REPLACEMENT GRIFFIN-SPALDING COUNTY AIRPORT
AIRPORT LAYOUT PLAN

NARRATIVE REPORT

Executive Summary
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Prepared for the City of Griffin and Spalding County

by

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Executive Summary

The Airport Layout Plan (ALP) is a graphical representation, to scale, of the proposed airport facilities and desired configuration of the runway, taxiway, and aprons of the New Griffin-Spalding County Airport. This document along with the ALP Drawing Set provides officials responsible for scheduling, budgeting and ultimate funding of the airport improvements with a planning guide and general timeline for development. The ALP Drawing Set also demonstrates the airport will meet the FAA and GDOT design criteria for future development.

The existing Griffin-Spalding County Airport (FAA Identifier: 6A2) is a general aviation airport located 1 mile (mi) south of Griffin, Georgia which is approximately 40 mi south of Atlanta, Georgia. It has one runway, 14/32, that is 3,701 feet (ft) long and 75 ft wide, with a displaced threshold of 200 ft on each runway end. The airport accommodates approximately 110 based aircraft and 10,000 annual operations.

Previous planning studies have identified extensive improvements required to meet demand for aeronautical facilities at the airport. The Georgia Aviation System Plan, completed in 2003, recommended that 6A2 be developed as a Level II airport, with airside facilities to include a runway at least a 5,000 ft long and 100 ft wide, a full parallel taxiway and a precision instrument landing system. A master plan prepared by the airport sponsor in 2003 evaluated the feasibility of extending the existing airport's runway to 4,400 ft initially, 5,000 ft ultimately. The proposed expansion would require major encroachment on surrounding incompatible land uses. In the 2008, the airport sponsor prepared an airport site selection study to identify replacement airport options. The site selection identified eight potential replacement airport sites and evaluated the advantages and disadvantages of each site. After all sites were carefully evaluated with existing and ultimate facilities taken into consideration, "Site 6" was ultimately chosen as the proposed site of the Replacement Griffin – Spalding County Airport. In 2011, Site 6 was further evaluated in the subsequent Environmental Assessment of Proposed Replacement of Griffin-Spalding County Airport. The FAA issued a Finding of No Significant Impact (FONSI) in 2012. To account for changes to the airport layout during this ALP process, a Supplemental EA will be prepared in 2016.

Upon initial construction, the following facilities are proposed at New Griffin-Spalding County Airport on opening day:

- 5,500 ft long by 100 foot wide runway, including high-intensity runway lighting (HIRL), precision markings, and grooved surface;
- Full-length parallel taxiway 35 ft wide, including medium-intensity taxiway lighting (MITL).
- Access taxiways and apron areas in support of segregated airport terminal areas for the numerous aeronautical uses at the airport, including transient terminal area, aircraft maintenance area, business aircraft storage area,
- T-hangar and box hangar aircraft storage area, and helicopter basing area. These areas have been sized to meet the needs of tenants relocating from the current airport plus some new tenants.
- GPS precision approach, visual glide slope indicators (VGSIs) and approach lighting system,
- Perimeter fencing, Jet A and 100LL above-ground fuel farm(s); and
- Airfield electrical vault, rotating beacon, wind indicator(s), and weather observing system.

The table and figures below provide a summary of the timeline of initial, intermediate and long term improvements.

NEW GRIFFIN-SPALDING COUNTY AIRPORT
PROPOSED DEVELOPMENT SUMMARY AND TIMELINE
INITIAL (FY 2018 - FY 2022), INTERMEDIATE AND LONG TERM

TIMELINE	PROPOSED PROJECT DESCRIPTION	MILESTONES/ TRIGGERING EVENTS	ACTION ITEMS/ NEXT STEPS	FUNDING PLAN
FY2016 and Prior	Land Acquisition & Relocation - Phase 1 (Future Reimbursement)	Project underway	Complete project	FEDERAL
	Program Coordination Services (Future Reimbursement)	Project underway	Complete project	FEDERAL
	Utility Relocation Coordination - Phase 1 (Transmission) (Future Reimbursement)	Project underway	Complete project	FEDERAL
	Utility Relocation Location Studies (GPC & GTC Transmission) (Future Reimbursement)	Project underway	Complete project	FEDERAL
	Airport Site Selection Study, Environmental Assessment, ALP (Future Reimbursement)	Projects completed	Final Approval of ALP	FEDERAL

	PROPOSED PROJECT DESCRIPTION	MILESTONES/TRIGGERING EVENTS	ACTION ITEMS/NEXT STEPS	FUNDING PLAN
FY2018	Supplemental Environmental Assessment (SEA) (Future Reimbursement)	GDOT approval of scope/fee	Conditional ALP approval and Sponsor signs work authorization	FEDERAL
	Land Acquisition & Relocation - Phase 2 (Future Reimbursement)	Ready to begin	Sponsor signs work authorization	FEDERAL
	Demolition - Phase 1 (Design)	Ready to begin	Funding participation	FEDERAL
	Demolition - Phase 1 (Construction)	Phase 1 design completion	Funding participation	FEDERAL
	Demolition - Phase 2 (Design)	Ready to begin	Funding participation	FEDERAL
	Demolition - Phase 2 (Construction)	Phase 2 design completion	Funding participation	FEDERAL
	Land Acquisition for Obstruction Removal/Mitigation – Tower (1)	Ready to begin	Funding participation	FEDERAL
	Land and Easement Acquisition & Relocation - Phase 3	Completion of SEA	Funding participation	FEDERAL
	Airport Environmental Permitting & Mitigation Plan, including Stream Surveys & Preliminary Grading & Drainage Design	Completion of SEA	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Clearing & Stormwater Control Facilities (Design)	SEA approval	Funding participation	FEDERAL
	Purchase of Environmental Mitigation Credits	SEA approval	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Design)	SEA approval	Funding participation	FEDERAL

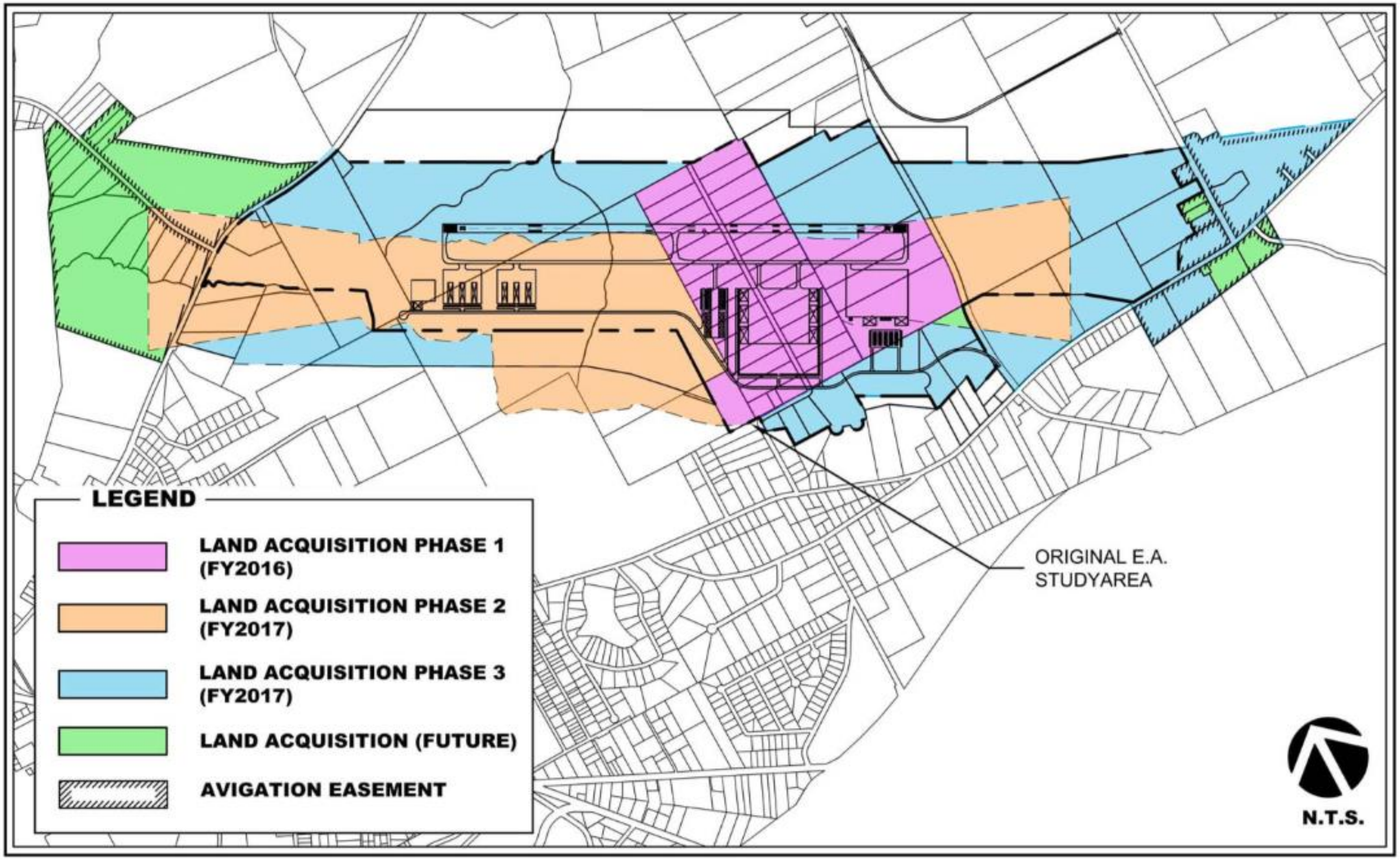
	PROPOSED PROJECT DESCRIPTION	MILESTONES/TRIGGERING EVENTS	ACTION ITEMS/NEXT STEPS	FUNDING PLAN
FY2019	Sapelo Road Relocation (Design) & Right-of-Way Acquisition	SEA approval	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Clearing & Stormwater Control Facilities (Construction)	Design completion	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Design)	SEA approval	Funding participation	FEDERAL
	Utility Relocation – Electric/Gas Transmission Lines (Design, Right-of-way & Environmental)	SEA approval	Funding Participation	FEDERAL
FY2020	Sapelo Road Relocation (Construction) & Right-of-Way Acquisition	Design completion.	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Construction)	Phase 1 design completion	Funding participation	FEDERAL
	Utility Relocation – Electric/Gas Transmission Lines – Phase 1 (Construction)	Phase 1 design completion	Funding participation	FEDERAL
	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 2 (Design)	Phase 1 design completion	Funding participation	FEDERAL
	Construct Terminal Building and Parking Lot, including Utilities (Design)	Phase 1 and 2 design completion	Funding participation	LOCAL
FY2021	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 2 (Construction)	Phase 2 design completion	Funding participation	FEDERAL
	Utility Relocation - Electric / Gas Transmission Lines – Phase 2(Construction)	Phase 1 design completion	Funding participation	FEDERAL
	Construct Terminal Building and Parking Lot, including Utilities (Construction)	Design completion	Funding participation	STATE
	Construct Runway (5,500' x 100'), Parallel and Connecting Taxiways - Paving, Lighting, Marking & Fencing (Design)	Phase 1 and 2 design completion	Funding participation	FEDERAL

	Construct Airport Terminal Area Aprons - Paving, Lighting, & Marking (Design)	Design completion	Funding participation	FEDERAL
	Construct Airport Entrance Road & Terminal Area Access Roads and Parking Lots (Design)	Phase 1 and 2 design completion	Funding participation	FEDERAL
	Construct Airport Site Utilities (Design)	Phase 1 and 2 design completion	Funding participation	FEDERAL
	Construct Airport Hangars (Design)	Phase 1 and 2 design completion	Funding participation	LOCAL

	PROPOSED PROJECT DESCRIPTION	MILESTONES/TRIGGERING EVENTS	ACTION ITEMS/NEXT STEPS	FUNDING PLAN
FY2022	Construct Runway (5,500' x 100'), Parallel & Connecting Taxiways - Paving, Lighting, Marking & Fencing (Construction)	Design completion	Funding participation	FEDERAL
	Construct Airport Terminal Area Aprons - Paving, Lighting, & Marking (Construction)	Design completion	Funding participation	FEDERAL
	Construct Airport Entrance Road & Terminal Area Access Roads and Parking Lots (Construction)	Design completion	Funding participation	FEDERAL
	Construct Airport Site Utilities (Construction)	Design completion	Funding participation	STATE
	Proceeds from Sale of Existing Airport	New airport is open	Coordinate with FAA/GDOT	LOCAL
	Tenant Buy-out & Relocation to New Airport	New airport is open	Coordinate with airport tenants	LOCAL
	Construct Airport Hangars (Construction)	New airport is open	Coordinate with airport tenants	LOCAL
	Federal Reimbursement for Land Acquisition for Initial Airport Construction	Construction underway or complete	Coordinate with FAA/GDOT	FEDERAL

	PROPOSED PROJECT DESCRIPTION	MILESTONES/TRIGGERING EVENTS	ACTION ITEMS/NEXT STEPS	FUNDING PLAN
INTERMEDIATE TERM	Construct T-Hangars	Demand	Maintain waiting list	LOCAL
	Construct Corporate Hangars	Demand	Consultant with existing/prospective tenants	LOCAL
	C-II Upgrades and Improvements	Demand	Monitor critical aircraft requirements	FEDERAL
LONG TERM	Runway Overlay/Rehabilitation and Remarking	Pavement condition/upgrade	Monitor pavement and critical aircraft	FEDERAL
	Expand Corporate Apron	Demand	Consult with existing/prospective tenants	FEDERAL
	Expand Terminal Apron	Demand	Consult with FBO	FEDERAL
	Extend Runway 30	Demand	Monitor critical aircraft requirements	FEDERAL
	Construct Hangars	Demand	Consult with existing/prospective tenants	LOCAL
	Construct T-Hangars	Demand	Maintain waiting list	LOCAL

Source: Michael Baker International, 2016.



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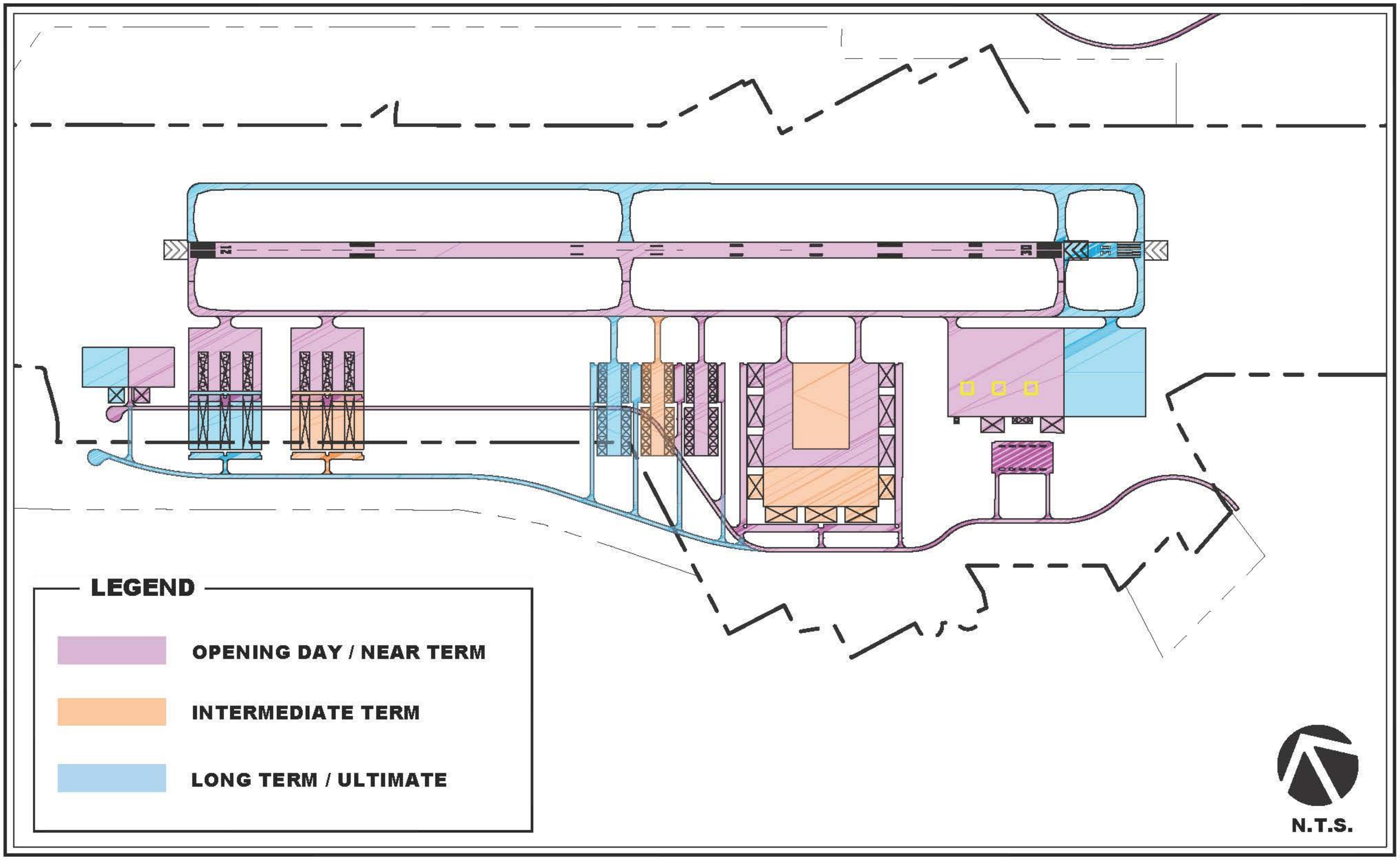
GRIFFIN-SPALDING COUNTY AIRPORT
GRIFFIN, GEORGIA

DEVELOPMENT SUMMARY - LAND ACQUISITION



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GRIFFIN-SPALDING COUNTY AIRPORT
GRIFFIN, GEORGIA

DEVELOPMENT SUMMARY - PHASING PLAN

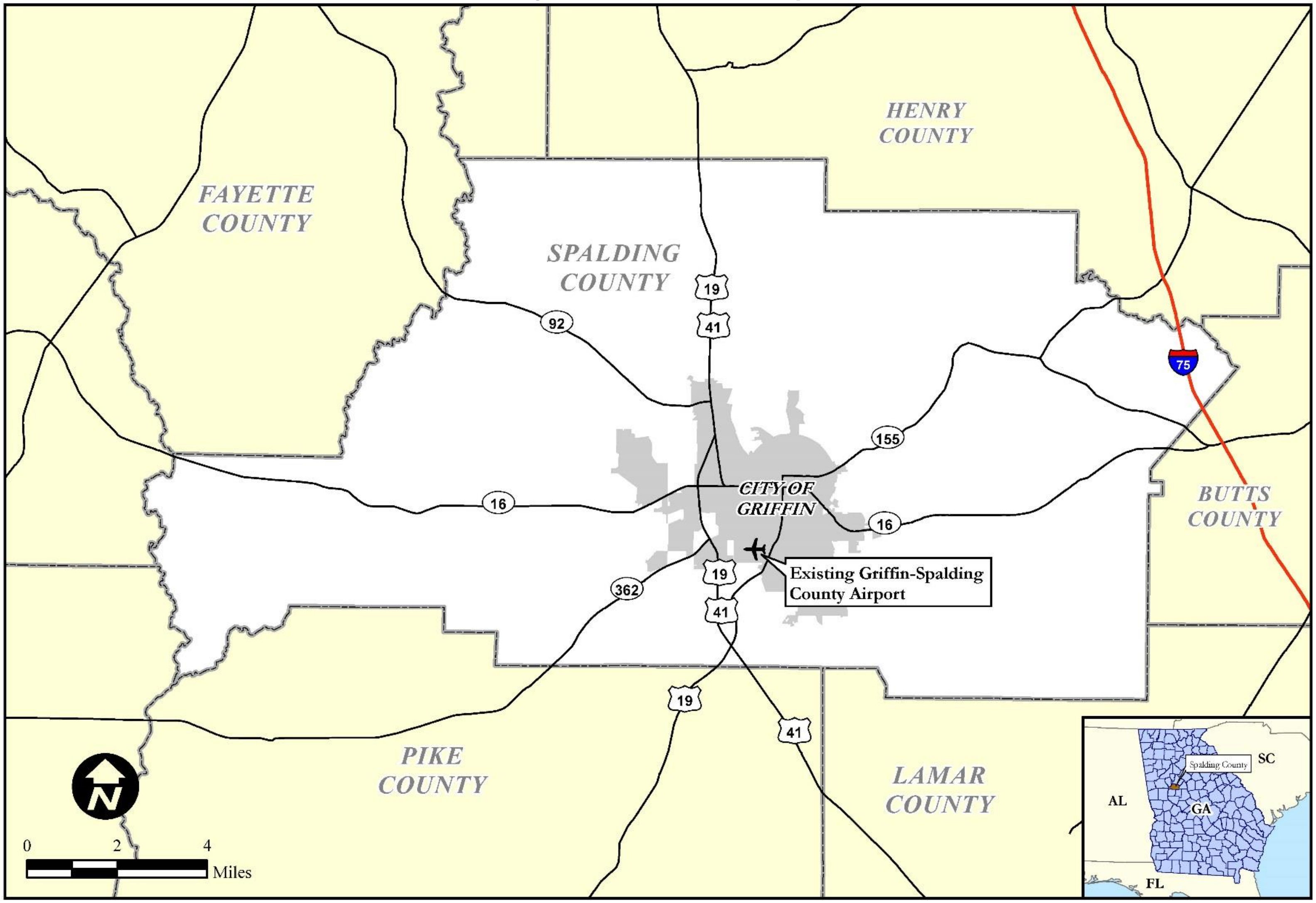
Chapter 1 – Introduction

The existing Griffin-Spalding County Airport (FAA Identifier: 6A2) is a general aviation airport located 1 mile (mi) south of Griffin, Georgia as shown on **Figure 1-1**. It has one runway, 14/32, that is 3,701 feet (ft) long and 75 ft wide, with a displaced threshold of 200 ft on each runway end. According to the 5010-1 Form, the airport accommodates approximately 110 based aircraft and 10,000 annual operations. Numerous aviation-related businesses are located on the field, while a mixture of residential, commercial, and industrial land uses surround the airport property. **Figure 1-2** presents the configuration of the existing Griffin – Spalding County Airport.

The *Georgia Aviation System Plan*, completed in 2003, recommended that 6A2 be developed as a Level II airport, with airside facilities to include a runway at least a 5,000 ft long and 100 ft wide, a full parallel taxiway and a precision instrument landing system. In recent years, increased turbine aircraft activity at the airport has demonstrated the need for such expansion. The feasibility of expanding the airport and extending the runway in its existing location was evaluated in a previous airport master plan and was found to be impractical due to the encroachment of residential and commercial land uses surrounding the airport. It is very likely that the cost of building a replacement airport within Spalding County would be less expensive and less intrusive than expanding the current facility. Therefore, the City of Griffin and Spalding County undertook an airport site selection study to determine whether another suitable airport site exists within Spalding County for an ultimate Level III airport, with a runway of at least 5,500 ft long and 100 ft wide, and a full parallel taxiway. The results of the study determined that a suitable site is located within the county.

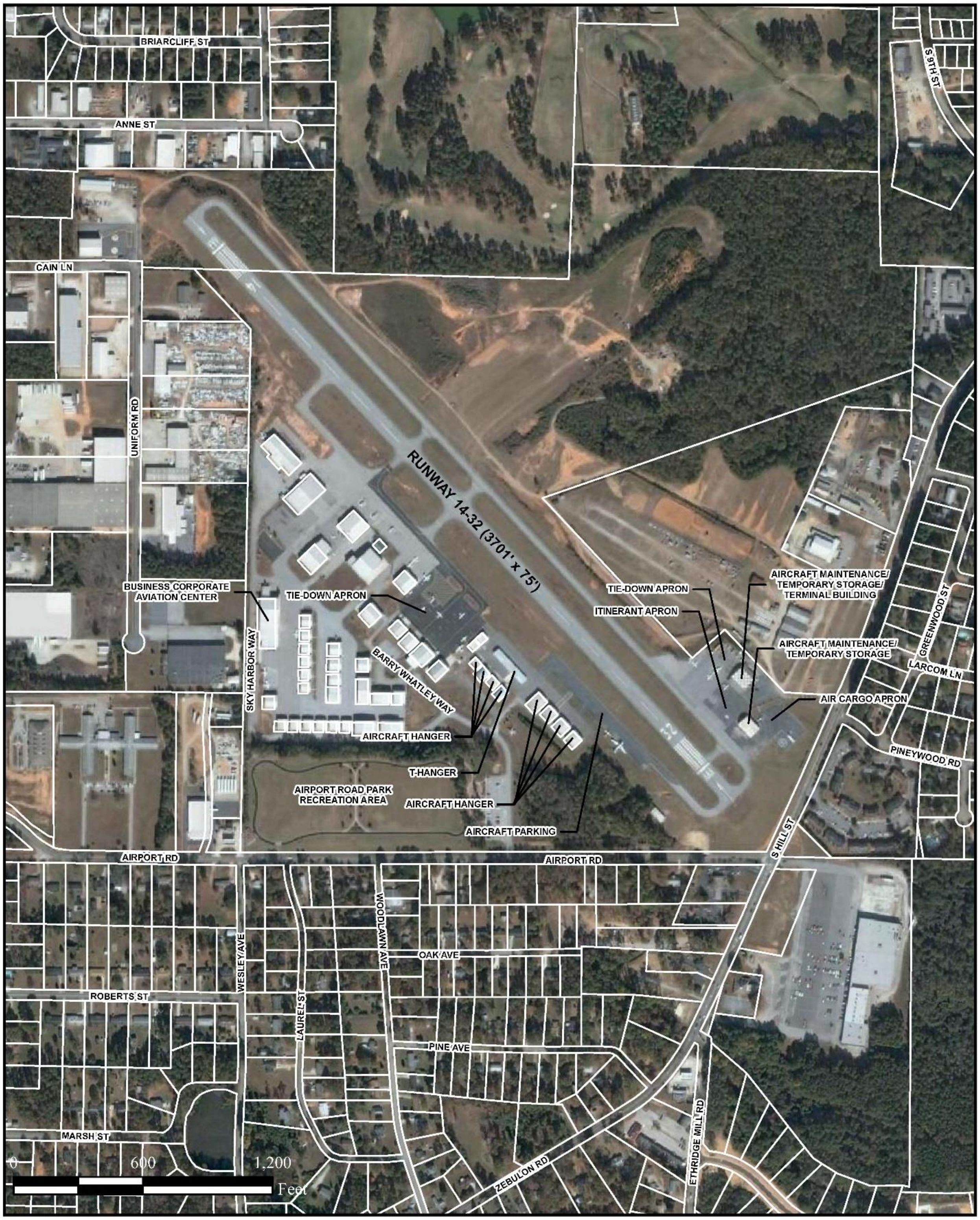
In order to meet Federal Aviation Administration (FAA) Grant Assurances and requirements for Airport Improvement Program (AIP) funding, the City of Griffin, Spalding County, and the Griffin – Spalding County Airport Authority as future sponsors of the replacement airport, have prepared this Airport Layout Plan (ALP). This ALP was prepared in accordance with the applicable elements specified in FAA Advisory Circulars 150/5070-6B, *Airport Master Plans,* and 150/5300-13A, *Airport Design*.

Figure 1-1 – Location Map



Source: Griffin – Spalding County Airport Airport Site Selection Study, LPA, 2008.

Figure 1-2 – Existing Airport



Source: Griffin – Spalding County Airport Airport Site Selection Study, LPA, 2008.

Chapter 2 – Inventory of Existing Conditions

The purpose of the inventory is to summarize existing conditions of all the facilities at the Griffin – Spalding County Airport (6A2) as well as summarize other pertinent information relating to the community and the airport background, airport role, surrounding environment and various operational and other significant characteristics. In addition to summarizing existing conditions, the development constraints associated with expanding the existing airport are analyzed and provide a baseline for determining future facility needs at the replacement airport. The previous Site Selection Study process is described and provides a history of the selected site for the replacement Griffin – Spalding County Airport.

2.1. Existing Airport Conditions

2.1.1. Airport Role

The existing Griffin – Spalding County Airport serves a variety of general aviation users. The following sections review the various roles of 6A2.

FAA Service Level

In the US, there are 5,148 public use airports and of these there are 3,345 airports that are identified by the FAA's National Plan of Integrated Airport Systems (NPIAS) as important to national air transportation and eligible to receive grants under the FAA Airport Improvement Program (AIP). The NPIAS defines the roles of these airports as one of four service levels. **Table 2-1** presents the classifications and their criteria.

Table 2-1
FAA NPIAS Service Level

Service Level	Criteria
Commercial Service – Primary	Public use commercial airports enplaning more than 10,000 passengers annually.
Commercial Service – Non-primary	Public use commercial airports enplaning between 2,500 and 10,000 passengers annually.
General Aviation - Reliever	General aviation airport having the function of relieving congestion at a commercial service airport and providing general aviation access to its community. Must have at least 100 based aircraft or 25,000 annual itinerant operations.
General Aviation	All other NPIAS airports.

Source: *FAA Order 5090.3C,* Field Formulation of the National Plan of Integrated Airport Systems*, December, 2000.*

6A2 is classified as a General Aviation airport, catering to a variety of uses including recreational, corporate, maintenance, and law enforcement. It does not accommodate scheduled commercial service.

In 2012, the FAA further defined the roles of general aviation airports in *"General Aviation Airports: A National Asset (ASSET 1)."* This comprehensive 18-month study developed the following categories of general aviation airports: National, Regional, Local, Basic, and Unclassified. **Table 2-2** presents these categories and their description. 6A2 is classified as a Regional airport.

Table 2-2 FAA ASSET Categories	
Service Level	**Criteria**
National	Serves national – global markets with very high levels of activity with many jets and multiengine propeller aircraft. National airports average about 200 total based aircraft, including 30 jets.
Regional	Serves regional – national markets with high levels of activity with some jets and multiengine propeller aircraft. Regional airports average about 90 total based aircraft, including 3 jets.
Local	Serves local – regional markets with moderate levels of activity with some multiengine propeller aircraft. Local airports average about 33 based propeller driven aircraft and no jets.
Basic	Often serves critical aeronautical functions within local and regional markets with moderate to low levels of activity. Basic airports average about 10 propeller-driven aircraft and no jets.
Unclassified	Airports that do not fit into any other category.

Source: "General Aviation Airports: A National Asset", May, 2012.

Georgia Aviation System Plan

The Georgia Aviation System Plan is a state level planning document, completed in 2003, by the Georgia Department of Transportation (GDOT). It evaluated all public use airports in Georgia and classified each according to the type of aviation demand served. **Table 2-3** presents the system plan airport role classifications.

Table 2-3 Georgia Aviation System Plan Airport Levels	
Airport Level	**Description**
Level I	Minimum Standard General Aviation Airport
Level II	Business Airport of Local Impact
Level III	Business Airport of Regional Impact

Source: Georgia Aviation System Plan, 2003.

6A2 is classified as a Level II airport, a Business Airport of Local Impact and of significant importance to the state's aviation needs.

Local Role

6A2 is a general aviation airport, with no commercial airline service, primarily serving the communities within the City of Griffin and Spalding County. The dominant users of the airport include recreational, maintenance, business, and law enforcement aircraft.

2.1.2. Land Use

The district located immediately to the northeast of the airport is zoned, institutional. To the southwest of the airport are districts zoned Airport Overlay District and Planned Industrial Development. The districts located within the Runway 14 Runway Protection Zone (RPZ) are zoned Planned Industrial Development, Low Density Residential, and Planned Commercial Development. Districts zoned Planned Commercial Development, Low Density Residential, and High Density Residential are located within the Runway 32 RPZ.

2.1.3. Historical Activity

Airport activity levels include the number of operations and based aircraft. 6A2 is a non-towered airport, meaning it does not have an air traffic control tower to monitor and count every operation. A single operation is defined as either an aircraft takeoff or landing. Most comparable general aviation airports in the US are non-towered, as well, therefore, estimates of annual operations are calculated using airport records, fuel sales, and airport management local knowledge. The FAA's 5010-1 Airport Master Record is the official record kept by the FAA for public-use airport activities and facility conditions. The data is recorded from airport management and the FAA. The airport's most recent FAA 5010-1 identifies the airport as having 10,000 annual operations, including 1,000 itinerant and 9,000 local operations. Most of these operations consisted of small single engine and multi-engine aircraft with some small jet activity. In 2014, the airport had 110 based aircraft: 75 single-engine, 29 multi-engine aircraft, 2 jets, and 4 helicopters. The airport maintains a hangar waiting list of 15 aircraft.

2.1.4. Airside Facilities

Runway

One runway serves 6A2, Runway 14-32. The runway is 3,701 feet long, 75 feet wide, and is displaced 200 feet on both ends. According to the latest 5010, the runway is asphalt in good condition, with non-precision instrument runway markings, and a weight bearing capacity of 26,000 pounds (lbs) single wheel and 30,000 lbs dual wheel landing configuration. Runway 32 is equipped with a Precision Approach Path Indicator-II (PAPI), located on the left side of the threshold. The runway is equipped and Medium Intensity Runway Edge Lights (MIRL) and Runway End Identifier Lights (REILs). The MIRL is pilot activated via the Common Traffic Advisory Frequency (CTAF). A standard left-hand traffic pattern is utilized for both runway ends.

Taxiway

A full parallel taxiway, Taxiway A, on the northeast side of the runway provides runway exit and access to the apron and terminal area. Three other exit taxiways connect to the partial parallel taxiway. The southwest side of the runway is served by a partial taxiway, approximately 1,300 feet long. Aircraft wishing to depart from the southwest side of the runway must either cross the runway to the full parallel taxiway or back-taxi on the runway. The taxiways are lit by Medium Intensity Taxiway Edge Lights (MITL). All taxiways are constructed of asphalt in good condition.

Aprons

The airport is served by two main apron areas, one on the northeast side in front of the terminal building and one on the southwest side. There are 18 tie-down spaces.

Aids to Navigation (NAVAIDS)

NAVAIDS provide pilots with information to assist them in locating the airport and provide horizontal and/or vertical guidance during landing. Navigational aids also permit access to the airport during poor weather conditions. Aids to navigation include electronic, satellite, and visual systems. 6A2's aids to navigation are described in the following sections.

Electronic and Satellite Aids

Navigational aids based on electronic and satellite systems are useful in both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) weather conditions.

Area Navigation (RNAV), Global Positioning System (GPS) and Wide Area Augmentation System (WAAS)

RNAV non-precision approaches utilize GPS technology for horizontal course guidance. GPS is a space-based navigation system comprised of satellites, transmitting stations, and user receivers. An aircraft receiver can track the position of the aircraft by calculating and comparing the signal distance from several satellites. Aviation GPS equipment often depicts position and area information, such as airspace and terrain, on a moving map display in the cockpit. Because no ground facilities are required at airports to operate this navigational system, the system is reliable in all weather conditions and all terrain and is typically accurate to within 100 ft.

WAAS is a GPS-based navigation system, which augments the existing GPS signals with additional information, providing the user highly accurate position and tracking information. Localizer Precision with Vertical Guidance (LPV) instrument approaches utilize WAAS technology to provide both vertical and horizontal course guidance to aircraft receivers. Like RNAV GPS navigation, LPV and other future WAAS approaches are available in all weather and all terrain conditions.

Runway 32 has a published LPV instrument approach, providing weather minimums down to 1,204 ft MSL (300 ft AGL) and 7/8 statute mile (sm) visibility. Runway 14 has a published RNAV approach, providing weather minimums down to 1,320 ft MSL (400 ft AGL) and 1 sm visibility. All approaches are limited to A and B category aircraft.

Aircraft not equipped with WAAS technology, may still utilize the RNAV approaches to 32, but are required to apply the approach minimums applicable to the equipment on board their aircraft.

Visual Aids

Visual aids at an airport provide additional information for identification and safe operation at an s equipped with a rotating beacon, a lighted wind cone, and PAPIs, for visual cues of airport conditions.

Rotating Beacon

6A2 is equipped with a rotating beacon, located just northeast of the terminal building. High intensity lamps mounted on an assembly rotate 360° every six seconds, giving the illusion of emitting flashes of light. The designation for 6A2, a civilian land airport, is alternating green and white lights in equal duration. The rotating beacon is operational from sunset to sunrise and during IMC.

Wind Cone

The lighted wind cone is located along the northeast parallel taxiway just north of the terminal building. It provides visual surface wind information to pilots.

Precision Approach Path Indicators (PAPI)

Runway 32 is equipped with a 2-light PAPI system located on the left side of the threshold. These landing aids help pilots visually establish aircraft on the proper approach glide path for landing, by emitting one red light and one white light when the aircraft is vertically aligned properly. The PAPI system emits two red lights if the aircraft is lower than the glide path and two white lights if the aircraft is higher than the proper glide path, indicating to the pilot an adjustment of altitude is needed.

Weather Reporting Facilities

The existing airport is equipped with an Automated Weather Observation Station (AWOS-III) weather reporting system located at mid-field just northeast of the parallel taxiway. The AWOS is a modern weather collection and reporting system that measures the following meteorological conditions:

- Wind velocity and direction,
- Temperature and dewpoint,
- Visibility,
- Cloud cover and sky conditions,
- Barometric pressure, and
- Prevalent weather conditions (fog, thunderstorms, rain).

The AWOS equipment gathers meteorological data every minute and automatically transcribes current conditions via a designated radio frequency. The automatic transcription is also available via telephone and aviation weather websites.

Table 2-4 summarizes the existing airside facilities at 6A2.

Table 2-4
Summary of Existing Airside Facilities

Item	Existing Condition
Airport Role	FAA - GA/Regional GASP - Level II
Airport Elevation	958 ft MSL
Airport Property	198 ac
Max Mean Temp. of Hottest Month	89.6° F
Airport Reference Point (latitude/longitude)	33-13-37.1 N
	84-16-29.8 W
Magnetic Declination	4° 57' W changing by 0° 5' per year (2015)
Instrument Approach Procedures	RNAV, LPV
Weather Reporting	AWOS III
Runway 14/32	
Runway Length	3,701 ft
Runway Width	75 ft
Pavement Type	Asphalt
Strength	26,000 lbs Single/30,000 lbs Dual
Lighting	MIRL
Marking	Non-Precision
Parallel Taxiway	
Taxiway Pavement Type	Asphalt
Lighting	MITL

Sources: Griffin – Spalding County Airport, 2015; National Oceanic and Atmospheric Administration, 2015.

2.1.5. Landside Facilities

The landside facilities at 6A2 include one terminal building, fuel storage, and hangars for aircraft storage. These facilities support and provide services for aircraft operators at the airport.

Airport Terminal Building and Fuel Storage

The terminal building is located in the terminal area on the northeast side of the airport and is occupied by the City of Griffin. The City is the airport's only FBO and offers a variety of services, including low-lead aviation gasoline (100LL) and Jet-A fuel, pilot supplies, pilot lounge, vending, flight planning area and weather computer. The airport offers 3 self-serving systems: one 10,000 gallon AvGas tank on the east side of the airfield, one 4,000 gallon AvGas tank on the west side, and one 12,000 gallon Jet-A tank on the west side. The airport is also equipped with one 2,000 gallon Jet-A fuel truck and one 1,000 gallon AvGas fuel truck.

Aircraft Storage

Aircraft storage facilities include 48 hangars, consisting of corporate and t-hangars.

Perimeter Fencing

The airport is partially enclosed, approximately 40%, by a four-foot high chain-link fence along the southwest and southeast sides of the airport.

2.1.6. Airspace and Air Traffic Control

6A2 is surrounded by Class E airspace within a 10 nm radius, extending from the 700 ft AGL to 17,999 ft MSL. Class G airspace is present from the surface up to 699 ft AGL and Class A airspace is present from 18,000 ft MSL up to and including 60,000 ft MSL.

Due to its activity level, 6A2 does not have an air traffic control tower. Pilots broadcast their actions and intentions via a Common Traffic Advisory Frequency.

2.2. Griffin – Spalding County Airport New Airport Site Selection Study

The Griffin-Spalding County Airport New Airport Site Selection study was initiated in 2007 after the feasibility of expanding the existing airport was evaluated and determined to be impractical due to the significant cost of developments to meet FAA design standards and Georgia Aviation System Plan goals as well as the residential land uses surrounding the airport. These constraints and the site selection process are described in the following sections.

2.2.1. FAA Design Standards

The standards set forth by the FAA for the planning and design of airports are published in FAA AC 15/5300-13A, *Airport Design.* The applicable standards are determined by the airport's critical aircraft. The critical aircraft is usually the most demanding aircraft using the airport in terms of aircraft approach speed, wingspan, and/or tail height. To be considered a critical aircraft, the aircraft or family of aircraft must perform a minimum of 500 annual itinerant operations at the airport. Itinerant operations are defined as either flights originating at the airport and flying to a facility at least 20 miles away or those operations terminating at the airport from an airport more than 20 miles away

Once the critical aircraft has been determined, the RDC (Runway Design Code) for each runway is established based on specific characteristics of the aircraft. The RDC is identified using an alphanumeric designation. The first component, depicted by a letter is the AAC (Aircraft Approach Category) and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the ADG (Aircraft Design Group) and relates to either the aircraft wingspan or tail height, whichever is most restrictive, of the largest aircraft expected to operate on the runway and taxiways adjacent to the runway. The third component relates to the visibility minimums expressed by RVR (Runway Visual Range) values. Generally, runway standards are related to aircraft approach speed, aircraft wingspan, and designated or planned approach visibility minimums. The RDC for Runway 14/32 is B-II-4000. **Table 2-5**, **Table 2-6,** and **Table 2-7** present the RDC components and their corresponding categories.

The ARC (Airport Reference Code) signifies the airport's highest RDC minus the third (visibility) component. Since 6A2 has only one runway, the existing ARC is B-II. It is anticipated that in the planning period, operations will increase and the critical aircraft will change, designating the airport as C-II.

Table 2-5
Aircraft Approach Categories

Category	Approach Speed (kts)
A	< 91
B	91 – 120
C	121 – 140
D	141 – 165
E	> 166

Source: FAA AC 150/5300-13A, 2015.

Table 2-6
Aircraft Design Group

Category	Wingspan (ft)	Tail Height (ft)
I	< 49	<20
II	49 – 78	20 - <30
III	79 - 117	30 - <45
IV	118 - 170	45 - <60
V	171 - 213	60 - <66
VI	214 - 262	66 - <80

Source: FAA AC 150/5300-13A.

Table 2-7
Visibility Minimums

RVR (ft)	Instrument Flight Visibility Category (statute mile)
5000	Not lower than 1 mile
4000	Lower than 1 mi but not lower than 3/4 mi
2400	Lower than 3/4 mi but not lower than 1/2 mi
1600	Lower than 1/2 mi but not lower than 1/4 mi
1200	Lower than 1/4 mi

Source: FAA AC 150/5300-13A.

Mostly due to land constraints, the existing Griffin – Spalding County Airport does not meet all of the standards required of a B-II airport. Additionally, the airport will not meet the standards of a C-II airport if the critical aircraft changes. The following sections detail the deficiencies in design standards.

Runway Design

Runway 14-32 is 3,701 feet long. This runway length, according to Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design*, is sufficient for 95% of the small airplane fleet, but insufficient for all other aircraft criteria. The various applicable runway lengths based on airfield conditions at 6A2 are shown in **Table 2-8**. 3,701 ft is also less than the required runway length for an instrument approach with visibility minima lower than ¾ sm. This length is 4,200 feet.

Table 2-8 Runway Length Requirements	
Airport Data	
Airport Elevation	958 ft msl
Mean daily maximum temperature of the hottest month	90° F
Aircraft Criteria	**Length (ft)**
Small airplanes (with less than 10 passenger seats)	
95 percent of fleet	3,400
100 percent of fleet	4,000
Small airplanes (with 10 or more passenger seats)	4,400
Large airplanes of 60,000 pounds or less	
75 percent of fleet at 60 percent useful load	4,900
75 percent of fleet at 90 percent useful load	6,800
100 percent of fleet at 60 percent useful load	5,800
100 percent of fleet at 90 percent useful load	8,800

Sources: AC 150/5325-4B *Runway Length Requirements for Airport Design;* Michael Baker, 2015.

Runway and Object Free Standards

Runway Safety Area (RSA) is a surface centered along the runway designed for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. For B-II airports, the RSA is 150 ft wide and 300 ft long off each runway end. The RSA must also be cleared and graded. 6A2 meets B-II RSA standard requirements, but had to displace the runway threshold 200 ft on both ends. C-II standards require the RSA to be 400-500 ft wide, 1,000 ft long beyond the end of the runway and 600 ft prior to the threshold. Due to land constraints, the runway would have to be displaced an additional 400 ft on both ends. Additionally, declared distances would be utilized to mitigate the insufficient safety area beyond the runway ends due to grade changes, roads, and buildings.

Runway Object Free Area (ROFA) is an area centered on the runway centerline provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the ROFA for air navigation or aircraft ground maneuvering purposes. B-II standards are 300 ft long off the runway ends and 500 ft wide. 6A2 meets the 300 ft length requirement but does not meet the width requirement due to the close proximity of Atlanta Air Salvage on the northwest end of the runway. This would require either displacing the runway so that it is no longer a penetration, or obtaining a modification of standards. C-II ROFA standards increase to 1,000 ft beyond the runway end, 600 ft prior to threshold, and 800 ft wide. In addition to displacing the threshold to meet the 600 ft prior to threshold requirement and utilizing declared distances, several hangars and businesses on the airport would need to be demolished as they are inside the ROFA boundary.

Runway Obstacle Free Zone (OFZ) is a defined volume of airspace centered above the runway centerline, above a surface whose elevation at any point is the same as the elevation of the nearest point on the runway centerline. The OFZ is a design surface but is also an operational surface and must be kept clear during operations. Its shape is dependent on the approach minimums for the runway end and the aircraft on approach, meaning that the OFZ for a particular operation may not be the same shape as that used for design purposes. The OFZ extends 200 ft beyond the runway end. The OFZ extends 200 ft beyond each end of the runway. The width is 250 ft for operations by aircraft with approach speeds of 50 knots or more. For larger aircraft, the OFZ width is 400 ft. 6A2 does not meet the width for larger aircraft due to Atlanta Air Salvage on the northwest side of the runway.

Runway separation standards are based on ARC and approach visibility. For a B-II airport with an approach visibility of greater than ¾ mile but lower than 1 mile, the runway separation standards are shown in **Table 2-9.** For a C-II airport with the same approach visibility, the runway separation standards are shown in **Table 2-10.** One of the biggest problems facing the existing airport is the lack of separation between the runway centerline and the parallel taxiways, the aircraft parking areas, and the aircraft holding positions. The airport does not meet most of these standards for B-II or C-II. In order to meet these requirements, the parallel taxiways would have to be relocated the appropriate distances from the runway, the holding positions repainted, and the apron areas relocated.

A summary of the various design standards applicable to 6A2 and how the airport meets or does not meet these requirements are shown in **Table 2-11.**

Table 2-9
Runway Separation Standards

AAC/ADG – B-II	
Separation Standard	**Approach Visibility**
	¾ to < 1 sm
Runway Centerline to Parallel Taxiway Centerline	240 ft
Runway Centerline to Aircraft Parking	250 ft
Runway Centerline to Aircraft Holding Position	200 ft

Source: FAA AC 150/5300-13A, 2015.

Table 2-10
Runway Separation Standards

AAC/ADG - C-II	
Separation Standard	**Approach Visibility**
	¾ to < 1 sm
Runway Centerline to Parallel Taxiway Centerline	300 ft
Runway Centerline to Aircraft Parking	400 ft
Runway Centerline to Aircraft Holding Position	250 ft

Source: FAA AC 150/5300-13A, 2015.

Table 2-11
FAA Design Standards

	B-II	C-II	Existing	
Runway Length				
Runway Width	75 ft	100 ft	Meets	Does not Meet
Runway Protection				
Runway Safety Area (RSA)				
Length beyond runway end	300 ft	1,000 ft	Meets	Does not Meet
Length prior to threshold	300 ft	600 ft	Meets	Does not Meet
Width	150 ft	400 ft	Meets	Does not Meet
Runway Object Free Area (ROFA)				
Length beyond runway end	300 ft	1,000 ft	Meets	300 ft
Length prior to threshold	300 ft	600 ft	Meets	300 ft
Width	500 ft	800 ft	Does Not Meet	Does not Meet
Runway Obstacle Free Zone (ROFZ)				
Length	200 ft	200 ft	Meets	Meets
Width	250 ft/ 400 ft	250ft/ 400 ft	Meets/ Does not Meet	Meets/ Does not Meet
Runway Separation				
Parallel Taxiway	240 ft	300 ft	Does not Meet	Does Not Meet
Aircraft Parking	250 ft	400 ft	Meets	Does Not Meet
Runway Holding Position	200 ft	250 ft	Does Not Meet	Does Not Meet

Source: FAA AC 150/5300-13A.

2.2.2. Land Use

Each runway end has an RPZ, a two-dimensional trapezoid-shaped area beginning 200 ft from of the end of each runway threshold. The purpose of the RPZ is to protect people and property on the ground in the event of an aircraft accident, therefore is required to be clear of activities that attract congregations of people. The RPZ dimensions are based primarily upon the minimum visibility of the instrument approach to that runway, as presented in **Table 2-12**. Ideally, fee simple ownership of the entire RPZ is preferred, as it provides the airport with control over its land use. However, avigation easements are often secured between the airport and the land owner in order to ensure that no incompatible uses occur in the RPZ. The majority of both RPZs at 6A2 are not controlled by the airport either by fee simple or avigation easement.

FAA encourages compatible land use at airports. Compatible land uses include industrial, commercial, and certain types of agriculture. Incompatible land uses include residences, schools, wildlife attractants, community centers, libraries, hospitals, and other places of public assembly. The majority of the land in the RPZs at 6A2 are zoned residential, an incompatible land use.

Table 2-12 RPZ Dimensions			
Visibility Minima	**Length**	**Inner Width**	**Outer Width**
ARC B-II			
Not Lower Than ¾ Mile (Existing Runway 32)	1,700 ft	1,000 ft	1,510 ft
Not Lower Than 1 Mile (Existing Runway 14)	1,000 ft	500 ft	700 ft
ARC C-II			
Not Lower Than ¾ Mile (Existing Runway 32)	1,700 ft	1,000 ft	1,510 ft
Not Lower Than 1 Mile (Existing Runway 14)	1,700 ft	500 ft	1,010 ft

Source: FAA AC 150/5300-13A, 2015.

2.2.3. Georgia Aviation System Plan Goals

The Griffin – Spalding County Airport is classified as a Level II airport, a Business Airport of Local Impact. Goals recommended by the Georgia Aviation System Plan for Level II airports are summarized in **Table 2-13.** 6A2 meets several goals, but does not meet others. The costs of development for 6A2 to meet all the goals recommended by the system plan are significant.

2.2.4. Site Selection Study

As previously stated, due to the many development and land use constraints of the existing airport, the City of Griffin and Spalding County undertook an airport site selection study. The study was charged with determining if there was a suitable site able to accommodate an ultimate Level III airport, with a runway of at least 5,500 ft long and 100 ft wide, and a full parallel taxiway.

In the preliminary site screening stage, evaluation criteria were established. These included population center accessibility, proximity to nearby NPIAS airports, state roads, future land use, airspace, population density, streams, wetlands, floodplains, landfills, railroads, transmission lines, obstructions, and terrain.

From these criteria, a color-coded site suitability map was produced to show areas of suitability reclassified into the three categories of refined suitability: suitable, more suitable, and most suitable. The preliminary evaluation criteria are shown in **Table 2-14.** The preliminary evaluation criteria identified eight potentially suitable sites and are shown in **Figure 2-1.**

Table 2-13 Georgia Aviation System Plan - Level II Airport Objectives		
Airside Facilities	**Recommended Goal**	**6A2 Existing Conditions**
Runway Length	5,000 ft	3,701 ft
Runway Width	100 ft	75 ft
Taxiways	Full Parallel	Full on southeast side; partial on southwest side
Lighting Systems	MIRL and MITL	MIRL; MITL
Approach	Non-Precision	Non-Precision
NAVAIDS/Visual Aids	Rotating beacon, segmented circle and wind cone, PAPI's, and other aids as required for non-precision approach	Rotating beacon, segmented circle and wind cone, PAPI's
Weather Reporting	AWOS or ASOS	AWOS
Ground Communications	Public telephone, GCO	Public telephone
Airfield Signage	Runway hold position signs, location and guidance signs	Some Signage
Fencing	Entire Airport	40% of Airport

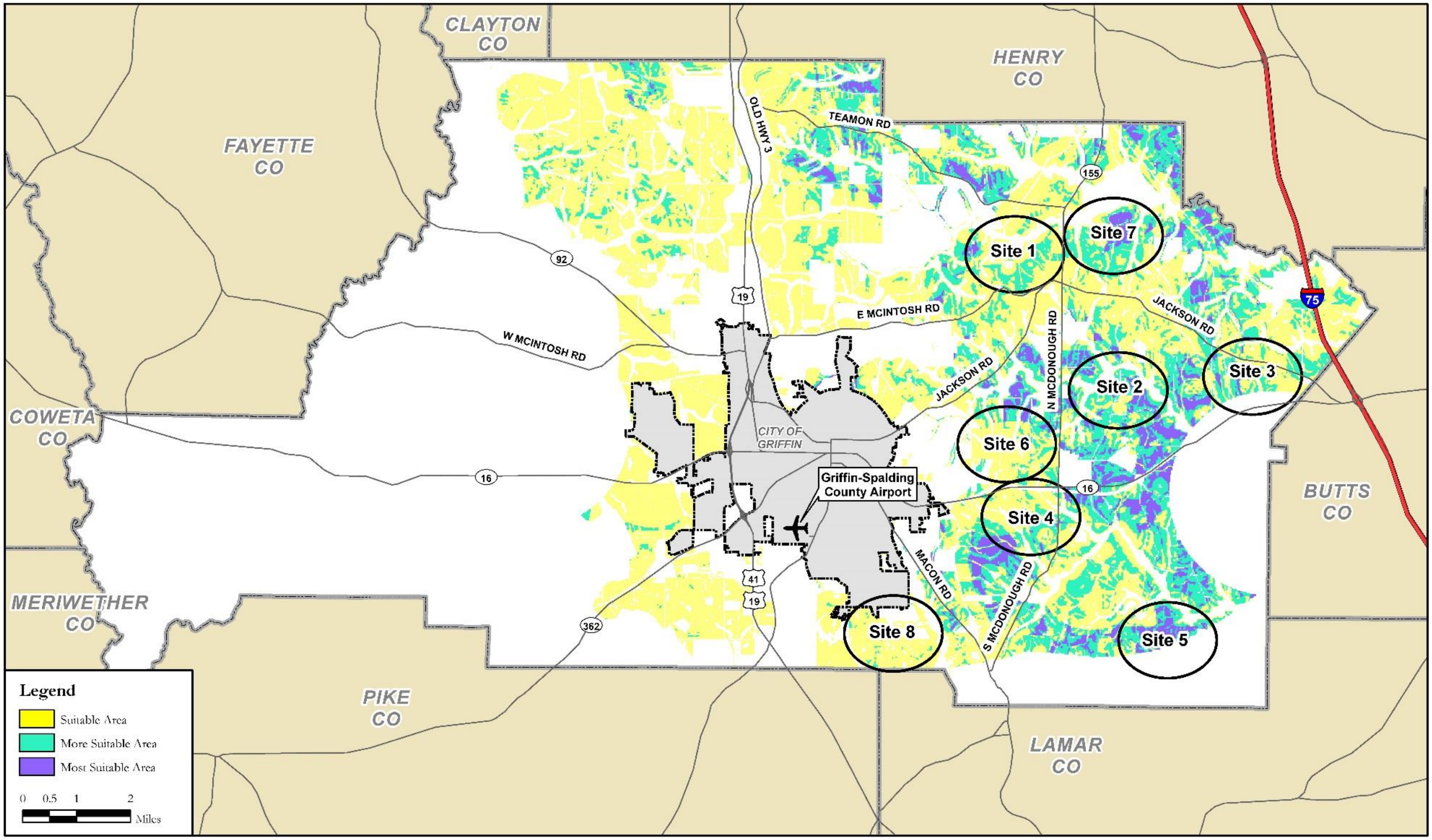
Source: Georgia Aviation System Plan, 2003.

Table 2-14
Preliminary Evaluation Criteria

Criteria	Goal	Suitable (4)	Acceptable (2)	Unacceptable (0)
Population center	Convenience to users	Within 30 minutes of City of Griffin	-	More than 30 minutes from City of Griffin
Nearby NPIAS airports	Observe FAA guidance	More than 30 min of NPIAS airport	Within 30 min of NPIAS airport	-
Future land use	Adhere to city and county planning and visioning efforts	Vacant, agricultural, industrial, commercial, transportation	Low density residential	Park, cemetery, open space, institutional, medium or high density residential
Interstate	Convenient transportation access	Less than 8 min to interstate	Between 8-16 min to interstate	More than 16 min to interstate
State roads	Convenient transportation access	Three mi or less to state road	-	More than three mi to state road
Nearby airports' airspace	Avoid airspace of nearby airports	Not within runway buffer1	-	Within runway buffer1
Population density	Minimize disruption to existing residents	Less than 500 people per sq mi	-	More than 500 people per sq mi
Streams	Comply with NEPA and FAA regulations	No streams on site	Intermittent stream	Perennial stream
Wetlands	Comply with NEPA and FAA regulations	No wetlands within 1/8 mi	Wetlands within 1/8 mi	Wetlands on site
Floodplains	Comply with NEPA and FAA regulations	No floodplains within 100 ft	Floodplains within 100 ft	Floodplains on site
Landfills	Comply with NEPA and FAA regulations	No landfills within 10,000 ft	-	Landfill within 10,000 ft
Railroads	Minimize construction costs	No railroads on site	Railroads within 1/8 mi	Railroads on site
Transmission lines	Minimize construction costs	No transmission lines on site	Transmission lines within 1/8 mi	Transmission lines on site
Obstructions (towers)	Comply with FAA airspace standards	No obstructions within one mi	Obstructions within one mi	-
Terrain	Minimize construction costs	Less than 1% slope	Between 1-5% slope	Greater than 5% slope

Source: THE LPA GROUP INCORPORATED.
Note: [1] *Runway buffer dimensions for nearby airports' airspace is 8,000 ft width of runway centerline and 50,000 ft beyond each runway end. See description of criteria in report. - Denotes value category is not applicable to the criterion*.

Figure 2-1 Suitable Sites



Source: Griffin – Spalding County Airport Airport Site Selection Study, LPA, 2008.

The eight candidate sites were further evaluated individually to determine the advantages and disadvantages of potential airport construction on each site. Each site was overlaid with an airfield template based on runway dimensions of 6,500 ft long by 100 ft wide with applicable runway safety areas, Runway Protection Zones, object free areas, and a parallel taxiway. Wind data was gathered from Hartsfield – Jackson Atlanta International Airport in order to determine a preferred runway orientation. Estimated noise contours were generated for each site for the year 2029. These contours were based on a conservative forecast of fleet mix and operational level similar to active business airports in the Atlanta metro area.

The preliminary evaluation of the eight sites explored all issues that could influence site selection with refined criteria. The following categories of site suitability were applied to all sites for a more in depth analysis:

- Infrastructure and land acquisition;
- Environmental considerations;
- Constructability;
- Operational capability; and
- Industrial compatibility.

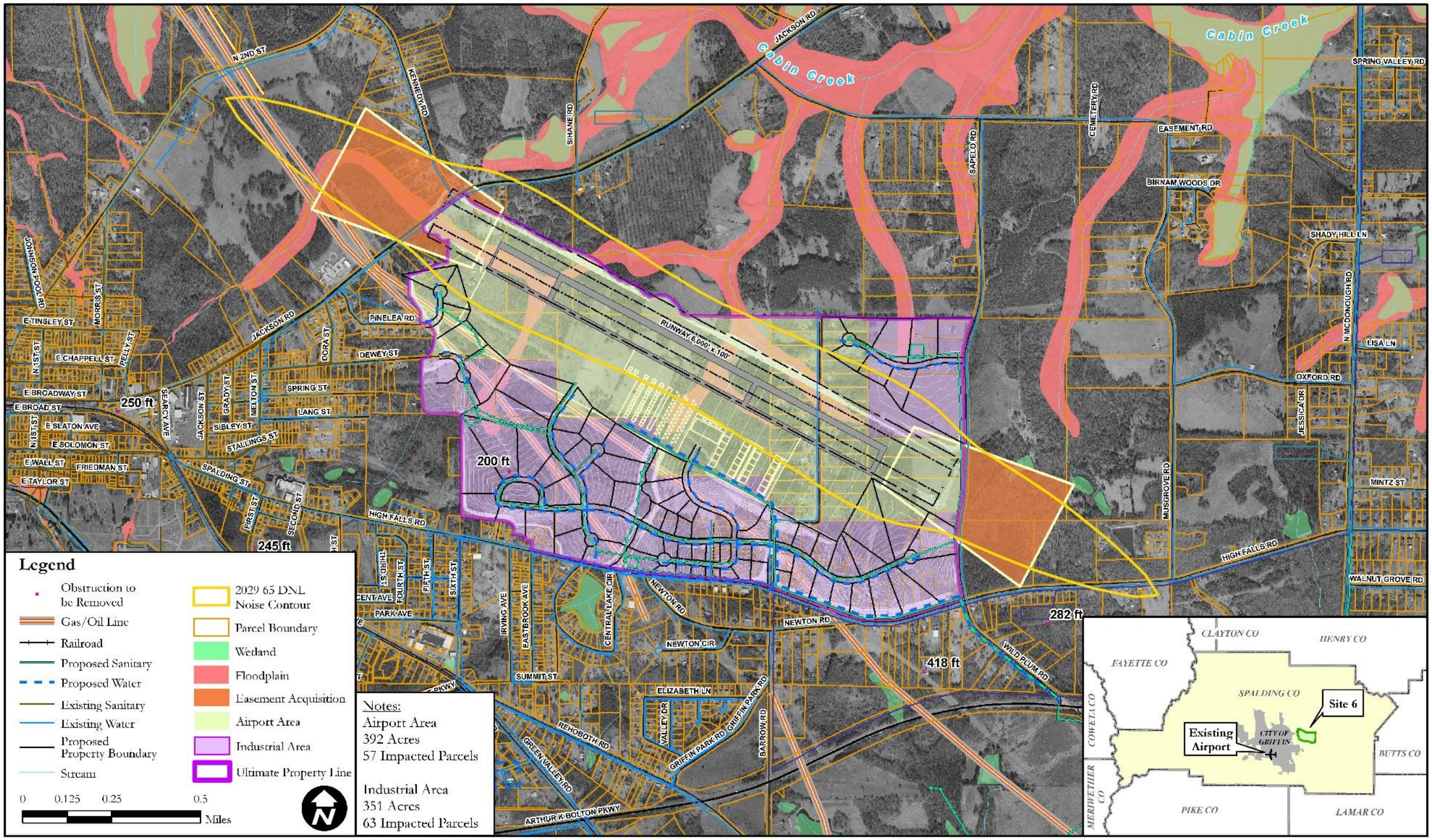
Each site was rated with a 1, 2, or 3 for each category. A rating of 1 was attributed to sites at which the criteria was not desirable. A rating of 2 was neither undesirable nor desirable. A rating of 3 was given to sites that presented the most desirable properties of the criterion.

After each site was rated in each category, sites 6 and 7 rated the highest and were brought forward for further consideration. This included a preliminary grading scheme for the airport and industrial park, utilities schematic, roadway improvements, and cost estimates. The airport template was refined based on the preliminary grading plan, potential obstructions, and potential environmental impacts.

After both sites were carefully evaluated with existing and ultimate facilities taken into consideration, site 6 was ultimately chosen as the site of the replacement Griffin – Spalding County Airport and is shown in **Figure 2-2**. An Environmental Assessment was prepared for the replacement airport and on March 11, 2013, a Finding of No Significant Impact (FONSI).Record of Decision (ROD) was issued by the FAA.

Table 2-15 summarizes the estimated cost of initial construction. These figures of cost were estimated at the time the report was written in 2008. Initial development includes a single 5,500 ft long, 100 ft wide runway with a full parallel taxiway on the south side of the runway. The runway is configured in a 120°/300° heading. Initial landside facilities will be equivalent to what is currently occupied at the existing airport. These facilities include 42 conventional hangars, 12 t-hangars, and 24 corporate hangars. Including easement acquisitions and land within the Runway Protection Zones, the site encompasses approximately 500 acres. Ultimate development includes a 500 ft runway extension to the southeast.

FIGURE 2-2
Site 6



Source: Griffin – Spalding County Airport - Airport Site Selection Study, The LPA Group Incorporated, 2008.

Table 2-15
Airport Cost Opinion - Initial Development (2008 Estimate)

	Total Cost	FAA Funds	State Funds	Local Funds
Site Selection, Environmental, Planning	$1,030,000	$978,500	-	$51,500
Land Acquisition and Relocation	$7,000,000	$6,650,000	$175,000	$175,000
Obstruction Removal	$6,000,000	$5,700,000	$150,000	$150,000
Environmental Mitigation	$3,800,000	$3,610,000	$95,000	$95,000
Construction - Airport	$38,000,000	$36,100,000	$950,000	$950,000
Construction - Facilities	$600,000	-	-	$600,000
Total Initial Airport Cost	**$56,430,000**	**$53,038,500**	**$1,370,000**	**$2,021,500**

Source: Griffin – Spalding County Airport Site Selection Study, LPA, 2008.

Chapter 3 – Aviation Forecasts

This chapter presents forecasts of aviation activity at the proposed replacement airport that will be used as the basis for facility planning throughout the planning period. Evaluation of current and forecasted aviation activity is vital in preparing an Airport Layout Plan. Forecasts are necessary to evaluate current and potential future airport facility safety and capacity requirements. In the case of the Griffin – Spalding County Airport, these forecasts are critical when planning for a new airport.

These projections of activity are presented in 5, 10 and 20-year increments, where base year data for this analysis is 2015, and the milestone planning years are 2020, 2025 and 2035. The development of forecasts include the analyses of historical activity data, previous FAA, GDOT, and socioeconomic data from the region and the state of Georgia. These data were supplemented with information obtained from airport management and FAA Airport Master Record (5010) forms to obtain a comprehensive profile of operational activities, emerging trends, and the community's vision for the airport. The elements of this forecast are:

- Based Aircraft,
- Annual Operations,
- Fleet Mix,
- Critical Aircraft, and
- Peak Period Activity.

The forecast will review socioeconomic data for the region, historical trends and forecasts at the existing airport and the overall outlook for general aviation.

3.1. Socioeconomics Profile

Socioeconomic indicators provide trends in population, per capita income, and unemployment in order to evaluate community level data. These indicators usually correlate with activity levels at airports.

3.1.1. Population

Historical population data show that the total permanent population of Georgia, including Spalding County, grew continuously and at a stable rate between 2004 and 2014. The City of Griffin saw a slight decline in population. Population growth may contribute to increased operational activity and based aircraft at 6A2 throughout the planning period, this metric cannot be conclusive in determining a direct relationship without considering specific groups of population, such as the number of pilots residing in Spalding County and the City of Griffin. However, population indicators do suggest that a ratio of activity levels to population growth can be established and do contribute to the airport's ability to support additional growth. **Table 3-1** summarizes this historical population information. These data are subsequently extrapolated throughout the planning period.

3.1.2. Per Capita Income

Per capita income levels provide a valuable assessment of the economic strength of a particular area and specifically relates to the measure of wealth among a sample of a population. Historical numbers indicate that on average, per capita personal income grew at 2.00% annually in the US. Such a figure is representative with the cost of living and Consumer Price Index (CPI) increases year-on-year. Per capita income within Georgia grew at an AAGR of 1.98% while Spalding County per capita income grew at an AAGR of 1.25%. Data was not available for the City of Griffin; however data for the Atlanta Metropolitan Statistical Area (MSA), which includes Griffin, was analyzed. Per capita for the Atlanta MSA grew at an AAGR of 1.42%. For the purposes of this study, it is projected that per capita income will continue to rise at the historical rate until 2035. **Table 3-7** provides a historical perspective of per capita income growth and extrapolated summary through 2035, as furnished by the Bureau of Economic Analysis.

Table 3-1
Historic Permanent Population

	Georgia	Spalding County	Griffin
2000	8,186,453	58,417	23,451
2001	8,314,812	58,911	23,468
2002	8,445,183	59,409	23,486
2003	8,577,598	59,911	23,503
2004	8,712,090	60,418	23,521
2005	8,848,690	60,928	23,538
2006	8,987,432	61,443	23,556
2007	9,128,350	61,963	23,573
2008	9,271,477	62,487	23,590
2009	9,416,848	63,015	23,608
2010	9,714,464	64,085	23,643
2011	9,813,201	64,118	23,538
2012	9,919,000	63,799	23,369
2013	9,994,759	63,741	23,304
2014	10,097,343	63,741	23,329
Extrapolated			
2015	10,239,716	64,111	23,322
2020	10,982,262	65,992	23,287
2025	11,778,655	67,928	23,252
2035	13,548,885	71,972	23,182
AAGR 2004-2035	**1.41%**	**0.58%**	**-0.03%**

Source: US Census Bureau, Population Estimates Program; Bureau of Economic Analysis, 2015.
Extrapolated from 2014-2035, Michael Baker International, 2015.

3.1.3. Unemployment

The rate of local and regional unemployment for the Spalding County study area has historically been above that of the average for the state of Georgia, averaging 10.44% versus the state average of 7.39%. The volatility of unemployment rates correspond to fluctuations in both the local and national economies. As presented in **Table 3-2**, Spalding County recorded decreasing unemployment rates between the years of 2005 and 2007. The effects of the Great Recession caused a notable spike in unemployment rates from 2008 to 2011. The County seemed to recover in 2011 and recorded decreasing unemployment rates from 2011 to 2014.

Projections of unemployment are particularly difficult to measure because they specifically reflect the cyclical patterns of national economic activity. In addition to typical economic trends, local influences in business patterns, taxation, and property markets affect the dynamism of employment growth. As a result, this forecast anticipates that the unemployment rate for Spalding County and the City of Griffin will continue to decrease throughout the planning period to 2035. **Table 3-3** summarizes historical and extrapolated unemployment rates for Georgia and Spalding County.

Table 3-2
Historical Income Per Capita

	Georgia	Atlanta Metropolitan Area	Spalding County	Georgia Nonmetropolitan Area
2004	31,508	35,874	25,897	23,798
2005	33,000	37,556	26,696	24,794
2006	34,408	39,186	27,623	25,413
2007	35,546	40,251	28,454	26,470
2008	35,761	39,889	28,140	27,447
2009	34,348	37,793	27,249	26,921
2010	34,341	37,493	27,417	27,056
2011	36,422	39,826	28,902	28,668
2012	37,229	40,738	28,767	29,685
2013	37,845	41,307	29,308	30,477
2014	39,097	41,894	29,673	31,240
Extrapolated				
2015	39,871	43,489	30,044	32,021
2020	43,978	45,593	31,969	36,229
2025	48,507	48,922	34,017	40,990
2035	59,014	56,331	38,517	52,470
AAGR 2004-2035	**1.98%**	**1.42%**	**1.25%**	**2.50%**

Source: Bureau of Economic Analysis, 2015.
Extrapolated from 2015-2035, Michael Baker International, 2015.

3.2. Aviation Trends

Historic and anticipated trends related to general aviation will be important considerations in developing forecasts of demand for the replacement Griffin – Spalding County Airport. The aviation industry has experienced significant changes over the last 30 years. This section will discuss national, state, and local trends of aviation.

3.2.1. National Trends

As the national economy recovers from the Great Recession, economic growth has begun to show signs of improvement. For the third year in a row, deliveries of single engine piston aircraft from manufacturers have increased. In 2014, turbojet deliveries recorded their first increase by U.S. manufacturers since 2008. Recently, lower fuel prices have resulted in optimistic projections for near term growth in general aviation activity. As the fleet grows, the FAA, in its 2015-2035 Aerospace Forecast, expects general aviation hours flown to increase 1.4% annually through 2035.

Table 3-3
Historical Unemployment Rates

	Georgia		Spalding County	
Year	**Unemployment Rate**	**Total Employment**	**Unemployment Rate**	**Total Employment**
2005	5.30%	4,344,462	7.30%	26,088
2006	5.30%	4,486,244	6.30%	26,286
2007	4.70%	4,592,346	5.60%	26,672
2008	4.60%	4,562,593	8.50%	26,522
2009	6.50%	4,317,225	14.20%	24,798
2010	10.00%	4,209,054	14.90%	24,409
2011	10.40%	4,264,914	14.00%	24,564
2012	10.10%	4,336,410	12.60%	24,638
2013	9.00%	4,358,318	11.50%	24,596
2014	8.00%	4,398,087	9.50%	25,014
Average	7.39%	N/A	10.44%	N/A
Extrapolated				
2015	7.31%	4,403,488	9.31%	25,204
2020	6.96%	4,430,592	8.42%	26,177
2025	6.62%	4,457,862	7.61%	27,186
2035	5.98%	4,512,909	6.22%	29,325
AAGR 2004-2035	**0.40%**	**0.13%**	**-0.80%**	**0.56%**

At FAA towered airports, general aviation activity (takeoffs, landings, touch and goes) decreased by 1.1% in 2014 with itinerant (non-local) activity falling 1.4%. Overall the FAA expects general aviation activity to increase modestly by 0.3% in 2015 reflecting the impact of an improving economy on flight hours and operations. For the entire forecast period, general aviation activity at towered airports is projected to increase an average of 0.4% a year, to 28.0 million operations in 2035. General aviation activity at combined FAA/contract towers grows in line with the modest increase forecast for general aviation hours already cited. Most operations at the smaller towers are in piston aircraft, while those at the largest airports tend to be turbine operations. Although a tower is not currently planned at the proposed Griffin airport, these statistics at towered airports would be similar to operations at a non towered airport like Griffin.

3.2.2 State Trends

The state of Georgia plays a vital role in supporting the general aviation industry. As of 2014, Georgia has 18,131 active FAA certificated pilots (US 546,537) according to the General Aviation Manufacturers Association (GAMA) *2014 General Aviation Statistical Databook & 2015 Industry Outlook*. The report recognized Georgia as one of the top three states in total economic output supported by general aviation. In 2013, Georgia's aerospace exports worldwide topped $7.8 billion. In terms of total jobs attributable to general aviation, Georgia has the fourth most as of 2014. With economic activity increasing, it is anticipated that there will be a correlating increase in general aviation activity as well.

3.2.2. Local Trends

Since the proposed airport does not exist, aeronautical activity at the existing Griffin-Spalding County Airport is provided. **Table 3-4** presents historical airport activity between 2004 and 2014 as provided in the FAA's Terminal Area Forecast. According to these data, total annual airport operations have declined from 32,000 annual operations in 2004 to 10,000 annual operations in 2014. Since the airport is un-towered, these datasets represent estimations of operations by the FAA. It is more likely that a change in estimation methodology is the cause of the sharp decline in airport operations. Based aircraft counts decreased from 2004 to 2012, but have since increased. Based aircraft counts are more easily accounted for and therefore should be somewhat reflective of historical trends. Note that while the FAA TAF indicates the airport has 113 based aircraft in 2014, the airport's 5010-1 indicates 110 aircraft. Another factor to consider when developing forecasts for based aircraft and operations is the proximity to competing airports as shown in **Table 3-5.**

Table 3-4
Historical Aviation Activity at Existing Griffin-Spalding Airport
(2004-2014)

	Itinerant Operations				Local Operations				
Year	**Air Taxi**	**GA**	**Military**	**Total**	**Civil**	**Military**	**Total**	**Total Ops**	**Based Aircraft**
2004	2,000	15,000	0	**17,000**	15,000	0	15,000	**32,000**	**112**
2005	2,000	15,000	0	**17,000**	15,000	0	15,000	**32,000**	**112**
2006	0	10,000	0	**10,000**	10,000	0	10,000	**20,000**	**101**
2007	0	10,000	0	**10,000**	10,000	0	10,000	**20,000**	**101**
2008	0	5,500	0	**5,500**	7,000	0	7,000	**12,500**	**93**
2009	0	5,500	0	**5,500**	7,000	0	7,000	**12,500**	**93**
2010	0	5,500	0	**5,500**	7,000	0	7,000	**12,500**	**90**
2011	0	5,500	0	**5,500**	7,000	0	7,000	**12,500**	**90**
2012	0	772	0	**772**	5,000	0	5,000	**5,772**	**83**
2013	0	772	0	**772**	5,000	0	5,000	**5,772**	**95**
2014	0	1,000	0	**1,000**	9,000	0	9,000	**10,000**	**113**

Source: FAA Terminal Area Forecast, 2015.

3.3. Aeronautical Projections

General aviation encompasses a wide variety of aviation activities and captures a broad range of aircraft types, including small, piston aircraft, large corporate jets, as well as gliders and other light aircraft. General aviation activity also captures the largest portion of the civil aircraft fleet operating in the US and accounts for the majority of operations handled by towered and non towered airports.

Table 3-5
Neighboring Airports Comparison

Airport	Based Aircraft	Runway Length (feet)	TAF Gr. Rate	Itinerant Operations: Air Carrier	Itinerant Operations: Air Taxi	Itinerant Operations: GA	Itinerant Operations: Military	Itinerant Operations: Total	Local Operations: Civil	Local Operations: Military	Local Operations: Total	Total Ops
Atlanta South Regional	93	5,500	0%	-	1,500	5,000	-	6,500	5,000	-	5,000	**11,500**
Atlanta Regional Falcon Field	136	5,768	0%	-	-	41,000	500	41,500	33,500	-	33,500	**75,000**
Newnan Coweta County	106	5,500	0%	-	-	10,000	-	10,000	40,000	-	40,000	**50,000**
Thomaston-Upson County	106	6,350	0%	-	-	6,000	-	6,000	10,000	-	10,000	**16,000**
Covington Municipal	93	5,500	0%	-	1,500	5,000	-	6,500	5,000	-	5,000	**11,500**
Paulding Northwest Atlanta Regional	16	5,505	0%	-	-	5,000	500	5,500	4,500	-	4,500	**10,000**
West Georgia Regional	77	5,503	0%	-	-	12,000	500	12,500	12,000	-	12,000	**24,500**
Average	*90*	*5,661*	0%	-	*429*	*12,000*	*214*	*12,643*	*15,714*	-	*15,714*	***28,357***
Median	*93*	*5,503*	0%	-	-	*6,000*	-	*6,500*	*10,000*	-	*10,000*	***16,000***
Griffin-Spalding County Airport	110	3,701	0%	-	-	1,000		1,000	9,000	-	9,000	**10,000**
New Griffin Spalding Airport	110	5,500	N/A	-	-	6,000	-	6,500	10,000	-	10,000	**16,000**

Source: FAA Terminal Area Forecast, 2015.

General aviation growth relies on many factors including the level of services offered at an airport, competitive pricing, airfield and FBO facilities, local area attractiveness, and pilots' perception of services. As a result, these forecasts assume that airport management, the fixed base operator, and other tenants will actively support all aviation activity and initiate the appropriate measures to either maintain or extend activity at the airport. The forecasts developed in the ALP update plan provide a framework to guide the analysis for future development needs and alternatives.

It should be recognized that there are always fluctuations in an airport's activity due to a variety of factors that cannot be anticipated. Projections of aviation activity for the replacement Griffin – Spalding County Airport were prepared for the 20-year planning horizon including the near-term (+5 Years), mid-term (+10 Years), and long-term (+20 Years) timeframes.

3.3.1. Based Aircraft by Type

According to airport records, the existing Griffin – Spalding County airport currently has 110 aircraft based at the airport. Of these, 75 are single engine piston, 29 are multi-engine piston, 2 jets, and 4 helicopters. Growth in based aircraft is dependent upon a variety of factors including local influences such as economic activity and outlook, personal disposable income growth, pilot population, and the degree of business development potential and employment in the area. Moreover, aircraft owners are also vigilant of airport fees, fuel costs, and available facilities when choosing a location to base their aircraft. At 6A2, projections of future based aircraft at the new airport were developed by considering potential factors such as brand new facilities, availability of hangar space, and increased runway length. Also considered, was the existing waiting list for hangars at 6A2. Moreover, the strength of local demand and projections of general aviation aircraft fleet growth contribute to the forecast of based aircraft at 6A2. Additionally, existing forecasts of based aircraft were consulted to determine an accurate and reliable forecast through the 20-year planning period.

In determining an accurate based aircraft projection for the replacement airport, Average Annual Growth Rates (AAGR) from forecasts for the existing airport were first analyzed. Ultimately, a composite forecast of based aircraft was determined based on projections from the FAA Aerospace Forecast, the 2003 Georgia Aviation System Plan, and reasonable projection assumptions to obtain an average annual growth rate of 1.43%. The FAA TAF forecast was discounted as a realistic means of projecting future activity since average annual growth was stagnant and incomparable to other forecasts.

The 2015 FAA Aerospace Forecast predicts an overall increase in general aviation hours flown by 1.40%. It can be assumed that this will translate into a similar increase in based aircraft. The Georgia Aviation System Plan forecasts the based aircraft at the existing airport will increase at an AAGR of 1.07%. It is anticipated that with the opening of the replacement airport, the brand new facilities will draw in based aircraft at a faster rate in the first 5 years of operation. The growth rate for the first five years is forecast to be 15%. This is expected to decrease to an AAGR of .84% for the rest of the planning period. This would equate to an overall AAGR of 1.43%.

The total number of based aircraft forecast through the planning period was further evaluated to consider the projected aircraft types expected to base at the replacement airport. Projections generally examine market conditions and demand for various aircraft types as they relate to local influences, certification mechanisms for new technologies of aircraft such as Unmanned Aerial Systems (UAS), and general increases in the pilot population. According to the FAA Aerospace Forecast estimates, the general aviation fleet will grow from an estimated 203,000 aircraft in 2015 to 225,700 in 2035. Most of this growth is driven by turbo jet and turbine rotorcraft markets. It is anticipated that the jet market will increase at an AAGR of 2.4%. Driven by these factors, the FAA Aerospace Forecast assumes that business use of general aviation aircraft will expand at a more rapid pace than that for personal/sport use. As a result, 6A2 is expected to see an increase in the number of small jet aircraft based at the airport, whereas traditional single and multi- engine piston aircraft are projected to see a slight declining share of total based aircraft growth. **Table 3-6** summarizes the results of the based aircraft forecast for the new Griffin – Spalding County Airport.

Table 3-6
Based Aircraft Forecast

	Based	Piston		Turbine		
Planning Period	**Aircraft**	**Single**	**Multi**	**Prop**	**Jet**	**Helo**
Opening Year	110	75	22	7	2	4
Near Term (+5)	127	87	26	9	3	5
Intermediate Term (+10)	135	89	27	10	3	6
Long Term (+20)	146	93	28	12	5	8

Source: Michael Baker International, 2015.

3.3.2. Aircraft Operations

Forecasts of operational activity in this study have been divided into local, itinerant, and total operations. Local operations represent aircraft whose arrivals and departures remain within the airport's traffic pattern or generally within a 20 nm radius of the airfield. Local operations are typically performed by aircraft that are based at the airfield, practice procedures, or flight training activities. Itinerant operations are those aircraft whose arrivals and departures, performed by either based or transient aircraft, but do not remain within a 20 nm radius of the airfield. Aircraft operational activity at the new airport for the 20-year planning period was conducted for general aviation activity exclusively. The preferred forecast for operational activity is based upon a combination of local economic factors in conjunction with predicted nationwide general aviation growth.

The methodology employed to determine future operational activity at the replacement Griffin – Spalding County Airport considered the AAGRs of the Georgia Aviation System Plan and the 2015 FAA Aerospace forecast. Additionally, reasonable assumptions concerning opening a new airport were considered. The annual growth rate for operations in the TAF forecast, again was stagnant and incomparable to other forecasts and discounted. The 2015 FAA Aerospace forecast predicts general aviation operations to increase at a rate of .40% and, specifically, jet operations will increase 2.40% over the next 20 years. The 2003 Georgia Aviation System Plan projects the total number of operations for 6A2 to increase 0.55% per year until 2021. Ultimately, the FAA Aerospace growth rate of .40% was chosen to determine the forecast of operations through the 20-year planning period for the replacement airport. This forecast assumes that in Year 1, the replacement airport will have 16,000 total operations, 6,000 itinerant and 10,000 local. This is based on comparisons of operations at airports nearby of similar size and the assumption that a replacement airport with modern facilities and a longer runway will attract more aircraft.

Local and itinerant operational activity forecasts were also analyzed. In 2014, local operations accounted for 87% of total operational activity at the airport while itinerant operations accounted for 13%. Due to the projected increase in business jet traffic and the opening of the replacement airport, it is projected that itinerant operations will increase to 37% of total operations by the end of the planning period, while local operations will make up 63% of total operations.

Table 3-7 provides a summary of the operational activity forecast for the replacement Griffin – Spalding County Airport in the 20-year planning period.

Table 3-7
Preferred Forecast of Operational Activity

	Itinerant Operations					**Local Operations**			
Planning Period	**Air Carrier**	**Air Taxi**	**GA**	**Military**	**Total**	**GA**	**Military**	**Total**	**Total Ops**
Opening Year	-	-	6,000	-	**6,000**	10,000	-	**10,000**	**16,000**
Near Term (+5)	-	-	7,011	-	**7,011**	11,685	-	**11,685**	**18,696**
Intermediate Term (+10)	-	-	7,152	-	**7,152**	11,921	-	**11,921**	**19,073**
Long Term (+20)	-	-	7,444	-	**7,444**	12,406	-	**12,406**	**19,850**

Source: Michael Baker International, 2015.

The total number of operations forecast through the planning period was further evaluated to consider the projected aircraft types expected to operate at the replacement airport. The aircraft mix expected to operate at the replacement airport throughout the planning period is subject to the degree of operational access each aircraft fleet type has to the Airport. Moreover, more macro-level evaluations of the national fleet expected to operate by the end of the planning period, should be emphasized as well. The airport's initial and ultimate infrastructure, most notably runway length, will support larger jet aircraft activity. **Table 3-8** provides a breakdown of operational fleet mix by aircraft type.

Table 3-8
Operational Fleet Mix Projections

	Piston		**Turbine**			
Year	**Single**	**Multi**	**Multi**	**Jet**	**Helo**	**Total**
Opening Year	10,912	3,200	1,024	288	576	16,000
Near Term (+5)	12,751	3,739	1,197	337	673	18,696
Intermediate Term (+10)	12,779	3,776	1,316	401	801	19,073
Long Term (+20)	12,744	3,851	1,628	556	1,072	19,850
AAGR Year 0-20	**0.78%**	**0.93%**	**2.34%**	**3.34%**	**3.15%**	**1.08%**

Source: Michael Baker International, 2015.

Table 3-9 provides a comparison of the ALP forecast to the TAF forecast. The preferred forecast is not within a reasonable range of the TAF because the TAF reflects operations at the current airport and projects zero growth. With the construction of a replacement airport, it is anticipated that based aircraft and operations will increase at a steady rate throughout the planning period.

Table 3-9 Comparison of Preferred Forecast and FAA TAF			
Airport Operations			
Year	**TAF**	**Preferred Forecast**	**(% Difference)**
Opening Year	10,000	16,000	60.00%
Near Term (+5)	10,000	18,696	86.96%
Intermediate Term (+10)	10,000	19,073	90.73%
Long Term (+20)	10,000	19,850	98.50%
AAGR (%) 2015-2035	**0%**	**1.08%**	
Based Aircraft			
Year	**TAF**	**Preferred Forecast**	**(% Difference)**
Opening Year	95	110	15.79%
Near Term (+5)	95	127	33.68%
Intermediate Term (+10)	95	135	42.11%
Long Term (+20)	95	146	53.68%
AAGR (%) 2015-2035	**0%**	**1.43%**	

Note: TAF reflects projections at the existing airport.
Source: Michael Baker International, 2015.

3.3.3. Critical Aircraft

A review of IFR flight data from the period of August 2014 – August 2015 indicates that the majority of the operations at the existing airport are in the A/B-I Small Aircraft AAC/ADG. This would include aircraft such as the Piper PA-28 and the Cessna 172. Further review of the IFR data indicates that there were 373 operations of B-II aircraft during the captured time period. This includes 60 small jet operations. Note that this data only includes IFR data and does not capture any VFR operations. While there are 373 IFR operations of B-II aircraft, it can be assumed that there were VFR operations by B-II aircraft that were not captured, thus the 500 operations needed to reach the critical aircraft threshold could have been achieved at the existing airport. These operations demonstrate a demand for corporate aviation in the Griffin – Spalding County area.

It is expected that the replacement airport will not only accommodate small general aviation aircraft, but also the corporate fleet that the existing airport is unable to accommodate due to facility constraints. These facility restraints at the existing airport includes a runway length of 3,701 ft. This length is long enough to accommodate 95% of small aircraft with 10 passenger seats or less; however, at least 4,900 ft is needed to accommodate 75% of the large airplane fleet at 60% useful load. The jet aircraft that are able land at the existing airport are unable to take on full fuel because of the short runway length. Additionally, the published pavement strength of the runway is 26,000 lbs single wheel and 30,000 lbs dual wheel. Aircraft heavier than the published runway strength cannot operate at max takeoff weight or max landing weight. These aircraft divert to other airports. For example, several aircraft maintenance businesses on the airport either have to travel to other airports to meet customers or they lose the business entirely. According to a survey conducted by the airport manager, these businesses travel on average 30 times a year to other airports to meet customers. Additionally, these businesses lose 30 aircraft annually to businesses based at other airports. These types of aircraft are Gulfstreams, Challengers, Citation Xs, Learjets, Falcons, and Hawkers. The airport has lost 15 businesses, 4 in the last 10 years (2007-2017) due to the short runway length and lack of apron space. If these constraints did not exist, the airport would have accommodated more operations from larger turbines and jet aircraft.

Due to the historical IFR data of the existing airport and the demonstrated need for corporate aviation, it is anticipated that on opening day of the replacement airport, the ARC will be B-II. According to the based aircraft fleet mix forecast, there will be seven turbine aircraft and two jets based at the replacement airport in the first year. This increases to nine turbines and three jets by the end of the first five years. There are currently three Beechcraft King Airs (B-II aircraft) based at the existing airport. At least two of these aircraft have confirmed they intend to relocate to the new airport. The operations fleet mix forecast predicts that there will be 1,024 operations by turbine aircraft and 288 operations by jet aircraft in the first year for a total of 1,312 operations. This increases to 1,197 annual turbine operations and 337 annual jet operations by the end of the first five years for a total of 1,534 operations. Turbine and jet aircraft typically fall into the AAC-B and ADG-I/II categories. Based on the demonstrated need for corporate aviation in the Griffin – Spalding County area, the facility constraints of the existing airport, and the fleet mix forecasts, there is sufficient justification to reasonably assume there will be at least 500 annual operations by AAC-B and ADG-II aircraft within the first five years the new airport is operational.

IFR data from several surrounding airports, including Atlanta Regional Airport (FFC), Newnan – Coweta County Airport (CCO), and Thomaston – Upson County Airport (OPN), were analyzed to compile a list of the most common B-II aircraft operating in the area. This grouping of B-II aircraft includes the Beechcraft King Air 200, Cessna Citation CJ3, and the Cessna Citation Ultra. The CJ3 was chosen as the initial critical aircraft for the replacement airport because it is the most demanding and better represents the corporate B-II aircraft fleet. The same method was used to determine the ultimate critical aircraft. According to the preferred forecasts, annual jet operations will increase to over 500 within the planning period. The most common C-II jet aircraft operating in the area are the Bombardier Challenger 600 and the Gulfstream 280. The Challenger 600 was chosen as the ultimate critical aircraft as it is one of the more common and demanding aircraft in the C-II aircraft fleet. Once the airport becomes operational, the airport owner should monitor C-II operations and adjust the critical aircraft as necessary.

3.3.4. Peak Period Activity

Annual operations forecasts generally provide a good overview of the activity at an airport but may not be representative of operational characteristics at that facility. Peak forecasts are developed based on the fact that the annual demand at an airport is typically not equally distributed throughout the entire year and that certain periods are busier than others. Peak forecasts are developed for the peak month, the average day in the peak month (ADPM), and the peak hour.

IFR data from FAA indicates there is a peak period of operations at 6A2 during the summer months, specifically in the month of May. In the past five years, operations in the peak month have accounted for as high as 12 percent of total operations for the year. It is expected that this peaking characteristic will continue at the new airport throughout the planning period.

ADPM is defined as the average day within the peak month and is equal to the peak month operations divided by 30. The peak hour usually will range between 10 and 15 percent of the ADPM. Based on the preferred operations forecast, a figure of 10 percent was used to estimate peak hour operations.

Table 3-10 summarizes the peak period activity forecasts for operations at the new Griffin – Spalding County Airport.

Table 3-10
Peak Activity Forecasts

Year	Annual Operations	Peak Month Operations	Average Day Operations	Design Hour Operations
Opening Year	16,000	1,920	64	6
Near Term (+5)	18,696	2,244	75	7
Intermediate Term (+10)	19,073	2,289	76	8
Long Term (+20)	19,850	2,382	79	8

Source: Michael Baker International, 2015.

Chapter 4 – Facility Requirements

The principal challenge facing the Griffin – Spalding County Airport Authority is to construct a replacement airport that meets projected demand, is safe and efficient, and meets all applicable federal and state standards. Airport development is often costly so it is important to ensure that the initial airport development will accommodate demand and meet standards.

This facility requirements analysis evaluates existing airfield and landside facilities relative to the level of demand projected in Chapter 3, *Forecasts of Aviation Activity*, in order to determine the ability of the airport to meet the initial and future requirements of the airport. The airport facilities evaluated in this chapter include runway, taxiways, aids to navigation, as well as the terminal facilities, hangars, and aircraft parking aprons.

These facility requirements are derived from the aviation forecasts and are subject to change based on actual demand.

4.1 Design Standards

The standards set forth by the FAA for the planning and design of airports are published in FAA AC 15/5300-13A, *Airport Design,* and are utilized in the evaluation of facility requirements for the new airport. It is important to review these design requirements, as they influence much of the planning efforts for the airport. A key element in defining facility needs is establishing development guidelines that are directly associated with the size and type of aircraft activity the airport is expected to serve, as discussed below.

4.1.1 Critical Aircraft

The critical aircraft of the airport is designated for facility planning and design purposes. This critical aircraft is usually the most demanding aircraft using the airport in terms of aircraft approach speed, wingspan, tail height, and/or weight. It is important to note the aircraft defining the critical wingspan for design purposes may not be the critical aircraft defining the runway load bearing capability (pavement strength). As determined in Chapter 3, the initial and ultimate critical aircraft for the replacement Griffin – Spalding County Airport are the Cessna Citation CJ3 and the Bombardier Challenger 600, respectively.

4.1.2 Lowest Approach Visibility Minimums

The visibility minima for instrument approaches are based on the type of approach, as well as the height of objects in the vicinity of the airport that could be considered obstructions to the approach. A visibility minimum is the minimum visual distance a pilot must have when flying a published instrument approach to a runway. Pilots desire to have lower approach minimums to access the airport during more weather conditions. Approach visibility minimums to a runway have a significant effect on runway design standards and related infrastructure. The lower the visibility minima, the more demanding airport design standards are.

In order to safely and efficiently serve the forecasted demand of the new airport, it is recommended that initially, Runway 30 has a precision ILS approach with ½ sm visibility and Runway 12 has a non-precision

GPS approach with 1 sm visibility with an ultimate visibility of ¾ sm. During the ALP Development process, Runway 30 was selected as the preferred runway end to provide an ILS approach based on the following factors:

- Prevailing wind,
- Site constraints and land use compatibility,
- Initial FAA Airspace Feasibility Study, and
- Regional airspace compatibility.

Prevailing Wind. Since no weather station is available at the proposed airport site, weather data from surrounding airports was analyzed to determine if the proposed runway alignment of 120/130 degrees compass heading would adequately support the minimum crosswind component of 95% (combined for both runway ends). Using wind data from the closest weather station, Griffin-Spalding County Airport, the combined 13 knot crosswind coverage for the proposed runway alignment is 99.71%. Individually, using the Griffin data, Runway 12 would provide 94.64% crosswind coverage and Runway 30 would provide 93.69% crosswind coverage. A difference of 0.95%. At the current Griffin Airport, the airport reports that Runway 32 is utilized approximately 70% of the time by current aircraft operations.

The Griffin wind data are only available for a period of 2013 to 2016. Since the recommended 10 years of data was unavailable, wind data from surrounding airports (ATL, FFC, OPN) was combined with these data to create the official ALP wind rose. Below are individual wind rose data of nearby airports. It should be noted that using ATL wind data coverage percentages are significantly different than other nearby airports and heavily influences the combined results for Runway 30 wind coverage.

6A2 IFR Wind – 13 Kts
Runway 12 – 94.64%
Runway 30 – 93.69%
Runway 12/30 – 99.71%

ATL IFR Wind – 13 Kts
Runway 12 – 83.17%
Runway 30 – 64.49%****
Runway 12/30 – 96.67%

FFC IFR Wind – 13 Kts
Runway 12 – 92.60%
Runway 30 – 87.42%
Runway 12/30 – 99.73%

OPN IFR Wind – 13 Kts
Runway 12 – 93.54%
Runway 30 – 92.68%
Runway 12/30 – 99.07%

****64.49% at ATL for Runway 30 is significantly different than results at other nearby airports.

Site Constraints and Land Use Compatibility. In order to follow FAA land use compatibility guidelines for RPZ protection, the size and location of RPZs were evaluated during development of the proposed airport layout. During this evaluation, priority was given to avoiding residential land uses within the RPZs and to avoid crossing of major roads. If a precision approach were implemented to Runway 12 rather than Runway 30, the size of the proposed Runway 12 RPZ would expand by 29.936 acres, would cross busy Jackson Road and would require the acquisition of 12.544 residential acres west of Jackson Road. By implementing a precision approach to Runway 30, these impacts to incompatible land uses (congregations of people and RPZ over busy road) can be avoided.

Initial FAA Airspace Feasibility Study - On May 13, 2016, the FAA prepared an initial feasibility report for potential instrument approaches to the proposed airport. In that report, the FAA stated that an existing tower (identified on the ALP Airspace Drawing as obstacle #13-022407) would interfere with the Missed Approach Surface for approaches to Runway 12 if not mitigated. The FAA states that the obstacle "cannot be avoided through approach design." While this obstacle also impacts lowest possible descent minimums to Runway 30, the approach to Runway 30 is still feasible. Currently the obstacle is under consideration for mitigation but the outcome is yet to be determined. A copy of the FAA feasibility report is included in **Appendix A**.

Regional Airspace Compatibility – Existing precision approaches to vicinity airports were evaluated. FFC, CCO, and OPN all have ILS approaches in a western flow similar to what is proposed at the new airport. Should the airport implement a precision approach to Runway 12 instead, the final approach course would be in eastern flow and could creating conflicting IFR traffic to these nearby airports. Most concerning would be the proximity of Runway 31 ILS final approach course at Peachtree City Falcon Field (FFC).

4.1.3 Runway Design Code, Runway Reference Code, and Airport Reference Code

Runway Design Code

Once the critical aircraft have been determined, the RDC (Runway Design Code) is established based on specific characteristics of the aircraft. Each runway at an airport has its own RDC. The RDC signifies the design standards to which the runway is to be built and is identified using an alphanumeric designation. The first component, depicted by a letter is the AAC (Aircraft Approach Category) and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the ADG (Aircraft Design Group) and relates to either the aircraft wingspan or tail height, whichever is most restrictive, of the largest aircraft expected to operate on the runway and taxiways adjacent to the runway. The third component relates to the visibility minimums expressed by Runway Visual Range (RVR) values. The visibility minimums for instrument approaches are based on the type of approach, as well as the height of objects in the vicinity of the airport that could be considered obstructions to the approach. A visibility minimum is the minimum visual distance a pilot must have when flying a published instrument approach to a runway. Pilots desire to have lower approach minimums to access the airport during inclement weather conditions. Approach visibility minimums to a runway have a significant effect on runway design standards and related infrastructure. The lower the visibility minimums, the more demanding airport design standards are.

Based on the characteristics of the initial and ultimate critical aircraft and initial and ultimate flight visibility, the initial RDC for Runway 12 is B-II-5000 and the ultimate RDC for Runway 12 is C-II-4000. The initial RDC for Runway 30 is B-II-2400 and the ultimate is C-II-2400.

Runway Reference Code

The Runway Reference Code (RRC) is a code signifying the current operational capabilities of each specific runway end and adjacent taxiways where no special operating procedures are necessary. In contrast, the RDC is based on planned development and has no operational application. RRC is split into Approach and Departure Reference Codes (APRC and DPRC). A runway end may have more than one RRC depending on the minimums available. APRC and DPRC may change over time as improvements are made to the runway, taxiways, and NAVAIDS.

The APRC signifies the current operational capabilities of a runway and associated parallel taxiway with regard to landing operations. Like the RDC, the APRC is composed of three components: AAC, ADG, and visibility minimums. **Figure 4-1** displays Table 3-7 from AC 150/5300-13A which summarizes the relationship between runway to taxiway separation and APRC. Generally, as the minimums are decreased, more aircraft are limited from operating on the runway without restrictions.

FIGURE 4-1

Table 3-7. Approach Reference Code (APRC)

Visibility Minimums	Runway to Taxiway Separation (ft)									
	≥150	≥200	≥225	≥240	≥250	≥300	≥350	≥400	≥500	≥550
Visual	B/I(S)/VIS	B/I(S)/VIS	B/I/VIS	B/II/VIS	B/II/VIS	B/III/VIS D/II/VIS	B/III/VIS	D/IV/VIS D/V/VIS	D/VI/VIS	D/VI/VIS
Not lower than 1 mile	B/I(S)/5000	B/I(S)/5000	B/I/5000	B/II/5000	B/II/5000	B/III/5000 D/II/5000	B/III/5000	D/IV/5000 D/V/5000	D/VI/5000	D/VI/5000
Not lower than 3/4 mile	B/I(S)/4000	B/I(S)/4000	B/I/4000	B/II/4000	B/II/4000	B/III/4000 D/II/4000	B/III/4000	D/IV/4000 D/V/4000	D/VI/4000	D/VI/4000
Lower than 3/4 mile but not lower than 1/2 mile		B/I(S)/2400	B/I/4000 B/I(S)/2400	B/II/4000	B/I/2400	B/III/4000 [1] D/II/4000 B/II/2400	B/III/2400	D/IV/2400 D/V/2400	D/VI/2400	D/VI/2400
Lower than 1/2 mile								D/V/2400 D/IV/1600	D/VI/2400 D/V/1600	D/VI/1600

Source: AC 150/5300-13A.

Based on the table above, the APRC depends on the visibility minimums and the runway to taxiway separation. With a separation of 400 feet and visibility minimums of 1 mile, the applicable initial APRC for Runway 12 is D/V/5000, meaning that aircraft up to AAC D and ADG V may operate on the runway without any operation restrictions. The ultimate APRC for Runway 12 is D/V/4000. The initial and ultimate APRC for Runway 30 is D/V/2400.

The DPRC represents those aircraft that can take off from a runway while any aircraft are present on adjacent taxiways, under particular meteorological conditions with no special operational procedures necessary. **Figure 4-2** displays Table 3-8 from AC 150/5300-13A which summarizes the minimum runway to taxiway separation for each DPRC.

FIGURE 4-2

Table 3-8. Departure Reference Code (DPRC)

Runway to Taxiway Separation (ft)					
≥ 150	≥ 225	≥ 240	≥ 300	≥ 400	≥ 500
B/I(S)	B/I	B/II	B/III D/II	D/IV D/V [1]	D/VI [2]

Source: AC 150/5300-13A.

Based on the table above with a runway to taxiway separation of 400 feet, the proposed airport's initial and future DPRC is D/V.

The ARC (Airport Reference Code) signifies the airport's highest RDC minus the third (visibility) component. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport. Since the proposed airport will have only one runway, the initial ARC is B-II and the ultimate ARC is C-II.

Table 4-1 summarizes the critical design components of the new airport. The following sections will discuss the applicable design standards related to each component.

Table 4-1
New Airport Design Components

Initial		
	Runway 12	Runway 30
Critical Aircraft	Cessna Citation CJ3	
Approach	Non-Precision	Precision
Visibility	1 sm	1/2 sm
RDC	B/II-5000	B/II-2400
APRC	D/V-5000	D/V-2400
DPRC	D/V	D/V
ARC	B-II	
Ultimate		
Critical Aircraft	Bombardier Challenger 600	
Approach	Non-Precision	Precision
Visibility	3/4 sm	1/2 sm
RDC	C/II-4000	C/II-2400
APRC	D/V-4000	D/V-2400
DPRC	D/V	D/V
ARC	C-II	

Source: Michael Baker International, 2015.

4.2 Georgia Aviation System Plan Recommendations

The Georgia Aviation System Plan categorizes Georgia's public use airports into 3 roles. Specific facility and service objectives are identified for each role. The existing Griffin – Spalding County Airport is considered a Level II airport – a business airport of local impact. To adequately satisfy anticipated demand at the replacement airport, it is recommended that Level III objectives be considered. These objectives are summarized in **Table 4-2** and will be analyzed in the following sections.

Table 4-2
Georgia Aviation System Plan - Level III Airport Objectives

Airside Facilities	**Recommended Goal**
Runway Length	5,500 ft
Runway Width	100 ft
Taxiways	Full Parallel
Lighting Systems	HIRL and MITL
Approach	Precision
NAVAIDS/Visual Aids	Rotating beacon, segmented circle and wind cone, PAPI's, and other aids as required for precision approaches
Weather Reporting	AWOS or ASOS
Ground Communications	Public telephone, GCO
Airfield Signage	Runway hold position signs, location and guidance signs
Fencing	Entire Airport
General Aviation Facilities	**Recommended Goal**
Hangared Aircraft Storage	70% of based aircraft fleet
Apron Parking/Storage	30% of based aircraft plus an additional 75% for transient aircraft
Terminal Administration	2,500 sf minimum with public restrooms, conference area, and pilots' lounge
Auto Parking	One space for each based aircraft plus an additional 50% for visitors/employees
Services	**Recommended Goal**
Fuel	100LL and Jet-A
FBO	Full Service
Maintenance	Full Service
Rental Cars	Available

Source: Georgia Aviation System Plan, 2003.

4.3 Airside Facility Requirements

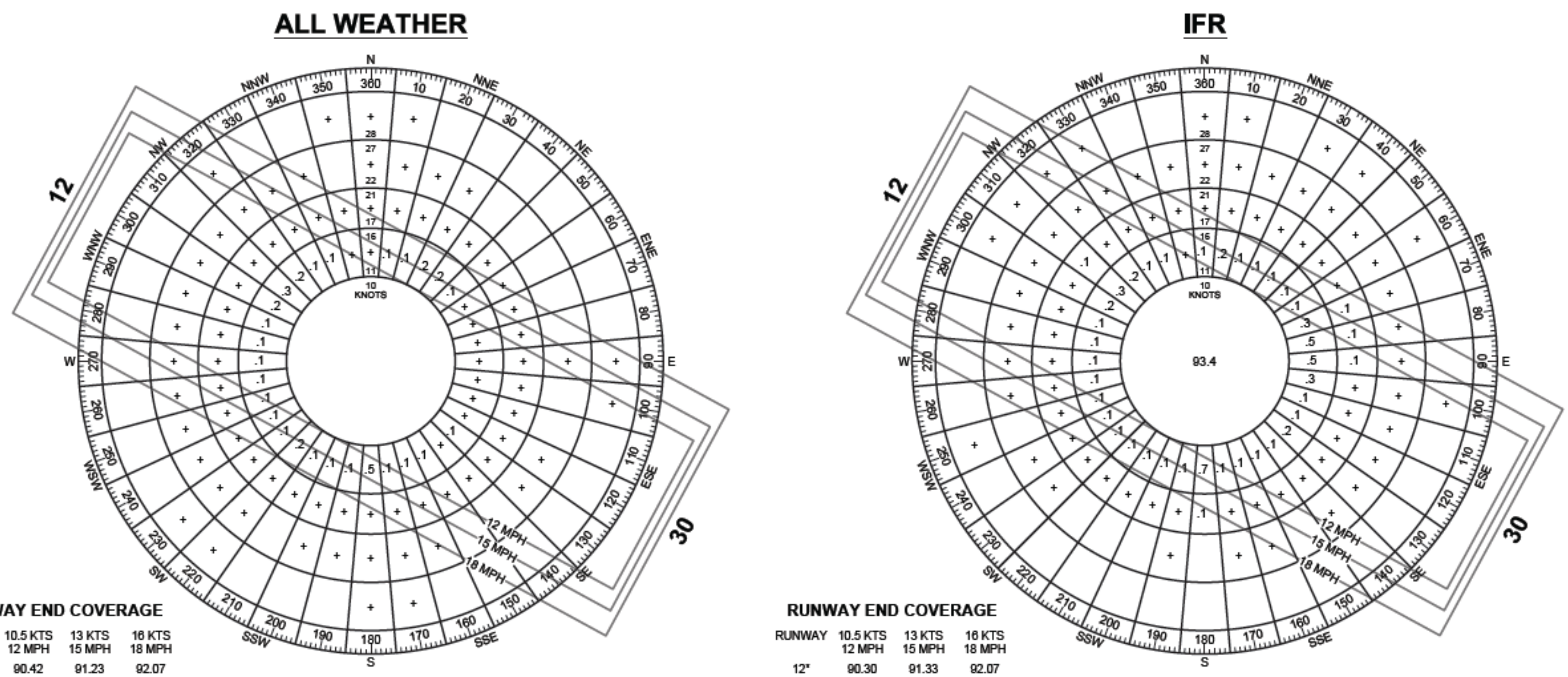
4.3.1 Runway Orientation

Historical wind conditions were evaluated during the previous Site Selection Study to determine the preferred runway orientation. Ample wind coverage of the runway is important because aircraft takeoff and land into the wind, and extensive crosswinds are not conducive to safe or optimum flight operations. The FAA Advisory Circular (AC) 150/5300-13A, *Airport Design,* recommends that 95% wind coverage across runways be achieved.

The 95% wind coverage is computed based on the crosswind not exceeding 10.5 knots (kts) (12 miles per hour (mph)) for the aircraft designed for airport reference codes (ARC) of A-I and B-I; 13 kts (15 mph) for ARCs A-II and B-II; 16 kts (18 mph) for ARCs A-III, B-III, C-I through D-III; and 20 kts (23 mph) for ARCs A-IV through D-VI; these values are termed the aircraft crosswind component. If 95% wind coverage is not provided at an airport for the maximum crosswind component of the critical aircraft, then the addition of a crosswind runway should be considered.

The FAA suggests that a period of at least 10 consecutive years of onsite wind data should be examined when evaluating airfield wind coverage. Combined wind data from four surrounding airports (6A2, ATL, FFC, OPN) were obtained from the National Oceanic and Atmosphere Administration's National Climatic Data Center over the period 2006-2015. Existing 6A2 data were not used alone due to lack of sufficient data over ten years. Wind coverage percentages take into account the approach and visibility minimums associated with each runway. Wind coverage is only included for the crosswind speed that corresponds to the approach category and airplane design group that would utilize that runway. In the case of the replacement airport, the ultimate ARC is C-II; therefore, 10.5 knots (kts), 13 kts, and 16 kts crosswind components were analyzed. A review of prevailing winds determined that the preferred runway orientation is 12-30. The data show that for each crosswind component, Runway 12-30 provides the FAA's requisite 95% wind coverage under all weather and Instrument Meteorological Conditions (IMC) conditions. The results of the wind analysis are shown in **Figure 4-3**.

FIGURE 4-3



ALL WEATHER

RUNWAY END COVERAGE

RUNWAY	10.5 KTS 12 MPH	13 KTS 15 MPH	16 KTS 18 MPH
12*	90.42	91.23	92.07
30*	92.91	93.56	94.30
12-30	97.92	98.88	99.84

* BASED ON A 5 KT TAILWIND

SOURCE: NATIONAL CLIMATIC DATA CENTER
LOCATION: COMBINATION GRIFFIN-SPALDING COUNTY AIRPORT, ATLANTA INTL AIRPORT, ATLANTA REGIONAL AIRPORT-FALCON FIELD & THOMASTON-UPSON COUNTY AIRPORT
PERIOD: 2006 - 2015 OBSERVATIONS: 461,534

IFR

RUNWAY END COVERAGE

RUNWAY	10.5 KTS 12 MPH	13 KTS 15 MPH	16 KTS 18 MPH
12*	90.30	91.33	92.07
30*	85.36	85.84	86.31
12-30	97.61	98.82	99.72

* BASED ON A 5 KT TAILWIND

SOURCE: NATIONAL CLIMATIC DATA CENTER
LOCATION: COMBINATION GRIFFIN-SPALDING COUNTY AIRPORT, ATLANTA INTL AIRPORT, ATLANTA REGIONAL AIRPORT-FALCON FIELD & THOMASTON-UPSON COUNTY AIRPORT
PERIOD: 2006 - 2015 OBSERVATIONS: 461,534
LOW VISIBILITY: CEILING LESS THAN 1000' BUT GREATER THAN OR EQUAL TO 200' AND/OR VISIBILITY LESS THAN 3 MILES BUT GREATER THAN OR EQUAL TO 0.5 MILE.

Source: Michael Baker International, 2015.

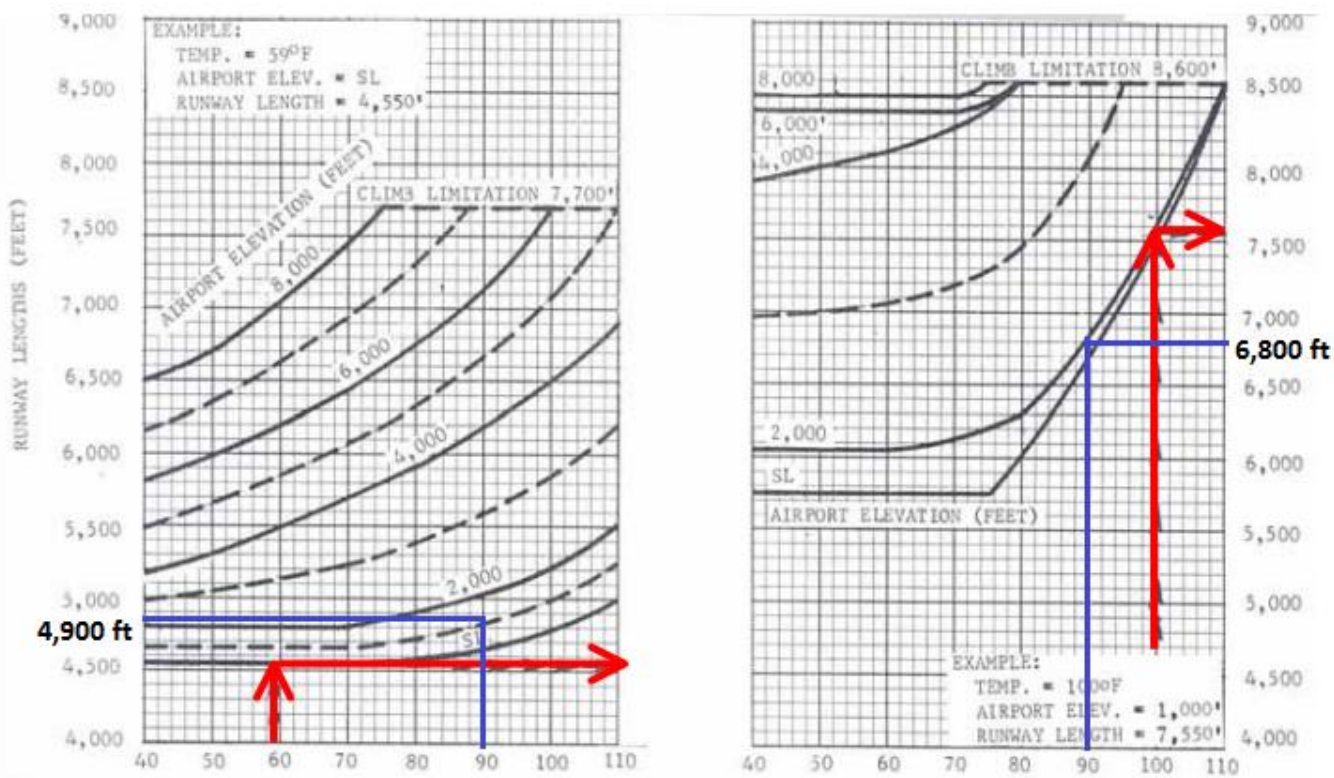
4.3.2 Runway Length

The runway length analysis completed in Chapter 2 for the existing airport is applicable to the replacement airport since the parameters, airport elevation and mean daily maximum temperature are similar or the same. The replacement airport is 100 ft lower in elevation than the existing airport. This would not affect the results. The temperature is the same, 90° F. The analysis was completed per the requirements of FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design.*

After obtaining all information required for the critical aircraft to be evaluated, the guidance indicates that one of the two figures (Figure 3-1 and Figure 3-2 of the AC) for the large aircraft under 60,000 lbs category be applied for the entire group of airplanes under evaluation. The AC also states, "To determine which of the two figures to apply, first use tables 3-1 and 3-2 to determine which one of the two "percentage of fleet" categories represents the critical design airplanes under evaluation." The initial critical aircraft, the CJ3 falls within the 75 percent fleet, thus Figure 3-1 from the AC applies. The ultimate critical aircraft, the Challenger 600 falls within the 100 percent fleet, thus Figure 3-2 from the AC applies (refer to Tables 3-1 and 3-2 of the AC). It is appropriate to apply both figures in the analysis because the runway length requirements are different in the initial and ultimate airport configurations. Within these two figures, the 90 percent useful load graphs were chosen as the most appropriate based on haul lengths and service needs of the critical aircraft. The results are shown below in **Figures 4-4** and **4-5** and summarized in **Table 4-3**.

FIGURE 4-4

Figure 3-1. 75 Percent of Fleet at 60 or 90 Percent Useful Load

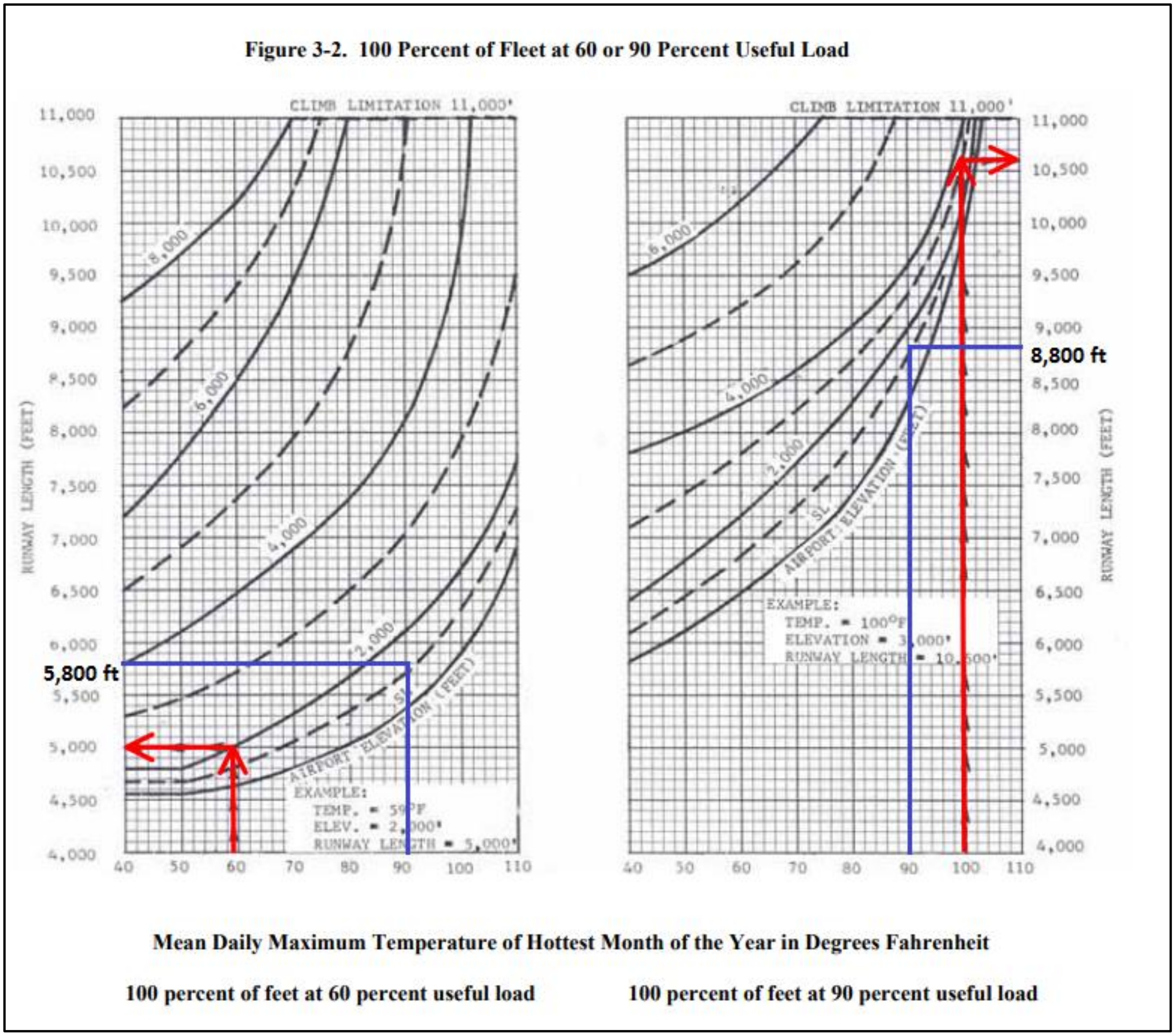


Mean Daily Maximum Temperature of Hottest Month of the Year in Degrees Fahrenheit

75 percent of feet at 60 percent useful load **75 percent of feet at 90 percent useful load**

Sources: FAA AC 150/5325-4B; Michael Baker International, 2015.

FIGURE 4-5



Sources: FAA AC 150/5325-4B; Michael Baker International, 2015.

Table 4-3 Runway Length Requirements	
Airport Data	
Airport Elevation	958 ft msl
Mean daily maximum temperature of the hottest month	90° F
Aircraft Criteria	**Length (ft)**
Small airplanes (with less than 10 passenger seats)	
95 percent of fleet	3,400
100 percent of fleet	4,000
Small airplanes (with 10 or more passenger seats)	4,400
Large airplanes of 60,000 pounds or less	
75 percent of fleet at 90 percent useful load	6,800
100 percent of fleet at 90 percent useful load	8,800

Source: Michael Baker International, 2015.

The results indicate that to accommodate 75 percent of the large airplane fleet at 90 percent useful load, 6,800 ft of runway is required. To accommodate 100% of the large airplane fleet at 90% useful load, 5 8,800 ft of runway is required. Based on these results and initial planning efforts with GDOT, it is recommended that the initial runway length is 5,500 ft. The sponsor should monitor jet traffic throughout the planning period and consider ultimately extending the runway to 6,000 ft in the future.

4.3.3 Runway Width

FAA standards for B-II runways with ½ sm visibility require a width of 100 ft. All C-II runways require a width of 100 feet. Since it is anticipated that on opening day Runway 30 will have a visibility of ½ sm and that the airport's ARC will change to C-II within the planning period, the initial and ultimate runway width is 100 ft.

4.3.4 Runway Blast Pads

Unprotected soils adjacent to runways and taxiways are susceptible to erosion due to jet blast. Paved shoulders and blast pads are required for runways accommodating ADG-IV and higher aircraft, and are recommended for airport pavements accommodating ADG-III aircraft. It is recommended that the replacement airport construct blast pads due to the forecasted jet traffic.

4.3.5 Pavement Design

Airfield pavements are constructed to provide adequate support for the loads imposed by aircraft using the airport as well as resisting the abrasive action of traffic and deterioration from adverse weather conditions and other influences. They are designed not only to withstand the loads of the heaviest aircraft expected to use the airport, but they must also be able to withstand the repetitive loadings of the entire range of aircraft expected to use the pavement over many years. Proper pavement strength design represents the most economical solution for long-term aviation needs.

Posted pavement strength is based on fleet mix and frequency and not just the maximum takeoff weight of the critical aircraft.

To conduct an analysis of pavement design, the ultimate operational fleet mix projections from **Table 3-8** were utilized based on a 20-year design life, typical for airport pavements. The primary tool utilized to evaluate pavement design is the FAA computer software, FAARFIELD- Airport Pavement Design, V1.41, dated March 8, 2017. The results of this analysis are provided in **Appendix B**. Input parameters within the software vary based upon annual departures for each aircraft expected to comprise the airport fleet mix. The pavement was designed for a 60,000 lb dual wheel aircraft.

Based on the results of this analysis, the recommended pavement section to support the Challenger 600 as the critical aircraft is 4-inches of P-401 Asphalt and 12-inches of P-209 Graded Aggregate Base. This pavement section could support occasional operations by heavier aircraft, such as the Gulfstream 550.Should the airport construct the runway utilizing a rigid pavement section (concrete), the minimum requirements would be 7 inches of P-501 Portland Cement Concrete and 6 inches of P-209 Graded Aggregate Base.

To determine recommended posted Pavement Classification Number (PCN) and pavement strength according to landing gear configuration, FAA software COMFAA 3.0 was utilized. The results of this analysis are also found **Appendix B**. Based upon the recommended pavement design results, the Aircraft Classification Number-Pavement Classification Number (ACN-PCN) would be 14/F/C/X/T and the recommend posted pavement strength would be 39,000 lbs for Single Wheel aircraft and 57,000 lbs for Dual Wheel aircraft.

4.3.6 Runway Line of Site

The runway line of sight requirements facilitate coordination among aircraft, and between aircraft and vehicles that are operating on active runways. This allows departing and arriving aircraft to verify the location and actions of other aircraft and vehicles on the ground that could create a conflict.

For runways with a full parallel taxiway, any point 5 feet (1.5 m) above the runway centerline must be mutually visible with any other point 5 feet (1.5 m) above the runway centerline that is located at a distance that is less than one half the length of the runway. The new runway will be built to meet the line of site requirements.

4.3.7 Runway Safety Area/Object Free Area Standards

The runway safety and object free standards are presented in **Table 4-4.** To be cost effective during the initial construction phase, portions of the runway safety area will be built to C-II standards.

Table 4-4 Runway Safety Area/Object Free Area Standards		
	B-II	C-II
Runway Safety Area (RSA)		
Length beyond runway end	300 ft	1000 ft
Length prior to threshold	300 ft	600 ft
Width	150 ft	500 ft
Runway Object Free Area (ROFA)		
Length beyond runway end	300 ft	1000 ft
Length prior to threshold	300 ft	600 ft
Width	500 ft	800 ft
Runway Obstacle Free Zone (ROFZ)		
Length	200 ft	200 ft
Width	400 ft	400 ft
Precision Obstacle Free Zone (POFZ)		
Length	200 ft	200 ft
Width	800 ft	800 ft

Source: FAA AC 150/5300-13A

4.3.8 Runway Separation Standards

The runway separation standards are presented in **Table 4-5.** To be as efficient as possible and satisfy future growth, the airport will be built to C-II standards during the initial construction phase.

Table 4-5 Runway Separation Standards	
AAC/ADG - C-II	
Separation Standard	**Approach Visibility**
	< ¾ sm
Runway Centerline to Parallel Taxiway Centerline	400 ft
Runway Centerline to Aircraft Parking	500 ft
Runway Centerline to Aircraft Holding Position	250 ft

Source: FAA AC 150/5300-13A

4.3.9 Runway Protection Zones

The RPZ standards are presented in **Table 4-6.** The RPZ function is to enhance the protection of people and property on the ground. Where practical, airport owners should own the property under the runway approach and departure areas to at least the limits of the RPZ. It is desirable to clear the entire RPZ of all above ground objects. Where this is impractical, airport owners, at a minimum, should maintain the

RPZ clear of all facilities supporting incompatible land activities. See FAA Memorandum, Interim Guidance on Land Uses Within a Runway Protection Zone, dated 9/27/2012, for guidance on incompatible activities. The initial and ultimate RPZs for Runway 12 and 30 are recommended to be owned majority in fee simple.

Table 4-6
RPZ Dimensions

Visibility Minima	Length	Inner Width	Outer Width
ARC B-II			
Not Lower Than 1 Mile (Initial Runway 12)	1,000 ft	500 ft	700 ft
Lower Than ¾ Mile (Initial Runway 30)	2,500 ft	1,000 ft	1,750 ft
ARC C-II			
Not Lower Than ¾ Mile (Ultimate Runway 12)	1,700 ft	1,000 ft	1,510 ft
Lower Than ¾ Mile (Ultimate Runway 30)	2,500 ft	1,000 ft	1,750 ft

Source: FAA AC 150/5300-13A

4.3.10 Taxiway Requirements

Taxiway facilities at an airport are established to enhance the safety and efficiency of the airfield. Taxiways feed airport operations from the terminal and hangar area to the runways. Taxiways minimize runway occupancy time by promoting quick entry and exit from the primary runway. Taxiway width is based on Taxiway Design Group (TDG). The replacement airport's initial critical aircraft, the Citation CJ3 and the future critical aircraft, the Challenger 600 are in TDG-2. TDG-2 requires taxiways to be 35 feet wide. The taxiway system will be built at a width of 35 ft. This width will accommodate the initial and future critical aircraft.

4.3.11 Aids to Navigation, Lighting, and Marking

Aids to navigation (NAVAIDS) are important to pilots in navigating to and from the airport. NAVAIDS supporting the replacement airport will include electronic, satellite, and visual navigation aids. The initial visual aids will include a rotating beacon, wind cone, and PAPIs. A Medium Intensity Approach Lighting System with Runway Alignment indicator Lights (MALSR) will be installed initially. Electronic aids include the Instrument Landing System (ILS) consisting of the Localizer (LOC) and Glide Slope (GS). Satellite aids include the GPS and WAAS-based LPV approaches.

The runway and taxiway will be equipped with High Intensity Runway Lighting (HIRL) and Medium Intensity Taxiway Lighting (MITL), respectively. The runway will be marked with precision approach runway markings.

4.3.12 FAA Part 77 Requirements

FAR Part 77, *Objects Affecting Navigable Airspace,* describes the applicable airspace which should be clear of objects for safety of aircraft operating near an airport. The airspace required to be clear becomes more stringent as the instrument approach criteria become more demanding. **Table 4-7** presents the comparison of FAR Part 77 standards.

Table 4-7
FAR Part 77 Imaginary Surface Dimension Requirements

	Approach Type			
	Visual	**Non precision (vis >3/4 sm)**	**Non precision (vis <=3/4 sm)**	**Precision**
Primary Surface Width	500 ft	500 ft	1,000 ft	1,000 ft
Horizontal Surface Radius	5,000 ft	10,000 ft	10,000 ft	10,000 ft
Approach Surface Width at End	1,500	3,500 ft	4,000 ft	16,000 ft
Approach Surface Length	5,000 ft	10,000 ft	10,000 ft	10,000 ft; 40,000 ft
Approach Slope	20:1	34:1	34:1	50:1; 40:1

Source: Federal Aviation Regulations Part 77.

4.4 Landside Requirements

4.4.1 Aircraft Storage Facilities

This section describes the storage facilities recommended for the replacement airport. These recommendations are based on the aviation forecasts and are subject to change based on actual demand. During the relocation process, it will take some time to establish exact size and dimensions of landside facilities.

Airport planning standards suggest providing hangars for a minimum of 80% of based aircraft. **Table 4-8** presents the minimum suggested hangar spaces for the forecasted based aircraft. **Table 4-9** presents the suggested minimum of initial and ultimate hangar storage facilities based on the forecasted fleet mix. The airport should provide at least 86 hangar spaces in the opening year and at least 117 spaces by the end of the planning period. Exact number of hangars required and total square footage needed will be dependent upon the individual requirements of airport tenants.

Table 4-8 Hangar Requirements		
Year	**Based Aircraft**	**Minimum Hangar Requirement**
Opening Year	110	86
Near Term (+5)	127	102
Intermediate Term (+10)	135	108
Long Term (+20)	146	117

Source: Michael Baker International, 2015.

Table 4-9 Aircraft Storage Facilities			
Initial Hangar Facilities	Square Footage	Ultimate Hangar Facilities	Square Footage
100x150 (2)	30,000 sf	50x50 (20)	50,000 sf
50x50 (10)	25,000 sf	60x60 (20)	72,000 sf
60x60 (10)	36,000 sf	10 Unit T-Hangar (6)	120,000 sf
10 Unit T-Hangar (6)	120,000 sf		
28 Hangars	**211,000 sf**	**46 Hangars**	**242,000 sf**

Source: Michael Baker International, 2015.

4.4.2 Airport Business Facilities

In addition to the minimum requirements for aircraft storage, the following business services and their associated facilities are at the existing Griffin-Spalding Airport and would be expected to relocate to the replacement airport:

- Fuel sales and fixed base operator services,
- turbine repair and maintenance,
- avionics shop,
- paint shop,
- piston repair and maintenance,
- aircraft interior shop, and
- air medical transport.

Fuel sales and fixed base operator services are currently managed and forecasted to be managed at the airport terminal building however the current airport does not have hangar space for overnight storage of itinerant aircraft. This service should be available at the replacement airport on opening day.

The turbine repair facility at the current airport operates out of an 8,800 sf and a 4,800 sf hangar. The owner of this facility has stated in interviews that more space is required if they are going to grow the business. Additionally runway length at the existing airport coupled with the size of his hangars limits the size of the aircraft they can work on. The longer runway at the replacement airport will increase the size of the aircraft capable of the using the airport further necessitating the need for a larger hangar and additional ramp space for the business.

There are two avionics shops located at the current airport. Both of these businesses operate out of 6,400 sf hangars and both have expressed the need for larger hangars and additional ramp space.

The aircraft painting facility at the current airport operates out of a 6,500 sf and a 4,950 sf hangar. The owner of this facility has stated in interviews that more space is required if they are going to grow the business. Additionally runway length at the existing airport coupled with the size of his hangars limits the size of the aircraft they can work on. The longer runway at the replacement airport will increase the size of the aircraft capable of the using the airport further necessitating the need for a larger hangar and additional ramp space for the business.

The piston maintenance facility at the current airport struggles to operate out of a 4,800 sf hangar. The owner has expressed the need for a minimum of 10,000 sf hangar and an appropriate amount of ramp space.

The aircraft interior shop at the current airport operates subleases approximately 3,600 sf from another airport tenant. Additionally this shop has no dedicated ramp space. To operate their customers must park the aircraft at nearby airports and employees of the shop must travel to the aircraft's location to perform the work.

At the current airport, a provider of air medical transport operates out of a 7,100 sf hangar with a 1,200 sf maintenance area. They sublet both of these facilities from another airport tenant. They describe their current hangar space as marginally sufficient and their maintenance area as insufficient. They frequently have to take their aircraft to their facilities at neighboring airports for all but the most basic maintenance needs. The operator has expressed interest in having their own 12,000 sf hangar with associated office space at the replacement airport. The additional space would enable them to accomplish major maintenance at their Griffin facility.

Table 4-10 summarizes the initial and ultimate minimum hangar facilities required to accommodate airport businesses. To ensure success the replacement airport must be able to accommodate all of these businesses on opening day.

Table 4-10
Aircraft Businesses Storage Facilities

Initial Hangar Facilities	Square Footage	Ultimate Hangar Facilities	Square Footage
100x200 (4)	80,000 sf	100x200 (3)	60,000 sf
100x150 (2)	30,000 sf	100x150 (2)	30,000 sf
100x100 (1)	10,000 sf	100x100 (1)	10,000 sf
7 Hangars	**120,000 sf**	**6 Hangars**	**100,000 sf**

Source: Michael Baker International, 2015.

4.4.3 Aprons

Terminal and itinerant aprons should be constructed in a location that promotes safety and efficient ingress and egress for aircraft from taxiways and taxilanes. The apron should provide a sufficient parking area outside the required object free areas and setback requirements. Aprons can generally be divided into three types: transient parking aprons, based parking aprons, hangar aprons, and aircraft maintenance aprons. Based on the aviation forecasts, it is recommended that the apron in front of the terminal building serve both based and itinerant aircraft. Planning standards recommend that general aviation aprons serving ADG-2 aircraft be constructed at a depth of at least 360 ft to provide sufficient tie-down spaces and provide the required separation distances from the runway, taxiway, and taxilanes. The number of tie-downs required for based and itinerant aircraft is discussed below.

Approximately 80% of based aircraft will be stored in hangars with the remainder being stored on apron tie-downs. **Table 4-11** presents the minimum recommended amount of tie-down spaces for based aircraft. These tie-down spaces should be sized for ADG-1 aircraft (single and multi-engine piston), or 360 square yards (sy) per space.

Table 4-11
Based Aircraft Tie-Down Requirements

Year	Based Aircraft	Minimum Requirement
Opening Year	110	24
Near Term (+5)	127	25
Intermediate Term (+10)	135	27
Long Term (+20)	146	29

Source: Michael Baker International, 2015.

Additionally, tie-downs are needed for itinerant aircraft for the purposes of daily parking and longer-term periods that can extend overnight. The following method is employed in calculating the number of aircraft that will require itinerant aircraft parking spaces:

- Determine the average day number of itinerant operations,
- Convert the itinerant operations to the number of arrival aircraft by dividing by two,
- Divide the number of aircraft performing itinerant operations by two to account for the fact that some itinerant operations are performed by based aircraft, and
- Assume that no more than 50 percent of the resulting daily transient aircraft operations will require storage at any one period of time.

Table 4-12 displays the results of this analysis for the proposed airport.

TABLE 4-12 Itinerant Tie-Down Requirements						
	Average Day Ops	**Percent Transient**	**Itinerant Operations**	**Arrival Aircraft**	**Non-based Itinerant**	**Tie-Downs Required**
Opening Year	64	37.50%	24	12	6	3
Near Term (+5)	75	37.50%	28	14	7	4
Intermediate Term (+10)	76	37.50%	29	14	7	4
Long Term (+20)	79	37.50%	30	15	7	4

Source: Michael Baker International, 2015.

Table 4-13 summarizes the minimum amount of tie-down spaces that the replacement airport should provide.

TABLE 4-13 Minimum Tie-Down Requirements Summary			
	Tie-Downs Required for Based Aircraft	**Tie-Downs Required for Itinerant Aircraft**	**Total Tie-Downs Required**
Opening Year	24	3	27
Near Term (+5)	25	4	29
Intermediate Term (+10)	27	4	31
Long Term (+20)	29	4	33

Source: Michael Baker International, 2015.

Note, Table 4-12 summarizes the minimum recommended amount of tie-down spaces. In order to address the uncertainty associated with predicting long-term demand at a replacement airport and to support the business activities of based operators, additional tie-downs should be considered to preserve the airport's ability to accommodate user needs.

The terminal apron should be built to accommodate based and transient aircraft with at least 33 tie-down spaces and at a depth of at least 360 ft to provide the required separation distances from the runway, taxiway, and taxilanes. As discussed above, 29 tie-down spaces will serve based aircraft and 4 tie-down spaces will serve itinerant aircraft. Three of the itinerant tie-down spaces will be sized to accommodate large turbine and jet aircraft. Based on the number of tie-downs, an apron depth of 558 ft is needed to provide the required taxilane object free area and taxilane separations. If additional apron is needed in the future, an area for future development will be shown on the ALP drawings.

Hangar aprons should provide enough space to park the largest aircraft that can fit in the hangar outside the hangar on the apron and be clear of all OFAs and not interfere with the possible expansion or construction of other airfield facilities. The construction of hangar aprons at a replacement airport presents additional design considerations.

The current Griffin-Spalding County Airport has numerous aviation businesses conducting maintenance activities. All of these business intend to move to the Griffin-Spalding County replacement airport and they should be accommodated, as required by their lease agreements, at their current as well as their anticipated levels of activity. During multiple interviews with the business owners we have found that runway length and lack of ramp space are the two biggest challenges of doing business at the existing airport. Although they work together they state that the current ramp is insufficient to fulfil all of their needs. Therefore, a large daily-fee common ramp area is requested in the maintenance area of the airport. In a survey conducted by the airport manager, three of the existing maintenance businesses requested 60,000 sf total of hangar space. This corresponds to 150,000 sf of apron space, or 2.5 times the amount of hangar space. An initial apron of 189,750 sf is shown in the maintenance area to accommodate existing airport businesses. To accommodate future business levels, apron areas of 187,250 sf and 133,400 sf are shown as ultimate development. Additionally, a helicopter apron area is recommended to accommodate helicopter businesses at the current airport. It is recommended that a 71,463 sf apron area with three helicopter parking spaces be provided.

4.4.4 Fuel Storage

A 100LL and Jet-A fuel farm is proposed to be constructed on the southwest corner of the terminal apron. The proposed location would contribute to efficient traffic flow.

4.4.5 Terminal Facilities

Based on the recommendations by the Georgia Aviation System Plan for Level II airports, the terminal building will provide at least 2,500 sf with public restrooms, conference areas, pilots' lounge, weather reporting stations, and flight planning.

4.4.6 Ground Access and Parking

According to the Georgia Aviation System Plan, the parking area should be sufficient to accommodate the owners of based aircraft, plus additional spaces for airport employees and visitors to the terminal building. The amount of spaces planned is sufficient to accommodate based aircraft, airport employees, and visitors.

4.5 Summary

According to facility requirements analysis, the new Griffin – Spalding County Airport plans to meet all B-II and C-II airside standards. Landside areas of the replacement airport would meet safety standards for taxilanes and apron circulation areas and would provide sufficient hangar and tie-down space. The proposed airside and landside facilities are summarized in **Table 4-14** and **4-15.**

These facility requirements will contribute to a more efficient operational environment for future users, and will be applied to development concepts in Chapter 5, *Concept Development,* in order to determine physical layout and constructability.

TABLE 4-14 New Griffin-Spalding County Airport Proposed Facilities Matrix					
AIRSIDE					
		RUNWAY 12		**RUNWAY 30**	
		INITIAL	**ULTIMATE**	**INITIAL**	**ULTIMATE**
RUNWAY DESIGN CODE (RDC)		B-II-5000	C-II-4000	B-II-2400	C-II-2400
RUNWAY REFERENCE CODE (RRC)					
APPROACH REFERENCE CODE (APRC)		D-V-5000	D-V-4000	D-V-2400	D-V-2400
DEPARTURE REFERENCE CODE (DPRC)		D-V	SAME	D-V	SAME
AIRPORT REFERENCE CODE (ARC)		B-II	C-II	B-II	C-II
PAVEMENT TYPE		ASPHALT	SAME	ASPHALT	SAME
PAVEMENT STRENGTH	SINGLE WHEEL	39,000	SAME	39,000	SAME
	DUAL WHEEL	57,000	SAME	57,000	SAME
	DUAL TANDEM	N/A	N/A	N/A	N/A
RUNWAY LENGTH		5,500'	6,000'	5,500'	6,000'
RUNWAY WIDTH		100'	SAME	100'	SAME
RUNWAY SAFETY AREA		1,000 x 500	SAME	1,000 X 500	SAME
RUNWAY LIGHTING		HIRL	SAME	HIRL	SAME
RUNWAY PROTECTION ZONE (RPZ)					
LENGTH		1,000'	1,700'	2,500'	2,500'
INNER WIDTH		500'	1,000'	1,000'	1,000'
OUTER WIDTH		700'	1,510'	1,750'	1,750'
RUNWAY MARKINGS		NON-PRECISION	SAME	PRECISION	SAME
PART 77 APPROACH CATEGORY		NON-PRECISION	SAME	PRECISION	SAME
APPROACH TYPE		C	SAME	PIR	SAME
VISIBILITY MINIMUMS		1 MILE	3/4 MILE	1/2 MILE	SAME
ROFA		500' X 300'	800' X 1,000'	500' X 300'	800' X 1,000'
OFZ		200 X 400	SAME	200 X 400	SAME
POFZ		N/A	N/A	200' X 800'	SAME
VISUAL AND INSTRUMENT NAVAIDS		PAPI-2, GPS	SAME	PAPI-2, LOC, GS, GPS, MALSR	SAME
TAXIWAY DESIGN GROUP (TDG)		TDG-2	SAME	TDG-2	SAME
TAXIWAY WIDTH		35'	SAME	35'	SAME
TAXIWAY LIGHTING		MITL	SAME	MITL	SAME

Source: Michael Baker International, 2015.

TABLE 4-15
New Griffin-Spalding County Airport Proposed Facilities Matrix

LANDSIDE				
	OPENING YEAR	**SHORT TERM**	**INTERMEDIATE TERM**	**LONG TERM**
HANGAR REQUIREMENTS	86	102	108	117
RECOMMENDED STORAGE FACILITIES	100' X 150' (2)		50' x 50' (20)	
	50' X 50' (10)		60' x 60' (20)	
	60' X 60' (10)		10 Unit T-Hangar (6)	
	10 Unit T-Hangar (6)			
AIRPORT BUSINESS FACILITIES	100' X 200' (4)		100' X 200' (3)	
	100' X 150' (2)		100' X 150' (2)	
	100' X 100' (1)		100' X 100' (1)	
TIE-DOWN REQUIREMENTS				
BASED AIRCRAFT TIE-DOWN REQUIREMENTS	24	25	27	29
ITINERANT TIE-DOWN REQUIREMENTS	3	4	4	4

Source: Michael Baker International, 2015.

Chapter 5 - Concept Development and Airport Layout Plan

The purpose of this section of the report is to propose feasible airport development configurations that would enable the new Griffin – Spalding County Airport to meet its needs as outlined in previous sections and enhance safety and satisfy projected demand.

5.1. Concept Development

5.1.1. Airside Development

Airspace

Aerial photogrammetry was collected on October 22, 2014 for the proposed airport site and adjacent areas. Applicable Part 77 and threshold siting surfaces were evaluated to determine future approach clearing requirements. Additionally, obstructions from FAA's Digital Obstacle File were obtained and evaluated. These obstructions were analyzed to help determine the exact location of the runway ends. During development of the preferred airfield layout, multiple obstruction analyses were performed as the runway ends were moved to their current optimum alignment. The final results of these analyses are provided in **Appendix C**.

Runway 12-30

The aviation forecast and facility requirements chapters recommend a minimum initial runway length of 5,500 ft. This length is needed to accommodate present demand at the current airport and future demand at the replacement airport. Analysis was conducted to determine the location of the runway based on wind requirements, airspace, and current conditions of the airport site.

In 2012, the FAA published a memorandum issuing interim guidance on land uses within an RPZ. The guidance emphasized the importance of achieving owner control of RPZ land to protect people and property on the ground. The FAA recognizes that a sponsor may not fully be able to control land within the RPZ, but expects the sponsor to take all possible measures to protect against and remove or mitigate incompatible land uses. This interim guidance only affects new or modified land uses in RPZs. The guidance outlines the process the sponsor must take if a new land use is introduced. In the case of the proposed airport, when the runway is constructed new RPZs would be introduced, thus triggering the FAA review process.

In order to minimize the impacts of the new RPZs, an RPZ alternative analysis was conducted. The runway was rotated enough on the northwest side so that only a corner of the initial Runway 12 RPZ is impacted by Jackson Road. The various RPZ alternatives considered are depicted in **Figures 5-1** to **5-4**. Following the completion of the RPZ alternatives analysis, obstruction were analyzed and the preferred alignment selection. However, later in the ALP development, the selected alignment was shifted north and rotating count-clockwise in order to provide additional clearance from a gas line found along the southern boundary of the proposed airport property. Obstructions were then reanalyzed for the rotated alignment.

Figure 5-1 – RPZ Alternative 1

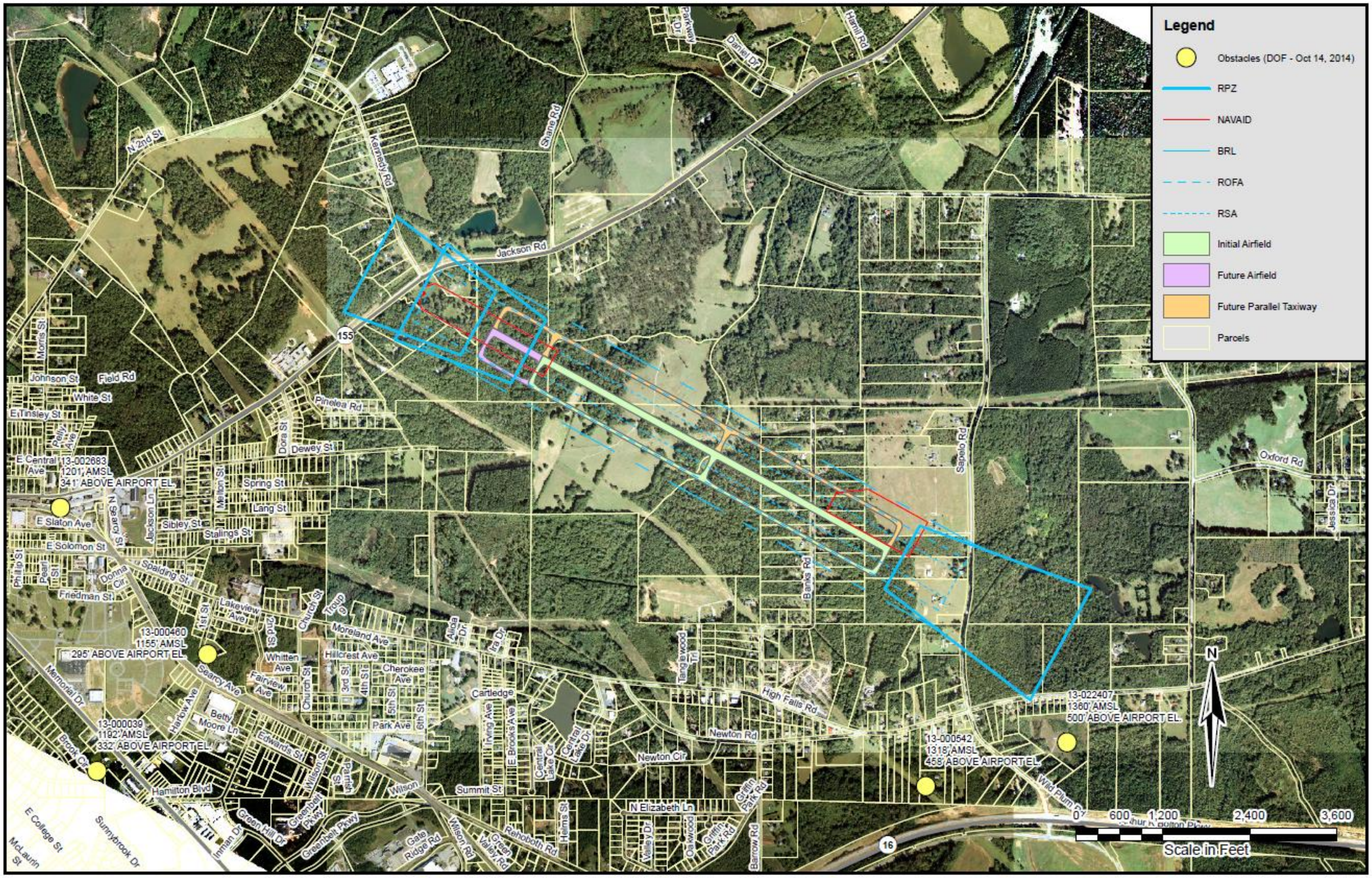


Figure 5-2 RPZ Alternative 2

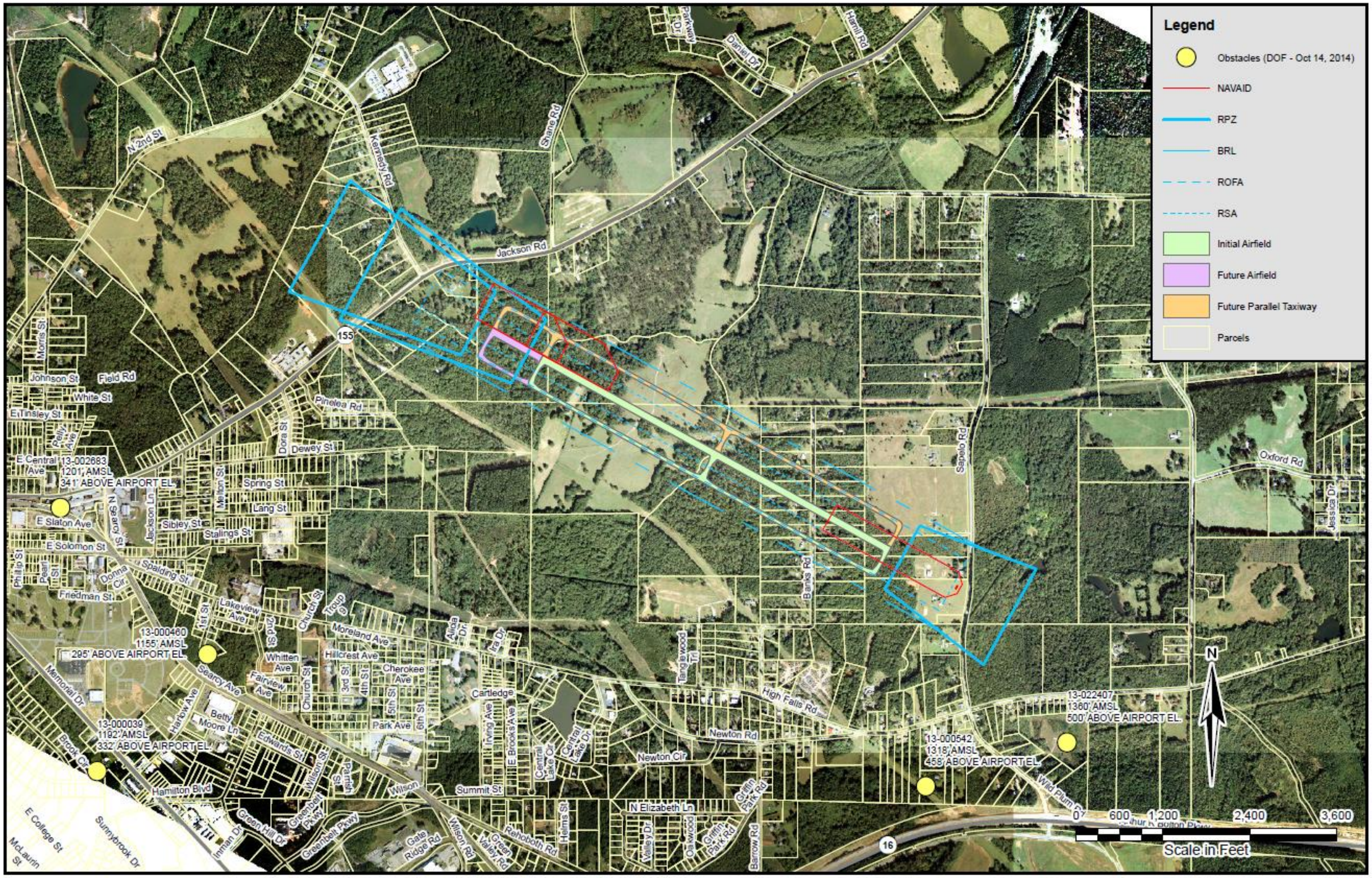


Figure 5-3 RPZ - Alternative

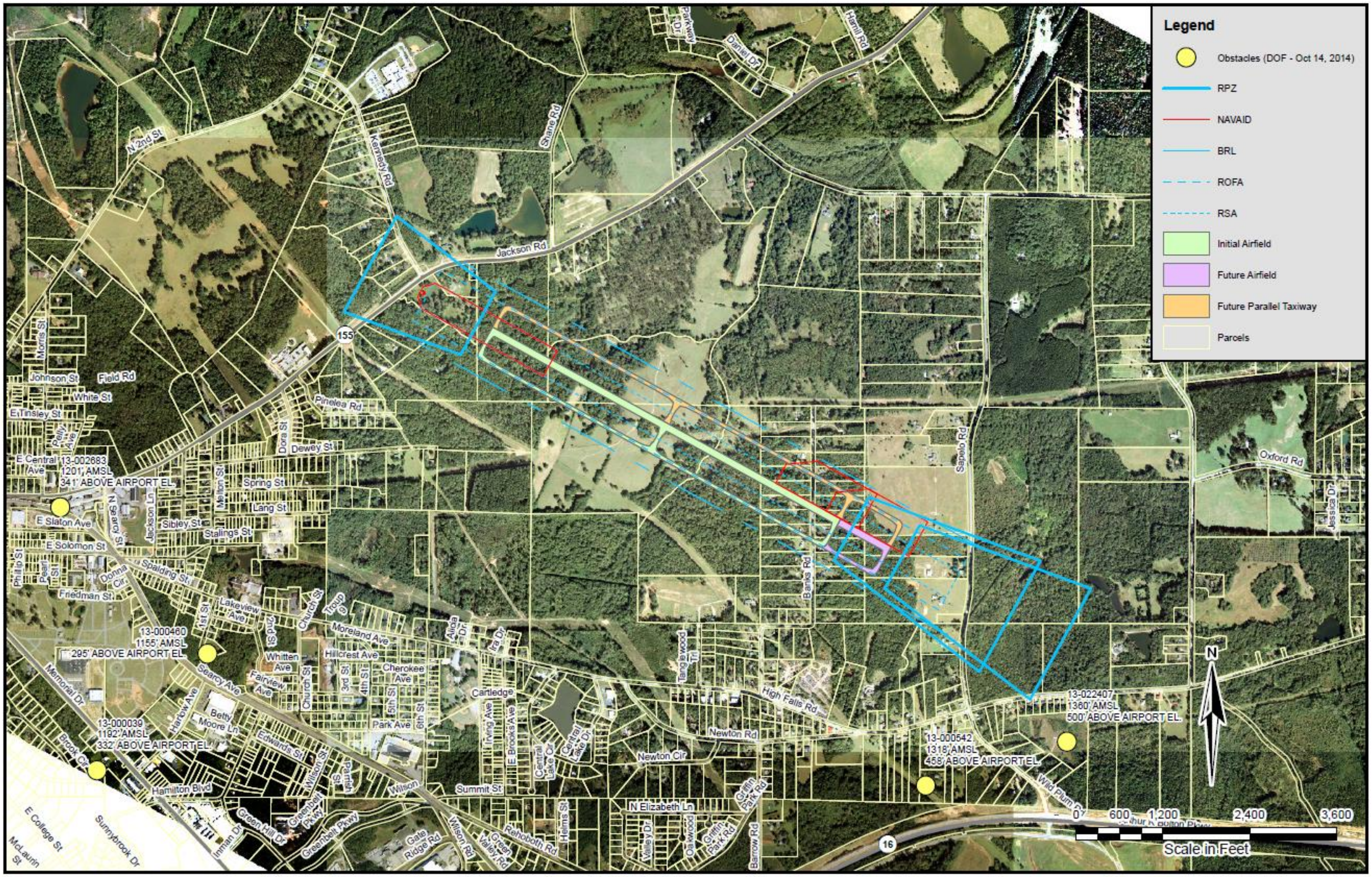
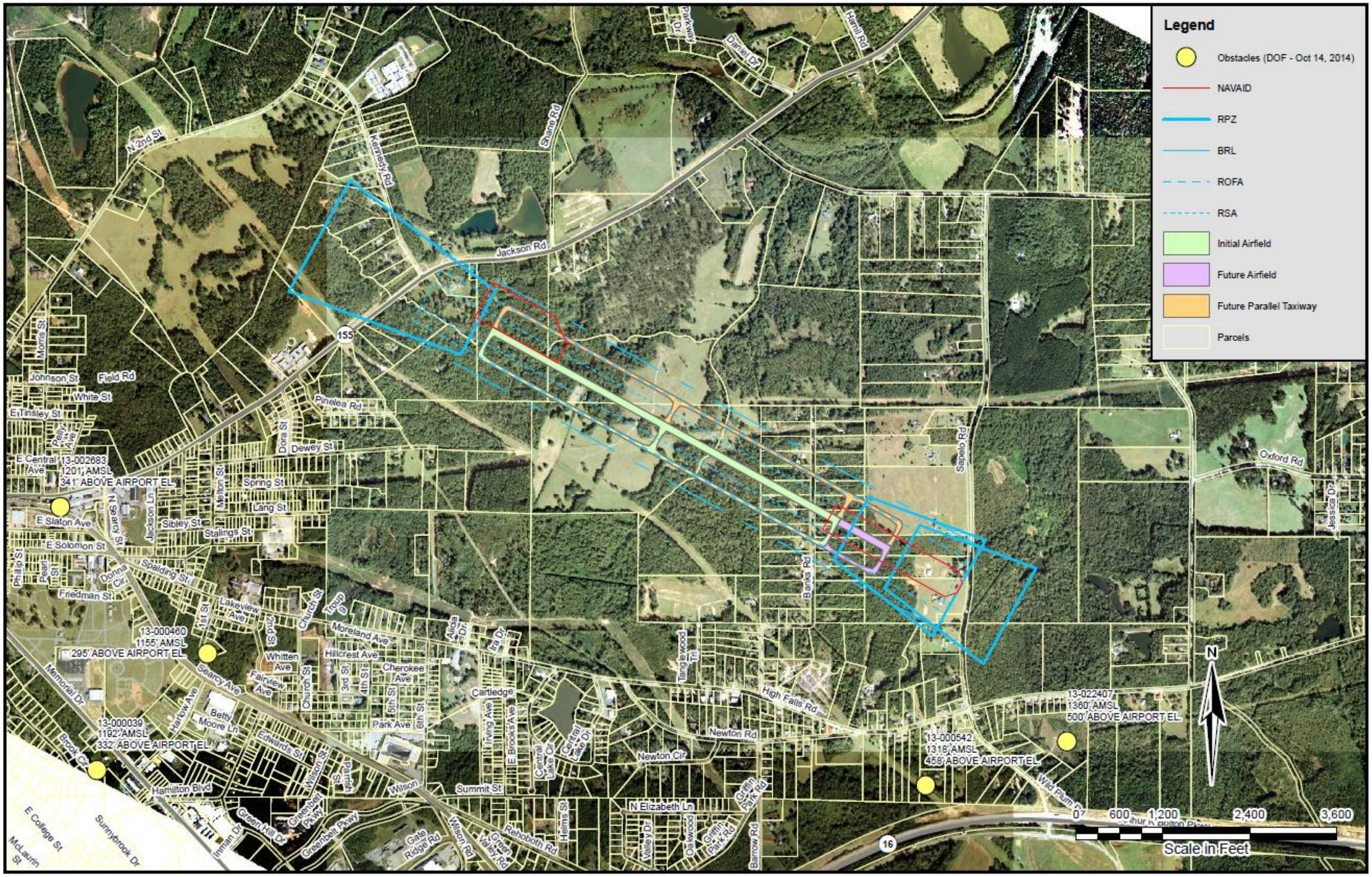


Figure 5-4 RPZ Alternative 4



Because of the location of Sapelo Road to the Runway 30 end, the road must be relocated. It is not anticipated that the relocated road will become airport property. The exact design of the road relocation is not known at this time; however, the new road location should allow for a sufficient RSA and ROFA, a MALSR approach lighting system, improved Part 77 and Threshold Siting surfaces, and minimal RPZ impacts to local roads

Taxiway

A full parallel taxiway will be constructed on the southwest side of Runway 12-30. Locating the initial taxiway on the northeast side of the runway was evaluated, but the concept was ruled out because of terminal area considerations. A southwest taxiway will provide better conditions for the future terminal area and associated surface access. A full parallel taxiway allows for lower approach minimums, better access, and increased safety. The runway centerline to parallel taxiway centerline separation will be 400 ft. This will further improve safety and reduce approach minimums.

NAVAIDS

NAVAIDS supporting the new airport will include electronic, satellite, and visual navigation aids. The initial visual aids will include a rotating beacon, wind cone, PAPIs, and MALSR. Electronic aids include the Instrument Landing System (ILS) consisting of the Localizer (LOC) and Glide Slope (GS). Satellite aids include the GPS and WAAS-based LPV approaches.

The runway and taxiway will be equipped with High Intensity Runway Lighting (HIRL) and Medium Intensity Taxiway Lighting (MITL), respectively. Runway 30 will be marked with precision approach runway markings and Runway 12 with nonprecision markings.

Discussion related to the selection of Runway 30 to support the ILS instrument approach is provided in section **4.1.2**.

5.1.2. Landside Development

Aircraft Storage Facilities

The initial storage facility requirement analysis indicates approximately 28 hangars are necessary at opening day for based aircraft storage and an additional 7 hangars are necessary for airport businesses. Ultimate, the airport may require an additional 46 hangars for aircraft storage.

As the sponsor negotiates with existing tenants, it is expected that the layout and number of hangars initially constructed could change. As the ALP is a planning document, it will be updated to reflect actual demand.

Tie-Downs and Aprons

The airport should provide at least 33 tie-down spaces. This includes 29 spaces for based aircraft and 4 spaces for itinerant aircraft. This is the minimum planning requirement. Three different apron areas are shown on the airport layout plan drawings. These include the terminal area apron, the maintenance apron, and the helicopter apron. The terminal apron should be built to a depth of 558 ft to meet OFA and taxiway/taxilane separation standards. An initial apron of 189,750 sf is shown in the maintenance area to accommodate existing airport businesses. To accommodate future business levels, apron areas of 187,250 sf and 133,400 sf are shown as ultimate development. Additionally, a helicopter apron area is recommended to accommodate helicopter businesses at the current airport. It is recommended that a 71,463 sf apron area with three helicopter parking spaces be provided.

Access Road

Analysis of existing road conditions and the proposed initial terminal layout, the airport access road will begin at the south end of the existing Sapelo Road and High Falls Road. The initial access road will provide efficient access to the terminal building, corporate hangar area, and t-hangar area. Ultimately, the airport entrance road will be relocated to provide additional landside capacity.

Airport Grading

Based upon the proposed airport footprint for the initial and ultimate airport layout, an initial grading analysis was prepared. This analysis considered several design restraints including the following:

- The elevation of each runway end was based upon an analysis of obstructions and roadway clearances. The selection of runway end elevation is a function of movable versus unmovable objects in the airport approaches. It is also a function of attempting to optimize the balance the earthwork on the site to minimize construction costs, as well as to minimize the impact to environmental resources at the airport site.
- The runway centerline elevation must maintain proper gradient tolerances in compliance with guidance in FAA AC. No. 150/5300-13.
- Aerial mapping data was collected as part of this project, and that mapping was used to perform the airfield grading analysis. It is important to note that the use of aerial mapping rather than a ground-run survey to perform such an analysis imparts a level of uncertainty to the analysis as the accuracy of the digitally-generated contour data can be affected by the type and density of vegetation obscuring the ground during the aerial data collection flight.
- The grading analysis performed as part of this planning study evaluated the limits of the ultimate and initial airport footprint only.
- No geotechnical data has been collected for the airport site. As such, the earthwork volume calculations assume that all of the cut/fill materials are suitable and are comprised of soil (i.e. no bedrock or partially-weathered rock).

A summary of the grading analysis for the ultimate and initial airport footprints is presented in the **Table 5-1**. This table indicates that both the initial and ultimate airport footprints will require borrow material from outside of their respective airport footprint limits in order to meet the proposed grading limits. For the Initial Footprint, it is estimated that the borrow material required can be obtained from various locations within the proposed initial airport property limits utilizing “off-road hauling equipment”, from various properties that are located adjacent to the proposed initial airport property limits utilizing “off-road hauling equipment”, or from a combination of these borrow material sources. Similarly, for the Ultimate Footprint, it is estimated that the borrow material required can be obtained from various locations within the proposed initial airport property limits utilizing “off-road hauling equipment”, from various properties that are located adjacent to the proposed initial airport property limits utilizing “off-road hauling equipment”, from properties that are located in the vicinity of the proposed airport site utilizing “over-the-road hauling equipment”, or from a combination of these borrow material sources.

TABLE 5-1 AIRFIELD GRADING SUMMARY		
	ULTIMATE FOOTPRINT (as depicted on ALP)	**INITIAL FOOTPRINT (as depicted on ALP)**
Fill Required (Compacted CY)	7,948,000	6,942,000
Shrinkage Adjustment for Compactive Effort	15%	15%
Fill Required (Loose Cy)	9,140,000	7,980,000
Cut Available (Loose Cy)	5,657,000	3,880,000
Earthwork Balance (Loose Cy)	3,483,000	4,100,000

Source: Michael Baker International, 2017.

FIGURE 5-5 – Initial Grading Analysis

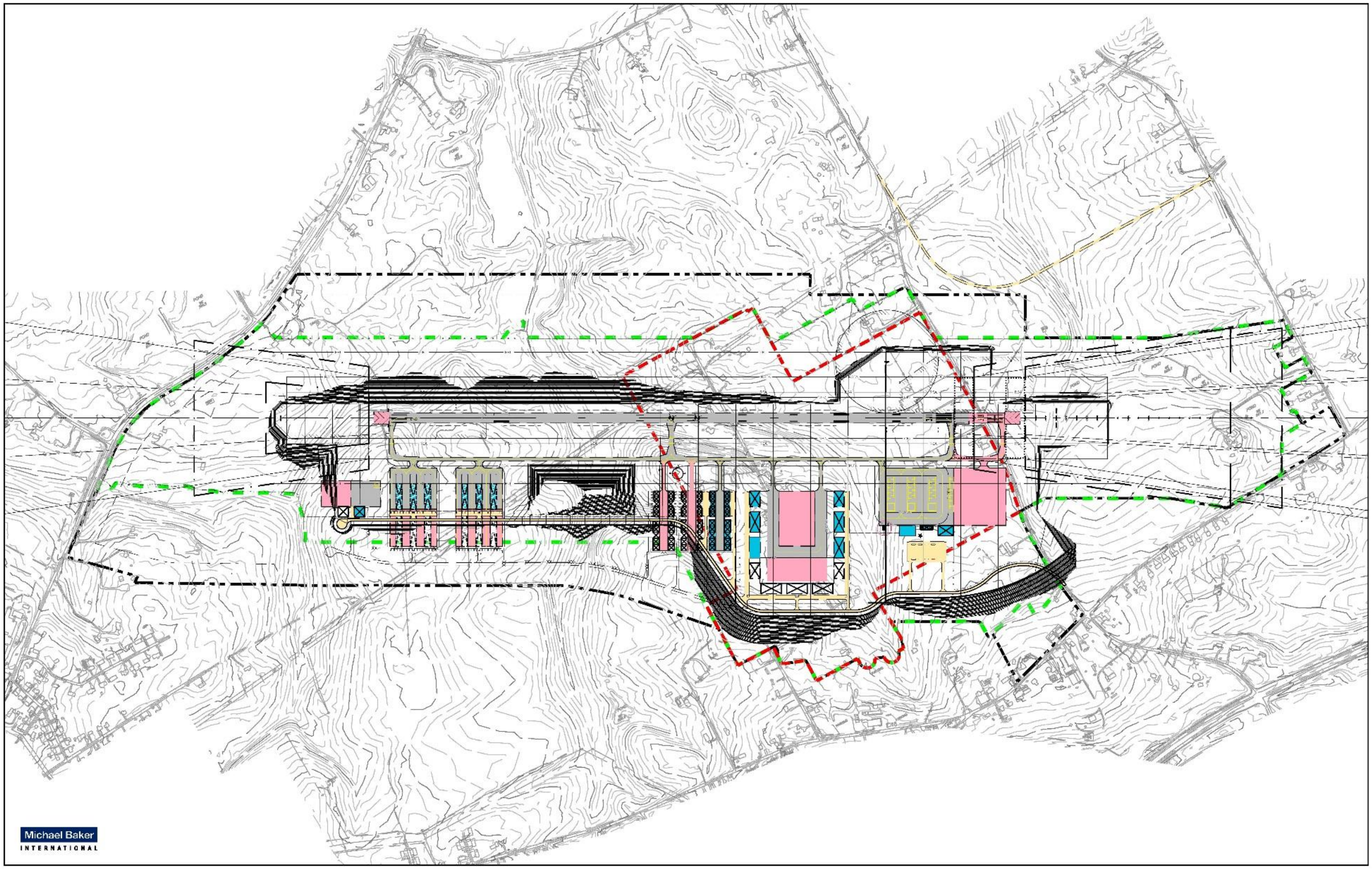
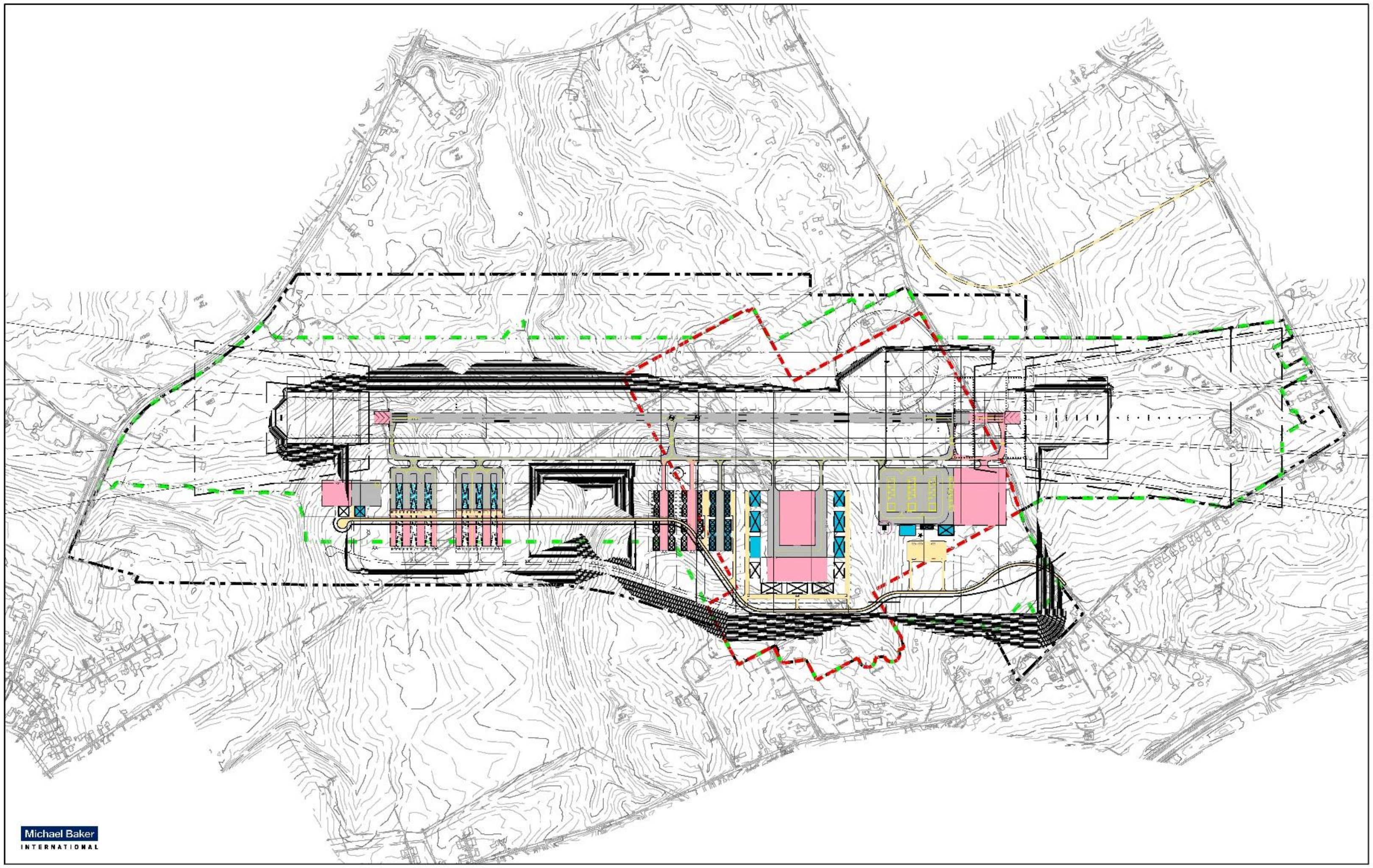


FIGURE 5-6 – Ultimate Grading Analysis



5.2. Airport Layout Plans

The ALP represents a group of drawings that serve as the primary tool to guide growth at the airport throughout the 20-year planning period and beyond. The ALP set was reduced from its full-size of 22" x 34" to be incorporated in this chapter for easy reference. The drawings in this ALP set include:

- Title Sheet,
- Airport Layout Drawing,
- Airport Data Sheet,
- East Terminal Area Plan,
- West Terminal Area Plan
- Airport Airspace Drawings (3 Sheets)
- Inner Portion of Approach Surface Drawings (3),
- Departure Surface Drawing,
- Obstruction Data Sheets (4),
- Land Use Drawing, and
- Exhibit “A” Airport Property Inventory Map.

5.2.1. Title Sheet

This sheet serves as the ALP Drawing Set cover sheet and provides information to include the official airport name, airport owner, associated city and state, the party responsible for preparing the ALP set, and the GDOT project number (if under current grant). An index of drawings, graphic representations of the airport location and the airport vicinity are also presented on the title sheet. Approval blocks are provided for the Airport Sponsor and GDOT. Reference **Drawing 1** in the ALP Drawing Set which follows this chapter.

5.2.2. Airport Layout Drawing

The Airport Layout Drawing is a graphical representation, to scale, of the proposed airport facilities and desired configuration of the runway, taxiway, and aprons of the New Griffin-Spalding County Airport. At a minimum, it depicts the airfield and landside requirements necessary to meet the projected needs of the airport through the year 2035. These projected needs are discussed in Chapter 4. It also provides required dimensional and clearance information, in order to show conformance with applicable FAA design standards. Since the airport has yet to be constructed, exact dimensions and layout of proposed facilities, including proposed elevations, are subject to change as the design and construction process moves forward.

A reduced scale version of the Airport Layout Drawing is provided at the end of this chapter (reference **Drawing 2**).

5.2.3. Airport Data Sheet

The Airport Data Sheet contains the Airport Data Table, the Runway Data Table, wind roses, and other data tables pertaining to the Airport Layout Drawing sheet.

The Airport Data Table provides basic airport data and key planning criteria for initial and ultimate timeframes. This table includes proposed airport elevation, airport reference point, airport reference code, NAVAIDS, design aircraft and taxiway lighting. The table provides the mean maximum temperature of the hottest year for the airport site, which is utilized in runway length analysis. The table also includes designated roles within the state and federal aviation systems.

The Runway Data Table provides details related to the initial and ultimate runway and associated facilities. The table includes runway length/width, wind coverages, airport reference code, critical aircraft, true bearing, effective gradient, runway lighting, pavement strength, and surface composition. The table also provides FAA design criteria for each runway based upon planned instrument approaches and weather minimums, including approach slopes, runway design code, approach reference code, departure and reference code. The table provides dimensions of safety elements, including RSA, OFA, OFZ, RPZ and Declared Distances.

Two wind roses are presented to demonstrate crosswind coverages of each runway end in All-Weather and IFR conditions. Since the airport has not been constructed and no onsite weather measurements are available, wind data for the previous ten years was obtained from nearby airports and combined to provide an estimate of airport wind conditions.

A reduced scale version of the Airport Data Sheet is provided at the end of this chapter (reference **Drawing 3**).

5.2.4. Terminal Area Plans (East and West)

The terminal area plans provide greater details of the proposed airport terminal areas at a scale of 1”=150’. Due to the location of planned facilities, the terminal area plan is separated into “east” and “west” drawings. The East Terminal Area Plan depicts the proposed main airport terminal area and adjacent corporate areas. The West Terminal Area Plan depicts the proposed t-hangar basing area and helicopter basing area. Building data tables depict building dimensions and their proposed top elevation. Elevations are based upon typical building heights for the size of hangars shown. Refer to **Drawings 4** and **5** in the ALP Drawing Set provided at the end of this chapter.

5.2.5. Airport Airspace Drawings

These three sheets incorporate a graphic representation of the imaginary surfaces surrounding the airport as described within 14 CFR Part 77, Safe, Efficient Use, and Preservation of Navigable Airspace. The imaginary surfaces are established in relation to the airport elevation, the runway ends, runway end elevations, and define those areas where the height of objects should be regulated for the safe operation of aircraft. Imaginary surfaces include the following: Approach Surface, Transitional Surface, Horizontal Surface and Conical Surface. The size of each imaginary surface is based on the runway category and type of existing, or planned approach, whichever is the most demanding. Elevations of the Part 77 surfaces described in the drawing are based upon a proposed airport elevation of 858 feet AMSL. Should the proposed airport elevation or runway alignment change during construction, the height and location of the imaginary surfaces will need to be adjusted.

Obstruction data for these drawings were taken from the FAA Digital Obstacle File (DOF) and the FAA OE/AAA database. In some cases, obstruction data were verified using aerial survey obtained during the creation of the ALP; however, the majority of obstructions are from the FAA databases. Each obstruction is identified in the Obstruction Data Table. The table also includes the following: location (lat/long), type, city, height AGL, height AMSL, existing obstruction lighting, markings, FAA Aeronautical Study Number, amount of penetration, source of data and proposed action. Several obstructions noted in the table will need to be evaluated by the FAA to determine if the obstruction requires lighting, marking, lowering or removal. Refer to **Drawings 6, 7, and 8** in the ALP Drawing Set provided at the end of this chapter.

5.2.6. Inner Portion of the Approach Drawings

The Inner Portion of the Approach Drawings depict natural and man-made features in the vicinity of and along the inner approach path to each runway end. The large scale plan and profile views facilitate the identification of potential obstructions that lie within areas that should be free of objects that may preclude safe aircraft operations. The purpose of the drawing is also to identify land where acquisition or easements may be required. Obstructions identified in these drawings were obtained from an aeronautical survey that was captured on October 22, 2014. In the future, additional field surveys at regularly scheduled intervals should be conducted to ensure clear approaches.

Each drawing identifies the boundaries of 14 CFR Part 77 Approach Surfaces, Threshold Siting Surfaces (as defined in Table 3-2 of FAA AC 150/5300-13A) and the associated slopes related to each surface. The dimensions of these surfaces are dependent upon the type of instrument approaches planned to each runway end and the visibility minimums planned for that approach.

The Obstruction Data Tables identify each obstruction by number, type of obstruction, top elevation of the object, amount of penetration and proposed action. In the plan view, obstructions are identified using symbols representing the type of surface that is penetrated (Part 77 or Threshold Siting). Trees that will likely grow into the surfaces in the future are also identified. Since the airport has yet to be constructed, many trees are expected to be cleared during construction. These trees are identified in the plan view using symbols and a proposed tree clearing limit has also been drawn. While all existing and future obstructions should be removed if possible, Threshold Siting penetrations are critical because not removing these penetrations may result in a displaced landing threshold. In the future, additional field surveys should be performed at regularly scheduled intervals to ensure clear approach and departure surfaces. Should the proposed airport elevation or runway alignment change during construction, the height and location of the imaginary surfaces will need to be adjusted.

The drawings also provide the boundaries of the initial and ultimate runway protections zones. The dimensions of the RPZs are based upon the lowest visibility minimums of the planned instrument approaches and the approach category of the critical aircraft. The RPZ function is to enhance the protection of people and property on the ground. Where practical, airport owners should own the property under the runway approach and departure areas to at least the limits of the RPZ. It is desirable to clear the entire RPZ of all above ground objects. Where this is impractical, airport owners, at a minimum, should maintain the RPZ clear of all facilities supporting incompatible land activities. See FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone*, dated 9/27/2012, for guidance on incompatible activities.

Separate drawings are provided for each runway end. Due to the complexity of obstructions on Runway 30 and the ultimate runway extension, initial and ultimate drawings were created for this runway end. Refer to **Drawings 9**, **10**, and **11** in the ALP Drawing Set provided at the end of this chapter.

5.2.7. Departure Surface Drawing

Departure surfaces, when clear, allow pilots to follow standard departure procedures. Except for runways that have a designated clearway, the departure surface is a trapezoidal shape that begins at the end of the Takeoff Distance Available (TODA). The departure surface extends along the extended runway centerline with a slope of 40:1. Obstacles that penetrate the departure surface may require non-standard climb rates and/or non-standard departure minimums; therefore, it is important for airports to identify and remove these obstacles whenever possible and also to prevent new obstacles. Refer to **Drawing 12** in the ALP Drawing Set provided at the end of this chapter.

5.2.8. Obstruction Data Sheets

These sheets contain the obstruction data from the Inner Portion of the Approach Drawings and Departure Surface Drawing. Refer to **Drawings 13, 14, 15** and **16**

5.2.9. Land Use Drawing

The land use drawing depicts existing land uses for off-airport property in the vicinity of the airport and proposed land uses within the airport property. The purpose of this plan is to provide land use compatibility guidance for municipalities within the vicinity of the airport in order to ensure compatibility with projected airport operations. Where conflicts are apparent and an incompatibility exists, mitigation measures are recommended.

Reference **Drawing 17** of the ALP Drawing Set provided at the end of this chapter.

5.2.10. Airport Property Inventory Map/Exhibit A

Often referred to as the "Exhibit A," the airport property map documents the proposed future airport boundary in a graphical and tabular form. It serves as a record of property transactions for grant evaluation purposes and to analyze future aeronautical use of land acquired with federal funds.

The drawing depicts the existing and ultimate boundary lines overlaid onto airport facilities. Data tables provide a parcel numbering system, grantor, proposed property interest (fee simple, easement), type of conveyance, date of acquisition, and purpose of acquisition. The tables also provide the deedbook and page that the transaction is recording at the Floyd County court house and FAA grant number (if applicable). Any existing or future easements encumbered on the property should be recorded on this drawing. As land is acquired, the drawing should be updated frequently. An up-to-date Exhibit A is normally required to be attached to future FAA grant agreements. Reference **Drawing 18** of the drawing set provided at the end of this chapter.

HALF-SIZE ALP DRAWING SET WILL BE INCLUDED IN THE HARD COPY REPORT

Chapter 6 – Capital Improvement Program

6.1. Introduction

The airport Capital Improvement Program (CIP) is developed by the airport and submitted to the FAA each year in order to detail and prioritize the most important projects to be constructed in the near-term. Most importantly, it includes preliminary cost estimates, a determination of potential funding sources and timeframes for completion. The CIP should provide airport management, GDOT, and FAA with the information needed to integrate the proposed improvements into the financial planning of the airport. It should be noted that costs shown within the CIP are preliminary estimates to be used for planning purposes only. Furthermore, the CIP provides a suggested schedule for implementation, but the actual construction of these projects will ultimately be defined by demand for facilities, rather than scheduled years.

6.2. Funding Sources

Federal

The FAA's Airport Improvement Program (AIP) is the primary source of funding for airport capital projects for NPIAS airports. As discussed in Chapter 1, Inventory, the replacement Griffin – Spalding County Airport is included in the NPIAS as a general aviation airport and is eligible for AIP funding. AIP grants currently cover up to 90% of an eligible project's cost. Eligible projects include airport planning, airfield improvement, and some terminal area development. The two major categories of funding for general aviation airports include entitlement grant and discretionary grant programs.

The new airport is eligible to receive nonprimary entitlement funding at $150,000 per fiscal year. Further, each annual nonprimary entitlement grant can be held for up to three years, and enable to the airport to use up to $450,000 in nonprimary entitlement grants for one project. Nonprimary entitlements are based upon the level of funding allocated by Congress each year, but for the purpose of this report, it is assumed this entitlement of $150,000 will continue throughout the planning period.

Discretionary grants above the annual nonprimary entitlement grant of $150,000 are available for specific projects for which enhance safety, security, and capacity. The FAA has established the national priority system for the award process of AIP discretionary grants, and each project must show proper justification in accordance with the system. The FAA AIP discretionary grants typically fund 90% of the total project cost.

State

GDOT operates the Georgia Airport Aid Program (GAAP) for the purpose of providing funding for planning, capital improvements, maintenance, and approach aids to 104 publicly-owned airports in Georgia. As federally funded projects are typically funded at 90% by the FAA, GDOT funding assistance is usually 5%. Further, some airport projects not eligible for or not included in FAA AIP funding may be funded by GDOT at 75%. With respect to funding priority, all projects funded by the FAA which are eligible for state funding assistance are given the highest priority for GAAP funds. However, for federally funded projects, general aviation airport projects are given priority for state funding assistance over the commercial service airport projects because general aviation airports typically generate less local revenue and are thus more dependent upon state funding assistance.

Local

The remainder of the project costs after FAA and GDOT funds are granted are the responsibility of the owner and operator of the airport. Since the local share is often responsible for the majority of the day-to-day up keep of the facility, the availability of local funds for capital improvements is small and is often the limiting factor when considering the phasing and affordability of projects. Local funds are typically those generated from leases, fuel sales, and other sources of airport income

Private Investment

At the replacement airport, private investment may be required for the successful implementation of some of the recommended projects. Typically, a private developer will lease land on a long-term basis in order to construct airport businesses. The airport will still hold authority for approval of private development plans on airport property. Common areas for private investment include projects such aircraft storage hangars, specialized general aviation businesses, as well as fixed-base operations.

6.3. Capital Improvement Plan

The replacement airport's five-year and near-term CIP is presented in **Table 6-1**. These costs should be used for planning purposes only and detailed cost estimates should be obtained prior to implementation of each project. The five-year CIP (FY2018-FY2022) totals $82,523,798 with a federal share of $63,327,420, a state share of $9,185,200, and a local share of $10,011,178.

Table 6-1

GRIFFIN SPALDING AIRPORT (6A2); GRIFFIN, GEORGIA
AIRPORT CAPITAL IMPROVEMENT PROGRAM (ACIP) UPDATE (NEW AIRPORT ONLY)
FY 2017 - FY 2021 (STATE FISCAL YEAR)

PRIORITY	PROJECT	SOURCE	TOTAL COST	FAA FUNDS	STATE FUNDS	LOCAL FUNDS
SUMMARY OF REIMBURSABLE STUDIES						
	Airport Site Selection Study - Phase 1	FEDERAL	$74,217	$66,800	$0	$7,417
	Airport Site Selection Study - Phase 2	FEDERAL	$165,000	$148,500	$0	$16,500
	Airport Environmental Assessment	FEDERAL	$346,282	$311,650	$0	$34,632
	Airport Layout Plan	FEDERAL	$160,274	$144,250	$0	$16,024
	Program Coordination Services	FEDERAL	$286,690	$258,020	$0	$28,670
	Utility Relocation Coordination - Phase 1 (Transmission)	FEDERAL	$72,730	$65,460	$0	$7,270
	Utility Relocation Location Studies (GPC & GTC Transmission)	FEDERAL	$234,205	$210,780	$0	$23,425
	Program Coordination Services Amendment #1	FEDERAL	$80,400	$72,360	$0	$8,040
TOTAL REIMBURSABLE STUDIES			**$1,419,798**	**$1,277,820**	**$0**	**$141,978**

FUTURE LAND REIMBURSEMENTS		SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
	Land Acquisition & Relocation - Phase 1 [41 Parcels / 37 Relocations] **(Future Reimbursement)**	FEDERAL	$5,240,000	$4,716,000	$0	$524,000
TOTAL FUTURE LAND REIMBURSEMENTS			**$5,240,000**	**$4,716,000**	**$0**	**$524,000**

FY2018 PRIORITY	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
	NEW AIRPORT					
1	Supplemental Environmental Assessment	FEDERAL	$178,000	$160,200	$8,900	$8,900
2	Land Acquisition & Relocation - Phase 2 [4 Parcels / 2 Relocations]	FEDERAL	$760,000	$684,000	$38,000	$38,000
3	Demolition of Acquired Properties- Phase 1 (Design)	FEDERAL	$138,000	$124,200	$6,900	$6,900
4	Demolition of Acquired Properties- Phase 1 (Construction)	FEDERAL	$408,000	$367,200	$20,400	$20,400
5	Land Acquisition for Obstruction Removal / Mitigation - Tower (1)	FEDERAL	$1,400,000	$1,260,000	$70,000	$70,000
6	Reimbursement for Airport Site Selection Study - Phase 1	FEDERAL	$74,217	$66,800	$0	$7,417

FY2018 CONTINUED	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
7	Reimbursement for Airport Site Selection Study - Phase 2	FEDERAL	$165,000	$148,500	$0	$16,500
8	Reimbursement for Airport Environmental Assessment	FEDERAL	$346,282	$311,650	$0	$34,632
9	Reimbursement for Airport Layout Plan	FEDERAL	$160,274	$144,250	$0	$16,024
10	Reimbursement for Program Coordination Services	FEDERAL	$286,690	$258,020	$0	$28,670
11	Reimbursement for Utility Relocation Coordination - Phase 1 (Transmission)	FEDERAL	$72,730	$65,460	$0	$7,270
12	Reimbursement for Utility Relocation Studies (GPC & GTC Transmission)	FEDERAL	$234,205	$210,780	$0	$23,425
13	Reimbursement for Program Coordination Services – Amendment #1	FEDERAL	$80,400	$72,360	$0	$8,040
14	Land & Easement Acquisition & Relocation - Phase 3 [18 Parcels / 10 Relocations / 6 Easements]	FEDERAL	$3,670,000	$3,303,000	$183,500	$183,500

FY2018 Continued	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
TOTAL FY 2018			**$7,973,798**	**$7,176,420**	**$327,700**	**$469,678**
FY 2019						
	NEW AIRPORT					
1	Airport Environmental Permitting & Mitigation Plan, including Stream Surveys & Preliminary Grading & Drainage Design	FEDERAL	$300,000	$270,000	$15,000	$15,000
2	Demolition of Acquired Properties - Phase 2 (Design)	FEDERAL	$70,000	$63,000	$3,500	$3,500
3	Demolition of Acquired Properties- Phase 2 (Construction)	FEDERAL	$156,000	$140,400	$7,800	$7,800
4	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Design)	FEDERAL	$282,000	$253,000	$13,500	$13,500
5	Purchase of Environmental Mitigation Credits	FEDERAL	$3,300,000	$2,970,000	$165,000	$165,000
TOTAL FY 2019			**$4,108,000**	**$3,697,200**	**$205,400**	**$205,400**

FY 2020						
	NEW AIRPORT	**SOURCE**	**TOTAL COST**	**FEDERAL FUNDS**	**STATE FUNDS**	**LOCAL FUNDS**
1	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Clearing & Stormwater Control Facilities (Construction) [Airport Footprint plus Avigation Easement Areas]	FEDERAL	$5,185,000	$4,666,500	$259,250	$259,250
2	Utility Relocation - Electric / Gas Transmission Lines (Design, Right-of-Way & Environmental)	FEDERAL	$500,000	$450,000	$25,000	$25,000
3	Sapelo Road Relocation (Design) & Right-of-Way Acquisition	FEDERAL	$270,000	$243,000	$13,500	$13,500
4	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Design)	FEDERAL	$515,000	$463,500	$25,750	$25,750
TOTAL FY 2020			**$6,470,000**	**$5,823,000**	**$323,500**	**$323,500**
FY 2021						
	NEW AIRPORT					
1	Sapelo Road Relocation (Construction)	FEDERAL	$1,548,000	$1,393,200	$77,400	$77,400
2	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 1 (Construction)	FEDERAL	$9,191,000	$8,271,900	$459,550	$459,550
3	Utility Relocation - Electric / Gas Transmission Lines - Phase 1 (Construction)	FEDERAL	$4,200,000	$3,780,000	$210,000	$210,000

FY2021 CONTINUED	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
4	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 2 (Design)	FEDERAL	$510,000	$459,000	$25,500	$25,500
5	Construct Terminal Building and Parking Lot, including Utilities (Design)	LOCAL	$470,000	$0	$0	$470,000
TOTAL FY 2021			**$15,919,000**	**$13,904,100**	**$772,450**	**$1,242,450**
FY 2022						
	NEW AIRPORT					
1	Construct Runway (5,500' x 100'), Parallel Taxiway and Terminal Area Aprons - Grading & Drainage - Phase 2 (Construction)	FEDERAL	$9,106,000	$8,195,400	$455,300	$455,300
2	Utility Relocation - Electric / Gas Transmission Lines - Phase 2 (Construction)	FEDERAL	$2,100,000	$1,890,000	$105,000	$105,000
3	Construct Terminal Building and Parking Lot, including Utilities (Construction)	STATE	$5,030,000	$0	$3,772,500	$1,257,500
4	Construct Runway (5,500' x 100'), Parallel and Connecting Taxiways - Paving, Lighting, Marking & Fencing (Design)	FEDERAL	$809,000	$728,100	$40,450	$40,450
5	Construct Airport Terminal Area Aprons - Paving, Lighting, & Marking (Design)	FEDERAL	$512,000	$460,800	$25,600	$25,600

FY2022 CONTINUED	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
6	Construct Airport Entrance Road & Terminal Area Access Roads and Parking Lots (Design)	FEDERAL	$507,000	$456,300	$25,350	$25,350
7	Instrumental Landing & Approach Lighting Systems (Localizer, Glide Slope & MALSR (Design)	LOCAL	$180,000	$0	$0	$180,000
8	Construct Airport Site Utilities (Design)	LOCAL	$150,000	$0	$0	$150,000
9	Construct Airport Hangars (Design)	LOCAL	$160,000	$0	$0	$160,000
10	Construct Runway (5,500' x 100'), Parallel & Connecting Taxiways - Paving, Lighting, Marking & Fencing (Construction)	FEDERAL	$6,821,000	$6,138,900	$341,050	$341,050
11	Construct Airport Terminal Area Aprons - Paving, Lighting, & Marking (Construction)	FEDERAL	$5,719,000	$5,147,100	$285,950	$285,950
12	Construct Airport Entrance Road & Terminal Area Access Roads and Parking Lots (Construction)	FEDERAL	$5,549,000	$4,994,100	$277,450	$277,450
13	Install Instrumental Landing & Approach Lighting Systems (Localizer, Glide Slope & MALSR (Construction)	STATE	$1,320,000	$0	$990,000	$330,000
14	Construct Airport Site Utilities (Construction)	STATE	$1,650,000	$0	$1,237,500	$412,500
15	Proceeds from Sale of Existing Airport	LOCAL	($5,500,000)	$0	$0	($5,500,000)
16	Tenant Buy-out & Relocation to New Airport	LOCAL	$5,500,000	$0	$0	$5,500,000
17	Construct Airport Hangars (Construction)	LOCAL	$3,200,000	$0	$0	$3,200,000
18	Reimbursement for Land Acquisition & Relocation - Phase 1	FEDERAL	$5,240,000	$4,716,000	$0	$524,000
TOTAL FY 2022			**$48,053,000**	**$32,726,700**	**$7,556,150**	**$7,770,150**

	Total	Federal	State	Local
5-YEAR CIP (FY2018 - FY2022) TOTAL =	**$82,523,798**	**$63,327,420**	**$9,185,200**	**$10,011,178**

NOTES:

- Projects shown with FEDERAL funding have a cost sharing of FEDERAL (90%) / STATE (5%) / LOCAL (Remainder)
  Projects shown with STATE funding have a cost sharing of STATE (75%) / LOCAL (Remainder)

  Project costs shown under the New Airport heading represent preliminary order of magnitude costs, and will be refined periodically in the future as the various Airport Planning and Environmental Studies are completed.

NEW AIRPORT SUMMARY TABLE (BY PROJECT GROUPING)	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
PLANNING & ENVIRONMENTAL STUDIES	$1,597,798	$1,438,020	$8,900	$150,878
LAND ACQUISITION PROJECTS	$11,070,000	$9,963,000	$291,500	$815,500
ENVIRONMENTAL PERMITTING	$3,600,000	$3,240,000	$180,000	$180,000
AIRFIELD CONSTRUCTION PROJECTS (FEDERAL / STATE / LOCAL FUNDED)	$54,096,000	$48,686,400	$2,704,800	$2,704,800
AIRFIELD CONSTRUCTION PROJECTS (STATE / LOCAL FUNDED)	$8,000,000	$0	$6,000,000	$2,000,000
AIRFIELD CONSTRUCTION PROJECTS (LOCAL ONLY FUNDED)	$4,160,000	$0	$0	$4,160,000
NEW AIRPORT SUMMARY OF ALL PROJECTS	$82,523,798	$63,327,420	$9,185,200	$10,011,178

Source: Michael Baker International, 2016.

6.4. Summary of Intermediate and Long Term Costs

The replacement airport near, intermediate and long term costs are summarized in **Table 6-2**. These costs should be used for planning purposes only.

Table 6-2

	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
	INTERMEDIATE DEVELOPMENT					
1	Construct Airport Maintenance Area Apron Expansion - Paving, Lighting, & Marking	FEDERAL	$2,449,000	$2,204,100	$122,450	$122,450
2	Construct Airport Corporate Area Apron Expansion - Paving, Lighting, & Marking	FEDERAL	$775,000	$697,500	$38,750	$38,750
3	Construct Airport T-Hangar Area Apron Expansion - Paving, Lighting, & Marking	FEDERAL	$1,451,000	$1,305,900	$72,550	$72,550
	LONG TERM DEVELOPMENT					
4	Construct Airport Terminal Area Apron Expansion - Paving, Lighting, & Marking	FEDERAL	$2,345,000	$2,110,500	$117,250	$117,250
5	Construct Airport Helicopter Area Apron Expansion - Paving, Lighting, & Marking	FEDERAL	$463,000	$416,700	$23,150	$23,150

	PROJECT DESCRIPTION	SOURCE	TOTAL COST	FEDERAL FUNDS	STATE FUNDS	LOCAL FUNDS
6	Construct Runway Extension (500' x 100'), Parallel & Connecting Taxiways - Paving, Lighting, Marking	FEDERAL	$1,521,000	$1,368,900	$76,050	$76,050
7	Construct Airport Entrance Road, Terminal Area Access Roads and Parking Lots Relocation	FEDERAL	$3,770,000	$3,393,000	$188,500	$188,500
8	Construct Airport Entrance Road & Terminal Area Access Roads and Parking Lots (Construction)	FEDERAL	$5,549,000	$4,994,100	$277,450	$277,450
TOTAL INTERMEDIATE AND LONG TERM			**$18,323,000**	**$16,490,700**	**$916,150**	**$916,510**

APPENDIX A

Feasibility – Compiled Report 5/13/2016

Proposed New Location of an airport in Griffin, GA

Feasibility Evaluation (Proposed New Griffin Airport Location): This is a new airport being proposed. This airport will have 1 new rwy: Rwy 12/30. Initial plans call for rwy length to be 5500 ft. The ultimate plan calls for Rwy 30 to be extended 500 ft for a total length of 6000 ft. 18b Obstacle Survey data for these runways are not available. Rwy threshold locations obtained from the ALP. In the feasibility study of the RNAV and ILS approaches, both Rwy 12/30 were considered. For evaluation purposed, a 200 HAT was considered for both the ILS and LPV. As in last year's prior feasibility study, the LPV to rwy 12 would be impacted by a 1360MSL tower in the missed approach that you cannot avoid.

Obstacle Data: The listed OE obstacles were evaluated s per GDOTs request and were not found to have an IFR impact on proposed procedures. This feasibility study is based on known data only and because there is no 18b obstruction survey data yet for Rwy 12/30. Once an obstruction survey is completed for Rwy 12/30 additional impacts may be identified as having an IFR impact on this proposed location.

Additional obstacles (OEs) provided by GDOT and evaluated:

29	33.2481	84.2328	TOWER	GRIFFIN	198'	1,072'	2009ASO01482OE
30	33.2486	84.2619	BLDG	GRIFFIN	160'	1,120'	1991ASO01456OE
31	33.2487	84.2591	BLDG	GRIFFIN	131'	1,071'	1996ASO03449OE
32	33.2458	84.2616	TOWER	GRIFFIN	140'	1,108'	2005ASO01715OE
33	33.2354	84.2313	TANK	GRIFFIN	180'	1,128'	1994ASO02156OE
34	33.2292	84.2386	TOWER	GRIFFIN	199'	1,102'	2015ASO03463OE

Line Item #29 (2009-ASO-1482-OE) Contained within FAA database as Obstacle ID 13-022752
Line Item #30 (1991-ASO-1456-OE)
Line Item# 31 (1996-ASO-3449-OE)
Line Item #32 (2005-ASO-1715-OE)
Line Item #33 (1994-ASO-2156-OE)
Line Item #34 (2015-ASO-3463-OE)

RUNWAY 12:

RWY 12 (Overall Length 5500 FT) – RNAV Evaluation. Used 3 degree GlideSlope angle and Threshold Crossing Height (TCH) of 50 FT. In this evaluation, the minimums were forced down to a 200 FT HAT in an effort to identify known existing obstacles that may have an impact on developing this airport. No obstacles identified within the Glide Slope Qualification Survey (GQS) or Visibility Surface S area. There is a tall tower (1360 MSL) obstacle 13-022407 (2009-ASO-6045-OE) documented in the database as 1360'MSL/500'AGL with an accuracy code of 4D which requires an added 50' vertical buffer when evaluating procedures. This tower is southeast of the airport and identified as the controlling obstacle of the approach minimums because it penetrates the missed approach protected surfaces in section 2 by 222.74' with a 4D accuracy code (AC) and cannot be avoided through approach design. It's also depicted on ALP.

If Tower #13-022407 is considered at the existing height and not lowered, the following minimums can be expected:

With a clear GQS:
LPV DA ~ 1253 MSL/ 416 HAT
VNAV DA ~ 1335 MSL/ 498 HAT
LNAV MDA ~ 1520 MSL/ 683 HAT

If GQS Not Clear:
LP ~ 1360 MSL/ 523 HAT

If the tower # 13-022407 is reduced in height by 223' with the 4D AC to an overall height of 1137'MSL w/4D AC, a 200 HAT would be feasible.

RUNWAY 30:

RWY 30: Initial plan is for an overall length of 5500 ft with an ultimate plan to extend the approach end of Rwy 30 by 500 ft to an overall length of 6000 ft.

RWY 30 (Evaluated at 5500 ft overall length): Used 3 GS and 50 TCH. No survey is available. No obstacles were in the GQS, Obstacle Clearance Surface (OCS), Precision Missed Approach (PMISS) or Visibility surface areas. There are two tall towers SE of airport that are identified as the controlling obstacles for the VNAV and LNAV finals.

> **Tower (13-000542)** is documented in the database as 1318'/418'AGL with an accuracy code of 2E which requires an added 125' vertical buffer equaling a total of 1443'MSL obstacle height when evaluating procedures. This tower penetrates the LNAV Primary 2a OCS by 171.33 Ft and requires missed approach adjustment of 172' to avoid obstacle.

Tower (13-022407) is the same one identified as a penetration to Rwy 12 missed approach, but for Rwy 30 it penetrates the primary 2a OCS by and requires a 76' missed approach adjustment. A step down fix on final would not mitigate for this obstacle. The end result will be, the LP will have lower minimums than the LNAV.

If tower obs # 13-000542 and 13-022407 is considered at the existing height and not lowered, the following minimums can be expected:

<u>If GQS is clear:</u>
LPV DA ~ 1055 MSL/ 200 HAT
VNAV DA ~ 1571 MSL/ 716 HAT
LNAV MDA ~ 1660 MSL/ 805 HAT

<u>If GQS Not Clear:</u>
LP ~ 1260 MSL/ 405 HAT

If tower obs # 13-000542 and 13-022407 is reduced in height by the amount of the penetrations, the VNAV and the LNAV minimums would be improved**.**

RWY 30 (Evaluated at overall length of 6000 FT) – RNAV Evaluations: Basically no major changes from the overall length of 5500 FT evaluation. Minor differences shown below:

<u>If GQS is clear:</u>
LPV DA ~ 1058 MSL/ 200 HAT
VNAV DA ~ 1571 MSL/ 713 HAT
LNAV MDA ~ 1660 MSL/ 802 HAT

<u>If GQS Not Clear:</u>
LP ~ 1260 MSL/ 402 HAT

RWY 30 (Overall Length of 5500 FT) – ILS Evaluation: NO ILS data was given so used 3 GS and 50.38 TCH and GPI of 961.27 ft. No survey is available. Results are based on available data and it includes the OE studies provided by EFPT. Rwy thld locations are from ALP. No obstacles were in the GQS, OCS, PMISS or VIS area. For straight out missed approaches, the 1205 MSL tower could penetrate the LOC miss if the MDA is less than 385 HAT. Tower depicted on ALP.

<u>If GQS is clear:</u>
ILS DA ~ 1055 MSL/ 200 HAT
LOC MDA ~ 1240 MSL/ 385 HAT

RWY 30 (Overall length of 6000 FT)– ILS Evaluation: No ILS data nor survey data provided. The same parameters were used as show in the 5500 FT evaluation. No obstacles were in the GQS, OCS, PMISS or VIS area.

<u>If GQS is clear:</u>
ILS DA ~ 1058 MSL/ 200 HAT
LOC MDA ~ 1300 MSL/ 442 HAT

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APPENDIX B

GRIFFIN-SPALDING AIRPORT

PAVEMENT SECTION DESIGN SUMMARY
MAY, 2017

The design of the typical pavement sections has been conducted in accordance with standards established by the FAA. The primary standards include:

- FAA AC 150/5300-13A, Airport Design, dated September 28, 2012.
- FAA AC 150/5320-6F, Airport Pavement Design and Evaluation, dated November 10, 2016.
- FAA AC 150/5370-10F, Standards for Specifying Construction of Airports, dated July 21, 2014.
- FAA AC 150/5335-5C, Standardized Method of Reporting Airport Pavement Strength, dated August 14, 2014

The primary tool utilized for the pavement typical section design is the FAA computer software FAARFIELD – Airport Pavement Design, V1.41, dated March 8, 2017.

Pavement section design using FAARFIELD requires two primary inputs including the pavement support characteristics provided by the soils on which the pavement will be placed, and the loads that will be imposed on the pavements by the mix of aircraft that will utilize the pavement.

The soil characteristics are usually determined through a geotechnical investigation. At this time, no geotechnical investigation has been performed.

CBR values are used for flexible pavement design. Rigid pavement design requires a value for the Subgrade Modulus 'K'. A CBR value of 5 was used for this flexible pavement design. A 'K' value of 100 was been selected for the rigid pavement design. Both of these low values are for a poor subgrade and would be for the worst case scenario. These values may be revised upward after a geotechnical investigation of the in-situ soils.

For the purpose of this design, engineering judgment was used in selecting specific aircraft from the FAARFIELD library, in developing the aircraft mix.

Input parameters for the aircraft allows for variations in the annual departures for each aircraft used in the mix. The number of departures has been estimated based on the information provided by the Long Term Operational Fleet Mix Projections from Table 3-8 of the Narrative Report for the Airport Layout Plan.

The traffic mix and input parameters are provided in the FAARFIELD output attached.

The pavement sections have been established for a 20-year design life, typical for the design of airfield pavements. However, if desired for a specific reason, FAARFIELD will accommodate variations in the design life.

FAARFIELD evaluates the pavement section based on a cumulative damage concept, in which the contribution of each aircraft in a given traffic mix is separately analyzed. The most efficient section structurally is achieved when the cumulative damage factor (CDF) is 1.0 for the 20-year life. CDF values greater than 1.0 are generally indicative of pavement structures that are structurally insufficient. CDF values less than 1.0 are generally indicative of pavement structures that are structurally over designed.

Several scenarios of various flexible (asphalt) and rigid (concrete) pavement sections have been evaluated for their structural efficiency.

With each type of pavement (flexible and rigid), the pavement section has initially been determined by FAARFIELD. Subsequent scenarios of each pavement type have then been prepared through manual manipulation of the different courses of material within the respective sections. A Life analysis of each scenario has been run to project the life expectancy for a CDF of 1.0.

A third parameter required for the rigid pavement section design is the flexural strength. The FAA requires a 28-day strength in the range of 600-700psi. The lower the flexural strength, the more suitable the concrete is to resisting fatigue and warping. A specified strength of 650psi has been selected for the pavement section design, and is typical for airport pavement design.

The determination of the most efficient pavement section is an iterative process. FAARFIELD evaluates the structural factor. Other factors that should be considered include cost and constructability.

Cost for each layer of a pavement section will differ. Generally, the top wearing course will be the most expensive on a unit basis, with the lower courses of base materials being the least expensive. A reduction in the thickness of the top course will require an increase in the base thickness to maintain the structural efficiency of the section. The thickness adjustments will not be at a 1:1 ratio. The increase in the base thickness will be greater than the reduction in the top course. Therefore evaluations will need to be made in the reduction of the cost of the wearing surface versus the increase in costs of the base courses.

Constructability of a pavement section can contribute to the cost of the pavement. Course thickness dimensions should also be considered. In some instances FAA stipulates minimums for certain conditions.

The critical aircraft used for this design was a Challenger 600.

The typical pavement sections for this airport are consistent with those from similar airports. The flexible pavement section is designed with 4 inches of P-401 Asphalt and 12 inches of P-209 Graded Aggregate Base. The rigid pavement section is designed with 7 inches of P-501 Portland Cement Concrete and 6 inches of P-209 Graded Aggregate Base. The pavement is designed to accommodate 30,000 lb Single Wheel and 60,000 lb Dual Wheel aircraft. Heavier aircraft such as the Gulfstream V may occasionally operate with no damage to the pavement. If heavier aircraft such as the Gulfstream V were to become the ultimate critical aircraft, the flexible pavement would have to be strengthened by overlaying with a minimum of 3 – 4 inches of asphalt. The results of this design effort have produced flexible and rigid pavement sections as depicted in the FARRFIELD output attached.

COMFAA 3.0 is the FAA software used to determine pavement strength with the Aircraft Classification Number- Pavement Classification Number (ACN-PCN) method. The PCN is 14/F/C/X/T and the gross weight is 39,000 lb for single gear and 57,000 lb for dual wheel gear. These results are shown in the COMFAA output attached.

APPENDIX
FAARFIELD ANALYSIS OUTPUT

FAARFIELD v 1.41 - Airport Pavement Design

Section Asphalt in Job GriffinSpalding.
Working directory is C:\Users\Ken.Kirk\Documents\FAARFIELD\

The structure is New Flexible.
Design Life = 20 years.
A design has not been completed for this section.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Surface	4.00	200,000	0.35	0
2	P-209 Cr Ag	12.00	29,825	0.35	0
3	Subgrade	0.00	7,500	0.35	0

Total thickness to the top of the subgrade = 16.00 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Skyhawk-172	2,558	6,372	0.00
2	Baron-E-55	5,424	1,926	0.00
3	SuperKingAir-350	15,100	814	0.00
4	Challenger-CL-604	48,200	250	0.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Skyhawk-172	0.00	0.00	3.72
2	Baron-E-55	0.00	0.00	3.52
3	SuperKingAir-350	0.00	0.00	2.43
4	Challenger-CL-604	0.90	0.90	1.99

User is responsible for checking frost protection requirements.

FAARFIELD v 1.41 - Airport Pavement Design

Section NewRigid in Job GriffinSpalding.
Working directory is C:\Users\Ken.Kirk\Documents\FAARFIELD\

The structure is New Rigid.
Design Life = 20 years.
A design for this section was completed on 05/30/17 at 19:01:23.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	PCC Surface	7.17	4,000,000	0.15	650
2	P-209 Cr Ag	6.00	23,548	0.35	0
3	Subgrade	0.00	7,453	0.40	0

Total thickness to the top of the subgrade = 13.17 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Skyhawk-172	2,558	6,372	0.00
2	Baron-E-55	5,424	1,926	0.00
3	SuperKingAir-350	15,100	814	0.00
4	Challenger-CL-604	48,200	250	0.00

Additional Airplane Information

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Skyhawk-172	0.00	0.00	0.00
2	Baron-E-55	0.00	0.00	0.00
3	SuperKingAir-350	0.00	0.00	0.00
4	Challenger-CL-604	0.00	0.00	0.00

User is responsible for checking frost protection requirements.

FAARFIELD v 1.41 - Airport Pavement Design

Section Asph-Overlay in Job GriffinSpalding.
Working directory is C:\Users\Ken.Kirk\Documents\FAARFIELD\

The structure is AC Overlay on Flexible. Asphalt CDF was not computed.
Design Life = 20 years.
A design for this section was completed on 05/31/17 at 08:59:30.

Pavement Structure Information by Layer, Top First

No.	Type	Thickness in	Modulus psi	Poisson's Ratio	Strength R,psi
1	P-401/ P-403 HMA Overlay	3.04	200,000	0.35	0
2	P-401/ P-403 HMA Surface	4.00	200,000	0.35	0
3	P-209 Cr Ag	12.00	29,919	0.35	0
4	Subgrade	0.00	7,500	0.35	0

Total thickness to the top of the subgrade = 19.04 in

Airplane Information

No.	Name	Gross Wt. lbs	Annual Departures	% Annual Growth
1	Skyhawk-172	2,558	6,372	0.00
2	Baron-E-55	5,424	1,926	0.00
3	SuperKingAir-350	15,100	814	0.00
4	Challenger-CL-604	48,200	250	0.00
5	Gulfstream-G-V	90,900	28	0.00

Additional Airplane Information

Subgrade CDF

No.	Name	CDF Contribution	CDF Max for Airplane	P/C Ratio
1	Skyhawk-172	0.00	0.00	3.26
2	Baron-E-55	0.00	0.00	3.11
3	SuperKingAir-350	0.00	0.00	2.24
4	Challenger-CL-604	0.00	0.00	1.88
5	Gulfstream-G-V	1.00	1.00	1.80

User is responsible for checking frost protection requirements.

APPENDIX
COMFAA 3.0 OUTPUT

- ○ A Flexible Category (CBR 15)
- ○ B Flexible Category (CBR 10)
- ◉ C Flexible Category (CBR 6)
- ○ D Flexible Category (CBR 3)

- ○ A Rigid Category (k 552 pci)
- ○ B Rigid Category (k 295 pci)
- ○ C Rigid Category (k 147 pci)
- ○ D Rigid Category (k 74 pci)

TIRE PRESSURE

- ○ W Unlimited
- ◉ X 218 psi
- ○ Y 145 psi
- ○ Z 73 psi

METHOD USED

- ○ Using Aircraft
- ◉ Technical

Project info

New Griffin-Spalding County Airport

AIRCRAFT GEAR TYPE IN TRAFFIC MIX

- ☑ S (single wheel gear)
- ☑ D (dual wheel gear)
- ☐ 2D (dual tandem wheel gear)
- ☐ 3D (triple tandem wheel gear) e.g B-777
- ☐ DDT or W/B (tandem gear under wing AND tandem gear under body) e.g. B-747, A-340-600, A-380

Airport LOC-ID New Griffin-Spalding

Pavement ID

Enter PCN 14.4

Form 5010 Data Element	Gross Weight and PCN
#35 S gear	39.5
#36 D gear	57.5
#37 DT gear	
#38 DDT gear	
#39 PCN	14/F/C/X/T

IF 3D or W/B Gear Checked, #38 = PCN
Please Add Data Element #38 Remark

3D	
2D/2D2	
2D/3D2W	
2D/3D2B	

} Report Minimum Gross Weight

Airport LOC-ID	Pavement ID	#35 S GW	#36 D GW	#37 DT GW	#38 DDT GW	#39 PCN
New Griffin-Spalding		39.5	57.5			14/F/C/X/T

Reference Guidance AC 150/5335-5C App B Flexible Pavement Structure Items	Fig. A2-2 Convert to P-209	Figs.A2-1&2 Convert to P-154	Existing Flexible Pavement Layers	ENTER Existing Layer Thickness	
P-401/3 P 403	1.6	Use FAA Std Factors	P-401/3	4.0	in.
P-306 ECONOCRTE	1.2		P-306	0.0	in.
P-304 CEM. TRTD	1.2	n/a	P-304	0.0	in.
P-209 Cr AGG	1.0	1.4	P-209	12.0	in.
P-208 Agg, P-211	1.0	1.2	P-208	0.0	in.
P-301 SOIL-CEM.	n/a	1.2	P-301	0.0	in.
P-154 Subbase	n/a	1.0	P-154	0.0	in.
			Subgrade CBR...	5.0	

Equivalent Thickness, mm

P-401/3	5.0
P-209	8.0
P-154	3.4
Total	16.4

Metric / English

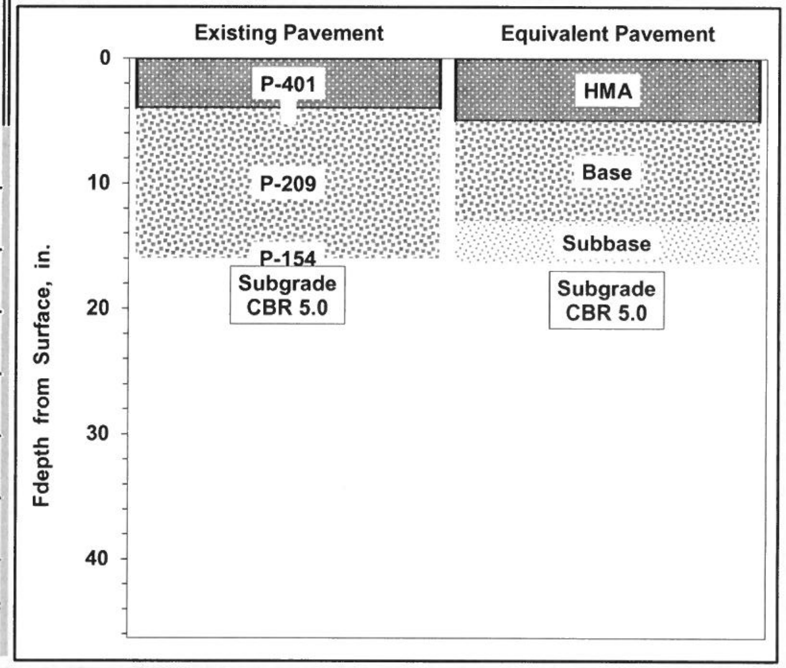
Loc_ID	Pavement ID
LOC ID	Enter RW ID

Project Details

Examples

ENTER Ref.Section Requirements

P-401 reference t	5.00	in.
P-209 reference t	8.00	in.



COMFAA Inputs

Evaluation thickness t = 16.4 in.

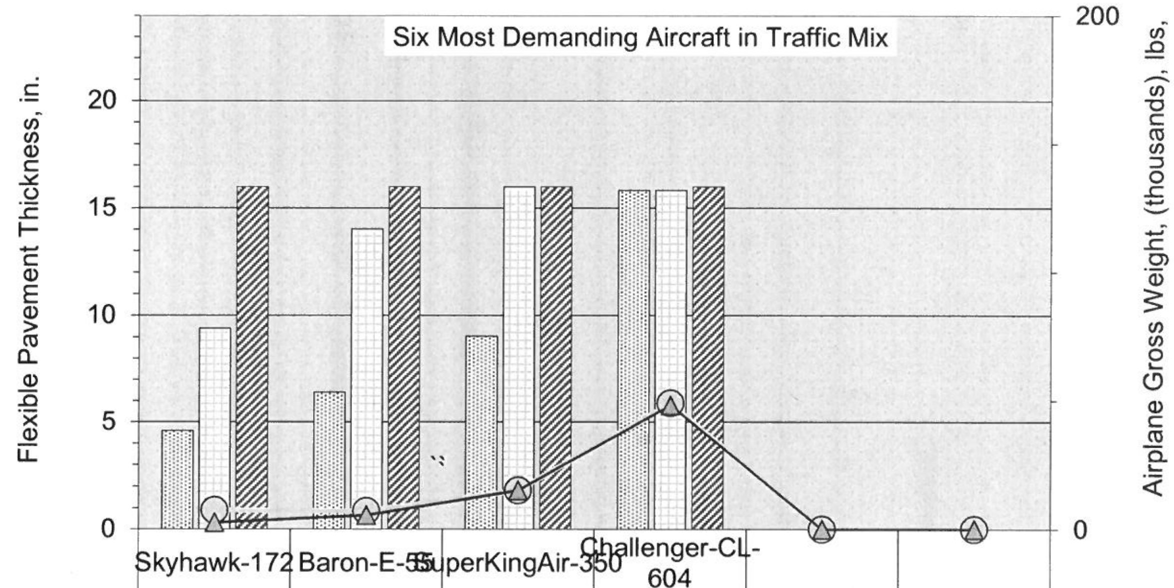
Evaluation CBR = 5.0

Recommended PCN Codes: F/C/X

Input Project Information for Chart Title in Cell B4

Num	Plane	GWin	ACNin	ADout	6Dt	CDFt	GWcdf	PCNcdf	EVALt	SUBcode	KorCBR	PtoTC	FlexOrRig
2	Skyhawk-172	2,558	0.8	6,372	4.6	9.4	7,393	2.4	16.0	C	5.0	1.00	F
4	Baron-E-55	5,424	1.8	1,926	6.4	14.0	7,072	2.4	16.0	C	5.0	1.00	F
1	SuperKingAir-350	15,100	3.8	814	9.0	16.0	15,110	3.8	16.0	C	5.0	1.00	F
3	Challenger-CL-604	48,200	14.1	250	15.8	15.8	48,979	14.4	16.0	C	5.0	1.00	F

Input Project Information for Chart Title in Cell B4



	Skyhawk-172	Baron-E-55	SuperKingAir-350	Challenger-CL-604		
1. 6D thickness at traffic mix GW	4.6	6.4	9.0	15.8		
2. CDF thickness at max. GW	9.4	14.0	16.0	15.8		
3. Evaluation thickness from equivalent pavement	16.0	16.0	16.0	16.0		
4. Maximum Aircraft GW at PCN from CDF	7,393	7,072	15,110	48,979		
5. Aircraft GW from traffic mix	2,558	5,424	15,100	48,200		

Input Project Information for Chart Title in Cell B4

Num	Plane	GWin	ACNin	ADout	6Dt	CDFt	GWcdf	PCNcdf	EVALt	SUBcode	KorCBR	PtoTC	FlexOrRig
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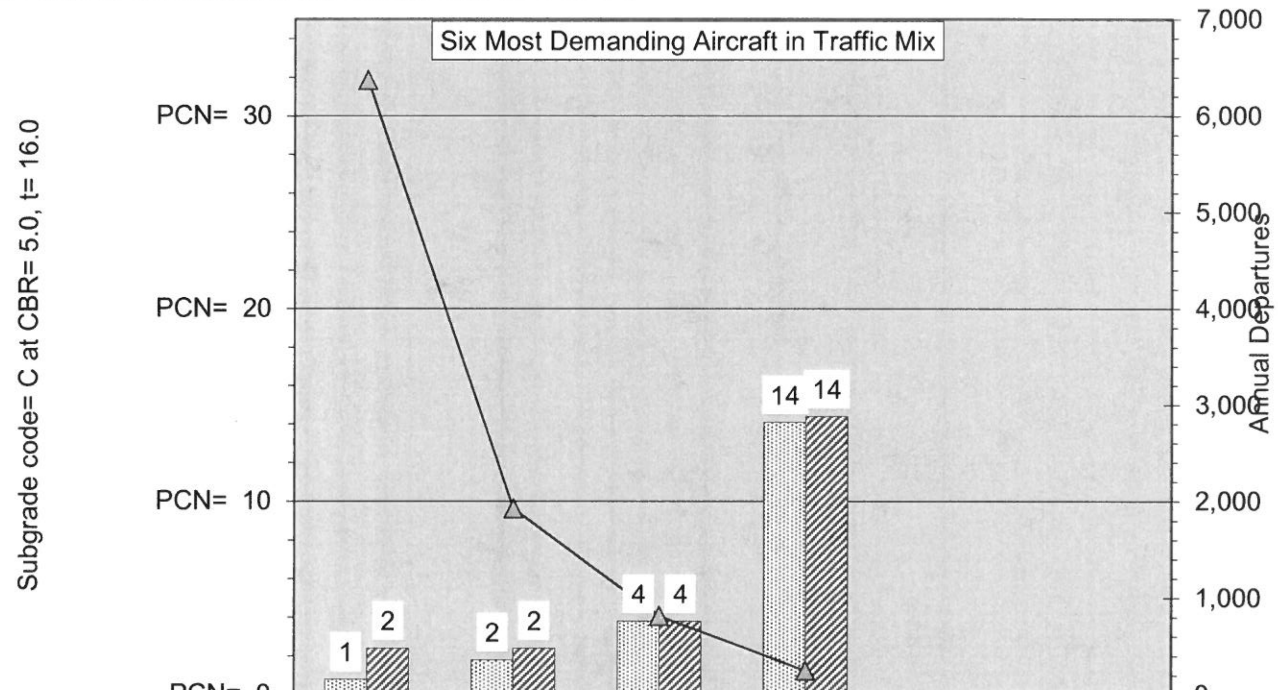
1	SuperKingAir-350	15,100	3.8	814	9.0	16.0	15,110	3.8	16.0	C	5.0	1.00	F
3	Challenger-CL-604	48,200	14.1	250	15.8	15.8	48,979	14.4	16.0	C	5.0	1.00	F

Input Project Information for Chart Title in Cell B4

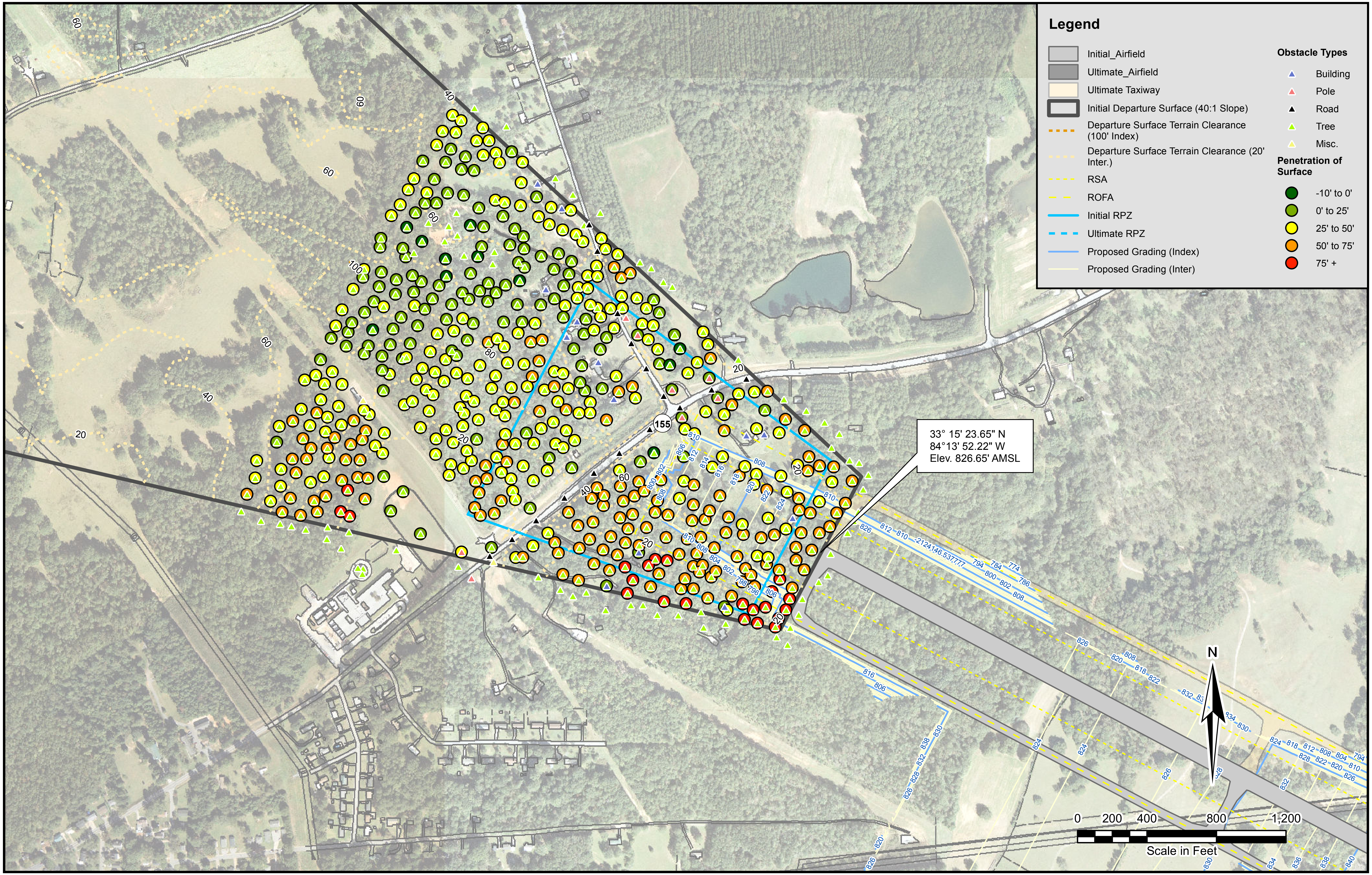
Num	Plane	GWin	ACNin	ADout	6Dt	CDFt	GWcdf	PCNcdf	EVALt	SUBcode	KorCBR	PtoTC	FlexOrRig
2	Skyhawk-172	2,558	0.8	6,372	4.6	9.4	7,393	2.4	16.0	C	5.0	1.00	F
4	Baron-E-55	5,424	1.8	1,926	6.4	14.0	7,072	2.4	16.0	C	5.0	1.00	F
1	SuperKingAir-350	15,100	3.8	814	9.0	16.0	15,110	3.8	16.0	C	5.0	1.00	F
3	Challenger-CL-604	48,200	14.1	250	15.8	15.8	48,979	14.4	16.0	C	5.0	1.00	F

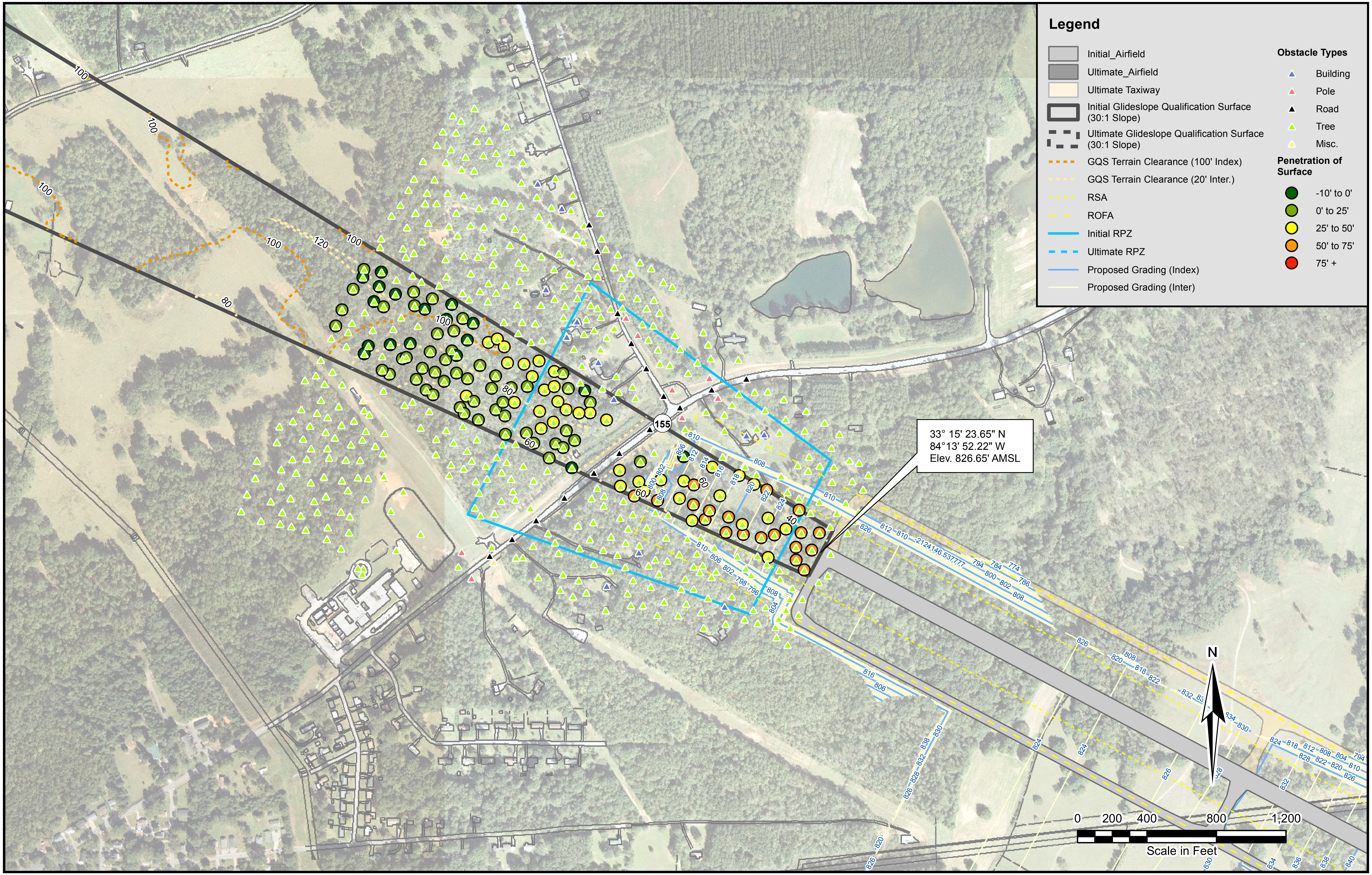
Input Project Information for Chart Title in Cell B4



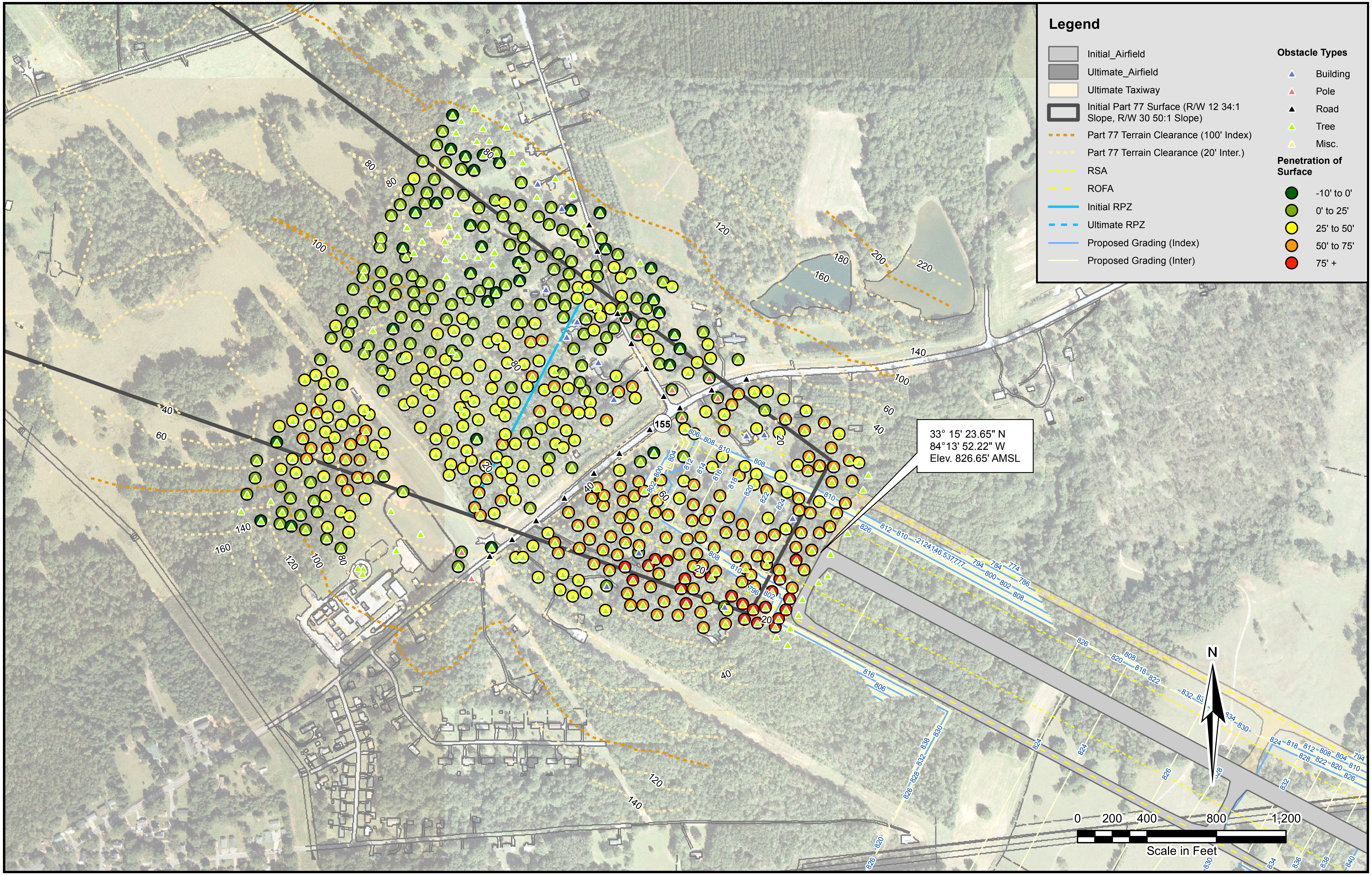
	Skyhawk-172	Baron-E-55	SuperKingAir-350	Challenger-CL-604		
1. Aircraft ACN at traffic mix GW	0.8	1.8	3.8	14.1		
2. Calculated PCN at CDF max. GW	2.4	2.4	3.8	14.4		
3. Annual Departures from traffic mix	6,372	1,926	814	250		

APPENDIX C

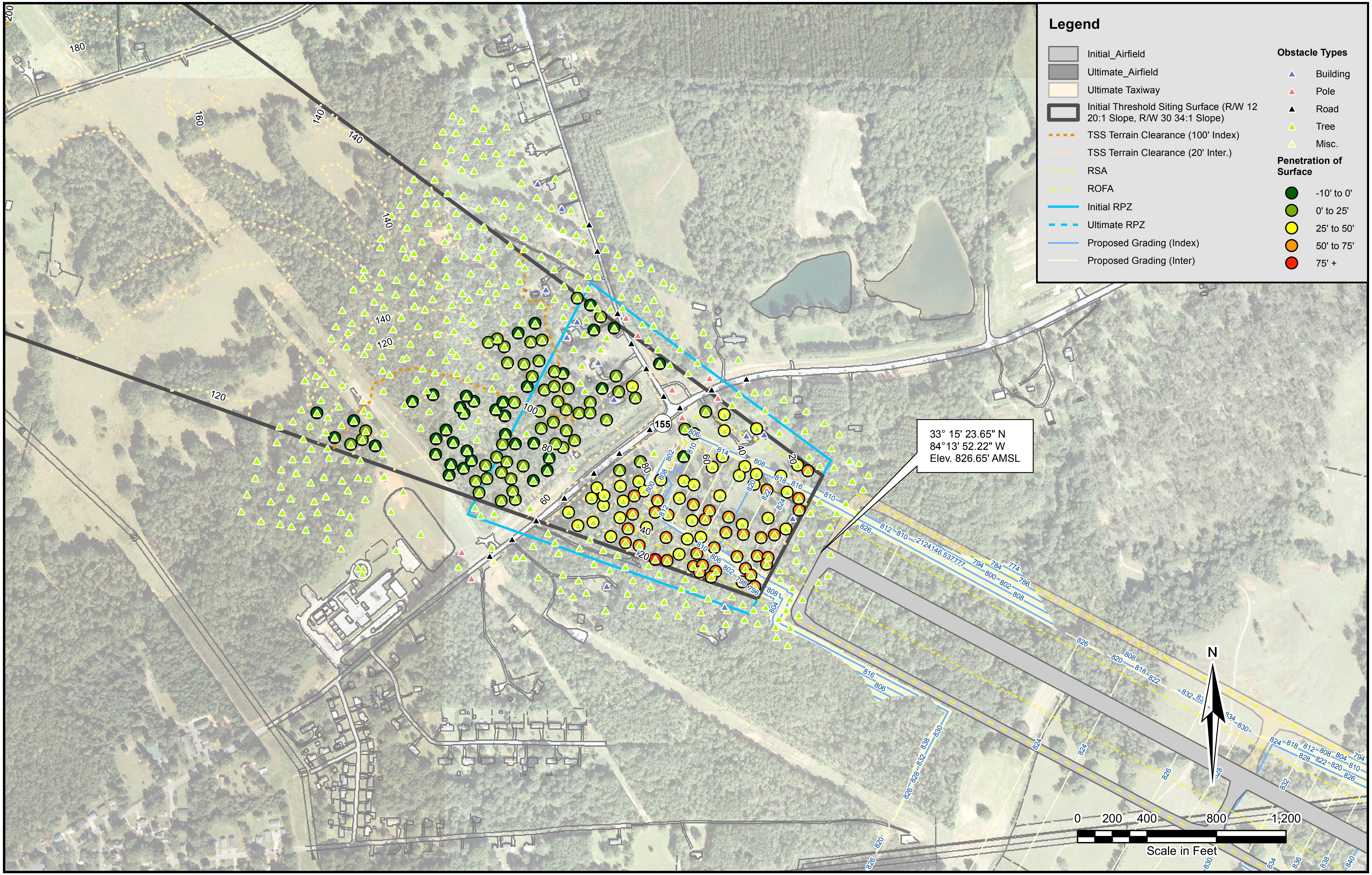

Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Departure Surface (40:1 Slope)
Departure Surface Terrain Clearance (100' Index)
Departure Surface Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
33° 15' 23.65" N
84°13' 52.22" W
Elev. 826.65' AMSL
155
N
0 200 400 800 1,200
Scale in Feet

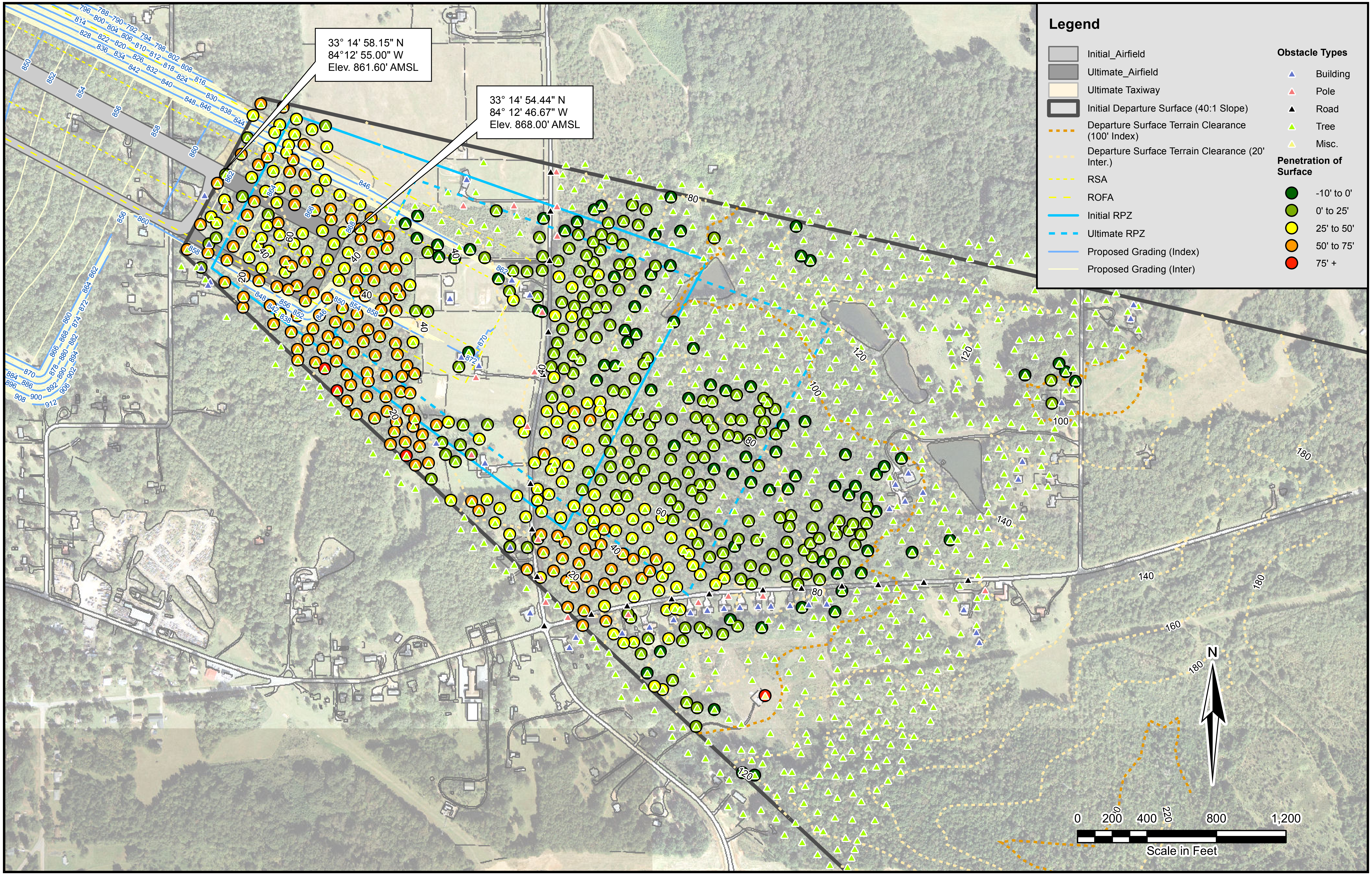


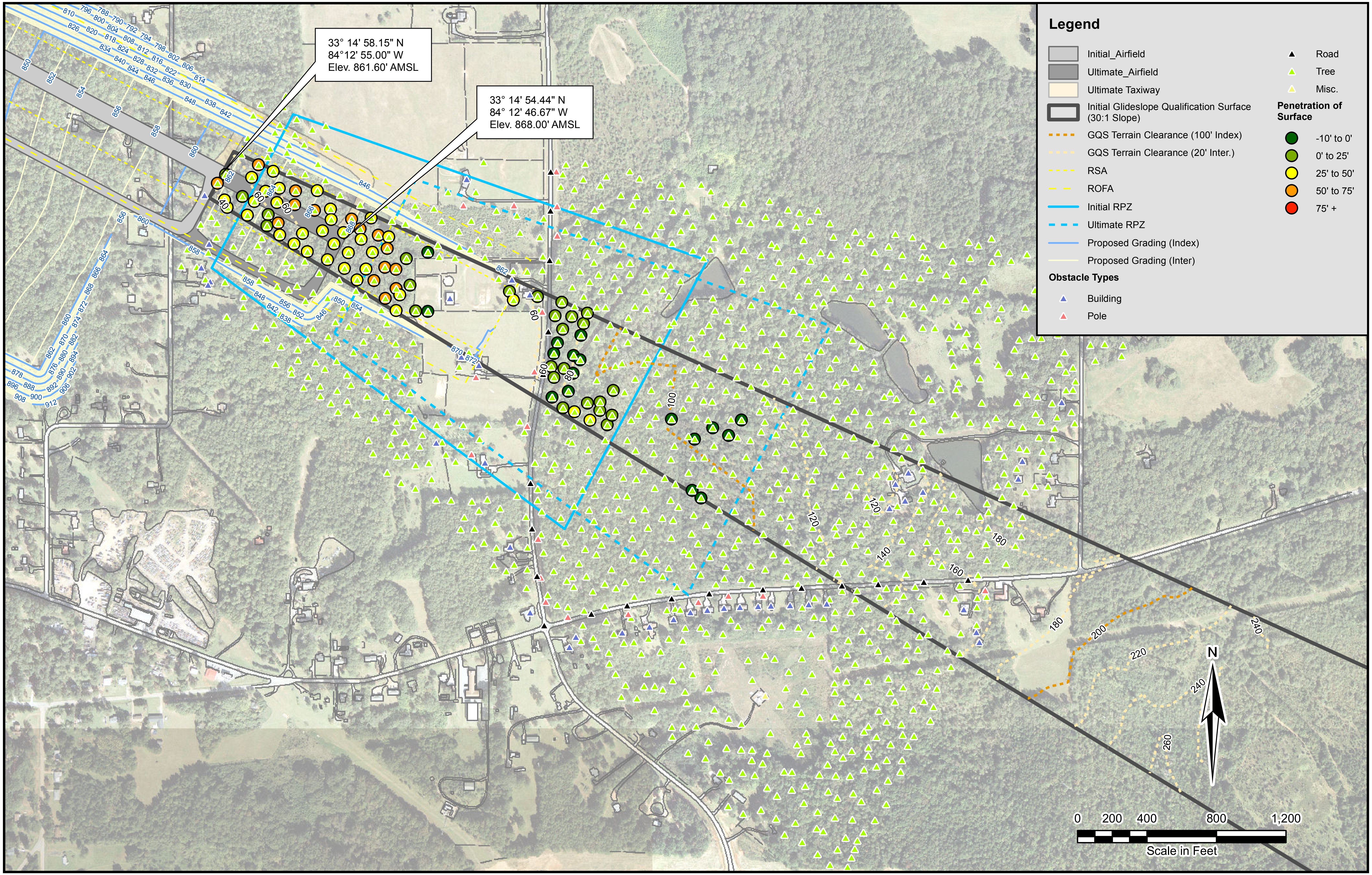
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Glideslope Qualification Surface (30:1 Slope)
Ultimate Glideslope Qualification Surface (30:1 Slope)
GQS Terrain Clearance (100' Index)
GQS Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
33° 15' 23.65" N
84°13' 52.22" W
Elev. 826.65' AMSL
155
N
0 200 400 800 1,200
Scale in Feet

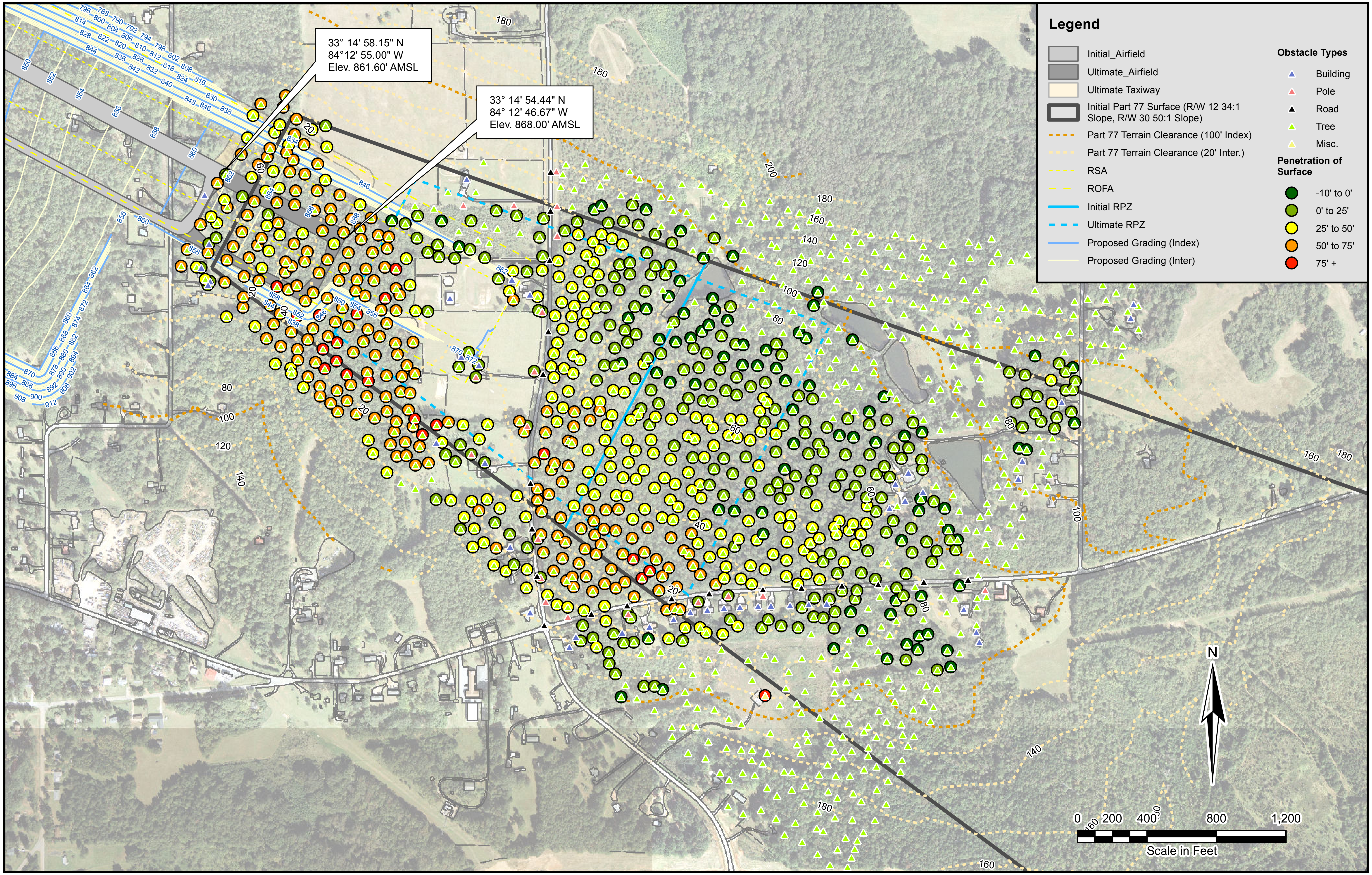


Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Part 77 Surface (R/W 12 34:1 Slope, R/W 30 50:1 Slope)
Part 77 Terrain Clearance (100' Index)
Part 77 Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
33° 15' 23.65" N
84°13' 52.22" W
Elev. 826.65' AMSL
155
N
0
200
400
800
1,200
Scale in Feet

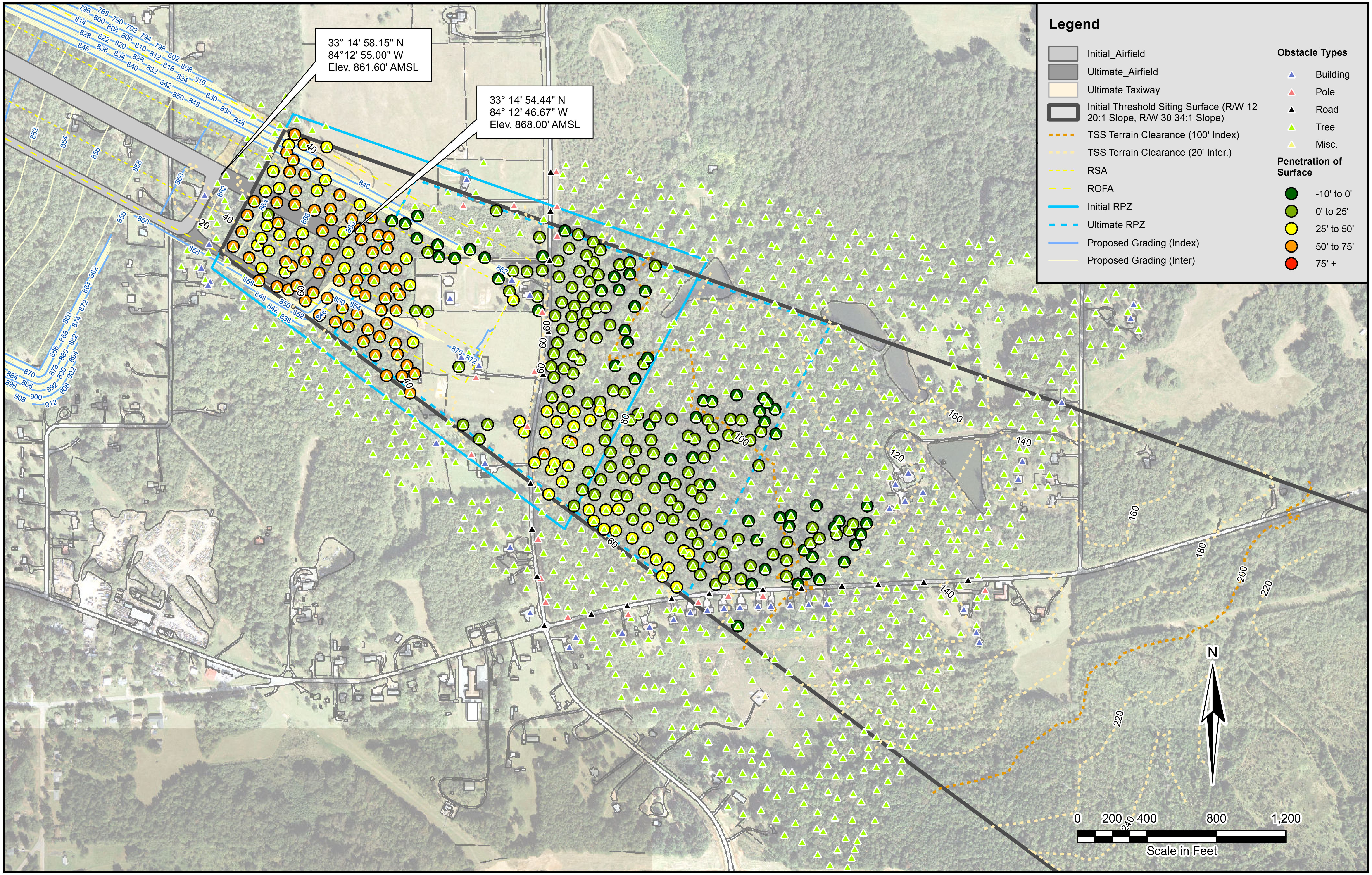

Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Threshold Siting Surface (R/W 12 20:1 Slope, R/W 30 34:1 Slope)
TSS Terrain Clearance (100' Index)
TSS Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
33° 15' 23.65" N
84°13' 52.22" W
Elev. 826.65' AMSL
155
N
0 200 400 800 1,200
Scale in Feet


33° 14' 58.15" N
84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Departure Surface (40:1 Slope)
Departure Surface Terrain Clearance (100' Index)
Departure Surface Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
N
0 200 400 800 1,200
Scale in Feet

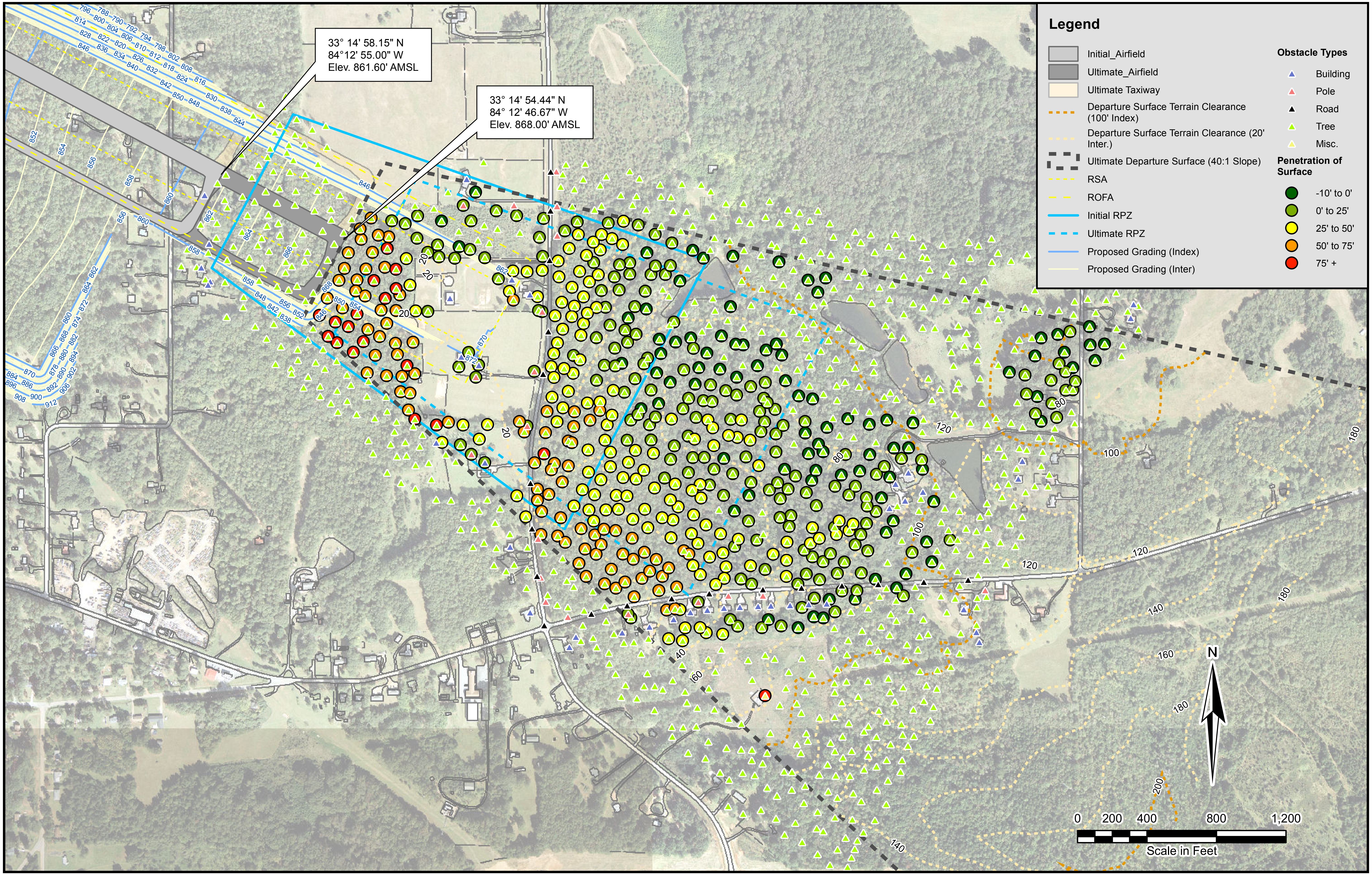

33° 14' 58.15" N
84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Glideslope Qualification Surface (30:1 Slope)
GQS Terrain Clearance (100' Index)
GQS Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
N
0 200 400 800 1,200
Scale in Feet



33° 14' 58.15" N
84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Part 77 Surface (R/W 12 34:1 Slope, R/W 30 50:1 Slope)
Part 77 Terrain Clearance (100' Index)
Part 77 Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
N
0 200 400 800 1,200
Scale in Feet



33° 14' 58.15" N
84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Initial Threshold Siting Surface (R/W 12 20:1 Slope, R/W 30 34:1 Slope)
TSS Terrain Clearance (100' Index)
TSS Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
50' to 75'
75' +
N
0 200 400 800 1,200
Scale in Feet


33° 14' 58.15" N
84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Departure Surface Terrain Clearance (100' Index)
Departure Surface Terrain Clearance (20' Inter.)
Ultimate Departure Surface (40:1 Slope)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
Tree
Misc.
Penetration of Surface
-10' to 0'
0' to 25'
25' to 50'
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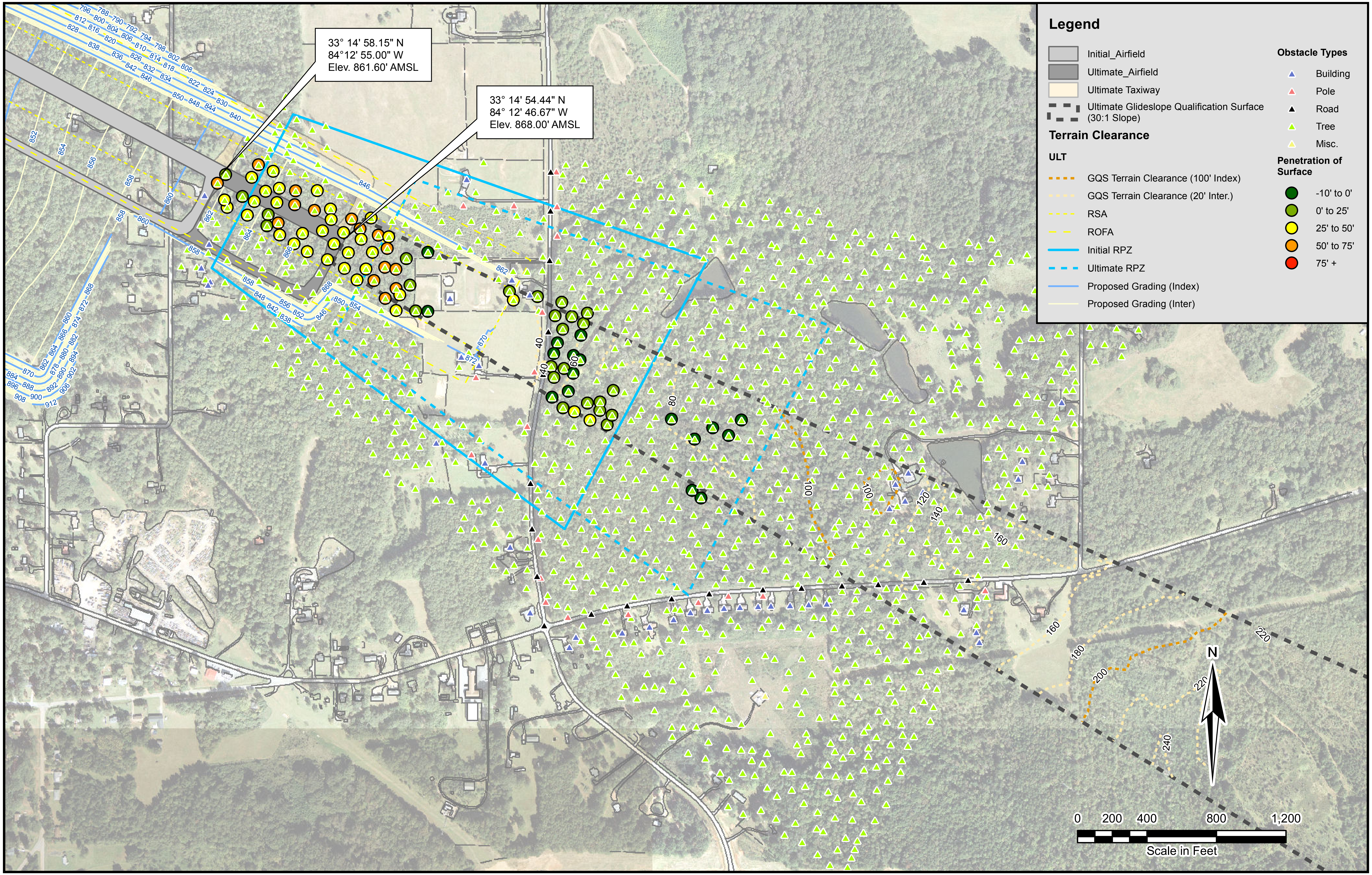
Scale in Feet



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84°12' 55.00" W
Elev. 861.60' AMSL
33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Ultimate Glideslope Qualification Surface (30:1 Slope)
Terrain Clearance
ULT
GQS Terrain Clearance (100' Index)
GQS Terrain Clearance (20' Inter.)
RSA
ROFA
Initial RPZ
Ultimate RPZ
Proposed Grading (Index)
Proposed Grading (Inter)
Obstacle Types
Building
Pole
Road
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Penetration of Surface
-10' to 0'
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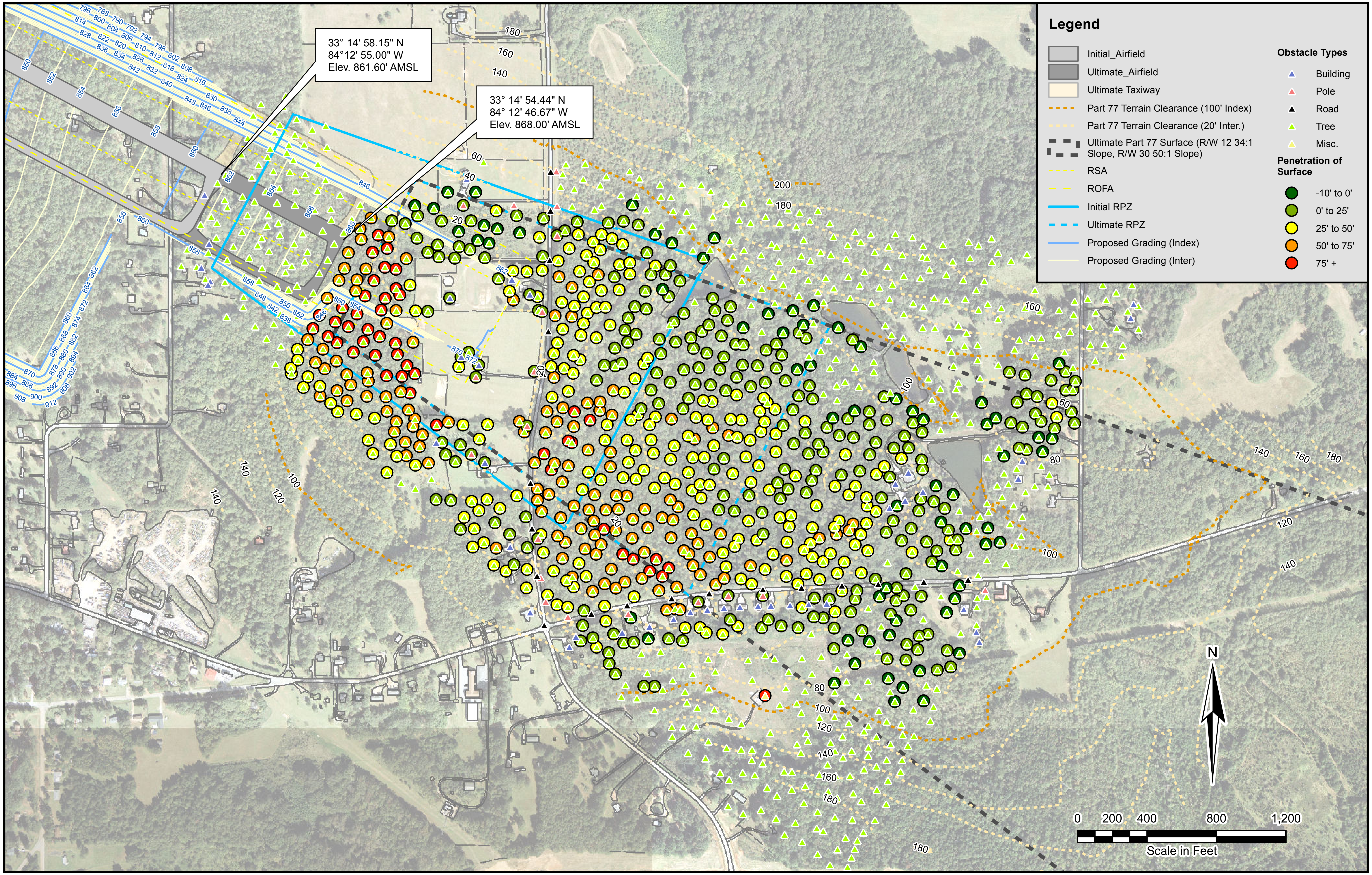

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33° 14' 54.44" N
84° 12' 46.67" W
Elev. 868.00' AMSL
Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Part 77 Terrain Clearance (100' Index)
Part 77 Terrain Clearance (20' Inter.)
Ultimate Part 77 Surface (R/W 12 34:1 Slope, R/W 30 50:1 Slope)
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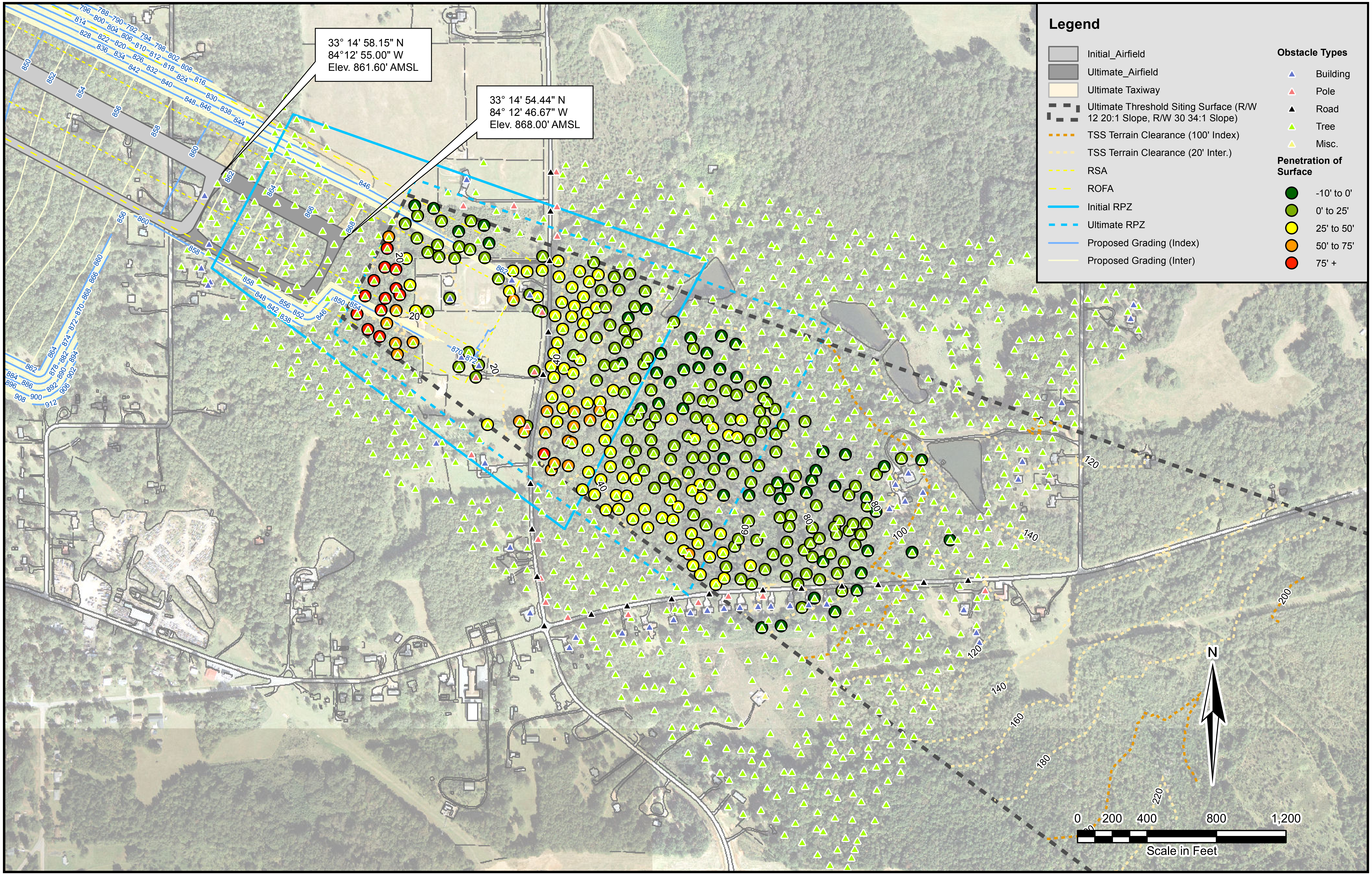

Legend
Initial_Airfield
Ultimate_Airfield
Ultimate Taxiway
Ultimate Threshold Siting Surface (R/W 12 20:1 Slope, R/W 30 34:1 Slope)
TSS Terrain Clearance (100' Index)
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0 200 400 800 1,200
Scale in Feet