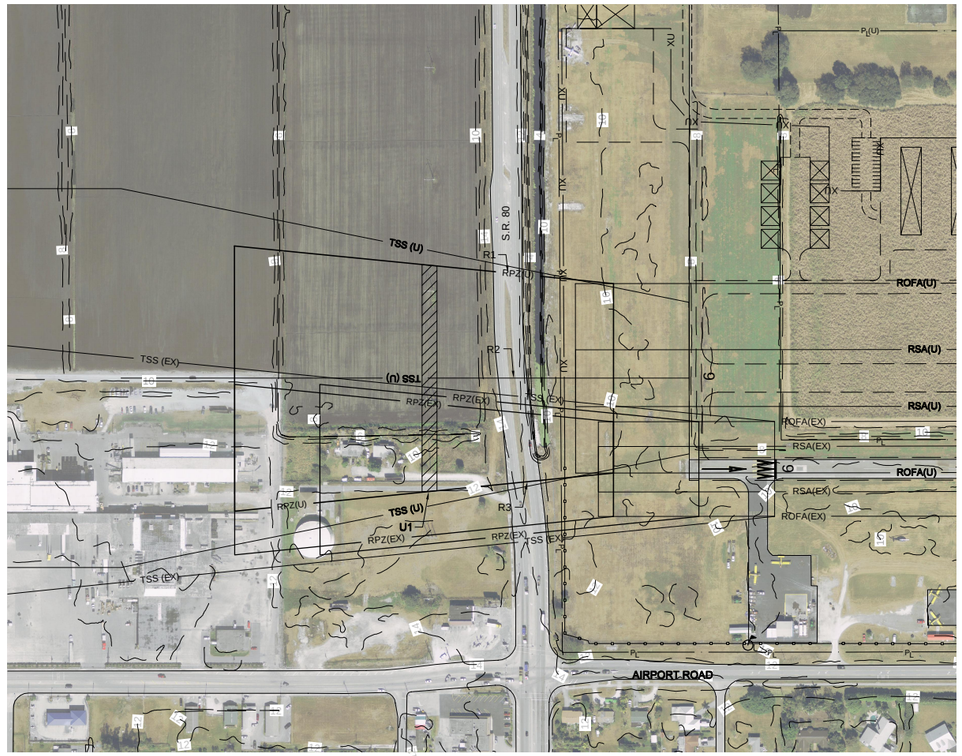
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

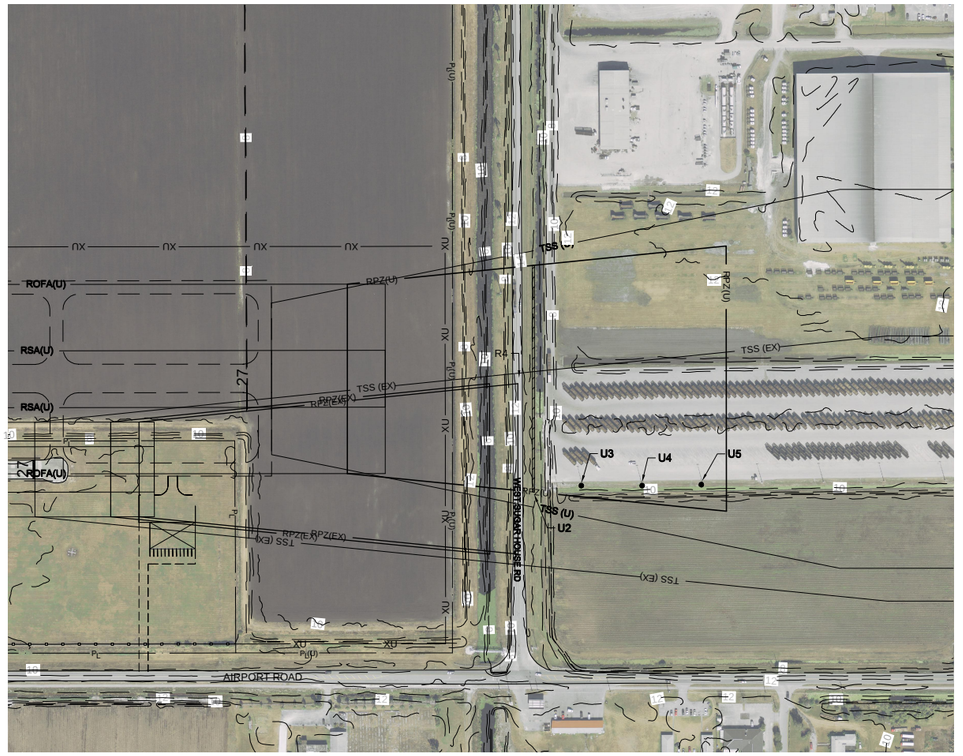
DATE
11/26/2013

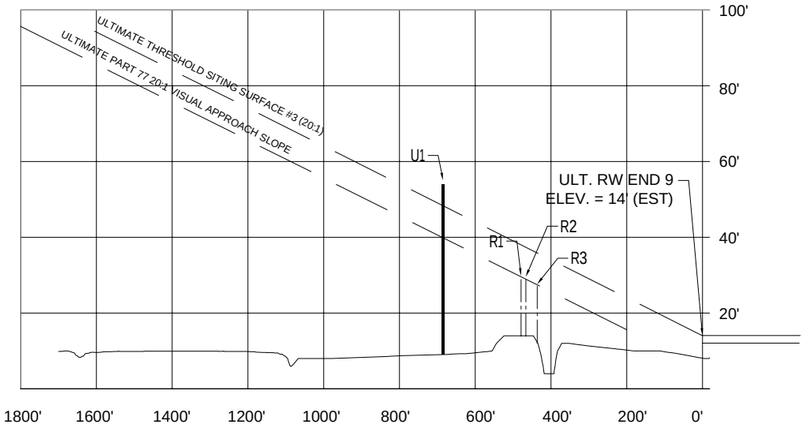
PROJECT NO.
144086007

SHEET NUMBER
4 OF 7

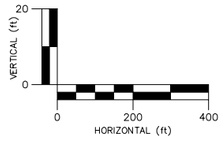
Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_04-IPASD.dwg 4-IPASD EXISTING Nov 26, 2013 7:51am by: jacob.bowers







ULTIMATE
RUNWAY 9–27

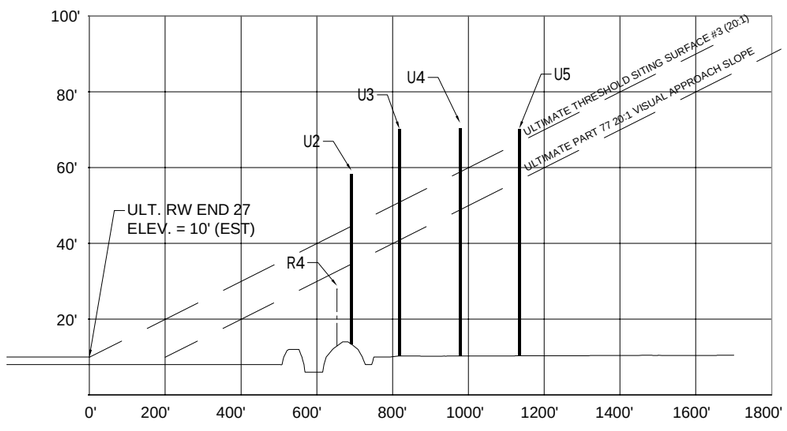


GRAPHIC SCALE

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 9				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U1	OHL ON POLE	14'	6'	BURY/ RELOCATE/LOWER
R1	SR 80	-	-	NONE
R2	SR 80	-	-	NONE
R3	SR 80	-	-	NONE

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 27				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U2	OHL ON POLE	24'	14'	RELOCATE/REMOVE/LOWER
U3	LIGHT	29'	20'	RELOCATE/REMOVE/LOWER
U4	LIGHT	21'	11'	RELOCATE/REMOVE/LOWER
U5	LIGHT	14'	4'	RELOCATE/REMOVE/LOWER
R4	W SUGAR HOUSE RD	-	-	NONE

NOTES:
1. EXACT TREE AND UTILITY LOCATIONS AND ELEVATIONS IN THE X10 APPROACH SURFACES ARE UNAVAILABLE. TREE AND UTILITY LOCATIONS AND ELEVATIONS THAT AFFECT AIR NAVIGATION NEED TO BE IDENTIFIED.
2. UTILITY HEIGHTS ARE APPROXIMATE BASED ON FAA AIRPORT MASTER RECORD #5010, MARCH 2013
3. 15 FOOT VERTICAL CLEARANCE ADDED TO ROAD ELEVATIONS.



INNER PORTION OF THE
APPROACH SURFACE
DRAWING - ULTIMATE
RUNWAY 9-27

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

PROJECT NO.
144086007

SHEET NUMBER
5 OF 7

SCALE	AS SHOWN	6			
DRAWN BY	JAB	5			
DESIGNED BY	ADN	4			
CHECKED BY	AJO	3			
		2			
		1			
		No.	REVISIONS	DATE	BY

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928
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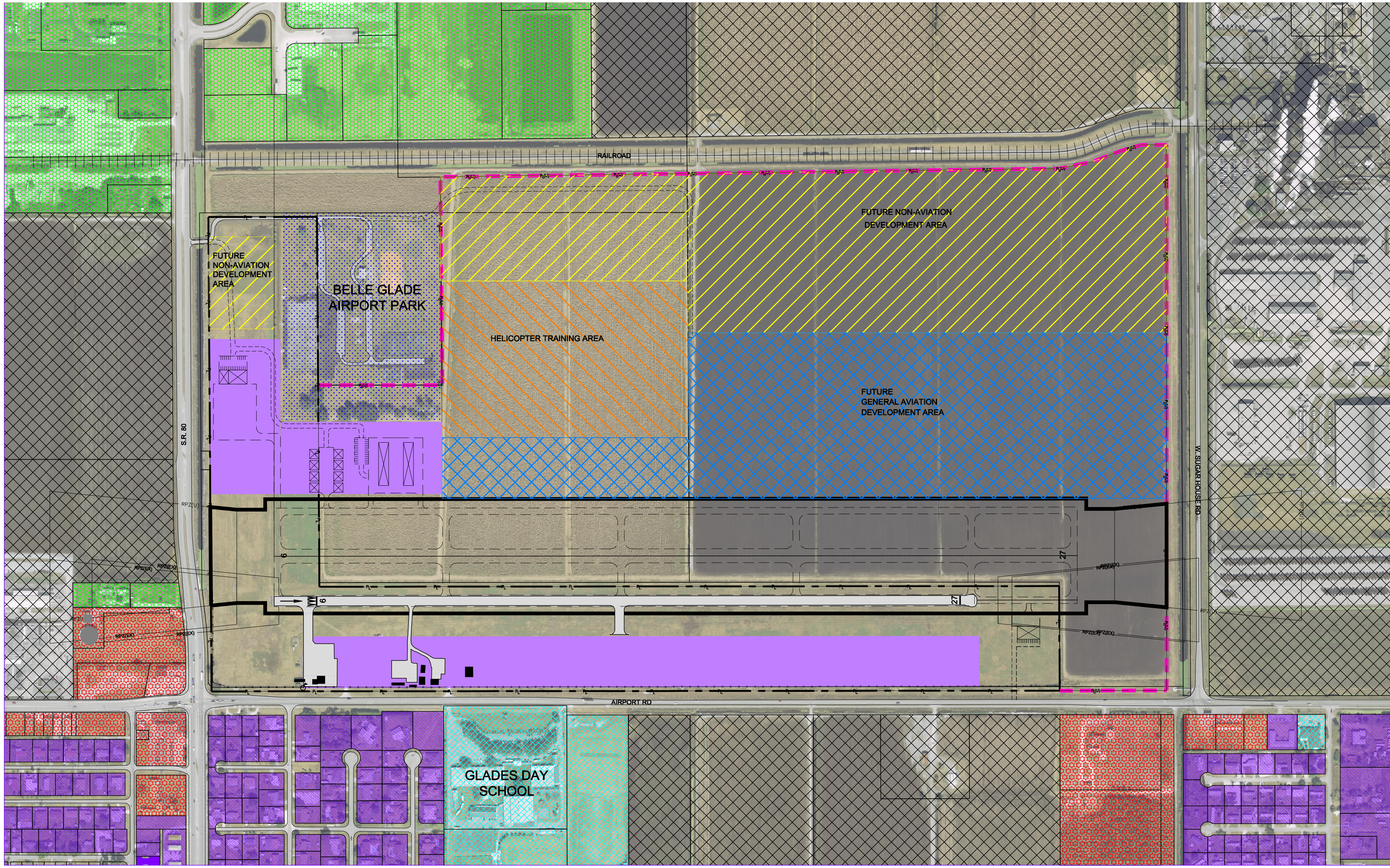
Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_04-IPASD ULTIMATE Nov 26, 2013 7:56am by: jacob.bowers



LEGEND

ON-AIRPORT LAND USES

- AIRFIELD/ AIRCRAFT OPERATION AREA
- GENERAL AVIATION AREA
- FUTURE GENERAL AVIATION AREA
- FUTURE NON-AVIATION DEVELOPMENT AREA
- HELICOPTER TRAINING AREA

OFF-AIRPORT LAND USES

- OFF-AIRPORT AGRICULTURAL/ OPEN AREAS
- OFF-AIRPORT INDUSTRIAL AREAS
- INSTITUTIONAL/MUNICIPAL FACILITIES
- COMMERCIAL AREAS
- RESIDENTIAL AREAS
- RECREATIONAL AREAS
- EXISTING AIRPORT BOUNDARY
- FUTURE PROPERTY ACQUISITION
- PARCEL BOUNDARIES
- FUTURE BUILDING
- FUTURE PAVEMENT

*OFF-AIRPORT LAND USES OBTAINED FROM:

PALM BEACH COUNTY GEOGRAPHIC INFORMATION SYSTEM; MARCH 2013

CITY OF BELLE GLADE COMPREHENSIVE PLAN; SEPTEMBER 2007

TRUE
MAGNETIC
N

0 300 600 900

No.	REVISIONS	DATE	BY
6			
5			
4			
3			
2			
1			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

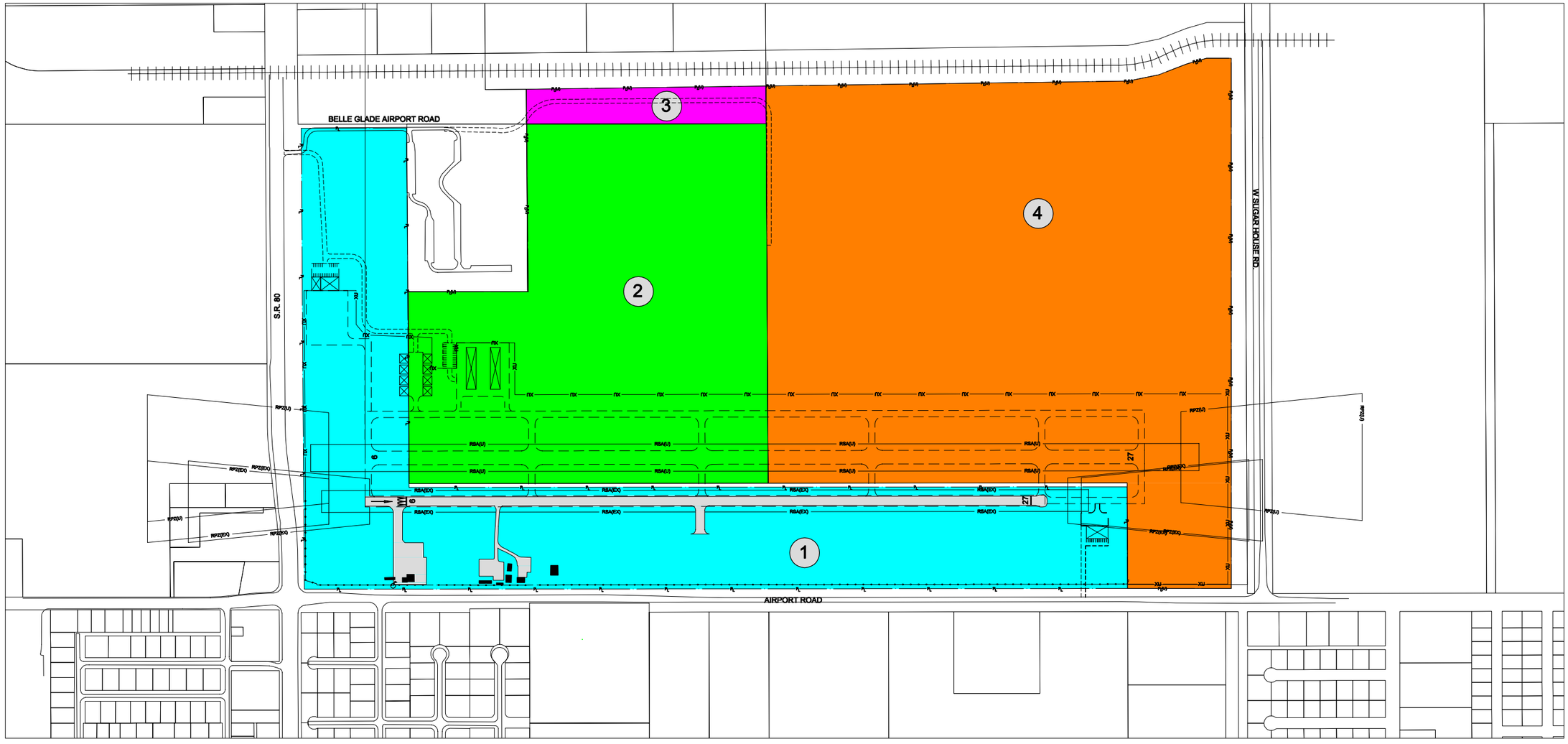
PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

ULTIMATE AIRPORT LAND USE MAP

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE 11/26/2013
PROJECT NO. 144086007
SHEET NUMBER 6 OF 7

Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_05-LANDUSE.dwg LAND USE Nov 26, 2013 7:58am by: jacob.bowers



EXISTING PROPERTY ACQUISTION TABLE

PARCEL	GRANTEE	GRANTOR	PROPERTY INTEREST	DATE	ACRES	PURPOSE	FEDERAL PARTICIPATION
1	CITY OF BELLE GLADE	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	LEASE	1/6/1975	85.89 +/-	MUNICIPAL AIRPORT OPERATION	NONE

* NOTE: PROPERTY OWNED BY STATE OF FLORIDA AND MANAGED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP), BUREAU OF LANDS. PROPERTY LEASED TO FDOT SINCE JANUARY 1975 SET TO EXPIRE JANUARY 2019. FDOT SUBLEASES TO CITY OF BELLE GLADE SINCE FEBRUARY 1975 AND SET TO EXPIRE JANUARY 2019. AS OF THE PUBLISHING OF THIS ALP, CITY OF BELLE GLADE SEEKING A LONG-TERM LEASE (MINIMUM 50 YEARS) DIRECTLY WITH DEP.

PROPERTY TO BE ACQUIRED

PARCEL	OWNER	INTEREST	ACREAGE	PURPOSE OF ACQUISITION
2	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	76.04 +/-	AIRFIELD EXPANSION / DEVELOPMENT
3	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	6.06 +/-	AIRFIELD EXPANSION / DEVELOPMENT
4	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	138.2 +/-	AIRFIELD EXPANSION / DEVELOPMENT

LEGEND			
	EXISTING	INTERIM	ULTIMATE
RUNWAY SAFETY AREAS (RSA)	RSA (EX)	N/A	RSA (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (EX)	N/A	RPZ (U)
PAVED AIRFIELD FACILITIES			
ROADWAYS		N/A	
FUTURE BUILDINGS	N/A	N/A	
FENCE		N/A	
AIRPORT PROPERTY LINE		N/A	
ACQUISITION PARCELS	1		

MAGNETIC TRUE N

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928
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AIRPORT PROPERTY MAP

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

PROJECT NO.
144086007

SHEET NUMBER
7 OF 7

Drawing name: K:\SNA_Aviation\144086007 Belle Glade\CADD\ALP\X10_06-PROPERTYMAP.dwg APM Nov 26, 2013 8:04am by jacob.bowers

Appendix A

Environmental Mitigation Maps – WRS Infrastructure & Environment

Site Location:
Belle Glade,
Palm Beach County, Florida

SOURCE: UNITED STATES GEOLOGICAL SURVEY
BELLE GLADE QUADRANGLE (S 29, T 42S, R 37E) FGDL: Q2206

N

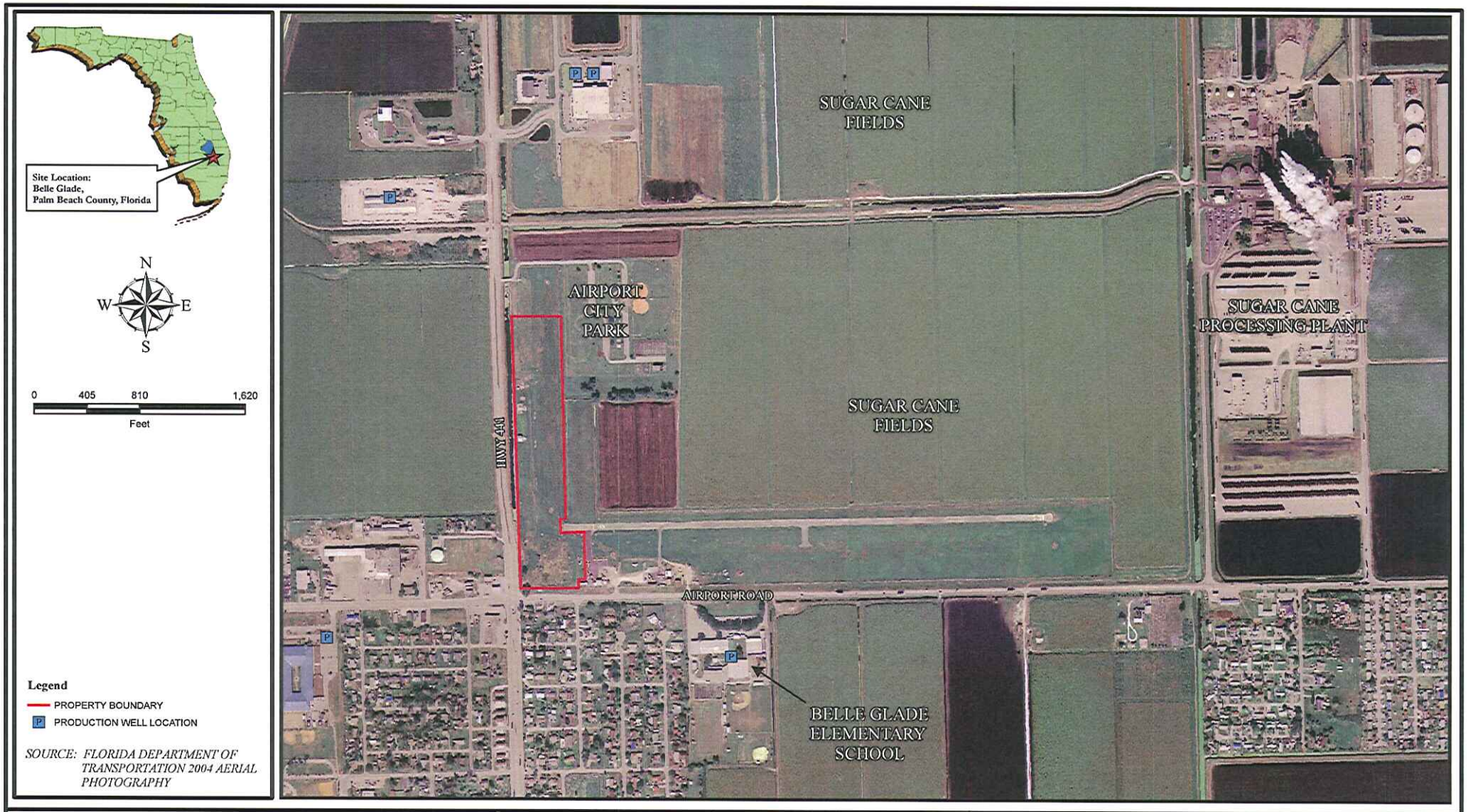
0 0.5 1 1.5 2
Miles

DRAWING STATUS	DRAFT		FINAL	☒

PROJECT NO.: 32-61-060007			PROJECT MANAGER: FRANK POWELL		
SCALE: AS SHOWN		CADD ID: 32-61-060007B001	PLOT DATE: 01/02/07	CHK BY: A.G.	CHK DATE: 01/02/07
REVISION NO.:	REVISION DATE:	DRN BY: A.R.W.	DRN DATE: 01/02/07	APPVD BY: P.J.	APPVD DATE: 01/02/07

WRS Infrastructure & Environment, Inc.
1650 SUMMIT LAKE DRIVE, SUITE 202, TALLAHASSEE, FLORIDA 32317
PH:(850) 531-9860 FAX:(850) 531-9866

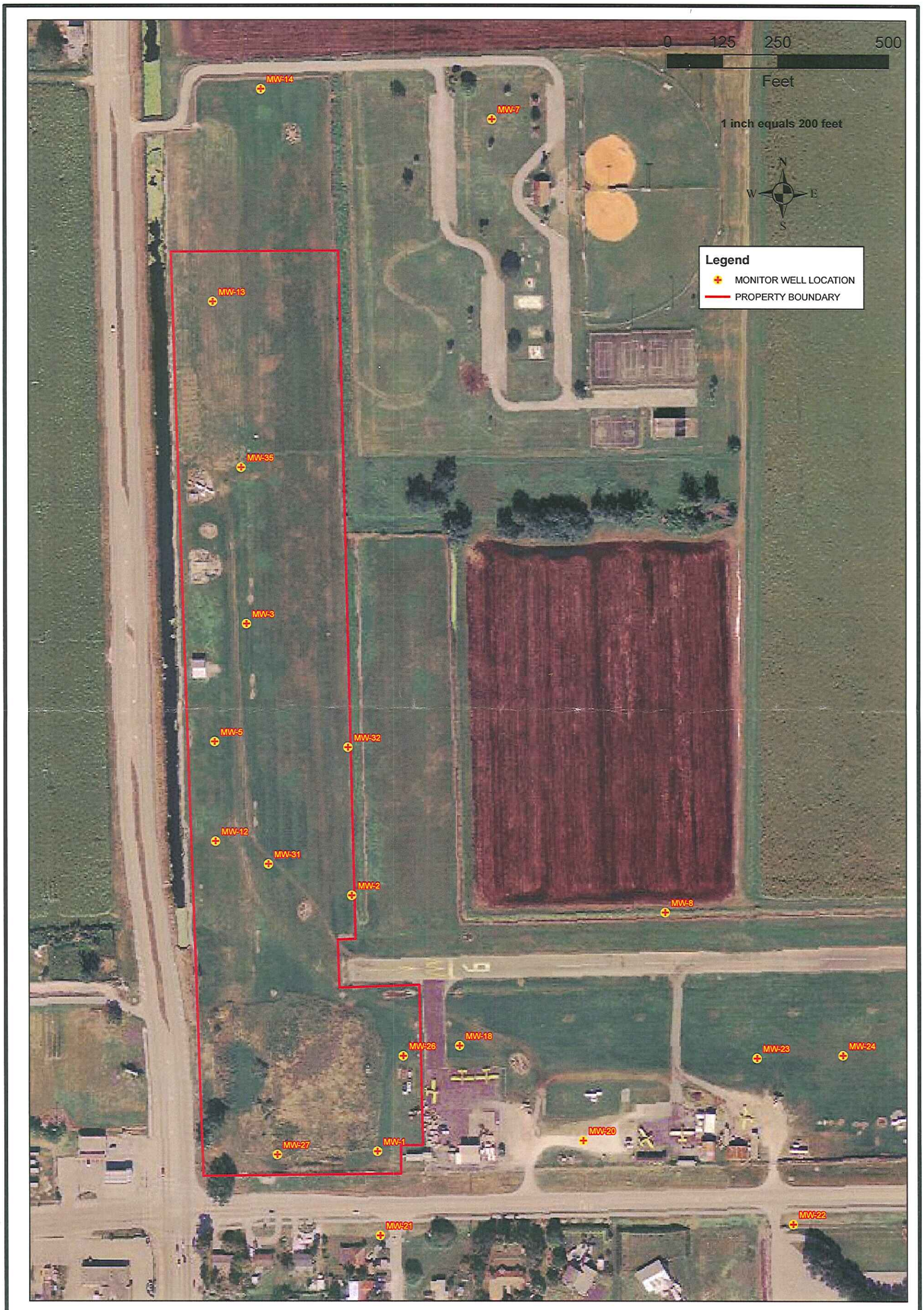
FIGURE 1
SITE LOCATION MAP
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA



WRS Infrastructure & Environment, Inc.
1650 SUMMIT LAKE DRIVE, SUITE 202, TALLAHASSEE, FLORIDA 32317
PH:(850) 531-9860 FAX:(850) 531-9866

DRAWING STATUS	DRAFT		FINAL	X
PROJECT NO.: 306110	PROJECT MANAGER: FRANK POWELL			
CADD ID: 306110B006	CHECKED BY: A.G.			
DRAWN BY: D.B.H.	CHECKED DATE: 12/29/09			
DRAWN DATE: 12/29/09	APPROVED BY: P.J.			
PLOT DATE: 12/29/09	APPROVAL DATE: 12/29/09			
SCALE: AS SHOWN				

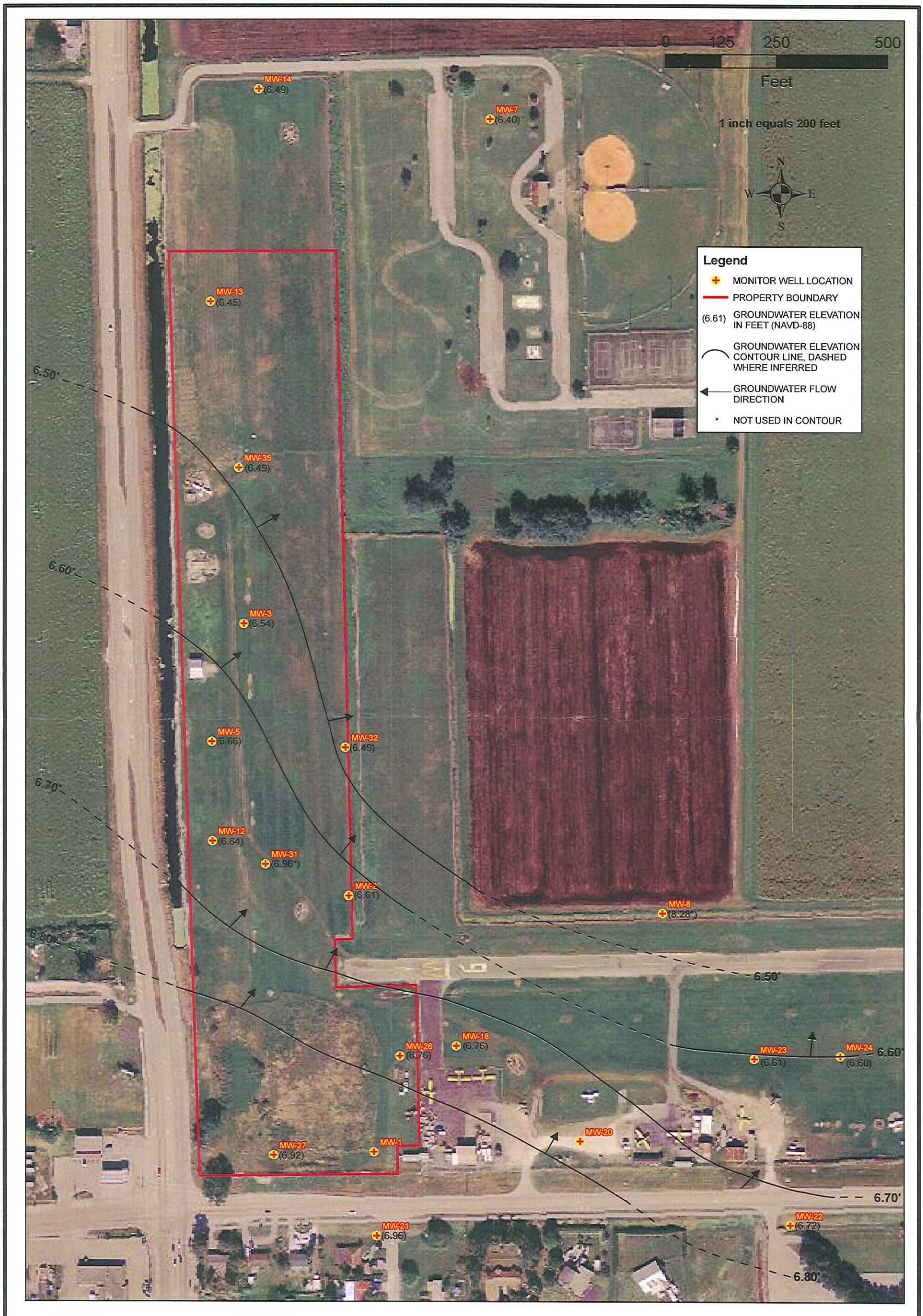
FIGURE 2
SITE VICINITY MAP
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA



WRS Infrastructure & Environment, Inc.
221 HOBBS STREET, SUITE 108, TAMPA, FLORIDA 33619
PH:(813) 684-4400 FAX:(813) 684-9177

DRAWING STATUS	DRAFT		FINAL ☒
PROJECT NO.: 32_61_060007			
PROJECT MANAGER: FRANK POWELL			
SCALE: AS SHOWN			
CADD ID: 32_61_060007B002	PLOT DATE: 01/02/07		
DRN BY: A.R.W.	DRN DATE: 01/02/07		
CHK BY: A.G.	CHK DATE: 01/02/07		
APPVD BY: P.J.	APPVD DATE: 01/02/07		

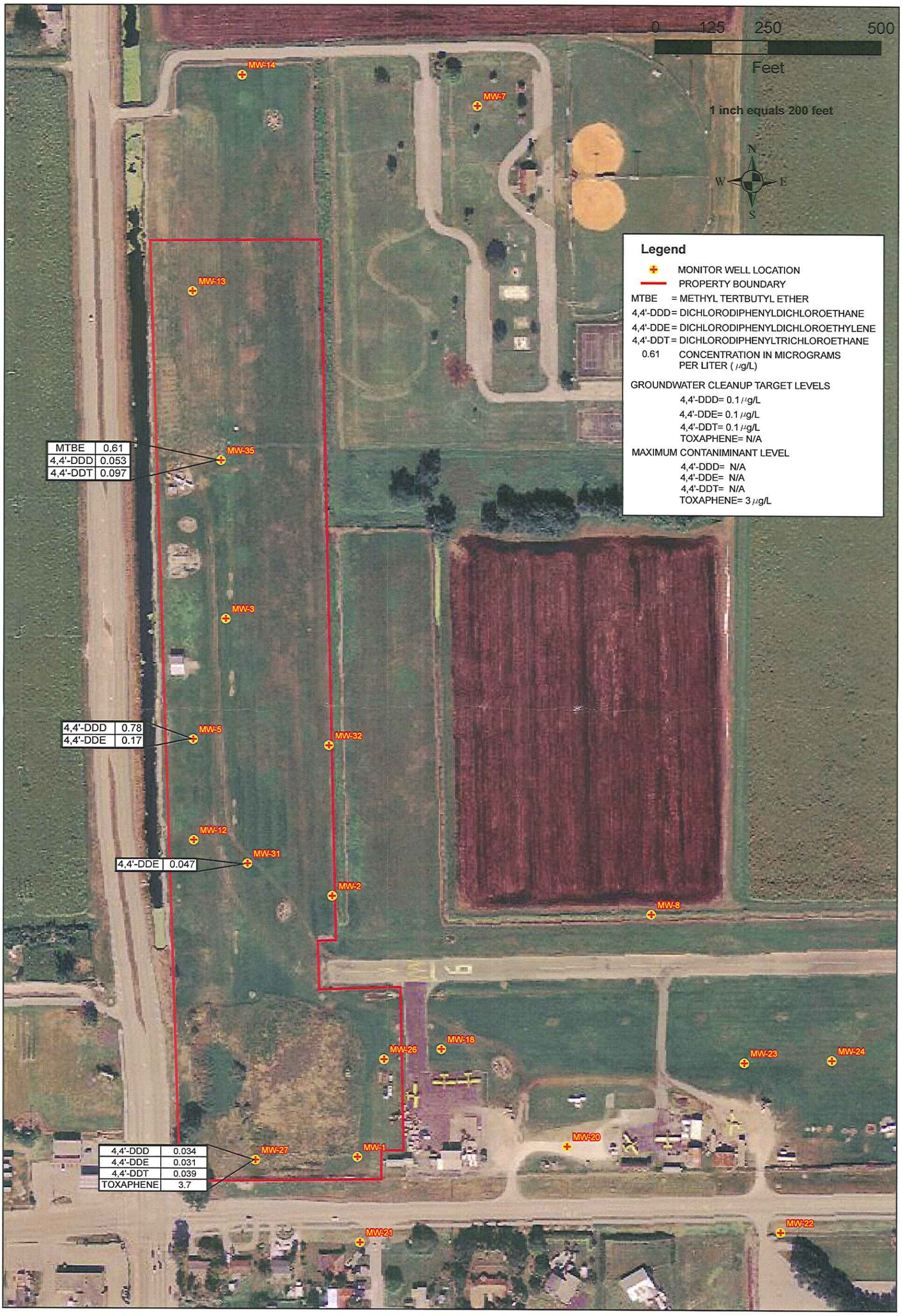
FIGURE 3
MONITOR WELL LOCATION MAP
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA



WRS Infrastructure & Environment, Inc.
221 HOBBS STREET, SUITE 108, TAMPA, FLORIDA 33619
PH:(813) 684-4400 FAX:(813) 684-9177

DRAWING STATUS	DRAFT		FINAL ☒
PROJECT NO.: 32-61-060007			
PROJECT MANAGER: FRANK POWELL			
SCALE: AS SHOWN			
CADD ID:32_61_060007B003	PLOT DATE: 01/02/07		
DRN BY: A.R.W.	DRN DATE: 01/02/07		
CHK BY: A.G.	CHK DATE:01/02/07		
APPVD BY: P.J.	APPVD DATE:01/02/07		

FIGURE 4
GROUNDWATER POTENTOMETRIC SURFACE MAP
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA



WRS Infrastructure & Environment, Inc.

221 HOBBS STREET, SUITE 108, TAMPA, FLORIDA 33619
PH:(813) 684-4400 FAX:(813) 684-9177

DRAWING STATUS	DRAFT		FINAL	X
PROJECT NO.: 32-61-060007				
PROJECT MANAGER: FRANK POWELL				
SCALE: AS SHOWN				
CADD ID:32_61_060007B004	PLOT DATE:01/02/07			
DRN BY: A.R.W.	DRN DATE:01/02/07			
CHK BY: A.G.	CHK DATE:01/02/07			
APPVD BY: P.J.	APPVD DATE:01/02/07			

FIGURE 5
CONTAMINATION CONCENTRATION DISTRIBUTION MAP
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA

Legend

2700 Concentration in µg/kg

Soil Cleanup Target Level

- Exceeds Commercial Limit of 300 µg/kg
- Exceeds Residential Limit of 60 µg/kg
- Inferred Commercial Limit Contour
- Inferred Residential Limit Contour
- Property Boundary
- Soil Sample Location

Split Sample Location

- 6-inches below landsurface (bls)
- 30-inches bls

Duplicate Sample Location

- 6-inches bls
- 30-inches bls

Note: Reported Concentrations Are Highest Levels Detected.

SOURCE: DIGITAL ORTHO IMAGERY PROVIDED BY FLORIDA DEPARTMENT OF TRANSPORTATION

WRS Infrastructure & Environment, Inc.
1650 SUMMIT LAKE DRIVE, SUITE 202, TALLAHASSEE, FLORIDA 32317
PH:(850) 531-9860 FAX:(850) 531-9866

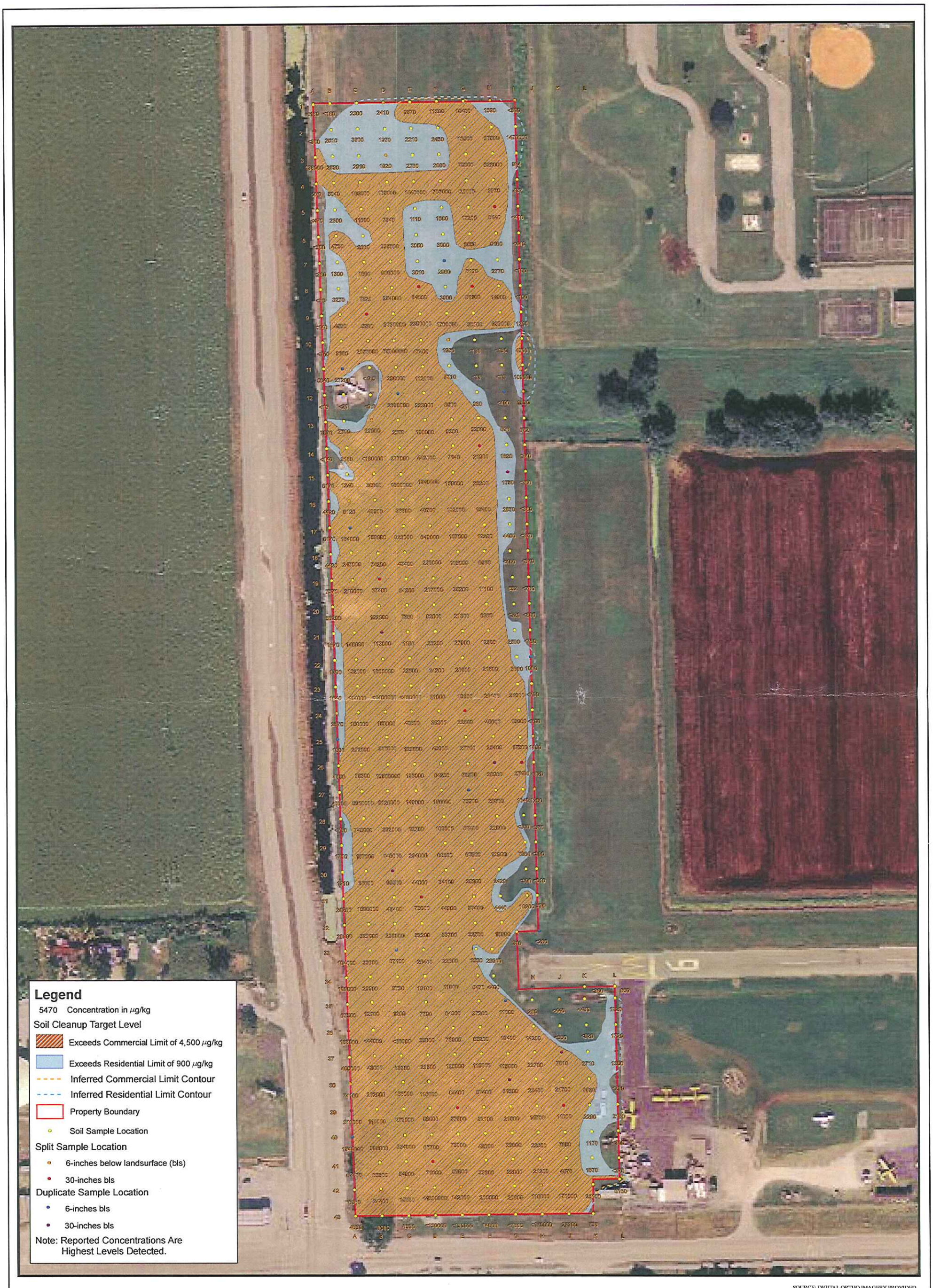
N W E S

0 100 200 400
Feet

1 inch equals 73.653651 feet

FIGURE 6
DIELDRIN ISOCONCENTRATION MAP
AT 0 TO 6 INCHES
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA

GIS ID: 32_61_00007A006



SOURCE: DIGITAL ORTHO IMAGERY PROVIDED BY FLORIDA DEPARTMENT OF TRANSPORTATION

WRS Infrastructure & Environment, Inc.
1650 SUMMIT LAKE DRIVE, SUITE 202, TALLAHASSEE, FLORIDA 32317
PH (850) 531-9860 FAX (850) 531-9866

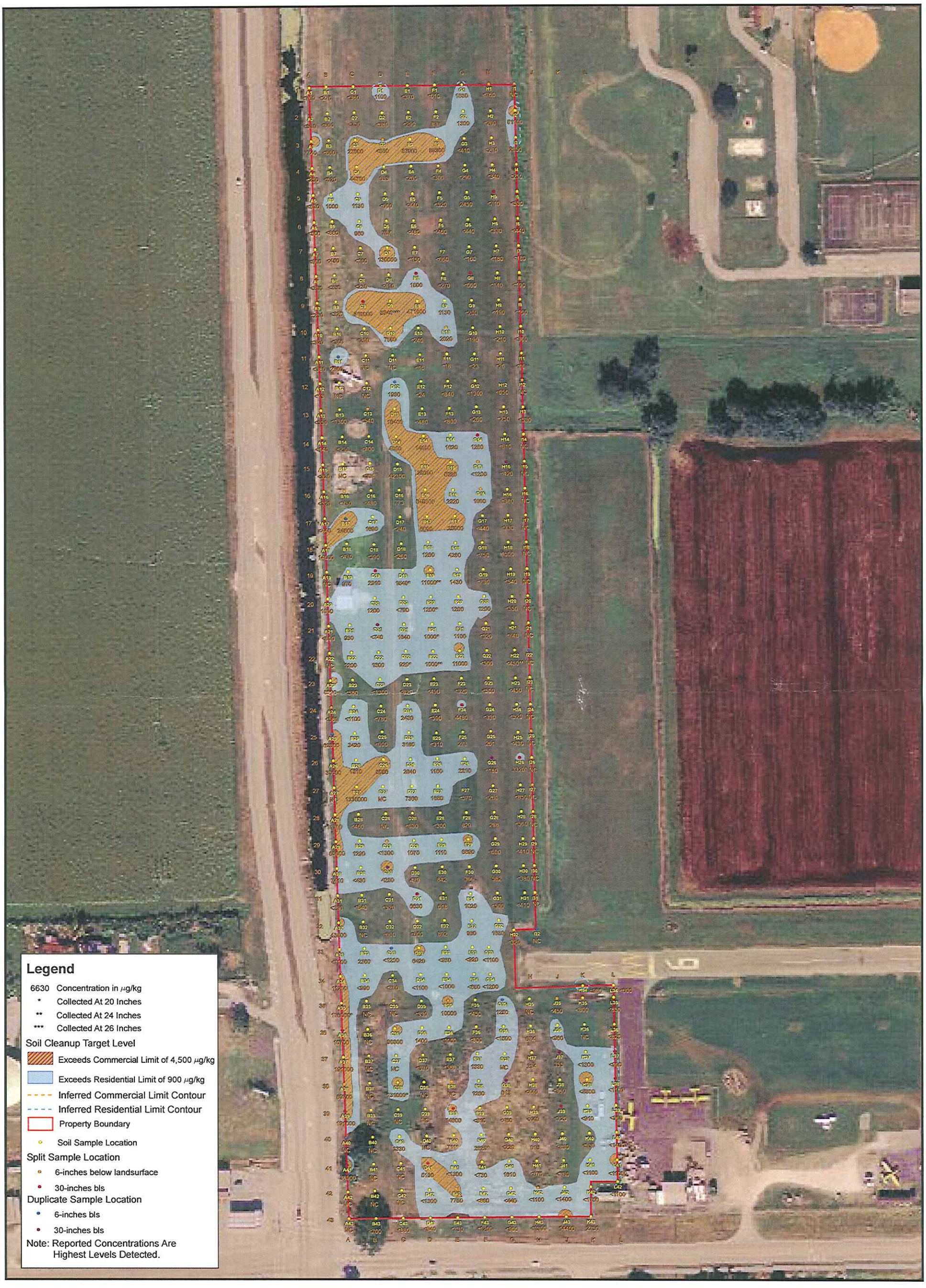
N W E S

0 100 200 400
Feet

1 inch equals 75 feet

FIGURE 14
TOXAPHENE ISOCONCENTRATION MAP
AT 0 TO 6 INCHES
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA

GIS ID: 32_61_06007A009



SOURCE: DIGITAL ORTHO IMAGERY PROVIDED BY FLORIDA DEPARTMENT OF TRANSPORTATION

WRS Infrastructure & Environment, Inc.
1650 SUMMIT LAKE DRIVE, SUITE 202, TALLAHASSEE, FLORIDA 32317
PH (850) 531-9860 FAX (850) 531-9866

N W E S

0 100 200 400
Feet

1 inch equals 75 feet

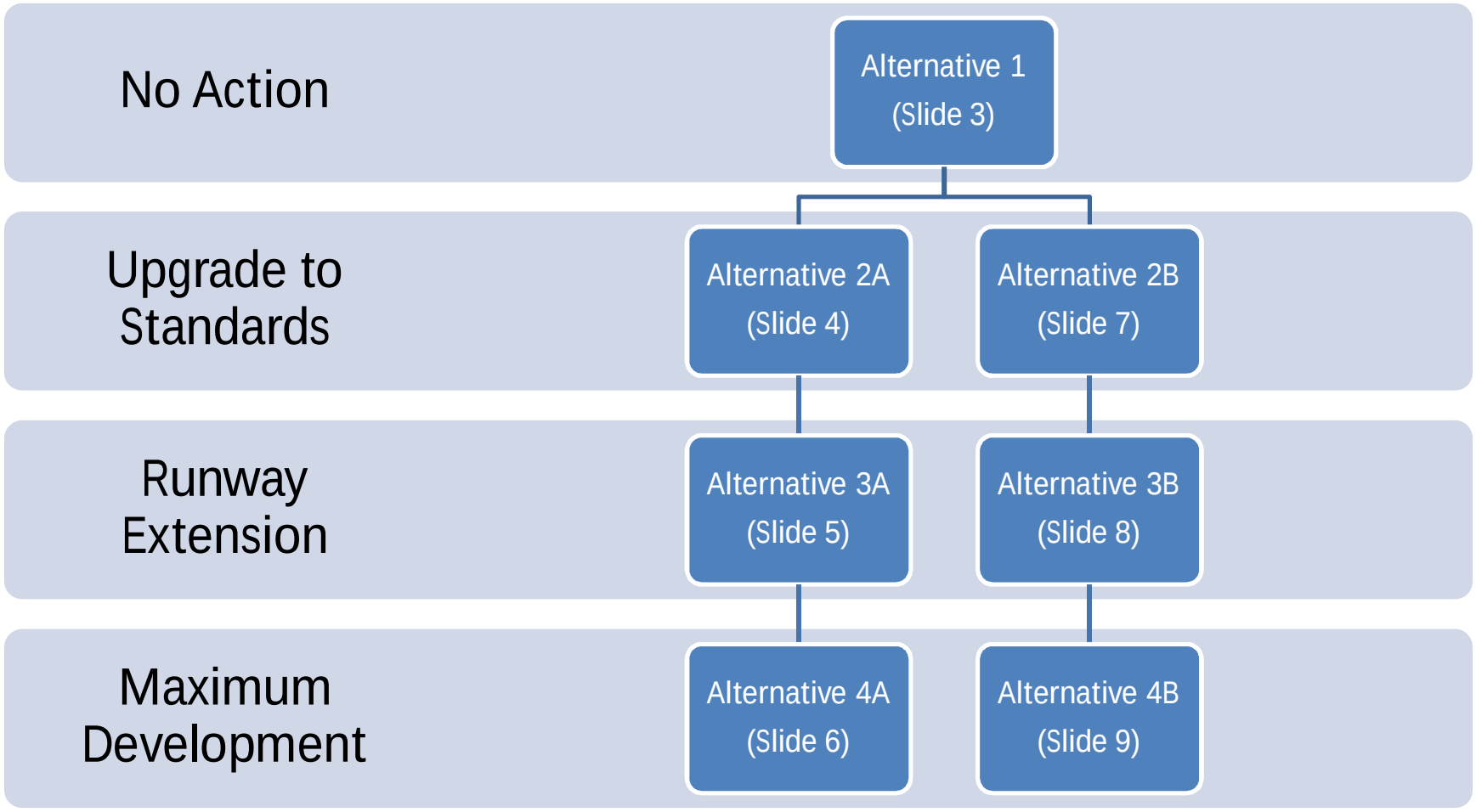
FIGURE 15
TOXAPHENE ISOCONCENTRATION MAP
AT 20 TO 30 INCHES
BELLE GLADE AIRPORT
BELLE GLADE, PALM BEACH COUNTY, FLORIDA

GIS ID: 32_61_06007A010

Appendix B

Airfield Alternatives Analysis – Presentation Slides

Airfield Alternatives Guide



Airfield Alternatives Guide

- The progression of alternatives begins with the No Build (Alternative 1).

- Alternatives are split into two paths:
  - All “A” alternatives assume the runway is modified in its existing location.
  - All “B” alternatives assume the runway is reconstructed to the north of its current location.

- The two families of alternatives (A and B) then progress down similar paths:
  - Alternative 2 (A & B): Upgrade to Standards
  - Alternative 3 (A & B): Alternative 2 + Runway Extension
  - Alternative 4 (A & B): Alternative 3 + Maximum Development

Alternative 1
No-Build Scenario

See Exhibit 6.1

- Represents the No-Build/No Action Scenario.
- Leaves Runway 9-27 Deficient in terms of width and pavement condition.
- Limits Airport in terms of aircraft type and future operations capacity.
- Limits development potential of the Airport.

<u>Developable General Aviation Area</u>

32 Acres

<u>Property Acquisition</u>

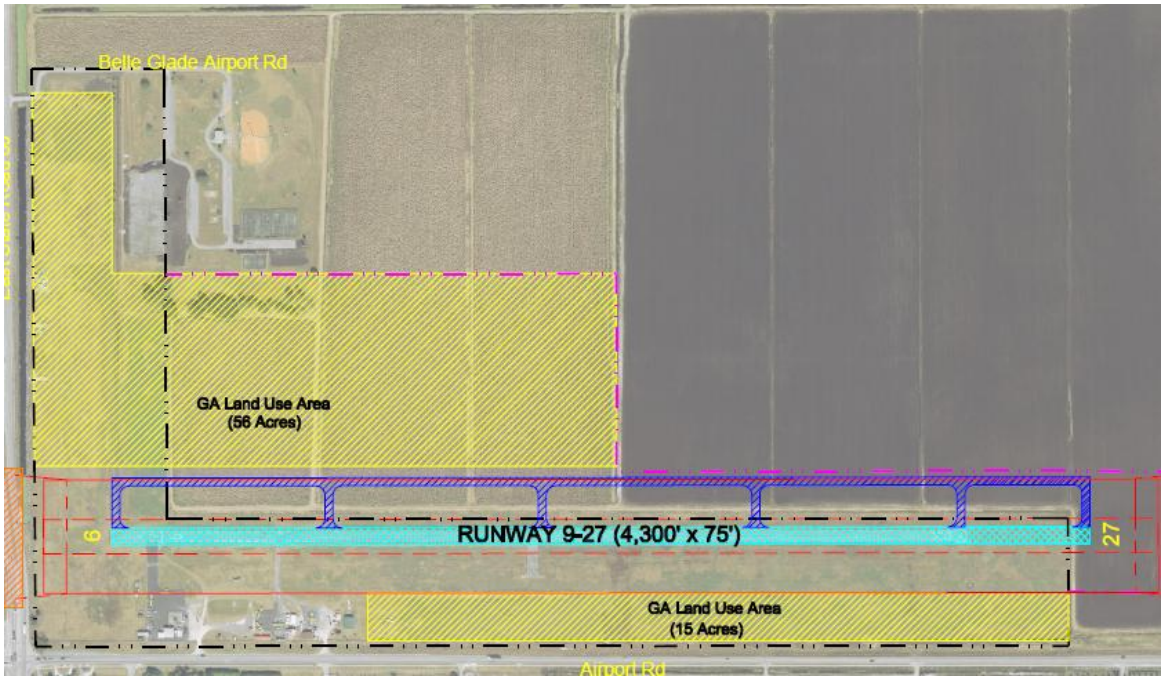
0 Acres

Evaluation Criteria	Rating
Meets Design Standards	Poor
Meets Long-Term Demand	Poor
Ground Movements	Poor
Landside Facility Expansion	Satisfactory
Implementation Difficulty	Minimal
Environmental Factors	Minimal

Alternative 2A
Upgrade to Standards
Upgrade Runway 9-27 In Place

See Exhibit 6.2

- Widens Runway 9-27 from 50 to 75 feet in its current location.
- Provides full parallel taxiway on north side of Runway.
- Existing utilities to the east and west would need to be mitigated.
- Limits development potential of the Airport.



Developable General Aviation Area

71 Acres

Property Acquisition

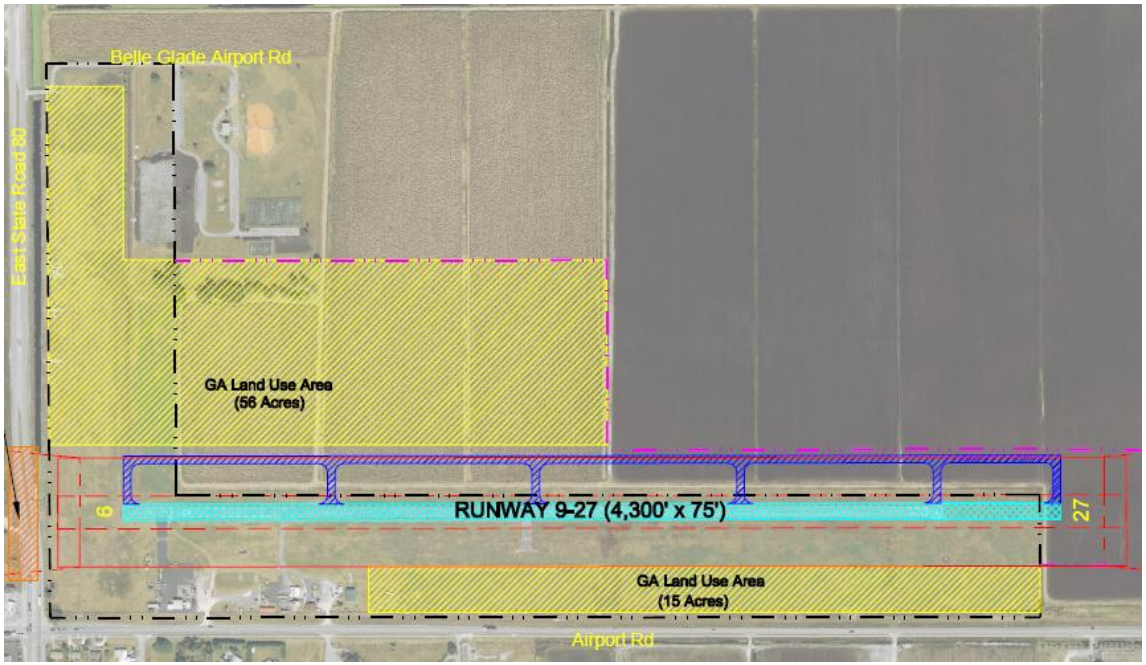
66 Acres

Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Very Good
Ground Movements	Very Good
Landside Facility Expansion	Good
Implementation Difficulty	Minimal
Environmental Factors	Minimal

Alternative 3A
Runway Extension
Upgrade Runway 9-27 In Place

See Exhibit 6.3

- Incorporates all proposed improvements from Alternative 2A
- Provides 550-foot extension to east end of Runway 9-27 for a total length of 4,300 feet.
- Existing utilities to the east and west would need to be mitigated.



<u>General Aviation Development Area</u>

71 Acres

<u>Property Acquisition</u>

65 Acres

Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Excellent
Ground Movements	Very Good
Landside Facility Expansion	Good
Implementation Difficulty	Moderate
Environmental Factors	Moderate

Alternative 4A
Maximum Development
Upgrade Runway 9-27 In Place

See Exhibit 6.4

- Incorporates all improvements from Alternative 2A and 3A.
- Provides for maximization of development with property acquisition.
- Includes proposed Non-Aviation Development and Helicopter Training area.

<u>General Aviation Development Area</u>

108 Acres

<u>Non-Aviation Development Area</u>

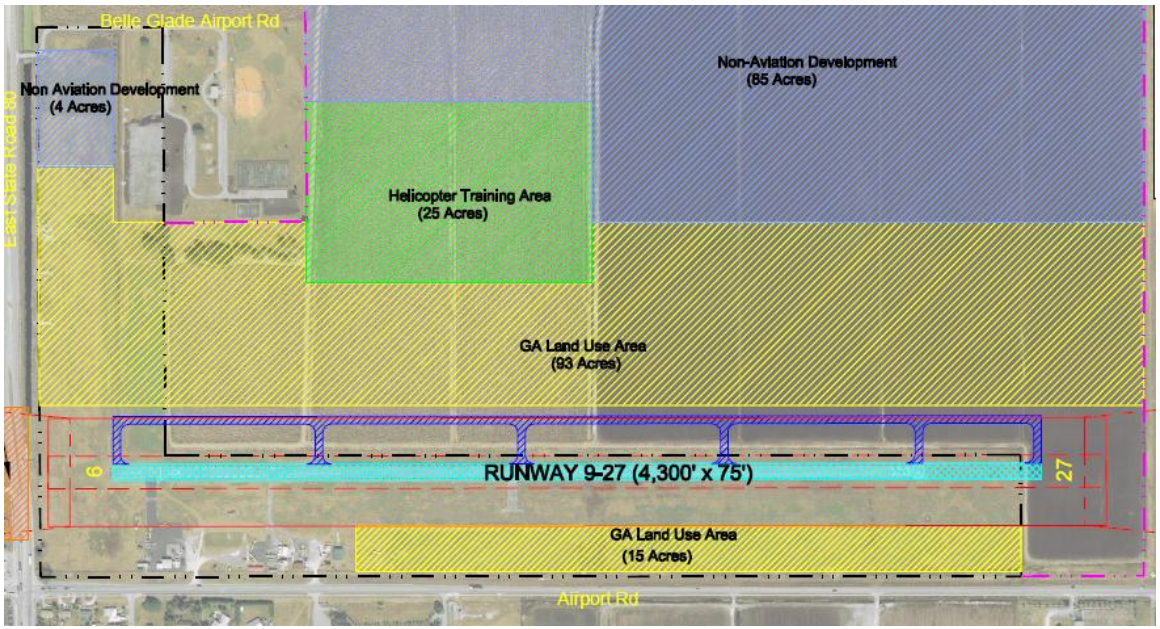
89 Acres

<u>Helicopter Training Area</u>

25 Acres

<u>Property Acquisition</u>

222 Acres



Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Excellent
Ground Movements	Very Good
Landside Facility Expansion	Excellent
Implementation Difficulty	Moderate
Environmental Factors	Moderate

Alternative 2B
Upgrade to Standards
Relocate Runway 9-27

See Exhibit 6.5

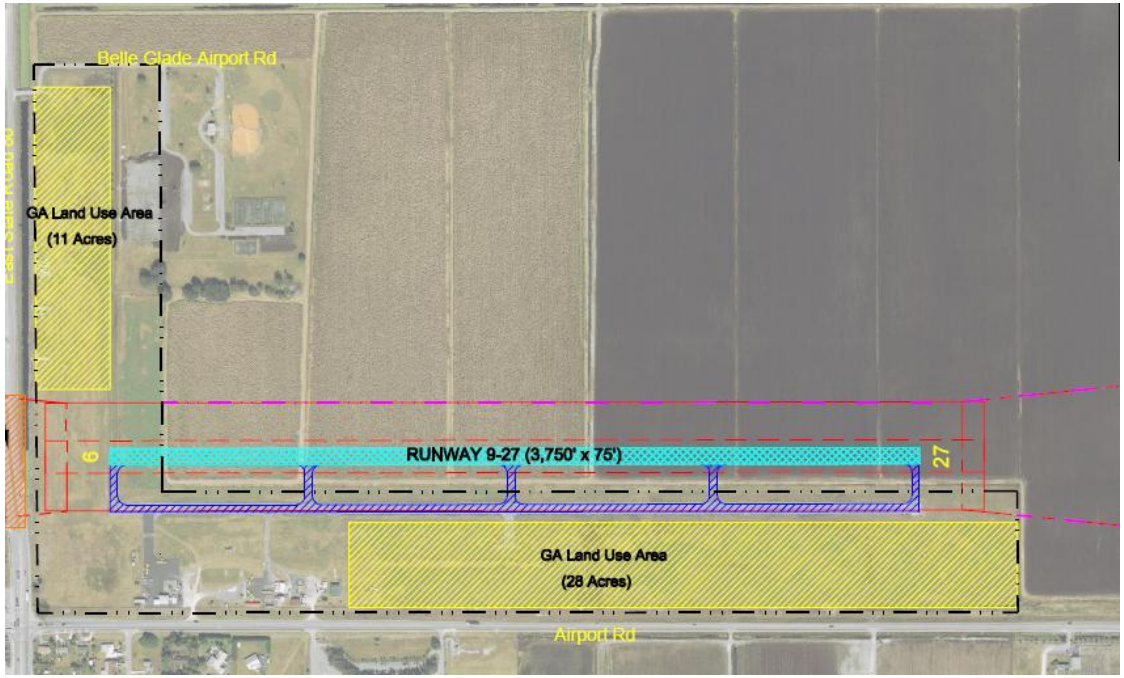
- Construct replacement Runway 9-27 240 feet north of its existing location at a width of 75 feet and length of 3,750 feet (current length).
- Reconstruction and conversion of existing Runway 9-27 to a full-length parallel taxiway.
- Existing utilities to the east and west would need to be mitigated.

<u>General Aviation Development Area</u>

39 Acres

<u>Property Acquisition</u>

46 Acres

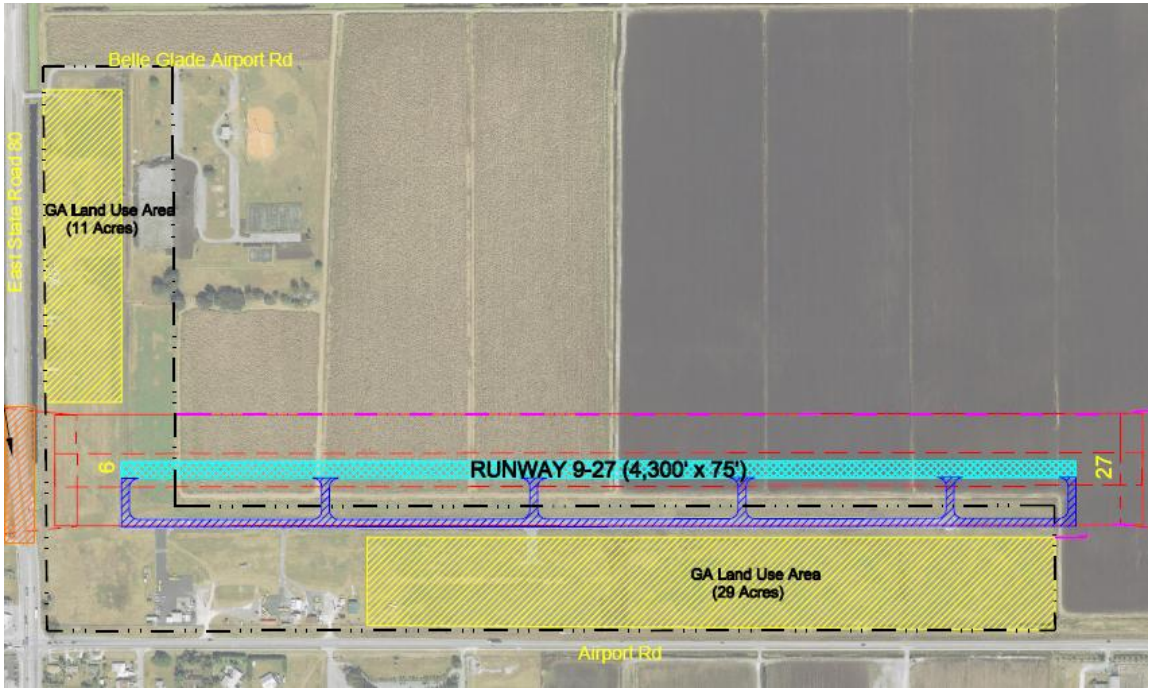


Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Very Good
Ground Movements	Good
Landside Facility Expansion	Good
Implementation Difficulty	Moderately Difficult
Environmental Factors	Minimal

Alternative 3B
Runway Extension
Relocate Runway 9-27

See Exhibit 6.6

- Incorporates all proposed improvements from Alternative 2B.
- Provides a total runway length of 4,300 feet (550 feet more than the existing length).
- Existing utilities to the east and west would need to be mitigated.



General Aviation Development Area

40 Acres

Property Acquisition

45 Acres

Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Excellent
Ground Movements	Good
Landside Facility Expansion	Good
Implementation Difficulty	Moderately Difficult
Environmental Factors	Moderate

Alternative 4B
Maximum Development
Relocate Runway 9-27

See Exhibit 6.7

- Incorporates all proposed improvements from Alternative 2B and 3B.
- Provides for maximization of development with property acquisition.
- Provides additional full-length parallel taxiway on the north side of the relocated runway.
- Includes proposed Non-Aviation Development and Helicopter Training area.

<u>General Aviation Development Area</u>

111 Acres

<u>Non-Aviation Development Area</u>

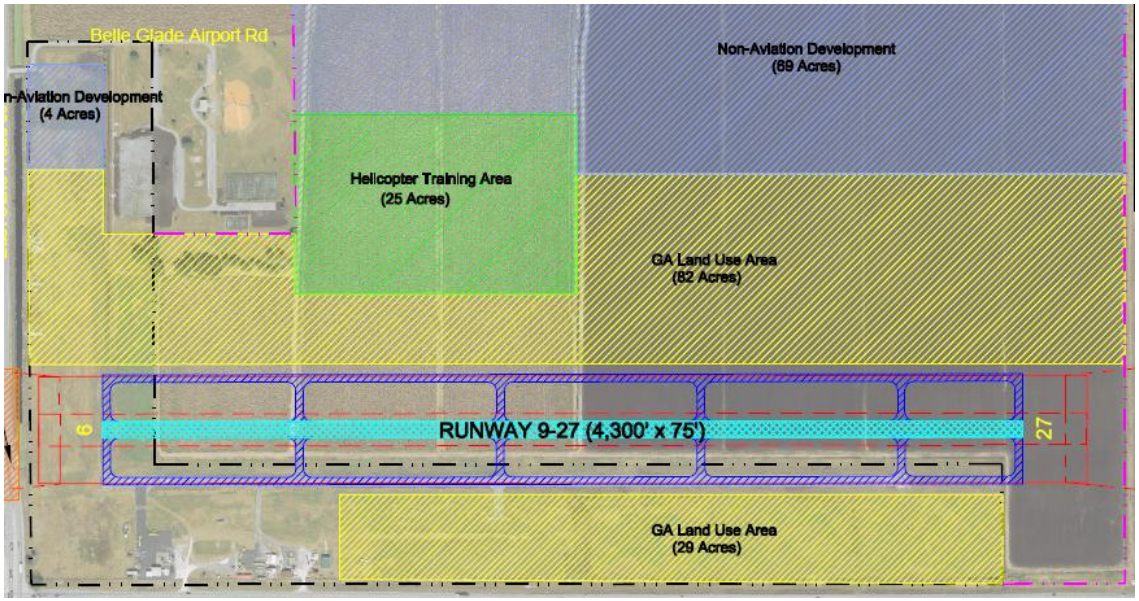
73 Acres

<u>Helicopter Training Area</u>

25 Acres

<u>Property Acquisition</u>

222



Evaluation Criteria	Rating
Meets Design Standards	Excellent
Meets Long-Term Demand	Excellent
Ground Movements	Excellent
Landside Facility Expansion	Excellent
Implementation Difficulty	Moderately Difficult
Environmental Factors	Moderate

Appendix C

General Aviation Alternatives Presentation
City Commission Meeting

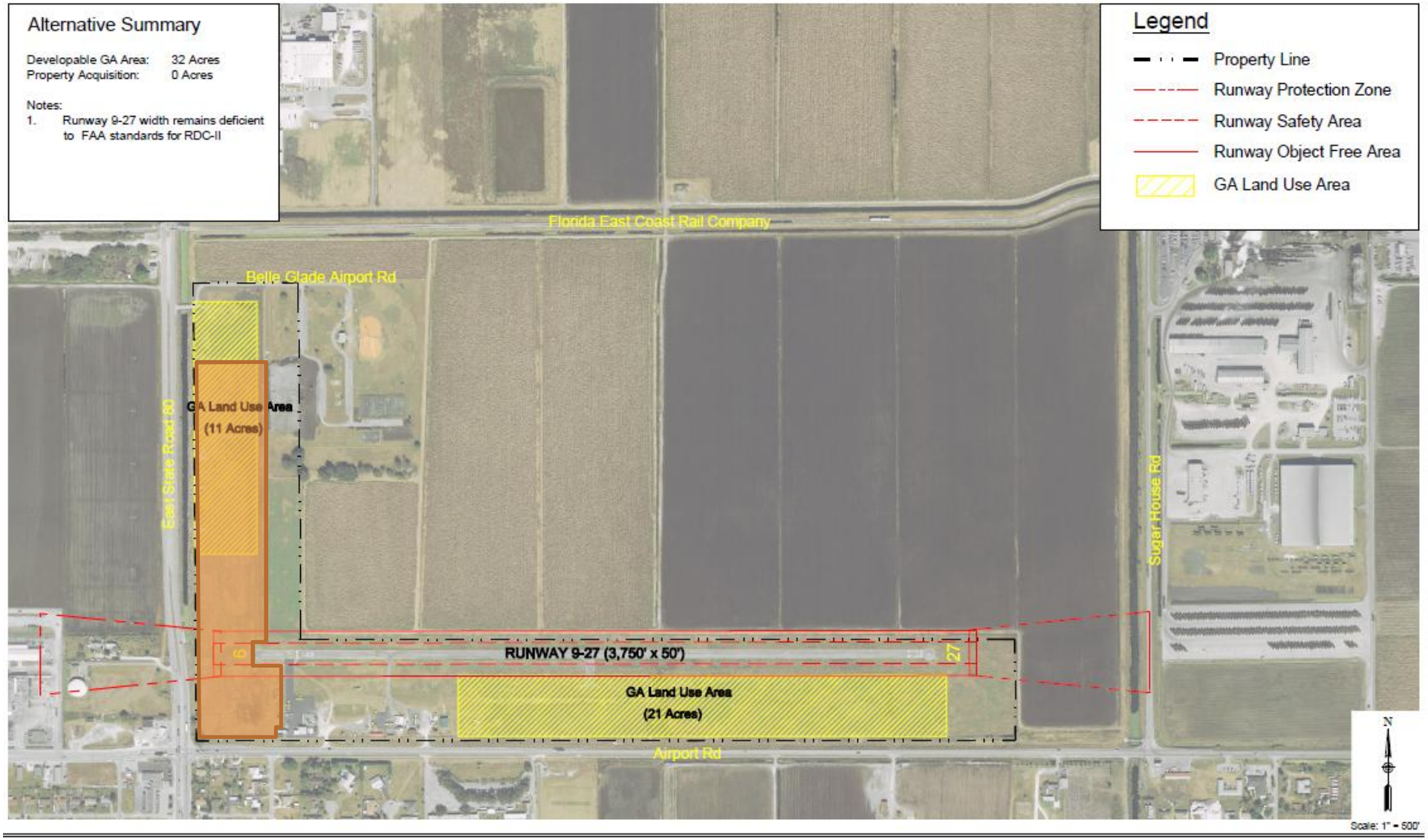
Belle Glade Municipal Airport
Airport Master Plan

GA Alternatives Presentation

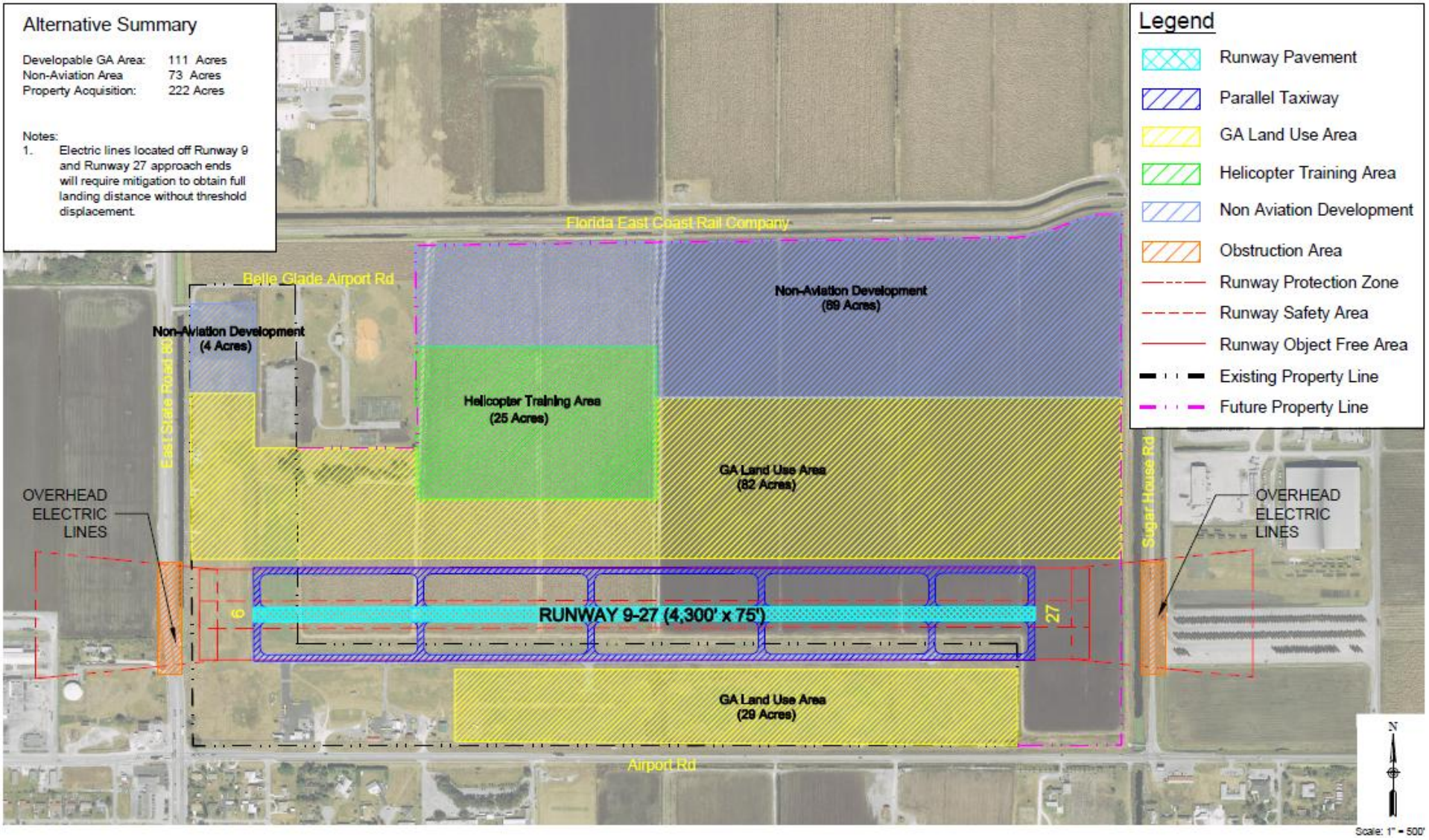
City Commission Meeting

March 18, 2013

Existing Airfield Layout



Proposed Airfield Layout



General Aviation Alternatives

Alternative 1 South Development Only	• All development for 20-year period south of runway.
Alternative 2 North Development Only	• All development for 20-year period north of runway.
Alternative 3 Hybrid/Combination	• Development for 20-year period on both sides of runway.

General Aviation Alternatives

- GA alternatives do not represent a progression.
- Each option presents layouts/locations for the following uses/items:
  - Hangars
  - Apron areas
  - FBO location (Fixed Base Operator)
  - Airport Roadways/Connections to surface streets
  - Airport Maintenance Facility
- Actual development not restricted to exact layouts presented. Focus is on areas of development.
- New facilities would go through normal development procedures of the City using preferred alternative as a guide, not a requirement.

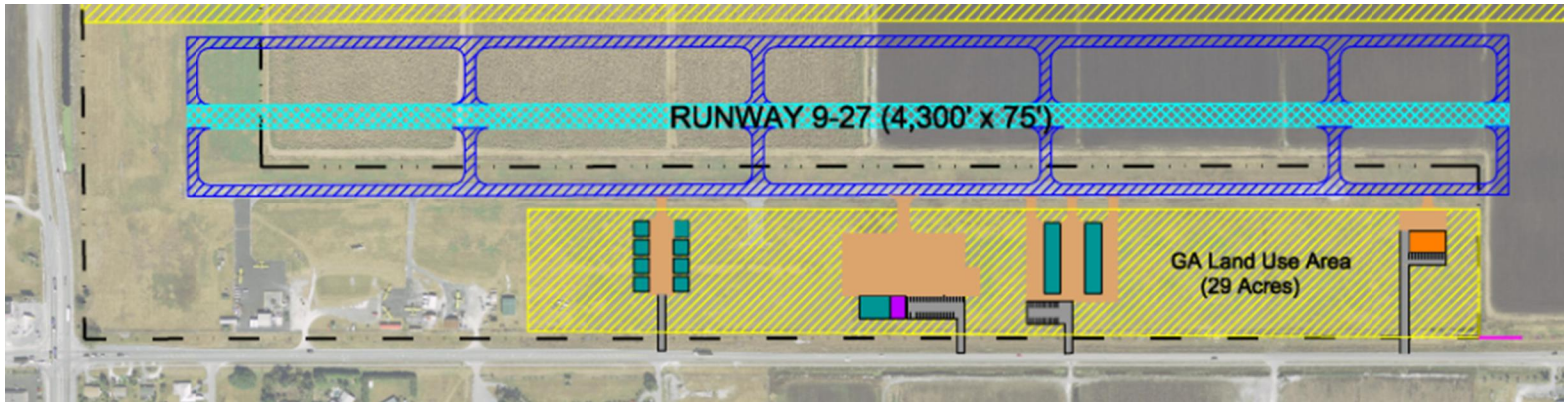
General Aviation
Alternative 1
Southern Vicinity Development

- All development located south of Runway 9-27.
- All access to facilities through driveway cuts along Airport Road.
- Development scheme assumes all initial development on existing property.

New Facilities Summary

- FBO – 3,750 SF
- Hangars – 52,500 SF
- Apron Areas – 83,500 SF
- Vehicular Parking – 65 spaces

Evaluation Criteria	Rating
Flexibility	Good/Very Good
Operational Effectiveness	Very Good
Safety Considerations	Excellent
Phasing/Constructability	Excellent



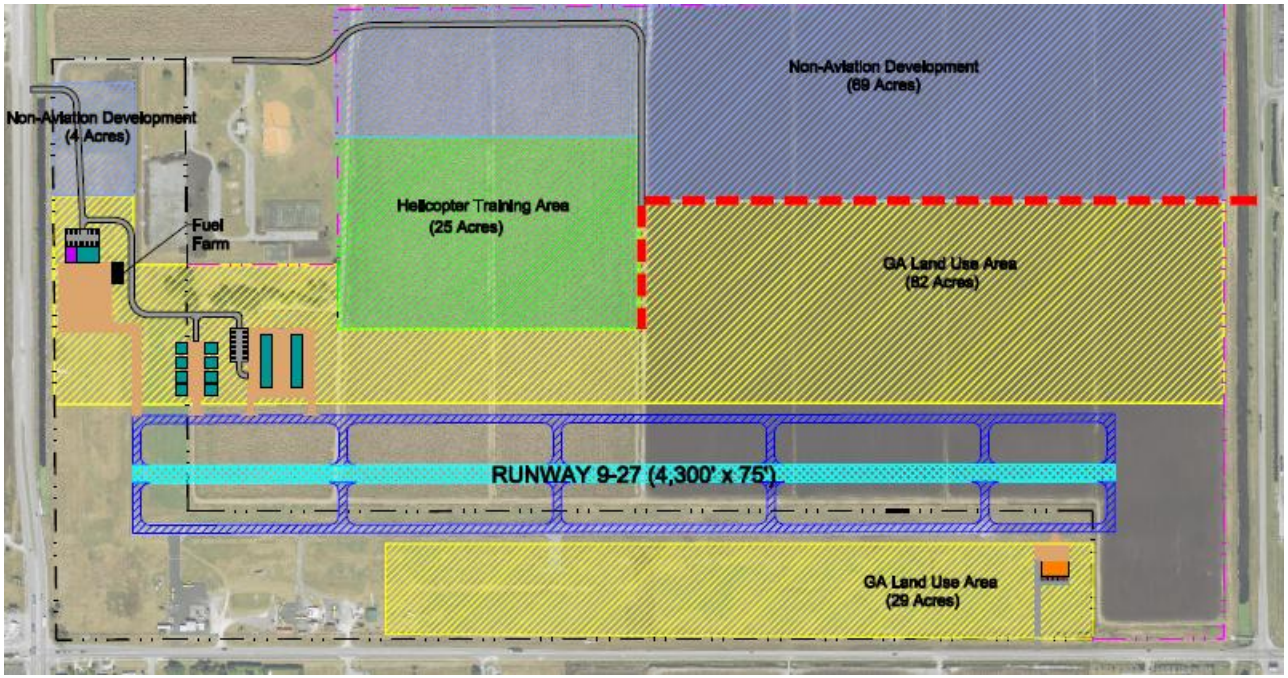
General Aviation
Alternative 2
Northern Vicinity Development

- All development located north of Runway 9-27, with the exception of the maintenance facility
- All access to facilities via SR 80/Airport Park Road.
- Development scheme assumes development begins to the west and proceeds east towards Sugar House Road.

New Facilities Summary

- FBO – 3,750 SF
- Hangars – 52,500 SF
- Apron Areas – 73,500 SF
- Vehicular Parking – 66 spaces

Evaluation Criteria	Rating
Flexibility	Excellent
Operational Effectiveness	Very Good
Safety Considerations	Excellent
Phasing/Constructability	Very Good



General Aviation
Alternative 3
Hybrid/Combination Scheme

- Development located on both sides of Runway 9-27.
- All access to facilities to the north via SR 80/Airport Park Road, and new connection to Sugar House Road.
- Development scheme produces largest "footprint" on acquired properties as early as possible.

New Facilities Summary

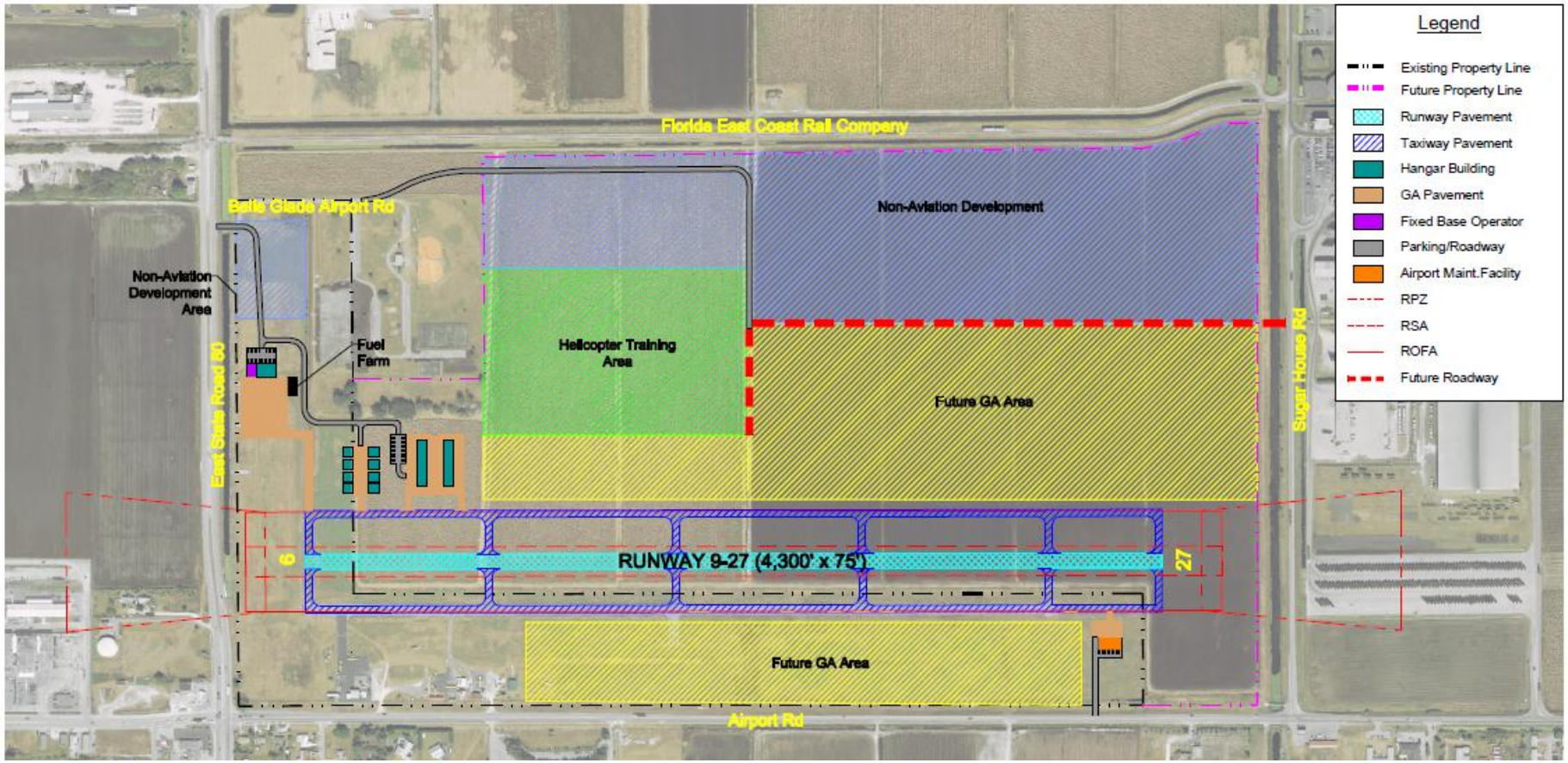
- FBO – 3,750 SF
- Hangars – 147,300 SF
- Apron Areas – 200,800 SF
- Vehicular Parking – 60 spaces

Evaluation Criteria	Rating
Flexibility	Good/Very Good
Operational Effectiveness	Excellent
Safety Considerations	Excellent
Phasing/Constructability	Good

GA Area Recommendation

- Alternative 2 is recommended
  - FBO/Hangar development separated from existing tenants. Reduces potential aircraft traffic congestion/conflicts.
  - FBO/Hangar development location would create new gateway/entrance to the Airport.
  - Location allows for phased development in the future heading east.
  - No additional access points/curb cuts along SR 80 needed.

Preferred Alternative
Airport Development Plan



Appendix D

Financial Tables

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected									
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Project										
Runway 9-27 Rehabilitation			$1,270,000	$500,000						
Replacement Runway 9-27					891,000	2,475,000	2,475,000			
Convert Existing Runway to Taxiway A								1,680,000		
Taxiway B										2,280,000
East Obstruction Relocation					271,500					
West Obstruction Relocation					252,000					
North Access Road									175,850	175,850
Helicopter Training Area										
Drainage Master Plan			100,000							
Relocate North Drainage/Irrigation Ditch		350,000								
Runway/Taxiway Environmental Assessment				450,000						
Relocate East Drainage/Irrigation Ditch					370,000					
Property Acquisition for Airport Development				250,000						
Environmental Mitigation									630,000	630,000
Airport Maintenance Facility										
Master Plan Update										
Total Project Costs	$0.00	$350,000	$1,370,000	$1,200,000	$1,784,500	$2,475,000	$2,475,000	$1,680,000	$805,850	$3,085,850

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected									
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Federal Funding										
Runway 9-27 Rehabilitation	$0	$0	$1,143,000	$450,000	$0	$0	$0	$0	$0	$0
Replacement Runway 9-27	0	0	0	0	801,900	2,227,500	2,227,500	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	1,512,000	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	2,052,000
East Obstruction Relocation	0	0	0	0	244,350	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	226,800	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	158,265	158,265
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	90,000	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	315,000	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	405,000	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	333,000	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	225,000	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	567,000	567,000
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total Federal Funds	$0	$315,000	$1,233,000	$1,080,000	$1,606,050	$2,227,500	$2,227,500	$1,512,000	$725,265	$2,777,265

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected									
	Phase I					Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
State Funding										
Runway 9-27 Rehabilitation	$0	$0	$127,000	$50,000	$0	$0	$0	$0	$0	$0
Replacement Runway 9-27	0	0	0	0	89,100	247,500	247,500	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	168,000	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	228,000
East Obstruction Relocation	0	0	0	0	27,150	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	25,200	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	17,585	17,585
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	10,000	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	35,000	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	45,000	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	37,000	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	25,000	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	63,000	63,000
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total State Funds	$0	$35,000	$137,000	120,000	178,450	$247,500	$247,500	$168,000	$80,585	$308,585

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected									
	Phase I					Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Local Funding										
Runway 9-27 Rehabilitation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	0	0
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total Local Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Project														
Runway 9-27 Rehabilitation											$1,770,000	$1,770,000	$0	$0
Replacement Runway 9-27											$5,841,000	$891,000	$4,950,000	$0
Convert Existing Runway to Taxiway A											$1,680,000	$0	$1,680,000	$0
Taxiway B											$2,280,000	$0	$2,280,000	$0
East Obstruction Relocation											$271,500	$271,500	$0	$0
West Obstruction Relocation											$252,000	$252,000	$0	$0
North Access Road											$351,700	$0	$351,700	$0
Helicopter Training Area			250,000	250,000							$500,000	$0	$0	$500,000
Drainage Master Plan											$100,000	$100,000	$0	$0
Relocate North Drainage/Irrigation Ditch											$350,000	$350,000	$0	$0
Runway/Taxiway Environmental Assessment											$450,000	$450,000	$0	$0
Relocate East Drainage/Irrigation Ditch											$370,000	$370,000	$0	$0
Property Acquisition for Airport Development											$250,000	$250,000	$0	$0
Environmental Mitigation											$1,260,000	$0	$1,260,000	$0
Airport Maintenance Facility	475,500										$475,500	$0	$0	$475,500
Master Plan Update		200,000									$200,000	$0	$0	$200,000
Total Project Costs	$475,500	$200,000	$250,000	$250,000	$0	$0	$0	$0	$0	$0	$16,401,700	$4,704,500	$10,521,700	$1,175,500

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Federal Funding														
Runway 9-27 Rehabilitation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1,593,000	$1,593,000	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$5,256,900	$801,900	$4,455,000	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$1,512,000	$0	$1,512,000	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$2,052,000	$0	$2,052,000	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$244,350	$244,350	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$226,800	$226,800	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$316,530	$0	$316,530	$0
Helicopter Training Area	0	0	225,000	225,000	0	0	0	0	0	0	$450,000	$0	$0	$450,000
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$90,000	$90,000	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$315,000	$315,000	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$405,000	$405,000	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$333,000	$333,000	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$225,000	$225,000	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$1,134,000	$0	$1,134,000	$0
Airport Maintenance Facility	427,950	0	0	0	0	0	0	0	0	0	$427,950	$0	$0	$427,950
Master Plan Update	0	180,000	0	0	0	0	0	0	0	0	$180,000	$0	$0	$180,000
Total Federal Funds	$427,950	$180,000	$225,000	$225,000	$0	$0	$0	$0	$0	$0	$14,761,530	$4,234,050	$9,469,530	$1,057,950

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
State Funding														
Runway 9-27 Rehabilitation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$177,000	$177,000	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$584,100	$89,100	$495,000	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$168,000	$0	$168,000	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$228,000	$0	$228,000	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$27,150	$27,150	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$25,200	$25,200	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$35,170	$0	$35,170	$0
Helicopter Training Area	0	0	25,000	25,000	0	0	0	0	0	0	$50,000	$0	$0	$50,000
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$10,000	$10,000	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$35,000	$35,000	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$45,000	$45,000	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$37,000	$37,000	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$25,000	$25,000	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$126,000	$0	$126,000	$0
Airport Maintenance Facility	47,550	0	0	0	0	0	0	0	0	0	$47,550	$0	$0	$47,550
Master Plan Update	0	20,000	0	0	0	0	0	0	0	0	$20,000	$0	$0	$20,000
Total State Funds	$47,550	$20,000	$25,000	$25,000	$0	$0	$0	$0	$0	$0	$1,640,170	$470,450	$1,052,170	$117,550

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.1
Belle Glade Municipal Airport
(2013 - 2032)

Total Project Costs (2013 Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Local Funding														
Runway 9-27 Rehabilitation	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Master Plan Update	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Total Local Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

		Projected								
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Project:										
Runway 9-27 Rehabilitation	0	0	1,347,343	546,364	0	0	0	0	0	0
Replacement Runway 9-27	0	0	0	0	1,002,828	2,869,203	2,955,279	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	2,066,188	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	2,974,883
East Obstruction Relocation	0	0	0	0	305,576	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	283,628	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	222,762	229,444
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	106,090	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	360,500	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	491,727	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	416,438	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	273,182	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	798,065	822,007
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total Project Costs	$0	$360,500	$1,453,433	$1,311,272	$2,008,470	$2,869,203	$2,955,279	$2,066,188	$1,020,827	$4,026,334

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013

Prepared By: Ricondo & Associates, Inc. December 2013

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

		Projected								
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Federal Funding										
Runway 9-27 Rehabilitation	0	0	1,212,609	491,727	0	0	0	0	0	0
Replacement Runway 9-27	0	0	0	0	902,546	2,582,283	2,659,751	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	1,859,569	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	2,677,395
East Obstruction Relocation	0	0	0	0	275,018	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	255,265	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	200,485	206,500
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	95,481	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	324,450	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	442,554	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	374,794	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	245,864	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	718,259	739,806
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total Federal Funds	$0	$324,450	$1,308,090	$1,180,145	$1,807,623	$2,582,283	$2,659,751	$1,859,569	$918,744	$3,623,701

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

		Projected								
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
State Funding										
Runway 9-27 Rehabilitation	0	0	134,734	54,636	0	0	0	0	0	0
Replacement Runway 9-27	0	0	0	0	100,283	286,920	295,528	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	206,619	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	297,488
East Obstruction Relocation	0	0	0	0	30,558	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	28,363	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	22,276	22,944
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	10,609	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	36,050	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	49,173	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	41,644	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	27,318	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	79,807	82,201
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total State Funds	$0	$36,050	$145,343	$131,127	$200,847	$286,920	$295,528	$206,619	$102,083	$402,633

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

		Projected								
		Phase I				Phase II				
Fiscal Year:	Budget 2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Local Funding										
Runway 9-27 Rehabilitation	0	0	0	0	0	0	0	0	0	0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0
Taxiway B	0	0	0	0	0	0	0	0	0	0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0
North Access Road	0	0	0	0	0	0	0	0	0	0
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0
Master Plan Update	0	0	0	0	0	0	0	0	0	0
Total Local Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013

Prepared By: Ricondo & Associates, Inc. December 2013

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Project:														
Runway 9-27 Rehabilitation	0	0	0	0	0	0	0	0	0	0	$1,893,707	$1,893,707	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$6,827,311	$1,002,828	$5,824,483	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$2,066,188	$0	$2,066,188	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$2,974,883	$0	$2,974,883	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$305,576	$305,576	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$283,628	$283,628	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$452,206	$0	$452,206	$0
Helicopter Training Area	0	0	356,440	367,133	0	0	0	0	0	0	$723,574	$0	$0	$723,574
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$106,090	$106,090	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$360,500	$360,500	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$491,727	$491,727	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$416,438	$416,438	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$273,182	$273,182	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$1,620,072	$0	$1,620,072	$0
Airport Maintenance Facility	639,032	0	0	0	0	0	0	0	0	0	$639,032	$0	$0	$639,032
Master Plan Update	0	276,847	0	0	0	0	0	0	0	0	$276,847	$0	$0	$276,847
Total Project Costs	$639,032	$276,847	$356,440	$367,133	$0	$0	$0	$0	$0	$0	$19,710,960	$5,133,676	$12,937,832	$1,639,453

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013

Prepared By: Ricondo & Associates, Inc. December 2013

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Federal Funding														
Runway 9-27 Rehabilitation	0	0	0	0	0	0	0	0	0	0	$1,704,336	$1,704,336	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$6,144,580	$902,546	$5,242,034	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$1,859,569	$0	$1,859,569	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$2,677,395	$0	$2,677,395	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$275,018	$275,018	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$255,265	$255,265	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$406,985	$0	$406,985	$0
Helicopter Training Area	0	0	320,796	330,420	0	0	0	0	0	0	$651,216	$0	$0	$651,216
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$95,481	$95,481	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$324,450	$324,450	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$442,554	$442,554	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$374,794	$374,794	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$245,864	$245,864	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$1,458,065	$0	$1,458,065	$0
Airport Maintenance Facility	575,129	0	0	0	0	0	0	0	0	0	$575,129	$0	$0	$575,129
Master Plan Update	0	249,162	0	0	0	0	0	0	0	0	$249,162	$0	$0	$249,162
Total Federal Funds	$575,129	$249,162	$320,796	$330,420	$0	$0	$0	$0	$0	$0	$17,739,864	$1,632,540	$10,089,372	$6,017,952

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
State Funding														
Runway 9-27 Rehabilitation	0	0	0	0	0	0	0	0	0	0	$189,371	$189,371	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$682,731	$100,283	$582,448	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$206,619	$0	$206,619	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$297,488	$0	$297,488	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$30,558	$30,558	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$28,363	$28,363	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$45,221	$0	$45,221	$0
Helicopter Training Area	0	0	35,644	36,713	0	0	0	0	0	0	$72,357	$0	$0	$72,357
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$10,609	$10,609	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$36,050	$36,050	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$49,173	$49,173	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$41,644	$41,644	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$27,318	$27,318	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$162,007	$0	$162,007	$0
Airport Maintenance Facility	63,903	0	0	0	0	0	0	0	0	0	$63,903	$0	$0	$63,903
Master Plan Update	0	27,685	0	0	0	0	0	0	0	0	$27,685	$0	$0	$27,685
Total State Funds	$63,903	$27,685	$35,644	$36,713	$0	$0	$0	$0	$0	$0	$1,971,096	$181,393	$1,121,041	$668,661

Table D.2
Belle Glade Municipal Airport
Table 8.4 CIP (2013 - 2032)

Total Project Costs (Escalated Dollars)

	Projected													
	Phase III													
Fiscal Year:	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2013 - 2032 Total	Phase I Total	Phase II Total	Phase III Total
Local Funding														
Runway 9-27 Rehabilitation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Replacement Runway 9-27	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Convert Existing Runway to Taxiway A	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Taxiway B	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
East Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
West Obstruction Relocation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
North Access Road	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Helicopter Training Area	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Drainage Master Plan	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Relocate North Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Runway/Taxiway Environmental Assessment	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Relocate East Drainage/Irrigation Ditch	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Property Acquisition for Airport Development	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Environmental Mitigation	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Airport Maintenance Facility	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Master Plan Update	0	0	0	0	0	0	0	0	0	0	$0	$0	$0	$0
Total Local Funds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Sources: Belle-Glade Municipal Airport; Kimley-Horn and Associates, Inc; and Ricondo & Associates, Inc. December 2013
Prepared By: Ricondo & Associates, Inc. December 2013

Appendix E

Airport Property Lease Documents

State of Florida
Department of Natural Resources
Division of State Lands

Document Conversion

FILE HEADER SHEET

FILE #: 2789-(2)

JJH:05/16/91:Alpha Systems

ATL8101

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND

AMENDMENT TO LEASE NUMBER 2789 (2) 2789

THIS LEASE AMENDMENT is entered into this 6th day of September, 1989, by and between the BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA hereinafter referred to as "LESSOR" and the DEPARTMENT OF TRANSPORTATION hereinafter referred to as "LESSEE";

W I T N E S S E T H

WHEREAS, LESSOR, by virtue of Section 253.03, Florida Statutes, holds title to certain lands and property for the use and benefit of the State of Florida; and

WHEREAS, on January 6, 1975, LESSOR and LESSEE entered into Lease No. 2789;

WHEREAS, LESSOR and LESSEE desire to amend the lease to extend the term for an additional twenty four years;

NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the parties hereto agree as follows:

1. Paragraph 1 of Lease No. 2789 is hereby amended to extend the term thereof for twenty four additional years ending on January 4, 2019.

2. It is understood and agreed by LESSOR and LESSEE that in each and every respect the terms of the Lease No. 2789, except as amended hereby, shall remain unchanged and in full force and effect and the same are hereby ratified, approved and confirmed by LESSOR and LESSEE.

29 43-37

IN WITNESS WHEREOF, the parties have caused this Lease Amendment to be executed on the day and year first above written.

BOARD OF TRUSTEES OF THE INTERNAL IMPROVEMENT TRUST FUND OF THE STATE OF FLORIDA

Virginia S. Curry
Witness

Sylvia Scott
Witness

By: _____ (SEAL)
DIVISION DIRECTOR, DIVISION OF STATE LANDS, DEPARTMENT OF NATURAL RESOURCES

"LESSOR"

STATE OF FLORIDA
LEON COUNTY

The foregoing instrument was acknowledged before me this 6th day of September, 1989 by Rucy W. Mathews, as Director, Division of State Lands, Department of Natural Resources.

Teresa R. Scott
NOTARY PUBLIC

Notary Public, State of Florida
My Commission Expires July 14, 1992
Bonded Thru Troy Fain - Insurance Inc.

My Commission Expires:

Approved as to Form and Legality

By: Eugene E. McCollum Jr.
DNR Attorney

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

_____
Witness

Olivia A. Liddell
Witness

By: _____
Its: Janice Andrews (SEAL)

"LESSEE"

STATE OF FLORIDA
COUNTY OF LEON

The foregoing instrument was acknowledged before me this 21 day of August, 1989 by Nick Serinni as Director, Public Transportation Operations.

Olivia A. Liddell
NOTARY PUBLIC

My Commission Expires:

Notary Public, State of Florida
My Commission Expires July 19, 1992
Bonded Thru Troy Fain - Insurance Inc.

Legal Review: AUG 10 '89

By: _____
Attorney - DOT

FLORIDA DEPARTMENT OF TRANSPORTATION

SUBLEASE AGREEMENT

This sublease agreement made and entered this 16TH day of APRIL, 1996 by and between THE STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION, a component agency of the State of Florida, hereinafter called the "LESSOR", and the CITY OF BELLE GLADE, FLORIDA, hereinafter called the "LESSEE",

WITNESSETH:

WHEREAS, on January 6, 1975 the Board of Trustees of the Internal Improvement Trust Fund and the State of Florida, Department of Transportation entered into Lease No. 2789, and

WHEREAS, the LESSOR, by virtue of Lease No. 2789, has authority to lease the land described therein to the LESSEE, and

WHEREAS, that certain Lease between the LESSOR and the LESSEE dated February 12, 1975 ended on January 6, 1995, and was supplemented by Custodial Agreement and a certain Sublease Agreement between the LESSOR and the LESSEE dated April 19, 1995 scheduled to end at midnight June 30, 1995, and

WHEREAS, the LESSOR and the LESSEE desire to extend Sublease Agreement dated April 19, 1995 by entering a new Lease Agreement to be effective from APRIL 16, 1996 through January 4, 2019, and

WHEREAS, it is to the best interest of the parties to this Lease Agreement that they enter such Lease Agreement;

NOW THEREFORE in consideration of the mutual covenants and agreements contained herein the parties hereto agree as follows:

1. LESSOR leases to the LESSEE who leases from the LESSOR, in consideration of the agreements and conditions of this lease, that certain property lying in Section 29, Township 43 South, Range 37 East as more particularly described in Lease No. 2789 between the State of Florida Board of Trustees of the Internal

Improvement Fund and the State of Florida Department of Transportation, copy of which description is attached to this agreement for reference as Exhibit "A".

2. This Agreement shall be effective from APRIL 16, 1996 through January 4, 2019.

3. The property is to be used, maintained and operated as stated governmental purpose of a municipal airport and uses ancillary thereto.

4. This Lease is subordinate to Lease Agreement No. 2789 as extended between the LESSOR and the Board of Trustees of the Internal Improvement Fund of the State of Florida and both parties to this agreement agree to execute any documents to that effect without any delay.

5. The LESSEE shall have the right to enter upon said land for all purposes necessary to the full enjoyment by said LESSEE of the rights herein conveyed to it.

6. The LESSEE shall through its agents and employees cooperate to prevent the unauthorized use of said land or any use thereof not in conformity with this lease.

7. This lease shall terminate at the sole option of the LESSOR, and the LESSEE shall surrender up the premises to the LESSOR, when and if said premises, including lands and improvements, shall cease to be used for airport purposes, or uses ancillary thereto.

8. The LESSOR does not warrant or guarantee title, right or interest in the hereinabove described property.

9. The LESSOR or its duly authorized agents shall have the right at any time to inspect the said land and the works and operations thereon of the LESSEE in any matter pertaining to this agreement.

10. Any inequities that may subsequently appear in this lease shall be subject to negotiation upon written request of either party, and the parties agree to negotiate in good faith as to any such inequities.

11. The LESSEE agrees to pay the LESSOR rent for the premises in the sum of $1.00 payable upon the signing of this agreement.

12. This Lease is not assignable in whole or in part.

13. All building structures or other improvements erected on or made to the leased premises during the term of this agreement shall become and remain the property of the LESSOR upon the expiration of this Lease.

14. The LESSEE agrees to pay drainage taxes levied upon the leased premises.

15. LESSEE agrees to pay all costs and expenses relating to the operation and maintenance of the leased property.

16. LESSEE will save the LESSOR harmless from any liability by reason of personal injury to any person or persons on or about said premises during the term of this agreement, and to that end the LESSEE will carry personal injury and property damage insurance protecting against such exposures and not less than $100,000.00 per person and $300,000.00 per occurrence.

17. The LESSEE indemnifies and agrees to defend, save and hold harmless the LESSOR from all claims, demands, liabilities and suits arising out of, because of or due to the breach of this lease agreement by the LESSEE, its agents or employees while acting within the scope and course of their employment. The protections in this paragraph do not cover or indemnify the LESSOR, its agents and employees from their own acts.

18. LESSOR and its authorized agents shall have the right at any time to freely inspect the land and LESSOR reserves the right to improve the facility at LESSOR's discretion as well as act as airport sponsor in any negotiations with other governmental agencies.

19. LESSOR makes no representations whatsoever concerning the condition of the lands comprising the leased premises nor water levels thereon at any time.

20. LESSEE is not the agent of the LESSOR.

21. The LESSEE may sublease all or any part of the leased premises provided that any such sub-sublease shall not relieve the LESSEE of its obligations in this Lease and any such sub-sublease shall obligate the LESSEE thereof to full compliance with all of the obligations of the LESSEE in this Lease.

IN WITNESS WHEREOF the Lessor and the Lessee have executed this agreement for the purposes herein expressed by their undersigned authorized officers, agents, or representative, as the cases may be.

EXECUTED by the Lessee on this 25th day of March, 1996.

CITY OF BELLE GLADE, FLORIDA

ATTEST

BY: Stephen Wheeler
MAYOR

CITY CLERK

(MUNICIPAL SEAL)

EXECUTED by the Lessor on this 16th day of APRIL, 1996.

APPROVED BY:

STATE OF FLORIDA

DEPARTMENT OF TRANSPORTATION:

BY:
Marion Hart, Jr.
State Public Transportation Administrator

EXHIBIT "A"

LEASE AGREEMENT

BETWEEN

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION AS LESSOR

AND

THE CITY OF BELLE GLADE, FLORIDA AS LESSEE,

of the Belle Glade Airport Property

The legal description of the property which is the subject matter of the attached leased is as follows:

A parcel of land in the South 1/2 of Section 29, Township 43 South, Range 37 East of Palm Beach County Florida more particularly described as follows:

Commence at the S.W. corner of said Section 29 and run North 0 degrees 12 minutes 7 seconds West 100 feet; thence South 89 degrees 49 minutes 58 seconds East a distance of 94.78 feet to the Point of Beginning, said point being on the North line of the airport road right-of-way; thence South 89 degrees 49 minutes 58 seconds East a distance of 4525.22 feet more or less to the West line of the S.E. 1/4 of the S.E. 1/4 of the S.E. 1/4 of Section 29; thence North along said West line to the N.W. corner of said S.E. 1/4 of the S.E. 1/4 of the S.E. 1/4 of Section 29; thence North 89 degrees 49 minutes 58 seconds West a distance of 3960 feet more or less to the N.E. corner of the S.W. 1/4 of the S.W. 1/4 of the S.W. 1/4 of Section 29; thence North 0 degrees 12 minutes 7 seconds West a distance of 1980 feet more or less to the N.E. corner of the N.W. 1/4 of the N.W. 1/4 of the S.W. 1/4 of Section 29; thence West 600 feet, more or less, to a line located 20 feet East of South Florida Conservancy District canal number 4; thence South along said line a distance 2505.65 feet to a point 60 feet East of the West line of Section 29 and at the beginning of a curve concave to the N.E. having a central angle of 89 degrees 37 minutes 51 seconds, and a radius of 35 feet; thence Southerly and Easterly along the arc of said curve a distance of 54.75 feet more or less to the point of beginning. The above parcel contains 85.89 acres more or less.

City of Belle Glade

Office of the City Manager

June 10, 2010

Tel: 561-992-1601
Fax: 561-992-2221

City Hall Complex
110 Dr. Martin Luther King Jr.
Boulevard West
Belle Glade, FL
33430-3900

www.belleglade-fl.com

Ms. Nicole Notz
Aviation Coordinator
Florida Department of Transportation
3400 West Commercial Boulevard
Fort Lauderdale, Florida 33309-3421

RE: Formal Request for Lease Extension – Belle Glade State Municipal Airport (X10)

Dear Nicole:

Please consider this letter a formal request to extend the current lease at Belle Glade State Municipal Airport (X10). As you are aware, the City's current lease (lease number 2789) expires on January 4, 2019. The City is currently preparing a Strategic Business Plan for (X10) and it is believed that a longer lease will be beneficial to the overall operation of the Airport.

The City has received some overtures from individuals interested in development and/or being a fixed base operator at the airport. Therefore, in order to develop the Belle Glade Airport as envisioned, the City requests that the current existing lease be extended for fifty (50) years.

Nicole, I want to thank you for all your support in assisting the City transform (X10) into a viable and successful operation. Your work in support of aviation activities within the City is greatly appreciated by the City and I.

Sincerely,

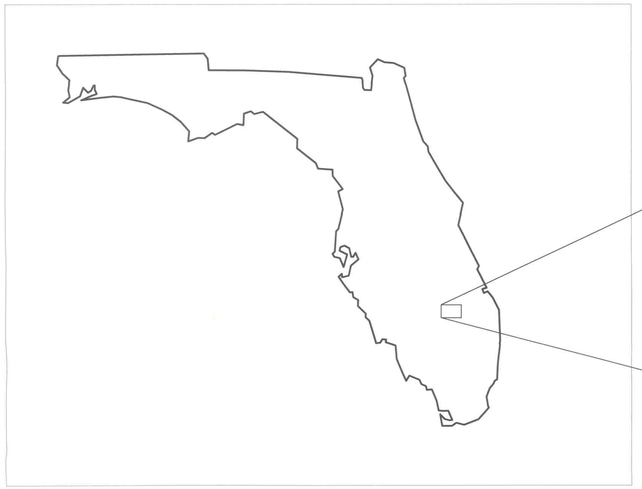
Mark A. Kutney, AICP
Deputy City Manager

cc: Lomax Harrelle, City Manager
Debra Buff, City Clerk
Lillian Tomeu, Grants & Special Projects Manager
Glen Torcivia, City Attorney

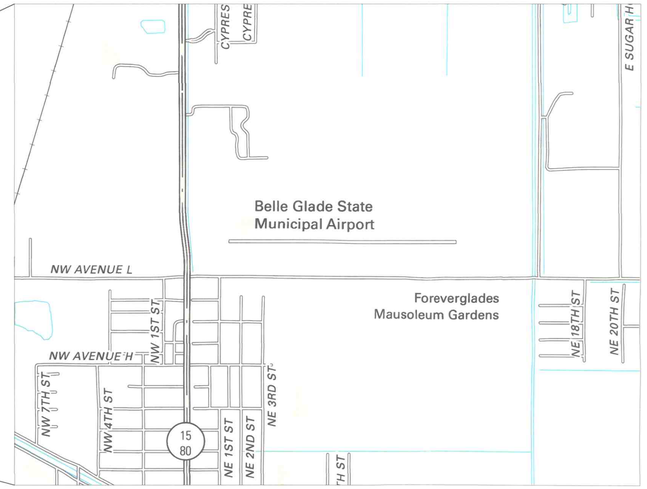
Kimley-Horn
and Associates, Inc.

BELLE GLADE STATE MUNICIPAL AIRPORT
AIRPORT LAYOUT PLAN
BELLE GLADE, FLORIDA

NOVEMBER 2013



LOCATION MAP



VICINITY MAP

N.T.S

SHEET INDEX

No.	REVISIONS	DATE	BY
6			
5			
4			
3			
2			
1			

SCALE: AS SHOWN
DRAWN BY: JAB
DESIGNED BY: ADN
CHECKED BY: AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

COVER SHEET

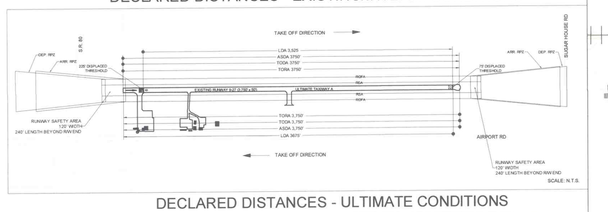
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

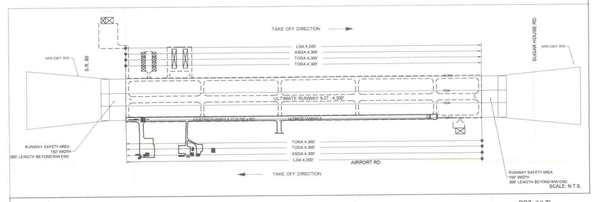
PROJECT NO.
144086007

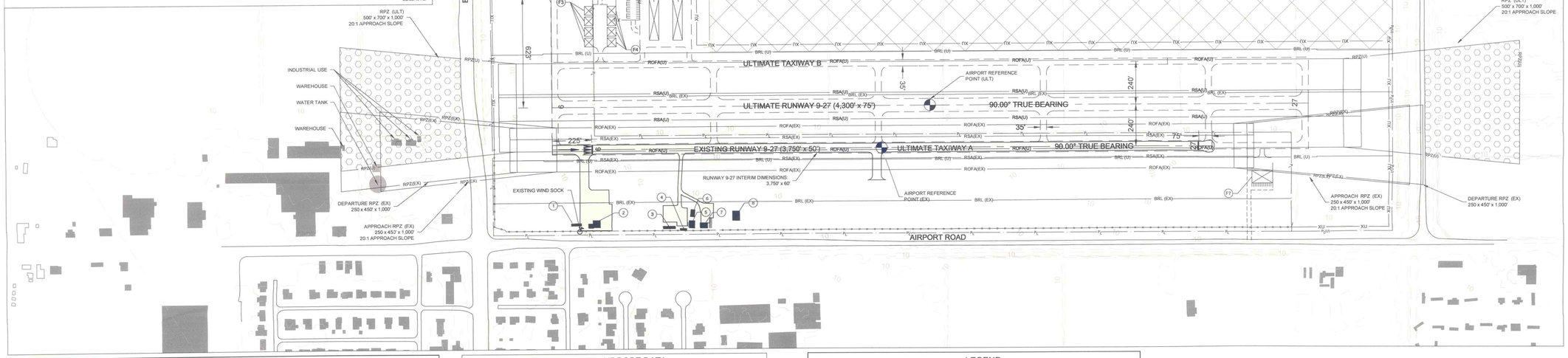
SHEET NUMBER
1 OF 7

DECLARED DISTANCES - EXISTING/INTERIM CONDITIONS



DECLARED DISTANCES - ULTIMATE CONDITIONS





RUNWAY DATA

ITEM		RUNWAY 9-27				
		EXISTING		INTERIM	ULTIMATE	
RUNWAY LENGTH x WIDTH (FT.)		3,750' x 50'		3,750' x 60'	4,300' x 75'	
EFFECTIVE GRADIENT		0.0%		SAME	0.0%	
% WIND COVERAGE	12 MPH / 10.5 KNOTS)	91.75%		SAME	SAME	
	15 MPH / 13 KNOTS)	96.30%		SAME	SAME	
RUNWAY PAVEMENT DESIGN STRENGTH (000 LBS)		12.5 SWG		SAME	12.5 SWG	
RUNWAY SURFACE TYPE		ASPHALT		SAME	ASPHALT	
MAXIMUM RUNWAY ELEVATION (AMSL)		14' (EST)		SAME	14' (EST)	
RUNWAY LIGHTING		NONE		SAME	NONE	
RUNWAY MARKING		BASIC		SAME	BASIC	
RUNWAY ENDS		9	27	SAME	9	27
RUNWAY END ELEVATION (AMSL)		14' (EST)	14' (EST)	SAME	14 ' (EST)	10' (EST)
DECLARED DISTANCES						
	TAKE-OFF RUN AVAILABLE (TORA)	3,750'	3,750'	SAME	4,300'	4,300'
	TAKE-OFF DISTANCE AVAILABLE (TODA)	3,750'	3,750'	SAME	4,300'	4,300'
	ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	3,750'	3,750'	SAME	4,300'	4,300'
	LANDING DISTANCE AVAILABLE (LDA)	3,525'	3,675'	SAME	4,300'	4,300'
RUNWAY PROTECTION ZONE (RPZ) DIMENSIONS	LENGTH	1,000'	1,000'	SAME	1,000'	1,000'
	WIDTH (INNER/OUTER)	250'/450'	250'/450'	SAME	500'/700'	500'/700'
APPROACH LIGHTING		NONE	NONE	SAME	NONE	NONE
F.A.R. PART 77 IMAGINARY AIRSPACE SURFACES	APPROACH CATEGORY	A(V)	A(V)	SAME	A(V)	A(V)
	APPROACH SURFACE SLOPES	20:1	20:1	SAME	20:1	20:1
NAVAIDS	ELECTRONIC NAVAIDS	NONE	NONE	SAME	NONE	NONE
	VISUAL APPROACH AIDS	NONE	NONE	SAME	NONE	NONE
APPROACH VISIBILITY MINIMUMS		N/A	N/A	SAME	N/A	N/A
RUNWAY SAFETY AREA (RSA) WIDTH x LENGTH BEYOND RWY END		150' X 240'		SAME	150' X 300'	
RUNWAY OBJECT FREE AREA (OFA) WIDTH x LENGTH BRE		250' X 240'		SAME	500' X 300'	
RUNWAY OBJECT FREE ZONE (OFZ) WIDTH x LENGTH BRE		400' X 200'		SAME	400' X 200'	

AIRPORT DATA

		EXISTING	INTERIM	ULTIMATE
ESTABLISHED AIRPORT ELEVATION (NAVD 88)		14' (EST)	14' (EST)	14 ' (EST)
AIRPORT REFERENCE POINT COORDINATES (NAD '83)	LATITUDE	26°41'53.86" N	SAME	26°41'56.24" N
	LONGITUDE	80°39'38.85" W	SAME	80°39'35.82" W
MEAN TEMPERATURE - HOTTEST MONTH		92.7°F	SAME	SAME
AIRPORT & TERMINAL NAVAIDS		NONE	NONE	NONE
AIRPORT ACREAGE		85.89 AC	SAME	334.6 AC
		RUNWAY 9-27	RUNWAY 9-27	RUNWAY 9-27
RUNWAY REFERENCE CODE (BY ARC)		A-I (SMALL)	SAME	A-II
CRITICAL DESIGN AIRCRAFT		S2R	SAME	AT-502

NOTES:

DATUM COORDINATE SYSTEMS:
HORIZONTAL - NAD 1983 STATE PLANE FLORIDA EAST
VERTICAL - NAVD 88

NO SURVEY WAS COMPLETED DURING THIS ALP UPDATE. TOPOGRAPHIC AND PLANIMETRIC INFORMATION OBTAINED FROM PALM BEACH COUNTY GIS, 2012

RUNWAY END COORDINATES

RUNWAY END	LATITUDE	LONGITUDE	ELEVATION
EXISTING/INTERIM RUNWAY 9	26° 41' 53.89" N	80° 39' 59.53" W	14' (EST)
EXISTING/INTERIM RUNWAY 9 - DISPLACED THRESHOLD	26° 41' 53.89" N	80° 39' 57.05" W	14' (EST)
EXISTING/INTERIM RUNWAY 27	26° 41' 53.84" N	80° 39' 18.18" W	14' (EST)
EXISTING/INTERIM RUNWAY 27 - DISPLACED THRESHOLD	26° 41' 53.84" N	80° 39' 19.01" W	14' (EST)
ULTIMATE RUNWAY 9	26° 41' 56.27" N	80° 39' 59.53" W	14' (EST)
ULTIMATE RUNWAY 27	26° 41' 56.21" N	80° 39' 12.11" W	10' (EST)

SOURCE: AIRPORT MASTER RECORD FORM 5010,

BUILDING/FACILITIES LIST

EXISTING BUILDINGS		FUTURE BUILDINGS	
NUMBER	USE / TENANT	NUMBER	USE / TENANT
1	GLADES AG SERVICE	F1	FBO
2	GLADES AG SERVICE	F2	FBO HANGAR
3	ROMA, INC.	F3	BOX HANGARS
4	ROMA, INC.	F4	BOX HANGARS
5	ROMA, INC.	F5	T-HANGARS
6	ROMA, INC.	F6	T-HANGARS
7	ROMA, INC.	F7	AIRPORT MAINTENANCE
8	AERIAL CROP PROTECTION		

LEGEND

	EXISTING	INTERIM	ULTIMATE
RUNWAY SAFETY AREAS (RSA)	RSA (EX)	N/A	RSA (U)
RUNWAY OBJECT FREE AREAS (ROFA)	ROFA (EX)	N/A	ROFA (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (EX)	N/A	RPZ (U)
BUILDING RESTRICTION LINE (25' CLEAR)	BRL (EX)	N/A	BRL (U)
PAVED AIRFIELD FACILITIES		N/A	
ROADWAYS		N/A	
BUILDING STRUCTURES		N/A	
AIRPORT REFERENCE POINT (ARP)		N/A	
GROUND CONTOUR	10'	N/A	N/A
FENCE		N/A	XU XU XU
AIRPORT PROPERTY LINE		N/A	R (U)
RPZ AVIGATION EASEMENT	N/A	N/A	

MARCH 2013 MAGNETIC DECLINATION
DECLINATION: 6° 8' 11" W
ANNUAL RATE OF CHANGE: 0° 5.8' WYEAR
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA), MARCH 2013

0 300 600 900

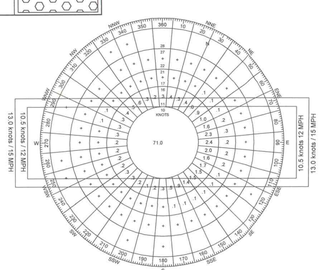
TRUE NORTH / MAGNETIC NORTH

CONSTRUCTION NOTICE REQUIREMENT

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

FAA DISCLAIMER

THE CONTENTS OF THIS EXHIBIT REFLECT THE VIEWS OF THE CITY OF BELLE GLADE WHICH IS RESPONSIBLE FOR THE FACTS AND ACCURACY OF THE DATA PRESENTED HEREIN. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS EXHIBIT DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH PUBLIC LAWS 91-190, 91-258,94-353, AND/OR 80-495.



ALL WEATHER WIND ROSE

RUNWAY(S)	CROSSWIND COMPONENT (KNOTS)			
	10.5	13.0	16.0	20.0
9-27	91.75%	96.30%	99.25%	99.84%

SOURCE: NATIONAL CLIMATIC DATA CENTER, 2011; PALM BEACH INT'L AIRPORT; STATION 72203
PERIOD: 2000-2009

APPROVALS

FAA APPROVAL SPACE

CONDITIONALLY APPROVED
FEDERAL AVIATION ADMINISTRATION

This approval is subject to review as conditions change and is subject to the limitations contained in our letter dated December 30, 2013

Orlando Airports District Office — Date

CITY OF BELLE GLADE

BY: Tonya Russell

TITLE: City Manager — DATE: 1-6-14

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			

SCALE: AS SHOWN
DRAWN BY: JAB
DESIGNED BY: ADN
CHECKED BY: AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

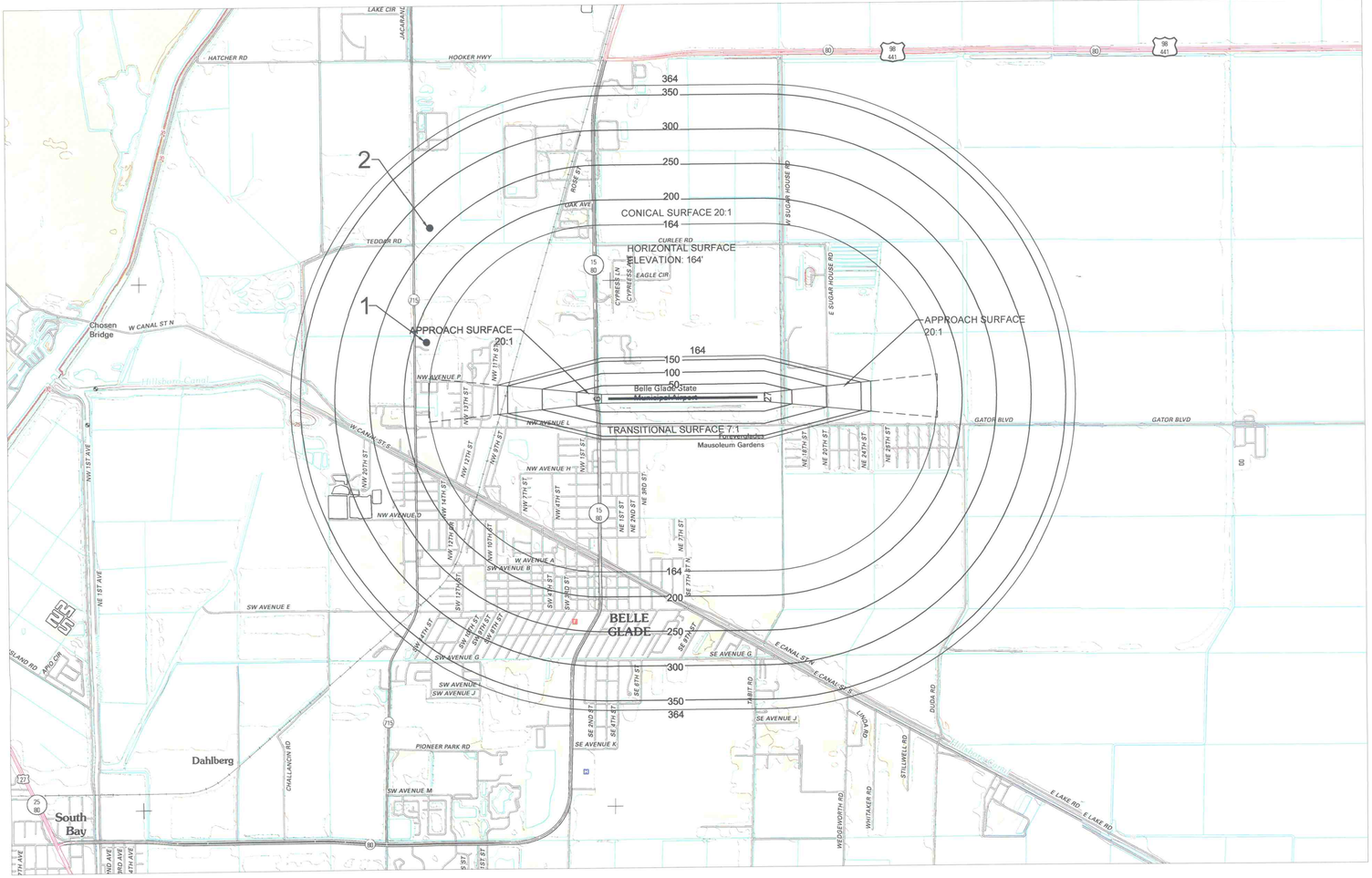
AIRPORT LAYOUT DRAWING

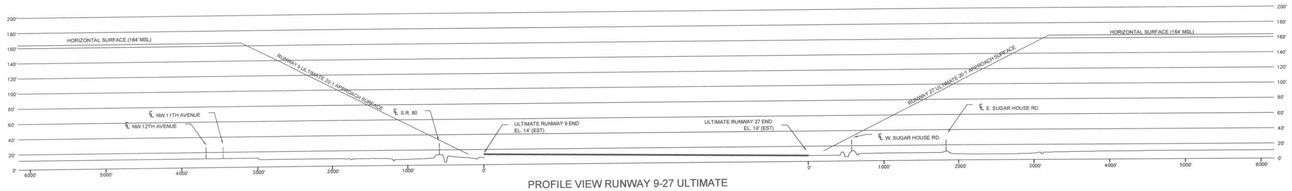
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE 11/26/2013

PROJECT NO. 144086007

SHEET NUMBER 2 OF 7





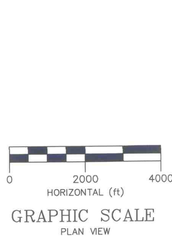
PROFILE VIEW RUNWAY 9-27 ULTIMATE

FAR PART 77 OBSTRUCTION DATA

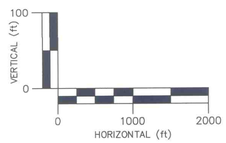
No.	DESCRIPTION	FAR PART 77 SURFACE	OBJECT ELEV.	PENETRATION (FEET)	LIGHTED	ACTION
1	COMMUNICATION TOWER	Conical	263	87	YES	NONE
2	COMMUNICATION TOWER	Conical	304	44	YES	NONE

* OBSTRUCTIONS IDENTIFIED FROM MIAMI FAA TERMINAL AREA CHART, EFFECTIVE 2-7-2013 THROUGH 8-22-2013

NOTE: REFER TO THE INNER PORTION OF THE APPROACH SURACE DRAWING PLAN VIEW DETAILS FOR CLOSE-IN OBSTRUCTIONS.



GRAPHIC SCALE
PLAN VIEW



GRAPHIC SCALE
PROFILES

No.	DESCRIPTION	DATE	BY
1	REVISIONS		
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-1566
FAX: 210-541-8699
TBPE Firm No. 928
© 2013

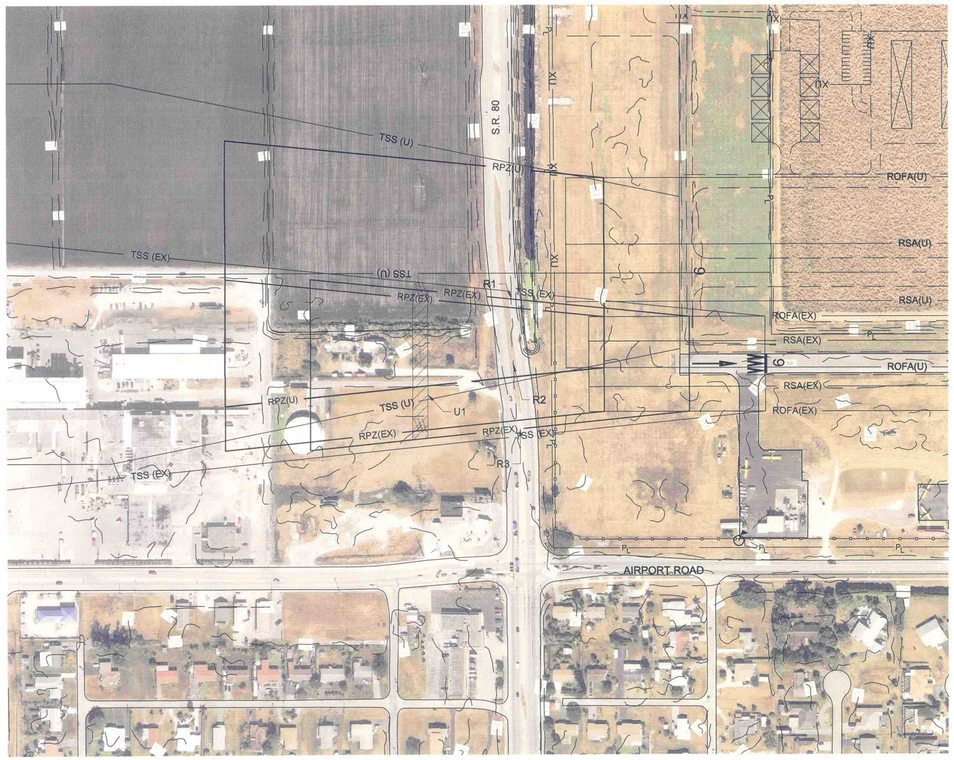
AIRPORT AIRSPACE PLAN

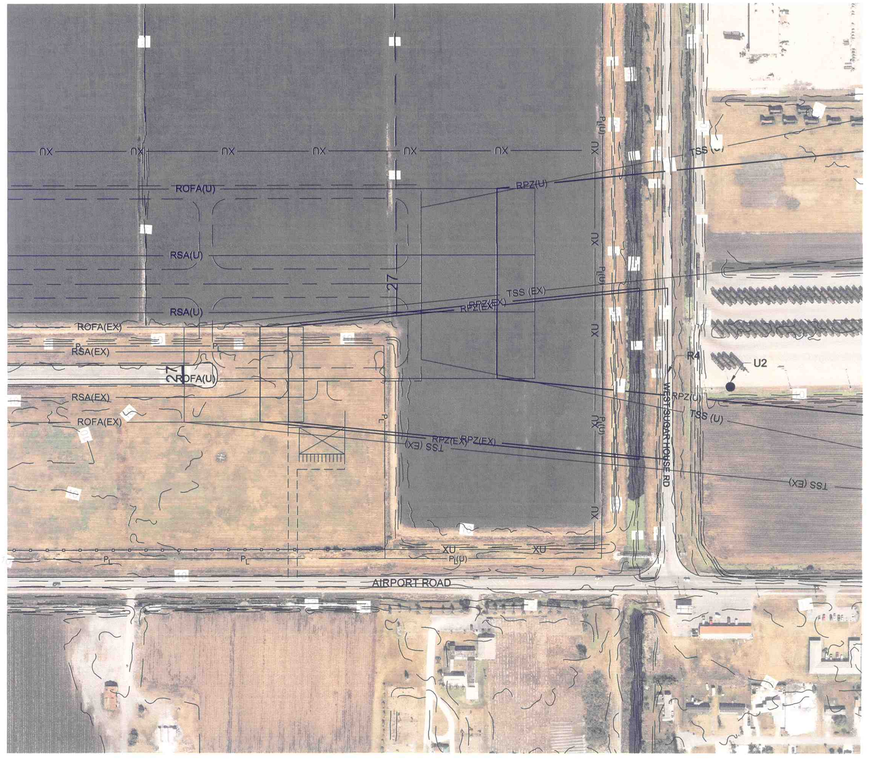
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

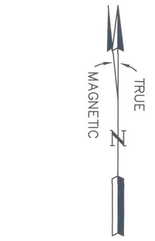
PROJECT NO.
144086007

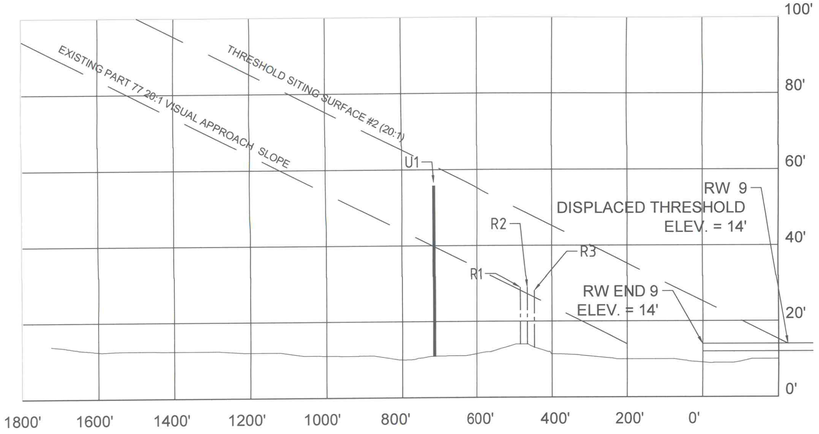
SHEET NUMBER
3 OF 7

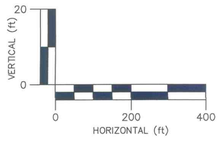




EXISTING
RUNWAY 9–27





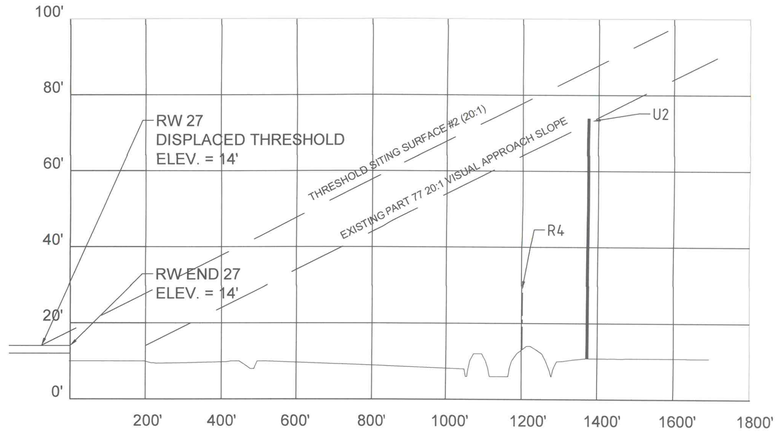


GRAPHIC SCALE

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 9				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U1	OHL ON POLE	16'	-	NONE/CURRENTLY MARKED AND LIT
R1	SR 80	1'	-	RUNWAY RELOCATION
R2	SR 80	2'	-	RUNWAY RELOCATION
R3	SR 80	2'	-	RUNWAY RELOCATION

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 27				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
R4	W. SUGAR HOUSE ROAD	-	-	NONE
U2	POLE	1'	-	RELOCATE/REMOVE/LOWER

NOTES:
1. EXACT TREE AND UTILITY LOCATIONS AND ELEVATIONS IN THE X10 APPROACH SURFACES ARE UNAVAILABLE. TREE AND UTILITY LOCATIONS AND ELEVATIONS THAT AFFECT AIR NAVIGATION NEED TO BE IDENTIFIED.
2. UTILITY HEIGHTS ARE APPROXIMATE BASED ON FAA AIRPORT MASTER RECORD #5010, MARCH 2013
3. 15 FOOT VERTICAL CLEARANCE ADDED TO ROAD ELEVATIONS.



No.	DATE	REVISIONS	BY
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SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

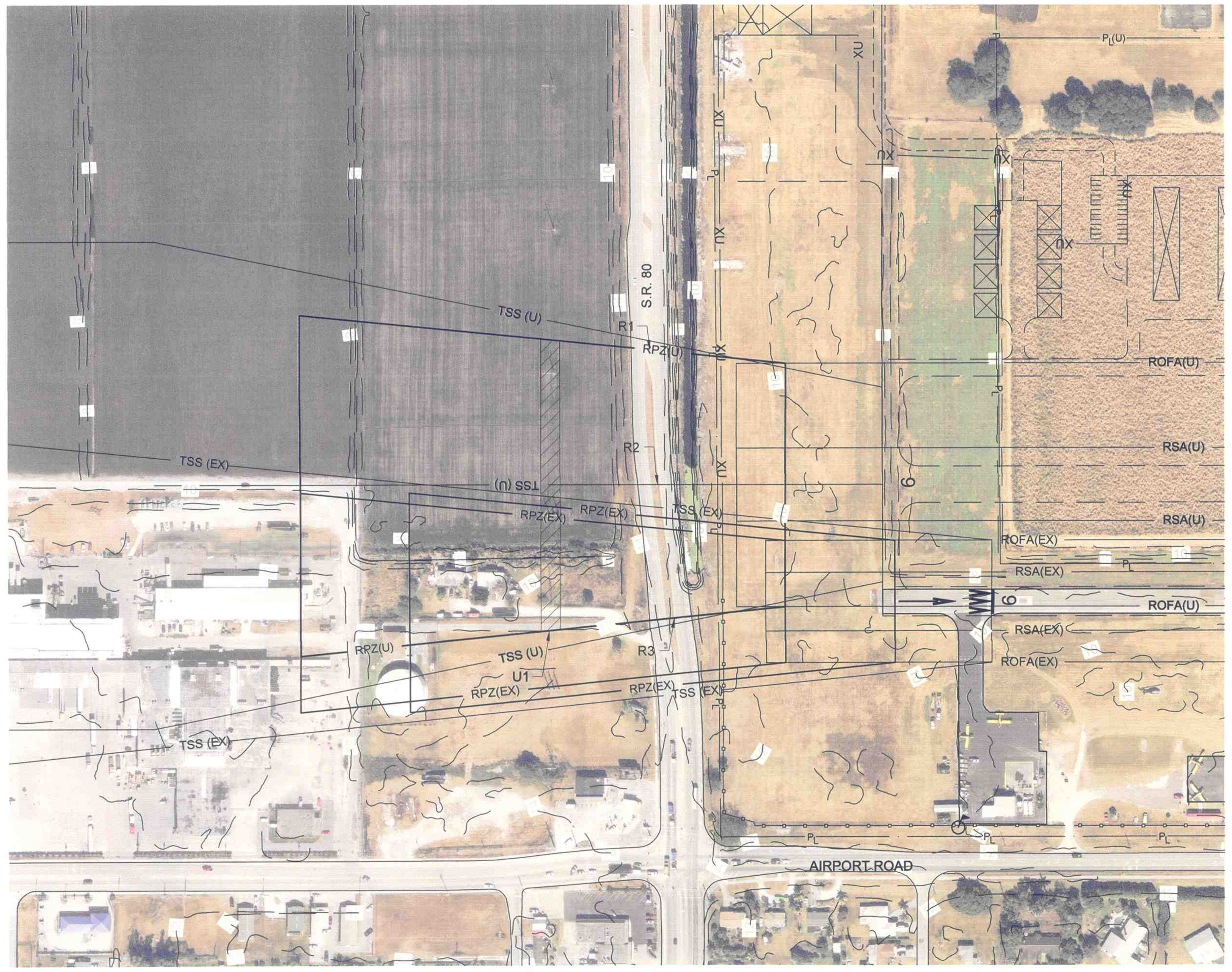
INNER PORTION OF THE APPROACH SURFACE DRAWING - EXISTING RUNWAY 9-27

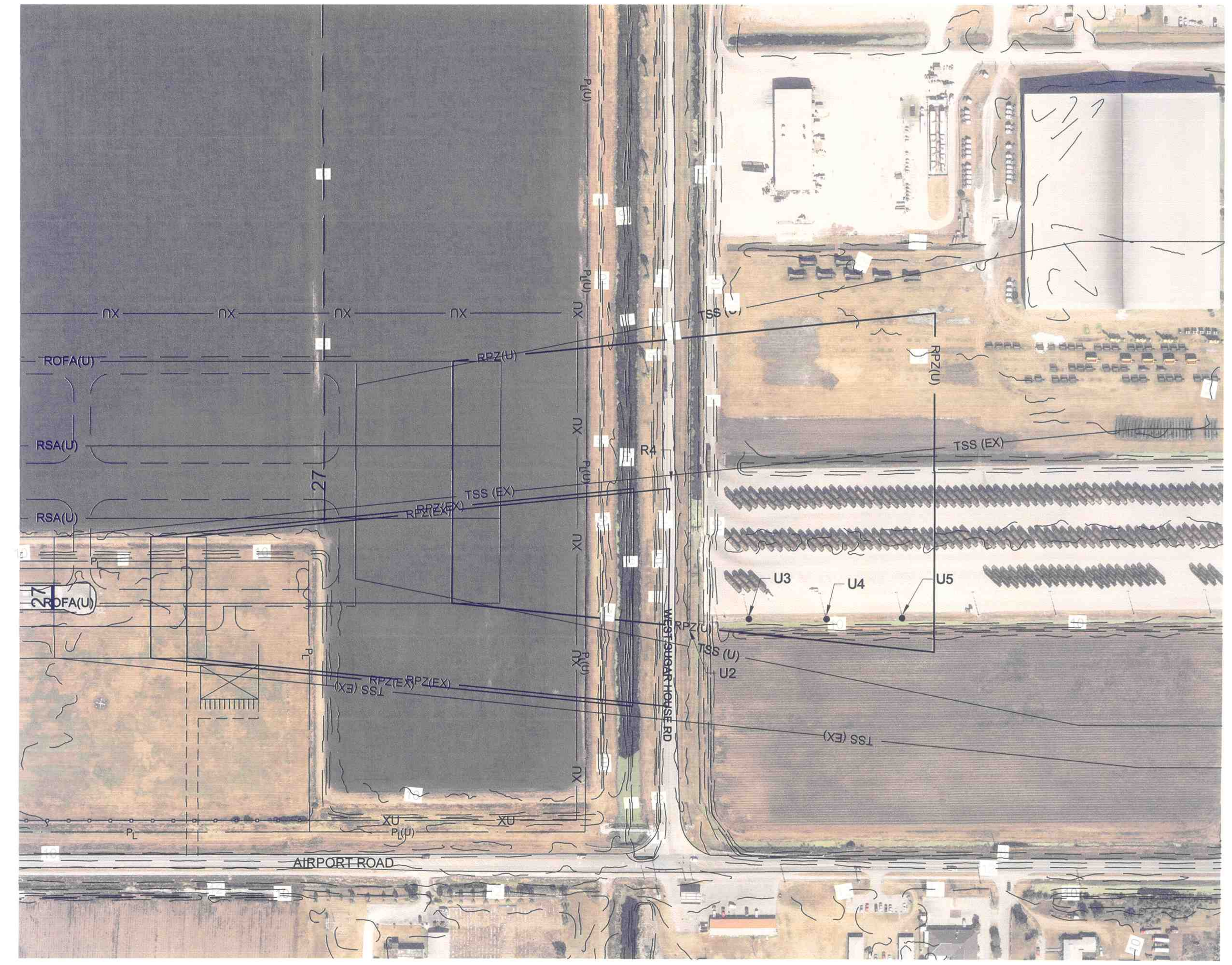
PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE
11/26/2013

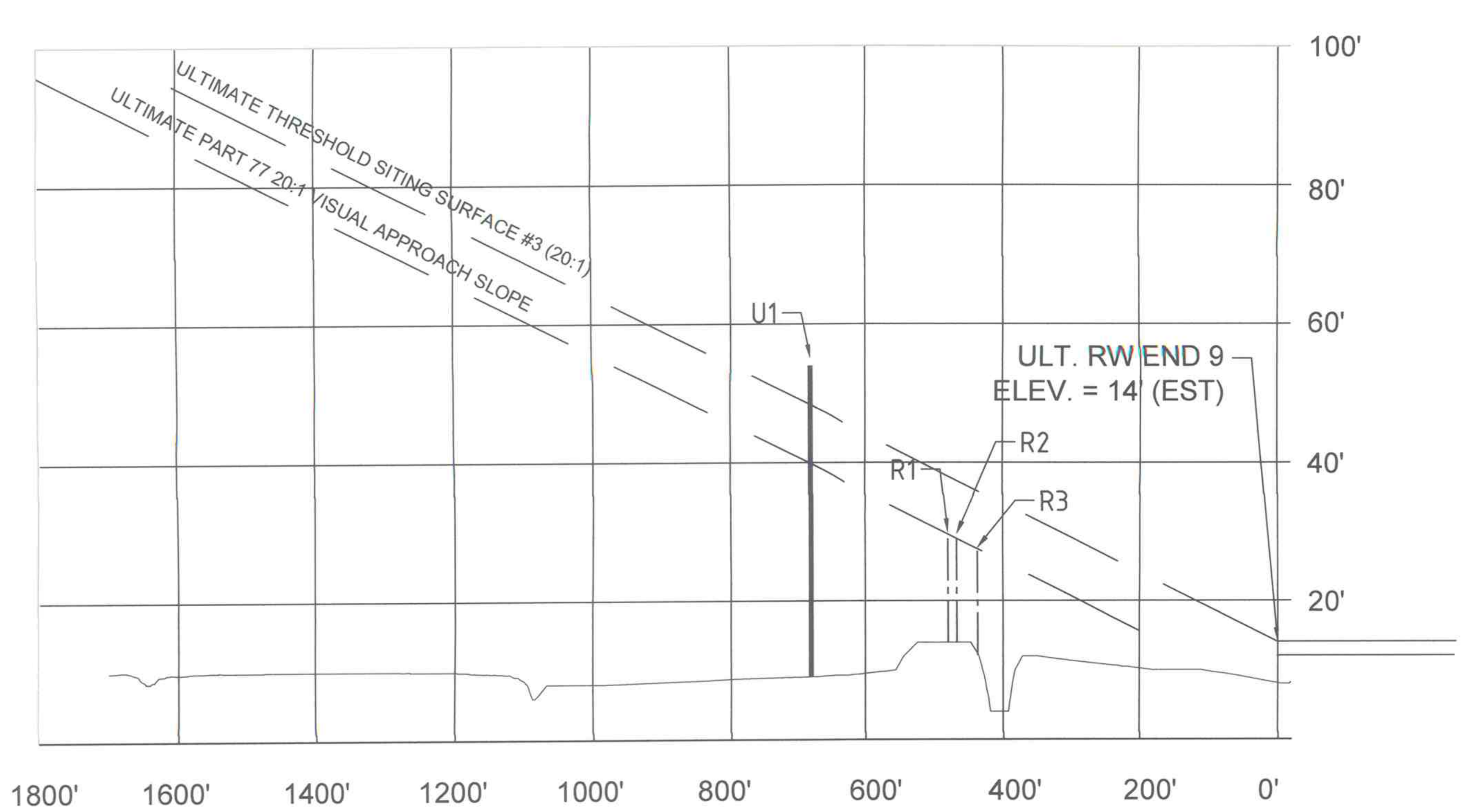
PROJECT NO.
144086007

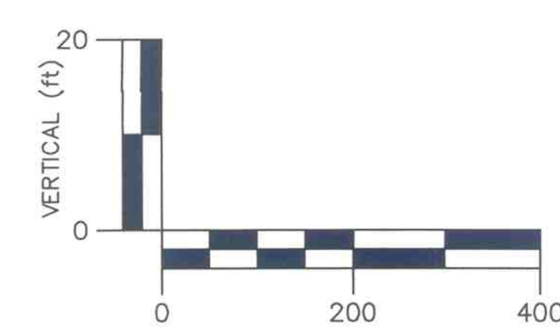
SHEET NUMBER
4 OF 7





ULTIMATE RUNWAY 9–27





GRAPHIC SCALE

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 9				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U1	OHL ON POLE	14'	6'	BURY/ RELOCATE/LOWER
R1	SR 80	-	-	NONE
R2	SR 80	-	-	NONE
R3	SR 80	-	-	NONE

APPROACH SURFACE OBSTRUCTIONS RUNWAY END 27				
No.	Description	Penetration (Approach Slope)	Penetration (TSS)	Disposition
U2	OHL ON POLE	24'	14'	RELOCATE/REMOVE/LOWER
U3	LIGHT	29'	20'	RELOCATE/REMOVE/LOWER
U4	LIGHT	21'	11'	RELOCATE/REMOVE/LOWER
U5	LIGHT	14'	4'	RELOCATE/REMOVE/LOWER
R4	W SUGAR HOUSE RD	-	-	NONE

NOTES:
1. EXACT TREE AND UTILITY LOCATIONS AND ELEVATIONS IN THE X10 APPROACH SURFACES ARE UNAVAILABLE. TREE AND UTILITY LOCATIONS AND ELEVATIONS THAT AFFECT AIR NAVIGATION NEED TO BE IDENTIFIED.
2. UTILITY HEIGHTS ARE APPROXIMATE BASED ON FAA AIRPORT MASTER RECORD #5010, MARCH 2013
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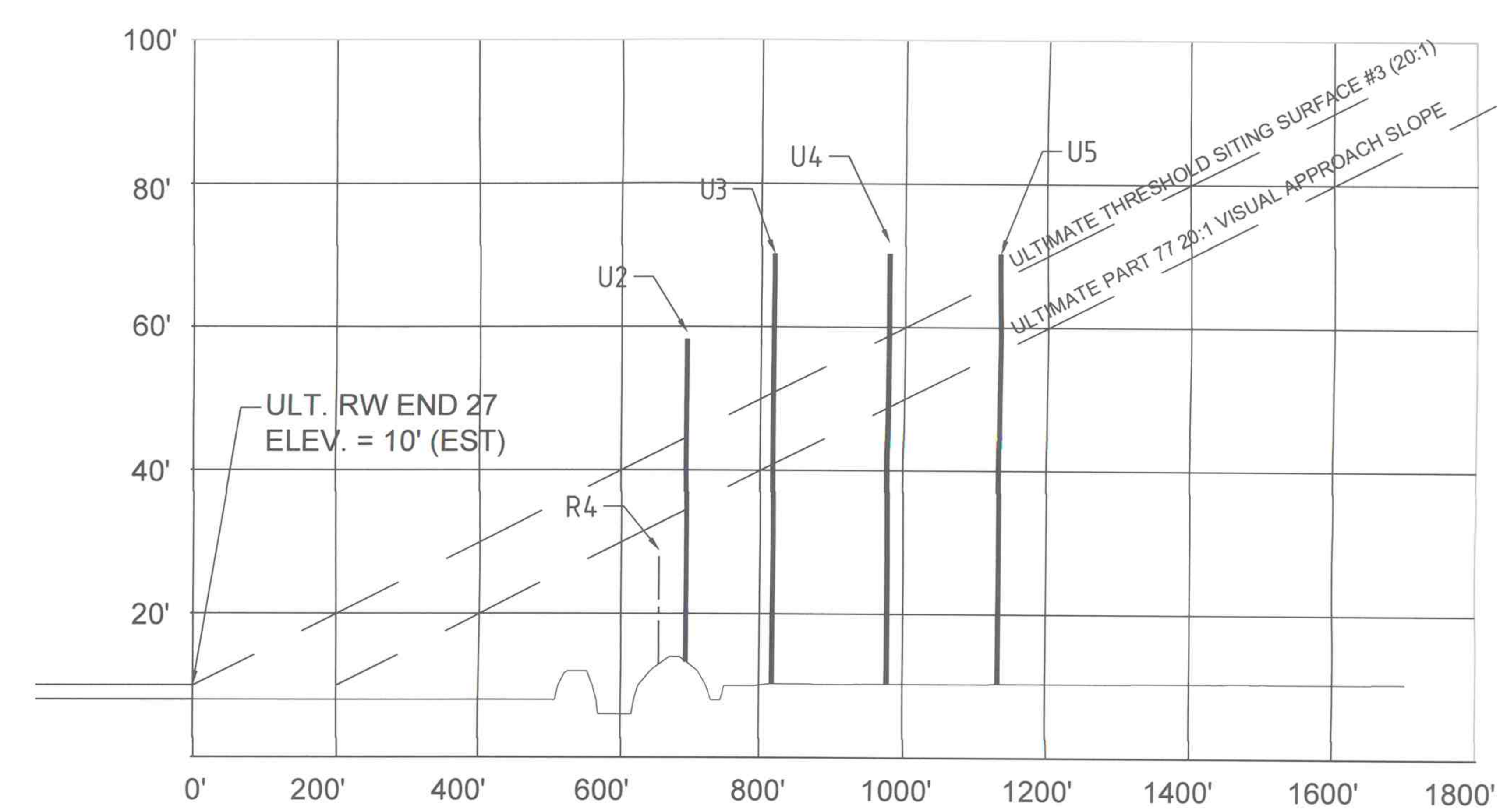

No.	REVISIONS	DATE	BY
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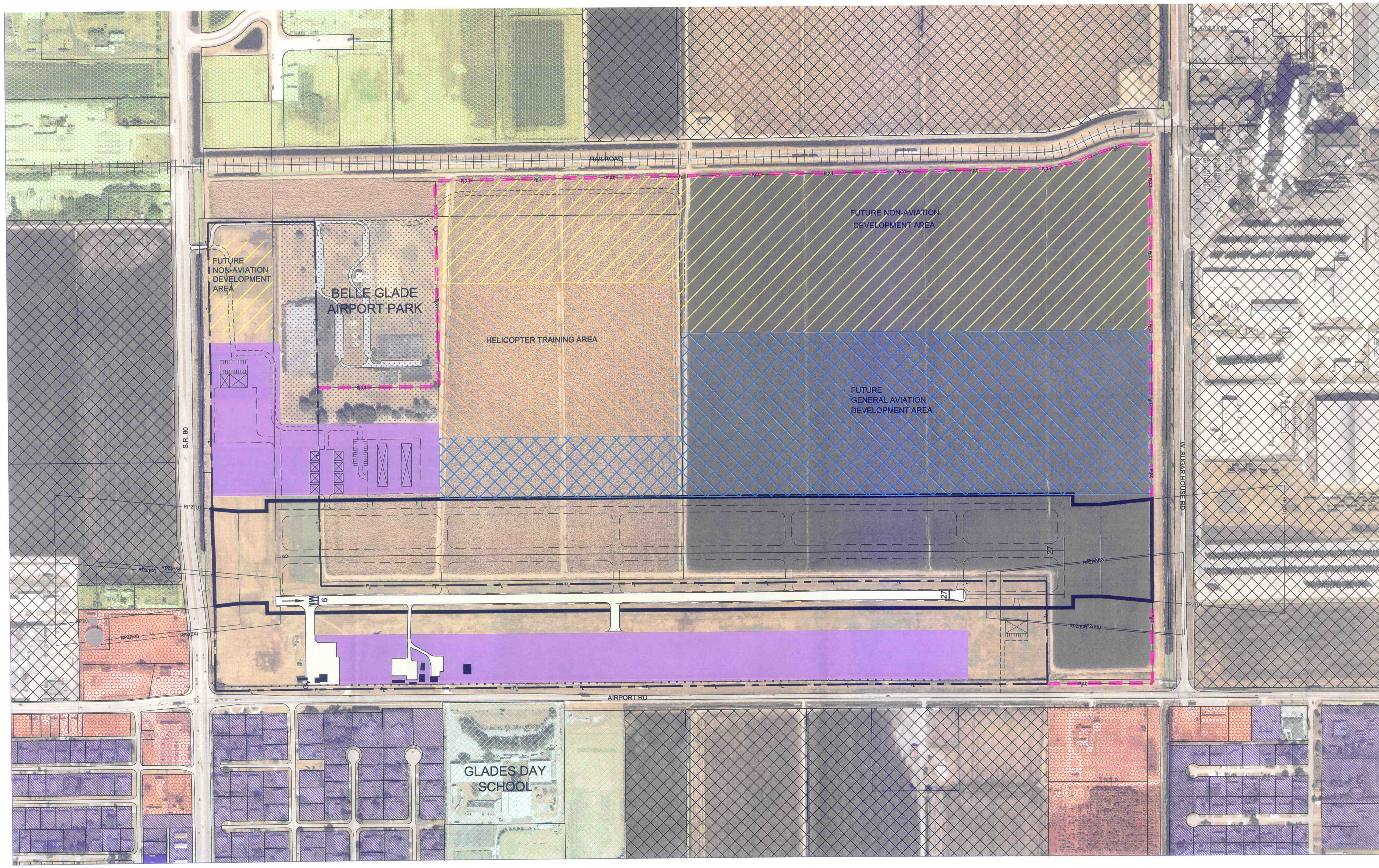
SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350, SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

INNER PORTION OF THE APPROACH SURFACE DRAWING - ULTIMATE RUNWAY 9-27

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE 11/26/2013
PROJECT NO. 144086007
SHEET NUMBER
5 OF 7



LEGEND

ON-AIRPORT LAND USES

- AIRFIELD/ AIRCRAFT OPERATION AREA
- GENERAL AVIATION AREA
- FUTURE GENERAL AVIATION AREA
- FUTURE NON-AVIATION DEVELOPMENT AREA
- HELICOPTER TRAINING AREA

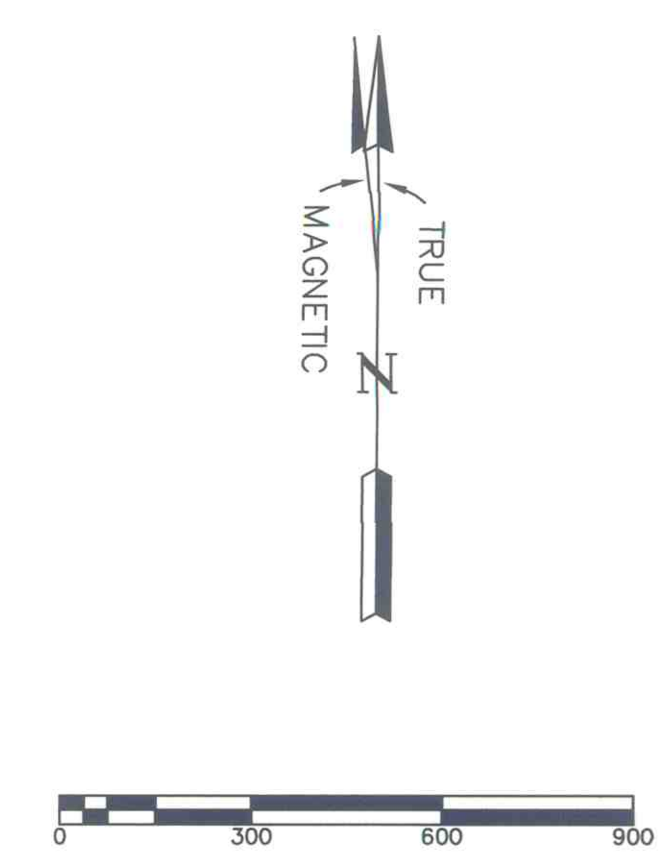
OFF-AIRPORT LAND USES

- OFF-AIRPORT AGRICULTURAL/ OPEN AREAS
- OFF-AIRPORT INDUSTRIAL AREAS
- INSTITUTIONAL/MUNICIPAL FACILITIES
- COMMERCIAL AREAS
- RESIDENTIAL AREAS
- RECREATIONAL AREAS
- EXISTING AIRPORT BOUNDARY
- FUTURE PROPERTY ACQUISITION
- PARCEL BOUNDARIES
- FUTURE BUILDING
- FUTURE PAVEMENT

*OFF-AIRPORT LAND USES OBTAINED FROM:

PALM BEACH COUNTY GEOGRAPHIC INFORMATION SYSTEM; MARCH 2013

CITY OF BELLE GLADE COMPREHENSIVE PLAN; SEPTEMBER 2007



No.	REVISIONS	DATE	BY
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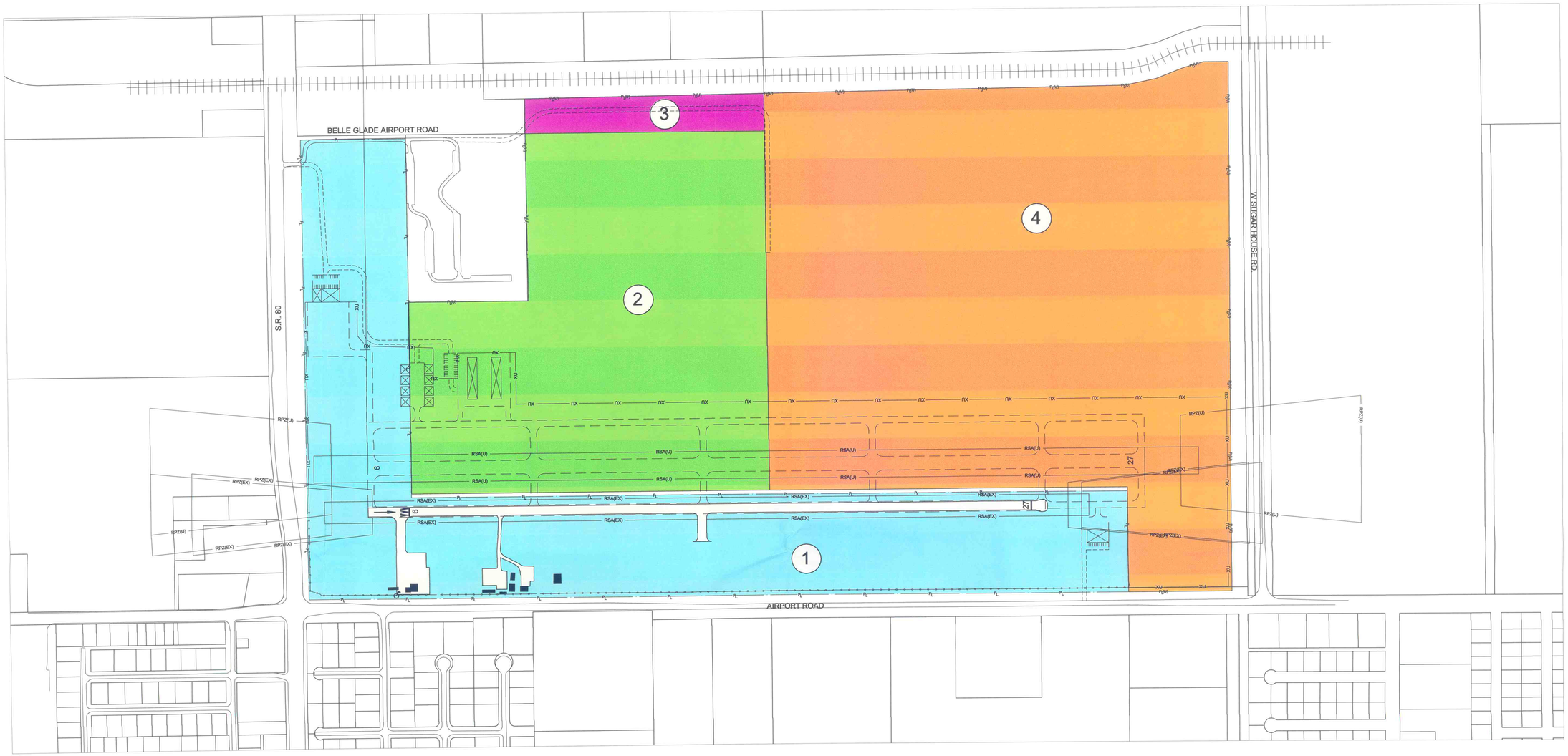
SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJO

PREPARED BY
Kimley-Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350, SAN ANTONIO, TEXAS 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

ULTIMATE AIRPORT LAND USE MAP

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE 11/26/2013
PROJECT NO. 144086007
SHEET NUMBER
6 OF 7



EXISTING PROPERTY ACQUISTION TABLE

PARCEL	GRANTEE	GRANTOR	PROPERTY INTEREST	DATE	ACRES	PURPOSE	FEDERAL PARTICIPATION
1	CITY OF BELLE GLADE	STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION	LEASE	1/6/1975	85.89 +/-	MUNICIPAL AIRPORT OPERATION	NONE

* NOTE: PROPERTY OWNED BY STATE OF FLORIDA AND MANAGED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP), BUREAU OF LANDS. PROPERTY LEASED TO FDOT SINCE JANUARY 1975 SET TO EXPIRE JANUARY 2019. FDOT SUBLEASES TO CITY OF BELLE GLADE SINCE FEBRUARY 1975 AND SET TO EXPIRE JANUARY 2019. AS OF THE PUBLISHING OF THIS ALP, CITY OF BELLE GLADE SEEKING A LONG-TERM LEASE (MINIMUM 50 YEARS) DIRECTLY WITH DEP.

PROPERTY TO BE ACQUIRED

PARCEL	OWNER	INTEREST	ACREAGE	PURPOSE OF ACQUISITION
2	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	76.04 +/-	AIRFIELD EXPANSION / DEVELOPMENT
3	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	6.06 +/-	AIRFIELD EXPANSION / DEVELOPMENT
4	INTERNAL IMPROVEMENT TRUST FUND	FEE SIMPLE	138.2 +/-	AIRFIELD EXPANSION / DEVELOPMENT

LEGEND

	EXISTING	INTERIM	ULTIMATE
RUNWAY SAFETY AREAS (RSA)	RSA (EX)	N/A	RSA (U)
RUNWAY PROTECTION ZONE (RPZ)	RPZ (EX)	N/A	RPZ (U)
PAVED AIRFIELD FACILITIES			
ROADWAYS		N/A	
FUTURE BUILDINGS	N/A	N/A	
FENCE		N/A	XU XU XU
AIRPORT PROPERTY LINE		N/A	
ACQUISITION PARCELS	(1)		

MAGNETIC TRUE N

No.	REVISIONS	DATE	BY
1			
2			
3			
4			
5			
6			

SCALE AS SHOWN
DRAWN BY JAB
DESIGNED BY ADN
CHECKED BY AJD

PREPARED BY
Kimley»Horn and Associates, Inc.
601 NW LOOP 410, SUITE 350,
SAN ANTONIO, TX 78216
PHONE: 210-541-9166
FAX: 210-541-8699
TBPE Firm No. 928

AIRPORT PROPERTY MAP

PREPARED FOR
BELLE GLADE STATE MUNICIPAL AIRPORT
CITY OF BELLE GLADE, FLORIDA
110 DR. MARTIN LUTHER KING JR. BLVD
BELLE GLADE, FLORIDA 33430

DATE 11/26/2013
PROJECT NO. 144086007
SHEET NUMBER 7 OF 7

I, Dianne D. Carter, Deputy City Clerk of the City of Belle Glade, Florida, do hereby certify this document is a true and correct copy of Resolution No. 2014-3062 on file in the Office of the City Clerk. Signed, sealed and certified this 6th Day of January, 2014.

Dianne D. Carter, Deputy City Clerk

SEAL

RESOLUTION NO. 2014-3062

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF BELLE GLADE, FLORIDA, GRANTING APPROVAL TO ADOPT THE BELLE GLADE STATE MUNICIPAL AIRPORT MASTER PLAN UPDATE; GRANTING AUTHORITY FOR THE CITY MANAGER TO SIGN THE AIRPORT LAYOUT PLAN AND ANY OTHER DOCUMENTS RELATED TO THE APPROVAL; DIRECTING THE CITY CLERK TO PROVIDE A CERTIFIED COPY OF THIS RESOLUTION AND ANY OTHER DOCUMENTS RELATED TO THE APPROVAL TO THE FEDERAL AVIATION ADMINISTRATION AND/OR FLORIDA DEPARTMENT OF TRANSPORTATION; PROVIDING FOR CONFLICTS; PROVIDING FOR SEVERABILITY; AND PROVIDING AN EFFECTIVE DATE

WHEREAS, the Federal Department of Aviation (FAA) has reviewed the Belle Glade State Municipal Airport Master Plan's Airport Layout Plan (ALP) and it is currently at the FAA for signature; and

WHEREAS, the Florida Department of Transportation (FDOT) has reviewed, addressed and approved the Belle Glade State Municipal Airport Master Plan Update; and

WHEREAS, the City's Aviation community of service providers desire to have the Belle Glade State Municipal Airport Master Plan's Airport Layout Plan approved and implemented by the City of Belle Glade; and

WHEREAS, the City's Agricultural economy is dependent on the community of Aviation service providers for the growth and development of the sugar and vegetable crops; and

WHEREAS, the City of Belle Glade is willing to and finds it a public purpose to support said large areas of the City's rural economy as required by the City Commission.

NOW, THEREFORE, BE IT RESOLVED by the City Commission of the City of Belle Glade:

Section 1. The City Commission of the City of Belle Glade, Florida, hereby grants approval to Adopt the Belle Glade State Municipal Airport Master Plan Update, dated December 2013.

Section 2. Authorization is hereby granted to the City Manager to sign the Belle Glade State Municipal Airport Master Plan's Airport Layout Plan (ALP) and any other documents related to the approval.

Section 3. The City Clerk is hereby directed to send a certified copy of this Resolution and any other related documents to the Federal Department of Aviation and the Florida Department of Transportation.

Section 4. That all resolutions or parts of resolution in conflict herewith, are repealed to the extent of such conflict.

Section 5. Should any section or provision of this Resolution or portion hereof, any paragraph, sentence or word be declared by a court of competent jurisdiction to be invalid, such decision shall not affect the remainder of this Resolution.

Section 6. This Resolution shall become effective upon passage.

DONE and RESOLVED at Regular Session of the City Commission of the City of Belle Glade, Florida, this 6th day of January, 2014.

	AYE	NAY
Mayor Wilson	✓	
Vice Mayor Wilkerson	✓	
Commissioner Burroughs	✓	
Commissioner Martin	✓	
Commissioner Underwood	✓	

[MUNICIPAL SEAL]

Attest:

~~Debra R. Buff, MMC, City Clerk~~
Dianne D. Carter, Deputy City Clerk

APPROVED AS TO FORM AND LEGAL SUFFICIENCY

GLEN J. TORCIVIA

U.S. Department of Transportation
Federal Aviation Administration

Orlando Airports District Office
5950 Hazeltine National Dr., Suite 400
Orlando, FL 32822-5003

Phone: (407) 812-6331

Fax: (407) 812-6978

December 30, 2013

Mr. Lomax Harrelle
City Manager
City of Belle Glade
110 Dr. Martin Luther King, Jr. Blvd., West
Belle Glade, FL 33430

Dear Mr. Harrelle:

RE: Belle Glade State Municipal Airport; Belle Glade, Florida
Conditional Airport Layout Plan Approval

The Belle Glade State Municipal Airport Airport Layout Plan (ALP), prepared by Kimley Horn and Associates, Inc., and bearing your signature, is approved and the master plan is accepted. A signed copy of the approved ALP is enclosed.

An aeronautical study (2013-ASO-1490-NRA) was conducted on the proposed development. This determination does not constitute FAA approval or disapproval of the physical development involved in the proposal. It is a determination with respect to the safe and efficient use of navigable airspace by aircraft and with respect to the safety of persons and property on the ground. Below are the comments associated with the coordination of the ALP:

- The VFR traffic patterns were reviewed for CAT B. There is one obstacle (Catenary - 12-002934, 1991-ASO-1664-OE) listed on page 9 of the report. It needs obstruction marking and lighting if none are present.
- Any existing structures that have not been studied but would meet FAA notification criteria because of the proposed runway would have to be filed in OE/AAA prior to the project design.
- Airport Improvement Program (AIP) funding will not become available to the airport until the land ownership leasing agreement between the State of Florida (owner), the Department of Environmental Protection - DEP (lessee) and the City of Belle Glade (sub-lessee) is resolved.

In making this determination, the FAA has considered matters such as the effects the proposal would have on existing or planned traffic patterns of neighboring airports, the effects it would have on the existing airspace structure and projected programs of the FAA, the effects it would have on the safety of persons and property on the ground, and

the effects that existing or proposed manmade objects (on file with the FAA), and known natural objects within the affected area would have on the airport proposal.

The FAA has only limited means to prevent the construction of structures near an airport. The airport sponsor has the primary responsibility to protect the airport environs through such means as local zoning ordinances, property acquisition, avigation easements, letters of agreement or other means.

This ALP approval is conditioned on acknowledgement that any development on airport property requiring Federal environmental approval must receive such written approval from FAA prior to commencement of the subject development. This ALP approval is also conditioned on acceptance of the plan under local land use laws. We encourage appropriate agencies to adopt land use and height restrictive zoning based on the plan.

Approval of the plan does not indicate that the United States will participate in the cost of any development proposed. AIP funding requires evidence of eligibility, justification and feasibility at the time a funding request is ripe for consideration. When construction of any proposed structure or development indicated on the plan is undertaken, such construction requires normal 45-day advance notification to FAA for review in accordance with applicable Federal Aviation Regulations (i.e., Parts 77, 157, 152, etc.). More notice is generally beneficial to ensure that all statutory, regulatory, technical and operational issues can be addressed in a timely manner.

Please attach this letter to the Airport Layout Plan and retain it in the airport. We wish you great success in your plans for the development of the airport.

Sincerely,

"Original Signed By"

Pedro J. Blanco
Program Manager

Enclosure

cc:
AJW-E-15C w/ALP
AJW-3742 w/ALP
ASO-290 w/ALP
FDOT/ 4 w/ALP
Kimley Horn and Associates, Inc. w/ALP
Marcos Montes de Oca – Director of Public Works w/ALP
Lillian Tomeu – Grants & Special Projects Manager w/ALP