Michael Baker
INTERNATIONAL

TECHNICAL REPORT

2017 AIRPORT MASTER PLAN UPDATE

COBB COUNTY INTERNATIONAL AIRPORT

Prepared for:

COBB COUNTY DEPARTMENT OF TRANSPORTATION

September 1, 2017

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Chapter 1 – Introduction

This Airport Master Plan Update for the Cobb County International Airport – McCollum Field (RYY) was prepared in accordance with the requirements of the Federal Aviation Administration (FAA), the Georgia Department of Transportation (GDOT), and Cobb County. All portions of this document are based on the criteria set forth in the FAA Advisory Circulars (AC) 150/5070-6B, *Airport Master Plans* and AC 150/5300-13A, *Airport Design*. The goal of a master plan is to provide the framework needed to guide future airport development that will allow the airport to accommodate growth efficiently. One element of the master plan is the Airport Layout Plan (ALP) drawing set. The ALP provides a blueprint for airport development by depicting proposed facility improvements over the planning period. The ALP provides a guideline by which Cobb County can ensure that development maintains airport design standards and safety requirements and is consistent with airport and community land use plans.

The elements of this study provide a comprehensive analysis of current airport needs, trends and activities affecting its facilities. The study identifies current and potential sectors of the aviation industry that may influence aviation activities at RYY. All recommendations made in this document are focused on maintaining an efficient, safe and secure facility to meet the air transportation needs of the community.

1.1 Background

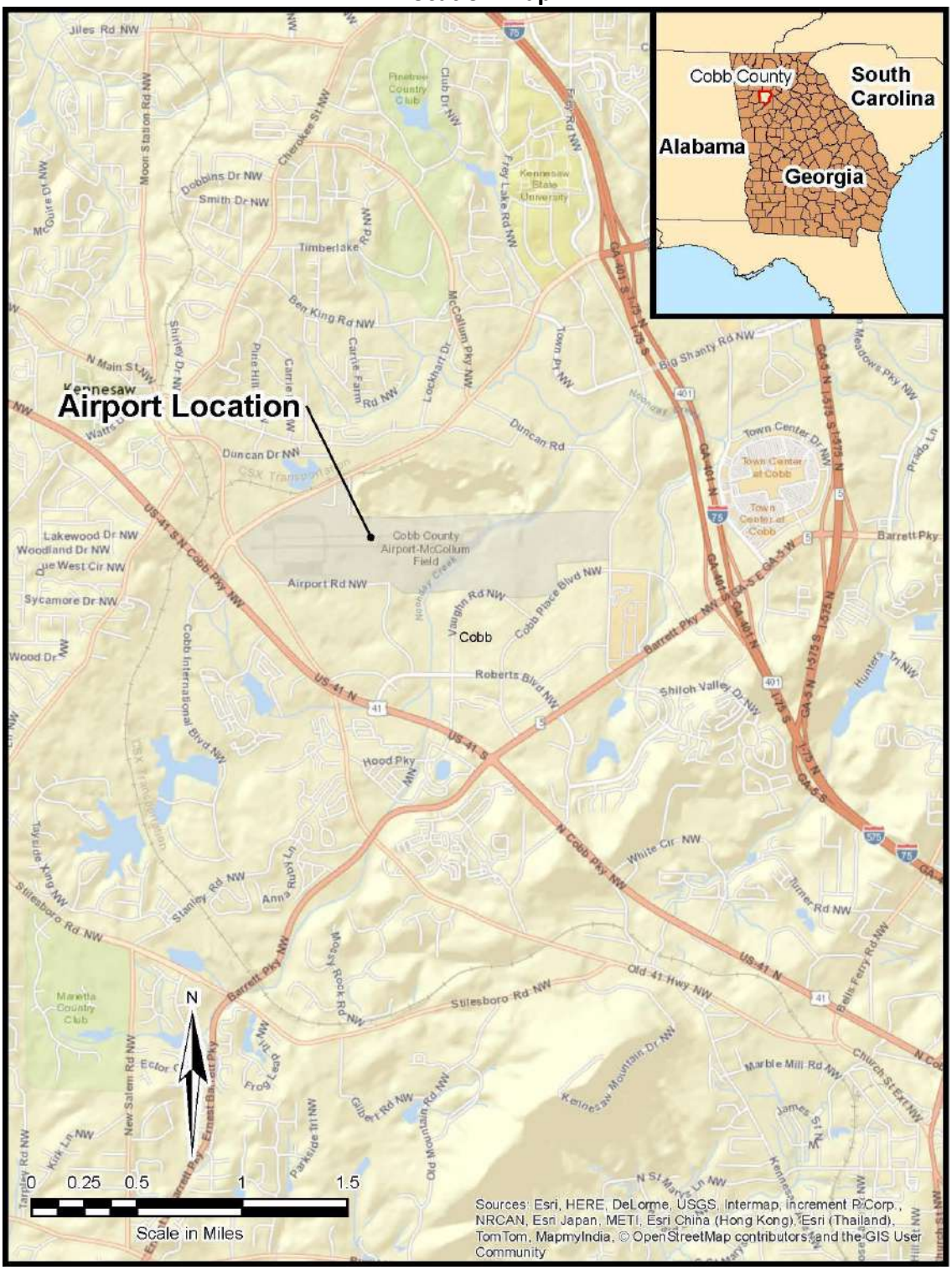
Cobb County International Airport-McCollum Field is located one mile (mi) southeast of Kennesaw, Georgia, in Cobb County, approximately 25 mi northwest of Atlanta. Interstate 75 (I-75) provides convenient access from the north and south and I-285 provides east and west access via I-75 approximately 10 mi south of the airport. US Highway 41 is a major north-south thoroughfare west of the airport, providing access to area municipalities, including Acworth, Marietta, Smyrna, and Atlanta. RYY is also bordered by McCollum Parkway to the north, Airport Road to the south, and by Barrett Lakes Boulevard to the east. The location relative to the surrounding area is depicted in **Figure 1-1**.

The airport opened in 1960, experienced significant runway and hangar space improvements in the 1990s, and more recent hangar and facility improvements and expansions in the last eight years. Additionally, in the past year the airport has opened a 2,900 square foot (sf) U.S. Border and Customs Protection Facility as well as a new, upgraded air traffic control tower. In 2014, the airport had 310 based aircraft comprised of 218 single engine, 32 multi-engine, 32 multi-engine turboprop, 50 jets and 10 helicopters. The airport recorded 71,572 annual takeoffs and landings.

Based upon twenty year projections in this Master Plan, based aircraft are expected to grow from 310 to 348 aircraft and operations will grow from 71,572 to 75,338 in the year 2035. Jet aircraft at the airport are projected to grow from 50 currently to 86 in 2035. This Master Plan will review the existing conditions at RYY, projections of aviation activity, prepare facility requirements, review development alternatives and develop a Capital Improvement Plan based upon the proposed improvements. These

improvements will be reflected on the Airport Layout Plan (ALP) which provide a blueprint to future development and ensures the airport complies with recommended safety and design standards.

Figure 1-1
Location Map



Source: Michael Baker International, 2015.

1.2 Objectives

Cobb County is obligated, through federal grant assurances, to maintain an up-to-date ALP for the Cobb County International Airport – McCollum Field. The following objectives have been established to help guide the Master Planning process:

- Identify airside, landside, and airspace improvements and recommend options to further optimize the economic aspects of the airport while enhancing the safety and operational capability;
- Create a plan that meets the transportation needs of the community and establish an implementation schedule for short, intermediate and long-term improvements;
- Incorporate the interests of public and government agencies into the planning process; and
- Be sensitive to the overall environmental characteristics and needs of the surrounding area.

1.3 Key Issues

As a community with a growing economy and increasing population, Cobb County is faced with unique challenges. The key issues to be addressed by this Master Plan are:

- Responding to economic growth within the community;
- Meeting the needs of existing and future aviation stakeholders;
- Identifying improvements to increase airport landside capacity;
- Identifying areas of highest and best use for future airside facilities; and
- Meeting FAA airport design standards.

1.4 Process

This Master Plan report provides an outline of the development actions necessary to maintain airport facilities. 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. To accomplish the objectives and allow for timely and orderly development, this process will include:

- Conduct an inventory of existing documents of airport facilities, physical airport facilities, regional demographics, airport service area, airport environment and airspace;
- Collect historical operational data and forecast aviation activity through the year 2035;
- Determine the airport facilities that will be required through the planning period;
- Create a concise ALP drawing set reflecting the proposed improvements through 2035; and
- Compile a schedule of the proposed improvements to include the cost estimates, phasing and funding sources of each.

1.5 Public Involvement

During the preparation of the Master Plan Update, public briefings were provided to the Airport Strategic Planning Board at major steps during the planning process. The Strategic Planning Board includes appointed members from each district represented by the Cobb County Board of Commissioners (BOC), the City of Kennesaw, the Town Center CID, the Development Authority, the Pilot Community, the FBO, a Cobb County Commissioner, and one at-large appointment by the Chairman of the BOC. In addition, several presentations were made to community groups, the Town Center Community Improvement District, and the City of Kennesaw Staff. The draft Master Plan documents have been available for review by the public on the Airport Website throughout the process. At the conclusion of the Master Plan Update, a final presentation was provided to the Airport Strategic Planning Board on October 2, 2017. The recommendations of the Master Plan were adopted formally adopted by BOC resolution on November 28, 2017.

1.6 Summary

Overall, the Master Plan will provide an overview of the airport's needs over the twenty-year planning period including issues related to costs, timing, and funding. The goal of the plan is to act as an aid in management decisions for airport facility improvements. Major improvements recommended in the plan include:

- McCollum Parkway/Old US 41 Relocation (by others)
- Taxiway A Relocation to Meet Design Standards
- Joint Use Fire Station (by others)
- Runway 9 RSA Improvements
- Proposed Northwest Basing Area
- Taxiway B Relocation to Meet Design Standards
- Proposed South Basing Area
- 1,204-foot Runway Extension and Associated Improvements

Over the twenty year planning period, the total estimated cost of the proposed airport improvements are $135.7 million. Including $17.5 million in the initial five year planning period. Portions of these cost could be eligible for potential state and federal grants as described in Chapter 7. **Table 1-1** provides proposed development summary and timeline. **Figure 1-1** provides a graphical depiction of proposed improvements and phasing plan.

TABLE 1-1
PROPOSED DEVELOPMENT SUMMARY AND TIMELINE
INITIAL (FY 2017 - FY 2021), INTERMEDIATE AND LONG TERM

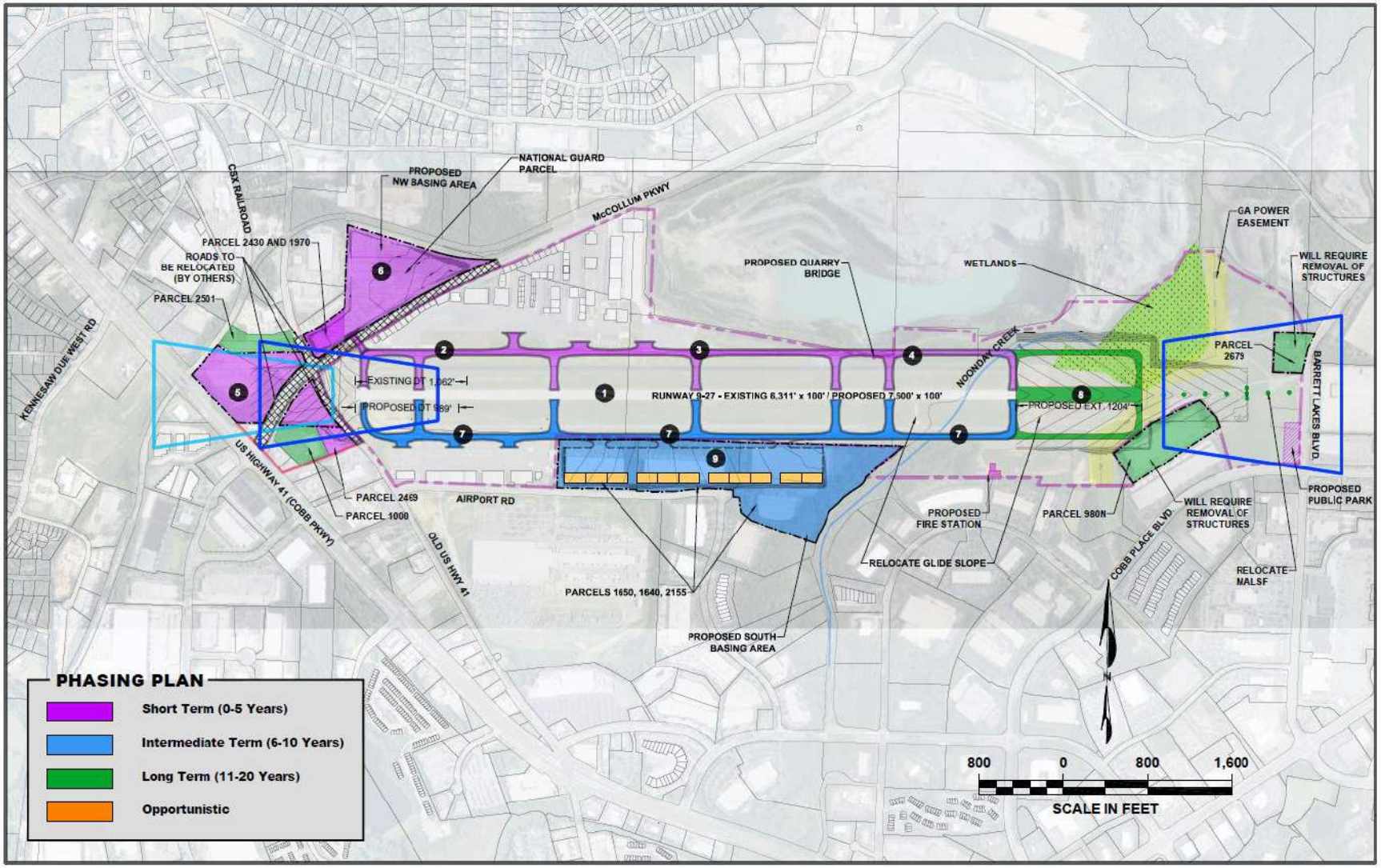
TIMELINE	MAP ID	PROPOSED PROJECT DESCRIPTION	ACTION ITEMS/ NEXT STEPS/STATUS/COMMENTS	FUNDING PLAN	ESTIMATED COST
FY2017		**Master Plan Reimbursement**	Remaining expenses not covered by existing grants.	FEDERAL	$38,131
		Environmental Assessment (EA) of Master Plan Projects	Complete Master Plan. GDOT review and approval of EA project scope.	FEDERAL	$250,000
	1	**Runway 9/27 & Taxiway A/B Remarking**	Contract awarded.	STATE	$200,000
		Pavement Strength Study	Evaluate current pavement strength to support critical aircraft. Update published pavement strength.	FEDERAL	$40,000
		Roadway Relocation (Planning) (By Others)	Road Planning Services contract awarded Spring of 2017. Project (by others) would relocate McCollum Pkwy out of Runway 9 RSA and RPZ.	OTHERS	
				TOTAL FY 2017	**$528,131**
FY2018		**Taxiway A Relocation (Design)**	Complete EA. Project necessary to meet 400 ft runway-to-taxiway separation. Includes geotech and quarry bridge design.	FEDERAL	$425,000
		Taxiway A Relocation Permitting	Pursue permitting for Taxiway A.	FEDERAL	$500,000
		Roadway Relocation (Environmental) (By Others)	Environmental permitting for McCollum Pkwy/Old 41 road relocation.	OTHERS	
				TOTAL FY 2018	**$925,000**
FY2019		***Roadway Relocation (Design) (By Others)***	Roadway relocation environmental clearance received. Roadway design underway.	OTHERS	
	2	**Taxiway A Relocation (Construction Phase 1)**	Complete environmental permitting. Construct northwest section of Taxiway A.	FEDERAL	$4,400,000
		Joint-Use Airport Fire Station (By Others)		OTHERS	
				TOTAL FY 2019	**$4,400,000**
FY2020	3	**Taxiway A Relocation (Construction Phase 2)**	Construct north-central section of Taxiway A.	FEDERAL	$4,400,000
		Roadway Relocation (Design) (By Others)	Continue roadway relocation design (by others).	OTHERS	
				TOTAL FY 2020	**$4,400,000**
FY2021	4	**Taxiway A Relocation (Construction Phase 3)**	Construct northeast section of Taxiway A. Contingent upon quarry easement. Seek MOS for 321-foot separation for northeast section of Taxiway A as alternative if quarry easement not successful.	FEDERAL	$7,200,000
				TOTAL FY 2021	**$7,200,000**
				TOTAL FIVE YEAR	**$17,453,131**

TABLE 1-1
PROPOSED DEVELOPMENT SUMMARY AND TIMELINE
INITIAL (FY 2017 - FY 2021), INTERMEDIATE AND LONG TERM

TIMELINE	MAP ID	PROPOSED PROJECT DESCRIPTION	ACTION ITEMS/ NEXT STEPS/STATUS/COMMENTS	FUNDING PLAN	ESTIMATED COST
INTERMEDIATE TERM (6-10 YEARS)		***Roadway Relocation (ROW Acquisition)***	Acquire right-of-way for McCollum Parkway relocation (by others).	OTHERS	
		Road Relocation (By Others)	Relocate Roads McCollum Pkwy and Old 41 from Rwy 9 RPZ (by others). Contingent upon potential SPLOST funding.	OTHERS	
		Land Acquisition - Northwest Basing Area Development- National Guard Parcel	Contingent upon successful McCollum Pkwy relocation (by others).	FEDERAL	$8,000,000
		Land Acquisition - Northwest Basing Area Development - Parcel 2430 and 1970	Contingent upon successful McCollum Pkwy relocation (by others).	FEDERAL	$1,500,000
		Land Acquisition - (Runway 9 RSA Improvements - Parcel 2469)	Contingent upon successful McCollum Pkwy relocation (by others). Land is required for RSA/OFA grading.	FEDERAL	$750,000
	5	**Runway 9 RSA Improvements - Site Demolition, Design and Construction**	Improve existing RSA upon successful relocation of McCollum Pkwy/Old 41.	FEDERAL	$2,800,000
	6	**Northwest Basing Area - Site Demolition, Design and Grading**	Prepare northwest basing expansion area site for development.	FEDERAL/PRIVATE	$3,100,000
		Taxiway B Relocation - Land Acquisition (Parcels 1650, 1640, 2155)	To achieve D-III design standards.	FEDERAL	$31,500,000
	7	**Taxiway B Relocation - Design and Construction**	To achieve D-III design standards. Seek MOS for 300-ft separation if land acquisition unsuccessful.	FEDERAL	$12,875,000
	9	**Southside Basing Area Expansion Site Demolition, Design and Grading**	Develop land acquired as a result of Taxiway B relocation project.	FEDERAL/PRIVATE	$19,325,000
				TOTAL INTERMEDIATE	**$79,850,000**
LONG TERM (11-20 YEARS)		**Land Acquisition (Runway 27 RPZ - Parcel 980N)**	Necessary for runway extension and RPZ clearing.	FEDERAL	$7,500,000
		Land Acquisition (Parcel 2679 in Runway 27 RPZ)	Necessary for runway extension and RPZ clearing.	FEDERAL	$1,350,000
	8	**Runway 27 Extension (1,204 ft Extension) Design and Construction**	To support runway length requirements of the Gulfstream 550. Ops are projected to reach >500 annual operations by 2020.	FEDERAL	$28,000,000
		Land Acquisition (Runway 9 RPZ - Parcel 1000)	Clear Runway 9 RPZ of incompatible land use.	FEDERAL	$1,500,000
		Easement Acquisition (Runway 9 RPZ - Parcel 2501)	Acquire easement to protect from incompatible land uses.	FEDERAL	$35,000
				TOTAL LONG TERM	**$38,385,000**
OPPORTUNISTIC					
				TOTAL OPPORTUNISTIC	**$0**
				TOTAL ALL TIMEFRAMES (2017 DOLLARS)	**$135,688,131**

Source: Michael Baker International, 2016-2017

Figure 1-1 Phasing Plan



Chapter 2 – Inventory of Existing Conditions

2.1 Introduction

The purpose of the inventory is to summarize existing conditions of all facilities at RYY as well as to summarize other pertinent information relating to the community, airport background, airport role, surrounding environment, and various operational characteristics. The information in this chapter provides the baseline for determining future facility needs. This chapter will provide an inventory of the following:

- Airport Characteristics,
- Operational Characteristics,
- Meteorological Data,
- Airside Facilities,
- Landside Facilities,
- Support Facilities,
- Airport Utilities, and
- Airspace and Air Traffic Control.

The necessary inventory data has been collected from various sources, including:

- Interviews with airport management;
- Interviews with airport users and tenants;
- airport site visits;
- Research and review of previous airport planning analyses and studies; and
- Review of aerial photography, mapping, and city and county Geographic Information System (GIS) data.

2.2 Airport Characteristics

2.2.1 Aviation Role

RYY is a public-use facility owned and operated by Cobb County and maintained by Cobb County Department of Transportation (DOT). The airport serves a variety of general aviation users. Airport development is guided by the FAA, Georgia DOT and the Cobb County Board of Commissioners. The following sections review the visions and roles of RYY.

FAA Service Level

In the U.S., 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 NPIAS service level classifications and their criteria.

Table 2-1
FAA NPIAS

NPIAS 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.

RYY is classified as a General Aviation – Reliever airport, relieving general aviation congestion from Hartsfield-Jackson Atlanta International Airport. 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. RYY is classified as a National airport.

Table 2-2
FAA ASSET Categories

Category	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. 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.

Cobb County International Airport – McCollum Field is classified as a Level III airport, a Business Airport of Regional Impact and of significant importance to the state's aviation needs.

Airport Level Role

In 2004, RYY completed a role assessment study, which provided a vision of the airport's role within the community and region. The Cobb County Board of Commissioners adopted a *Community and Business Role* for the airport, primarily accommodating small and medium corporate turbine powered aircraft, while still preserving facilities and services for smaller single and multi-engine piston aircraft. The study provided a projection of future aviation activity and provided recommendations for guiding airport development within the *Community and Business Role.*

2.2.2 Land Ownership and Land Use

Land Ownership

Cobb County owns approximately 323 acres of airport property in fee simple title.

Zoning and Land Use

FAA and GDOT Aviation Programs strongly recommend airport sponsors maintain airspace and land uses compatible with airport operations. Airport land use compatibility planning means controlling land uses in and around airports to promote use and development that does not create restrictions to the airport, or hazards to persons or property on the ground and the flying public. Land uses should be controlled within the airport, runway protection zones, approach areas, and the general vicinity of the airport.

Existing airport property is used for aeronautical purposes per the most recently FAA-approved ALP. Land use immediately surrounding the airport is regulated by Cobb County and the City of Kennesaw.

Properties adjacent to the airport are zoned Future Industrial, Heavy Industrial, and Light Industrial. Industrial uses are compatible. There are some commercial and residential uses to the north and west of the airport. Land uses within the Runway Protection Zones, are commercial or industrial. These land uses are compatible.

Town Center Area Community Improvement District

The Town Center Area Community Improvement District (CID) is a self-taxing district established in 1997 to promote infrastructure improvements and address transportation issues. The CID is centrally located in northern Cobb County between the cities of Marietta and Kennesaw. This area is roughly bounded by Barrett Parkway on the south, Bells Ferry Road on the east, Chastain Parkway on the north, and Cobb Parkway on the west. The airport is included in the CID.

The CID is governed by a seven-member board. Property owners within the CID elect six directors and the Cobb County Board of Commissioners appoints the seventh director. The CID has a six-year life span and is currently in its fourth term (2015-2021). Utilizing tax dollars generated from businesses within the CID, including airport businesses, the CID has proactively addressed transportation issues through many transportation projects, including intersection improvements, corridor improvements, a light rail study, vanpools, and designing the installation of a Medium Intensity Approach Lighting System with Sequenced Flashers (MALSF) at the airport. Additionally, the CID conducts planning studies and makes recommendations to the Cobb County Board of Commissioners.
In 2010 the CID updated the Town Center Area Master Plan. One of the goals of the update is to balance land use and transportation. The objectives are to encourage an efficient and sustainable land use and transportation relationship and encourage desired land use patterns while maintaining the necessary degree of flexibility to allow for diversity, innovation, and individualism. The CID recommends properties immediately adjacent to the airport remain reserved for industrial uses. This is consistent with the Cobb County 2030 Comprehensive Plan.

Height Zoning

Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace,* establishes standards and notification requirements for objects affecting navigable airspace. Part 77 establishes the standards for "imaginary" surfaces in relation to the airport and to each runway. The size of each surface is based on the type of approach available or planned for that runway.

Cobb County Code of Ordinances Section 134-275 establishes the "Civilian Airport Hazard District." This ordinance protects the airport's Part 77 imaginary surfaces by defining the surfaces and establishing the procedures for removal or marking of objects that penetrate the surfaces, and the penalties associated with the violation of the surfaces. Additionally, the ordinance identifies land uses and zoning designations that are compatible within the airport operations areas. A copy of the ordinance is provided in **Appendix A**.

The City of Kennesaw also has a Civilian Airport Hazard District codified in Section 2.01.06 of their municipal code. Similarly, this ordinance protects the airport's Part 77 surfaces and identifies compatible land uses within the airport operations areas. A copy of the ordinance is provided in **Appendix B.**

2.3 Operational Characteristics

2.3.1 Activity

Airport activity levels a census of aircraft operations and based aircraft. In 2014, Cobb County International Airport had 310 based aircraft comprised of 218 single engine, 32 multi-engine piston, 10 turboprop, 50 jets, and 10 helicopters. According to airport records, RYY accommodated 71,572 general aviation operations in 2014, of which 57.8% (41,362) were itinerant and 42.2% (30,210) were local. Businesses operating at RYY include corporate flight departments, charter operations, aircraft maintenance and avionics repair, fixed wing and helicopter flight training, aircraft scenic flight services, and Fixed Base Operators (FBOs). Other activity consists of medical evacuation service and a Georgia State Patrol unit. The airport does not accommodate commercial airline service or regular military activity.

2.3.2 Meteorological Data

Due to the effect of weather on aircraft performance and airfield design, an overview of meteorological characteristics for the Kennesaw area is presented in the following section.

Climate

The field elevation at Cobb County International Airport is 1,040 ft above Mean Sea Level (MSL). Located in northwest Georgia, RYY enjoys a mild, temperate climate throughout the year. According to the National Oceanic and Atmospheric Administration, for the period 2000-2014, the mean annual temperature in the area is 60° Fahrenheit (F). Mean maximum temperature during the summer months is 85° F, and mean minimum temperature during winter months is 34° F.

Wind Coverage

Historical wind conditions have been evaluated to determine the percentage of wind coverage for Runway 9/27 at RYY. 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 velocities 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. For this analysis, wind data for the Atlanta area for years 2006-2015 was obtained from the National Oceanic and Atmosphere Administration's National Climatic Data Center. Wind coverage percentages take into account the approach and visibility minimums associated with each runway. This information is presented in **Table 2-4**, *Wind Coverage*, and **Figure 2-1**, *Wind Roses*. 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 Cobb County International Airport, the ARC is C-II; therefore, 10.5 knots (kts), 13 kts, and 16 kts crosswind components were analyzed. A review of prevailing winds shows that for each crosswind component, the runway provides the FAA's requisite 95% wind coverage under All Weather, Visual Meteorological (VMC), and Instrument Meteorological (IMC).

Table 2-4
Wind Coverage

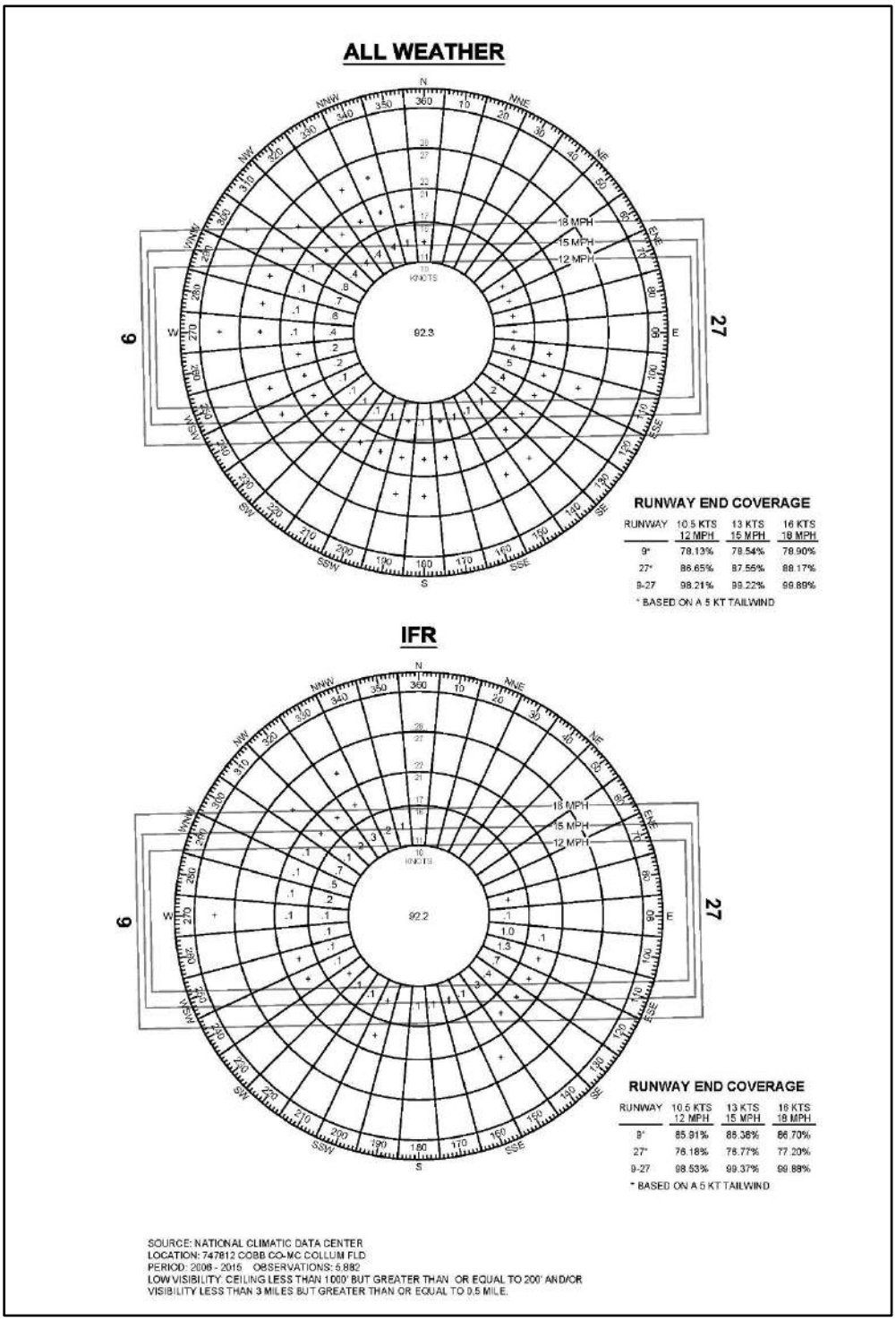
	Crosswind Component		
	10.5 knots	**13 knots**	**16 knots**
All Weather	98.21%	99.22%	99.89%
VMC	98.19%	99.22%	99.90%
IMC	98.53%	99.37%	99.88%

Sources: National Climatic Data Center, 2006-2015; Michael Baker International, 2015.
Notes:
IMC – Ceiling less than 1,000 ft AGL and visibility less than three mi
VMC – Ceiling greater than 1,000 ft AGL and visibility greater than three mi

2.4 Airside Facilities

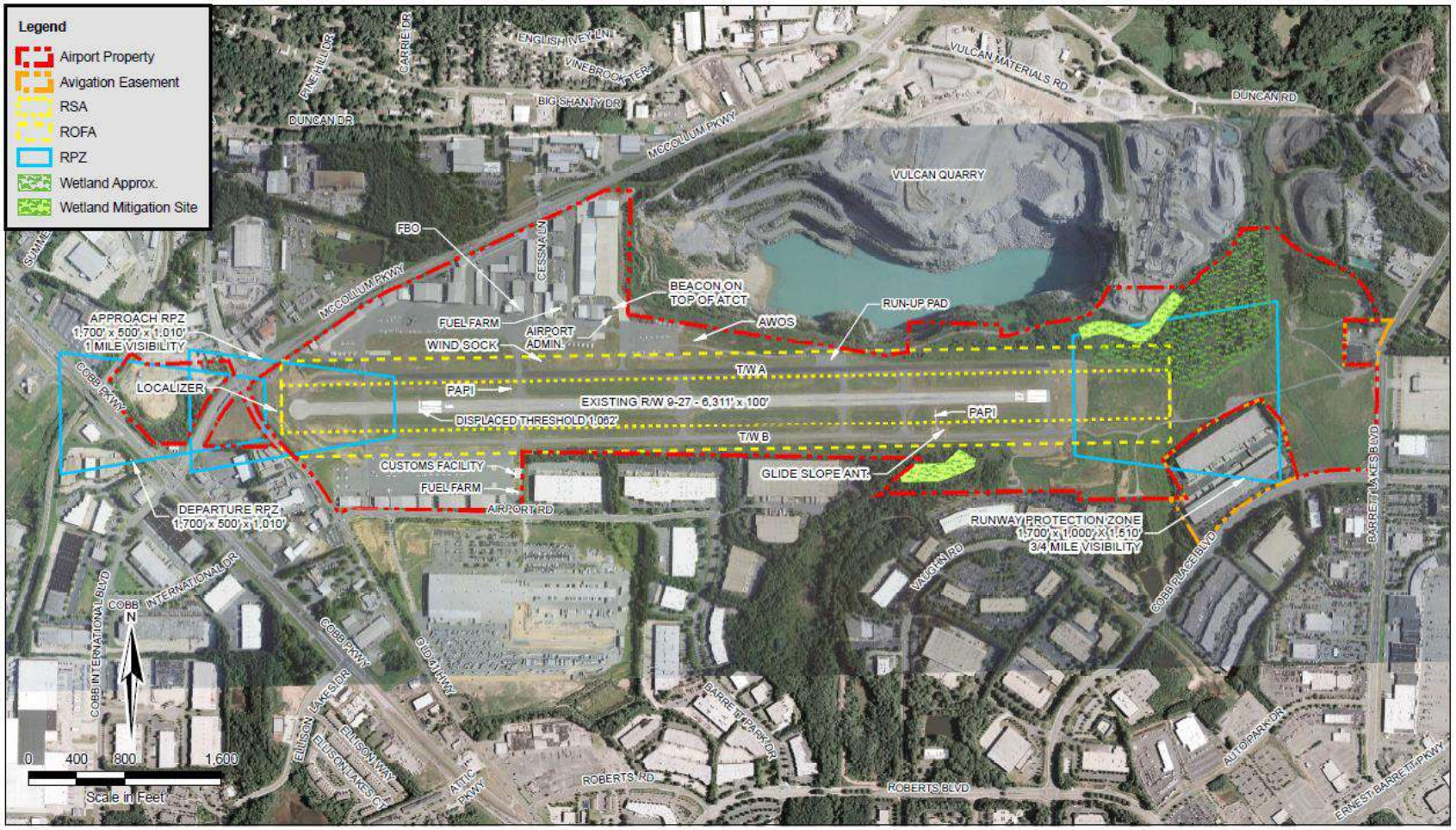
The airside facilities support all arriving and departing operations of aircraft. Runways, taxiways, navigational aids (NAVAIDS), visual aids, signage, and lighting comprise the airside facilities. The current airfield configuration is graphically depicted on **Figure 2-2**.

Figure 2-1
Wind Roses



Sources: FAA National Climatic Data Center, 2015; Michael Baker International, 2015.

Figure 2-2
Existing Airfield Configuration



Source: Michael Baker International, 2015.

2.4.1 Modification of Standards

There are currently no modification of standards for RYY.

The Airport currently holds a Letter of Agreement (LOA) with McCollum ATCT for Designation of Movement/Non-Movement Areas and Control of Vehicular Traffic on Airport Movement Areas. The purpose of the agreement is to define responsibility for the control of aircraft, vehicular, and pedestrian traffic within the airport. The scope of the agreement is to limit risks on the airport involving an aircraft, vehicle, person, or an object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, landing, or intending to land.

The LOA addresses three non standard items at RYY:

- Runway-to-Taxiway Separation for Taxiway A. The currently runway-to-taxiway separation from Runway 9-27 to Taxiway A is 225 feet (ft) and the required separation is 300 ft.
- Airfield Runway-to-Hold-line Position. The required runway-to-holdline separation from Runway 9-27 is 250 feet. However, portions of Taxiway A provide only 212 ft of separation.
- The existing ILS glide-slope antennae is located 52.5 feet from Taxiway B centerline between Taxiway B-5 and B-6 which places it inside the Taxiway Object Free Area. The existing Taxiway Object Free Area Width is 65.5 feet each side of the runway centerline.

In accordance with the LOA, aircraft are restricted when using Taxiway A as follows. When weather conditions at RYY are two miles or less visibility and 800 ft or less ceiling:

- No aircraft may takeoff or land while an aircraft with a wingspan of 110 ft or more is on Taxiway A.
- No aircraft or vehicle will be on Taxiway A during a Category D aircraft takeoff and landing.
- No aircraft with a wingspan greater than 80 ft may taxi on Taxiway B between B-5 and B-6.

A copy of the LOA has been provided in **Appendix D**.

2.4.2 Runway

One runway serves RYY. Runway 9/27 is 6,295 ft in length (6,311 ft if top of keyhole on Runway 9 is included) and 100 ft wide. When measured from the top of the 'keyhole' of Runway 9, the total runway length is 6,2 ft. However, the FAA does not include the keyhole in its measurements and reports the length as 6,295 ft. The runway is grooved concrete in good condition, with a design strength of 60,000 pounds (lbs) dual wheel landing gear configuration. The precision instrument runway markings are in good condition. Major reconstruction of Runway 9/27 was completed in 2009, with a widening from 75 ft to 100 ft and replacement of asphalt with concrete.

Runway 9 has a displaced threshold of 1,062 ft and a right traffic pattern. The threshold is displaced in order to meet airspace requirements for obstruction clearance. It is equipped with a four-light, 4° visual Precision Approach Path Indicator (PAPI), located on the left side of the threshold.

Runway 27 has a standard left traffic pattern. It is equipped with a four-light, 3° visual PAPI, located on the left side of the threshold.

2.4.3 Declared Distances

Because Runway 9 has a displaced threshold and non-standard runway safety areas (RSA), declared distance information for aircraft operation have been published for both runway ends, as required by FAA AC 150/5300-13A, *Airport Design.* The declared distances for Runways 9 and 27 are presented in **Table 2-5.**

Table 2-5
Declared Distances

	Runway 9	Runway 27
Take Off Run Available (TORA)	6,295 ft	6,295 ft
Take Off Distance Available (TODA)	6,295 ft	6,295 ft
Accelerate-Stop Distance Available (ASDA)	6,295 ft	5,374 ft
Landing Distance Available (LDA)	5,233 ft	5,374 ft

Source: Michael Baker International, FAA Form 5010, 2017.

Additional information on declared distances and runway design requirements is included in Chapter 5, *Development Concepts.*

2.4.4 Taxiways

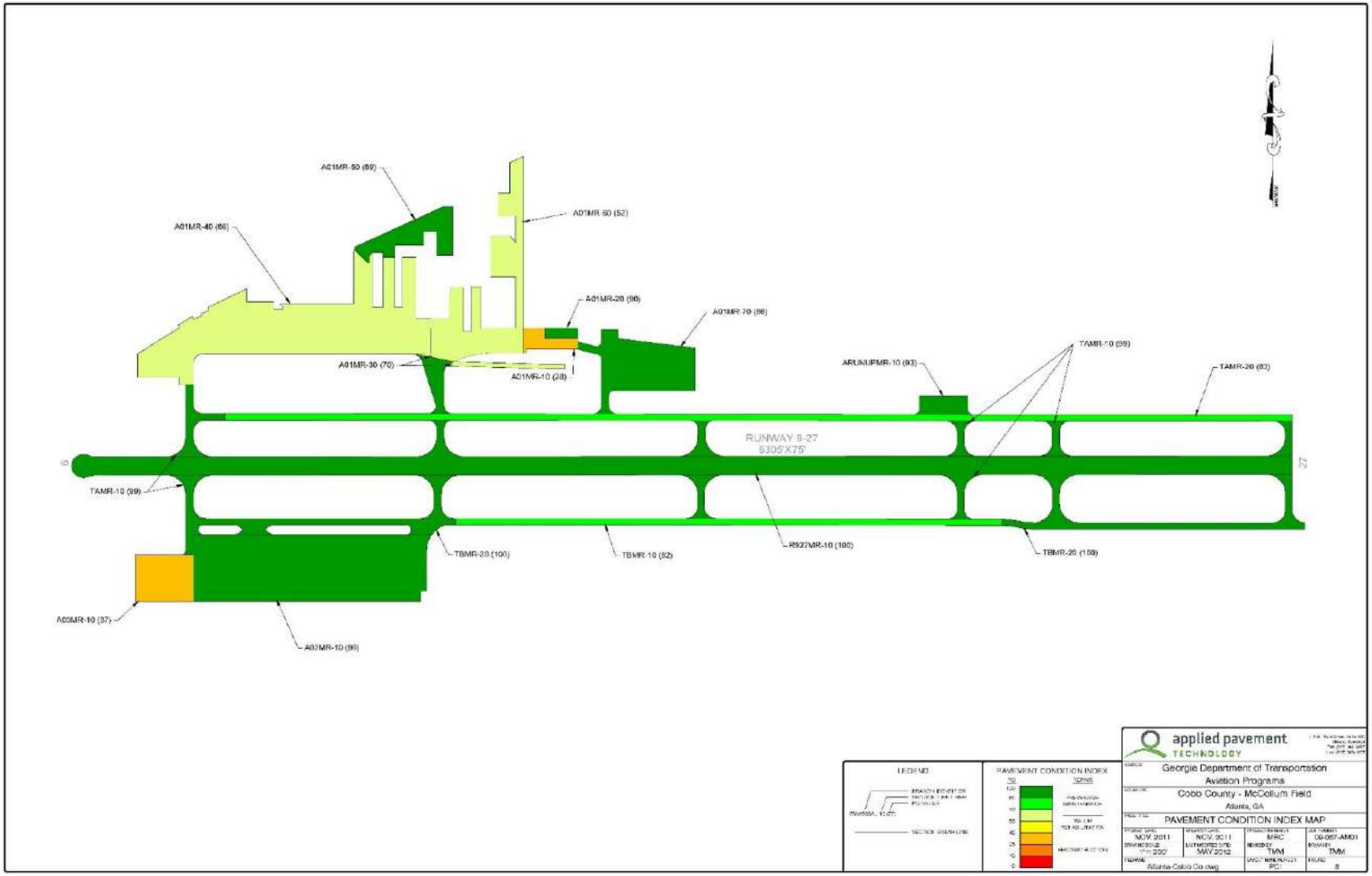
The runway at Cobb County International Airport is supported by two full parallel taxiways, which provide access to RYY's landside facilities and services. Taxiway A, located on the north side of the runway, is 40 ft wide, and Taxiway B, situated on the south side, is 35 ft wide. Twelve connector taxiways, six to each parallel taxiway, provide access from the runway to the taxiways. Both parallel taxiways are constructed of asphalt in good condition, and provide direct access to the north and south apron areas. In 2013, both taxiways were extended approximately 550 ft to the end of Runway 9.

2.4.5 Pavement Condition

The Pavement Condition Index (PCI) is based on a visual inspection of pavement condition. The Georgia Department of Transportation last completed a statewide inventory of airport pavements in 2012. The findings were published in the 2012 Georgia Airport Pavement Management Report. Per the 2012 report, the airport had an overall PCI of 85. The runway had a PCI of 100 and the taxiways had PCI values ranging from 82-100. On a 100 point scale, with 100 being perfect condition, the runway and taxiways are in good condition. The apron areas and taxilanes had PCI values that ranged from 28-100. Currently,

a pavement rehabilitation project for the north apron area is being designed. This information is presented in **Figure 2-3**.

Figure 2-3
2012 Airfield Pavement Condition Index



Source: Georgia Statewide Pavement Management Study, 2012.

2.4.6 Airfield Lighting

Standard airfield lighting is important for visibility and situational awareness at night and during periods of low visibility. Runway, taxiway, and apron lighting at RYY is detailed below.

Runway Lighting

The runway is equipped with standard High Intensity Runway Lighting (HIRL). Runway 27 also has Runway End Identifier Lights (REILs). The runway lighting is pilot activated via the Common Area Traffic Advisory frequency when the Air Traffic Control Tower (ATCT) is closed.

Taxiway Lighting

Both Taxiway A and B and all connector taxiways are lit by standard Medium Intensity Taxiway Lighting (MITL). Existing MITL was replaced in November 2006 along the entire length of Taxiway A and along Taxiway B between Taxiways B1 and B2.

Apron Lighting

Pole and hangar mounted flood lamps provide lighting for the apron areas on both the north and south apron areas.

Airport Signage

Airport signage is used to indicate an intersection of, or entrance to, a runway, taxiway, or other critical movement area, and provides locational and directional information to pilots and ground vehicles. Existing airport signage for much of the airport was replaced with standard signage in November 2006.

2.4.7 Navigational Aids (NAVAIDS)

NAVAIDS provide visual and/or electronic guidance to pilots approaching the airport. Cobb County International Airport's NAVAID capabilities are described as follows.

Instrument Landing System (ILS)

Runway 27 is equipped with an ILS precision approach equipment, providing aircraft receivers with both horizontal and vertical electronic course guidance to the runway. The ILS equipment is comprised of a capture effect glideslope antennae (vertical course guidance) located between Taxiway B and the threshold of Runway 27, and a localizer antenna (horizontal course guidance) located directly off the end of departure end of Runway 27. The current published approach minimums provide guidance to 1,198 ft MSL (200 ft Above Ground Level (AGL)) and ¾ statute mile visibility.

Area Navigation (RNAV) and Global Positioning System (GPS)

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 27 has a published LPV instrument approach, providing guidance down to 1,198 ft MSL (200 ft AGL) and ¾ statute mile visibility. Runway 9 is not WAAS capable and has an RNAV approach with 1,560 ft MSL (600 ft AGL) and 1 statute mile visibility minimums.

Very High Frequency Omni-directional Range (VOR)

VORs are ground based navigation stations which emit both a steady 360° signal, as well as a rotating 360° signal. These signals are compared by the aircraft receiver in order to determine aircraft position, and course information is transmitted to the cockpit instruments. The VOR/Distance Measuring Equipment (DME) non-precision approach to Runway 9 at RYY is based on the Rome VOR (identifier RMG), approximately 27 nautical miles (nm) northwest of the runway end. It provides guidance down to 1,900 ft MSL (872 ft AGL) and one statute mile visibility.

2.4.8 Visual Aids

Visual aids at an airport provide additional information for identification and safe operation at an airport. Cobb County International Airport is equipped with a rotating beacon, a wind cone, and PAPIs, for visual cues of airport conditions.

Rotating Beacon

Cobb County International Airport is equipped with a rotating beacon located on the top of the new ATCT. High intensity lamps mounted on an assembly rotate 360° every six seconds, giving the illusion of emitting flashes of light. The designation for Cobb County International Airport, 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 just east of Taxiway A2. It provides visual surface wind information to pilots. The wind cone is also co-located with a segmented circle, which physically indicates the direction of the traffic pattern for each runway. A non-lighted wind cone is located just south of Taxiway B, near the Runway 27 end.

Precision Approach Path Indicators (PAPIs)

Both runway ends at RYY are equipped with four-box PAPIs located on the left side of each runway threshold. These landing aids help pilots to visually establish aircraft on the proper approach glide path for landing, by emitting two red lights and two white lights when the aircraft is vertically aligned properly with the runway. The PAPI system emits three or four white lights if the aircraft is higher than the glide path and three or four red lights if the aircraft is lower than the proper glide path, indicating to the pilot an adjustment of altitude is needed.

2.4.9 Weather Reporting Facilities

The airport is equipped with an Automated Weather Observation Station (AWOS) weather reporting system, located north of Taxiway A and east of the administration building and northeast apron. The AWOS is a modern weather collection and reporting system which 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 conditions are also available via telephone and aviation weather websites.

Table 2-6 provides a summary of existing airside facilities.

Table 2-6 Summary of Existing Airside Facilities	
Item	**Existing Condition**
Airport Role	FAA - GA/National GASP - Level III
Airport Elevation	1,040 ft
Airport Property	309 ac
Max Mean Temp. of Hottest Month	85° F
Airport Reference Point	34-00-47.4 N
(latitude/longitude)	84-35-49.3 W
Magnetic Declination	4° 49’ W changing by 0° 5’ W per year (2015)
Instrument Approach Procedures	ILS; LOC; RNAV; LPV
Weather Reporting	AWOS III
Runway 9/27	
Runway Length	6,295 ft
Runway Width	100 ft
Pavement Type	Concrete - Grooved
Strength	SW - 30,000 lbs DW- 60,000 lbs
Effective Gradient	0.80%
Lighting	HIRL
Marking	Precision
Parallel Taxiways	
Taxiway Pavement Type	Asphalt
Width	35-40 ft
Lighting	MITL

Source: Michael Baker International, 2015.

2.5 Landside Facilities

The landside facilities at Cobb County International Airport include one FBO, fuel storage and services, apron areas, hangars for aircraft storage, a new customs facility, and maintenance facilities. These facilities and businesses support and provide services for aircraft operators at the airport.

2.5.1 Fixed Base Operation (FBO) and Fuel Storage

Hawthorne Global Aviation Services is the only full-service FBO at RYY. Hawthorne leases a 5,792 sf terminal and offers aircraft fueling services, pilot lounge, weather computer services, courtesy car, and aircraft storage.

Hawthorne owns and operates two fuel farms, one located on the south side of the airport and one on the north side of the airport, just east of their terminal building. The fuel storage capacity is 60,000

gallons (gal) of jet fuel (Jet A) fuel and 30,000 gal of low-lead aviation gasoline (100LL). Hawthorne on average, sells approximately 1,300,000 gal of Jet A fuel annually and approximately 200,000 gal of 100LL.

Hawthorne is the largest tenant currently occupying the airport and leases approximately 85% of the airport from Cobb County. They engage in subleasing the facilities to other major tenants. Hawthorne leases 480,000 sf of hangar space. This includes 50 60x60 hangars 100% occupied, 25 T-Hangars 100% occupied, 10 port-a-ports 100% occupied, and 15 large corporate hangars 90% occupied. Their apron area consists of more than 56,100 square yards with 220 tie-down spaces.

2.5.2 Airport Businesses

Many aviation services are provided by the other businesses located at Cobb County International Airport, including Hanson Aero, a provider of hangar space, tie-downs, and office space; aircraft charter/air taxi operators FlightWorks, and Atlanta Air Charter; DLK Aviation, Avionics West, and H&L Aircraft Service are major aircraft and avionics maintenance businesses; Bi-Plane Adventures airplane rides; and flight training schools Superior Flight School, Prestige Helicopters, and All2Fly Aviation.

2.5.3 Airport Administration

The airport administration office is located on the north side of the airfield in the building beneath the old ATCT. These facilities include the airport manager's office and a conference room. Airport administration includes the Airport Director and Operations Manager.

2.5.4 Airport Maintenance

The two-bay airport maintenance building is located on the north side of the airfield, near the airport administration building. The airport currently employs one full-time maintenance worker and one part-time worker. Graded gravel and paved airport perimeter service roads are maintained for inspection and emergency purposes.

2.5.5 Emergency Services

Cobb County International Airport has mutual aid agreements with Cobb County Fire Department in the event of an airport emergency, and supports ongoing aircraft crash, fire, and rescue training for Cobb County fire fighters. Currently, a Cobb County fire station is located one mile southwest of the airport, on US Highway 41.

2.5.6 U.S. Customs and Border Protection Facility

To further enhance the services available at RYY, Hawthorne in agreement with Cobb County, began construction on a new U.S. Customs and Border Protection facility on the south side of the airport in

2014. It is expected to provide a much needed convenience for international customers of the airport. The facility became operational in June, 2015.

2.5.7 Auto Parking

The airport management and ATCT facilities located on the north side of the airfield have a parking area consisting of 22 parking spaces. Corporate and t-hangar tenants on the north side of the field have 123 existing parking spaces. Parking areas for the tenants on the south side of the airport consist of 130 spaces.

2.5.8 Airport Access

The airport businesses at Cobb County International Airport can be accessed by several area highways. The airport management office, the ATCT, the t-hangars, and businesses on the north side of the airfield are accessed from McCollum Parkway. The businesses and organizations located on the south side of the airfield are accessed via U.S. Highway 41 and Airport Road. I-75 is less than two miles east of RYY.

2.5.9 Airport Utilities

The airport utilities include electrical, natural gas, water and sewer, and telephone service. Georgia Power provides electrical power for the airport. Cobb County Water provides water, sewer and wastewater management for the airport. Natural Gas is provided for the tenants by a private gas marketer of the tenants choosing via Atlanta Gas Light supply, however, the airport administration facilities and ATCT are all electrical. Telephone service is provided by AT&T. FAA utilities include the glide slope and localizer, REILs, and PAPIs.

2.5.10 Airport Waste and Recycling Facilities

Waste and recyclable materials generated at the airport are disposed of by the Cobb County Solid Waste Department. Airport Administration, the FBO, and tenants utilize disposal receptacles located on the airfield. Receptacles are emptied by the County on a weekly basis.

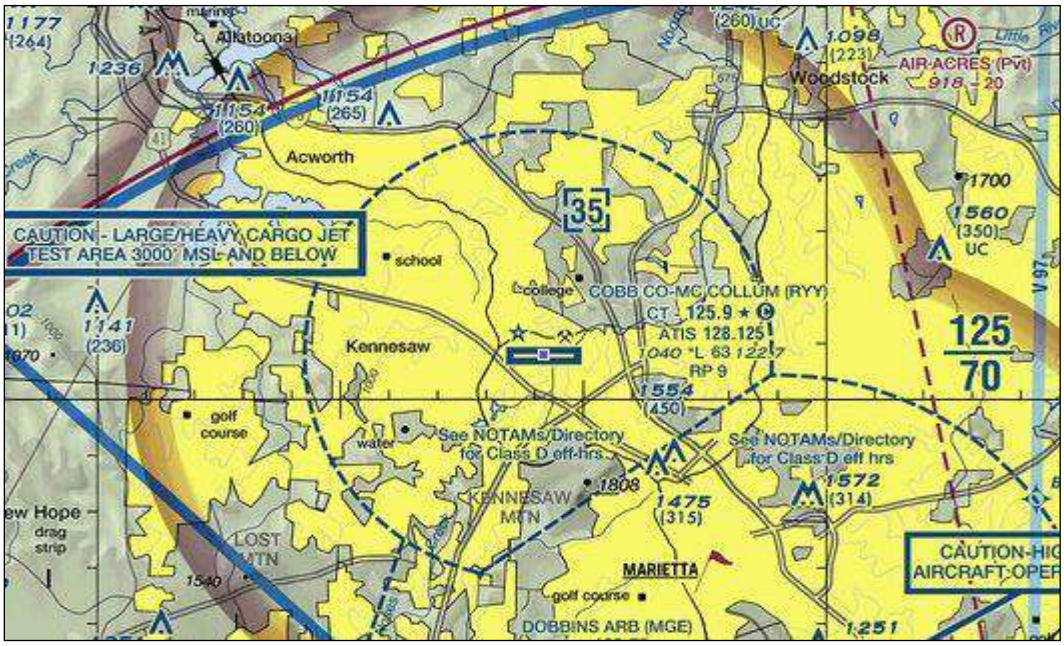
International waste disposal at the new customs facility is managed by Hawthorne Aviation. As the sponsor of the customs facility, Hawthorne submits a waste removal plan to U.S. Customs and Border Protection for review and approval. All international waste is collected and transported to an incinerator in the Atlanta area.

2.6 Airspace and Air Traffic Control

Cobb County International Airport is surrounded by Class D airspace within a four nm radius, extending from the surface to 3,500 ft MSL. Dobbins Air Reserve Base (ARB) Class D airspace adjoins the RYY airspace along the southern to southeastern boundary of the RYY airspace, within two nm of RYY. Class E airspace surrounds RYY within seven nm, and extends from 700 ft AGL up to 17,999 ft MSL. RYY is also located within the outer boundary of the Atlanta Class B terminal airspace area. The floor of the Class B airspace above RYY is 7,000 ft MSL. Classes B, D, E airspace are considered controlled airspace, and as such have different, yet specific rules for both Visual Flight Rules (VFR) and IFR operations. **Figure 2-4** displays the surrounding airspace.

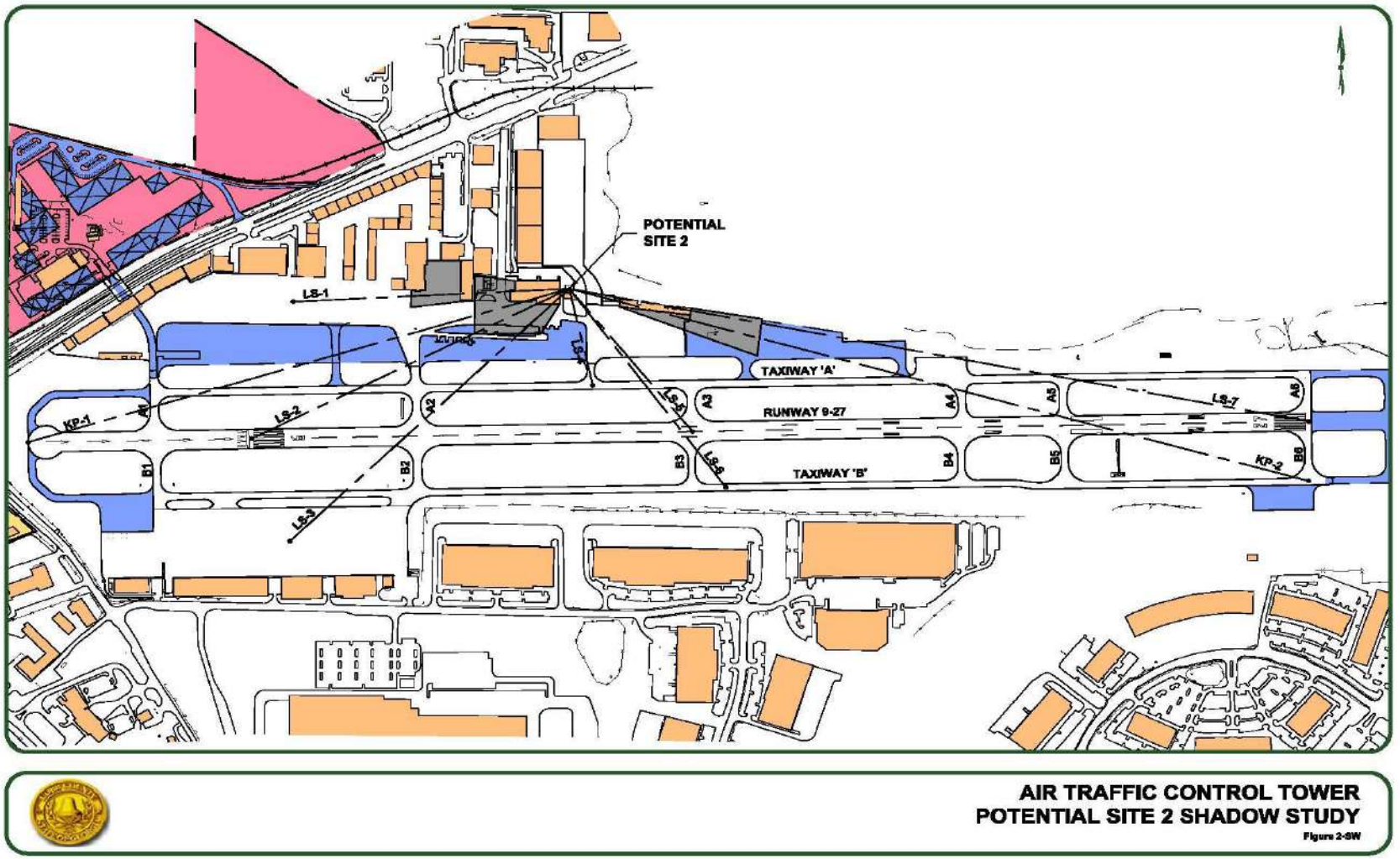
In 2014, the old ATCT was replaced. The new ATCT is located on the north side of the airport by the old tower and became operational in March, 2015. The new tower is 78 ft tall, nearly twice the height of the old tower. A siting study was completed in 2013 with the determination that the site had no impacts to TERPS, line of sight, or Part 77. **Figure 2-5** illustrates the results for Site 2, the site of the new tower. The tower is open during the hours of 7:00 am and 11:00 pm, local time.

Figure 2-4
Airport Airspace



Source: FAA Air Traffic, Atlanta Sectional Chart, June 2015.

Figure 2-5



Source: Cobb County Airport – McCollum Field Air Traffic Control Tower Siting Study, 2013.

2.7 Environmental Considerations

An environmental screening was performed for the Cobb County International Airport – McCollum Field. The objective of the environmental inventory section of the Master Plan is to collect baseline environmental information that is used to identify any issues or constraints that may require consideration during the alternatives analysis.

2.7.1 Introduction

Background research was completed by reviewing topographic, soil, National Wetlands Inventory, floodplain maps, and previous environmental screening reports. In addition, available documentation from the National Register of Historic Places (NRHP) and the Georgia Natural, Archaeological, and Historic Resources GIS (GNAHRGIS) website was reviewed to obtain information related to cultural resources in the area. The threatened and endangered species lists for Cobb County maintained by the Georgia Department of Natural Resources (GDNR) – Wildlife Resources Division (WRD) and the U.S. Fish and Wildlife Service (USFWS) were also reviewed.

The airport property is a mostly cleared tract of land containing mostly mowed/maintained habitat located adjacent to paved areas on the airfield. There is some tree and ground cover located north and south of the Runway 27 End of the airport's only runway. The wooded areas are associated with Noonday Creek, which flows northeast to southwest through the airport property. The creek flows under both parallel taxiways and the runway at the 27 End. The wetlands located south and north of the runway are protected by restrictive covenant established as part of the Section 404 mitigation for a 1997 runway extension project.

2.7.2 Historic Resources

Based on information provided on the GNARGIS website, there are six previously recorded historic resources located adjacent to the airport property. Four of the resources are residential properties located along the east side of South Main Street / County Road 293. The other two resources are located northeast of the Runway 27 End. One of the resources is a residential property and the second resource is the Kennesaw Mountain Battlefield. The NRHP eligibility of the five residential properties is unknown at this time. However, the Kennesaw Mountain Battlefield is listed on the NRHP and is afforded protection under Section 106 of the National Historic Preservation Act of 1966.

2.7.3 Section 4(f) Properties

The Kennesaw Mountain Battlefield is owned and operated by the National Park Service; therefore, the resource is afforded protection under Section 4(f) of the U.S. Department of Transportation Act of 1966. Any future projects at the airport that would result in adverse effects to this property would need to undergo a Section 4(f) evaluation to determine if there are any feasible and prudent alternatives to adversely affecting the property. In addition, if any of the residential properties are determined to be

eligible for the NRHP they would also be considered Section 4(f)-protected properties. Any future projects that would adversely affect one of the NRHP-eligible homes would require a Section 4(f) evaluation.

2.7.4 Waters of the U.S.

There are two waters of the U.S. located at the Runway 9 End (west end) of airport property. There is an unnamed tributary to Noonday Creek that flows from the northwestern boundary of the airport, underneath Taxiway A1, and in between Taxiway A1 and Taxiway A2 before reaching an underground pipe that carries the stream to Noonday Creek. There is also a wetland located adjacent to the stream west of Taxiway A1.

There are five waters of the U.S. located at the Runway 27 End (east end) of the airfield. Noonday Creek, two unnamed tributaries of Noonday Creek, one wetland located north of Runway 9/27, and one wetland located south of Runway 9/27. Noonday Creek and the wetland located south and north of Runway 9/27 are protected by a restrictive covenant that was created as part of the Section 404 mitigation for a runway and parallel taxiway extension project in 1997.

The seepage from the pond to the east of the Runway 27 end has caused a situation where a channel-like formation has been created in the area which is flowing west towards the powerline easement. Also, cattails have begun to grow in the wetter areas, simulating the characteristics of a wetland. Further investigation would be necessary to determine the jurisdictional nature of this water body.

A similar situation is occurring at a pond along the southern boundary of the property. However, this pond is managed by a construction equipment manufacturing company, JCB Worldwide. They too have an outfall structure coming from an overflow pipe in the center of their pond onto the proposed project site. Another channel-like formation flowing west has been created by drainage from the pond onto airport property. Additional field studies would be needed to make a determination regarding the jurisdictional nature of this area.

2.7.5 Threatened and Endangered Species

The following federally protected species were listed for Cobb County by the USFWS and GDNR-WRD:

- Amphianthus pusillus (pool sprite)
- Etheostoma scotti (Cherokee darter) – Federally Threatened
- Medionidus penicillatus (Gulf moccasinshell) – Federally Endangered
- Myotis septentrionalis (Northern long-eared bat) – Federally Threatened
- Platanthera integrilabia (White fringeless orchid) – Federal Candidate Species
- Rhus michauxii (Michaux's sumac) – Federally Endangered

The airport property contains some forested and riparian habitats that could serve as potentially suitable habitat for northern long-eared bats. Wooded areas serve as roosting habitat for this species during the spring and summer, while the riparian habitats serve as foraging habitat throughout the year.

2.7.6 Hazardous Materials & Underground Storage Tanks

There are five above-ground storage tanks located on the airport property that contain fuel for aircraft. There are two tanks located south of the runway and east of the south terminal, consisting of a 20,000 gallon jet fuel tank and a 15,000 gallon Avgas tank. Three tanks are located on the north terminal area and west of the air traffic control tower consisting of two 20,000 gallon tanks and one 15,000 gallon Avgas tank. The fuel farm is located just west of the air traffic control tower along the northern boundary of the airport. One of the tanks contains Jet A fuel, while the other tank contains AvGas. All tanks are contained within a concrete secondary containment. There are no known USTs located on the airport property, and there are no hazardous materials stored on the property above levels that would be considered de minimis.

2.7.7 Floodplains

There is a FEMA-designated floodplain associated with Noonday Creek located at the east end of the runway. The floodplain is designated as Zone AE, which means that the floodway consists of the channel of a stream plus adjacent floodplain areas that must be kept free of encroachment so that the 1 percent annual chance flood can be carried without substantial increases in flood heights

2.8 Wildlife Management

The management of wildlife on and near airports is a forefront issue for airports due to the increases in wildlife strikes over the past century. FAR Part 139 certificated airports are required to have a Wildlife Hazard Assessment (WHA) and Wildlife Hazard Management Plan. General Aviation airports are not required, but are recommended to adhere to the same regulations.

An agreement between GDOT and the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service's Wildlife Services (WS) program was created in June 2014. Pursuant to this agreement, WS developed a WHA for the Cobb County International Airport – McCollum Field to provide baseline data on wildlife hazards to aircraft/human safety. The assessment was conducted over a 12 month period from July 2014 to June 2015. The assessment provides recommendations for reducing wildlife hazards to human health and safety. Additionally, the WHA serves as a basis from which a Wildlife Hazard Management Plan may be developed.

The WHA at RYY had four main objectives:

1. Conduct a review of the available wildlife strike records for RYY,
2. Determine wildlife population parameters such as abundance, location, movements, activity, habitat use, and daily/seasonal occurrences for species identified on and near the airport,
3. Identify local wildlife attractants and hazardous land use practices in the vicinity of RYY that present a risk to aircraft, and

4. Provide RYY with habitat management recommendations for reducing wildlife hazards.

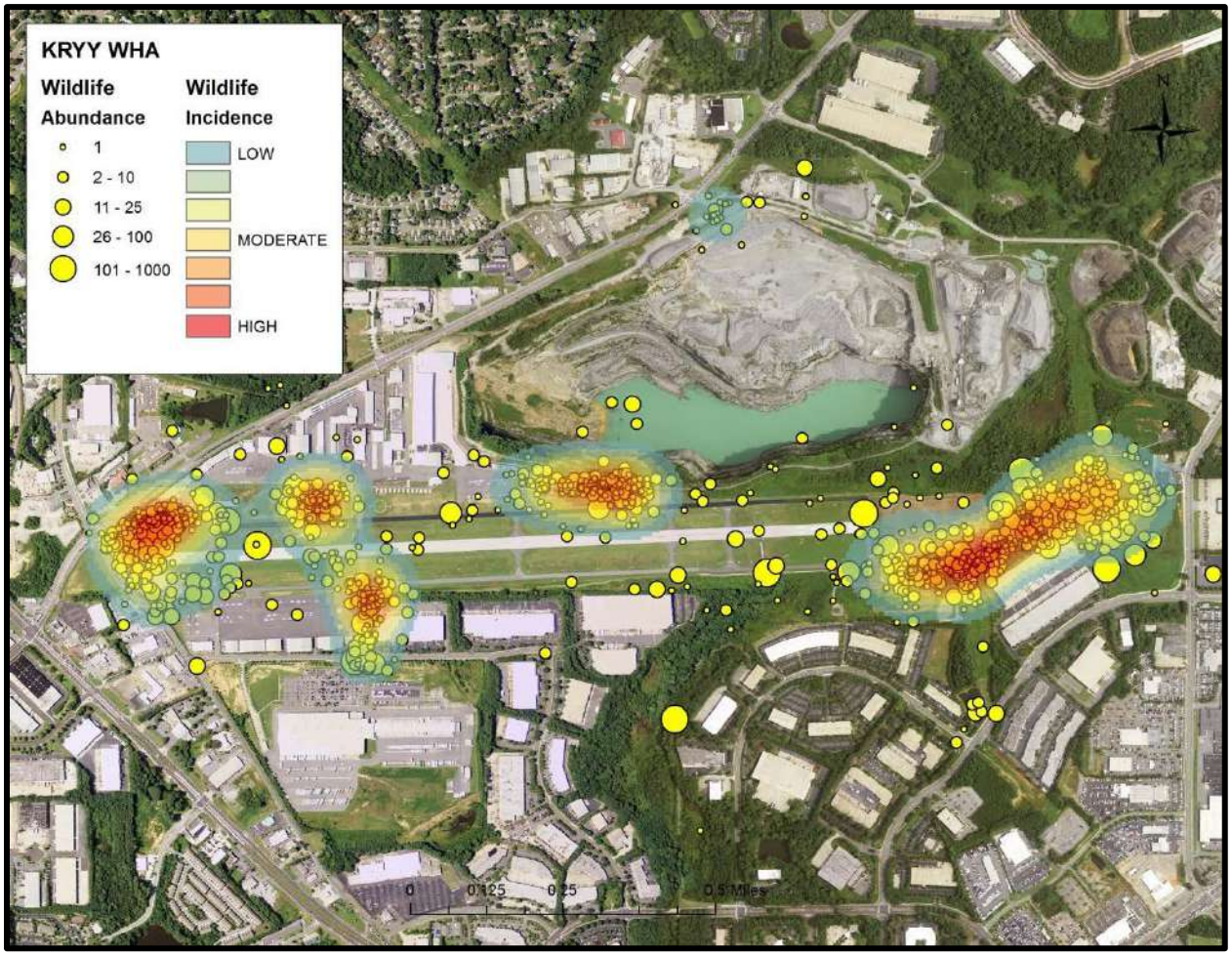
The WHA identified several hazardous species at the airport including birds and mammals. The bird species of greatest concern are blackbirds, mourning doves, raptors, geese, and swallows. Mammals identified as potential hazards are rabbits, rodents, squirrels, coyotes, and deer. White tailed deer are the single most relatively hazardous species to aircraft.

The WHA issued the following recommendations:

- Qualified airport personnel should continue to use pyrotechnics to harass flocking species,
- Eliminate and/or treat temporary standing water on the airport to discourage foraging behavior and amphibian breeding events which may attract predators,
- Remove perching structures for all birds or modify with perch inhibitors (runway and taxiway markers, approach lights, and other structures immediately adjacent to travel lanes should be the priority),
- Remove coyotes and deer from the airfield when observed and access points in the perimeter fence addressed,
- Document bird strikes accurately and consistently,
- Maintain airfield ditches,
- Maintain airfield grass height, and
- Continue wildlife surveillance and patrols.

Wildlife abundances and incidence rates across RYY during the survey period are illustrated in **Figure 2-6.** The full report may be found in **Appendix C.**

Figure 2-6
Wildlife Abundance and Indicidence



Source: RYY Wildlife Hazard Assessment, 2014.

2.9 Summary

This inventory of RYY facilities provides the basis of this Master Plan update. This information will be utilized in planning for facilities requirements, capacity analysis, and recommendations for future airport development.

Chapter 3 - Forecasts of Aviation Activity

3.1. Introduction

This chapter presents forecasts of aviation activity at RYY that will be used as the basis for facility planning at the airport throughout the 20-year planning period.

Projections of activity are presented in 5, 10, and 20-year increments, where base year data for this analysis is 2014 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. This data was 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
  - Single-Engine
  - Multi-Engine (piston and turboprop)
  - Jet
  - Helicopter

- Aircraft Operations
  - Total Operations
  - Local/Itinerant
  - IFR/VFR
  - Engine Type
  - ARC
  - Day/Night
  - Air Taxi/Commuter, General Aviation, Military
  - Peak Operations

External factors, including recent and on-going aviation industry trends and projections will be evaluated as to their impact on RYY.

3.2. Historical Aviation Activity

A review of historical operations data is valuable in determining future levels of activity. Previous forecasts and their accuracy over time were also considered to identify historical trends and their relationship to national, state and local socioeconomic and aviation activities. These methods were applied to develop the most accurate forecasts possible at RYY.

3.2.1. Based Aircraft

Historical based aircraft activity at RYY is presented in **Table 3-1.** As shown in the table, single engine and multi engine based aircraft have steadily declined since 2000. The number of helicopters increased to a high of 15 in 2008, but have since declined to 9 currently based at the field. The number of jets has increased from 10 in 2000 to 49 in 2015. This reflects the role for the airport adopted in the 2004 Role Assessment Study, and reiterated in the 2010 Master Plan Update, "The Cobb County Board of Commissioners adopted a *Community and Business Role* for the airport, primarily accommodating small and medium corporate turbine powered aircraft, while still preserving facilities and services for smaller single and multi-engine piston aircraft."

Table 3-1
Historical Based Aircraft Activity

Year	Single Engine	Multi Engine	Helicopter	Jet	Other	Total
2000	259	45	9	10		323
2001	254	47	6	7		314
2002	294	53	10	17		374
2003	304	56	9	23		392
2004	243	52	13	33		341
2005	250	53	13	38		354
2006	251	55	13	39		358
2007	249	54	13	41		357
2008	245	51	15	48		359
2009	220	48	11	41		320
2010	220	45	11	43		319
2011	219	42	11	45		317
2012	219	39	10	47		315
2013	218	35	10	49		312
2014	218	32	10	50		310

Sources: Mary Lynch RYY Airport Activity Forecast, 2015; FAA TAF, 2015; FAA Federal Aircraft Registry, 2015.

3.2.2. General Aviation Operations

General aviation operations include all non-commercial and non-military operations, such as personal and recreational flying, flight training, corporate travel, glider, ultralight flying, and other similar activities. Operations can be further categorized into local or itinerant. 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.

The operations history for this analysis was obtained from airport records combined with records from the FAA TAF and FAA Operations Network (OPSNET). **Table 3-2** presents this historical data for RYY. This

information is presented along with the airport's share of total operations in the U.S. Similar to the based aircraft historical activity, operations at RYY have steadily declined since 2008. Since 2009, RYY's share of total U.S. operations has remained steady at .07%.

Table 3-2
Historical Operations and % Share of U.S. Operations

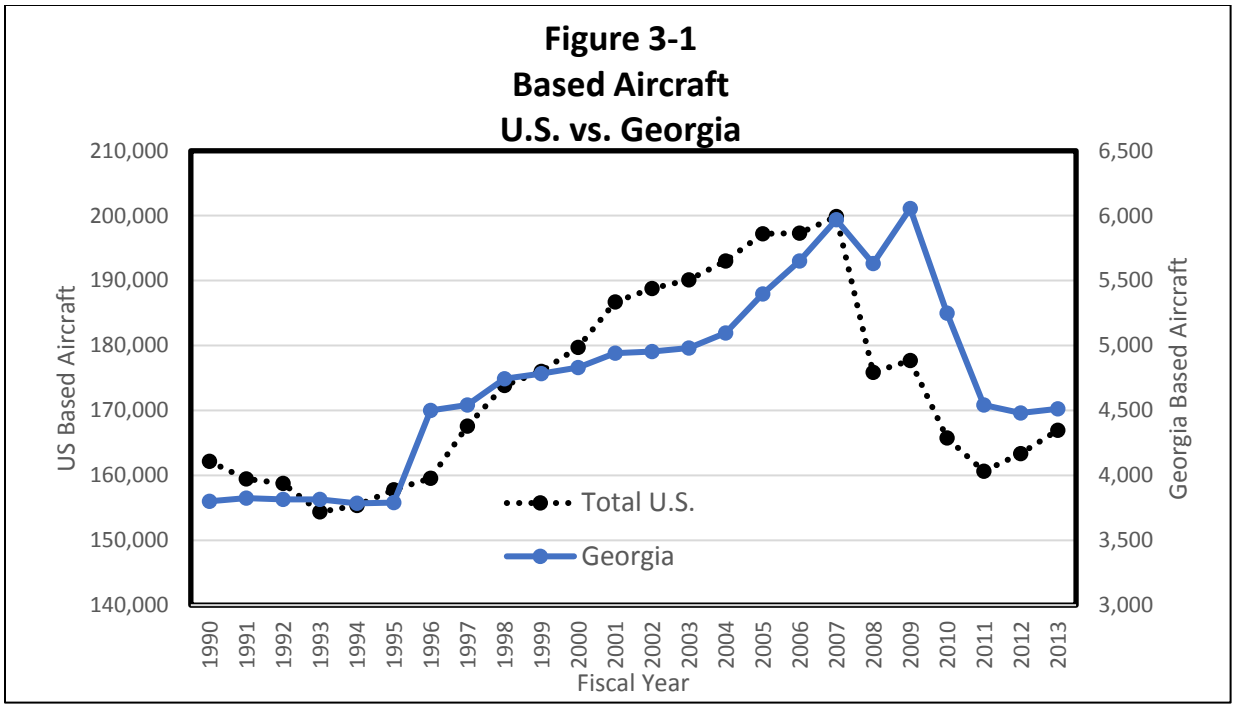
Year	RYY Operations	U.S. Operations	RYY % Share of U.S.
2000	109,079	106,625,514	0.10%
2001	119,243	105,577,877	0.11%
2002	130,322	105,108,892	0.12%
2003	128,785	103,818,175	0.12%
2004	117,545	103,858,129	0.11%
2005	104,127	101,726,062	0.10%
2006	94,271	99,947,709	0.09%
2007	119,643	99,669,965	0.12%
2008	78,411	96,577,587	0.08%
2009	64,398	90,890,527	0.07%
2010	65,222	88,368,834	0.07%
2011	61,673	86,914,118	0.07%
2012	62,387	86,091,956	0.07%
2013	62,067	85,055,077	0.07%
2014	71,572	84,538,717	0.08%

Sources: Mary Lynch RYY Airport Activity Forecast, 2015; FAA TAF, 2015.

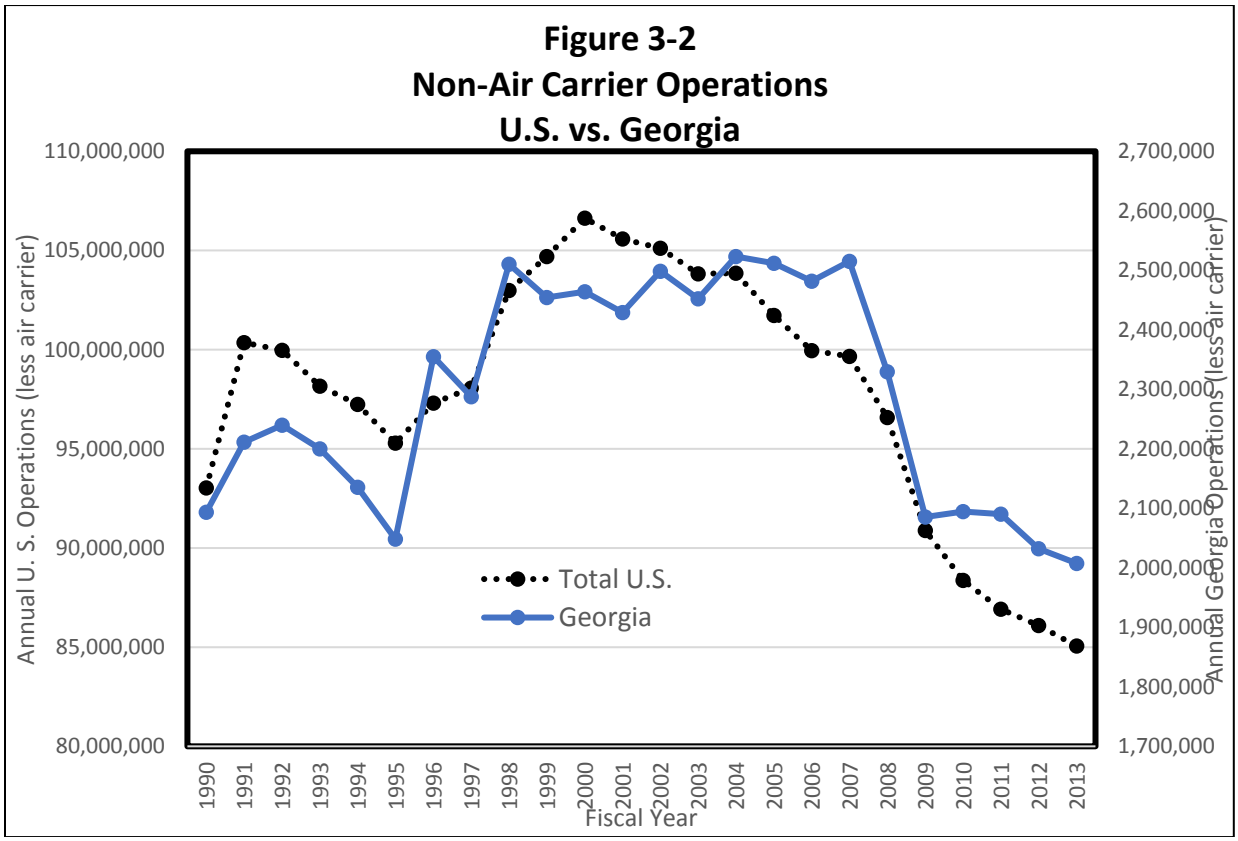
3.3. General Aviation Industry and Local Economy

3.3.1. General Aviation Industry

General aviation activity, as measured by both based aircraft and general aviation operations, has been very volatile over the last 25 years. The history of based aircraft and operations in both the United States and the State of Georgia, according to the 2015 FAA Terminal Area Forecasts (FAA TAF), are presented in **Figure 3-1** (based aircraft) and **Figure 3-2** (operations).



Sources: Mary Lynch RYY Airport Activity Forecast, 2015; FAA TAF, 2015.



Sources: Mary Lynch RYY Airport Activity Forecast, 2015; FAA TAF, 2015.

Figure 3-1 presents based aircraft in the United States (on the left vertical axis) and the State of Georgia (on the right vertical axis). From 1990 through the middle of the decade, the number of based aircraft was stagnant or declining. In 1994 President Bill Clinton signed into law the General Aviation Revitalization Act (GARA). The manufacture of general aviation aircraft began again, and the number of based aircraft grew steadily through 2007. The economic downturn subsequent to 2007 caused another decline in the number of active based aircraft. In 2012 and 2013 the number of Georgia based aircraft leveled off somewhat, and U.S. based aircraft increased. The fluctuations over the last several years could be affected by the FAA's 2010 Rule for Re-Registration and Renewal of Aircraft Registration. From 2011 through 2013, based aircraft appear to be on the increase again in both the United States and Georgia. The fluctuation of based aircraft at RYY reflect these national trends. Single and multi engine based aircraft have been declining while jet aircraft have been increasing.

Figure 3-2 presents non-air carrier aircraft operations in the United States (on the left vertical axis) and the State of Georgia (on the right vertical axis). The trends are generally similar. Prior to 1995 and the signing of the GARA operations were declining. After 1995-1996, the level of general aviation operations increased significantly up to 2000, and then leveled off. The decline in the early 2000s coincided with increases in fuel costs, making training and other general aviation activity more expensive. According to the 2015 FAA TAF, "Rising fuel prices, stagnant household incomes, falling household wealth, and a shrinking pilot population are all viewed as contributing to the long run decline in general aviation activity." The decline of annual operations at RYY reflect these national trends.

3.3.2. Local Economy

The State of Georgia benefits from a significant impact from the aviation community. According to the General Aviation Manufacturers Association, the State ranks eight in the country in total GDP impact per capita, and fourth in terms of jobs attributable to general aviation. Cobb County is a dynamic locale currently experiencing significant development and growth. It is the third largest county in Georgia in population, and ranks second in employment and total personal income. Projections by Woods & Poole Economics, Inc. indicate that Cobb County will grow faster than the State of Georgia and the United States in employment, total personal income and per capita personal income (PCPI) throughout the forecast period. These growth rates are presented in **Table 3-3**. The county also has a higher PCPI than the State of Georgia or the United States, as indicated in **Figure 3-3**. It is forecast to remain in that relative position throughout the forecast period.

Interviews with airport tenants generated information about specific developments that will support the continued growth of Cobb County and will also generate traffic for the airport. Among the specific developments are:

- A global tech company which employs 29,000 people worldwide is moving its headquarters to Atlanta from the Midwest. It is also relocating its New York City offices to Atlanta. Corporate flying previously done from these two sites will be moved to RYY. This company currently bases a Challenger 300 and Gulfstream 550 at RYY. Currently, most of its international corporate flying

is conducted out of JFK. However, with the customs facility opening at RYY, this flying can be done to and from RYY, if the runway can accommodate it.

- Several operators at the airport discussed initiating scheduled charter service from the airport to destinations generating significant business traffic, such as Chicago, New York City and Washington, DC on regional aircraft such as the Embraer 135/145 and also on other corporate-sized jet aircraft. Research has been conducted and has identified a potential market for such service in the Cobb County area. The current FBO, Hawthorne Global Aviation Services, owns ExcelAire charters, and another local operator is also considering scheduled charter service. Similar service is offered by Ultimate Air Shuttle at Cincinnati Municipal Airport – Lunken Field to New York City, Chicago and Charlotte, NC.

- Airport management and operators are discussing obtaining DCA Access Standard Security Program (DASSP) Gateway Airport Status. This would add the airport to the list of only 70 airports in the country with TSA authority to fly general aviation operations into Ronald Reagan Washington National Airport (DCA). Currently, the only airport with general aviation clearance for DCA in the State of Georgia is Savannah/Hilton Head National Airport. Hartsfield–Jackson Atlanta International Airport (ATL) does not even hold this status. General aviation flights are not currently allowed into DCA from anywhere in the Atlanta area.

- Kennesaw State University, with its start-up football program and its expansive new Sport and Entertainment Park, could generate significant interest in the airport. The Sports and Entertainment Park hosts events every weekend for at least nine months of the year. Among its events are KSU football, concerts, women's professional lacrosse, international world cup rugby, soccer, and non-conference NCAA events. As some of these events mature, more of the teams/groups involved will use air travel, and the airport is extremely convenient, especially with the availability of customs.

- LakePoint Sporting Community, only 13 miles northwest of the airport, offers:
    - Fields for baseball, soccer, lacrosse, and volleyball,
    - A wake park for water-skiers, wakeboarders, knee boarders,
    - Track & field facilities,
    - A Greg Norman Champions Golf Course,
    - Hiking and biking trails,
    - Zip lines,
    - 4 hotels,
    - Restaurants, and
    - Bass Pro operation (has 14 acres at the site).
    - Lakepoint estimates that approximately 15% of their summer visitors fly into the area, most from west of the Mississippi. There are also several corporate visits per month to Lakepoint to discuss further developments of hotels and other facilities.
- This development will attract private small aircraft traffic, and some business traffic to RYY as the golf courses and other sporting venues evolve.

- Sun Trust Park is a mixed use development located 15 miles south of the airport. Several aspects of this development will generate travel into and out of the airport:
    - Future home of the Atlanta Braves, it will host at least 81 home baseball games annually for the Braves, generating approximately 100 annual operations of aircraft such as 737s and 757s (for west coast trips)
    - Omni Northwest hotel, with 16 floors, approximately 260 guest rooms and suites, nearly 12,500 square ft of meeting space, and a signature restaurant. The hotel will serve meeting groups and business and leisure travelers alike, as well as visitors attending Braves games and the many other events and activities hosted at the surrounding development.
    - The Roxy, a 50,000 sq. ft. entertainment venue for concerts, theater, etc.
    - Nine-story office tower housing more than 1,000 Comcast employees, generating corporate travel
- These elements of the Sun Trust Park Development will generate business jet operations at RYY.

- The movie industry has used sites in Cobb County for filming. Local socioeconomic development organizations are working to develop a film commission and such a group should be in place within ten years. This would generate travel into and of the area by individuals and groups accustomed to corporate jet travel.

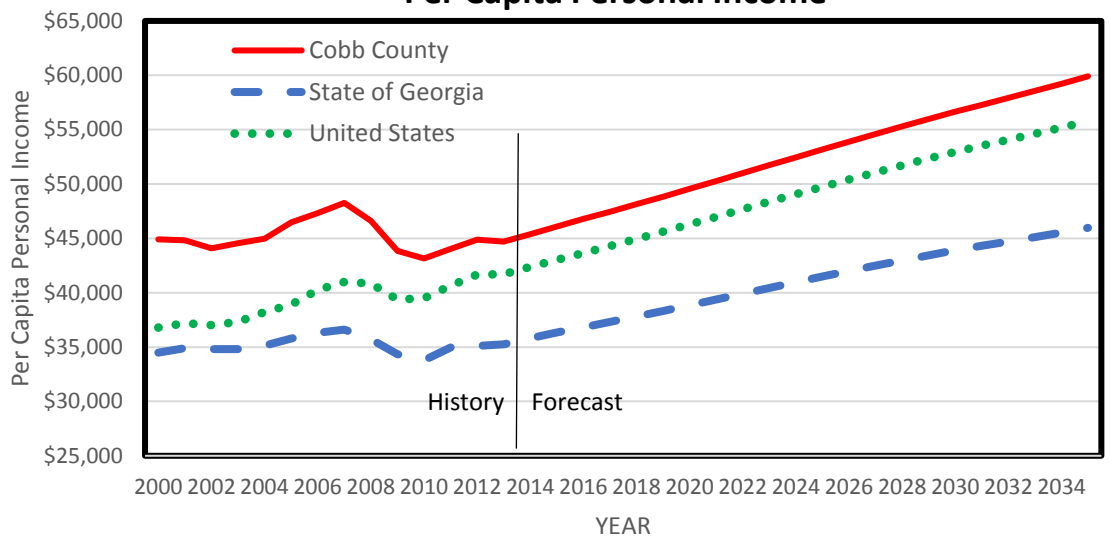
- Local socioeconomic development organizations see RYY as a selling point when doing familiarization tours of the area for companies considering locating in the area for business development. RYY is an arrival/departure point for some of these "famtours."

Table 3-3
Cobb County vs. Georgia & United States
Average Annual Growth Rate 2013-2035

	Population	Employment	Total Personal Income	PCPI
Cobb County	1.1%	1.6%	2.5%	1.34%
Georgia	1.2%	1.5%	2.4%	1.21%
United States	0.9%	1.3%	2.2%	1.33%

Sources: Mary Lynch RYY Airport Activity Forecast, 2015; Woods & Poole Economics, Inc.; CEDDS 2015

Exhibit 3-3
Cobb County vs. Georgia & U. S.
Per Capita Personal Income



Sources: Mary Lynch RYY Airport Activity Forecast, 2015; Woods & Poole Economics, Inc.; CEDDS 2015

Additionally, the airport competes well against other Atlanta airports. RYY has the longest runway and more based jet aircraft according to the 2015 FAA TAF. According to users of RYY, Cobb County is more attractive than PDK and FTY for reasons that include:

- The tax implications of basing and operating an aircraft out of RYY are much more favorable than at FTY or PDK
- RYY facilities are newer, nicer and more readily available
- The neighborhood in which the airport is located is more attractive
- The airport and its airspace are less congested

The new U.S. customs facility will further enhance the airport's image with users as it is the area's first general aviation airport to offer on-site U.S. customs inspections and staff. Customs services are available at FTY and PDK on an on-call basis.

3.4. Forecasts of Aviation Activity

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 this Master 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 RYY were prepared for the 20-year planning horizon including the near-term (2016-2020), mid-term (2021-2025), and long-term (2026-2035) timeframes.

3.4.1. Forecast of Based Aircraft

The socioeconomic data presented in the previous section were analyzed to determine if there could be any significant statistical relationship established between the number of based aircraft at RYY and the socioeconomics of Cobb and the surrounding counties. Annual data from 2000 through 2013 (the most recent socioeconomic data available) on population, employment, total income and PCPI for the counties of Cobb and the surrounding counties of Bartow, Cherokee and Paulding was analyzed. Absolute levels of each variable and the percentage changes in each variable were compared to absolute levels of based aircraft and the percentage changes in based aircraft. No significant statistical relationships could be established.

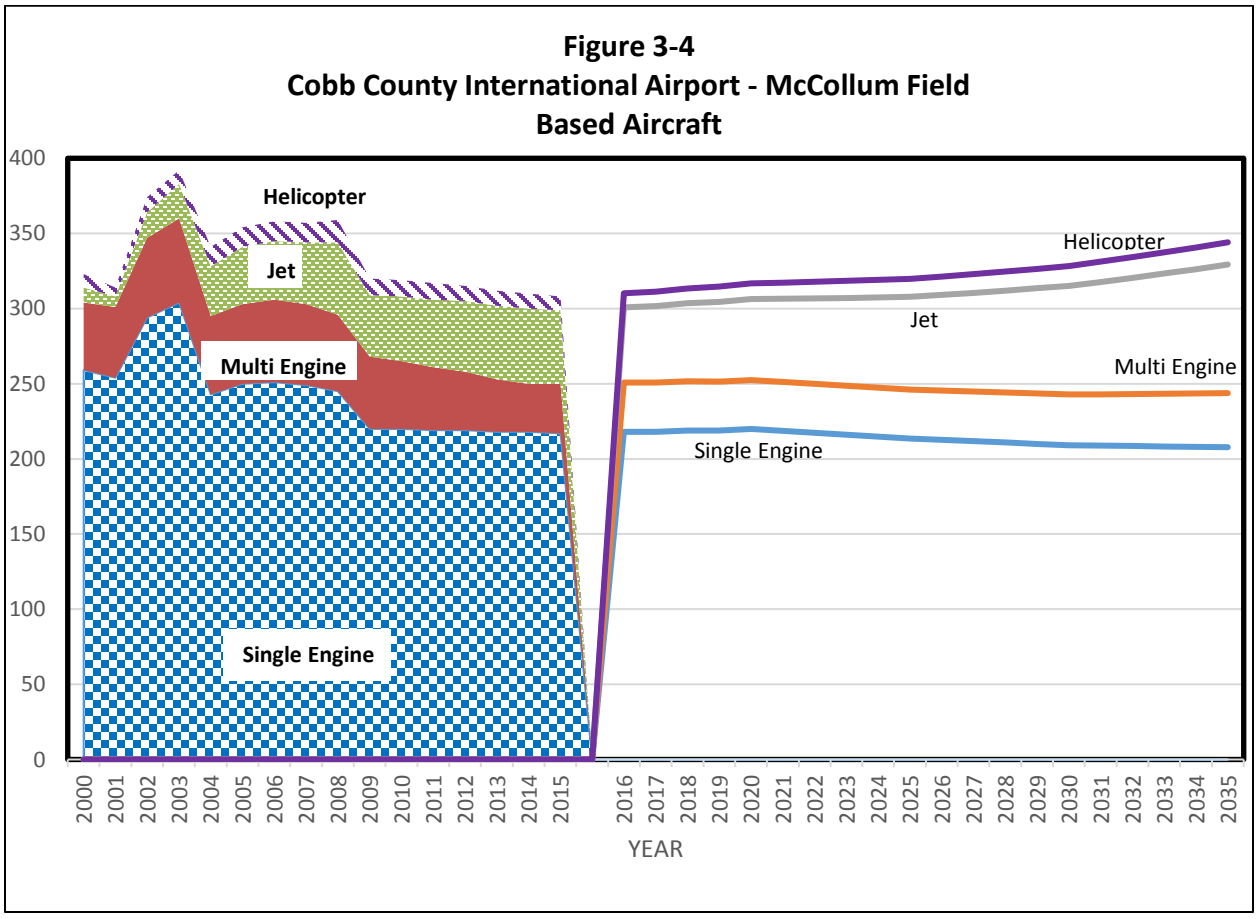
The FAA Federal Aircraft Registry maintains current aircraft data at a more detailed equipment type level than the available airport records. The FAA data further detailed the based aircraft at RYY as presented in **Table 3-4**. Because there was no ability to establish a formula to forecast based aircraft from local socioeconomic data, the method used to project based aircraft at RYY by equipment type was to apply to the current based aircraft growth rates similar to those embodied in the 2015 FAA Aerospace Forecast. This resulted in the forecast presented in **Table 3-4**.

The history and forecast of based aircraft by equipment type at the airport is presented graphically in **Figure 3-4**. There was some indication that local flight schools would be adding a few aircraft over the next few years so the single-engine piston category was allowed to grow slightly through 2020 before the expected decrease in this category resumed. Turboprop aircraft are projected by the FAA and in this forecast to increase over the forecast period. The based jet category is expected to continue growing throughout the forecast period. The total based aircraft count is not projected to reach the levels of upwards of 350 seen in the mid-2000s, and not to the 392 of 2003. However, there is expected to be steady growth fueled by the increases in jet aircraft.

Table 3-4 Based Aircraft Forecast								
Year	Single-Piston	Single-Turbo	Multi-Piston	Multi-Turbo	Jet	Helicopter	Other	Total
2014	205	10	21	12	50	9	3	310
2015	207	10	21	12	49	9	3	311
2020	210	10	21	12	54	11	3	320
2025	203	10	20	13	62	12	3	323
2030	197	12	19	14	72	13	4	332
2035	194	14	19	17	86	15	4	348
Compound Average Annual Growth 2015-2035								
	(0.3)%	1.6%	(0.4)%	1.6%	2.8%	2.5%	1.4%	0.6%

Source: Mary Lynch RYY Airport Activity Forecast, 2015.

Figure 3-4
Cobb County International Airport - McCollum Field
Based Aircraft



Source: Mary Lynch RYY Airport Activity Forecast, 2015.

3.4.2. Forecast of Operations

Forecasts of operational activity in this study have been divided into total operations, itinerant and local, IFR and VFR, engine type, operations by Airport Reference Code, day and night, operations type, and operations peaking.

The socioeconomic data presented earlier was analyzed to determine if there could be any significant statistical relationship established between the number of based aircraft at RYY and the socioeconomics of Cobb and the surrounding counties. Annual data from 2000 through 2013 (the most recent socioeconomic data available) on population, employment, total income and PCPI for the counties of Cobb and the surrounding counties of Bartow, Cherokee and Paulding was analyzed. Absolute levels of each variable and the percentage changes in each variable were compared to absolute levels of aircraft operations and the percentage changes in aircraft operations. As was the case with based aircraft, no significant statistical relationships could be established.

Total Operations

As indicated previously in **Table 3-2,** the airport's share of U. S. total operations (less air carrier) has remained fairly consistent over the past several years. This indicates that airport operations have been growing at a rate similar to activity in the U.S. Therefore, RYY total operations were forecast to grow at a rate similar to non-air carrier operations in the U.S. The historical and forecast airport operations in comparison to the 2015 FAA TAF projections of U.S. non-air carrier operations are presented in **Table 3-5** and **Figure 3-5**. Cobb County operations are graphed against the left vertical axis and U.S. operations (less air carrier) are graphed against the right vertical axis.

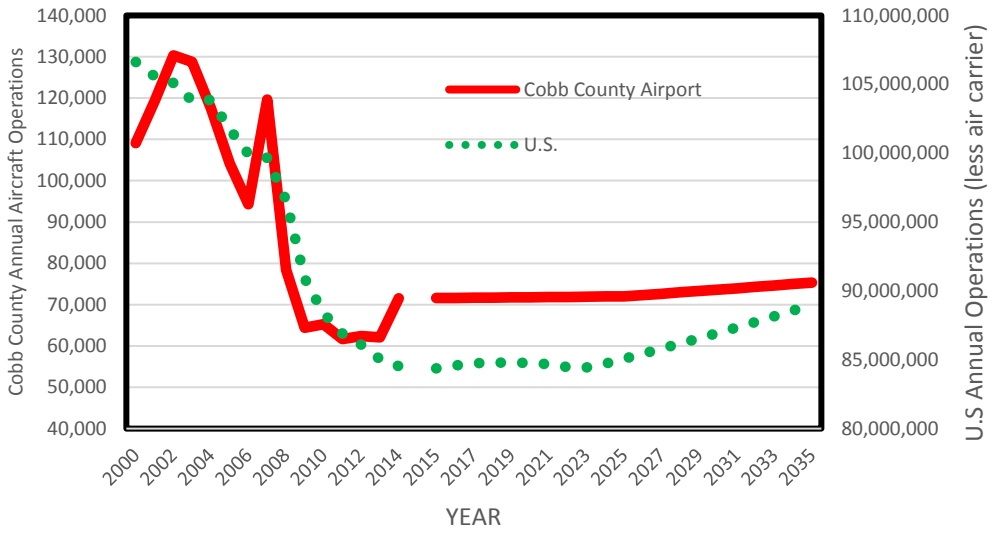
The economic evolution of the Cobb County area, as presented in section 3.3.2, will continue to support aviation growth at least as strong as that expected in the nation overall. The developments discussed, such as Sun Trust Park, DCA Gateway Status, potential scheduled charter service and KSU facilities are concrete examples of economic activities in the area that will support continued aviation growth.

Table 3-5
Forecast of Total Annual Operations

Year	RYY Operations	U.S. Operations	RYY % Share of U.S.
2014	71,572	84,538,717	0.08%
2015	71,654	84,830,346	0.08%
2020	71,771	84,774,214	0.08%
2025	72,020	85,067,668	0.08%
2035	75,338	89,987,398	0.08%

Source: Mary Lynch RYY Airport Activity Forecast, 2015; FAA TAF, 2015.

Figure 3-5
Cobb County International Airport - McCollum Field
vs.
U. S. Total Aircraft Operations
(excluding air carrier operatlions)



Sources: Airport records; 2015 FAA TAF; Mary Lynch RYY Airport Activity Forecast, 2015.

Itinerant and Local Operations

The split between itinerant and local operations somewhat represents the level of flight training that occurs at an airport. Local operations largely represent touch-and-go operations, or operations of a training aircraft moving about totally within the airport's airspace. There are two flight schools at the airport. Conversations with the operators of the schools indicate that training was very negatively affected by the economic downturn. During that time period aviation fuel was extremely expensive and flight training was down. The lower percentage of local traffic reflects that downturn in the training share of total operations 2009-2013 in **Table 3-6**. One of the flight schools added 4 training aircraft in 2014. This does not appear as an increase in based single-engine aircraft in 2014 because they most likely replaced other non-training aircraft that left RYY in 2014. The share of local operations rebounded in 2014. The flight operators felt that there was an opportunity to increase training activity going forward. There seems to be a lot of demand for flight training from international students who come to live in the area for the duration of their studies. This will help the training market to remain active at the airport.

Table 3-6 also presents the forecast of the itinerant/local split of operations. The forecast assumes that over time the local share will decrease slightly as corporate activity on larger aircraft increases at the airport.

Table 3-6
Itinerant / Local Operations Split - History and Forecast

				Percent Split	
CY	Itinerant	Local	Total	Itinerant	Local
2000	55,540	53,539	109,079	50.9%	49.1%
2001	61,040	58,203	119,243	51.2%	48.8%
2002	66,598	63,724	130,322	51.1%	48.9%
2003	66,833	61,952	128,785	51.9%	48.1%
2004	65,617	51,928	117,545	55.8%	44.2%
2005	60,745	43,382	104,127	58.3%	41.7%
2006	61,248	33,023	94,271	65.0%	35.0%
2007	69,550	50,093	119,643	58.1%	41.9%
2008	46,669	31,742	78,411	59.5%	40.5%
2009	44,520	19,878	64,398	69.1%	30.9%
2010	43,557	21,665	65,222	66.8%	33.2%
2011	41,030	20,643	61,673	66.5%	33.5%
2012	39,376	23,011	62,387	63.1%	36.9%
2013	37,439	24,628	62,067	60.3%	39.7%
2014	41,362	30,210	71,572	57.8%	42.2%
Forecast					
2020	41,693	30,079	71,771	58.1%	41.9%
2025	42,017	30,003	72,020	58.3%	41.7%
2030	43,130	30,482	73,612	58.6%	41.4%
2035	44,330	31,009	75,338	58.8%	41.2%

Sources: Airport records; 2015 FAA TAF; Mary Lynch RYY Airport Activity Forecast, 2015.

IFR and VFR Operations

The IFR/VFR split of operations at the airport is presented in **Table 3-7**. In the past several years IFR operations have hovered around 20% of total operations and VFR have hovered around 80%. In 2014, VFR operations increased significantly. Conversations with airport management and one of the local fight schools provided some explanation for this increase. One of the flight schools indicated that its activity increased significantly in 2014 due to 4 added training aircraft. These training aircraft replaced other based aircraft at RYY that departed during 2014. The training activity generated by these added aircraft was VFR flying. Airport management indicated that in 2014 the Cobb County area experienced an economic recovery and that this brought back some of the growth in small aircraft activity that had disappeared during the economic decline. This accounted for some of the increase in VFR activity.

In the forecast it is assumed that the most significant growth in operations going forward will be in operations by business-type aircraft. Using the same rate of IFR/VFR operations growth as seen in the FAA TAF, the split between IFR and VFR operations at RYY is projected to trend back toward the 20% / 80% split by 2035.

Table 3-7
IFR / VFR Operations Split - History and Forecast

				Percent Split	
CY	IFR	VFR	Total	IFR	VFR
2000	12,522	96,557	109,079	11.5%	88.5%
2001	15,608	103,635	119,243	13.1%	86.9%
2002	18,898	111,424	130,322	14.5%	85.5%
2003	19,386	109,399	128,785	15.1%	84.9%
2004	19,000	98,545	117,545	16.2%	83.8%
2005	20,802	83,325	104,127	20.0%	80.0%
2006	22,446	71,825	94,271	23.8%	76.2%
2007	21,354	98,289	119,643	17.8%	82.2%
2008	16,089	62,322	78,411	20.5%	79.5%
2009	13,158	51,240	64,398	20.4%	79.6%
2010	12,550	52,672	65,222	19.2%	80.8%
2011	12,215	49,458	61,673	19.8%	80.2%
2012	12,536	49,851	62,387	20.1%	79.9%
2013	12,089	49,978	62,067	19.5%	80.5%
2014	11,827	59,745	71,572	16.5%	83.5%
Forecast					
2020	13,664	58,108	71,771	19.0%	81.0%
2025	13,980	58,040	72,020	19.4%	80.6%
2030	14,500	59,112	73,612	19.7%	80.3%
2035	15,058	60,280	75,338	20.0%	80.0%

Sources: Airport records; 2015 FAA TAF; Mary Lynch RYY Airport Activity Forecast, 2015.

Operations by Engine Type

The forecast for total operations was disaggregated by:

- Single-engine piston,
- Single-engine turboprop,
- Multi-engine piston,
- Multi-engine turboprop,
- Jet,
- Helicopter, and
- Other.

Flightwise and the TFMSC data provide data at this level of detail for IFR flights. The IFR data was used and the following assumptions were made:

- All jet aircraft file flight plans, so all jet operations at RYY would be included in this recorded data

- Initially, IFR operations by equipment type in these categories will increase at the same rates as in the 2015 FAA TAF hours flown by equipment type. Since hours flown is not the same measure

as operations, the total operations will be adjusted to the figures previously forecast for total IFR and VFR airport activity

- VFR operations by equipment type will be assumed to occur with the same distribution as the based aircraft at the airport. This will not include jet aircraft as all jet aircraft are assumed to be IFR

These assumptions result in the forecast of operations by equipment type presented in **Table 3-8**.

Table 3-8
Forecast Operations by Engine Type

CY	Single Piston	Single Turbo	Multi Piston	Multi Turbo	Jet	Helicopter	Other	Total
2014	51,073	3,065	5,547	4,098	5,053	2,052	684	71,572
Forecast								
2020	49,698	3,018	5,263	4,076	6,723	2,295	699	71,771
2025	48,556	3,174	5,132	4,260	7,507	2,633	758	72,020
2030	48,066	3,593	5,083	4,787	8,241	3,013	828	73,612
2035	47,500	4,117	5,063	5,444	8,932	3,389	892	75,338

Sources: Airport records; 2015 FAA TAF; Mary Lynch RYY Airport Activity Forecast, 2015.

The FAA believes that piston aircraft activity is going to decrease slowly over time. Turboprop activity may slow down a bit in the short term and then grow again after 2020. General aviation jet activity is expected to increase steadily throughout the forecast period.

Operations by Airport Reference Code

Table 3-9 lists a few of the aircraft types that are in various ARC categories.

Flightwise provided data on IFR operations by ARC for calendar 2012 through 2014. This data was used as the basis for estimating operations by ARC through the forecast period. The Flightwise data includes information only on IFR operations. As mentioned in the previous section, it is assumed that all jet aircraft are recorded in the Flightwise data, as it is assumed that all jets are operating under IFR. For non-jet operations that are not included in Flightwise, it was assumed that the distribution of operations across ARC categories was similar to the same distribution observed for the non-jet aircraft that were in Flightwise.

The three years of data were reviewed to see how activity by different ARC categories was growing. Categories that were growing steadily continued to grow. Those that were fluctuating or decreasing had their share of operations reduced somewhat. Qualitative input from interviews with those interested in developing activity at the airport was incorporated into the analysis.

Table 3-9 Aircraft Types by Airport Reference Code			
A-I	**A-II**	**A-III**	
Beech 23,33,35,36,55,ierra, T34A/B Cessna 150,170,172,177,180,182,185 Cessna 206,210,310,337,P210,120 Cirrus SR-20, SR-22 Mooney M-20,M-20C,M-20K Piper PA 28,32RT,23,24,28,30.39,32,34 Piper PA 44,46,46-500TP Van's RV-7,8,10 Glasair	Air Tractor, Inc. AT-502/503 Cessna 208 Caravan Pilatus PC-12, Eagle		
B-I	**B-II**	**B-III**	
Beech 100 King Air Beech 58 Baron Beech 90, A90 to F90 King Air Beech Premier 1, 390 Cessna 340,414,421,425,525,Mustang Falcon 10 MU-300 Diamond PA 31,42 690 Turbo Commander	Beech Super King Air 200,300,350 Beechjet 400 Bombardier Challenger 300 Cessna 560,441,500,501,525A,525B Cessna 550,560,680,Citation CJ4 Falcon 20,2000,50,900 Phenom 100, 300	Falcon 7X	
C-I	**C-II**	**C-III**	
BAe HS 125 BAe HS 125 /1-2-3 BAe-125-700/800 Learjet 25,31,40,45 Learjet 35,36	Challenger 600 BAe-125-1000 Cessna 650, 750 EMB-135,145 ERJ-135/140,-145 Gulfstream 280,150,3 Learjet 75	Boeing 737-700 BD-700 Global Express, Sentinel MD-90	
D-I	**D-II**	**D-III**	**D-IV**
Beech 2000 Starship Learjet 60	Gulfstream 2 Gulfstream 4	Gulfstream 5 HS 121 TRIDENT SUPER 3B B-737/800-900/BBJ	757-200

Sources: Flightwise, 2015; Mary Lynch RYY Airport Activity Forecast, 2015.

The types of developments discussed in section 3.3.2, such as relocation of corporate headquarters, potential scheduled charter service and Sun Trust Park will generate business jet traffic for RYY at a higher rate than has been experienced previously.

Table 3-10 presents the operations forecast by ARC.

Table 3-10
Operations Forecast by Airport Reference Code (ARC)

ARC	2014	2020	2025	2030	2035
A-I	44,306	43,210	42,685	43,094	43,634
A-II	3,349	3,132	3,085	3,105	3,135
B-I	7,902	7,807	7,531	7,387	7,249
B-II	11,549	12,332	12,736	13,285	13,840
B-III	10	13	15	16	17
C-I	640	818	872	912	926
C-II	688	888	985	1,077	1,179
C-III	11	18	23	30	37
D-I	69	77	77	77	76
D-II	36	118	132	145	157
D-III	276	364	489	644	807
Helicopter	2,052	2,295	2,633	3,013	3,389
Other	684	699	758	828	892
Total	**71,572**	**71,771**	**72,020**	**73,612**	**75,338**

Source: Mary Lynch RYY Airport Activity Forecast, 2015.

For planning purposes it is also useful to group ARC categories separately by letter and Roman numeral as in **Table 3-11.** The table indicates that the design aircraft category up until 2020 is a C-II aircraft, such as a Challenger 600 or an Embraer 135/145. By 2020, Category D and Group II aircraft operations will have increased to over 500, thus the critical aircraft is a combination of D and II aircraft and the ARC is D-II. By 2025, the design aircraft is a D-III category aircraft, such as a Gulfstream 5.

Day/Night Operations

Daytime operations at an airport are considered to be those that occur between 7:00 am and 10:00 pm. Nighttime operations occur between 10:00 pm and 7:00 am. The tower at the airport is staffed from 7:00 am through 11:00 pm daily. However, operations occur twenty-four hours per day, even when the tower is not staffed. Tower personnel indicated that there are approximately 2-3 operations on average each night between 10:00 pm and 11:00 pm when the tower is still staffed. It is estimated by the tower staff that there are approximately 3-4 operations from 11:00 pm until 7:00 am. These nighttime operations are mostly jet aircraft. For purposes of this study it was assumed that there are currently 6 nighttime operations per day and that 5 of these operations are jets. This level of activity is projected to grow at the rate of jet and non-jet activity overall at the airport, respectively, throughout the forecast period. The resulting forecast of daytime and nighttime operations is presented in **Table 3-12**.

Table 3-11
Operations Forecast Grouped by Airport Reference Code Elements

2014

	I	II	III	Total
A	44,306	3,349		**47,655**
B	7,902	11,549	10	**19,461**
C	640	688	11	**1,339**
D	69	36	276	**380**
Helicopter				**2,052**
Other				**684**
Total	**52,917**	**15,622**	**296**	**71,572**

2020

	I	II	III	Total
A	43,210	3,132		**46,342**
B	7,807	12,332	13	**20,153**
C	818	888	18	**1,724**
D	77	118	364	**559**
Helicopter				**2,295**
Other				**699**
Total	**51,912**	**16,470**	**395**	**71,771**

2025

	I	II	III	Total
A	42,685	3,085		**45,770**
B	7,531	12,736	15	**20,282**
C	872	985	23	**1,880**
D	77	132	489	**697**
Helicopter				**2,633**
Other				**758**
Total	**51,165**	**16,937**	**527**	**72,020**

2030

	I	II	III	Total
A	43,094	3,105		**46,199**
B	7,387	13,285	16	**20,688**
C	912	1,077	30	**2,019**
D	77	145	644	**865**
Helicopter				**3,013**
Other				**828**
Total	**51,469**	**17,612**	**690**	**73,612**

2035

	I	II	III	Total
A	43,634	3,135		**46,770**
B	7,249	13,840	17	**21,106**
C	926	1,179	37	**2,142**
D	76	157	807	**1,039**
Helicopter				**3,389**
Other				**892**
Total	**51,885**	**18,312**	**861**	**75,338**

Source: Mary Lynch RYY Airport Activity Forecast, 2015

Table 3-12
Day / Night Operations

	Day (7:00 am - 10:00 pm)		Night (10:00 pm - 7:00 am)		Total
CY	**Jet**	**Non-Jet**	**Jet**	**Non-Jet**	
2014	3,228	66,154	1,825	365	**71,572**
Forecast					
2020	4,294	64,694	2,428	355	**71,771**
2025	4,796	64,163	2,712	350	**72,020**
2030	5,265	65,019	2,977	352	**73,612**
2035	5,706	66,050	3,226	356	**75,338**

Source: Mary Lynch RYY Airport Activity Forecast, 2015

Air Taxi/Commuter, General Aviation and Military Operations

There are no scheduled air carrier operations at RYY. The 2015 FAA TAF is the primary source of data for operations categorized as air taxi/commuter, general aviation and military operations. The military operations forecast contained in the 2015 FAA TAF was used for this projection. Air taxi/commuter operations were forecast to grow at 0.7% annually through the forecast period in the 2015 FAA TAF. This average growth was increased to 1.0% annually for this forecast. This was done to incorporate into the projections the input from Airport developers indicating an interest in scheduled charter service, and in pursuing DCA Gateway status for RYY. This slightly higher growth results in a 2035 level of air taxi/commuter operations of 2,928. This represents 552 more annual air taxi/commuter operations than are currently reported at the airport. This would mean approximately 10-11 operations per week that might be generated by such scheduled charter activity. This appears reasonable given the interest in this type of service. The remainder of the operations forecast, beyond military and air taxi/commuter, are general aviation operations. This is presented in **Table 3-13**.

Table 3-13
Operations by Type

	Itinerant				Local			Total
CY	Air Taxi / Commuter	General Aviation	Military	Total	Civil	Military	Total	
2014	2,376	38,365	621	41,362	30,119	91	30,210	**71,572**
Forecast								
2020	2,522	38,549	621	41,693	29,988	91	30,079	**71,771**
2025	2,651	38,745	621	42,017	29,912	91	30,003	**72,020**
2030	2,786	39,723	621	43,130	30,391	91	30,482	**73,612**
2035	2,928	40,781	621	44,330	30,918	91	31,009	**75,338**

Source: Mary Lynch RYY Airport Activity Forecast, 2015

Peak Operations

Since 2000, the peak level of monthly operations activity has occurred at the airport in seven different months. However, the level of peaking has been relatively stable, representing from 9.4% to 10.4% of annual operations. The peak month of operations for the forecast is projected to represent 10.2% of annual operations, which is the average monthly peak over the last 15 years. It is assumed that there are 31 days in the peak month, because six of the seven months that have been peak months in the past 15 years have 31 days.

The peak hour of activity was estimated based upon hourly tower records for the peak month of 2014. The specific peak hour varied from day to day, with the 10:00 am to 11:00 am hour showing up as the peak most often. There did not seem to be any pattern of peaking that was specific to any given day of the week. On average, the peak hour of the day represented 17.6% of the total day's operations. This is the percentage assumed for the peak hour in the forecast.

In the forecast, the peak month of activity represents 10.2% of annual operations. The average day is one thirty-first of that, and the peak hour is 17.6% of the average day, peak month operations. That projection is presented in **Table 3-14**.

Table 3-14
Peak Operations

CY	Annual	Peak Month (10.2% of Annual)	Average Day (31 days/mon.)	Peak Hour (17.6% of Avg. Day)
2014	**71,572**	7,300	235	41
Forecast				
2020	**71,771**	7,321	236	42
2025	**72,020**	7,346	237	42
2030	**73,612**	7,508	242	43
2035	**75,338**	7,685	248	44

Source: Mary Lynch RYY Airport Activity Forecast, 2015

3.5. Summary

The Master Plan Update airport activity forecast of based aircraft compared to the 2015 FAA TAF forecasts is presented in **Table 3-15**.

The based aircraft forecasts are significantly different. As **Table 3-15** indicates, the FAA TAF and RYY based aircraft numbers have been out of sync since 2008. As discussed in the section on the based aircraft forecast, based aircraft data at the airport has been in disarray since 2009. Over some of this time there were two FBOs at the airport, and only one maintained adequate records on based aircraft. Then the FAA's 2010 Rule for Re-Registration and Renewal of Aircraft Registration caused confusion regarding the accurate count for a few years. More recently, a new FBO has been installed at the airport. Obviously, the data supplied to the FAA TAF since 2008 has not been accurate. However, in the absence of other information, it has been that data upon which the FAA TAF has based its forecast. Current 2015 data from the FAA May 2015 National Based Aircraft Inventory, verified by N-number, indicates that there are currently 311 aircraft based at RYY. The FAA TAF projects based aircraft to increase at a compound average annual growth rate of 1.7% from 2013 through 2035. The Airport Master Plan update forecast for based aircraft projects this compound average annual growth to be only 0.50% over the same period, but it is applied to the higher base level.

The Master Plan update airport activity forecast operations are compared to the 2015 FAA TAF forecasts in **Table 3-16**. The forecasts of total operations differ by 10.1% by 2035. The FAA TAF forecast has 2013 as the last year of actual data. In 2014, actual operations recorded at the airport were 4.6% higher than the FAA TAF projection of total operations for 2035.

Table 3-15 Master Plan Forecast and FAA TAF Comparison Based Aircraft			
Year	Airport Master Plan Forecast	2015 FAA TAF	% Difference
2000	323	311	3.9%
2001	314	311	1.0%
2002	374	311	20.3%
2003	392	317	23.7%
2004	341	311	9.6%
2005	354	311	13.8%
2006	358	358	0.0%
2007	357	358	(0.3)%
2008	359	275	30.5%
2009	320	275	16.4%
2010	319	193	65.3%
2011	317	193	64.2%
2012	315	146	115.8%
2013	312	146	113.7%
2014	310		
2015	311		
Forecast			
2014		148	109.5%
2015		149	108.7%
2020	320	160	100.1%
2025	323	173	86.8%
2030	332	193	72.1%
2035	348	213	63.4%
CAAGR	0.5%	1.7%	2013-2015

Sources: Airport Records for Master Plan History; Mary Lynch RYY Airport Activity Forecast, 2015; 2015 FAA TAF history ends at 2013. 2014-2015 are forecasts. Airport records for 2015 are N-number verified.

Table 3-16 Master Plan Forecast and FAA TAF Comparison Total Operations			
Year	Airport Master Plan Actuals	2015 FAA TAF	% Difference
2013	62,067	61,617	0.70%
2014	71,572		5.30%
Forecast			
2014		67,942	5.30%
2020	71,771	67,647	6.10%
2025	72,020	67,902	6.10%
2030	73,612	68,157	8.00%
2035	75,338	68,413	10.10%

Sources: Airport records; 2015 FAA TAF; Mary Lynch RYY Airport Activity Forecast, 2015.

Note that the 2015 FAA TAF historical data string for based aircraft ends at 2013. So, there is no historical based aircraft data for the FAA TAF in 2014 and 2015. The airport has actual based aircraft data for 2014 and 2015, so there is not Master Plan Forecast based aircraft for 2014 and 2015. The "% Difference" values for 2014 and 2015 compare the RYY airport actuals for 2014 and 2015 to the FAA TAF forecasts for 2014 and 2015.

Table 3-17 provides a summary of the activity forecast for RYY. Overall, the current activity at the Cobb County International Airport – McCollum Field is expected to show growth throughout the forecast period. In summary, the data and methods used to forecast aviation demand elements for the airport are consistent with those used by the FAA and other airports located in the State of Georgia and therefore, accurately reflect current activity trends of the surrounding region and nation.

Table 3-17 Cobb County International Airport - McCollum Field Master Plan Update Forecast Summary					
	2014	**2020**	**2025**	**2030**	**2035**
Operations					
Itinerant					
Air Carrier	0	0	0	0	0
Air Taxi/Commuter	2,376	2,522	2,651	2,786	2,928
General Aviation	38,365	38,549	38,745	39,723	40,781
Military	621	621	621	621	621
Total Itinerant Operations	41,362	41,693	42,017	43,130	44,330
Local					
General Aviation	30,119	29,988	29,912	30,391	30,918
Military	91	91	91	91	91
Total Local Operations	30,210	30,079	30,003	30,482	31,009
TOTAL OPERATIONS	71,572	71,771	72,020	73,612	75,338
Instrument Operations	11,827	13,664	13,980	14,500	15,058
Peak Hour Operations	41	42	42	43	44
Based Aircraft					
Single Piston	208	210	203	197	194
Single Turbo	10	10	10	12	14
Multi Piston	20	21	20	19	19
Multi Turbo	12	12	13	14	17
Jet	50	54	62	72	86
Helicopter	10	11	12	13	15
Other		3	3	4	4
TOTAL BASED AIRCRAFT	310	320	323	332	348
General Aviation Operations Per Based Aircraft (OPBA)	231	224	223	222	216

Source: Mary Lynch RYY Airport Activity Forecast, 2015.

Chapter 4 – Facility Requirements Analysis

4.1 Introduction

The Facility Requirements chapter of this Master Plan Update describes airside and landside facilities, which are needed to accommodate existing and forecast demand at the Cobb County International Airport in accordance with FAA design criteria and current safety standards. The facility requirements are based upon the approved Aviation Forecasts that were presented in Chapter 3 and approved by GDOT on January 27, 2016. Development of the facility requirements also considers recommendations of airport management and tenants. The findings of this chapter will serve as the basis for the development of the airside and landside alternatives and development recommendations, which will be presented in subsequent chapters of this report.

Airfield facility requirements include all the items needed to ensure safe and efficient operation of aircraft at RYY. This includes runways and taxiways, as well as all the associated geometric clearances from these operational areas. It also includes items such as aircraft parking aprons, navigational aids, etc. The following paragraphs provide a discussion of these items as well as the associated FAA design criteria and Georgia Aviation System Plan goals. 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.

4.2 Georgia Aviation System Plan

The Georgia Aviation System Plan was published by the Georgia Department of Transportation Aviation Programs in 2003. The plan provides the state with a top down analysis of its airports and provides recommendations to improve the overall state system. The plan recommends facility improvements at each public airport in Georgia, including RYY, which is classified as a Level III airport, a Business Airport of Regional Impact and of significant importance to the state's aviation needs. **Table 4-1** displays the Georgia Aviation Plan objectives for a Level III airport and the existing conditions at RYY.

TABLE 4-1
GEORGIA AVIATION SYSTEM PLAN - LEVEL III REQUIREMENTS

AIRSIDE FACILITIES	System Objective	Existing
RUNWAY LENGTH	5,500 ft	6,295 ft
RUNWAY WIDTH	100 ft	100 ft
TAXIWAYS	Full Parallel	Double Parallel
LIGHTING SYSTEMS	HIRL, MITL, Approach Lights	HIRL, MITL
NAVAIDS/VISUAL AIDS	Rotating beacon, segmented circle and wind cone, PAPI's and other aids as appropriate for precision approaches	Rotating beacon, segmented circle, wind cone, PAPI's
APPROACH	Precision	Precision
WEATHER REPORTING	AWOS or ASOS	AWOS
GROUND COMMUNICATION	Public telephone, GCO	Public telephone
AIRFIELD SIGNAGE	Runway hold position signs, location and guidance signs	Runway hold position signs, location and guidance signs
FENCING	Entire airport	Entire airport
GENERAL AVIATION FACILITIES	**System Objective**	**Existing**
HANGARED AIRCRAFT STORAGE	70% of based aircraft fleet	56% of based aircraft fleet
APRON PARKING/STORAGE	30% of based aircraft plus an additional 75% for transient aircraft	220 spaces
TERMINAL/ADMINISTRATION	2,500 square feet (sf) minimum with public restrooms, conference area, and pilots' lounge	FBO terminal with public restrooms, conference area, and pilots' lounge
AUTO PARKING	Once space for each based aircraft plus an additional 50% for visitors/employees	175 spaces
SERVICES	**System Objective**	**Existing**
FUEL	AvGas and jet fuel	AvGas and jet fuel
FBO	Full Service	Full Service
MAINTENANCE	Full Service	Full Service
RENTAL CARS	Available	Available

Source: Georgia Aviation System Plan, 2003.

4.3 Airside Requirements

Airfield design standards indicate required runway and taxiway widths, as well as separations between and clearances from these pavements and are based upon the critical design aircraft. The standards that apply to RYY are discussed in this section.

4.3.1 Critical Design Aircraft

The critical design aircraft is defined by the FAA as the most demanding aircraft (in terms of wingspan length and aircraft approach speed) that presently conducts or is forecasted to conduct 500 annual operations at the airport. Although FAA criteria are established in terms of wingspan/tail height and approach speed, aircraft weight should also be considered when assessing the adequacy of pavement strength.

Review of the aviation forecasts presented in Chapter 3 indicate that the most demanding aircraft meeting the operational threshold of 500 annual itinerant operations at RYY during 2014 was not a single aircraft, but a combination of C-II jet aircraft. Two of the more demanding C-II aircraft that utilize RYY include the Gulfstream 200 and Embraer ERJ 145. The characteristics of these aircraft are shown in **Table 4-2.** By 2025, the ultimate design aircraft is projected to be a grouping of D-III category aircraft. The most demanding D-III aircraft that utilize RYY include the Gulfstream 550 (several G550's are currently based at RYY). According to G550 Airport Planning Manual, version 4.09, published by the manufacturer, the Vref (approach) speed of the G550 is 155 knots when operating at 90,000 lbs in standard conditions. **Table 4-3** displays the characteristics of these aircraft.

TABLE 4-2
EXISTING CRITICAL DESIGN AIRCRAFT

GULFSTREAM 200	
	**Approach Speed** 121 kts **Tail Height** 21.4 ft **Wingspan** 58.1 ft **MTOW** 35,450 lbs

EMBRAER ERJ 145 (LEGACY 600)

Approach Speed
135 kts
Tail Height
22.2 ft
Wingspan
65.8 ft
MTOW
48,501 lbs

Sources: Gulfstream Aerospace; Embraer; AC 150/5300-13A; Michael Baker International, 2015.

TABLE 4-3
ULTIMATE CRITICAL DESIGN AIRCRAFT

GULFSTREAM 550

Approach Speed
155 kts
Tail Height
26 ft
Wingspan
94 ft
MTOW
90,0000lbs

Sources: Gulfstream Aerospace; AC 150/5300-13A; Michael Baker International, 2015.

4.3.2 Runway Design Code

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 a code signifying the design standards to which the overall runway is to be planned and built. 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. 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.

Generally, runway standards are related to aircraft approach speed, aircraft wingspan, and designated or planned approach visibility minimums. **Table 4-4**, **Table 4-5,** and **Table 4-6** present the RDC components and their corresponding categories.

TABLE 4-4
AIRCRAFT APPROACH CATEGORIES

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

Source: AC 150/5300-13A.

TABLE 4-5
AIRCRAFT DESIGN GROUP

Group	Wingspan (feet)	Tail Height (feet)
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: AC 150/5300-13A.

TABLE 4-6
VISIBILITY MINIMUMS

RVR (FT)	Instrument Flight Visibility Category (statute mile)
5000	Not Lower than 1 mile
4000	Lower than 1 mile but not lower than ¾ mile
2400	Lower than ¾ mile but not lower than ½ mile
1600	Lower than ½ mile but not lower than ¼ mile
1200	Lower than ¼ mile

Source: AC 150/5300-13A.

Based on the characteristics of the current and ultimate critical aircraft for RYY, the current AAC and ADG are C-II, while the ultimate AAC and ADG are D-III. Current minimums are ¾ sm, or 4000 RVR. It is anticipated that the minimums will remain unchanged, but this will be evaluated further. The current RDC for Runway 9/27 is C-II-4000. The future RDC is D-III-4000.

The ARC (Airport Reference Code) signifies the airport's highest RDC minus the third (visibility) component. Since RYY has only one runway, the current ARC is C-II and the future ARC is D-III.

4.3.3 Runway Reference Code and Airport 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 airport's APRC depends on the visibility minimums and the runway to taxiway separation. RYY has four instrument approach procedures: Runway 9 RNAV (GPS), Runway 9 VOR/DME, Runway 27 ILS or LOC, and Runway 27 RNAV (GPS). The APRCs associated with the minimums of these approaches are summarized in **Table 4-7**.

TABLE 4-7
APPROACH REFERENCE CODES

Approach	Minimums	Runway-Taxiway Separation	APRC
Runway 9 RNAV (GPS)	1 sm	253 ft	B-II-5000
Runway 9 VOR/DME	1 sm	253 ft	B-II-5000
Runway 27 ILS OR LOC	¾ sm	253 ft	B-II-4000
Runway 27 RNAV (GPS)	¾ sm	253 ft	B-II-4000

Source: Michael Baker International, 2016.

The APRC for Runway 9 is B-II-5000, meaning that with a separation of 253 ft and visibility minimums of 1 mile, aircraft up to AAC B and ADG II may operate on the runway and taxiway simultaneously without any operation restrictions. The APRC for Runway 27 is B-II-4000.

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 253 ft, RYY's DPRC is B-II, meaning that aircraft up to AAC B and ADG II may operate on the runway and taxiway simultaneously during landing operations. Since the future critical aircraft is a D-III, the Master Plan should evaluate runway-to-taxiway separation of greater than or equal to 400 ft runway-to-taxiway separation.

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 airport has only one runway, the current ARC is C-II and the ultimate ARC is D-III.

Table 4-8 presents the FAA design standards associated with the existing ARC of C-II with not lower than ¾ sm visibility and the future ARC of D-III with not lower than ¾ sm visibility and compares them to existing conditions at RYY. Each standard and all nonstandard conditions will be discussed in the following sections.

TABLE 4-8
FAA AIRPORT DESIGN STANDARDS

Item	Existing Conditions	C-II Not Lower Than ¾ Sm	D-III Not Lower Than ¾ Sm
RUNWAY DESIGN			
RUNWAY WIDTH	100 ft	100 ft	100 ft
SHOULDER WIDTH	10 ft	10 ft	25 ft
BLAST PAD WIDTH		120 ft	200 ft
BLAST PAD LENGTH		150 ft	200 ft
CROSSWIND COMPONENT		16 knots	16 knots
RUNWAY PROTECTION			
RUNWAY SAFETY AREA (RSA)			
LENGTH BEYOND DEPARTURE END	1,000 ft	1,000 ft	1,000 ft
LENGTH PRIOR TO THRESHOLD	600 ft	600 ft	600 ft
WIDTH	Nonstandard	500 ft	500 ft
RUNWAY OBJECT FREE AREA (ROFA)			
LENGTH BEYOND DEPARTURE END	1,000 ft	1,000 ft	1,000 ft
LENGTH PRIOR TO THRESHOLD	600 ft	600 ft	600 ft
WIDTH	800 ft	800 ft	800 ft
RUNWAY OBSTACLE FREE ZONE (ROFZ)			
LENGTH	200 ft	200 ft	200 ft
WIDTH	400 ft	400 ft	400 ft
APPROACH RUNWAY PROTECTION ZONE			
LENGTH	1,700 ft	1,700 ft	1,700 ft
INNER WIDTH	1,000 ft	1,000 ft	1,000 ft
OUTER WIDTH	1,510 ft	1,510 ft	1,510 ft
ACRES	48.978	48.978	48.978
DEPARTURE RUNWAY PROTECTION ZONE			
LENGTH	1,700 ft	1,700 ft	1,700 ft
INNER WIDTH	500 ft	500 ft	500 ft
OUTER WIDTH	1,010 ft	1,010 ft	1,010 ft
ACRES	29.465	29.465	29.465
RUNWAY SEPARATION			
RUNWAY CENTERLINE TO:			
HOLDING POSITION	Northside - 200 ft Southside - 250 ft	250 ft	250 ft
PARALLEL TAXIWAY	Northside - 253 ft Southside - 300 ft	300 ft	400 ft
AIRCRAFT PARKING AREA	400+ ft	400 ft	500 ft

Source: FAA AC 150/5300-13A.

4.3.4 Runway Length

Major reconstruction was completed in 2009 on Runway 9/27. As mentioned in the inventory chapter of this report, the runway was extended from 5,000 ft to 6,311 ft, with a 1,062 ft displaced threshold on Runway 9. A runway length analysis was conducted based on FAA Advisory Circular 150/5325-4B *Runway Length Requirements for Airport Design.* **Table 4-9** presents the findings for small airplanes and large airplanes of 60,000 lbs or less. The findings are based on an airport elevation of 1,040 ft and a mean maximum temperature of 83° F. Based on these findings, the current runway length is sufficient for 100% of small airplanes, 100% of the large airplane fleet operating at 60% useful load, and 75% of the large airplane fleet operating at 90% useful load. This would include the current critical aircraft.

TABLE 4-9

RUNWAY LENGTH REQUIREMENTS	
AIRPORT ELEVATION	1,040 ft
MEAN DAILY MAXIMUM TEMPERATURE OF THE HOTTEST MONTH	83° F
AIRCRAFT CRITERIA	**LENGTH**
SMALL AIRPLANES (WITH LESS THAN 10 PASSENGER SEATS)	
95 PERCENT OF FLEET	3,300 ft
100 PERCENT OF FLEET	3,900 ft
SMALL AIRPLANES (WITH 10 OR MORE PASSENGER SEATS)	4,400 ft
LARGE AIRPLANES OF 60,000 POUNDS OR LESS	
75 PERCENT OF FLEET AT 60 PERCENT USEFUL LOAD	4,700 ft
75 PERCENT OF FLEET AT 90 PERCENT USEFUL LOAD	6,300 ft
100 PERCENT OF FLEET AT 60 PERCENT USEFUL LOAD	5,400 ft
100 PERCENT OF FLEET AT 90 PERCENT USEFUL LOAD	8,100 ft

Source: FAA AC 150/5325-4B.

The future and ultimate critical aircraft weigh more than 60,000 lbs, thus a more in-depth analysis was conducted to determine the required runway length. AC 150/5325-4B and the following five-step method was utilized to conduct the analysis.

Step 1 – Identification of Critical Design Airplane(s)

Step 1 states "Identify the list of critical design airplanes that will make regular use of the proposed runway for an established planning period of at least five years." Based on the forecasts in Chapter 3, the Gulfstream 550 and Boeing Business Jet (BBJ) were chosen to be evaluated as the critical design airplanes (for runway length) from the family of D-III aircraft greater than 60,000 lbs. There are currently several Gulfstream 550's based at RYY who have expressed need for longer runway length during certain periods. The BBJ is not based at RYY but the airport does see growing operations by this aircraft type and Kennesaw State University has expressed a desire to operate athletic charters utilizing the BBJ.

Step 2 – Aircraft Requiring the Longest Runway Length at Max Takeoff Weight

Step 2 states "Identify the airplanes that will require the longest runway lengths at maximum certificated takeoff weight (MTOW)." When the MTOW of listed airplanes is over 60,000 pounds (lbs), the recommended runway length is determined according to individual airplanes. The critical individual

aircraft takeoff weights for the G550 and BBJ were obtained from a current RYY tenant operating a G550 and BBJ *Airplane Characteristics for Airport Planning* manual. These weights are shown in **Table 4-10**.

TABLE 4-10
CRITICAL AIRCRAFT MAX TAKEOFF WEIGHTS

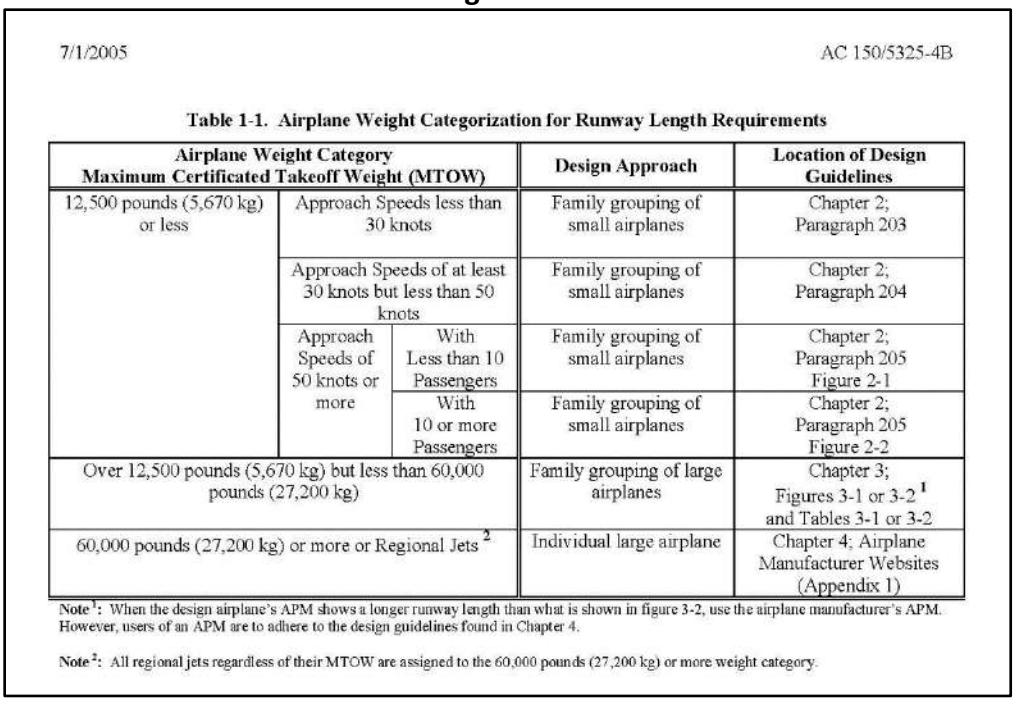
GULFSTREAM 550	**91,000 lbs**
BOEING 737-BBJ	**174,200 lbs**

Sources: Gulfstream G550 Performance Handbook, 2015; BBJ Airplane Characteristics for Airport Planning, 2013.

Step 3 – Recommended Runway Length Method

In Step 3, the AC states "Use Table 1-1 and the airplanes identified in Step 2 to determine the method that will be used for establishing the recommended runway lengths." For reference, **Figure 4-3** reflects the information identified in Table 1-1 of the AC.

Figure 4-3



7/1/2005 AC 150/5325-4B

Table 1-1. Airplane Weight Categorization for Runway Length Requirements

Airplane Weight Category Maximum Certificated Takeoff Weight (MTOW)			Design Approach	Location of Design Guidelines
12,500 pounds (5,670 kg) or less	Approach Speeds less than 30 knots		Family grouping of small airplanes	Chapter 2; Paragraph 203
	Approach Speeds of at least 30 knots but less than 50 knots		Family grouping of small airplanes	Chapter 2; Paragraph 204
	Approach Speeds of 50 knots or more	With Less than 10 Passengers	Family grouping of small airplanes	Chapter 2; Paragraph 205 Figure 2-1
		With 10 or more Passengers	Family grouping of small airplanes	Chapter 2; Paragraph 205 Figure 2-2
Over 12,500 pounds (5,670 kg) but less than 60,000 pounds (27,200 kg)			Family grouping of large airplanes	Chapter 3; Figures 3-1 or 3-2 [1] and Tables 3-1 or 3-2
60,000 pounds (27,200 kg) or more or Regional Jets [2]			Individual large airplane	Chapter 4; Airplane Manufacturer Websites (Appendix 1)

Note [1]: When the design airplane's APM shows a longer runway length than what is shown in figure 3-2, use the airplane manufacturer's APM. However, users of an APM are to adhere to the design guidelines found in Chapter 4.

Note [2]: All regional jets regardless of their MTOW are assigned to the 60,000 pounds (27,200 kg) or more weight category.

Source: FAA AC 150/5325-4B.

Since the G550 and BBJ fall into the family of aircraft greater than 60,000 lbs, the procedures outlined in Chapter 4 were used to determine the recommended runway length requirements. Aircraft performance tables associated with the critical design aircraft were obtained from the airport tenant and BBJ performance manual.

Steps 4 and 5 – Determine Recommended Runway Length

Using the guidance outlined in Chapter 4 of the AC, runway lengths for landing and takeoff were determined for both the G550 and BBJ. After these lengths are determined, they are then adjusted

according to certain requirements as described by the AC. The longest of these lengths becomes the recommended runway length for the airport.

G550 Takeoff Requirements

To accurately determine the takeoff requirements for the G550, the "Wet Runway Takeoff Planning Chart" was utilized as it is the most restrictive. With this chart, the takeoff length required at a temperature of 86° F and a field elevation 1,000 ft was determined. **Figure 4-4** displays the takeoff chart for the G550. With a MTOW of 91,000 lbs, the G550 would need 7,220 ft, unadjusted.

Figure 4-4
G550 Takeoff Requirements

WET RUNWAY TAKEOFF PLANNING CHART

AIRPORT PRESSURE ALTITUDE = 1,000 FEET — **TAKEOFF FLAP 20°**

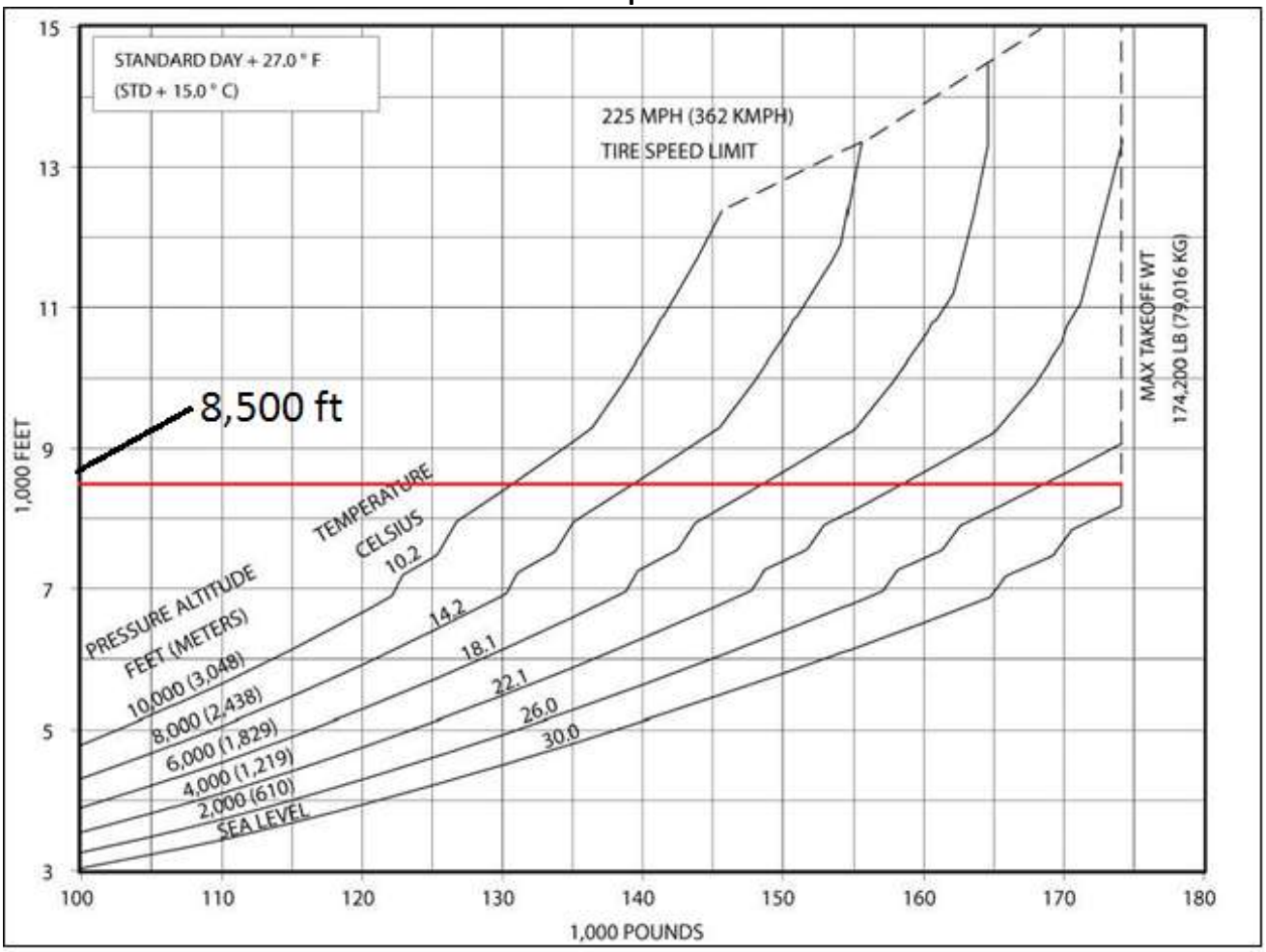
91,000 LB MTOGW	OAT (°C)	53	50	45	40	35	30	25	20	15	5	-5
	OAT (°F)	127	122	113	104	95	86	77	68	59	41	23
	RATED EPR	1.42	1.42	1.44	1.47	1.50	1.53	1.56	1.58	1.57	1.57	1.57
– 91,000 LB –												
	FLD LNGTH	******	******	8,980	8,280	7,720	7,220	6,970	6,850	6,730	6,570	6,340
V_{SE} = 192 KCAS	V_1 KCAS	******	******	134	132	131	129	128	128	128	129	129
V_{REF} = 155 KCAS	V_R KCAS	******	******	142	142	142	142	142	142	142	142	142
MAX TEMP = 45°C	V_2 KCAS	******	******	147	147	147	147	147	147	147	147	147
– 90,000 LB –												
	FLD LNGTH	******	******	8,700	8,060	7,520	7,040	6,780	6,670	6,560	6,400	6,170
V_{SE} = 191 KCAS	V_1 KCAS	******	******	133	131	129	128	127	127	127	128	128
V_{REF} = 154 KCAS	V_R KCAS	******	******	141	141	141	141	141	141	141	141	141
MAX TEMP = 46°C	V_2 KCAS	******	******	146	146	146	146	146	146	146	146	146
– 85,000 LB –												
	FLD LNGTH	******	8,320	7,580	7,040	6,580	6,170	5,950	5,850	5,750	5,610	5,420
V_{SE} = 184 KCAS	V_1 KCAS	******	128	126	125	123	121	121	121	121	121	121
V_{REF} = 148 KCAS	V_R KCAS	******	136	136	136	136	136	136	136	136	136	136
MAX TEMP = 51°C	V_2 KCAS	******	141	141	141	141	141	141	141	141	141	141
– 80,000 LB –												
	FLD LNGTH	7,520	7,130	6,580	6,120	5,720	5,370	5,190	5,100	5,020	4,890	4,720
V_{SE} = 177 KCAS	V_1 KCAS	123	122	120	118	116	115	114	114	114	115	115
V_{REF} = 142 KCAS	V_R KCAS	131	131	131	131	131	131	131	131	131	131	131
MAX TEMP = 53°C	V_2 KCAS	136	136	136	136	136	136	136	136	136	136	136
– 75,000 LB –												
	FLD LNGTH	6,460	6,150	5,680	5,300	5,000	4,810	4,710	4,630	4,550	4,410	4,250
V_{SE} = 170 KCAS	V_1 KCAS	116	115	113	111	110	110	110	110	110	110	110
V_{REF} = 137 KCAS	V_R KCAS	126	126	126	126	126	126	126	126	126	126	126
MAX TEMP = 53°C	V_2 KCAS	131	131	131	131	131	131	131	131	131	131	131

Source: Gulfstream G550 Performance Handbook, 2015.

BBJ Takeoff Requirements

Standard temperature plus 27°C (83°F) at an airport elevation of 1,000 ft was assumed for the BBJ takeoff lengths. Takeoff requirements at MTOW, 90% useful load, and 80% useful load were analyzed. **Figure 4-5** displays the takeoff chart for the BBJ at MTOW. **Figure 4-6** displays the takeoff chart at 90% useful load and **Figure 4-7** displays the takeoff chart at 80% useful load.

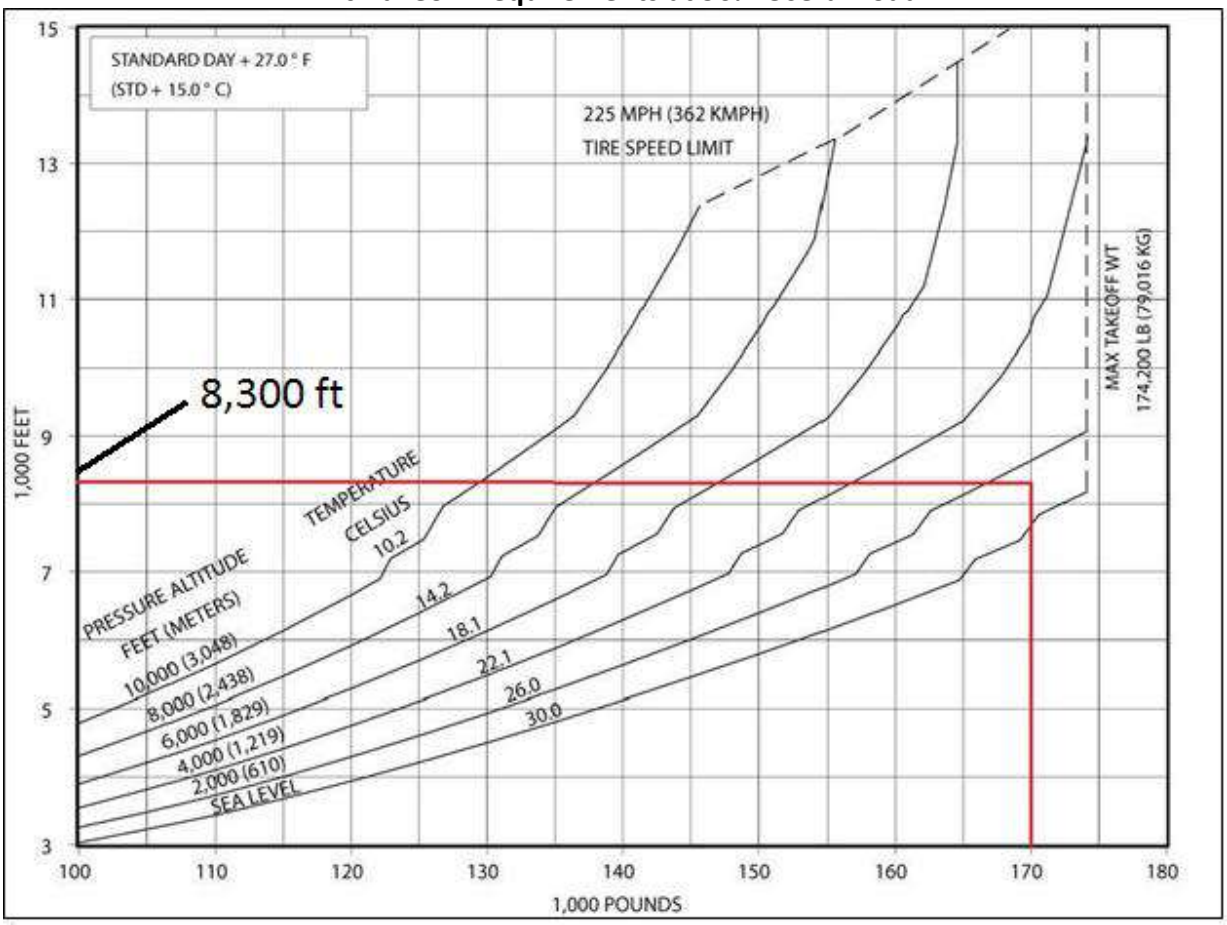
Figure 4-5
737-BBJ Takeoff Requirements at MTOW



Source: BBJ Airplane Characteristics for Airport Planning, 2013.

At MTOW, the BBJ would require 8,500 ft of runway for takeoff.

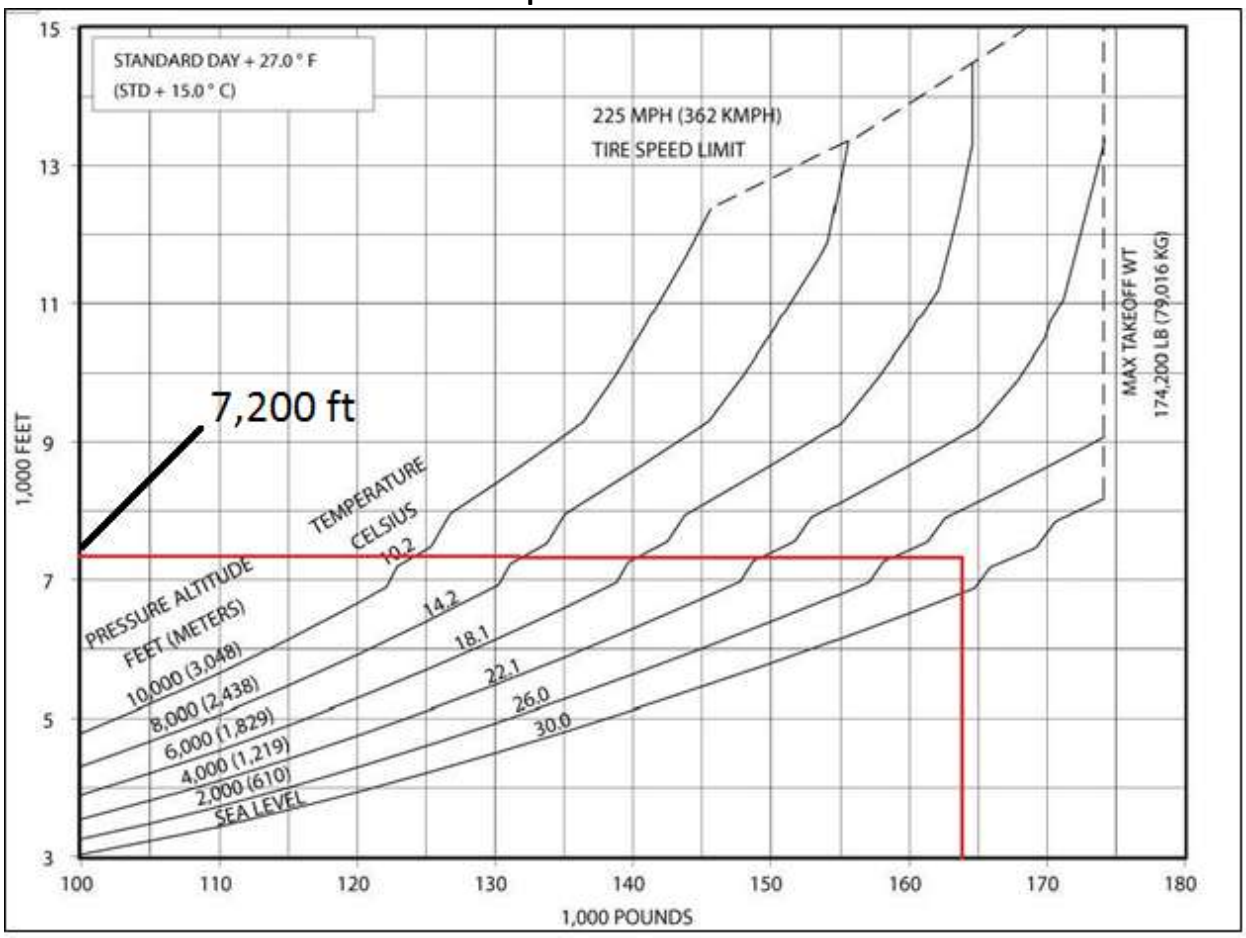
Figure 4-6
BBJ Takeoff Requirements at 90% Useful Load



Source: Boeing's 737 Airplane Characteristics for Airport Planning, 2013.

At 90% of useful load, the BBJ would require 8,300 ft of runway for takeoff.

Figure 4-7
BBJ Takeoff Requirements at 80% Useful Load



Source: Boeing's 737 Airplane Characteristics for Airport Planning, 2013.

At 80% useful load, the 737-BBJ would require 7,200 ft of runway for takeoff.

Takeoff Length Adjustments

Chapter 5 of the AC details how to adjust takeoff lengths to compensate for differences in runway centerline elevations. For airplanes over 12,500 pounds, the recommended runway length for takeoff must be increased by 10 ft per foot of difference in centerline elevations between the high and low points. In this case, the runway at RYY has a difference of 30 ft in elevation. The takeoff lengths identified above must then be increased 300 ft to compensate for this difference. It is noted that this adjustment only affects Runway 27 takeoffs.

Utilizing the applicable Aircraft Performance Manuals and the guidelines set forth by AC 150/5325-4B, the results of the runway length analysis are summarized in **Table 4-11.** The recommended runway length for RYY is 7,500 ft requiring an extension of 1,205 ft. This length would fully accommodate the runway length requirements of the G550 and support the BBJ requirements at 80% useful load.

TABLE 4-11
RECOMMENDED RUNWAY LENGTH

	MAX TAKEOFF WEIGHT	RUNWAY REQUIRED	GRADIENT ADJUSTMENT	RECOMMENDED RUNWAY LENGTH
GULFSTREAM 550	91,000 lbs	7,220 ft	300 ft	7,500 ft (rounded)
BOEING 737-BBJ	174,200 lbs	8,500 ft	300 ft	8,800 ft
90% MAX PAYLOAD	170,042 lbs	8,300 ft	300 ft	8,600 ft
80% MAX PAYLOAD	164,800 lbs	7,200 ft	300 ft	7,500 ft

Sources: Gulfstream G550 Performance Handbook, 2015; Boeing's BBJ Airplane Characteristics for Airport Planning, 2013; Michael Baker, 2015.

4.3.5 Runway Width

Per FAA airport design standards, runway width for C-II airports is 100 ft. D-III airports require a runway width of 150 ft; however, 100 ft width is acceptable for D-III runways supporting critical aircraft having a MTOW of 150,000 lbs or less. Based upon the runway length analysis, two critical airplanes were utilized to determine runway length, the G550 and BBJ. As noted in **Table 4-11**, the MTOW of the G550 is 91,000 lbs and the MTOW of the BBJ is 164,800 lbs. However, the BBJ activity at RYY only contributes a small share of D-III operations. No other D-III aircraft operating at RYY have operating weights greater than 150,000 lbs. Therefore, until BBJ operations become more frequent, the G550 should be the basis for runway width at RYY. Since the MTOW of the critical aircraft, the G550, is less than 150,000 lbs, the existing runway width is sufficient to support existing and future operations.

4.3.6 Runway Strength

The current runway strength for 9/27 is reported to be 30,000 lbs single wheel loading and 60,000 lbs double wheel loading. While this published strength is sufficient for the current critical aircraft, it is not sufficient for the future critical aircraft. The G550 is 91,000 lbs at MTOW and the 737-BBJ at 80% useful load is 164,800 lbs. A future pavement strength evaluation is recommended in order to gain an accurate picture of existing pavement strength. It is possible that based upon the current and projected fleet mix and frequency of those aircraft, the airport could publish higher runway strength numbers without the need to reconstruct the pavement. Once the analysis is concluded, it is further recommended that the airport work with GDOT and the FAA to update the FAA 5010 master data record if the findings indicate a higher pavement strength. If the findings do not indicate the pavement is stronger than what is published, it is recommended that the airport consider a runway strengthening project in the next 5-10 years.

4.3.7 Runway Transverse Grades

Aircraft approach categories C and D standards allow a maximum longitudinal grade of 1.50%; additionally, longitudinal grades may not exceed .80% in the first and last quarter, or first and last 2,500 ft, whichever is less, of the runway length. The longitudinal grade of Runway 9/27 is .672% and therefore meets transverse grade standards. If the runway is extended, the transverse grade requirements must be considered.

4.3.8 Runway Lighting

Runway 9/27 is equipped with High Intensity Runway Lights (HIRL). This lighting is sufficient for the planning period.

4.3.9 Wind Coverage and Crosswind Analysis

FAA criteria recommend a minimum 95% wind coverage for all airports. The wind data gathered on site for the years 2006-2015 was used to determine wind coverage for RYY. Based on this data and Table 2-4 from Chapter 2, Runway 9/27 exceeds 95% for all weather conditions including instrument meteorological conditions with a 16 knot crosswind component. This coverage is sufficient and exceeds current C-II standards and future D-III standards. The data also suggest the primary runway provides sufficient coverage and a crosswind runway is not required.

4.3.10 Runway Protection Standards

Runway Safety Area (RSA)

The 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. The RSA must also be cleared and graded. RSA standards cannot be modified and must be mitigated if standards are not met. For C-II and D-III airports, the RSA is 500 ft wide (400 ft width is acceptable for C-II airports), 1,000 ft beyond the runway end and 600 ft prior to threshold.

RYY meets C-II RSA width standards (400 ft) on both sides of the runway, but does not meet D-III width standards (500 ft) on the north side because Taxiway A is located 250 ft from the runway. The Runway 27 end meets the RSA length requirements. The Runway 9 end does not meet the RSA length requirements because of the location of Old U.S. Highway 41, McCollum Parkway, and Cobb Parkway. As a result, the runway is displaced and declared distances are in place.

If the airport seeks to relocate the Runway 9 threshold and increase the runway length available, RSA standards must be considered and land acquisition may be a possibility. Relocating the threshold will be analyzed further in this report.

Runway Object Free Area (ROFA)

The 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. C-II and D-III standards are 600 ft prior to threshold, 1,000 ft beyond the runway end, and 800 ft wide. RYY does not meet the width requirement of 800 ft because both taxiways are located too close to the runway. The Runway 27 end meets the length requirements while the Runway 9 end does not because of the location of Old U.S. Highway 41, McCollum Parkway, and Cobb Parkway.

Runway Obstacle Free Zone (ROFZ)

The ROFZ 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 ROFZ 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 ROFZ for a particular operation may not be the same shape as that used for design purposes. The ROFZ extends 200 ft beyond each end of the runway. For small aircraft, the length of the OFZ is 300 ft for runways with lower than ¾ sm minima and 250 ft for all other operations by small aircraft. For large aircraft, regardless of visibility, the ROFZ width is 400 ft. Due to the amount of jet activity at RYY, the 400 ft width applies for planning purposes. RYY meets C-II and D-III ROFZ standards in the current runway configuration.

Runway Protection Zone (RPZ)

Each runway has an approach RPZ beginning 200 ft prior to threshold and a departure RPZ beginning 200 ft past the runway end. If the runway does not have a displaced threshold, the approach RPZ is larger and would encompass the opposite runway's departure RPZ. In the case of RYY, Runway 9 is displaced resulting in the Runway 27 departure RPZ extending past the Runway 9 approach RPZ. 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 objects and 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 4-12**.

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. RYY owns the Runway 27 RPZ in fee simple. If the airport seeks to extend the runway on that end, acquisition of the future RPZ in fee simple or easement should be considered. The majority of the Runway 9 approach and Runway 27 departure RPZs is not controlled by the airport and should be considered for acquisition in the future.

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 RYY, if the runway is extended, new land uses would be introduced inside the extended RPZs, thus triggering the FAA review process. An RPZ alternatives study should be completed for further analysis in support of any future runway extensions.

4.3.11 Runway Separation Standards

Runway separation standards, like the previous mentioned standards, are based on AAC, ADG, and visibility minima. The requirements for C-II and D-II are shown in **Table 4-13** and **Table 4-14**.

Runway Centerline to Parallel Taxiway Centerline

With a current visibility of ¾ sm, RYY meets the C-II standard of 300 ft on the south side; however, RYY does not meet this standard on the north side. The distance from runway centerline to Taxiway A centerline is 250 ft. If the airport lowers the approach minima to below ¾ sm, the distance increases to 400 ft and neither taxiway meets this standard. Once the ARC upgrades to D-III, the separation distance is 400 ft regardless of visibility. The feasibility of relocating the taxiways will be discussed in the next chapter.

TABLE 4-13
RUNWAY SEPARATION STANDARDS

C-II			
SEPARATION STANDARD	**APPROACH VISIBILITY**		
	¾ sm	Lower than ¾ sm	Existing
RUNWAY CENTERLINE TO PARALLEL TAXIWAY CENTERLINE	300 ft	400 ft	250 ft/300 ft
RUNWAY CENTERLINE TO AIRCRAFT PARKING	400 ft	400 ft	400 ft
RUNWAY CENTERLINE TO AIRCRAFT HOLDING POSITION	250 ft	250 ft	200 ft/250 ft

Source: Michael Baker International, 2016.

TABLE 4-14
RUNWAY SEPARATION STANDARDS

D-III			
SEPARATION STANDARD	**APPROACH VISIBILITY**		
	¾ sm	Lower than ¾ sm	Existing
RUNWAY CENTERLINE TO PARALLEL TAXIWAY CENTERLINE	400 ft	400 ft	250 ft/300 ft
RUNWAY CENTERLINE TO AIRCRAFT PARKING	500 ft	500 ft	400 ft
RUNWAY CENTERLINE TO AIRCRAFT HOLDING POSITION	250 ft	250 ft	200 ft/250 ft

Source: Michael Baker International, 2016.

Runway Centerline to Aircraft Parking

With a runway centerline to aircraft parking distance of 400 ft, the airport meets C-II standards for ¾ sm and lower than ¾ sm visibility. D-III standards require 500 ft separation. To meet this standard, the airport would have to eliminate 15 aircraft parking spaces on the south side and 9 spaces and 5 small hangars on the north side. Eliminating the spaces and hangars will be discussed in the next chapter.

Runway Centerline to Aircraft Holding Position

Hold positions on Taxiway A are located 200 ft from runway centerline, 50 ft closer than C-II and D-III standards require. If the taxiway is relocated, the hold position markings would be remarked to meet standards. If the taxiway is not relocated, the airport should consider requesting a modification of standards from the FAA or require all aircraft to hold on the apron. Further analysis will be completed in the next chapter. Taxiway B hold position markings are standard and do not need to be relocated.

4.3.12 Declared Distances

Because Runway 9 has a displaced threshold, non-standard RSAs and non-standard ROFAs, declared distances are required. Declared distances for aircraft operation have been published for both runway ends, as required by FAA AC 150/5300-13A, *Airport Design.* The declared distances for Runways 9 and 27 are presented in **Table 4-15.** If the runway is extended, the declared distances will need to be analyzed and updated. This analysis will be completed in the next chapter.

TABLE 4-15

DECLARED DISTANCES

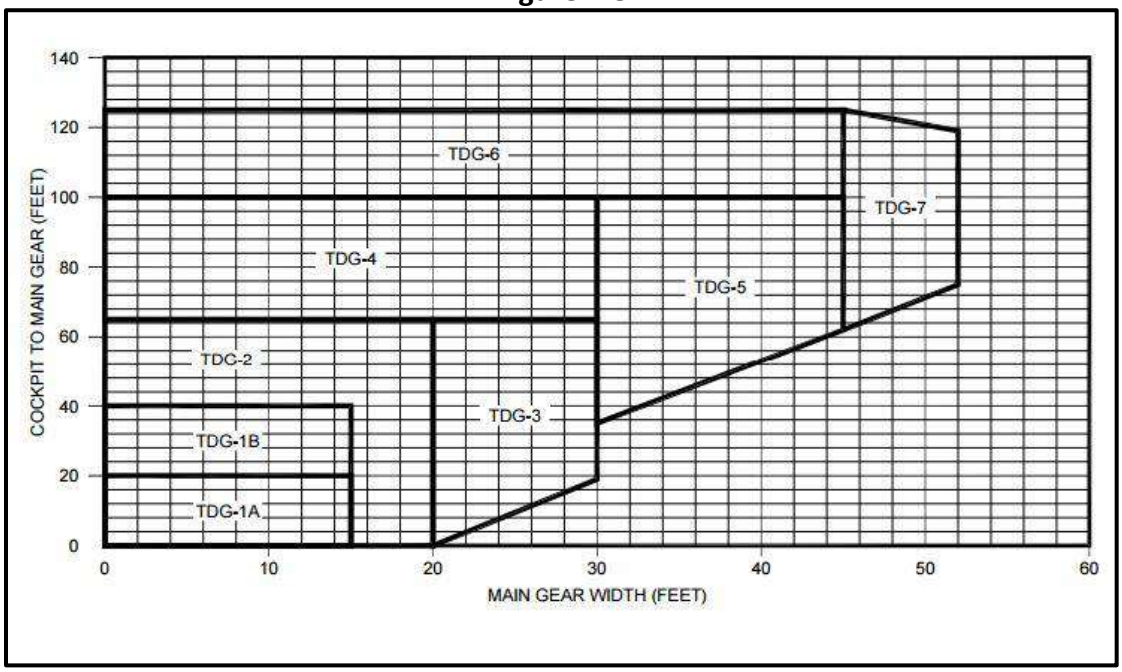
	RUNWAY 9	RUNWAY 27
TAKE OFF RUN AVAILABLE (TORA)	6,295 ft	6,295 ft
TAKE OFF DISTANCE AVAILABLE (TODA)	6,295 ft	6,295 ft
ACCELERATE-STOP DISTANCE AVAILABLE (ASDA)	6,295 ft	5,374 ft
LANDING DISTANCE AVAILABLE (LDA)	5,233 ft	5,374 ft

Source: Michael Baker International, 2015.

4.3.13 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 requirements are based on Taxiway Design Group (TDG). TDG standards relate to the undercarriage dimensions of the design aircraft. Taxiway/taxilane width and fillet standards are determined by TDG. **Figure 4-8** illustrates the TDG classifications.

Figure 4-8



Source: FAA AC 150/5300-13A.

Table 4-16 summarizes the undercarriage dimensions of the more demanding aircraft operating at RYY and the associated TDG.

TABLE 4-16
TAXIWAY DESIGN GROUP

	COCKPIT TO MAIN GEAR	MAIN GEAR WIDTH	TDG
GULFSTREAM 200			TDG-2
EMBRAER ERJ-145	47 ft	13 ft	TDG-2
GULFSTREAM 550	45 ft	14 ft	TDG-2
BOMBARDIER GLOBAL EXPRESS 6000	39 ft		TDG-3
BOEING BUSINESS JET	41 ft	23 ft	TDG-3

Sources: FAA AC 150/5300-13A; Michael Baker, 2015.

RYY's current critical aircraft, the Gulfstream 200 and ERJ-145 and future critical aircraft, the Gulfstream 550 are in TDG-2. TDG-2 requires taxiways to be 35 ft wide. Both taxiways meet or exceed this standard; however, the airport expects to accommodate several TDG-3 aircraft in the near future including the Bombardier Global Express 6000 and the Boeing Business Jet. TDG-3 requires 50 ft wide taxiways and wider fillets. The next chapter will analyze the feasibility of widening the taxiways and fillets to accommodate these aircraft; however TDG-2 is currently the requirement. Both parallel taxiways and all connector taxiways are equipped with Medium Intensity Taxiway Lighting (MITL). This lighting is sufficient for the planning period. As noted previously, the taxiways do not meet the required separation for the ultimate ARC of D-III. The next chapter will analyze the feasibility of relocating the taxiways to the required separation of 400 ft.

4.3.14 NAVAIDS

Visual Aids

Both ends of Runway 9/27 currently have PAPI's that provide adequate vertical guidance for approaches. The airport is also equipped with a rotating beacon and wind cone. Currently, a MALSF is planned to be constructed on the Runway 27 end to support the ILS approach.

Electronic Aids

Runway 27 is equipped with an ILS system and has a decision height (DH) of 200 ft, the lowest possible DH for this type of approach. Current minima are ¾ sm for the approach. Runway 9 is not equipped with any electronic aids.

Satellite Aids

Runway 27 has a WAAS-based LPV approach with a DH of 200 ft and ¾ sm minima. Runway 9 is equipped with a non-precision LNAV GPS approach with a minimum descent altitude (MDA) of 600 ft and 1 sm minima.

The various NAVAIDS at RYY are sufficient and will support the airport throughout the planning period.

4.3.15 FAA Part 77 Requirements

FAR Part 77, *Objects Affecting Navigable Airspace,* establishes standards and notification requirements for objects affecting navigable airspace. Part 77 imaginary surfaces are based on instrument approach procedures and become more stringent as the approach criteria become more demanding. **Table 4-17** presents the comparison of FAR Part 77 standards.

TABLE 4-17
FAR PART 77 IMAGINARY SURFACE DIMENSION REQUIREMENTS

	APPROACH TYPE			
	Visual	Non-Precision >¾ sm	Non-Precision <= ¾ 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 ft	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: FAA FAR Part 77.

The surface dimensions described for non-precision approaches with visibility greater than ¾ sm and precision approaches would apply to RYY. Coordination with FAA and GDOT will be required for the clearing and/or mitigation of hazards and obstructions within the FAR Part 77 surfaces, prior to securing lower approach minima.

4.4 Landside Requirements

Requirements for the landside facilities were calculated on the basis of data collected during the inventory, forecasts of aviation demand, consultation with airport management, as well as FAA design standards and GDOT system plan recommendations. The following facilities were examined:

- Aircraft Hangars
- Tie-Downs and Apron
- Terminal/Administration
- Auto Parking
- Fuel Storage

4.2.1 Aircraft Hangars

Aircraft hangar requirements for a general aviation facility are a function of the number of based aircraft and the type of aircraft to be accommodated. RYY currently has 630,000 sf of hangar storage space equating to 127 spaces. This includes 63 hangars with less than 5,000 sf and 64 spaces in hangars greater than 5,000 sf. As indicated in Chapter 3, 310 aircraft were based at RYY: 218 single-engine; 32 multi-engine, 50 jets, and 10 helicopters. Of these, approximately 56 percent were stored in either a t-hangar, conventional hangar, or corporate hangar. The Georgia Aviation System Plan recommends that Level III airports provide hangar storage for at least 70 percent of their based aircraft fleet. The following analysis will determine how much hangar space is required to meet projected demand and system plan goals.

Currently, only 40 percent of single and multi-engine piston aircraft occupy hangars. This is most likely due to the lack of hangar storage on the airfield. If hangars were available it is anticipated that more owners would choose to store their aircraft in a hangar as opposed to a tie-down. For planning purposes, it is typically assumed that 80 percent of the forecasted demand of single and multi-engine piston aircraft are stored in hangars. This analysis assumes 80 percent to better accommodate actual and forecasted demand. More expensive aircraft like turbine engine aircraft, jets, and helicopters are almost always stored in hangars. This analysis assumes that 100 percent of these types of aircraft will be stored in hangars. **Table 4-18** summarizes the aircraft that will require a hangar.

TABLE 4-18
BASED AIRCRAFT REQUIRING HANGARS

AIRCRAFT	2020	2025	2030	2035
SINGLE PISTON				
FORECAST	210	203	197	194
REQUIRES HANGAR	168	162	158	155
MULTI PISTON				
FORECAST	21	20	19	19
REQUIRES HANGAR	17	16	15	15
SINGLE TURBINE				
FORECAST	10	10	12	14
REQUIRES HANGAR	10	10	12	14
MULTI TURBINE				
FORECAST	12	13	14	17
REQUIRES HANGAR	12	13	14	17
JET				
FORECAST	54	62	72	86
REQUIRES HANGAR	54	62	72	86
HELICOPTER				
FORECAST	11	12	13	15
REQUIRES HANGAR	11	12	13	15
TOTAL REQUIRING HANGARS	272	275	284	302
PERCENTAGE REQUIRING HANGARS	85%	85%	85%	87%

Source: Michael Baker International, 2016.

In 2020, 272 aircraft will require hangar space. This increases to 302 aircraft by 2035. The percentage of aircraft requiring hangars is 85 percent in 2020 and 87 percent in 2035. If these aircraft are accommodated, the airport would meet the Georgia Aviation System Plan recommendation of providing hangar space to 70 percent of the based aircraft fleet.

The types of hangars required depends on the size of the aircraft. T-hangars are more suitable for single and multi-engine piston aircraft. T-hangars are typically arranged in rows of 10-12 units. Turbine engine aircraft and helicopters can be accommodated by 60x60 sized conventional hangars. Jets typically require larger hangars with room for office space and restrooms. This can be further broken down into square footage (sf) required for each type of aircraft. This analysis assumes 1,200 sf for single and multi-

engine piston aircraft, 3,600 sf for turbines and helicopters, and 7,000 sf for jets. The square footage of hangar space required for the planning period is summarized in **Table 4-19**.

TABLE 4-19
HANGAR SQUARE FOOTAGE REQUIREMENTS

AIRCRAFT	2020	2025	2030	2035
SINGLE PISTON	201,600	194,880	189,120	186,240
MULTI PISTON	20,160	19,200	18,240	18,240
SINGLE TURBINE	36,000	36,000	43,200	50,400
MULTI TURBINE	43,200	46,800	50,400	61,200
JET	378,000	434,000	504,000	602,000
HELICOPTER	39,600	43,200	46,800	54,000
TOTAL SF	718,560	774,080	851,760	972,080
CURRENT SF		**635,000**		
SF NEEDED	**83,560**	**139,080**	**216,760**	**337,080**

Source: Michael Baker International, 2016.

In 2020 the airport will need an additional 83,560 sf of hangar space to accommodate projected demand. This increases to 337,080 sf by 2035. The projected hangar storage requirements may be accommodated with corporate hangars, conventional hangars, and t-hangars. Corporate hangars are RYY's most critical need as the number of jets based on the field will increase nearly 60 percent by the end of the planning period. It is recommended that construction of additional hangars to meet future demand and system plan requirements be planned.

4.4.1 Tie-Downs and Apron

Aircraft aprons provide parking for locally based aircraft that are not stored in hangars and for transient aircraft visiting the airport and ground operations such as aircraft fueling. RYY currently has 220 dedicated tie-down spaces leased by the FBO. As noted in the previous section, it is recommended to assume that 80 percent of single and multi-engine piston based aircraft will require a hangar and the remaining 20 percent will utilize tie-down spaces; however, 60 percent of piston aircraft currently utilize tie-downs due to the lack of hangar space. Depending on future availability of hangar space, the airport should consider providing tie-down spaces for 60 percent of based piston aircraft. **Table 4-20** summarizes the tie-downs required for 20 percent and 60 percent of based piston aircraft throughout the planning period.

TABLE 4-20
BASED AIRCRAFT TIE-DOWN REQUIREMENTS

	2020	2025	2030	2035
SINGLE AND MULTI PISTON FORECAST	*231*	*203*	*197*	*194*
SPACES REQUIRED TO MEET 20%	46	45	43	43
SPACES REQUIRED TO MEET 60%	139	134	139	128

Source: Michael Baker International, 2016.

In 2020, 46 tie-down spaces are required to accommodate 20 percent of based piston aircraft. 139 spaces are required for 60 percent. By 2035 this decreases to 43 and 127 spaces, respectively.

Tie-down space is also 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 4-21 displays the results of this analysis.

TABLE 4-21
ITINERANT TIE-DOWN REQUIREMENTS

	AVERAGE DAY	PERCENT ITINERANT	DAILY ITINERANT OPERATIONS	ARRIVAL AIRCRAFT	NON-BASED ITINERANT	TIE-DOWNS REQUIRED
2020	236	58	137	69	34	17
2025	237	58	138	69	35	17
2030	242	59	142	71	35	18
2035	248	59	146	73	36	18

Source: Michael Baker International, 2016.

As noted in the table, 17 itinerant tie-down spaces will be required by 2020. This increases to 18 spaces by the end of the planning period. These spaces should be sized for ADG-2 aircraft, or 700 sy per space to accommodate corporate turbine and jet aircraft.

Table 4-22 summarizes the tie-down requirements for RYY.

TABLE 4-22
TIE-DOWN REQUIREMENTS SUMMARY

	TIE-DOWNS REQUIRED FOR BASED AIRCRAFT 20%/60%	TIE-DOWNS REQUIRED FOR ITINERANT AIRCRAFT	TOTAL TIE-DOWNS REQUIRED
2020	46/139	17	63/156
2025	45/134	17	62/151
2030	43/129	18	61/147
2035	43/127	18	61/145

Source: Michael Baker International, 2016.

The projections of tie-down spaces required throughout the planning period indicate that RYY currently has enough spaces to accommodate based and itinerant aircraft in the near and long term.

4.4.2 Terminal/Administration

Facility objectives established by the Georgia Aviation System Plan recommend Level III airports provide a 2,500 sf terminal facility with public restrooms, a conference area, and pilot's lounge. The airport does not have a terminal building, but the airport's FBO, Hawthorne Aviation, offers extensive services for pilots and customers including a 6,000 sf facility with pilot lounges, conference rooms, flight planning, car rental, and after-hours fuel and emergency services. The airport's administration offices are housed in the new ATCT facility.

4.4.3 Auto Parking

The airport currently offers a total of 175 parking spaces for based aircraft and visitors. The Georgia Aviation System Plan recommends Level III airports provide one parking space for each based aircraft plus an additional 50% for visitors and employees. **Table 4-23** summarizes the total parking spaces needed throughout the planning period.

TABLE 4-23
AUTO PARKING REQUIREMENTS SUMMARY

	PARKING REQUIRED FOR EACH BASED AIRCRAFT	50% REQUIRED FOR VISITORS AND EMPLOYEES	TOTAL PARKING SPACES REQUIRED	PARKING SPACES NEEDED
2020	320	160	480	305
2025	323	162	485	310
2030	332	166	498	323
2035	348	174	522	347

Source: Michael Baker International, 2016.

Based upon the System Plan guidelines, the airport will need 305 additional parking spaces by 2020. This increases to 347 additional spaces by 2035. Automobile parking requirements at RYY have historically been determined by the airport leaseholders and is a function of the use and occupancy of the individual facility.

4.4.4 Fuel Storage

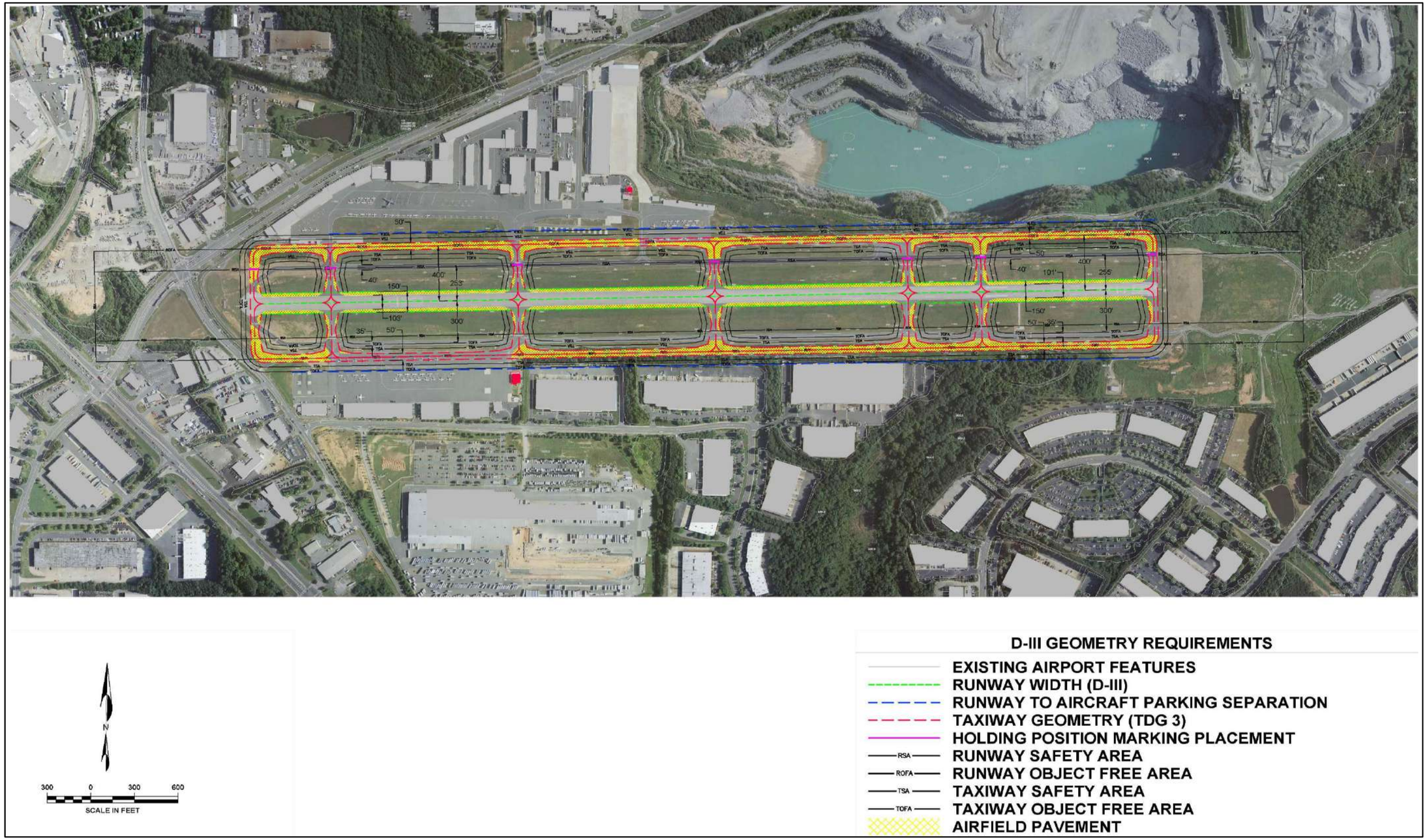
The Georgia Aviation System Plan recommends Level III airports provide both 100LL and Jet-A. RYY currently offers 100LL and Jet-A aviation fuel provided by the FBO. The FBO reports that current fuel storage capacity is sufficient over the planning period.

4.5 Summary

Within the next 10 years, the Cobb County International Airport – McCollum Field is poised to upgrade from a current ARC of C-II to an ARC of D-III. This Facility Requirements Chapter outlined what facilities are required to meet FAA design standards and satisfy aviation demands projected for the airport. **Figure 4-9** illustrates a basic template of the D-III and TDG-3 airside requirements. Summaries of the airside and landside requirements are presented in **Table 4-24** and **Table 4-25**.

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

FIGURE 4-9
D-III GEOMETRY REQUIREMENTS



Source: Michael Baker International, 2016.

Table 4-24
Airside Facility Requirements

Item	Existing Conditions	C-II	D-III	Meets/Does Not Meet
Runway Design				
Runway Length	6,295 ft			7,500 ft runway recommended
Runway Width	100 ft	100 ft	150 ft or 100 ft	100 ft Acceptable if Critical Aircraft 150,000 lbs or less
Shoulder Width	10 ft	10 ft	20/25 ft	Does not meet D-III. 20 ft acceptable if critical aircraft 150,000 lbs or less
Blast Pad Width	N/A	120 ft	200 ft	Runway does not have blast pads
Blast Pad Length	N/A	150 ft	200 ft	
Runway Protection				
Runway Safety Area (RSA)				
Length beyond departure end	1,000 ft	1,000 ft	1,000 ft	Meets with displaced threshold and declared distances
Length prior to threshold	600 ft	600 ft	600 ft	
Width	Nonstandard	500 ft	500 ft	
Runway Object Free Area (ROFA)				
Length beyond departure end	1,000 ft	1,000 ft	1,000 ft	Meets with displaced threshold and declared distances
Length prior to threshold	600 ft	600 ft	600 ft	
Width	Nonstandard	800 ft	800 ft	
Runway Obstacle Free Zone (ROFZ)				
Length	200 ft	200 ft	200 ft	Meets
Width	400 ft	400 ft	400 ft	Meets
Runway Separation				
Runway Centerline to:				
Holding Position	Northside - 200 ft Southside - 250 ft	250 ft	250 ft	Northside does not meet C-II or D-III; Southside meets
Parallel Taxiway	Northside - 250 ft Southside - 300 ft	300 ft	400 ft	Northside does not meet C-II or D-III; Southside meets C-II, does not meet D-III
Aircraft Parking Area	400+ ft	400 ft	500 ft	Does not meet D-III

Source: Michael Baker International, 2016.

Table 4-25
Landside Facility Requirements Summary

	2020	2025	2030	2035
Hangar Requirements				
Current sf			635,000	
Total sf Required to Meet Forecast Demands	718,560	774,080	851,760	972,080
Additional sf Needed	83,560	139,080	216,760	337,080
Tie-Down Requirements				
Current Tie-Downs			220	
Tie-Downs Required for 80% of Based Aircraft	139	134	129	127
Tie-Downs Required for Itinerant Aircraft	17	17	18	18
Total Tie-Downs Required	156	151	147	145
Additional Tie-Downs Needed	0	0	0	0
Auto Parking Requirements				
Current Auto Parking Spaces			175	
Parking Spaces Required for Based Aircraft	320	323	332	348
50% Parking Spaces Required for Visitors and Employees	160	162	166	174
Total Spaces Required	480	485	498	522
Additional Spaces Needed	305	310	323	347

Source: Michael Baker International, 2016.

Chapter 5 – Development Concepts

5.1 Introduction

The Development Concepts chapter of this Master Plan Update describes the potential improvements that were evaluated for inclusion in the airport CIP and ALP. Improvements evaluated include concepts to address existing and projected deficiencies in airside and landside facility requirements noted in Chapter 4.

Based upon the issues identified in the Master Plan, this chapter will present the following development concepts:

- Runway extension to achieve 7,500 foot runway length,
- Taxiway improvements to meet RDC of D-III and TDG-2 and flexibility to upgrade to TDG-3,
- Land acquisition to meet airfield objectives and projected landside capacity requirements, and
- Identify other planned improvements at the airport.

5.2 Runway Extension Evaluation

One of the objectives of the Master Plan is to provide a runway length sufficient to support existing and projected operational activity at RYY. Chapter 4 prepared a runway length analysis that determined a runway length of 7,500 ft would provide maximum operational capability of the future critical aircraft, the Gulfstream 550. The existing runway length at RYY is 6,311 ft with a 1,062 foot displaced threshold to Runway 9. Runway 9 has a displaced threshold due to rising terrain west of the runway pavement edge which causes ground, roads, trees and buildings to be obstacles along the aircraft's final approach to Runway 9. As a result, the point at which aircraft may land on Runway 9 is moved 1,062 ft east so that aircraft may safely clear these obstacles. The criteria for placing the displaced threshold is based up threshold siting surfaces defined in FAA AC No. 150/5300-13.

In addition to the displaced threshold that affect aircraft landing towards the east, turbine aircraft utilizing Runway 27 towards the west are affected by Declared Distances. Declared Distances are distances the airport owner declares available for a turbine powered aircraft's takeoff run, takeoff distance, accelerate-stop distance, and landing distances requirements. Declared Distances are calculated based upon a number of safety factors. Currently, turbine aircraft must reduce their Accelerate Stop Distance Available (ASDA) to 5,374 ft on Runway 27 as useable for takeoff due to the ground, roads, trees and buildings being inside the RSA and OFA beyond the western runway end. The presence of these objects means that aircraft must increase safety factors by only considering a portion of Runway 27 useable for takeoff and landing distance calculations. The remaining runway pavement beyond the declared distances is utilized to maintain the necessary margins for runway safety areas and runway object free areas.

In reviewing potential development alternatives to achieve 7,500 ft runway length, the following issues were guiding factors in selection of a preferred alternative:

1. It is assumed that US Highway 41 and the CSX Railroad west of the airport cannot be relocated or lowered.
2. It is assumed that McCollum Parkway and US Old 41 west of the airport and within the RSA/ROFA *could* be relocated. If successful, this would improve the Runway 9 RSA and OFA and reduce or eliminate some Declared Distances. During the Master Plan process, Cobb County DOT initiated a feasibility study to evaluate potential road relocation options. The study will not be completed prior to completion of the Airport Master Plan. Upon selection of a preferred roadway relocation alternative, the ALP Drawing Set should be updated.
3. Obstructions and rising terrain west of the airport prevent any realistic opportunities to extend the runway pavement westward. Initial analysis of the maximum allowable runway gradient also determined that extending the runway westward would require reconstruction of the existing runway in order to maintain acceptable tolerances.
4. The airport owns the majority of land east of Runway 27 that could be used for a proposed runway extension. The previous airport Master Plan included an extension in this direction.
5. Land use east of the airport is primarily commercial and industrial, while land use west of the airport is primarily residential beyond the US 41 commercial corridor.
6. Obstructions and terrain east of the airport are more favorable to extending the runway east.
7. Widening of Runway 9-27 from 100 to 150 ft is not necessary to meet RDC D-III requirements because the projected critical aircraft (G550) has a MTOW of less than 150,000 lbs.

Based upon these factors, the preferred runway layout is presented in **Figure 5-1**. This layout proposes a 1,204-foot runway extension eastward toward Barrett Lakes Blvd. Assuming the successful relocation of McCollum Parkway and Old US Hwy 41, the Runway 9 RSA and OFA would be compliant with airport design standards and therefore all Declared Distances for turbine aircraft utilizing Runway 27 would be eliminated. The existing 1,062-foot displaced threshold to Runway 9 could be reduced to 989-ft assuming the removal of controlling obstacles within the Runway 9 RSA/OFA. Elimination of the entire displaced threshold is not possible due to immovable controlling objects near the US 41 commercial corridor. With implementation of the proposed extension, **Table 5-1** summarizes the expected improvements to Declared Distances.

Figure 5-1
Proposed Runway Extension

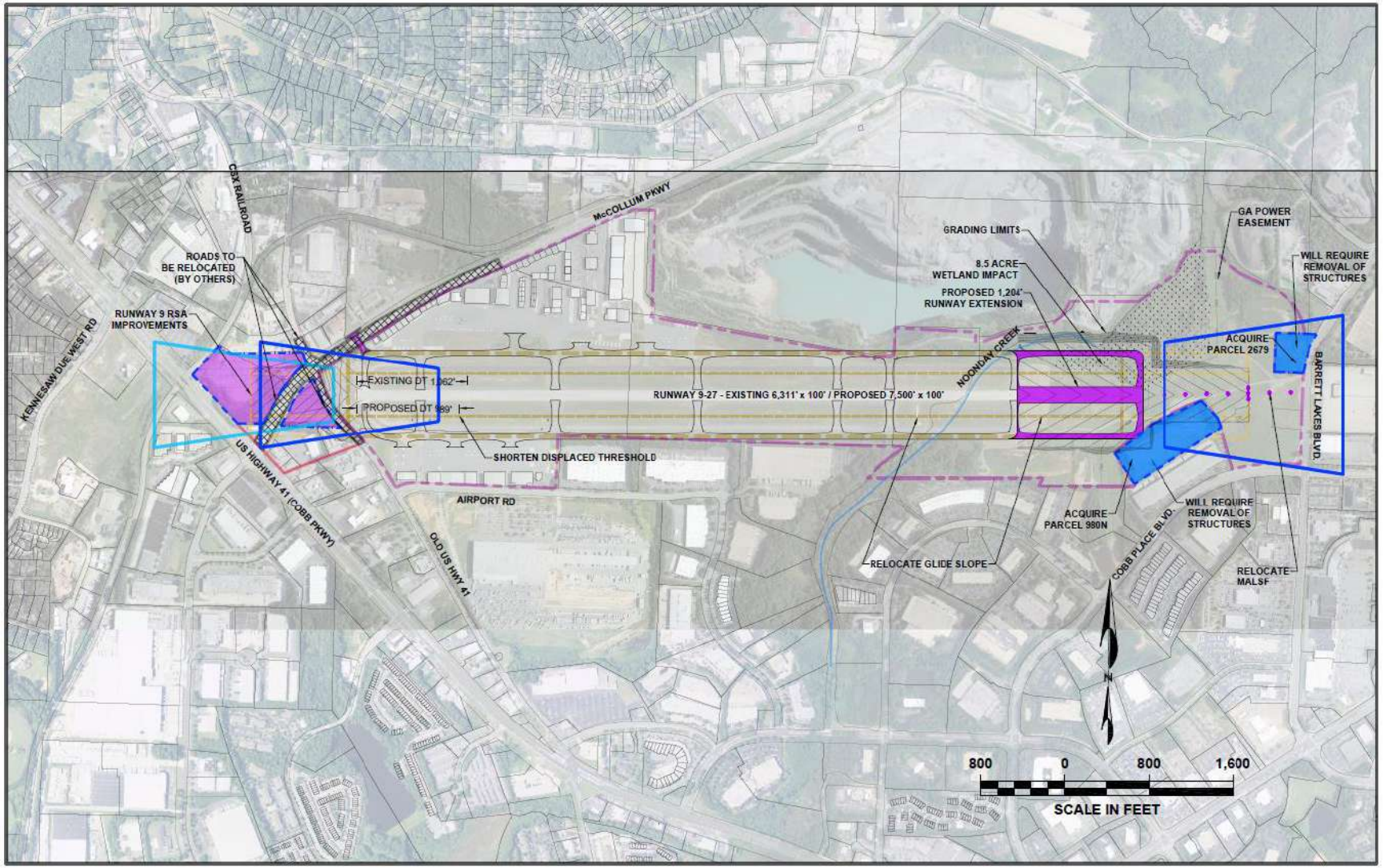


TABLE 5-1
EXISTING AND ULTIMATE DECLARED DISTANCES

	TORA	TODA	ASDA	LDA
EXISTING RUNWAY 9	6,295	6,295	6,295	5,233
ULTIMATE RUNWAY 9	7,500	7,500	7,500	6,438
EXISTING RUNWAY 27	6,295	6,295	5,374	5,374
ULTIMATE RUNWAY 27	7,500	7,500	7,500	7,500

Source: Michael Baker International, 2016.

The following projects would be associated with the proposed runway extension:

- Runway 9 RSA Improvements – improvements contingent upon successful relocation of McCollum Parkway and Old US 41.
- Relocate Runway 9 Displaced Threshold – shorten displaced threshold from 1,062 ft beyond threshold to 989 ft beyond threshold.
- Relocate Runway 27 Glideslope.
- Relocate Runway 27 Approach Lighting System (MALSF).
- Extend Taxiway A and B to Runway 27 threshold.
- Acquire Parcels #980N and #2679 (Tax ID) for Runway 27 RSA expansion and RPZ land use compatibility.
- Mitigate 8.5 acres of wetlands and impacts to Noonday Creek located north of Runway 27 threshold.
- Mitigate Georgia Power electrical utility line located in Runway 27 RSA.
- Conduct a study of land use compatibility within the Runway 27 RPZ in accordance with FAA's RPZ Land Use policy and an Alternative's Analysis. Study will be submitted to the FAA prior to design of any project that will alter Runway 27's RPZ.

The initial cost estimate to construct the runway extension is $36.9 million, including $8.9 million in land acquisition costs. Additional cost and phasing details are provided in Chapter 6.

5.3 Taxiway Improvements

As noted in Chapter 4, the existing airfield does not meet certain requirements for the current RDC of C-II and the future RDC of D-III. The current runway-to-taxiway separation between the runway and the north taxiway, Taxiway A, measures 250 ft. The south taxiway separation between the runway and Taxiway B measures 300 ft. The required taxiway separation for RDC C-II is 300 ft and for RDC D-III, the required separation is 400 ft. Taxiway A does not meet current or future standards and Taxiway B does not meet future standards.

Aircraft holding positions and aircraft parking separations are also not compliant with RDC C-II and D-III standards. North taxiway holding marking positions are currently marked at 200 ft from the runway and should be 250 ft to meet C-II and D-III requirements.

Taxiway A Alternatives

To address the inadequate runway-to-taxiway separation for Taxiway A, four alternatives were evaluated. These alternatives are:

- Alternative 1 – 400-foot Separation
- Alternative 2 – 300-foot Separation
- Alternative 3 – 321-foot Separation
- Alternative 4 – 400/321-foot Separation

Alternative 1 is presented in **Figure 5-2**. This alternative provides the necessary 400-foot runway-to-taxiway separation and meets RDC D-III and TDG-3 requirements. In order to meet minimum grade requirements, portions of the northside ramp will need to be reconstructed. The existing segmented circle NAVAID would need to be relocated. Near taxiway intersections A4 and A5, the Taxiway Object Free Area (TOFA) would extend over the quarry located immediately north of the airport and would require a $2.5 million counterbalance-slab style bridge structure spanning 200 linear feet along the edge of the quarry. The possibility of constructing the quarry structure was discussed with the quarry owner during the Master Plan. Mining of the south wall of the quarry may be officially abandoned in the near future but no decision has been made at the present time. If the south wall is abandoned, it is possible the airport could sign an easement for construction of the taxiway structure. The estimated cost to construct this alternative, including the quarry bridge, is $14.5 million.

Alternative 2 is presented in **Figure 5-3**. This alternative provides 300-foot runway-to-taxiway separation and meets RDC C-II and TDG-2 requirements. The existing segmented circle NAVAID would require relocation. The estimated cost to construct this alternative is $10.6 million.

Alternative 3 is presented in **Figure 5-4**. This alternative represent the widest parallel distance possible (321 ft) without encroachment upon the quarry and meets RDC C-II and TDG-2 requirements. In order to meet minimum grades requirements, portions of the northside ramp would need to be reconstructed. The existing segmented circle NAVAID would need to be relocated. The estimated cost to construct this alternative is $10.7 million.

Alternative 4 is presented in **Figure 5-5**. This alternative represents a compromise between Alternative 1 and 3. The necessary 400-foot runway-to-taxiway separation is meet along the northside ramp area and then the separation is reduced to 321-ft to avoid encroachment into the quarry. With the exception of the reduced runway-to-taxiway separation on the east portion of Taxiway A, this alternative meets RDC D-III design requirements. The estimate cost to construct this alternative is $11.1 million.

Figure 5-2
Taxiway A – Alternative 1

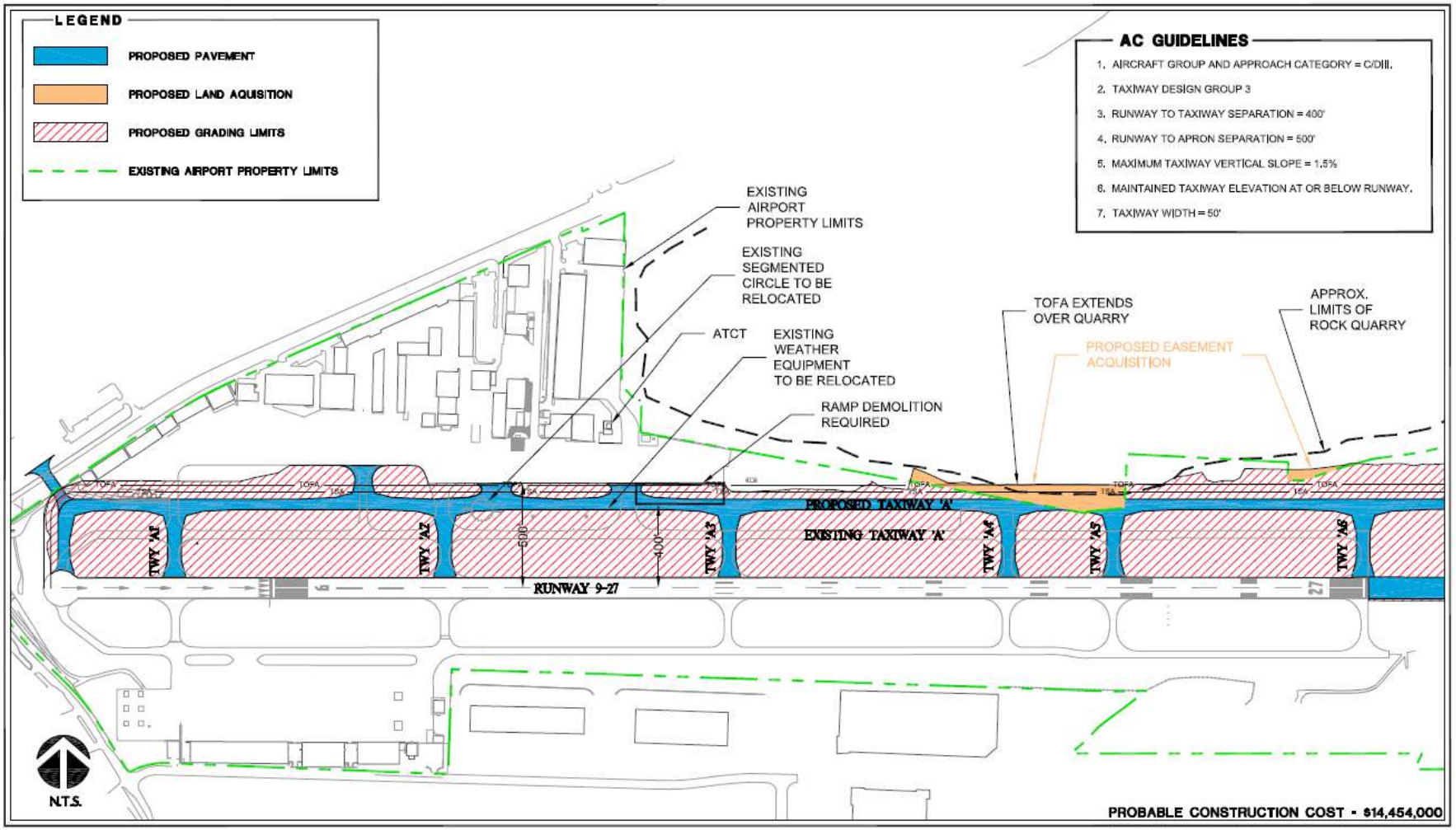


Figure 5-3
Taxiway A – Alternative 2

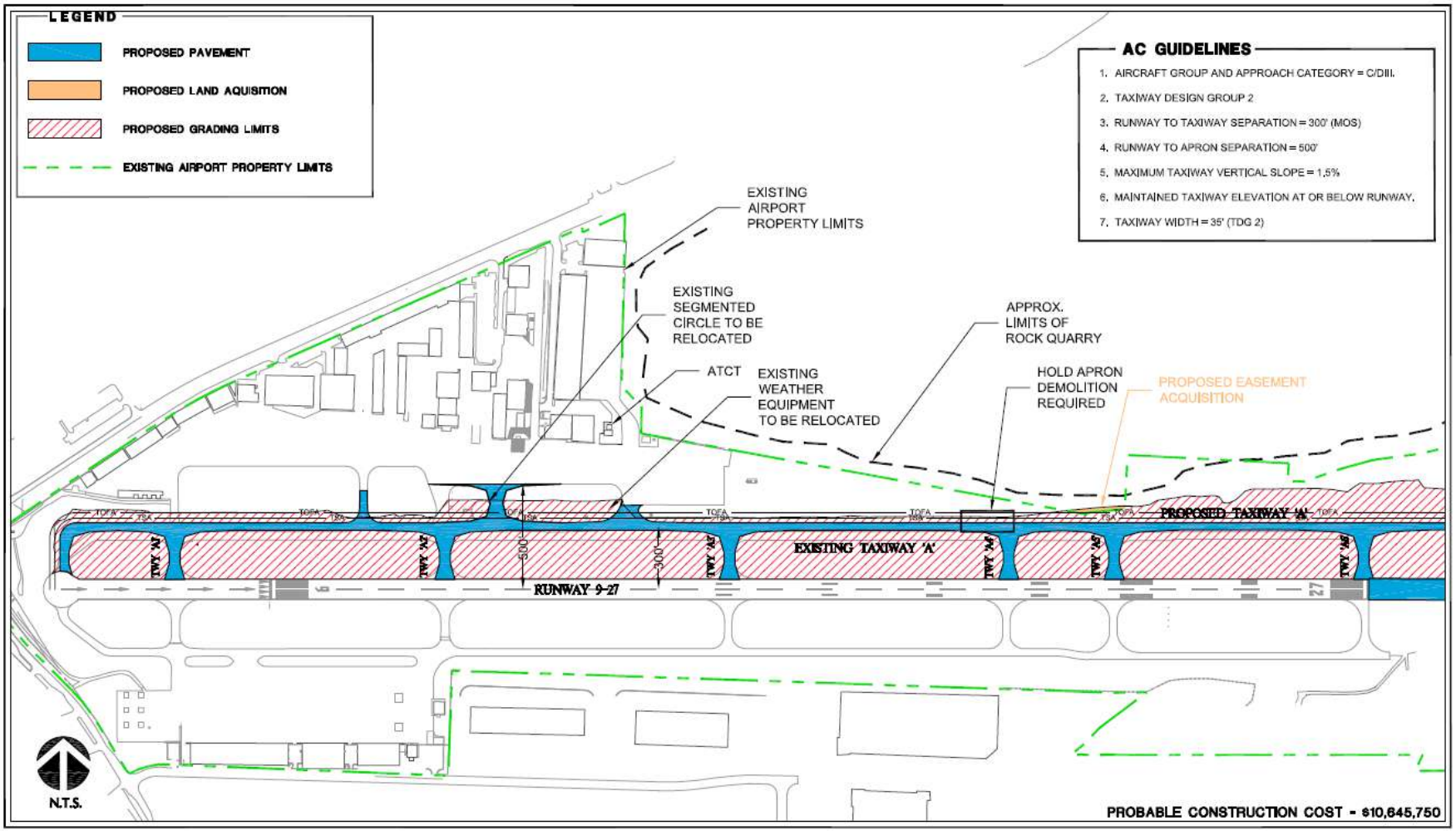


Figure 5-4
Taxiway A – Alternative 3

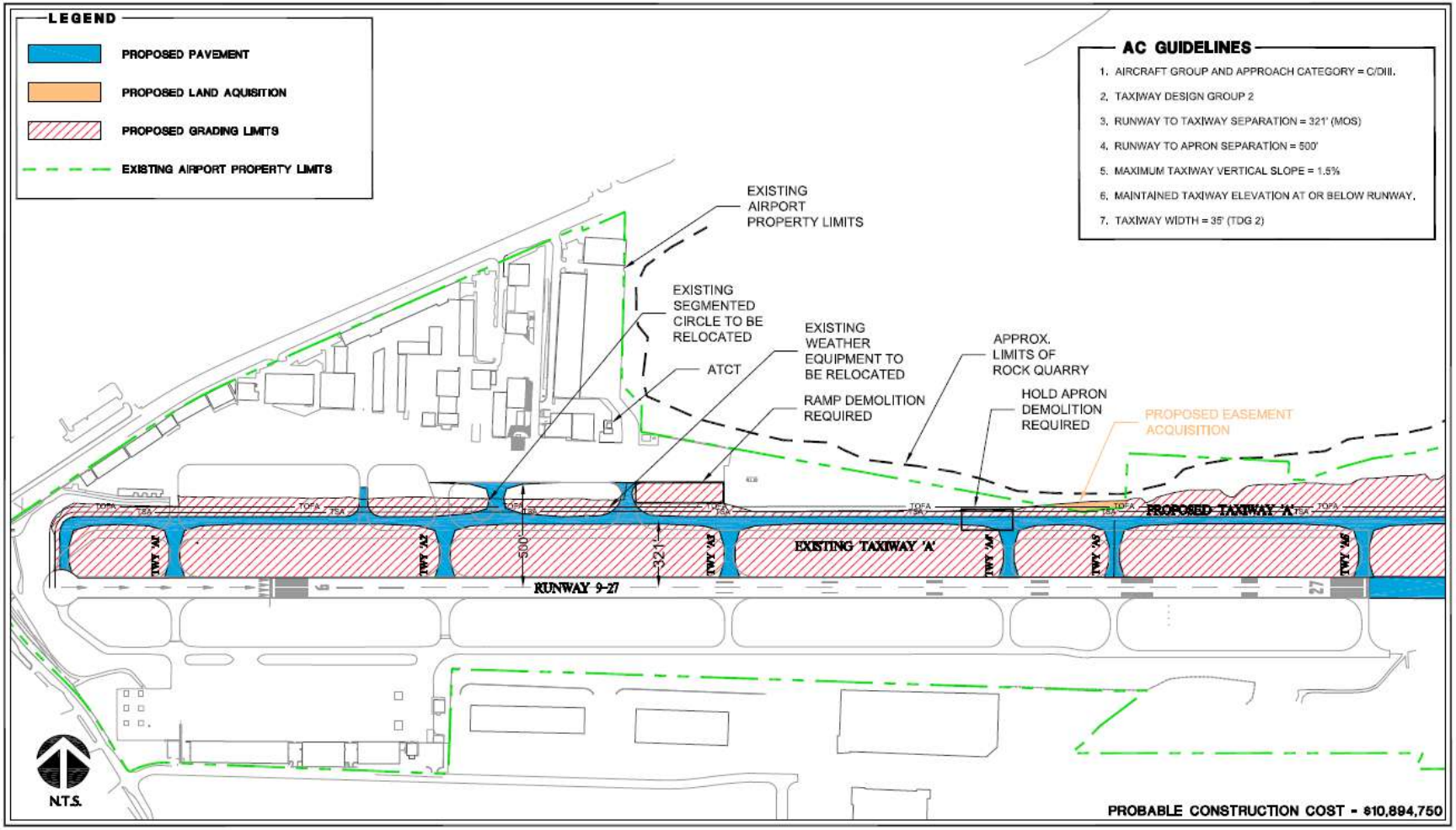
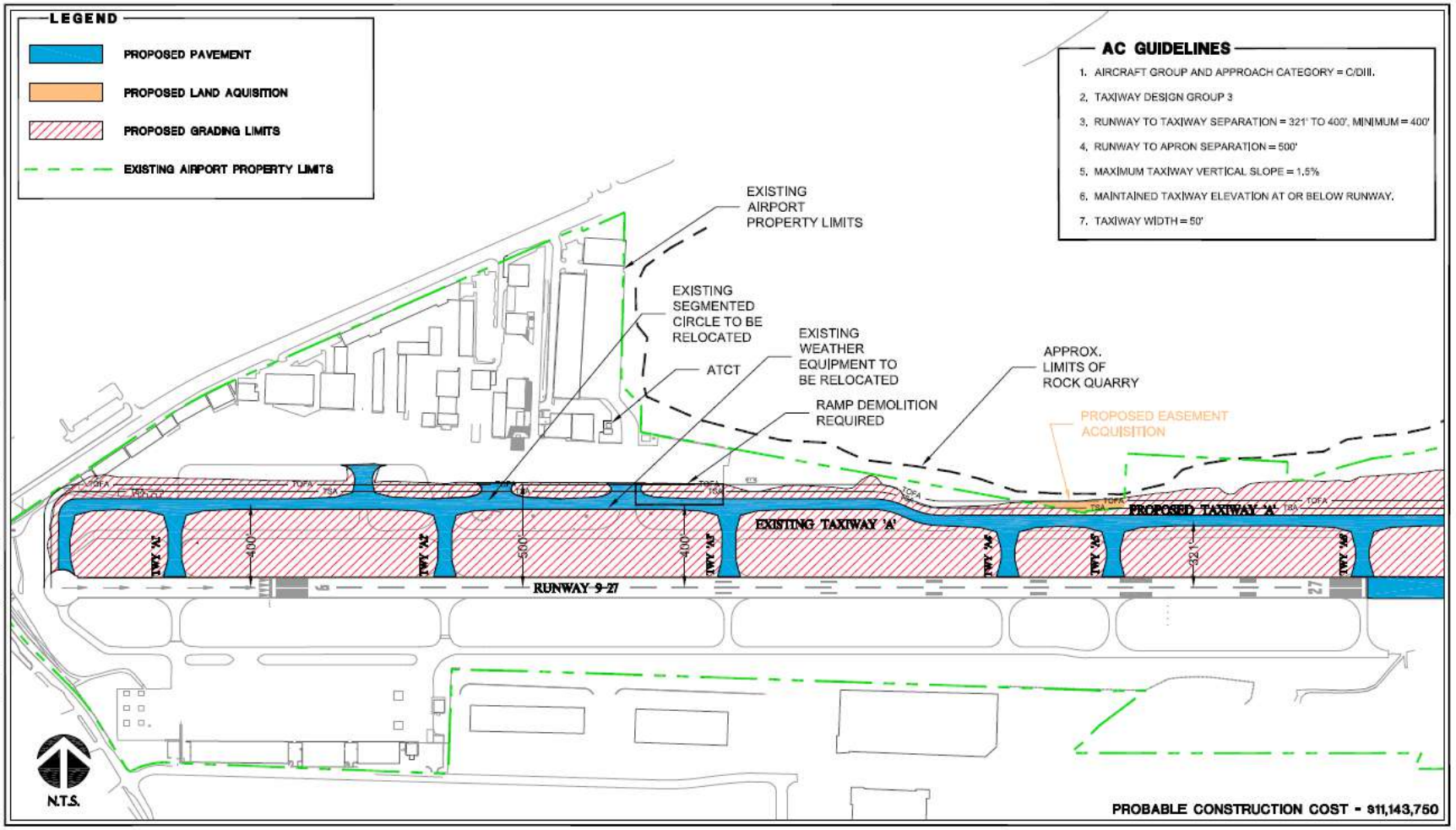


Figure 5-5
Taxiway A – Alternative 4



Each alternative was reviewed by the airport and Alternative 1 was selected as the desired alternative. This pursuit of this option is primarily dependent upon the successful acquisition of an easement to construct the quarry bridge. Should the proposed quarry bridge prove to be not obtainable, the next desired option would be to construct Alternative 4, the 321/400 foot option. If this alternative was implemented, Design Group III aircraft would be restricted from utilizing the eastern section of the taxiway when Group III aircraft are on approach.

Taxiway B Alternatives

To address the inadequate runway-to-taxiway separation for Taxiway B, two alternatives were evaluated. These alternatives are:

- Alternative 1 – 400-foot Separation
- Alternative 2 – 300-400-foot Separation

Alternative 1 is presented in **Figure 5-6**. This alternative provides the necessary 400-foot runway-to-taxiway separation and meets RDC D-III and TDG-3 requirements. In order to construct this option, acquisition of three parcels of land would be required totaling, 41.17 acres. The land acquisition is necessary to correctly grade the toe-of-slope from the edge of the taxiway. An associated benefit is this land could be used for landside capacity improvements. The current use of this land is office and storage facilities. The estimated cost to construct this alternative, including land acquisition is $42.9 million.

Alternative 2 is presented in **Figure 5-7**. This alternative provides the necessary 400-foot runway-to-taxiway separation in the western and eastern most quadrants but only provides the existing 300-foot separation in the central taxiway area. The estimated cost to construct this alternative, including land acquisition is $10.8 million.

Each alternative was reviewed by airport stakeholders and Alternative 1 was selected as the desired alternative. The implementation of this alternative is dependent upon the successful pursuit of land acquisition necessary to construct the taxiway. If the pursuit is successful, the land acquired will also support the need for landside capacity demand. Should the pursuit of this option not prove successful, the airport will pursue Alternative 2 as a compromise. Implementation of Alternative 2 would also require restrictions of RDC D-III aircraft during instrument approaches by RDC D-III aircraft.

Figure 5-6
Taxiway B – Alternative 1

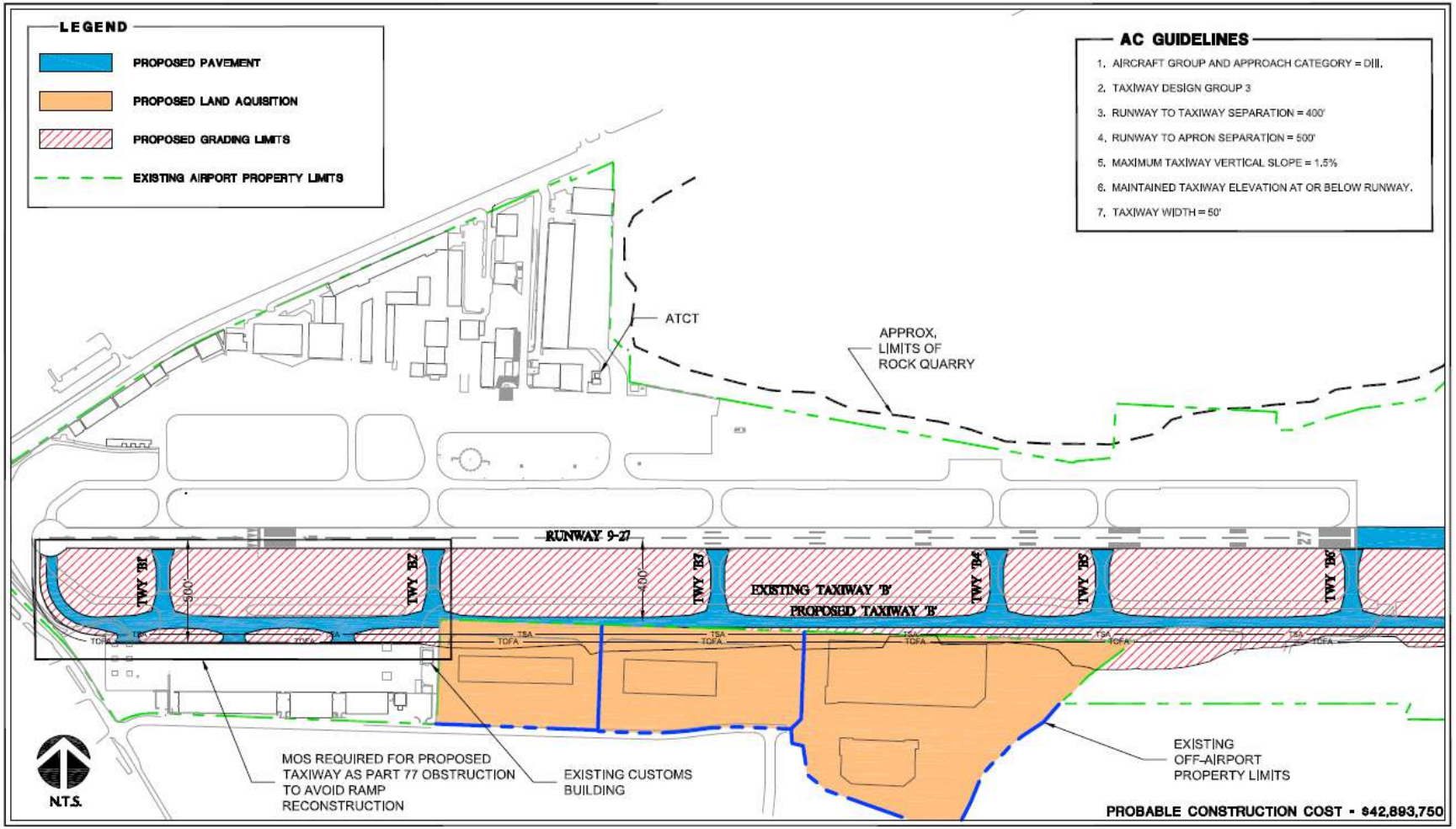
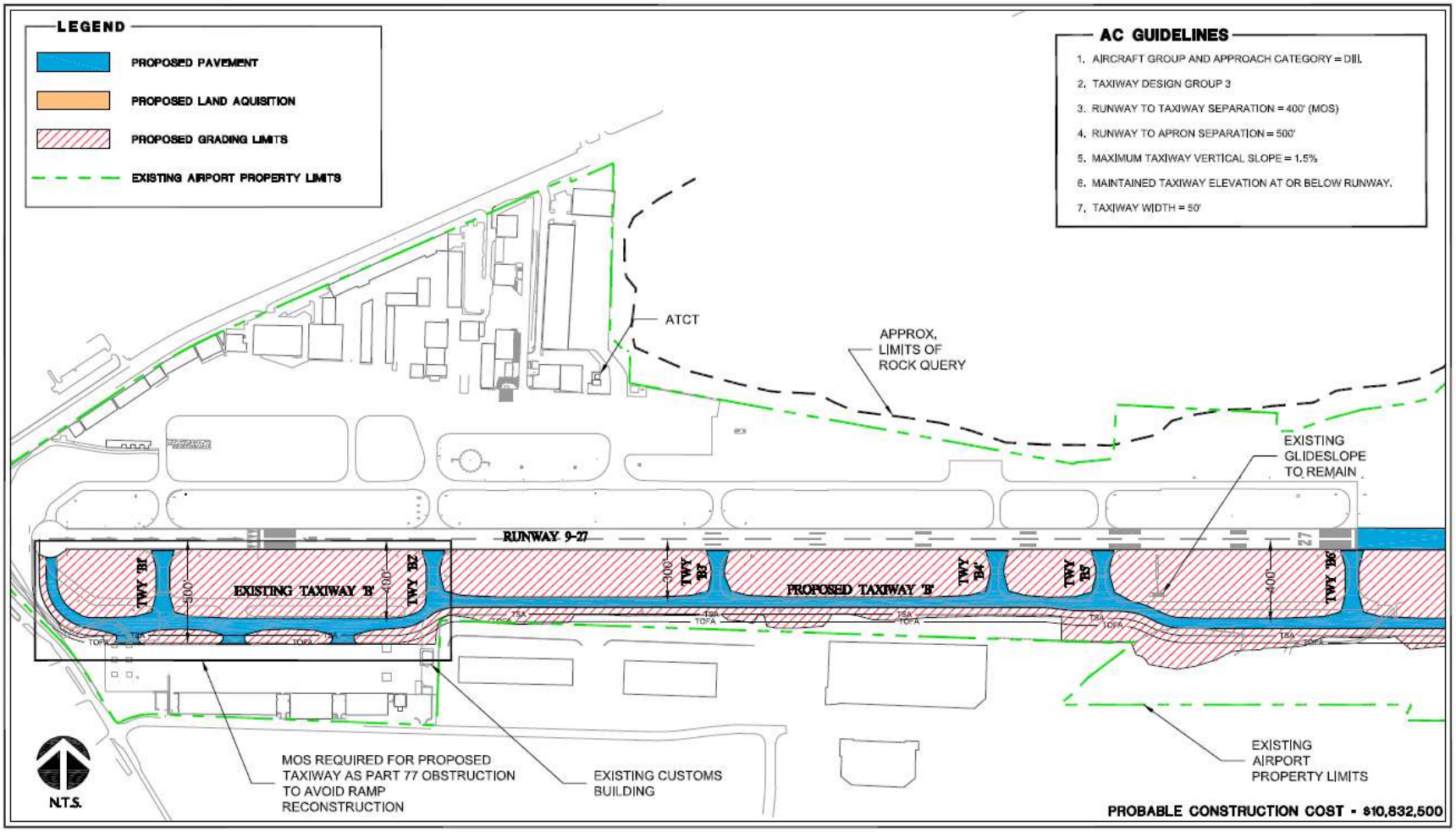


Figure 5-7
Taxiway B – Alternative 2



5.4 Landside Capacity Improvements

As stated in Chapter 4, Facility Requirements, RYY has approximately 635,000 sf of hangar storage capacity and is at 100% occupancy. Based on the aeronautical forecast, the current deficiency is estimated to be 83,560 sf of storage space needed. By the end of the planning period, RYY will need to increase its capacity to approximately 337,080 sf of additional storage space for a total of 972,080 sf of storage capacity. If possible, the airport should plan for an additional 20% capacity beyond projections so that it is at 80% capacity by the end of the planning period rather than 100%. Therefore, approximately 404,496 sf of additional capacity should be identified, if possible.

No vacant space is available on current airport grounds to meet this capacity requirement. The airport is enclosed on all quadrants by existing roadways and commercial and industrial development. Any expansion of landside facilities at RYY beyond its current boundaries would require acquisition and redevelopment of the parcels acquired.

Three areas surrounding the airport were evaluated for potential landside capacity expansion are depicted in **Figure 5-8**. These areas are:

1) **Potential Northwest Basing Area** - an area northwest of airport property along McCollum Parkway in the vicinity of the proposed roadway relocation. Possible expansion into this would assume successful relocation of McCollum Parkway and Old US Highway 41. The basing area includes two parcels currently being utilized as a commercial business and a vacant National Guard Armory. The total area of land is 15.6 acres and could offer approximately 315,241 sf of storage space if redeveloped for airport use. The estimated cost to acquire this land would be $9.5 million. An additional $3.5 million would be required for site demolition, design and grading necessary to prepare the site for suitable development. This area of land was previously identified as a potential area of expansion in the 2010 Airport Master Plan.

2) **Potential Southwest Basing Area** - an area located west of the Georgia State Patrol Helicopter Basing Area which is near the entrance of Airport Road along the southside of the airport. This potential basing area includes four parcels currently being utilized as a commercial businesses along Old US 41. The total area of land is 9.9 acres and offers approximately 82,462 sf of storage space if redeveloped for airport use. The estimated cost to acquire this land is $3.9 million. This area of land could become suitable for airport use if Old US 41 is closed or relocated and part of the proposed Runway 9 RSA improvements.

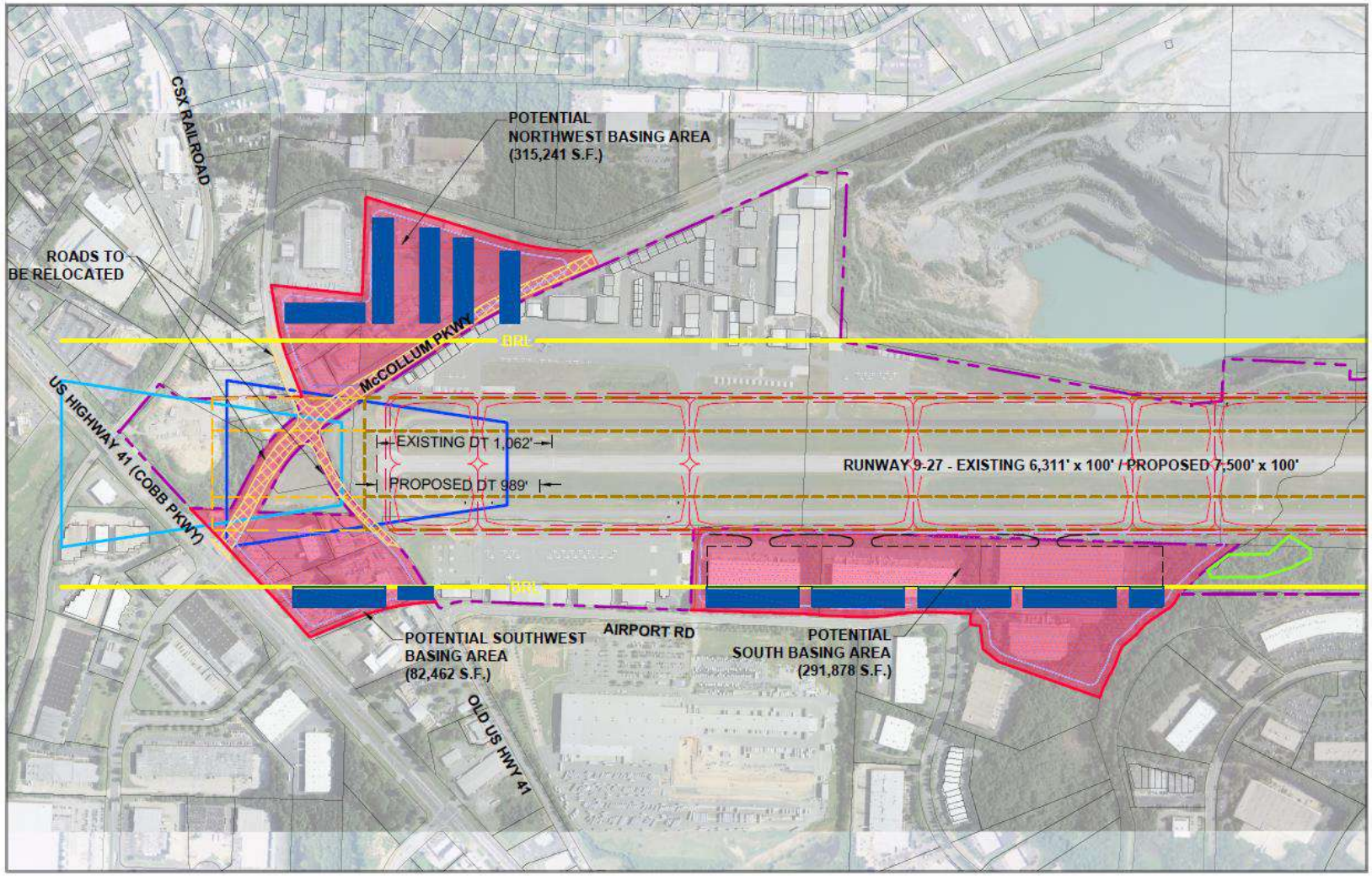
3) **Potential South Basing Area** - an area located east of the new Customs Facility along the south side of Taxiway B and north of Airport Road. This potential basing area includes three parcels currently being utilized as office and storage facilities. The total area of land is 41.17 acres and offers approximately 291,878 sf of storage space if redeveloped

for airport use. The estimated cost to acquire this land is $31.5 million. The elevation of this land is lower than the existing taxiway elevation and would require extensive fill to redevelop into airport use. An additional $19.3 million would be required for site demolition, design and grading. Much of this cost would be captured in the proposed reconstruction of Taxiway B to meet RDC D-III design standards of 400-foot runway-to-taxiway separation.

In total, these potential basing areas provide 689,581 sf of additional landside storage capacity. The potential Northwest and South Basing areas were found during stakeholder discussions to be preferred choices for landside expansion depending upon the outcome of the proposed realignment of McCollum Parkway/Old US 41 and the proposed construction of Taxiway B at 400-foot taxiway separation. Should the proposed 400-foot taxiway realignment project move forward, the potential South Basing area land would become available as a result of the grading requirements for that project. Should the McCollum Parkway/Old 41 relocation project result in the ability to improve the Runway 9 RSA and OFA, the potential Northwest Basing Area could become excellent property for landside expansion. To a lesser degree, the potential Southwest Basing area would become suitable for development should Old US 41 be relocated in a fashion that allows landside expansion. Separately, none of these parcels fully meets the projected demand for landside storage capacity.

Based upon these factors, the property within the potential Northwest and South Basing areas will be depicted on the ALP as proposed future land acquisition and the Airport Sponsor will pursue the associated road relocation (by others), Runway 9 RSA/OFA improvement and Taxiway A/B projects that could make these potential areas viable. The Southwest Basing area site will be monitored for future consideration depending on the outcome of the Old US 41 realignment project but not identified on the ALP at this time since it is not directly tied to a runway or taxiway improvement.

Figure 5-8
Potential Landside Expansion Opportunities

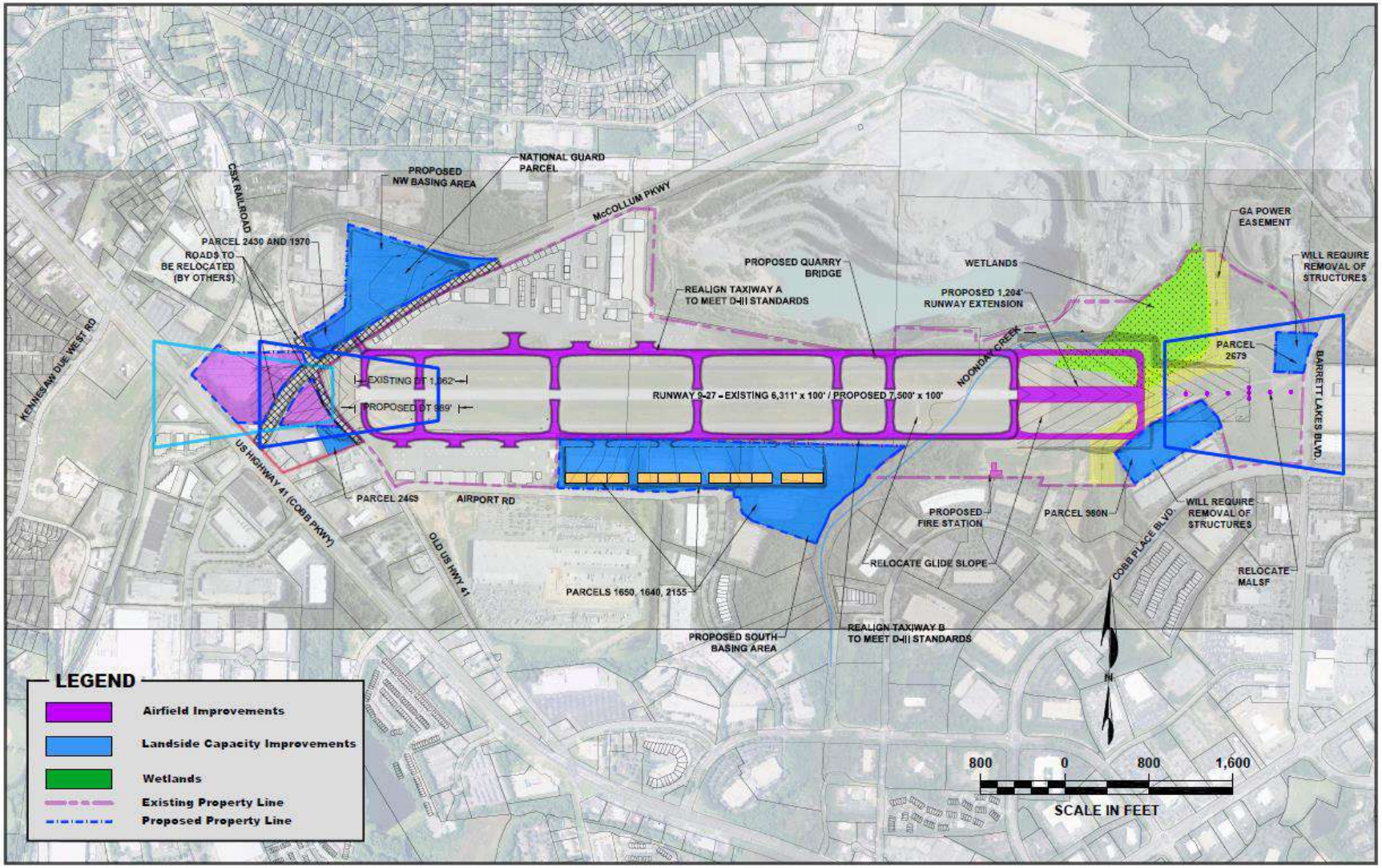


5.5 Preferred Development Concept

Figure 5-9 presents the preferred airport development concept for the twenty-year planning period that will be carried forward into the ALP and Master Plan CIP. The major projects identified on this concept include:

- Taxiway A Relocation
- Joint Use Fire Station (by others)
- Runway 9 RSA Improvements
- Proposed NW Basing Area
- Taxiway B Relocation
- Proposed South Basing Area
- Runway Extension and Associated Improvements

Figure 5-9
Preferred Development Alternative



Chapter 6 – Airport Layout Plan

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,
- Terminal Area Plans,
- Airport Airspace Drawing (3 Sheets)
- Inner Portion of Approach Surface Drawing (3),
- Land Use Drawing, and
- Exhibit "A" Airport Property Inventory Map.

6.1. 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.

6.2. Airport Data Sheet

The Airport Data Table provides basic airport data and key planning criteria for initial and ultimate timeframes. This table includes 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. Ten years of weather data were collected from a weather station located at RYY for the period of 2006 to 2015.

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

6.3. Airport Layout Drawing

The Airport Layout Drawing is a graphical representation, to scale, of the current and future airport facilities and configuration of the runway, taxiway, and aprons of the Cobb County International Airport – McCollum Field. 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 and the considerations to meet those needs are discussed in Chapter 5. It also provides required dimensional and clearance information, in order to show conformance with applicable FAA design standards.

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

6.4. 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 airport elevation of 1,040 ft AMSL.

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 4, 5,** and **6** in the ALP Drawing Set provided at the end of this chapter.

6.5. 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 January 2, 2015. 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 3-4 of FAA AC 150/5300-13) 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. 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.

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. Refer to Drawings **7**, **8**, and **9** in the ALP Drawing Set provided at the end of this chapter.

6.6. Terminal Area Plans (Northside, Southwest, South Central)

The terminal area plans provide greater details of the airport terminal areas at a scale of 1”=150’. Due to the location of facilities, the terminal area plan is separated into “Northside,” “Southwest,” and “South

Central" and drawings. The Northside Terminal Area Plan depicts the proposed main airport terminal area and adjacent corporate areas. The Southwest Terminal Area Plan depicts the proposed t-hangar basing area and helicopter basing area. The South Central Terminal Area Plan depicts the proposed south central 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 10, 11** and **12** in the ALP Drawing Set provided at the end of this chapter.

6.7. 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.

The drawing includes airport noise contours ….. The noise contours are expressed Day-Night Average Sound Level (DNL) metric. DNL is a 24-hour logarithmic average sound level expressed in decibels on the A-weighted scale, a scale which simulates human sound perception. An annual average of DNL is used by the FAA to describe airport noise exposures. Nighttime operations, those occurring between the hours of 10:00 p.m. and 7:00 a.m., are attributed a 10-decibel penalty (twice as loud) within the DNL calculation. The cumulative noise exposure levels at all reference points are then used to plot noise exposure contours for selected DNL values, and superimposed onto a base map.

The FAA provides guidelines for evaluating various land uses inside aircraft noise exposure areas. These guidelines are reproduced here as **Table 5-1**. Land use compatibility of various activities is keyed to DNL values. The guidelines reflect the statistical variability of the responses of large groups of people to noise. Therefore, any particular noise level might not accurately assess one individual's perception of an actual noise environment. As **Table 5-1** describes, all land uses are considered compatible with noise levels of less than 65 DNL. Residential, mobile home, and transient lodging uses are discouraged from 65 DNL and higher. Other noise sensitive uses such as hospitals, nursing homes, and churches are also discouraged in 65 DNL or greater. In certain cases, these uses may be permitted if the habitable structure is designed with, or contains, adequate measures to achieve reduction of outdoor noise levels (soundproofing). Land uses that are less sensitive to noise levels, such as commercial use, are considered compatible with noise levels of 70 DNL without soundproofing and up to 80 DNL with soundproofing.

Reference **Drawing 13** of the ALP Drawing Set provided at the end of this chapter.

TABLE 5-1

FAA LAND USE COMPATIBILITY GUIDELINES

Land Use	Yearly day-night average sound level (DNL) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
PUBLIC USE						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

Source: 14 CFR Part 150

6.8. Exhibit “A” Property Inventory Map

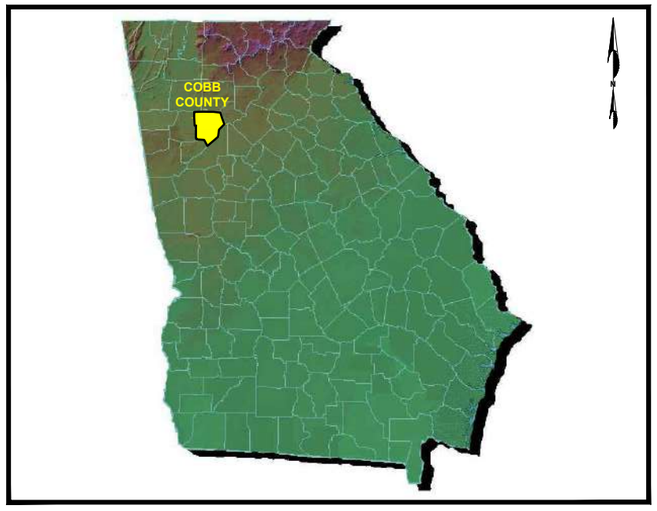
Often referred to as “Exhibit A,” the airport property map documents the current and future airport boundary in a graphical and tabular form. It serves as a record of property transactions for grant evaluation purposes and to analyze future aeronautical use of land acquired with federal funds.

The drawing depicts the planned initial and ultimate boundary lines overlaid onto current and future 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 Cobb 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 14** of the drawing set provided at the end of this chapter.

AIRPORT MASTER PLAN UPDATE

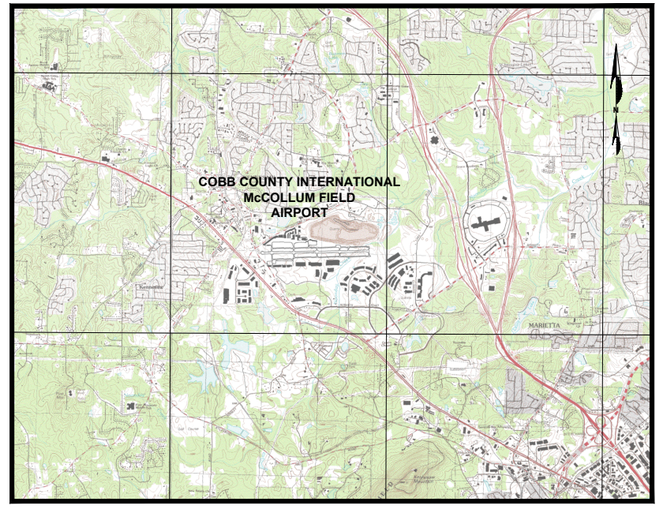
COBB COUNTY INTERNATIONAL AIRPORT - McCOLLUM FIELD

KENNESAW, GEORGIA



LOCATION MAP

INDEX OF DRAWINGS		
DRAWING NO.	DESCRIPTION	REVISION DATE
1	TITLE SHEET	3/15/18
2	AIRPORT DATA SHEET	3/15/18
3	AIRPORT LAYOUT DRAWING	3/15/18
4	AIRPORT AIRSPACE DRAWING (1 OF 3)	3/15/18
5	AIRPORT AIRSPACE DRAWING (2 OF 3)	3/15/18
6	AIRPORT AIRSPACE DRAWING (3 OF 3)	3/15/18
7	INNER PORTION OF THE APPROACH SURFACE DRAWING (1 OF 3)	3/15/18
8	INNER PORTION OF THE APPROACH SURFACE DRAWING (2 OF 3)	3/15/18
9	INNER PORTION OF THE APPROACH SURFACE DRAWING (3 OF 3)	3/15/18
10	DEPARTURE SURFACE DRAWING (1 OF 2)	3/15/18
11	DEPARTURE SURFACE DRAWING (2 OF 2)	3/15/18
12	TERMINAL AREA DRAWING (1 OF 3)	3/15/18
13	TERMINAL AREA DRAWING (2 OF 3)	3/15/18
14	TERMINAL AREA DRAWING (3 OF 3)	3/15/18
15	LAND USE DRAWING	3/15/18
16	EXHIBIT "A" AIRPORT PROPERTY INVENTORY MAP	3/15/18



VICINITY MAP

MARCH 2018

PREPARED FOR:

Cobb County Board of Commissioners

Michael Baker INTERNATIONAL

AIRPORT SPONSOR APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE) _____ DATE: _____

NAME: _____

TITLE: _____

GEORGIA DEPARTMENT OF TRANSPORTATION APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE) _____ DATE: _____

NAME: _____

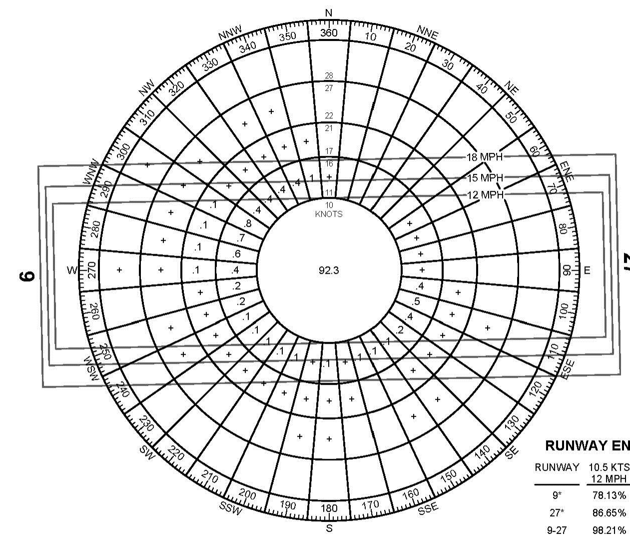
TITLE: _____

THE PREPARATION OF THIS DOCUMENT WAS FINANCED IN PART THROUGH A PLANNING GRANT FROM THE FEDERAL AVIATION ADMINISTRATION AS PROVIDED UNDER SECTION 505 OF THE AIRPORT AND AIRWAY IMPROVEMENT ACT OF 1982. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

RUNWAY DATA TABLE

		RUNWAY 9		RUNWAY 27	
		EXISTING	ULTIMATE	EXISTING	ULTIMATE
RUNWAY DESIGN CODE (RDC)		C-II 5,000	D-III-4000	C-II-4000	D-III-4000
RUNWAY REFERENCE CODE (RRC)					
	APPROACH REFERENCE CODE (APRC)	B-II-5000	D-V-5000	B-II-4000	D-V-4000
	DEPARTURE REFERENCE CODE (DPRC)	B-II	D-V	B-II	D-V
PAVEMENT TYPE		CONCRETE	SAME	CONCRETE	SAME
PAVEMENT STRENGTH	SINGLE WHEEL	30,000	SAME	30,000	SAME
	DOUBLE WHEEL	60,000	91,000	60,000	91,000
	DOUBLE TANDEM	N/A	N/A	N/A	N/A
PAVEMENT CLASSIFICATION NUMBER (PCN)		50/R/C/W/T	TBD	50/R/C/W/T	TBD
SURFACE TREATMENT		GROOVED	SAME	GROOVED	SAME
EFFECTIVE GRADIENT		-0.672%	SAME	0.672%	SAME
RUNWAY WIND COVERAGE (ALL WEATHER)					
	10.5KTS/12MPH	98.21%	SAME	98.21%	SAME
	13KTS/15MPH	99.22%	SAME	99.22%	SAME
	16KTS/18MPH	99.89%	SAME	99.89%	SAME
IFR					
	10.5KTS/12MPH	98.53%	SAME	98.53%	SAME
	13KTS/15MPH	99.37%	SAME	99.37%	SAME
	16KTS/18MPH	99.88%	SAME	99.88%	SAME
RUNWAY LENGTH		6,295'	7,500'	6,295'	7,500'
RUNWAY WIDTH		100'	100'	100'	100'
DISPLACED THRESHOLD LENGTH		1,062'	989'	0'	SAME
DISPLACED THRESHOLD ELEVATION		1027.7	1028.9	N/A	SAME
DISPLACED THRESHOLD COORDINATES		34° 00' 46.92" N 84° 36' 14.08" W	34° 00' 46.90" N 84° 36' 14.93" W	N/A	SAME
RUNWAY SAFETY AREA (SEE NOTE 3)		1,000 X 400	1,000 X 500	1,000 X 400	1,000 X 500
RUNWAY END COORDINATES	LATITUDE	34° 00' 46.69" N	SAME	34° 00' 48.04" N	34° 00' 48.30" N
	LONGITUDE	84° 36' 26.68" W	SAME	84° 35' 11.92" W	84° 34' 57.60" W
RUNWAY END ELEVATION		1,040.4'	SAME	998.2'	988.2'
RUNWAY LIGHTING		HIRL	SAME	HIRL	SAME
RUNWAY PROTECTION ZONE (RPZ)					
	LENGTH	1,700'	SAME	1,700'	SAME
	INNER WIDTH	500'	SAME	1,000'	SAME
	OUTER WIDTH	1,010'	SAME	1,510'	SAME
RUNWAY MARKINGS		NON-PRECISION	SAME	PRECISION	SAME
PART 77 APPROACH CATEGORY		34:1	SAME	50:1	SAME
APPROACH TYPE		C	SAME	PIR	SAME
VISIBILITY MINIMUMS		NOT LOWER THAN 1 MILE	SAME	NOT LOWER THAN 3/4 MILE	SAME
TYPE OF AERONAUTICAL SURVEY REQUIRED		VGS	SAME	VGS	SAME
RUNWAY DEPARTURE SURFACE		YES	SAME	YES	SAME
ROFA		1,000 X 800	SAME	1,000 X 800	SAME
OFZ		200 X 400	SAME	200 X 400	SAME
THRESHOLD SITING SURFACE		TYPE 5	SAME	TYPE 6	SAME
VISUAL AND INSTRUMENT NAVAIDS		PAPI, GPS, VOR/DME	SAME	ILS, PAPI, GPS, VOR/DME, MALSF	SAME
TOUCHDOWN ZONE ELEVATION		1,028.3'	1,028.9'	1,010.9'	1,001.8'
TAXIWAY DESIGN GROUP (TDG)		TDG-2	TDG-3	TDG-2	TDG-3
TAXIWAY WIDTH		35'	50'	35'	50'
TAXIWAY SAFETY AREA WIDTH		79'	118'	79'	118'
TAXIWAY OBJECT FREE AREA		131'	186'	131'	186'
TAXIWAY EDGE SAFETY MARGIN		7.5'	10'	7.5'	10'
TAXIWAY SHOULDER WIDTH		15'	20'	15'	20'
TAXIWAY WINGTIP CLEARANCE		26'	34'	26'	34'

ALL WEATHER WIND ROSE



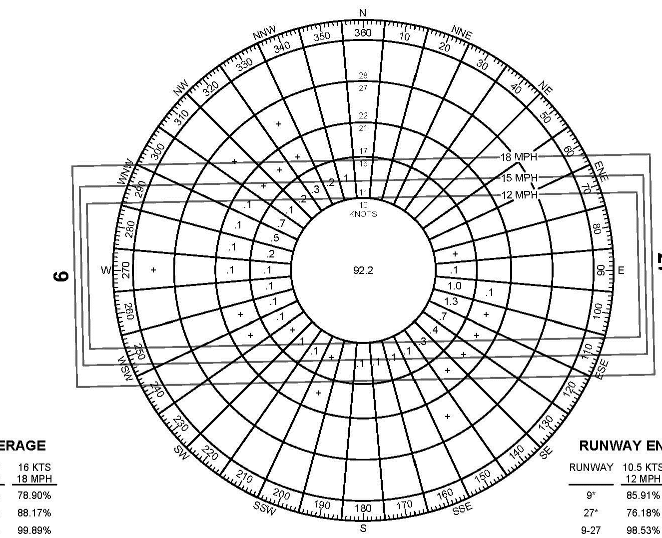
RUNWAY END COVERAGE

RUNWAY	10.5 KTS 12 MPH	13 KTS 15 MPH	16 KTS 18 MPH
9*	78.13%	78.54%	78.90%
27*	86.65%	87.55%	88.17%
9-27	98.21%	99.22%	99.89%

* BASED ON A 5 KT TAILWIND

SOURCE: NATIONAL CLIMATIC DATA CENTER
LOCATION:747812 COBB CO-MC COLLUM FLD
PERIOD: 2006 - 2015 OBSERVATIONS: 52,272

IFR WIND ROSE



RUNWAY END COVERAGE

RUNWAY	10.5 KTS 12 MPH	13 KTS 15 MPH	16 KTS 18 MPH
9*	85.91%	86.38%	86.70%
27*	76.18%	76.77%	77.20%
9-27	98.53%	99.37%	99.88%

* BASED ON A 5 KT TAILWIND

SOURCE: NATIONAL CLIMATIC DATA CENTER
LOCATION: 747812 COBB CO-MC COLLUM FLD
PERIOD: 2006 - 2015 OBSERVATIONS: 5,882
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.

AIRPORT DATA TABLE

	EXISTING		ULTIMATE	
AIRPORT REFERENCE CODE	C-II		D-III	
MEAN MAXIMUM TEMPERATURE HOTTEST MONTH (JULY)	85° F (JULY)			
AIRPORT ELEVATION (AMSL)	1040.4'		1040.4'	
AIRPORT & TERMINAL NAVAIDS	RUNWAY 9: VOR/DME, PAPI, GPS - NP	RUNWAY 27: GPS - WAAS, PAPI, VOR/DME, ILS, MALSF	RUNWAY 9: VOR/DME, REIL, PAPI, GPS - NP	RUNWAY 27: GPS - WAAS, PAPI, MALSF, VOR/DME
AIRPORT REFERENCE POINT (NAD 83)	34° 00' 47.4" N 84° 35' 49.5" W		34° 00' 47.4" N 84° 35' 42.1" W	
MISCELLANEOUS FACILITIES	AWOS 3, SEGMENTED CIRCLE, LIGHED WIND INDICATOR, BEACON		SAME	
AIRPORT REFERENCE CODE	C-II		D-III	
CRITICAL AIRCRAFT	GULFSTREAM 200/ EMBRAER ERJ 145		GULFSTREAM 550	
TAXIWAY LIGHTING	[illegible]		SAME	
AIRPORT MAGNETIC VARIATION, DATE AND SOURCE	4° 55' W changing by 0° 5' W per year - July 2016 - NOAA Magnetic Field Calculators			
NPIAS SERVICE LEVEL	RELIEVER		RELIEVER	
GEORGIA AVIATION SYSTEM PLAN	LEVEL III		LEVEL III	

DECLARED DISTANCES TABLE

	9		27	
	EXISTING	ULTIMATE	EXISTING	ULTIMATE
TAKE OFF RUN AVAILABLE (TORA)	6,295'	7,500'	6,295'	7,500'
TAKE OFF DISTANCE AVAILABLE (TODA)	6,295'	7,500'	6,295'	7,500'
ACCELERATE STOP DISTANCE AVAILABLE (ASDA)	6,295'	7,500'	5,374'	7,500'
LANDING DISTANCE AVAILABLE (LDA)	5,233'	6,511'	5,374'	7,500'

MODIFICATIONS TO STANDARDS

DESCRIPTION	CRITERIA	STANDARD	REQUESTED	EXISTING	FAA APPROVAL
TAXIWAY A RUNWAY-TO-TAXIWAY SEPARATION	RUNWAY CL TO TAXIWAY CL DISTANCE	300'	255'	255'	ATCT LETTER OF AGREEMENT, AUGUST 1, 2013
TAXIWAY A HOLDLINE DISTANCE	RUNWAY CL TO HOLDLINE DISTANCE	250'	212'	212'	ATCT LETTER OF AGREEMENT, AUGUST 1, 2013
GLIDESLOPE ANTENNAE INSIDE TAXIWAY B OBJECT FREE AREA	TOFA CLEARING STANDARDS PROHIBIT OBJECTS INSIDE TOFA, EXCEPT FOR OBJECTS THAT NEED TO BE LOCATED IN THE OFA FOR AIR NAVIGATION OR AIRCRAFT GROUND MANEUVERING PURPOSES	65.5'	52.5'	52.5'	ATCT LETTER OF AGREEMENT, AUGUST 1, 2013

COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

1. COORDINATES SHOWN HEREON ARE IN NAD83.
2. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
3. FOR C-II RDC, AN RSA WIDTH OF 400 FEET IS PERMISSIBLE.

REVISIONS

No.	Description	Date	By

Project Name: AIRPORT MASTER PLAN UPDATE

Drawing Name: AIRPORT DATA SHEET

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018	Division: PLANNING
Scale: N.T.S.	Drawing Number: 2

LEGEND

DESCRIPTION	EXISTING	ULTIMATE
PROPERTY LINE		
PROPERTY EASEMENTS		
PROPOSED GRADING LIMITS	N/A	
AIRPORT BUILDINGS		
OFF-AIRPORT BUILDINGS		N/A
PAVEMENT		
ROADS		
RUNWAY MARKINGS		
AIRPORT REFERENCE POINT (ARP)		
PACS/SACS		N/A
RSA	RSA	RSA
ROFA	ROFA	ROFA
OFZ	OFZ	OFZ
BRL	BRL	BRL
RPZ		
NAVAIDS / LIGHTING		
FENCE	x	N/A
NAVAID CRITICAL AREA		
TREES / BRUSH		N/A
GROUND CONTOURS	480	480
PAVEMENT REMOVAL	N/A	
ENVIRONMENTAL WETLANDS		N/A

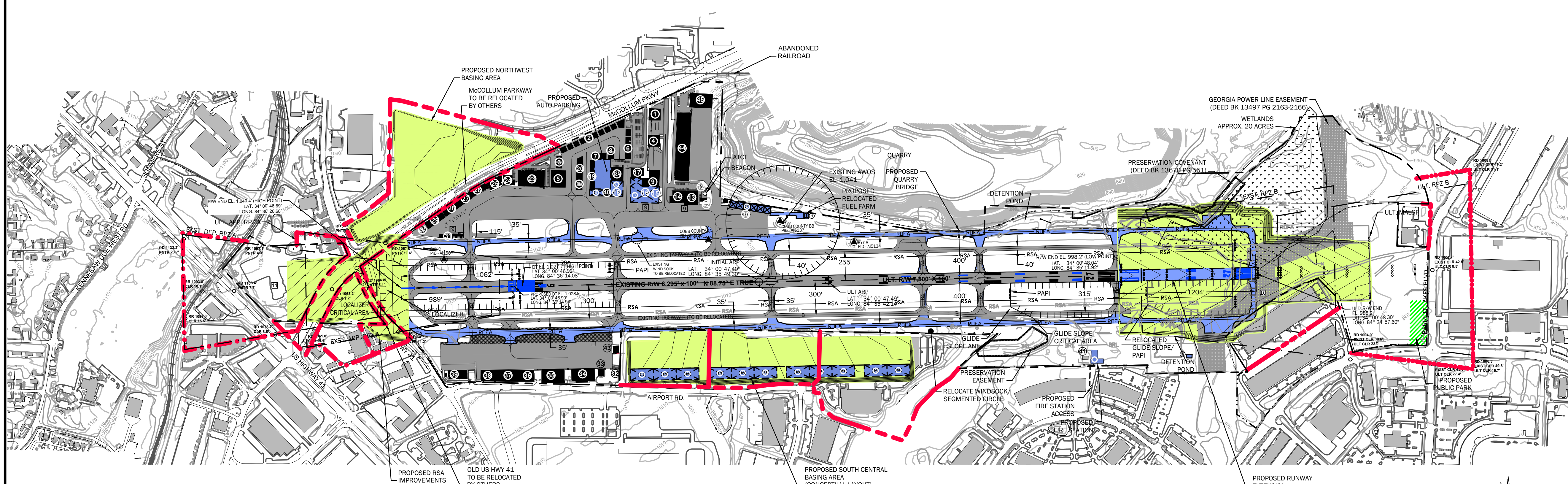
BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
1	2601 CESSNA LANE	1,041.5'		NONE	NO
2	10-BOX HANGARS 714-732	1,043.0'	2008-ASO-438-NRA	NONE	NO
3	2-BOX HANGARS 710-712	1,043.0'	2008-ASO-438-NRA	NONE	NO
4	2600 CESSNA LANE	1,041.9'	6/11/1996 ADO LETTER	NONE	NO
5	HANGAR 700	1,084.0'	2008-ASO-30-NRA	NONE	NO
6	4-BOX HANGARS 734-740	1,043.0'	2008-ASO-438-NRA	NONE	NO
7	2-BOX HANGARS 723-725	1,043.0'	2008-ASO-438-NRA	NONE	NO
8	2-BOX HANGARS 729-731	1,043.0'	2008-ASO-438-NRA	NONE	NO
9	HANGAR 350	1,049.0'	2007-ASO-733-NRA	NONE	NO
11	AIRPORT MAINTENANCE BUILDING	1,029.2'	98-ATL-041-NRA	NONE	NO
12	ATCT (NEW CONTROL TOWER)	1,104.0'	2013-ASO-99-NRA	RED LIGHT	NO
13	HANGAR 200	1,048.0'	2004-ASO-233-NRA	NONE	NO
14	HANGAR 300	1,037.6'		NONE	NO
15	FUEL FARM	-	93-ATL-106-NRA	NONE	YES
16	3-BOX HANGARS 410-430	1,037.1'		NONE	YES
17	HANGAR 460	1,043.0'		NONE	NO
18	NORTH FBO TERMINAL BLDG 500	-	93-ATL-40-NRA	NONE	YES
18A	2-HANGARS 501-502	1,045.2'		NONE	NO
19	T - HANGARS 601-609	1,034.2'	97-ATL-059-NRA	NONE	NO
20	T - HANGARS 610-620	1,038.9'	9/26/2005 ADO LETTER	NONE	NO
20A	50x69 HANGAR	1,061.0'	2005-ASO-641-NRA	NONE	NO
23	HANGAR 800	1,068.8'	02-ASO-0069-NRA/5/20/2003 ADO LETTER	NONE	NO
24	HANGAR 900	1,061.0'		NONE	NO
25	HANGAR 902	1,061.0'	2005-ASO-641-NRA	NONE	NO
26	3-BOX HANGARS 904-908	1,061.0'	2005-ASO-641-NRA	NONE	NO
27	HANGAR 910	1,061.0'	2005-ASO-641-NRA	NONE	NO
28	3-BOX HANGARS 912-916	1,061.0'	2005-ASO-641-NRA	NONE	NO
29	3- BOX HANGARS 918-922	1,061.0'	2005-ASO-641-NRA	NONE	NO
29A	OFFICE BLDG 922	1,046.0'	2008-ASO-441-NRA	NONE	NO
30	PORTABLE T - HANGARS 40-47	1,029.2'	2004-ASO-0333-NRA	NONE	YES
31	PORTABLE T - HANGARS 1001-1005	1,046.3'	91-ATL-136-NRA	NONE	YES
32	FUEL FARM	-	12/15/2004 ADO LETTER	NONE	NO
33	SOUTH TERMINAL BLDG	-	6/9/1992 ADO LETTER	NONE	NO
34	HANGAR 1	-		NONE	NO
35	HANGAR 2	1,073.6'		NONE	NO
36	HANGAR 3	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
37	HANGAR 4	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
38	HANGAR 5	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
39	1900 AIRPORT RD HANGAR	1,070.1'		NONE	NO
40	RESTAURANT BLDG	-	1/22/2003 ADO LETTER	NONE	YES
41	AIRPORT MAINTENANCE BLDG	1,005.0'	2008-ASO-601-NRA	NONE	YES
42	ADMINISTRATION BUILDING	-	94-ATL-015-NRA	NONE	NO
43	U.S. CUSTOMS BUILDING	1,044.0'	2012-ASO-2153-NRA	NONE	NO
44	3-CORPORATE HANGARS	1,047.0'	2007-ASO-576-NRA	NONE	NO
45	CORPORATE HANGAR	1,047.0'	2007-ASO-576-NRA	NONE	NO

PROPOSED BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING
A	PROPOSED 100x200 CORPORATE HANGAR	1,045.0'		NONE
B	RELOCATED NORTH TERMINAL BLDG	1,045.0' (EST.)		NONE
C	HANGAR	1,045.0' (EST.)		NONE
D	HANGAR	1,045.0' (EST.)		NONE
E	6- 60x60 HANGARS	1,025.0' (EST.)		NONE
F	FIRE STATION	1,020.0' (EST.)		NONE
G	RELOCATED AIRPORT MAINTENANCE BLDG	1,005.0' (EST.)		NONE
H	RELOCATED FUEL FARM	1,020.0' (EST.)		NONE

STATE BLOCK GRANT APPROVAL STAMP



MAGNETIC DECLINATION
4° 95' WEST (2017)
ANNUAL RATE OF CHANGE
0.0833' WEST
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

500 0 500 1,000 1,500
SCALE IN FEET

COBB COUNTY INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker
INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. ALL EXISTING HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 212' TO 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE. ALL ULTIMATE HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE.
2. COORDINATES SHOWN HEREON ARE IN NAD83.
3. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
4. SEE EXHIBIT "A" AIRPORT PROPERTY MAP FOR PROPERTY LINE METES AND BOUNDS.
5. THERE ARE NO MODIFICATION OF STANDARDS.
6. NO OFZ OBJECT PENETRATIONS.
7. SEE INNER PORTION OF RUNWAY APPROACH SURFACE DRAWINGS FOR THRESHOLD SITING SURFACE OBJECT PENETRATIONS.
8. ALL NEW TAXIWAYS ARE 50' UNLESS OTHERWISE NOTED.
9. AERONAUTICAL STUDY NO. 91-ATL-136-NRA DETERMINED THAT THESE BUILDINGS ARE NOT HAZARDS AND MAY REMAIN AFTER ILS/GPS INSTALLATION.
10. AERONAUTICAL STUDIES 2000-ASO-0155-NRA AND 2000-ASO-0159-NRA FAA DETERMINED THESE TRANSMISSION WIRES TO NOT BE A HAZARD IF POLES ARE LIGHTED. THE TOWERS HAVE SINCE BEEN LIGHTED AND THE LINES EQUIPPED WITH ORANGE WIRE MARKERS.
11. AERONAUTICAL STUDIES 2007-ASO-471-NRA FAA DETERMINED THE STORAGE OF LANDSCAPE MATERIALS AND CONSTRUCTION OF RAIL LINE WAS DEPARTURE OBSTRUCTION AND COULD BE MITIGATED BY AMENDMENT TO DEPARTURE PROCEDURE. AS A RESULT OF THE STUDY, "THAT NEVER WILL ACTIVITY OR IMPROVEMENTS ON THE PREMISES INTERFERE, CONSTRICT, OR LIMIT AIRPORT AND/OR AIRCRAFT OPERATONS OR BE VIOLATIVE OF ANY APPLICABLE REGULATION OR LAW." ADDITIONALLY, AIRPORT "RESERVES THE RIGHT TO TAKE ANY ACTION IT CONSIDERS NECESSARY TO PROTECT THE AERIAL APPROACHES OF THE AIRPORT AGAINST OBSTRUCTION."

REVISIONS

No.	Description	Date	By

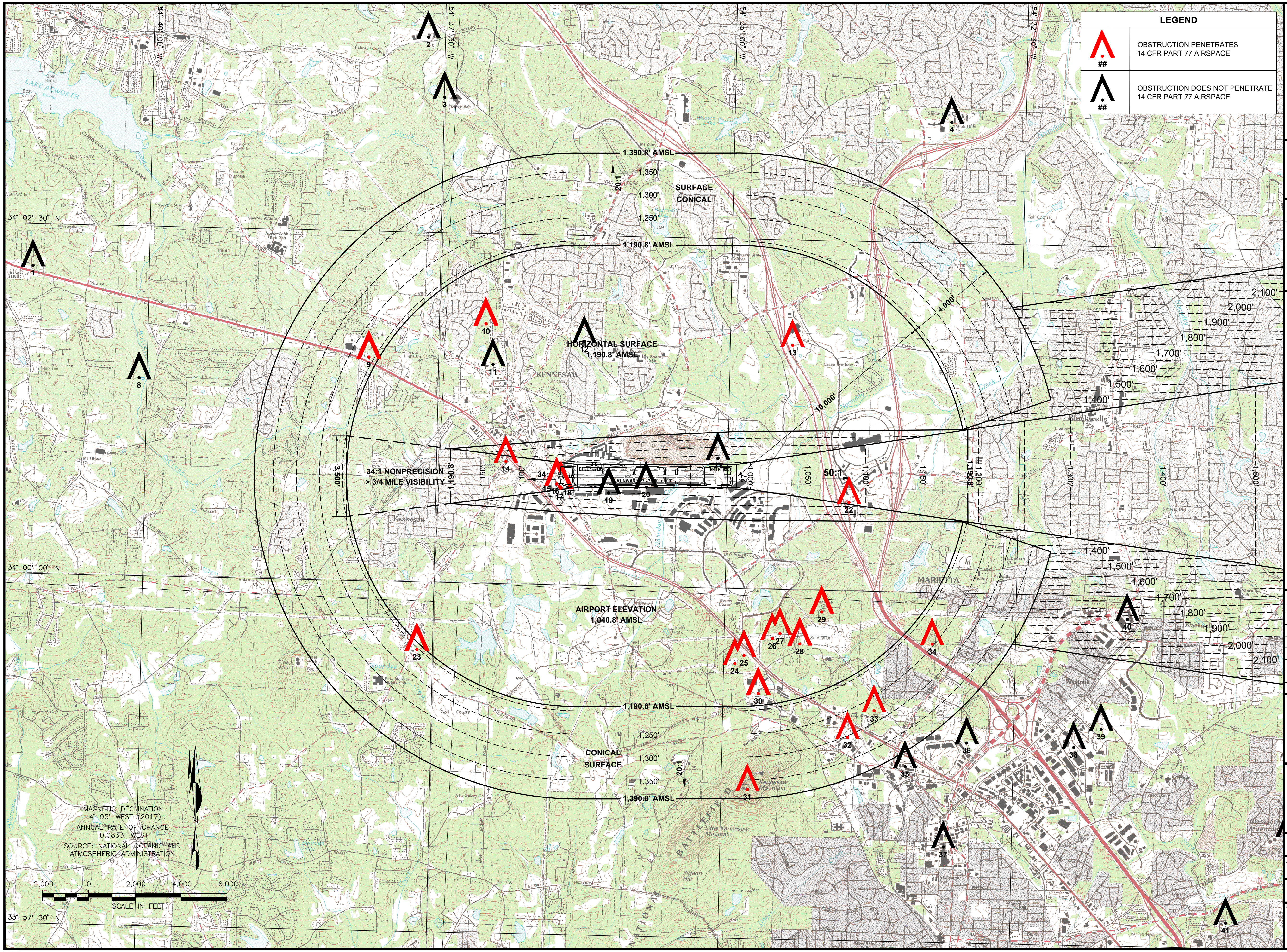
Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
AIRPORT LAYOUT DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018
Division: PLANNING
Scale: 1" = 500'
Drawing Number: 3



COBB COUNTY STATE OF GEORGIA 1832

COBB COUNTY INTERNATIONAL AIRPORT McCOLLUM FIELD

KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer: TGM

Technician: SMS, TGM

Checked by: JCD

Project Number: 146975

NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD88, ABOVE MEAN SEA LEVEL (AMSL).
2. OBSTRUCTIONS TAKEN FROM: DIGITAL OBSTACLE FILE (DOF) DATED MARCH 27, 2017.
3. BASE MAP TAKEN FROM THE U.S.G.S. 7.5 MINUTE SERIES QUADS: ACWORTH, GA; KENNESAW, GA; LOST MOUNTAIN, GA; MARIETTA, GA; MOUNTAIN PARK, GA; SANDY SPRINGS, GA.
4. SEE INNER PORTION OF THE APPROACH SURFACE PLAN VIEW DETAILS FOR CLOSE-IN OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".
6. THIS AIRSPACE DRAWING REFLECTS ULTIMATE RUNWAY LAYOUT.
7. RUNWAY 27 APPROACH SURFACE IS BASED UPON LOWEST POSSIBLE MINIMUMS. SEE SHEET 3 FOR PLANNED MINIMUMS.

REVISIONS

No.	Description	Date	By

Project Name: AIRPORT MASTER PLAN UPDATE

Drawing Name: AIRPORT AIRSPACE DRAWING (1 OF 3)

FAA AIP# / STATE GRANT #

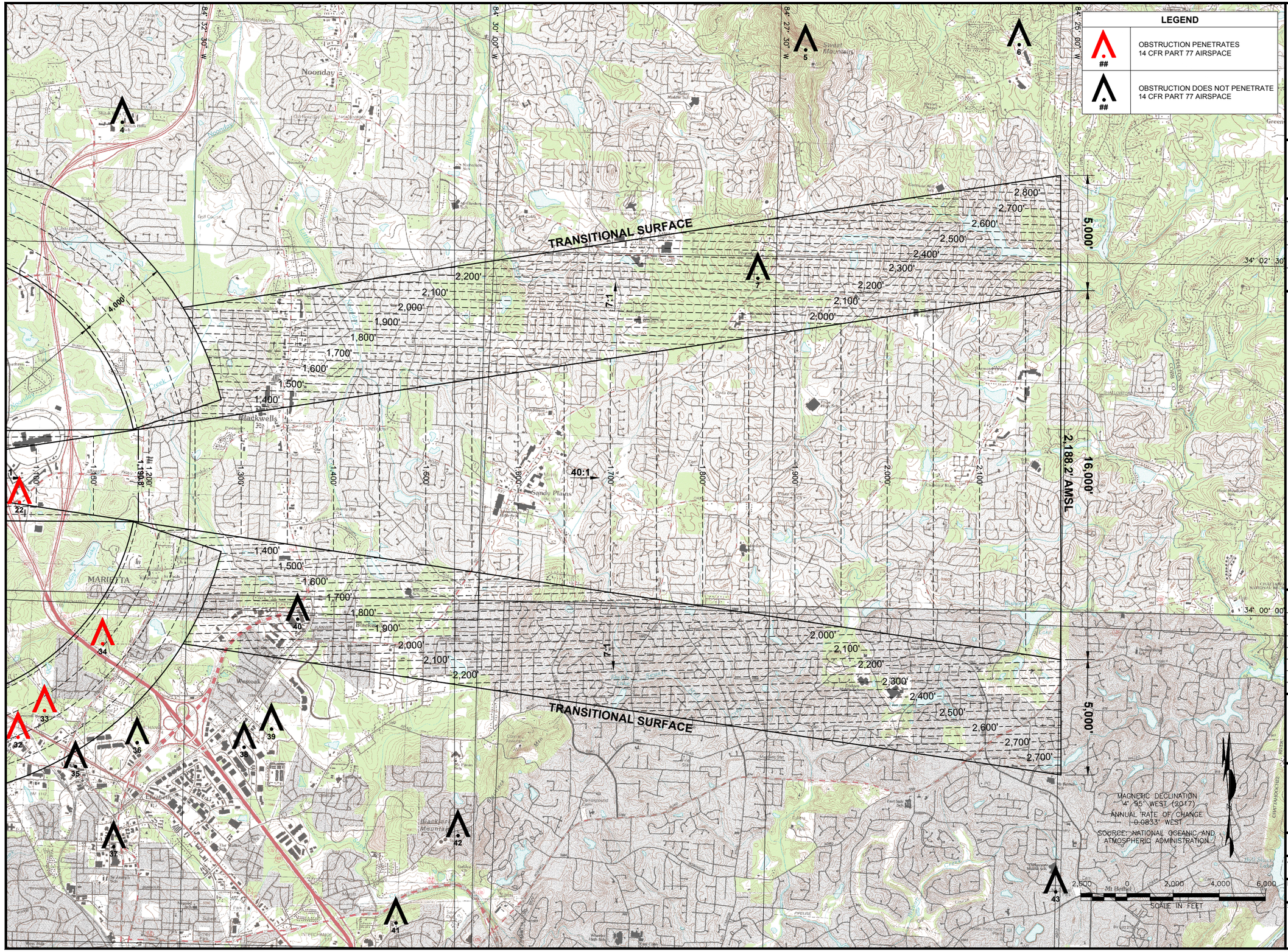
Autocad Drawing Reference:

Date: MARCH 2018

Division: PLANNING

Scale: 1" = 2,000'

Drawing Number: 4



COBB COUNTY INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD88, ABOVE MEAN SEA LEVEL (AMSL).
2. OBSTRUCTIONS TAKEN FROM: DIGITAL OBSTACLE FILE (DOF) DATED MARCH 27, 2017.
3. BASE MAP TAKEN FROM THE U.S.G.S. 7.5 MINUTE SERIES QUADS: ACWORTH, GA; KENNESAW, GA; LOST MOUNTAIN, GA; MARIETTA, GA; MOUNTAIN PARK, GA; SANDY SPRINGS, GA.
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REVISIONS

No.	Description	Date	By

Project Name:

AIRPORT MASTER PLAN UPDATE

Drawing Name:

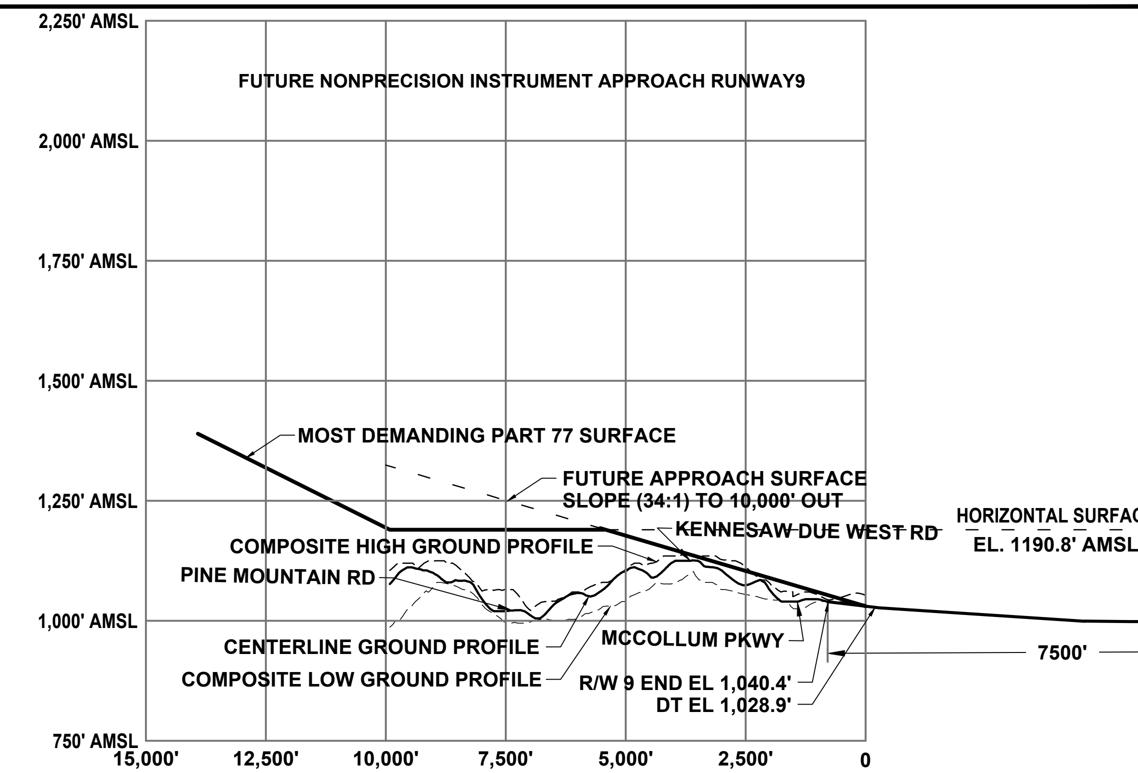
AIRPORT AIRSPACE DRAWING (2 OF 3)

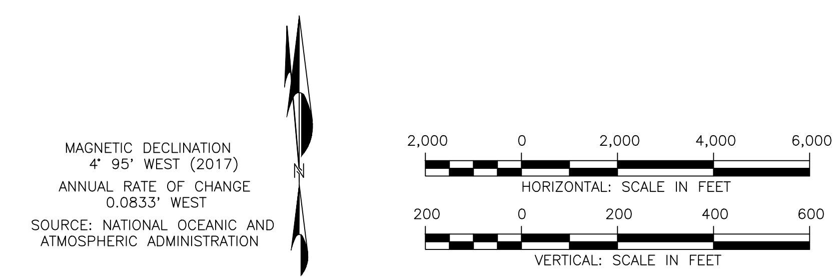
FAA AIP# / STATE GRANT #

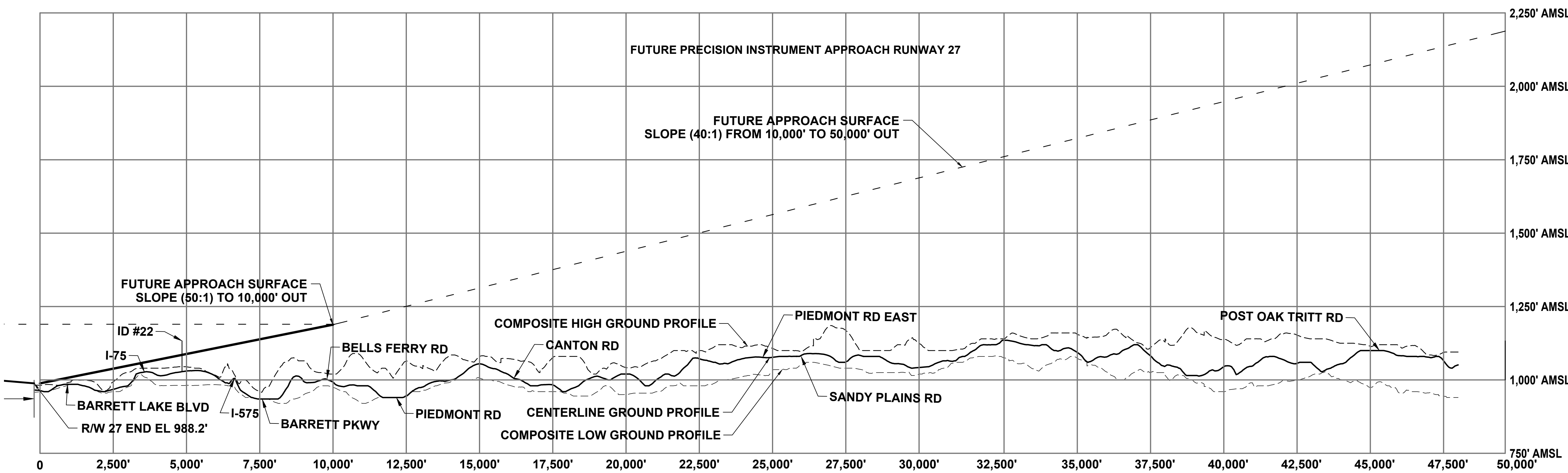
Autocad Drawing Reference:

Date: MARCH 2018	Division: PLANNING
Scale: 1" = 2,000'	Drawing Number: 5

OBSTRUCTION DATA TABLE										
ID #	CITY	DESCRIPTION	AGL	GROUND SURFACE ELEVATION AMSL	TOP ELEVATION AMSL	LIGHTING	MARKING	FAA STUDY #	SURFACE PENETRATION	PROPOSED DISPOSITION
1	KENNESAW	TOWER	270'	949'	1,219'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	98SO03165		
2	ACWORTH	TOWER	276'	1,062'	1,338'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	11SO03340		
3	ACWORTH	TOWER	280'	1,049'	1,329'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	09SO02991		
4	KENNESAW	TOWER	178'	998'	1,176'	NO LIGHTS	NO	15SO10110		
5	ROSWELL	TOWER	198'	1,685'	1,883'	UNKNOWN	UNKNOWN	73SO00800		
6	ROSWELL	TOWER	218'	1,147'	1,365'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	98SO00073		
7	MARIETTA	TOWER	350'	1,210'	1,560'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	05SO06578		
8	MARIETTA	TOWER	210'	900'	1,110'	RED LIGHTING	YES	87SO02121		
9	KENNESAW	TOWER	236'	1,054'	1,290'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	97SO05213	79.1'	REMAIN IN PLACE
10	KENNESAW	TOWER	160'	1,042'	1,202'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	08SO06593	11.2'	REMAIN IN PLACE
11	KENNESAW	BLDG	61'	1,128'	1,189'	NO LIGHTS	NO	14SO04570		
12	KENNESAW	SPIRE	99'	1,080'	1,179'	NO LIGHTS	NO	11SO01028		
13	KENNESAW	TOWER	200'	1,001'	1,201'	NO LIGHTS	NO	07SO03281	10.2'	REMAIN IN PLACE
14	KENNESAW	TOWER	39'	1,123'	1,162'	NO LIGHTS	NO	10SO04148	41.4'	REMAIN IN PLACE
15	KENNESAW	T-L TWR	25'	1,048'	1,073'	RED LIGHTING	NO	10SO04918	17.9'	REMAIN IN PLACE
16	KENNESAW	T-L TWR	25'	1,070'	1,095'	RED LIGHTING	NO	10SO04919	43.1'	REMAIN IN PLACE
17	KENNESAW	T-L TWR	37'	1,084'	1,121'	RED LIGHTING	NO	10SO04920	70.5'	REMAIN IN PLACE
18	KENNESAW	T-L TWR	37'	1,084'	1,121'	RED LIGHTING	NO	10SO04921		
19	KENNESAW	BLDG	36'	999'	1,035'	RED LIGHTING	NO	89SO01412		
20	KENNESAW	BLDG	27'	989'	1,016'	NO LIGHT	NO			
21	KENNESAW	ELEVATOR	90'	952'	1,042'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	05SO05226		
22	MARIETTA	SIGN	98'	1,035'	1,133'	NO LIGHT	NO	01SO1597	47.5'	REMAIN IN PLACE
23	KENNESAW	TOWER	177'	1,120'	1,297'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	01SO06422		
24	KENNESAW	TANK	51'	1,236'	1,287'	NO LIGHT	NO	82SO00544	96.2'	REMAIN IN PLACE
25	MARIETTA	BLDG	47'	1,185'	1,232'	RED LIGHTING	NO	00SO09478	41.2'	REMAIN IN PLACE
26	KENNESAW	T-L TWR	199'	1,220'	1,419'	RED LIGHTING	NO	88SO00223	228.2'	REMAIN IN PLACE
27	MARIETTA	TANK	131'	1,243'	1,374'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	02SO00939	183.2'	REMAIN IN PLACE
28	MARIETTA	TOWER	263'	1,100'	1,363'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	97SO02075	172.2'	REMAIN IN PLACE
29	BLACKWELLS	TOWER	165'	1,160'	1,325'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	98SO04640	134.2'	REMAIN IN PLACE
30	MARIETTA	TOWER	165'	1,096'	1,261'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	02SO05003	70.2'	REMAIN IN PLACE
31	MARIETTA	TOWER	60'	1,800'	1,860'	NO LIGHT	NO	00SO00661	488.9'	REMAIN IN PLACE
32	MARIETTA	TOWER	293'	1,185'	1,478'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	07SO02202	171.5'	REMAIN IN PLACE
33	MARIETTA	TOWER	258'	1,177'	1,435'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	95SO00869	154.4'	REMAIN IN PLACE
34	MARIETTA	TOWER	182'	1,146'	1,328'	RED LIGHTING	NO	94SO02393	78.8'	REMAIN IN PLACE
35	MARIETTA	TOWER	315'	1,169'	1,484'	RED LIGHTING	YES	15SO22136		
36	MARIETTA	TOWER	450'	1,104'	1,554'	MEDIUM INTENSITY WHITE STROBE	NO	95SO01559		
37	MARIETTA	TOWER	268'	1,180'	1,448'	RED LIGHTING	YES	70SO00234		
38	MARIETTA	TOWER	268'	1,080'	1,348'	RED LIGHTING	YES	75SO00062		
39	MARIETTA	TOWER	268'	1,080'	1,348'	RED LIGHTING	YES	00SO00497		
40	MARIETTA	TOWER	214'	1,098'	1,312'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	14SO09457		
41	MARIETTA	TOWER	260'	1,100'	1,360'	RED LIGHTING	YES	76SO02160		
42	MARIETTA	TOWER	314'	1,258'	1,572'	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NO	99SO03776		
43	MARIETTA	T-L TWR	135'	1,055'	1,190'	UNKNOWN	UNKNOWN			







COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker
INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. ALL ELEVATIONS ARE BASED ON NAVD88, ABOVE MEAN SEA LEVEL (AMSL).
2. OBSTRUCTIONS TAKEN FROM: DIGITAL OBSTACLE FILE (DOF) DATED MARCH 27, 2017.
3. BASE MAP TAKEN FROM THE U.S.G.S. 7.5 MINUTE SERIES QUADS: ACWORTH, GA; KENNESAW, GA; LOST MOUNTAIN, GA; MARIETTA, GA; MOUNTAIN PARK, GA; SANDY SPRINGS, GA.
4. SEE INNER PORTION OF THE APPROACH SURFACE PLAN VIEW DETAILS FOR CLOSE-IN OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".

REVISIONS			
No.	Description	Date	By

Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
AIRPORT AIRSPACE DRAWING (3 OF 3)

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:
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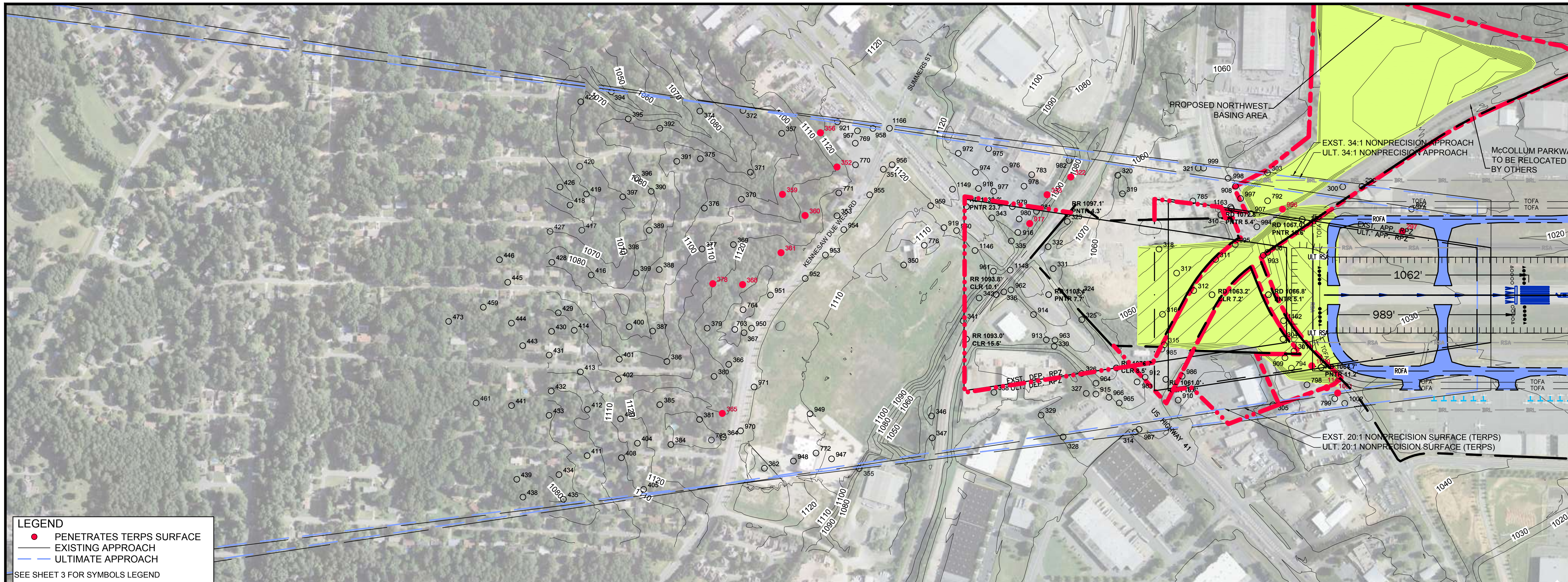
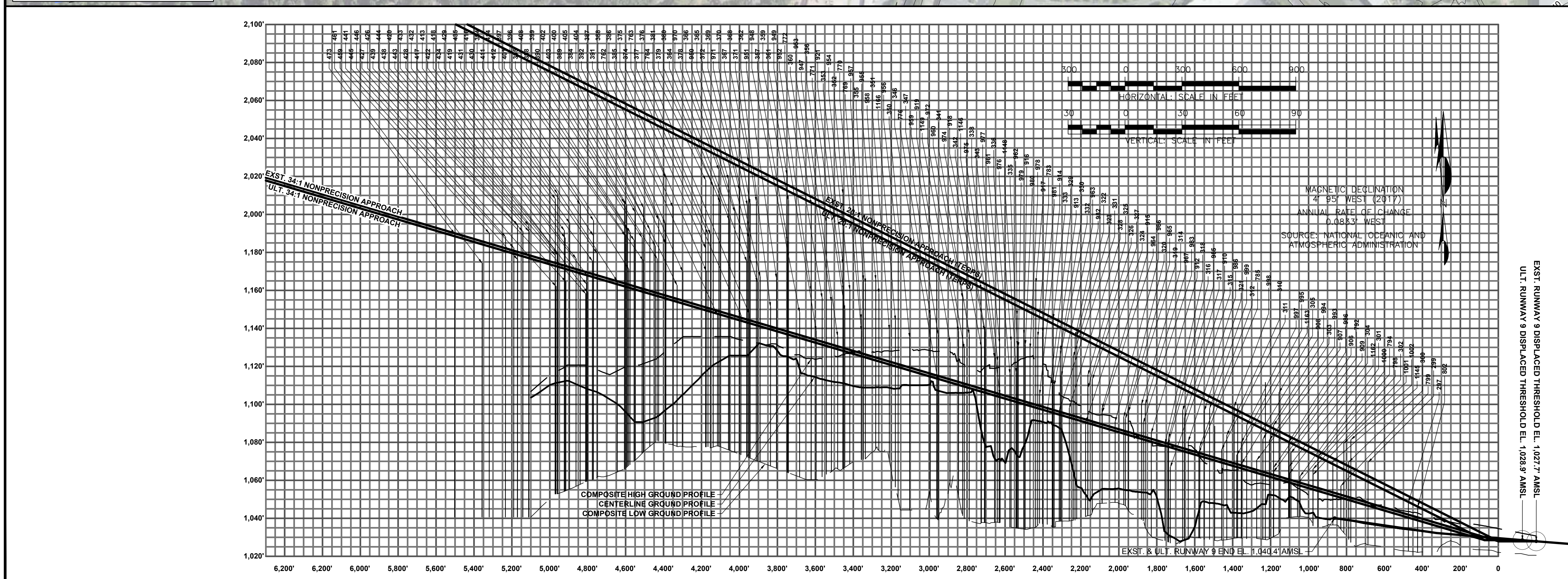
Date: MARCH 2018
Division: PLANNING

Scale:
HORZ.: 1" = 2,000'
VERT.: 1" = 200'

Drawing Number: 6





COBB COUNTY INTERNATIONAL AIRPORT McCOLLUM FIELD

KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

1. COORDINATES SHOWN HEREON ARE IN NAD83.
2. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
3. AERIAL PHOTO AND OBSTRUCTION MAPPING FLOWN ON JUNE 22, 2015 BY QUANTUM SPATIAL.
4. BASED ON GENERAL PART 77 SURVEY FOR PLANNING PURPOSES ONLY. SURVEY BASE IS NOT A DETAILED OBSTRUCTION ANALYSIS COVERING ALL INDIVIDUAL OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".
6. ROAD / RAILROAD ELEVATIONS SHOWN, ACCOUNT FOR VEHICLES HEIGHTS OF 23' ON RAILROADS, 17' ON INTERSTATE HIGHWAYS AND 15' ON ALL OTHER PUBLIC ROADS.
7. REFER TO THE AIRPORT AIRSPACE DRAWINGS FOR FURTHER OUT OBSTRUCTIONS.

REVISIONS

No.	Description	Date	By

Project Name:

AIRPORT MASTER PLAN UPDATE

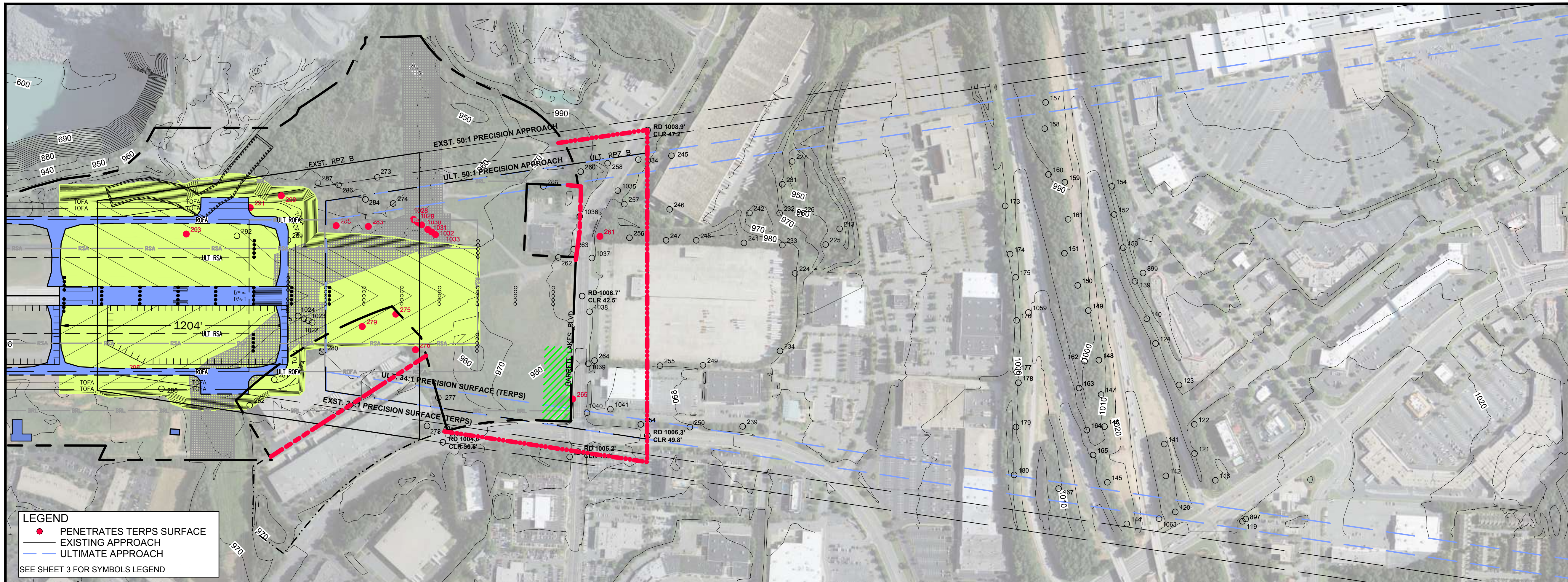
Drawing Name:

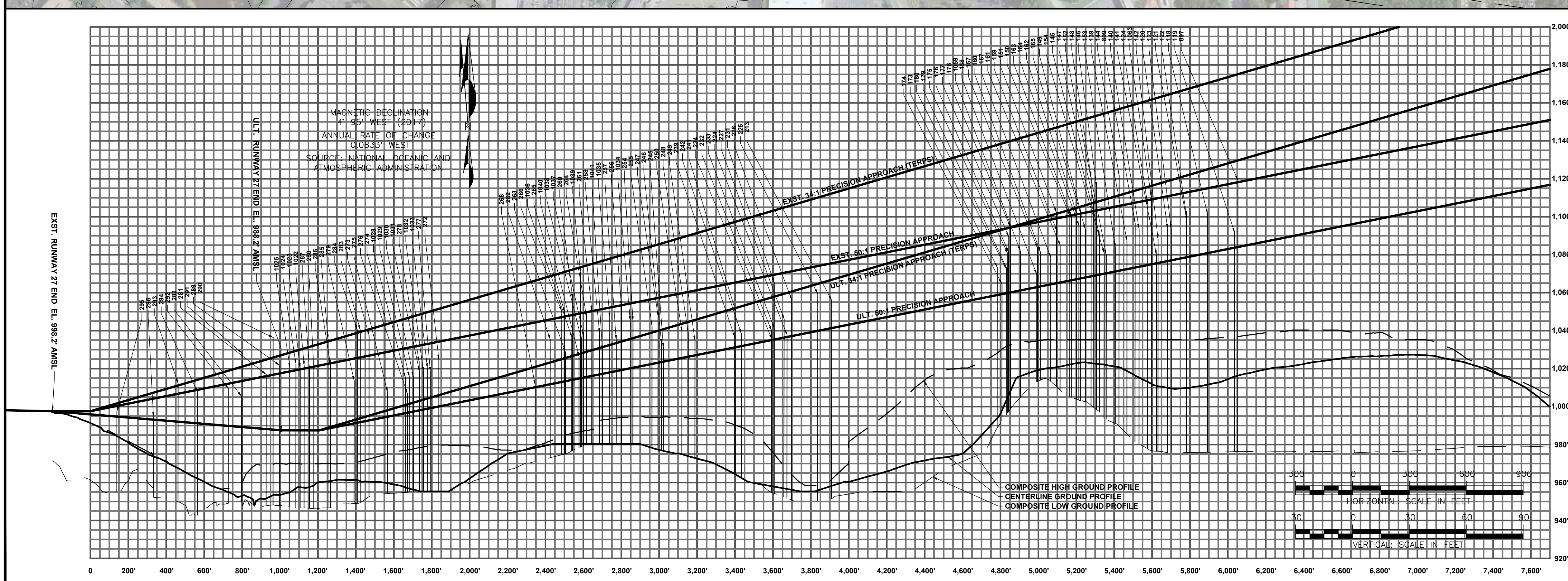
INNER PORTION OF THE RUNWAY 9 APPROACH SURFACE DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018	Division: PLANNING
Scale: HORZ.: 1" = 300' VERT.: 1" = 30'	Drawing Number: 7





COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker
INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

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7. REFER TO THE AIRPORT AIRSPACE DRAWINGS FOR FURTHER OUT OBSTRUCTIONS.

REVISIONS

No.	Description	Date	By

Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
INNER PORTION OF THE RUNWAY 27 APPROACH SURFACE DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018
Division: PLANNING
Scale: HORZ.: 1" = 300' VERT.: 1" = 30'
Drawing Number: 8

EXISTING RUNWAY 9 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	EXST PART 77 SURFACE ELEVATION	EXST PART 77 PENETRATION	EXST TSS SURFACE ELEVATION	EXST TSS PENETRATION	DISPOSITION
297	TREE	1048.7'	1042.0'	6.6'	1051.7'	-3.0'	TRIM / REMOVE
299	TREE	1069.8'	1048.3'	21.5'			NO ACTION
300	TREE	1069.9'	1051.3'	18.7'			NO ACTION
301	TREE	1062.4'	1058.8'	3.6'			NO ACTION
302	TREE	1063.3'	1056.8'	6.4'			NO ACTION
304	TREE	1067.5'	1060.5'	6.9'			NO ACTION
305	TREE	1106.5'	1062.1'	44.4'			NO ACTION
307	TREE						OBJECT REMOVED
308	TREE						OBJECT REMOVED
310	TREE	1084.0'	1070.2'	13.8'			NO ACTION
311	TREE	1076.5'	1071.0'	5.5'			NO ACTION
312	TREE	1078.0'	1074.4'	3.7'			NO ACTION
313							OBJECT REMOVED
314	TREE	1100.2'	1083.4'	16.8'			NO ACTION
316	TREE	1082.3'	1079.2'	3.0'			NO ACTION
317	TREE	1097.0'	1077.0'	20.0'			NO ACTION
318	TREE	1079.4'	1079.8'	-0.3'			NO ACTION
319	TREE	1096.3'	1085.4'	10.9'			NO ACTION
320	TREE	1093.5'	1086.2'	7.4'			NO ACTION
321	TREE	1096.9'	1073.7'	23.2'			NO ACTION
322	TREE	1136.1'	1093.5'	42.6'	1139.1'	-3.0'	TRIM / REMOVE
323	TREE	1125.3'	1094.0'	31.4'			NO ACTION
324	TREE	1090.7'	1092.1'	-1.4'			NO ACTION
325	TREE	1115.7'	1091.7'	23.9'			NO ACTION
326	TREE	1108.8'	1091.7'	17.1'			NO ACTION
327	TREE	1113.4'	1091.0'	22.3'			NO ACTION
328	TREE	1098.3'	1094.6'	3.6'			NO ACTION
329	TREE	1096.3'	1098.0'	-1.7'			NO ACTION
330	TREE	1128.5'	1096.0'	32.5'			NO ACTION
331	TREE	1096.5'	1096.2'	0.4'			NO ACTION
332	TREE	1110.3'	1097.0'	13.3'			NO ACTION
333	TREE	1145.3'	1097.1'	48.1'	1145.3'	0.0'	TRIM / REMOVE
335	TREE	1131.0'	1102.7'	28.3'			NO ACTION
336	TREE	1116.2'	1103.8'	12.4'			NO ACTION
338	TREE	1105.3'	1105.3'	0.0'			NO ACTION
341	TREE	1137.0'	1110.1'	26.9'			NO ACTION
342	TREE	1138.4'	1107.7'	30.7'			NO ACTION
343	TREE	1122.7'	1105.7'	17.0'			NO ACTION
346	TREE	1113.3'	1115.0'	-1.7'			NO ACTION
347	TREE	1136.7'	1114.9'	21.7'			NO ACTION
350	TREE	1135.3'	1119.4'	15.9'			NO ACTION
351	TREE	1139.5'	1122.5'	17.0'			NO ACTION
352	TREE	1210.8'	1129.7'	81.1'	1200.7'	10.2'	TRIM / REMOVE
353	TREE	1173.9'	1129.7'	44.2'			NO ACTION
356	TREE	1195.9'	1132.3'	63.6'	1205.0'	-9.1'	TRIM / REMOVE
357	TREE	1185.9'	1138.3'	47.6'			NO ACTION
359	TREE	1207.5'	1138.1'	69.4'	1215.0'	-7.5'	TRIM / REMOVE
360	TREE	1205.2'	1134.6'	70.6'	1209.1'	-3.8'	TRIM / REMOVE
361	TREE	1220.9'	1138.4'	82.5'	1215.4'	5.4'	TRIM / REMOVE
362	TREE	1151.4'	1140.9'	10.5'			NO ACTION
364	TREE	1197.0'	1147.3'	49.7'			NO ACTION
365	TREE	1218.4'	1147.4'	71.0'			NO ACTION
366	TREE	1201.3'	1146.5'	54.9'			NO ACTION
367	TREE	1205.7'	1144.1'	61.7'			NO ACTION
368	TREE	1227.5'	1144.3'	83.2'	1225.5'	2.0'	TRIM / REMOVE
369	TREE	1213.0'	1145.7'	67.2'			NO ACTION
370	TREE	1204.9'	1144.5'	60.3'			NO ACTION
371	TREE	1206.8'	1143.1'	63.7'			NO ACTION
372	TREE	1187.6'	1144.3'	43.4'			NO ACTION
374	TREE	1182.2'	1151.0'	31.2'			NO ACTION
375	TREE	1170.2'	1150.9'	19.3'			NO ACTION
376	TREE	1189.6'	1150.2'	39.3'			NO ACTION
377	TREE	1189.7'	1150.6'	39.1'			NO ACTION
378	TREE	1223.5'	1148.9'	74.6'	1233.4'	-9.9'	TRIM / REMOVE
379	TREE	1214.9'	1149.8'	65.1'			NO ACTION
380	TREE	1206.3'	1148.7'	57.5'			NO ACTION
381	TREE	1218.0'	1151.0'	67.1'			NO ACTION
384	TREE	1162.7'	1155.4'	7.3'			NO ACTION
385	TREE	1219.1'	1157.2'	62.0'			NO ACTION
386	TREE	1203.8'	1156.0'	47.8'			NO ACTION
387	TREE	1197.1'	1158.3'	38.9'			NO ACTION
388	TREE	1195.0'	1157.2'	37.8'			NO ACTION
389	TREE	1183.4'	1158.8'	24.6'			NO ACTION
390	TREE	1176.7'	1158.5'	18.2'			NO ACTION
391	TREE	1169.9'	1154.5'	15.4'			NO ACTION
392	TREE	1184.7'	1157.2'	27.5'			NO ACTION
394	TREE	1164.8'	1164.7'	0.1'			NO ACTION
395	TREE	1186.4'	1162.1'	24.3'			NO ACTION
396	TREE	1175.7'	1160.6'	15.0'			NO ACTION
397	TREE	1171.3'	1162.9'	8.4'			NO ACTION
398	TREE	1190.6'	1162.7'	27.9'			NO ACTION
399	TREE	1187.8'	1160.8'	27.0'			NO ACTION
400	TREE	1201.2'	1161.9'	39.3'			NO ACTION
401	TREE	1188.7'	1163.4'	25.3'			NO ACTION
402	TREE	1205.9'	1163.6'	42.4'			NO ACTION
403	TREE	1204.9'	1163.2'	41.6'			NO ACTION
404	TREE	1203.5'	1160.6'	42.9'			NO ACTION
405	TREE	1192.0'	1159.6'	32.4'			NO ACTION
408	TREE	1192.2'	1163.1'	29.1'			NO ACTION
411	TREE	1188.9'	1168.4'	20.5'			NO ACTION
412	TREE	1196.8'	1168.4'	28.4'			NO ACTION
413	TREE	1163.4'	1169.5'	-6.1'			NO ACTION
414	TREE	1205.2'	1170.4'	34.8'			NO ACTION
416	TREE	1179.6'	1167.8'	11.8'			NO ACTION
418	TREE	1176.7'	1171.1'	5.7'			NO ACTION
419	TREE	1175.5'	1168.5'	7.0'			NO ACTION
422	TREE	1168.3'	1169.4'	-1.1'			NO ACTION
426	TREE	1164.6'	1172.6'	-8.0'			NO ACTION
428	TREE	1178.5'	1173.9'	4.6'			NO ACTION
429	TREE	1191.5'	1172.9'	18.6'			NO ACTION
430	TREE	1210.8'	1173.9'	36.9'			NO ACTION
431	TREE	1208.2'	1174.3'	33.9'			NO ACTION
432	TREE	1179.7'	1174.0'	5.8'			NO ACTION
433	TREE	1178.5'	1174.3'	4.2'			NO ACTION
434	TREE	1187.6'	1172.8'	14.9'			NO ACTION
435	TREE	1195.5'	1172.1'	23.5'			NO ACTION
438	TREE	1191.0'	1178.4'	12.6'			NO ACTION
439	TREE	1191.0'	1179.3'	11.7'			NO ACTION
441	TREE	1176.2'	1180.1'	-3.9'			NO ACTION
443	TREE	1194.3'	1178.4'	15.9'			NO ACTION
444	TREE	1194.5'	1180.2'	14.3'			NO ACTION
445	TREE	1182.4'	1180.7'	1.6'			NO ACTION
446	TREE	1188.2'	1182.0'	6.2'			NO ACTION
459	TREE	1190.1'	1184.5'	5.6'			NO ACTION
473	TREE	1189.7'	1189.9'	-0.1'			NO ACTION
763	BUILDING	1147.1'	1145.5'	1.6'			NO ACTION
764	BUILDING	1147.8'	1144.2'	3.6'			NO ACTION
769	BUILDING	1145.0'	1126.9'	18.2'			NO ACTION
770	BUILDING	1138.9'	1126.8'	12.0'			NO ACTION
771	BUILDING	1149.8'	1129.4'	20.4'			NO ACTION
772	BUILDING	1156.1'	1132.9'	23.2'			NO ACTION
776	BUILDING	1147.3'	1116.2'	31.1'			NO ACTION
783	BUILDING	1135.9'	1099.5'	36.4'			NO ACTION
785	BUILDING	1074.8'	1074.5'	0.3'			NO ACTION
792	BUILDING	1064.8'	1062.9'	1.8'			NO ACTION
798	BUILDING	1066.2'	1056.8'	9.3'			NO ACTION
799	BUILDING	1057.4'	1052.5'	4.9'			NO ACTION
802	BUILDING	1046.1'	1040.6'	5.5'			NO ACTION
906	SIGN	1067.0'	1062.9'	4.1'			NO ACTION
907	SIGN	1070.9'	1065.6'	5.3'			NO ACTION
908	SIGN	1069.1'	1067.9'	1.2'			NO ACTION
909	SIGN	1074.7'	1060.2'	14.5'			NO ACTION
910	SIGN	1093.2'	1076.8'	16.4'			NO ACTION
912	SIGN	1085.1'	1081.9'	3.2'			NO ACTION
913	SIGN	1110.6'	1097.2'	13.4'			NO ACTION
914	SIGN	1105.3'	1099.2'	6.1'			NO ACTION
915	SIGN	1098.1'	1089.5'	8.6'			NO ACTION
916	SIGN	1136.8'	1101.6'	35.2'			NO ACTION
917	SIGN	1164.1'	1099.8'	64.3'	1149.9'	14.2'	LOWER / RELOCATE
918	SIGN	1139.1'	1107.8'	31.4'			NO ACTION

EXISTING RUNWAY 9 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	EXST PART 77 SURFACE ELEVATION	EXST PART 77 PENETRATION	EXST TSS SURFACE ELEVATION	EXST TSS PENETRATION	DISPOSITION
919	SIGN	1132.8'	1113.1'	19.7'			NO ACTION
921	SIGN	1160.2'	1129.6'	30.6'			NO ACTION
947	POLE	1135.9'	1130.5'	5.4'			NO ACTION
948	POLE	1148.5'	1136.4'	12.1'			NO ACTION
949	POLE	1138.8'	1133.9'	4.9'			NO ACTION
950	POLE	1164.2'	1142.9'	21.3'			NO ACTION
951	POLE	1166.4'	1140.0'	26.4'			NO ACTION
952	POLE	1159.8'	1134.6'	25.2'			NO ACTION
953	POLE	1154.2'	1131.5'	22.7'			NO ACTION
954	POLE	1160.4'	1128.6'	31.8'			NO ACTION
955	POLE	1165.7'	1124.6'	41.1'			NO ACTION
956	POLE	1179.9'	1121.1'	58.8'			NO ACTION
957	POLE	1165.6'	1126.5'	39.1'			NO ACTION
958	POLE	1158.6'	1124.1'	34.4'			NO ACTION
959	POLE	1169.2'	1115.2'	54.0'			NO ACTION
960	POLE	1156.2'	1111.1'	45.0'			NO ACTION
961	POLE	1155.0'	1105.4'	49.5'			NO ACTION
962	POLE	1147.1'	1102.7'	44.3'			NO ACTION
963	POLE	1115.2'	1095.9'	19.3'			NO ACTION
964	POLE	1096.0'	1089.5'	6.5'			NO ACTION
965	POLE	1092.6'	1085.9'	6.6'			NO ACTION
966	POLE	1091.1'	1087.5'	3.6'			NO ACTION
967	POLE	1100.3'	1082.8'	17.5'			NO ACTION
970	POLE	1175.3'	1144.6'	30.6'			NO ACTION
971	POLE	1167.3'	1142.5'	24.7'			NO ACTION
972	POLE	1129.5'	1110.9'	18.6'			NO ACTION
974	POLE	1130.4'	1108.2'	22.1'			NO ACTION
975	POLE	1124.7'	1106.2'	18.5'			NO ACTION
976	POLE	1133.3'	1103.6'	29.7'			NO ACTION
977	POLE	1132.2'	1105.4'	26.8'			NO ACTION
978	POLE	1129.7'	1100.7'	29.0'			NO ACTION
979	POLE	1130.4'	1102.5'	27.9'			NO ACTION
980	POLE	1131.5'	1101.4'	30.1'			NO ACTION
981	POLE	1138.1'	1098.8'	39.3'			NO ACTION
982	POLE	1135.7'	1093.7'	42.0'			NO ACTION
983	POLE	1090.5'	1083.1'	7.3'			NO ACTION
986	POLE	1080.8'	1076.2'	4.6'			NO ACTION
993	POLE	1081.5'	1063.6'	17.9'			NO ACTION
994	POLE	1081.9'	1064.6'	17.3'			NO ACTION
995	POLE	1080.2'	1068.0'	12.2'			NO ACTION
996	POLE	1080.3'	1060.6'	19.6'			NO ACTION
997	POLE	1089.3'	1067.1'	22.2'			NO ACTION
998	POLE	1099.1'	1069.1'	30.0'			NO ACTION
999	POLE	1098.1'	1072.9'	25.3'			NO ACTION
1000	POLE	1072.6'	1056.1'	16.5'			NO ACTION
1001	POLE	1079.8'	1052.0'	27.8'	1068.7'	11.2'	LOWER / RELOCATE
1002	POLE	1081.7'	1051.0'	30.7'			NO ACTION
1145	SIGN	1070.3'	1053.8'	16.5'			NO ACTION
1146	POLE	1160.6'	1108.3'	52.3'			NO ACTION
1148	ROADWAY	1116.8'	1102.8'	14.0'			NO ACTION
1149	ROADWAY	1138.6'	1111.8'	26.8'			NO ACTION
1162	ROADWAY	1064.0'	1060.4'	3.6'			NO ACTION
1163	ROADWAY	1073.5'	1068.7'	4.9'			NO ACTION
1166	ROADWAY	1144.4'	1121.6'	22.8'			NO ACTION

ULTIMATE RUNWAY 9 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	ULT PART 77 SURFACE ELEVATION	ULT PART 77 PENETRATION	ULT TSS SURFACE ELEVATION	ULT TSS PENETRATION	DISPOSITION
297	TREE	1048.7'	1039.9'	8.7'	1048.7'	0.0'	TRIM / REMOVE
299	TREE	1069.8'	1046.2'	23.6'			NO ACTION
300	TREE	1069.9'	1049.2'	20.8'			NO ACTION
301	TREE	1062.4'	1056.7'	5.7'			NO ACTION
302	TREE	1063.3'	1054.7'	8.6'			NO ACTION
304	TREE	1067.5'	1058.4'	9.1'			NO ACTION
305	TREE	1106.5'	1060.0'	46.6'			NO ACTION
307	TREE	1111.8'	1062.1'	49.7'	1086.3'	25.5'	TRIM / REMOVE
308	TREE	1100.0'	1066.4'	33.6'	1093.6'	6.4'	TRIM / REMOVE
310	TREE	1084.0'	1068.1'	16.0'			NO ACTION
311	TREE	1076.5'	1068.9'	7.6'			NO ACTION
312	TREE	1078.0'	1072.3'	5.8'			NO ACTION
313	TREE	1088.8'	1069.9'	18.8'			NO ACTION
314	TREE	1100.2'	1081.3'	18.9'			NO ACTION
315	TREE	1067.1'	1076.8'	-9.7'			NO ACTION
316	TREE	1082.3'	1077.1'	5.2'			NO ACTION
317	TREE	1097.0'	1074.9'	22.1'			NO ACTION
318	TREE	1079.4'	1077.6'	1.8'			NO ACTION
319	TREE	1096.3'	1083.3'	13.0'			NO ACTION
320	TREE	1093.5'	1084.0'	9.5'			NO ACTION
321	TREE	1096.9'	1071.6'	25.3'			NO ACTION
322	TREE	1136.1'	1091.3'	44.7'	1136.1'	0.0'	TRIM / REMOVE
323	TREE	1125.3'	1091.9'	33.5'			NO ACTION
324	TREE	1090.7'	1090.0'	0.7'			NO ACTION
325	TREE	1115.7'	1089.6'	26.1'			NO ACTION
326	TREE	1108.8'	1089.6'	19.2'			NO ACTION
327	TREE	1113.4'	1088.9'	24.5'			NO ACTION
328	TREE	1098.3'	1092.5'	5.8'			NO ACTION
329	TREE	1096.3'	1095.9'	0.4'			NO ACTION
330	TREE	1128.5'	1093.9'	34.7'			NO ACTION
331	TREE	1096.5'	1094.0'	2.5'			NO ACTION
332	TREE	1110.3'	1094.8'	15.4'			NO ACTION
333	TREE	1145.3'	1095.0'	50.3'	1142.3'	3.0'	TRIM / REMOVE
335	TREE	1131.0'	1100.5'	30.5'			NO ACTION
336	UNK	1116.2'	1101.7'	14.5'			NO ACTION
338	TREE	1105.3'	1103.2'	2.1'			NO ACTION
341	TREE	1137.0'	1108.0'	29.0'			NO ACTION
342	TREE	1138.4'	1105.5'	32.9'			NO ACTION
343	TREE	1122.7'	1103.6'	19.2'			NO ACTION
346	TREE	1113.3'	1112.9'	0.4'			NO ACTION
347	TREE	1136.7'	1112.8'	23.9'			NO ACTION
350	TREE	1135.3'	1117.2'	18.0'			NO ACTION
351	TREE	1139.5'	1120.4'	19.1'			NO ACTION
352	TREE	1210.8'	1127.6'	83.3'	1197.7'	13.2'	TRIM / REMOVE
353	TREE	1173.9'	1127.6'	46.4'			NO ACTION
356	UNK	1195.9'	1130.1'	65.8'	1202.0'	-6.1'	TRIM / REMOVE
357	UNK	1185.9'	1136.2'	49.7'			NO ACTION
359	UNK	1207.5'	1136.0'	71.5'	1212.0'	-4.5'	TRIM / REMOVE
360	UNK	1205.2'	1132.5'	72.7'	1206.0'	-0.8'	TRIM / REMOVE
361	UNK	1220.9'	1136.2'	84.6'	1212.4'	8.5'	TRIM / REMOVE
362	UNK	1151.4'	1138.8'	12.6'			NO ACTION
364	UNK	1197.0'	1145.2'	51.8'			NO ACTION
365	UNK	1218.4'	1145.3'	73.1'	1227.8'	-9.4'	TRIM / REMOVE
366	UNK	1201.3'	1144.3'	57.0'			NO ACTION
367	UNK	1205.7'	1142.0'	63.8'			NO ACTION
368	UNK	1227.5'	1142.2'	85.3'	1222.5'	5.0'	TRIM / REMOVE
369	UNK	1213.0'	1143.6'	69.3'			NO ACTION
370	UNK	1204.9'	1142.4'	62.5'			NO ACTION
371	UNK	1206.8'	1141.0'	65.8'			NO ACTION
372	UNK	1187.6'	1142.2'	45.5'			NO ACTION
374	UNK	1182.2'	1148.8'	33.3'			NO ACTION
375	UNK	1170.2'	1148.8'	21.5'			NO ACTION
376	UNK	1189.6'	1148.1'	41.5'			NO ACTION
377	UNK	1189.7'	1148.5'	41.3'			NO ACTION
378	UNK	1223.5'	1146.8'	76.7'	1230.4'	-6.9'	TRIM / REMOVE
379	UNK	1214.9'	1147.7'	67.2'			NO ACTION
380	UNK	1206.3'	1146.6'	59.7'			NO ACTION
381	UNK	1218.0'	1148.9'	69.2'			NO ACTION
384	UNK	1162.7'	1153.3'	9.4'			NO ACTION
385	UNK	1219.1'	1155.0'	64.1'			NO ACTION
386	UNK	1203.8'	1153.9'	49.9'			NO ACTION
387	UNK	1197.1'	1156.1'	41.0'			NO ACTION
388	UNK	1195.0'	1155.1'	39.9'			NO ACTION
389	UNK	1183.4'	1156.7'	26.8'			NO ACTION
390	UNK	1176.7'	1156.4'	20.4'			NO ACTION
391	UNK	1169.9'	1152.4'	17.5'			NO ACTION
392	UNK	1184.7'	1155.0'	29.6'			NO ACTION
394	UNK	1164.8'	1162.6'	2.2'			NO ACTION

ULTIMATE RUNWAY 9 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	ULT PART 77 SURFACE ELEVATION	ULT PART 77 PENETRATION	ULT TSS SURFACE ELEVATION	ULT TSS PENETRATION	DISPOSITION
395	UNK	1186.4'	1159.9'	26.5'			NO ACTION
396	UNK	1175.7'	1158.5'	17.2'			NO ACTION
397	UNK	1171.3'	1160.8'	10.5'			NO ACTION
398	UNK	1190.6'	1160.6'	30.1'			NO ACTION
399	UNK	1187.8'	1158.7'	29.1'			NO ACTION
400	UNK	1201.2'	1159.8'	41.4'			NO ACTION
401	UNK	1188.7'	1161.3'	27.4'			NO ACTION
402	UNK	1205.9'	1161.4'	44.5'			NO ACTION
403	UNK	1204.9'	1161.1'	43.8'			NO ACTION
404	UNK	1203.5'	1158.5'	45.0'			NO ACTION
405	UNK	1192.0'	1157.5'	34.5'			NO ACTION
408	UNK	1192.2'	1161.0'	31.2'			NO ACTION
411	UNK	1188.9'	1166.3'	22.6'			NO ACTION
412	UNK	1196.8'	1166.2'	30.5'			NO ACTION
413	UNK	1163.4'	1167.3'	-4.0'			NO ACTION
414	UNK	1205.2'	1168.3'	36.9'			NO ACTION
416	UNK	1179.6'	1165.7'	13.9'			NO ACTION
417	UNK	1158.8'	1167.1'	-8.3'			NO ACTION
418	UNK	1176.7'	1168.9'	7.8'			NO ACTION
419	UNK	1175.5'	1166.4'	9.1'			NO ACTION
420	UNK	1158.3'	1167.5'	-9.2'			NO ACTION
422	UNK	1168.3'	1167.3'	1.0'			NO ACTION
426	UNK	1164.6'	1170.5'	-5.9'			NO ACTION
427	UNK	1162.2'	1172.1'	-9.9'			NO ACTION
428	UNK	1178.5'	1171.8'	6.7'			NO ACTION
429	UNK	1191.5'	1170.8'	20.7'			NO ACTION
430	UNK	1210.8'	1171.8'	39.0'			NO ACTION
431	UNK	1208.2'	1172.2'	36.0'			NO ACTION
432	UNK	1179.7'	1171.9'	7.9'			NO ACTION
433	UNK	1178.5'	1172.2'	6.3'			NO ACTION
434	UNK	1187.6'	1170.6'	17.0'			NO ACTION
435	UNK	1195.5'	1169.9'	25.6'			NO ACTION
438	UNK	1191.0'	1176.2'	14.7'			NO ACTION
439	UNK	1191.0'	1177.2'	13.8'			NO ACTION
441	UNK	1176.2'	1178.0'	-1.8'			NO ACTION
443	UNK	1194.3'	1176.3'	18.0'			NO ACTION
444	UNK	1194.5'	1178.0'	16.5'			NO ACTION
445	UNK	1182.4'	1178.6'	3.8'			NO ACTION
446	UNK	1188.2'	1179.9'	8.3'			NO ACTION
459	UNK	1190.1'	1182.4'	7.7'			NO ACTION
461	UNK	1174.3'	1183.5'	-9.2'			NO ACTION
473	UNK	1189.7'	1187.8'	2.0'			NO ACTION
762	BUILDING	1147.0'	1147.0'	0.0'			NO ACTION
763	BUILDING	1147.1'	1143.4'	3.7'			NO ACTION
764	BUILDING	1147.8'	1142.1'	5.7'			NO ACTION
769	BUILDING	1145.0'	1124.7'	20.3'			NO ACTION
770	BUILDING	1138.9'	1124.7'	14.2'			NO ACTION
771	BUILDING	1149.8'	1127.3'	22.5'			NO ACTION
772	BUILDING	1156.1'	1130.8'	25.3'			NO ACTION
776	BUILDING	1147.3'	1114.0'	33.3'			NO ACTION
783	BUILDING	1135.9'	1097.4'	38.5'			NO ACTION
785	BUILDING	1074.8'	1072.4'	2.4'			NO ACTION
792	BUILDING	1064.8'	1060.8'	4.0'			NO ACTION
794	BUILDING	1058.4'	1057.1'	1.3'			NO ACTION
798	BUILDING	1066.2'	1054.7'	11.5'			NO ACTION
799	BUILDING	1057.4'	1050.4'	7.0'			NO ACTION
802	BUILDING	1046.1'	1038.5'	7.6'			NO ACTION
906	SIGN	1067.0'	1060.8'	6.2'			NO ACTION
907	SIGN	1070.9'	1063.4'	7.4'			NO ACTION
908	SIGN	1069.1'	1065.8'	3.3'			NO ACTION
909	SIGN	1074.7'	1058.1'	16.6'			NO ACTION
910	SIGN	1093.2'	1074.7'	18.6'			NO ACTION
912	SIGN	1085.1'	1079.8'	5.4'			NO ACTION
913	SIGN	1110.6'	1095.1'	15.5'			NO ACTION
914	SIGN	1105.3'	1097.1'	8.3'			NO ACTION
915	SIGN	1098.1'	1087.4'	10.7'			NO ACTION
916	SIGN	1136.8'	1099.5'	37.3'			NO ACTION
917	SIGN	1164.1'	1097.7'	66.4'	1146.9'	17.2'	LOWER / RELOCATE
918	SIGN	1139.1'	1105.6'	33.5'			NO ACTION
919	SIGN	1132.8'	1111.0'	21.8'			NO ACTION
921	SIGN	1160.2'	1127.5'	32.7'			NO ACTION
947	POLE	1135.9'	1128.4'	7.5'			NO ACTION
948	POLE	1148.5'	1134.3'	14.3'			NO ACTION
949	POLE	1138.8'	1131.7'	7.1'			NO ACTION
950	POLE	1164.2'	1140.8'	23.4'			NO ACTION
951	POLE	1166.4'	1137.9'	28.6'			NO ACTION
952	POLE	1159.8'	1132.5'	27.3'			NO ACTION
953	POLE	1154.2'	1129.4'	24.8'			NO ACTION
954	POLE	1160.4'	1126.5'	33.9'			NO ACTION
955	POLE	1165.7'	1122.5'	43.2'			NO ACTION
956	POLE	1179.9'	1119.0'	60.9'			NO ACTION
957	POLE	1165.6'	1124.4'	41.2'			NO ACTION
958	POLE	1158.6'	1122.0'	36.6'			NO ACTION
959	POLE	1169.2'	1113.0'	56.2'			NO ACTION
960	POLE	1156.2'	1109.0'	47.2'			NO ACTION
961	POLE	1155.0'	1103.3'	51.6'			NO ACTION
962	POLE	1147.1'	1100.6'	46.5'			NO ACTION
963	POLE	1115.2'	1093.7'	21.4'			NO ACTION
964	POLE	1096.0'	1087.4'	8.6'			NO ACTION
965	POLE	1092.6'	1083.8'	8.8'			NO ACTION
966	POLE	1091.1'	1085.4'	5.7'			NO ACTION
967	POLE	1100.3'	1080.7'	19.6'			NO ACTION
970	POLE	1175.3'	1142.5'	32.8'			NO ACTION
971	POLE	1167.3'	1140.4'	26.9'			NO ACTION
972	POLE	1129.5'	1108.8'	20.7'			NO ACTION
974	POLE	1130.4'	1106.1'	24.3'			NO ACTION
975	POLE	1124.7'	1104.1'	20.7'			NO ACTION
976	POLE	1133.3'	1101.5'	31.8'			NO ACTION
977	POLE	1132.2'	1103.3'	28.9'			NO ACTION
978	POLE	1129.7'	1098.6'	31.2'			NO ACTION
979	POLE	1130.4'	1100.4'	30.1'			NO ACTION
980	POLE	1131.5'	1099.3'	32.2'			NO ACTION
981	POLE	1138.1'	1096.6'	41.4'			NO ACTION
982	POLE	1135.7'	1091.6'	44.1'			NO ACTION
983	POLE	1090.5'	1081.0'	9.4'			NO ACTION
985	POLE	1079.0'	1077.2'	1.8'			NO ACTION
986	POLE	1080.8'	1074.0'	6.7'			NO ACTION
993	POLE	1081.5'	1061.5'	20.0'			NO ACTION
994	POLE	1081.9'	1062.5'	19.5'			NO ACTION
995	POLE	1080.2'	1065.8'	14.4'			NO ACTION
996	POLE	1080.3'	1058.5'	21.8'	1080.2'	0.0'	LOWER / RELOCATE
997	POLE	1089.3'	1065.0'	24.3'			NO ACTION
998	POLE	1099.1'	1066.9'	32.2'			NO ACTION
999	POLE	1098.1'	1070.7'	27.4'			NO ACTION
1000	POLE	1072.6'	1053.9'	18.7'	1072.5'	0.1'	LOWER / RELOCATE
1001	POLE	1079.8'	1049.9'	29.9'			NO ACTION
1002	POLE	1081.7'	1048.8'	32.8'			NO ACTION
1145	SIGN	1070.3'	1051.6'	18.7'	1068.6'	1.7'	LOWER / RELOCATE
1146	POLE	1160.6'	1106.2'	54.4'			NO ACTION
1148	ROADWAY	1116.8'	1100.7'	16.1'			NO ACTION
1149	ROADWAY	1138.6'	1109.7'	29.0'			NO ACTION
1162	ROADWAY	1064.0'	1058.3'	5.7'			NO ACTION
1163	ROADWAY	1073.5'	1066.5'	7.0'			NO ACTION
1166	ROADWAY	1144.4'	1119.4'	25.0'			NO ACTION

EXISTING RUNWAY 27 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	EXST PART 77 SURFACE ELEVATION	EXST PART 77 PENETRATION	EXST TSS SURFACE ELEVATION	EXST TSS PENETRATION	DISPOSITION
124	TREE	1107.3'	1109.8'	-2.5'			NO ACTION
146	TREE	1116.8'	1104.4'	12.3'			NO ACTION
147	TREE	1110.1'	1104.1'	6.0'			NO ACTION
148	TREE	1121.9'	1103.9'	18.0'			NO ACTION
149	TREE	1104.2'	1102.7'	1.4'			NO ACTION
150	TREE	1101.3'	1101.6'	-0.3'			NO ACTION
151	TREE	1103.1'	1100.2'	2.9'			NO ACTION
159	TREE	1093.4'	1100.2'	-6.8'			NO ACTION
162	TREE	1102.6'	1102.3'	0.2'			NO ACTION
163	TREE	1101.2'	1101.8'	-0.6'			NO ACTION
164	TREE	1096.2'	1102.6'	-6.3'			NO ACTION
165	TREE	1094.5'	1103.2'	-8.8'			NO ACTION
177	TREE	1090.3'	1095.2'	-4.9'			NO ACTION
178	TREE	1095.4'	1095.4'	0.0'			NO ACTION
231	TREE	1066.0'	1070.4'	-4.4'			NO ACTION
247	TREE	1048.5'	1058.2'	-9.7'			NO ACTION
254	TREE	1046.0'	1055.5'	-9.5'			NO ACTION
256	TREE	1053.9'	1054.3'	-0.4'			NO ACTION
260	TREE	1057.6'	1049.2'	8.4'			NO ACTION
261	TREE	1051.1'	1051.2'	-0.1'			NO ACTION
264	TREE	1048.0'	1050.7'	-2.7'			NO ACTION
265	TREE	1050.4'	1048.3'	2.1'			NO ACTION
274	TREE	1047.8'	1029.4'	18.4'			NO ACTION
283	TREE	1041.1'	1026.8'	14.3'			NO ACTION
284	TREE	1041.1'	1026.5'	14.6'			NO ACTION
285	TREE	1036.2'	1023.4'	12.8'			NO ACTION
897	SIGN	1120.1'	1119.3'	0.8'			NO ACTION

ULTIMATE RUNWAY 27 OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	ULT PART 77 SURFACE ELEVATION	ULT PART 77 PENETRATION	ULT TSS SURFACE ELEVATION	ULT TSS PENETRATION	DISPOSITION
118	TREE	1102.4'	1092.0'	10.4'			NO ACTION
119	TREE	1092.6'	1094.9'	-2.3'			NO ACTION
120	TREE	1094.7'	1087.8'	6.9'			NO ACTION
121	TREE	1099.1'	1089.8'	9.2'			NO ACTION
122	TREE	1101.5'	1089.8'	11.7'			NO ACTION
123	TREE	1094.7'	1088.2'	6.5'			NO ACTION
124	TREE	1107.3'	1085.7'	21.6'			NO ACTION
139	TREE	1088.2'	1083.5'	4.6'			NO ACTION
140	TREE	1094.7'	1084.8'	9.9'			NO ACTION
141	TREE	1080.8'	1086.6'	-5.8'			NO ACTION
142	TREE	1089.2'	1086.8'	2.4'			NO ACTION
145	TREE	1091.3'	1080.6'	10.7'			NO ACTION
146	TREE	1116.8'	1080.3'	36.5'			NO ACTION
147	TREE	1110.1'	1080.0'	30.1'			NO ACTION
148	TREE	1121.9'	1079.7'	42.1'			NO ACTION
149	TREE	1104.2'	1078.6'	25.5'			NO ACTION
150	TREE	1101.3'	1077.5'	23.8'			NO ACTION
151	TREE	1103.1'	1076.1'	27.0'			NO ACTION
152	TREE	1081.0'	1081.3'	-0.4'			NO ACTION
153	TREE	1084.7'	1082.3'	2.4'			NO ACTION
154	TREE	1081.8'	1081.1'	0.7'			NO ACTION
157	TREE	1084.5'	1074.1'	10.4'			NO ACTION
158	TREE	1070.6'	1074.0'	-3.4'			NO ACTION
159	TREE	1093.4'	1076.1'	17.3'			NO ACTION
160	TREE	1082.4'	1074.4'	8.0'			NO ACTION
161	TREE	1086.1'	1076.5'	9.6'			NO ACTION
162	TREE	1102.6'	1078.2'	24.3'			NO ACTION
163	TREE	1101.2'	1077.7'	23.5'			NO ACTION
164	TREE	1096.2'	1078.5'	17.8'			NO ACTION
165	TREE	1094.5'	1079.1'	15.4'			NO ACTION
167	TREE	1079.6'	1075.5'	4.1'			NO ACTION
173	TREE	1074.3'	1069.8'	4.5'			NO ACTION
174	TREE	1065.3'	1070.4'	-5.0'			NO ACTION
175	TREE	1081.5'	1071.0'	10.5'			NO ACTION
176	TREE	1082.2'	1071.1'	11.1'			NO ACTION
177	TREE	1090.3'	1071.1'	19.2'			NO ACTION
178	TREE	1095.4'	1071.2'	24.1'			NO ACTION
179	TREE	1072.0'	1071.0'	1.0'			NO ACTION
180	TREE	1073.4'	1070.8'	2.6'			NO ACTION
213	TREE	1056.9'	1052.4'	4.5'			NO ACTION
224	TREE	1038.7'	1047.7'	-9.0'			NO ACTION
225	TREE	1060.3'	1050.9'	9.3'			NO ACTION
226	TREE	1057.1'	1048.2'	8.9'			NO ACTION
227	TREE	1047.1'	1047.4'	-0.3'			NO ACTION
231	TREE	1066.0'	1046.3'	19.7'			NO ACTION
232	TREE	1040.8'	1046.1'	-5.3'			NO ACTION
233	TREE	1042.0'	1046.3'	-4.3'			NO ACTION
234	TREE	1036.4'	1046.1'	-9.7'			NO ACTION
239	TREE	1037.4'	1042.2'	-4.7'			NO ACTION
241	TREE	1050.8'	1042.3'	8.5'			NO ACTION
242	TREE	1039.2'	1042.9'	-3.7'			NO ACTION
245	TREE	1032.0'	1034.6'	-2.7'			NO ACTION
246	TREE	1034.1'	1034.5'	-0.4'			NO ACTION
247	TREE	1048.5'	1034.1'	14.4'			NO ACTION
248	TREE	1039.9'	1037.3'	2.6'			NO ACTION
249	TREE	1035.5'	1038.0'	-2.5'			NO ACTION
250	TREE	1040.4'	1036.6'	3.8'			NO ACTION
254	TREE	1046.0'	1031.4'	14.6'			NO ACTION
255	TREE	1043.2'	1033.4'	9.8'			NO ACTION
256	TREE	1053.9'	1030.2'	23.7'			NO ACTION
257	TREE	1036.0'	1029.7'	6.4'			NO ACTION
258	TREE	1039.5'	1027.9'	11.6'			NO ACTION
260	TREE	1057.6'	1025.1'	32.5'			NO ACTION
261	TREE	1051.1'	1027.1'	24.0'	1060.4'	-9.3'	TRIM / REMOVE
262	TREE	1036.2'	1022.7'	13.5'			NO ACTION
263	TREE	1029.3'	1024.3'	5.0'			NO ACTION
264	TREE	1048.0'	1026.5'	21.4'			NO ACTION
265	TREE	1050.4'	1024.2'	26.2'	1053.3'	-2.9'	TRIM / REMOVE
268	TREE	1012.2'	1021.1'	-8.9'			NO ACTION
274	TREE	1047.8'	1005.3'	42.5'			NO ACTION
275	TREE	1008.1'	1005.6'	2.6'	1006.6'	1.5'	TRIM / REMOVE
276	TREE	1007.4'	1007.7'	-0.2'	1011.8'	-4.4'	TRIM / REMOVE
277	TREE	1019.2'	1010.1'	9.1'			NO ACTION
279	TREE	1014.5'	1002.0'	12.4'	997.8'	16.7'	TRIM / REMOVE
283	TREE	1041.1'	1002.7'	38.5'	999.4'	41.8'	TRIM / REMOVE
284	TREE	1041.1'	1002.4'	38.8'			NO ACTION
285	TREE	1036.2'	999.3'	36.9'	990.9'	45.3'	TRIM / REMOVE
897	SIGN	1120.1'	1095.2'	24.9'			NO ACTION
899	SIGN	1097.7'	1084.4'	13.3'			NO ACTION
1028	POLE	1016.1'	1007.4'	8.7'	1011.3'	4.8'	LOWER / RELOCATE
1029	POLE	1016.5'	1007.9'	8.6'	1012.3'	4.1'	LOWER / RELOCATE
1030	POLE	1016.6'	1008.3'	8.4'	1013.4'	3.3'	LOWER / RELOCATE
1031	POLE	1018.9'	1008.9'	10.0'	1015.0'	3.9'	LOWER / RELOCATE
1032	POLE	1019.1'	1009.3'	9.7'	1016.1'	3.0'	LOWER / RELOCATE
1033	POLE	1021.0'	1009.8'	11.3'	1017.1'	3.9'	LOWER / RELOCATE
1034	POLE	1046.1'	1031.1'	14.9'			NO ACTION
1035	POLE	1047.8'	1029.0'	18.8'			NO ACTION
1036	POLE	1037.5'	1025.0'	12.5'			NO ACTION
1037	POLE	1037.6'	1026.2'	11.4'			NO ACTION
1038	POLE	1036.1'	1026.0'	10.1'			NO ACTION
1039	POLE	1033.4'	1025.9'	7.5'			NO ACTION
1040	POLE	1027.1'	1025.7'	1.4'			NO ACTION
1041	POLE	1030.5'	1028.2'	2.3'			NO ACTION
1059	POLE	1082.8'	1072.3'	10.5'			NO ACTION

COBB COUNTY · STATE OF GEORGIA · 1832

COBB COUNTY INTERNATIONAL AIRPORT McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. COORDINATES SHOWN HEREON ARE IN NAD83.
2. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
3. AERIAL PHOTO AND OBSTRUCTION MAPPING FLOWN ON JUNE 22, 2015 BY QUANTUM SPATIAL.
4. BASED ON GENERAL PART 77 SURVEY FOR PLANNING PURPOSES ONLY. SURVEY BASE IS NOT A DETAILED OBSTRUCTION ANALYSIS COVERING ALL INDIVIDUAL OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".
6. ROAD / RAILROAD ELEVATIONS SHOWN, ACCOUNT FOR VEHICLES HEIGHTS OF 23' ON RAILROADS, 17' ON INTERSTATE HIGHWAYS AND 15' ON ALL OTHER PUBLIC ROADS.
7. REFER TO THE AIRPORT AIRSPACE DRAWINGS FOR FURTHER OUT OBSTRUCTIONS.

REVISIONS

No.	Description	Date	By

Project Name: **AIRPORT MASTER PLAN UPDATE**

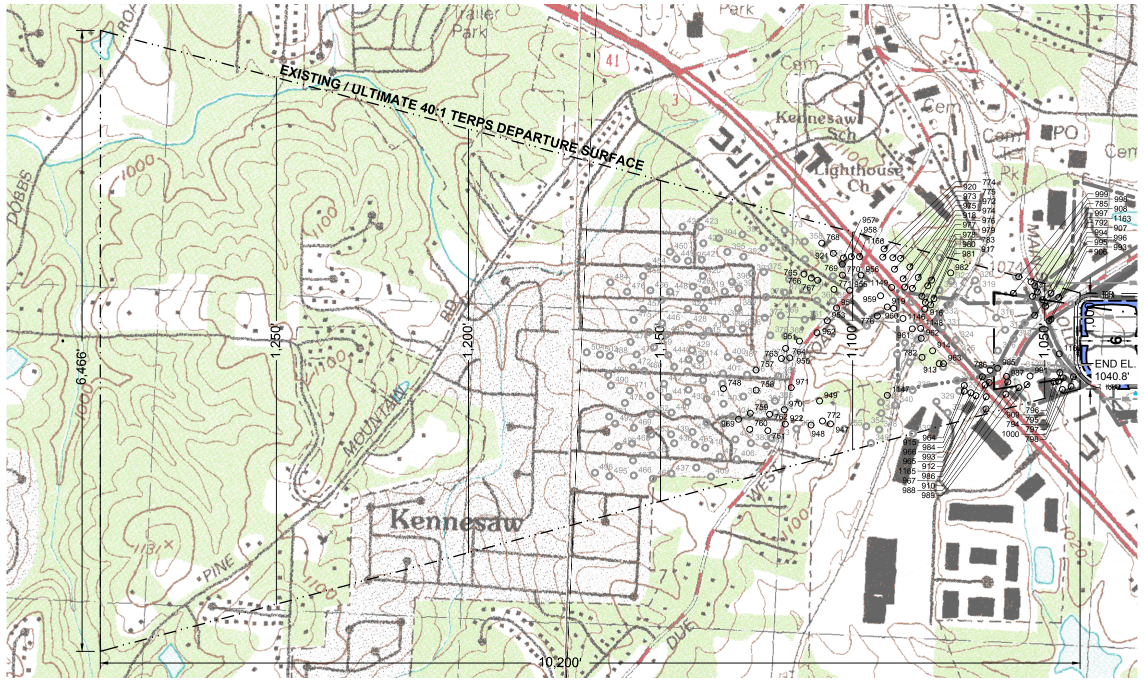
Drawing Name: **INNER PORTION OF THE APPROACH SURFACE DRAW OBSTRUCTION DATA (1 OF 2)**

FAA AIP# / STATE GRANT #

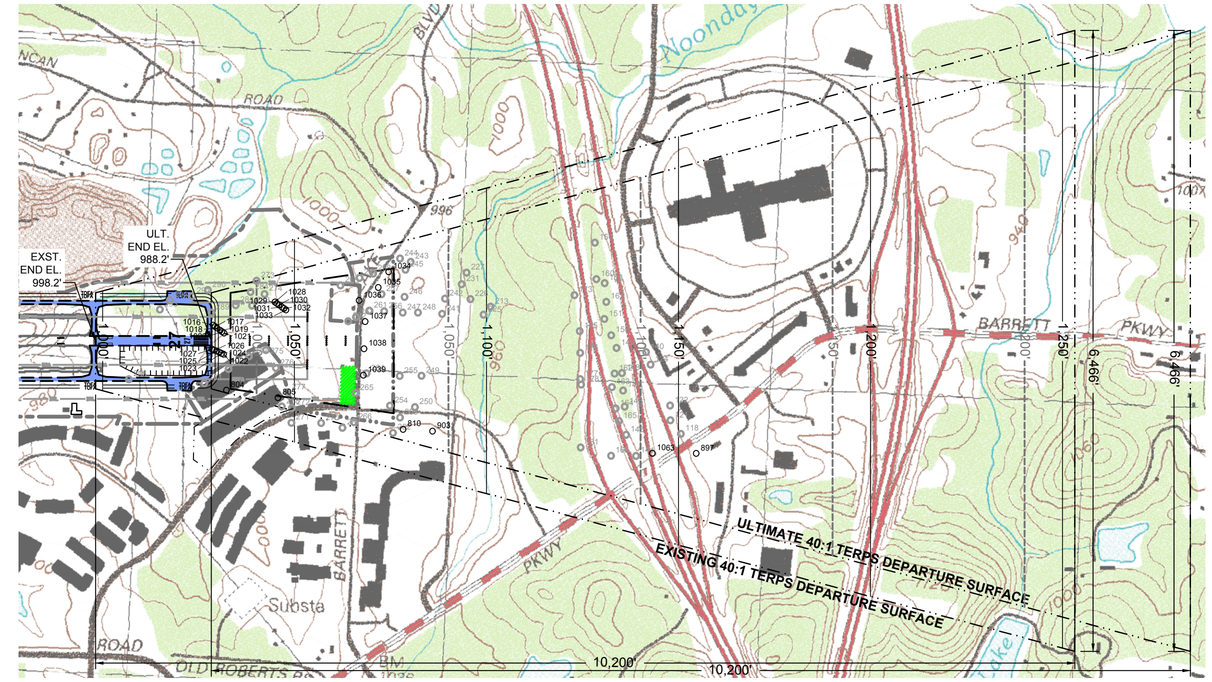
Autocad Drawing Reference:
Y:\Planning\RYY - Cobb Co. Apt\2018 Approved ALP\RYY ALP 07-09 - Inner Portion.dwg Last Modified: Mar 15, 2018 - 9:34am by Folashade.Shelton

Date: **MARCH 2018** | Division: **PLANNING**

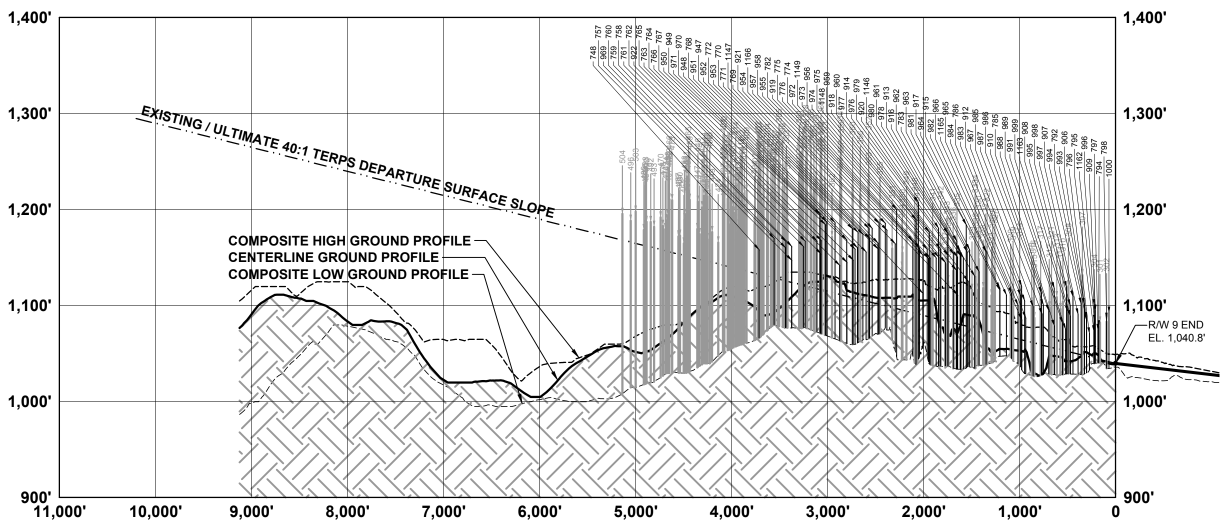
Scale: **N/A** | Drawing Number: **9**



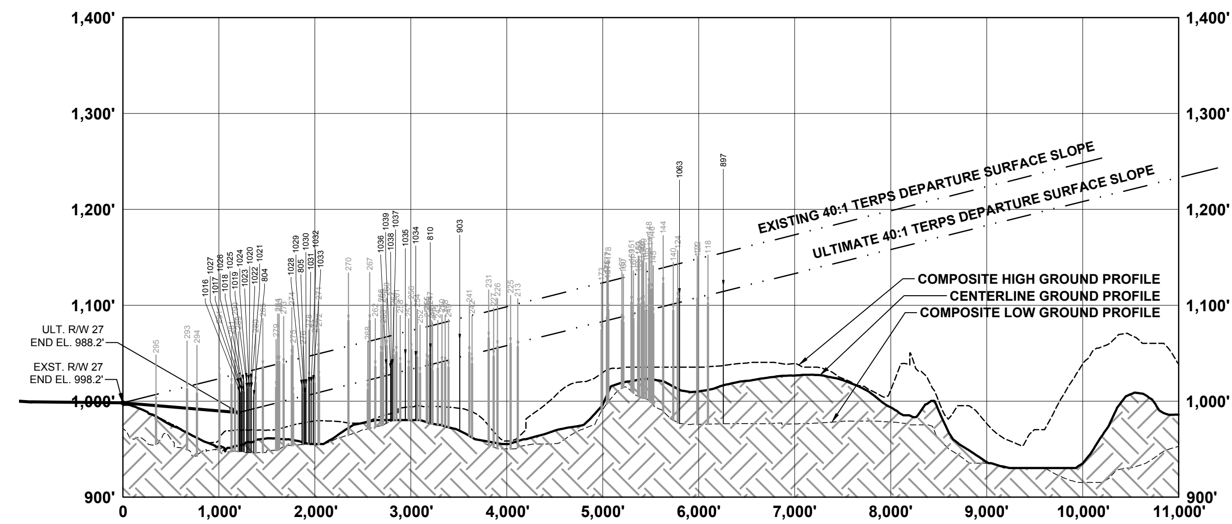
PLAN VIEW RUNWAY 27 DEPARTURE SURFACE



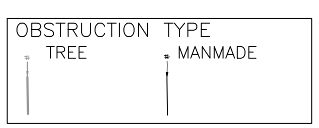
PLAN VIEW RUNWAY 9 DEPARTURE SURFACE



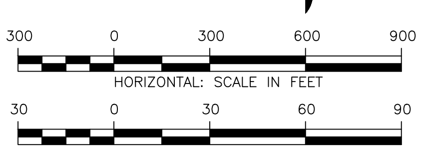
PROFILE VIEW RUNWAY 27 DEPARTURE SURFACE



PROFILE VIEW RUNWAY 9 DEPARTURE SURFACE



MAGNETIC DECLINATION
4° 09' WEST (2008)
ANNUAL RATE OF CHANGE
5' WEST



COBB COUNTY INTERNATIONAL AIRPORT McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer: TGM	
Technician: SMS, TGM	
Checked by: JCD	
Project Number: 146975	

NOTES

1. COORDINATES SHOWN HEREON ARE IN NAD83.
2. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
3. OBSTACLES TAKEN FROM AERIAL MAPPING FLOWN JUNE 22, 2015.
4. BASED ON GENERAL PART 77 SURVEY FOR PLANNING PURPOSES ONLY. SURVEY BASE IS NOT A DETAILED OBSTRUCTION ANALYSIS COVERING ALL INDIVIDUAL OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".
6. ROAD / RAILROAD ELEVATIONS SHOWN, ACCOUNT FOR VEHICLES HEIGHTS OF 23' ON RAILROADS, 17' ON INTERSTATE HIGHWAYS AND 15' ON ALL OTHER PUBLIC ROADS.
7. REFER TO THE AIRPORT AIRSPACE DRAWINGS FOR FURTHER OUT OBSTRUCTIONS.

REVISIONS

No.	Description	Date	By

Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
DEPARTURE SURFACE DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018	Division: PLANNING
Scale: HORIZONTAL: 1" = 1,000' VERTICAL: 1" = 100'	Drawing Number: 10

EXISTING / ULTIMATE RUNWAY 27 DEPARTURE SURFACE OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	DISPOSITION
301	TREE	1062.4'	1044.8'	17.6'	TRIM / REMOVE
302	TREE	1063.3'	1043.1'	20.1'	TRIM / REMOVE
304	TREE	1067.5'	1046.3'	21.2'	TRIM / REMOVE
307	TREE	1111.8'	1049.4'	62.4'	TRIM / REMOVE
308	TREE	1100.0'	1053.1'	47.0'	TRIM / REMOVE
310	TREE	1084.0'	1054.5'	29.5'	TRIM / REMOVE
311	TREE	1076.5'	1055.2'	21.3'	TRIM / REMOVE
312	TREE	1078.0'	1058.0'	20.0'	TRIM / REMOVE
313	TREE	1088.8'	1056.1'	32.7'	TRIM / REMOVE
314	TREE	1100.2'	1065.7'	34.5'	TRIM / REMOVE
315	TREE	1067.1'	1061.9'	5.2'	TRIM / REMOVE
316	TREE	1082.3'	1062.2'	20.1'	TRIM / REMOVE
317	TREE	1097.0'	1060.3'	36.7'	TRIM / REMOVE
318	TREE	1079.4'	1062.6'	16.8'	TRIM / REMOVE
319	TREE	1096.3'	1067.4'	28.9'	TRIM / REMOVE
320	TREE	1093.5'	1068.1'	25.5'	TRIM / REMOVE
321	TREE	1096.9'	1057.5'	39.4'	TRIM / REMOVE
322	TREE	1136.1'	1074.3'	61.8'	TRIM / REMOVE
323	TREE	1125.3'	1074.7'	50.6'	TRIM / REMOVE
324	TREE	1090.7'	1073.1'	17.6'	TRIM / REMOVE
325	TREE	1115.7'	1072.8'	42.9'	TRIM / REMOVE
326	TREE	1108.8'	1072.8'	36.0'	TRIM / REMOVE
327	TREE	1113.4'	1072.2'	41.2'	TRIM / REMOVE
328	TREE	1098.3'	1075.2'	23.0'	TRIM / REMOVE
329	TREE	1096.3'	1078.1'	18.2'	TRIM / REMOVE
330	TREE	1128.5'	1076.4'	52.1'	TRIM / REMOVE
331	TREE	1096.5'	1076.6'	20.0'	TRIM / REMOVE
332	TREE	1110.3'	1077.2'	33.0'	TRIM / REMOVE
333	TREE	1145.3'	1077.4'	67.9'	TRIM / REMOVE
334	TREE	1150.2'	1077.3'	72.9'	TRIM / REMOVE
335	TREE	1131.0'	1082.1'	48.9'	TRIM / REMOVE
336	TREE	1116.2'	1083.1'	33.2'	TRIM / REMOVE
337	TREE	1090.4'	1085.1'	5.2'	TRIM / REMOVE
338	TREE	1105.3'	1084.4'	21.0'	TRIM / REMOVE
339	TREE	1075.1'	1084.3'	-9.2'	NO ACTION
340	TREE	1087.6'	1088.9'	-1.3'	NO ACTION
341	TREE	1137.0'	1088.4'	48.6'	TRIM / REMOVE
342	TREE	1138.4'	1086.3'	52.1'	TRIM / REMOVE
343	TREE	1122.7'	1084.7'	38.1'	TRIM / REMOVE
346	TREE	1113.3'	1092.6'	20.7'	TRIM / REMOVE
347	TREE	1136.7'	1092.5'	44.2'	TRIM / REMOVE
348	TREE	1147.2'	1093.1'	54.2'	TRIM / REMOVE
349	TREE	1153.9'	1095.2'	58.7'	TRIM / REMOVE
350	TREE	1135.3'	1096.3'	39.0'	TRIM / REMOVE
351	TREE	1139.5'	1098.9'	40.5'	TRIM / REMOVE
352	TREE	1210.8'	1105.1'	105.8'	TRIM / REMOVE
353	TREE	1173.9'	1105.1'	68.9'	TRIM / REMOVE
354	TREE	1119.6'	1096.4'	23.2'	TRIM / REMOVE
355	TREE	1163.9'	1102.1'	61.8'	TRIM / REMOVE
356	TREE	1195.9'	1107.2'	88.7'	TRIM / REMOVE
357	TREE	1185.9'	1112.4'	73.5'	TRIM / REMOVE
358	TREE	1168.8'	1112.5'	56.4'	TRIM / REMOVE
359	TREE	1207.5'	1112.2'	95.3'	TRIM / REMOVE
360	TREE	1205.2'	1109.2'	96.0'	TRIM / REMOVE
361	TREE	1220.9'	1112.4'	108.4'	TRIM / REMOVE
362	TREE	1151.4'	1114.6'	36.8'	TRIM / REMOVE
363	TREE	1191.2'	1121.1'	70.1'	TRIM / REMOVE
364	TREE	1197.0'	1120.0'	76.9'	TRIM / REMOVE
365	TREE	1218.4'	1120.1'	98.3'	TRIM / REMOVE
366	TREE	1201.3'	1119.3'	82.0'	TRIM / REMOVE
367	TREE	1205.7'	1117.3'	88.5'	TRIM / REMOVE
368	TREE	1227.5'	1117.5'	110.0'	TRIM / REMOVE
369	TREE	1213.0'	1118.7'	94.2'	TRIM / REMOVE
370	TREE	1204.9'	1117.7'	87.2'	TRIM / REMOVE
371	TREE	1206.8'	1116.5'	90.3'	TRIM / REMOVE
372	TREE	1187.6'	1117.4'	70.2'	TRIM / REMOVE
373	TREE	1188.3'	1117.7'	70.7'	TRIM / REMOVE
374	TREE	1182.2'	1123.1'	59.1'	TRIM / REMOVE
375	TREE	1170.2'	1123.1'	47.2'	TRIM / REMOVE
376	TREE	1189.6'	1122.5'	67.0'	TRIM / REMOVE
377	TREE	1189.7'	1122.8'	66.9'	TRIM / REMOVE
378	TREE	1223.5'	1121.4'	102.1'	TRIM / REMOVE
379	TREE	1214.9'	1122.2'	92.7'	TRIM / REMOVE
380	TREE	1206.3'	1121.2'	85.0'	TRIM / REMOVE
381	TREE	1218.0'	1123.2'	94.9'	TRIM / REMOVE
382	TREE	1201.0'	1122.4'	78.6'	TRIM / REMOVE
383	TREE	1196.8'	1126.5'	70.3'	TRIM / REMOVE
384	TREE	1162.7'	1126.9'	35.8'	TRIM / REMOVE
385	TREE	1219.1'	1128.4'	90.7'	TRIM / REMOVE
386	TREE	1203.8'	1127.5'	76.4'	TRIM / REMOVE
387	TREE	1197.1'	1129.3'	67.8'	TRIM / REMOVE
388	TREE	1195.0'	1128.5'	66.5'	TRIM / REMOVE
389	TREE	1183.4'	1129.8'	53.6'	TRIM / REMOVE
390	TREE	1176.7'	1129.5'	47.2'	TRIM / REMOVE
391	TREE	1169.9'	1126.2'	43.7'	TRIM / REMOVE
392	TREE	1184.7'	1128.4'	56.2'	TRIM / REMOVE
393	TREE	1166.5'	1128.7'	37.9'	TRIM / REMOVE
394	TREE	1164.8'	1134.8'	30.0'	TRIM / REMOVE
395	TREE	1186.4'	1132.6'	53.8'	TRIM / REMOVE
396	TREE	1175.7'	1131.4'	44.3'	TRIM / REMOVE
397	TREE	1171.3'	1133.3'	38.0'	TRIM / REMOVE
398	TREE	1190.6'	1133.1'	57.5'	TRIM / REMOVE
399	TREE	1187.8'	1131.5'	56.3'	TRIM / REMOVE
400	TREE	1201.2'	1132.4'	68.7'	TRIM / REMOVE
401	TREE	1188.7'	1133.7'	55.0'	TRIM / REMOVE
402	TREE	1205.9'	1133.8'	72.1'	TRIM / REMOVE
403	TREE	1204.9'	1133.6'	71.3'	TRIM / REMOVE
404	TREE	1203.5'	1131.3'	72.1'	TRIM / REMOVE
405	TREE	1192.0'	1130.5'	61.5'	TRIM / REMOVE
406	TREE	1177.3'	1130.2'	47.1'	TRIM / REMOVE
407	TREE	1172.5'	1134.6'	38.0'	TRIM / REMOVE
408	TREE	1192.2'	1133.4'	58.8'	TRIM / REMOVE
409	TREE	1199.6'	1136.8'	62.8'	TRIM / REMOVE
410	TREE	1189.0'	1138.3'	50.7'	TRIM / REMOVE
411	TREE	1188.9'	1138.0'	50.9'	TRIM / REMOVE
412	TREE	1196.8'	1137.9'	58.8'	TRIM / REMOVE
413	TREE	1163.4'	1138.9'	24.5'	TRIM / REMOVE
414	TREE	1205.2'	1139.7'	65.5'	TRIM / REMOVE
415	TREE	1152.1'	1138.9'	13.2'	TRIM / REMOVE
416	TREE	1179.6'	1137.4'	42.1'	TRIM / REMOVE
417	TREE	1158.8'	1138.7'	20.1'	TRIM / REMOVE
418	TREE	1176.7'	1140.2'	36.5'	TRIM / REMOVE
419	TREE	1175.5'	1138.1'	37.4'	TRIM / REMOVE
420	TREE	1158.3'	1139.0'	19.3'	TRIM / REMOVE
421	TREE	1156.4'	1139.3'	17.1'	TRIM / REMOVE
422	TREE	1168.3'	1138.8'	29.5'	TRIM / REMOVE
423	TREE	1142.3'	1139.6'	2.7'	TRIM / REMOVE
424	TREE	1145.6'	1144.2'	1.4'	TRIM / REMOVE
425	TREE	1140.7'	1142.8'	-2.1'	TRIM / REMOVE
426	TREE	1164.6'	1141.6'	23.1'	TRIM / REMOVE
427	TREE	1162.2'	1142.9'	19.3'	TRIM / REMOVE
428	TREE	1178.5'	1142.6'	35.9'	TRIM / REMOVE
429	TREE	1191.5'	1141.8'	49.7'	TRIM / REMOVE
430	TREE	1210.8'	1142.7'	68.2'	TRIM / REMOVE
431	TREE	1208.2'	1143.0'	65.2'	TRIM / REMOVE
432	TREE	1179.7'	1142.7'	37.0'	TRIM / REMOVE
433	TREE	1178.5'	1143.0'	35.5'	TRIM / REMOVE
434	TREE	1187.6'	1141.7'	46.0'	TRIM / REMOVE
435	TREE	1195.5'	1141.1'	54.5'	TRIM / REMOVE
436	TREE	1183.1'	1140.6'	42.4'	TRIM / REMOVE
437	TREE	1193.8'	1147.2'	46.6'	TRIM / REMOVE
438	TREE	1191.0'	1146.4'	44.6'	TRIM / REMOVE
439	TREE	1191.0'	1147.2'	43.8'	TRIM / REMOVE
440	TREE	1149.0'	1147.1'	1.9'	TRIM / REMOVE
441	TREE	1176.2'	1147.9'	28.3'	TRIM / REMOVE
442	TREE	1154.4'	1149.1'	5.4'	TRIM / REMOVE
443	TREE	1194.3'	1146.5'	47.9'	TRIM / REMOVE
444	TREE	1194.5'	1147.9'	46.5'	TRIM / REMOVE
445	TREE	1182.4'	1148.4'	33.9'	TRIM / REMOVE
446	TREE	1188.2'	1149.5'	38.6'	TRIM / REMOVE

EXISTING / ULTIMATE RUNWAY 27 DEPARTURE SURFACE OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	DISPOSITION
447	TREE	1159.7'	1149.7'	10.0'	TRIM / REMOVE
448	TREE	1161.1'	1147.5'	13.6'	TRIM / REMOVE
449	TREE	1156.5'	1145.8'	10.7'	TRIM / REMOVE
450	TREE	1150.4'	1147.5'	2.8'	TRIM / REMOVE
454	TREE	1144.8'	1153.2'	-8.5'	NO ACTION
455	TREE	1149.7'	1154.5'	-4.8'	NO ACTION
456	TREE	1165.5'	1152.6'	12.9'	TRIM / REMOVE
457	TREE	1152.0'	1154.6'	-2.6'	NO ACTION
458	TREE	1169.9'	1153.0'	16.9'	TRIM / REMOVE
459	TREE	1190.1'	1151.7'	38.4'	TRIM / REMOVE
460	TREE	1152.8'	1154.2'	-1.4'	NO ACTION
461	TREE	1174.3'	1152.6'	21.7'	TRIM / REMOVE
462	TREE	1146.2'	1152.5'	-6.3'	NO ACTION
463	TREE	1165.0'	1152.3'	12.6'	TRIM / REMOVE
464	TREE	1169.5'	1152.1'	17.4'	TRIM / REMOVE
465	TREE	1200.1'	1152.0'	48.1'	TRIM / REMOVE
466	TREE	1190.5'	1156.9'	33.5'	TRIM / REMOVE
467	TREE	1156.2'	1157.2'	-1.0'	NO ACTION
468	TREE	1173.9'	1157.3'	16.6'	TRIM / REMOVE
469	TREE	1177.8'	1157.0'	20.8'	TRIM / REMOVE
470	TREE	1171.8'	1159.2'	12.6'	TRIM / REMOVE
471	TREE	1159.5'	1158.0'	1.5'	TRIM / REMOVE
472	TREE	1174.3'	1157.1'	17.2'	TRIM / REMOVE
473	TREE	1189.7'	1156.2'	33.5'	TRIM / REMOVE
474	TREE	1168.8'	1157.8'	11.0'	TRIM / REMOVE
475	TREE	1171.6'	1157.0'	14.7'	TRIM / REMOVE
476	TREE	1163.0'	1158.6'	4.4'	TRIM / REMOVE
484	TREE	1156.0'	1163.0'	-7.0'	NO ACTION
488	TREE	1168.7'	1163.1'	5.5'	TRIM / REMOVE
489	TREE	1158.6'	1163.6'	-4.9'	NO ACTION
490	TREE	1167.3'	1162.9'	4.3'	TRIM / REMOVE
491	TREE	1155.3'	1163.3'	-8.0'	NO ACTION
492	TREE	1167.1'	1161.8'	5.3'	TRIM / REMOVE
493	TREE	1162.0'	1160.9'	1.1'	TRIM / REMOVE
495	TREE	1162.5'	1163.3'	-0.8'	NO ACTION
496	TREE	1168.3'	1167.0'	1.3'	TRIM / REMOVE
503	TREE	1177.8'	1165.7'	12.1'	TRIM / REMOVE
504	TREE	1175.5'	1169.2'	6.3'	TRIM / REMOVE
748	BUILDING	1138.2'	1133.6'	4.6'	LIGHT / MARK
757	BUILDING	1127.2'	1125.1'	2.1'	LIGHT / MARK
758	BUILDING	1141.6'	1125.1'	16.5'	LIGHT / MARK
759	BUILDING	1146.7'	1126.6'	20.1'	LIGHT / MARK
760	BUILDING	1140.2'	1126.7'	13.4'	LIGHT / MARK
761	BUILDING	1141.6'	1122.0'	19.5'	LIGHT / MARK
762	BUILDING	1147.0'	1121.6'	25.4'	LIGHT / MARK
763	BUILDING	1147.1'	1118.5'	28.6'	LIGHT / MARK
764	BUILDING	1147.8'	1117.4'	30.4'	LIGHT / MARK
765	BUILDING	1121.8'	1112.6'	9.2'	LIGHT / MARK
766	BUILDING	1125.0'	1110.7'	14.3'	LIGHT / MARK
767	BUILDING	1127.4'	1109.1'	18.3'	LIGHT / MARK
768	BUILDING	1140.1'	1108.0'	32.1'	LIGHT / MARK
769	BUILDING	1145.0'	1102.6'	42.4'	LIGHT / MARK
770	BUILDING	1138.9'	1102.6'	36.2'	LIGHT / MARK
771	BUILDING	1149.8'	1104.8'	44.9'	LIGHT / MARK
772	BUILDING	1156.1'	1107.8'	48.3'	LIGHT / MARK
774	BUILDING	1140.1'	1091.8'	48.3'	LIGHT / MARK
775	BUILDING	1129.0'	1089.5'	39.5'	LIGHT / MARK
776	BUILDING	1147.3'	1093.6'	53.7'	LIGHT / MARK
782	BUILDING	1091.1'	1081.9'	9.2'	LIGHT / MARK
783	BUILDING	1135.9'	1079.4'	56.5'	LIGHT / MARK
785	BUILDING	1074.8'	1058.2'	16.6'	LIGHT / MARK
786	BUILDING	1067.2'	1064.1'	3.1'	LIGHT / MARK
792	BUILDING	1064.8'	1048.3'	16.5'	LIGHT / MARK
794	BUILDING	1058.4'	1045.2'	13.3'	LIGHT / MARK
795	BUILDING	1053.2'	1046.4'	6.8'	LIGHT / MARK
796	BUILDING	1051.0'	1047.6'	3.5'	LIGHT / MARK
797	BUILDING	1054.6'	1045.4'	9.2'	LIGHT / MARK
798	BUILDING	1066.2'	1043.1'	23.1'	LIGHT / MARK
906	SIGN	1067.0'	1048.3'	18.7'	LOWER / LIGHT/ REMOVE
907	SIGN	1070.9'	1050.5'	20.3'	LOWER / LIGHT/ REMOVE
908	SIGN	1069.1'	1052.5'	16.6'	LOWER / LIGHT/ REMOVE
909	SIGN	1074.7'	1046.0'	28.7'	LOWER / LIGHT/ REMOVE
910	SIGN	1093.2'	1060.1'	33.1'	LOWER / LIGHT/ REMOVE
912	SIGN	1085.1'	1064.4'	20.7'	LOWER / LIGHT/ REMOVE
913	SIGN	1110.6'	1077.5'	33.2'	LOWER / LIGHT/ REMOVE
914	SIGN	1105.3'	1079.2'	26.2'	LOWER / LIGHT/ REMOVE
915	SIGN	1098.1'	1070.9'	27.2'	LOWER / LIGHT/ REMOVE
916	SIGN	1136.8'	1081.2'	55.6'	LOWER / LIGHT/ REMOVE
917	SIGN	1164.1'	1079.7'	84.4'	LOWER / LIGHT/ REMOVE
918	SIGN	1139.1'	1086.4'	52.7'	LOWER / LIGHT/ REMOVE
919	SIGN	1132.8'	1091.0'	41.8'	LOWER / LIGHT/ REMOVE
920	SIGN	1187.5'	1092.1'	95.4'	LOWER / LIGHT/ REMOVE
921	SIGN	1160.2'	1105.0'	55.2'	LOWER / LIGHT/ REMOVE
922	SIGN	1133.9'	1117.5'	16.4'	LOWER / LIGHT/ REMOVE
947	POLE	1135.9'	1105.8'	30.1'	LOWER / LIGHT/ REMOVE
948	POLE	1148.5'	1110.8'	37.8'	LOWER / LIGHT/ REMOVE
949	POLE	1138.8'	1108.6'	30.2'	LOWER / LIGHT/ REMOVE
950	POLE	1164.2'	1116.3'	47.9'	LOWER / LIGHT/ REMOVE
951	POLE	1166.4'	1113.8'	52.6'	LOWER / LIGHT/ REMOVE
952	POLE	1159.8'	1109.2'	50.6'	LOWER / LIGHT/ REMOVE
953	POLE	1154.2'	1106.6'	47.6'	LOWER / LIGHT/ REMOVE
954	POLE	1160.4'	1104.2'	56.3'	LOWER / LIGHT/ REMOVE
955	POLE	1165.7'	1100.7'	64.9'	LOWER / LIGHT/ REMOVE
956	POLE	1179.9'	1097.8'	82.1'	LOWER / LIGHT/ REMOVE
957	POLE	1165.6'	1102.4'	63.2'	LOWER / LIGHT/ REMOVE
958	POLE	1158.6'	1100.3'	58.2'	LOWER / LIGHT/ REMOVE
959	POLE	1169.2'	1092.7'	76.5'	LOWER / LIGHT/ REMOVE
960	POLE	1156.2'	1089.3'	66.9'	LOWER / LIGHT/ REMOVE
961	POLE	1155.0'	1084.4'	70.5'	LOWER / LIGHT/ REMOVE
962	POLE	1147.1'	1082.1'	64.9'	LOWER / LIGHT/ REMOVE
963	POLE	1115.2'	1076.3'	38.8'	LOWER / LIGHT/ REMOVE
964	POLE	1096.0'	1070.9'	25.1'	LOWER / LIGHT/ REMOVE
965	POLE	1092.6'	1067.8'	24.7'	LOWER / LIGHT/ REMOVE
966	POLE	1091.1'	1069.2'	21.9'	LOWER / LIGHT/ REMOVE
967	POLE	1100.3'	1065.2'	35.1'	LOWER / LIGHT/ REMOVE
969	POLE	1150.0'	1129.7'	20.4'	LOWER / LIGHT/ REMOVE
970	POLE	1175.3'	1117.7'	57.5'	LOWER / LIGHT/ REMOVE
971	POLE	1167.3'	1116.0'	51.3'	LOWER / LIGHT/ REMOVE
972	POLE	1129.5'	1089.1'	40.4'	LOWER / LIGHT/ REMOVE
973	POLE	1129.7'	1087.5'	42.3'	LOWER / LIGHT/ REMOVE
974	POLE	1130.4'	1086.8'	43.5'	LOWER / LIGHT/ REMOVE
975	POLE	1124.7'	1085.1'	39.7'	LOWER / LIGHT/ REMOVE
976	POLE	1133.3'	1082.9'	50.4'	LOWER / LIGHT/ REMOVE
977	POLE	1132.2'	1084.4'	47.8'	LOWER / LIGHT/ REMOVE
978	POLE	1129.7'	1080.4'	49.3'	LOWER / LIGHT/ REMOVE
979	POLE	1130.4'	1082.0'	48.5'	LOWER / LIGHT/ REMOVE
980	POLE	1131.5'	1081.0'	50.5'	LOWER / LIGHT/ REMOVE
981	POLE	1138.1'	1078.8'	59.3'	LOWER / LIGHT/ REMOVE
982	POLE	1135.7'	1074.5'	61.2'	LOWER / LIGHT/ REMOVE
983	POLE	1090.5'	1065.5'	25.0'	LOWER / LIGHT/ REMOVE
984	POLE	1080.3'	1066.2'	14.2'	LOWER / LIGHT/ REMOVE
985	POLE	1079.0'	1062.2'	16.8'	LOWER / LIGHT/ REMOVE
986	POLE	1080.8'	1059.6'	21.2'	LOWER / LIGHT/ REMOVE
987	POLE	1071.3'	1059.9'	11.4'	LOWER / LIGHT/ REMOVE
988	POLE	1058.9'	1056.7'	2.2'	LOWER / LIGHT/ REMOVE
989	POLE	1061.8'	1054.6'	7.2'	LOWER / LIGHT/ REMOVE
991	POLE	1055.3'	1053.8'	1.5'	LOWER / LIGHT/ REMOVE
993	POLE	1081.5'	1048.9'	32.6'	LOWER / LIGHT/ REMOVE
994	POLE	1081.9'	1049.7'	32.2'	LOWER / LIGHT/ REMOVE
995	POLE	1080.2'	1052.6'	27.6'	LOWER / LIGHT/ REMOVE
996	POLE	1080.3'	1046.3'	33.9'	LOWER / LIGHT/ REMOVE
997	POLE	1089.3'	1051.9'	37.5'	LOWER / LIGHT/ REMOVE
998	POLE	1099.1'	1053.5'	45.6'	LOWER / LIGHT/ REMOVE
999	POLE	1098.1'	1056.8'	41.4'	LOWER / LIGHT/ REMOVE
1000	POLE	1072.6'	1042.5'	30.1'	LOWER / LIGHT/ REMOVE
1146	POLE	1160.6'	1086.9'	73.7'	LOWER / LIGHT/ REMOVE
1147	RAILROAD	1092.7'	1091.0'	1.8'	RELOCATE
1148	ROADWAY	1116.8'	1082.2'	34.6'	RELOCATE
1149	ROADWAY	1138.6'	1089.8'	48.8'	RELOCATE
1162	ROADWAY	1064.0'	1046.2'	17.8'	RELOCATE

EXISTING / ULTIMATE RUNWAY 27 DEPARTURE SURFACE OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	DEPARTURE SURFACE ELEVATION	DEPARTURE PENETRATION	DISPOSITION
1163	ROADWAY	1073.5'	1053.2'	20.4'	RELOCATE
1165	ROADWAY	1065.5'	1065.2'	0.3'	RELOCATE
1166	ROADWAY	1144.4'	1098.1'	46.3'	RELOCATE

EXISTING / ULTIMATE RUNWAY 9 DEPARTURE SURFACE OBSTRUCTION TABLE

#	DESCRIPTION	TOP OF OBJECT ELEVATION	EXST. DEP. SURFACE ELEVATION	EXST. DEP. PENETRATION	ULT. DEP. SURFACE ELEVATION	ULT. DEP. PENETRATION	DISPOSITION
118	TREE	1102.4'			1110.5'	-8.1'	NO ACTION
121	TREE	1099.1'			1107.7'	-8.7'	NO ACTION
122	TREE	1101.5'			1107.7'	-6.2'	NO ACTION
124	TREE	1107.3'			1102.6'	4.7'	TRIM / REMOVE
140	TREE	1094.7'			1101.4'	-6.8'	NO ACTION
144	TREE	1122.8'			1098.8'	23.9'	TRIM / REMOVE
145	TREE	1091.3'			1096.2'	-4.9'	NO ACTION
146	TREE	1116.8'			1095.9'	20.9'	TRIM / REMOVE
147	TREE	1110.1'			1095.4'	14.7'	TRIM / REMOVE
148	TREE	1121.9'			1095.1'	26.8'	TRIM / REMOVE
149	TREE	1104.2'			1093.7'	10.4'	TRIM / REMOVE
150	TREE	1101.3'			1092.3'	9.0'	TRIM / REMOVE
151	TREE	1103.1'			1090.6'	12.5'	TRIM / REMOVE
157	TREE	1084.5'			1088.1'	-3.6'	NO ACTION
159	TREE	1093.4'			1090.6'	2.8'	TRIM / REMOVE
160	TREE	1082.4'			1088.5'	-6.1'	NO ACTION
161	TREE	1086.1'			1091.0'	-5.0'	NO ACTION
162	TREE	1102.6'			1093.2'	9.3'	TRIM / REMOVE
163	TREE	1101.2'			1092.5'	8.6'	TRIM / REMOVE
164	TREE	1096.2'			1093.5'	2.7'	TRIM / REMOVE
165	TREE	1094.5'			1094.4'	0.1'	TRIM / REMOVE
166	TREE	1083.1'			1092.3'	-9.2'	NO ACTION
173	TREE	1074.3'			1082.8'	-8.5'	NO ACTION
175	TREE	1081.5'			1084.1'	-2.6'	NO ACTION
176	TREE	1082.2'			1084.3'	-2.1'	NO ACTION
177	TREE	1090.3'			1084.3'	6.0'	TRIM / REMOVE
178	TREE	1095.4'			1084.5'	10.9'	TRIM / REMOVE
181	TREE	1076.1'			1084.4'	-8.3'	NO ACTION
213	TREE	1056.9'			1060.9'	-4.0'	NO ACTION
225	TREE	1060.3'			1059.1'	1.2'	TRIM / REMOVE
226	TREE	1057.1'			1055.7'	1.4'	TRIM / REMOVE
227	TREE	1047.1'			1054.7'	-7.6'	NO ACTION
231	TREE	1066.0'			1053.4'	12.7'	TRIM / REMOVE
241	TREE	1050.8'			1048.3'	2.5'	TRIM / REMOVE
242	TREE	1039.2'			1049.0'	-9.9'	NO ACTION
243	TREE	1034.3'			1040.1'	-5.8'	NO ACTION
244	TREE	1041.6'			1037.3'	4.3'	TRIM / REMOVE
245	TREE	1032.0'			1038.7'	-6.8'	NO ACTION
246	TREE	1034.1'			1038.5'	-4.4'	NO ACTION
247	TREE	1048.5'			1038.0'	10.4'	TRIM / REMOVE
248	TREE	1039.9'			1042.0'	-2.1'	NO ACTION
249	TREE	1035.5'			1042.9'	-7.4'	NO ACTION
250	TREE	1040.4'			1041.2'	-0.8'	NO ACTION
252	TREE	1029.2'			1035.5'	-6.3'	NO ACTION
253	TREE	1035.5'			1037.3'	-1.8'	NO ACTION
254	TREE	1046.0'			1034.7'	11.3'	TRIM / REMOVE
255	TREE	1043.2'			1037.3'	6.0'	TRIM / REMOVE
256	TREE	1053.9'			1033.2'	20.7'	TRIM / REMOVE
257	TREE	1036.0'			1032.5'	3.5'	TRIM / REMOVE
258	TREE	1039.5'			1030.3'	9.2'	TRIM / REMOVE
260	TREE	1057.6'	1067.1'	-9.5'	1026.8'	30.8'	TRIM / REMOVE
261	TREE	1051.1'			1029.3'	21.8'	TRIM / REMOVE
262	TREE	1036.2'			1023.8'	12.4'	TRIM / REMOVE
263	TREE	1029.3'			1025.9'	3.5'	TRIM / REMOVE
264	TREE	1048.0'			1028.6'	19.3'	TRIM / REMOVE
265	TREE	1050.4'			1025.7'	24.7'	TRIM / REMOVE
266	TREE	1051.1'			1025.3'	25.8'	TRIM / REMOVE
267	TREE	1084.1'	1062.7'	21.4'			TRIM / REMOVE
268	TREE	1012.2'			1021.9'	-9.7'	NO ACTION
270	TREE	1083.8'	1057.2'	26.6'			TRIM / REMOVE
271	TREE	1053.8'	1049.4'	4.4'			TRIM / REMOVE
272	TREE	1025.3'			1009.2'	16.2'	TRIM / REMOVE
273	TREE	1038.3'	1040.3'	-2.0'	999.9'	38.4'	TRIM / REMOVE
274	TREE	1047.8'	1042.4'	5.4'	1002.1'	45.7'	TRIM / REMOVE
275	TREE	1008.1'			1002.4'	5.7'	TRIM / REMOVE
276	TREE	1007.4'			1005.0'	2.4'	TRIM / REMOVE
277	TREE	1019.2'			1008.0'	11.2'	TRIM / REMOVE
278	TREE	1024.5'			1006.6'	17.9'	TRIM / REMOVE
279	TREE	1014.5'			998.0'	16.5'	TRIM / REMOVE
280	TREE	1019.4'			992.7'	26.7'	TRIM / REMOVE
281	TREE	1017.6'	1026.7'	-9.1'			NO ACTION
283	TREE	1041.1'	1039.1'	2.0'	998.8'	42.3'	TRIM / REMOVE
284	TREE	1041.1'	1038.7'	2.4'	998.4'	42.7'	TRIM / REMOVE
285	TREE	1036.2'	1034.9'	1.3'	994.5'	41.7'	TRIM / REMOVE
289	TREE	1022.3'	1028.5'	-6.2'			NO ACTION
290	TREE	1037.1'	1027.6'	9.4'			TRIM / REMOVE
291	TREE	1028.8'	1023.6'	5.3'			TRIM / REMOVE
293	TREE	1012.9'	1015.1'	-2.3'			NO ACTION
294	TREE	1008.3'	1017.7'	-9.4'			NO ACTION
295	TREE	998.1'	1007.1'	-8.9'			NO ACTION
804	BUILDING	1005.4'			992.1'	13.2'	LIGHT / MARK
805	BUILDING	1007.8'			1005.6'	2.3'	LIGHT / MARK
810	BUILDING	1054.0'			1038.1'	15.8'	LIGHT / MARK
897	SIGN	1120.1'			1114.5'	5.7'	LOWER / LIGHT / REMOVE
903	BUILDING	1064.1'			1045.8'	18.3'	LIGHT / MARK
1016	POLE	1008.9'			988.7'	20.2'	LOWER / LIGHT / REMOVE
1017	POLE	1010.5'			989.2'	21.3'	LOWER / LIGHT / REMOVE
1018	POLE	1009.8'			989.6'	20.1'	LOWER / LIGHT / REMOVE
1019	POLE	1012.9'			990.5'	22.4'	LOWER / LIGHT / REMOVE
1020	POLE	1013.1'			991.0'	22.2'	LOWER / LIGHT / REMOVE
1021	POLE	1013.5'			991.5'	22.0'	LOWER / LIGHT / REMOVE
1022	POLE	1022.4'	1031.7'	-9.3'	991.4'	31.0'	LOWER / LIGHT / REMOVE
1023	POLE	1021.0'	1030.7'	-7.5'	990.9'	30.1'	LOWER / LIGHT / REMOVE
1024	POLE	1023.1'	1029.9'	-8.5'	990.3'	32.8'	LOWER / LIGHT / REMOVE
1025	POLE	1021.4'			989.5'	31.9'	LOWER / LIGHT / REMOVE
1026	POLE	1018.4'			989.0'	29.4'	LOWER / LIGHT / REMOVE
1027	POLE	1017.9'			988.4'	29.5'	LOWER / LIGHT / REMOVE
1028	POLE	1016.1'			1004.7'	11.4'	LOWER / LIGHT / REMOVE
1029	POLE	1016.5'			1005.3'	11.2'	LOWER / LIGHT / REMOVE
1030	POLE	1016.6'			1005.8'	10.8'	LOWER / LIGHT / REMOVE
1031	POLE	1018.9'			1006.6'	12.3'	LOWER / LIGHT / REMOVE
1032	POLE	1019.1'			1007.1'	12.0'	LOWER / LIGHT / REMOVE
1033	POLE	1021.0'			1007.6'	13.4'	LOWER / LIGHT / REMOVE
1034	POLE	1046.1'			1034.4'	11.7'	LOWER / LIGHT / REMOVE
1035	POLE	1047.8'			1031.7'	16.2'	LOWER / LIGHT / REMOVE
1036	POLE	1037.5'			1026.7'	10.8'	LOWER / LIGHT / REMOVE
1037	POLE	1037.6'			1028.3'	9.4'	LOWER / LIGHT / REMOVE
1038	POLE	1036.1'			1028.0'	8.1'	LOWER / LIGHT / REMOVE
1039	POLE	1033.4'			1027.8'	5.6'	LOWER / LIGHT / REMOVE
1063	POLE	1111.5'			1103.1'	8.4'	LOWER / LIGHT / REMOVE

COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker
INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. COORDINATES SHOWN HEREON ARE IN NAD83.
2. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
3. OBSTACLES TAKEN FROM AERIAL MAPPING FLOWN JUNE 22, 2015.
4. BASED ON GENERAL PART 77 SURVEY FOR PLANNING PURPOSES ONLY. SURVEY BASE IS NOT A DETAILED OBSTRUCTION ANALYSIS COVERING ALL INDIVIDUAL OBSTRUCTIONS.
5. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".
6. ROAD / RAILROAD ELEVATIONS SHOWN, ACCOUNT FOR VEHICLES HEIGHTS OF 23' ON RAILROADS, 17' ON INTERSTATE HIGHWAYS AND 15' ON ALL OTHER PUBLIC ROADS.
7. REFER TO THE AIRPORT AIRSPACE DRAWINGS FOR FURTHER OUT OBSTRUCTIONS.

REVISIONS

No.	Description	Date	By

Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
DEPARTURE SURFACE DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:
Y:\Planning\RYY - Cobb Co. Apt\2018 Approved ALP\RYY ALP 10-11 - Departure Surface.dwg Last Modified: Mar 15, 2018 - 10:27am by Folashade.Shelton

Date: MARCH 2018
Division: PLANNING

Scale: HORIZONTAL: 1" = 1,000' VERTICAL: 1" = 100'
Drawing Number: 11

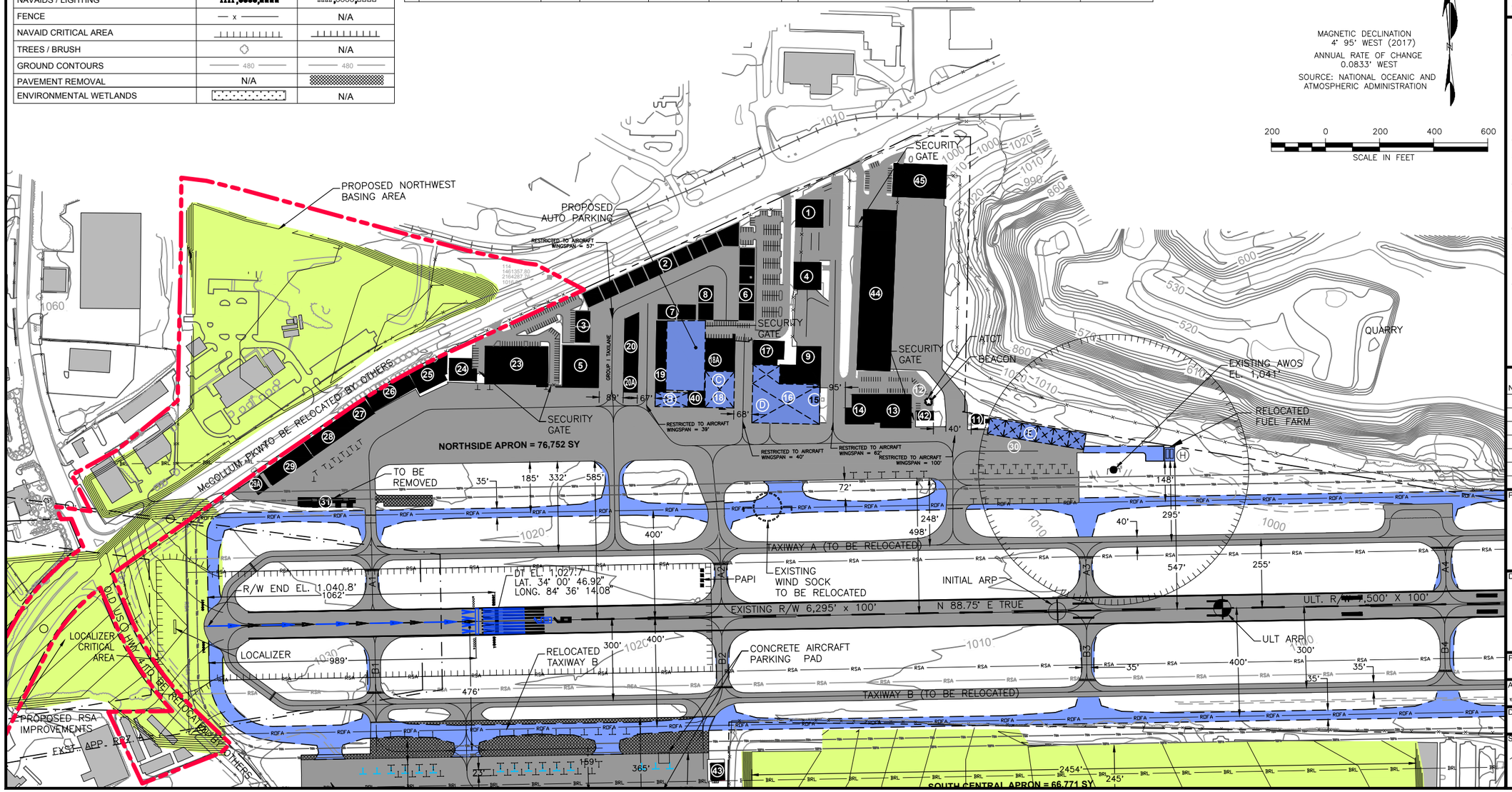
LEGEND		
DESCRIPTION	**EXISTING**	**ULTIMATE**
PROPERTY LINE		
PROPOSED GRADING LIMITS	N/A	
AIRPORT BUILDINGS		
OFF-AIRPORT BUILDINGS		N/A
PAVEMENT		
ROADS		
RUNWAY MARKINGS		
AIRPORT REFERENCE POINT (ARP)		
PACS/SACS		N/A
RSA	RSA	RSA
ROFA	ROFA	ROFA
OFZ	OFZ	OFZ
BRL	BRL BRL	SAME
TSA	TSA	TSA
TOFA	TOFA	TOFA
RPZ		
NAVAIDS / LIGHTING		
FENCE	x	N/A
NAVAID CRITICAL AREA		
TREES / BRUSH		N/A
GROUND CONTOURS	480	480
PAVEMENT REMOVAL	N/A	
ENVIRONMENTAL WETLANDS		N/A

BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
1	2601 CESSNA LANE	1,041.5'		NONE	NO
2	10-BOX HANGARS 714-732	1,043.0'	2008-ASO-438-NRA	NONE	NO
3	2-BOX HANGARS 710-712	1,043.0'	2008-ASO-438-NRA	NONE	NO
4	2600 CESSNA LANE	1,041.9'	6/11/1996 ADO LETTER	NONE	NO
5	HANGAR 700	1,084.0'	2008-ASO-30-NRA	NONE	NO
6	4-BOX HANGARS 734-740	1,043.0'	2008-ASO-438-NRA	NONE	NO
7	2-BOX HANGARS 723-725	1,043.0'	2008-ASO-438-NRA	NONE	NO
8	2-BOX HANGARS 729-731	1,043.0'	2008-ASO-438-NRA	NONE	NO
9	HANGAR 350	1,049.0'	2007-ASO-733-NRA	NONE	NO
11	AIRPORT MAINTENANCE BUILDING	1,029.2'	98-ATL-041-NRA	NONE	NO
12	ATCT (NEW CONTROL TOWER)	1,104.0'	2013-ASO-99-NRA	RED LIGHT	NO
13	HANGAR 200	1,048.0'	2004-ASO-233-NRA	NONE	NO
14	HANGAR 300	1,037.6'		NONE	NO
15	FUEL FARM	-	93-ATL-106-NRA	NONE	YES
16	3-BOX HANGARS 410-430	1,037.1'		NONE	YES
17	HANGAR 460	1,043.0'		NONE	NO
18	NORTH FBO TERMINAL BLDG 500	-	93-ATL-40-NRA	NONE	YES
18A	2-HANGARS 501-502	1,045.2'		NONE	NO
19	T - HANGARS 601-609	1,034.2'	97-ATL-059-NRA	NONE	NO
20	T - HANGARS 610-620	1,038.9'	9/26/2005 ADO LETTER	NONE	NO
20A	50x69 HANGAR	1,061.0'	2005-ASO-641-NRA	NONE	NO
23	HANGAR 800	1,068.8'	02-ASO-0088-NRA 5/20/2003 ADO LETTER	NONE	NO
24	HANGAR 900	1,061.0'		NONE	NO
25	HANGAR 902	1,061.0'	2005-ASO-641-NRA	NONE	NO
26	3-BOX HANGARS 904-908	1,061.0'	2005-ASO-641-NRA	NONE	NO
27	HANGAR 910	1,061.0'	2005-ASO-641-NRA	NONE	NO
28	3-BOX HANGARS 912-916	1,061.0'	2005-ASO-641-NRA	NONE	NO
29	3- BOX HANGARS 918-922	1,061.0'	2005-ASO-641-NRA	NONE	NO
29A	OFFICE BLDG 922	1,046.0'	2008-ASO-441-NRA	NONE	NO
30	PORTABLE T - HANGARS 40-47	1,029.2'	2004-ASO-0333-NRA	NONE	YES
31	PORTABLE T - HANGARS 1001-1005	1,046.3'	91-ATL-136-NRA	NONE	YES
32	FUEL FARM	-	12/15/2004 ADO LETTER	NONE	NO
33	SOUTH TERMINAL BLDG	-	6/9/1992 ADO LETTER	NONE	NO
34	HANGAR 1	-		NONE	NO
35	HANGAR 2	1,073.6'		NONE	NO
36	HANGAR 3	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
37	HANGAR 4	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
38	HANGAR 5	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
39	1900 AIRPORT RD HANGAR	1,070.1'		NONE	NO
40	RESTAURANT BLDG	-	1/22/2003 ADO LETTER	NONE	YES
41	AIRPORT MAINTENANCE BLDG	1,005.0'	2008-ASO-601-NRA	NONE	YES
42	ADMINISTRATION BUILDING	-	94-ATL-015-NRA	NONE	NO
43	U.S. CUSTOMS BUILDING	1,044.0'	2012-ASO-2153-NRA	NONE	NO
44	3-CORPORATE HANGARS	1,047.0'	2007-ASO-576-NRA	NONE	NO
45	CORPORATE HANGAR	1,047.0'	2007-ASO-576-NRA	NONE	NO

PROPOSED BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING
A	PROPOSED 100x200 CORPORATE HANGAR	1,045.0'		NONE
B	RELOCATED NORTH TERMINAL BLDG	1,045.0' (EST.)		NONE
C	HANGAR	1,045.0' (EST.)		NONE
D	HANGAR	1,045.0' (EST.)		NONE
E	6- 60x60 HANGARS	1,025.0' (EST.)		NONE
F	FIRE STATION	1,020.0' (EST.)		NONE
G	RELOCATED AIRPORT MAINTENANCE BLDG	1,005.0' (EST.)		NONE
H	RELOCATED FUEL FARM	1,020.0' (EST.)		NONE



MAGNETIC DECLINATION
4° 95' WEST (2017)
ANNUAL RATE OF CHANGE
0.0833' WEST
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

N

200 0 200 400 600
SCALE IN FEET

COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. ALL EXISTING HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 212' TO 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE. ALL ULTIMATE HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE.
2. COORDINATES SHOWN HEREON ARE IN NAD83.
3. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
4. SEE EXHIBIT "A" AIRPORT PROPERTY MAP FOR PROPERTY LINE METES AND BOUNDS.
5. THERE ARE NO MODIFICATION OF STANDARDS.
6. NO OFZ OBJECT PENETRATIONS.
7. SEE INNER PORTION OF RUNWAY APPROACH SURFACE DRAWINGS FOR THRESHOLD SITING SURFACE OBJECT PENETRATIONS.
8. ALL NEW TAXIWAYS ARE 50' UNLESS OTHERWISE NOTED.

REVISIONS

No.	Description	Date	By

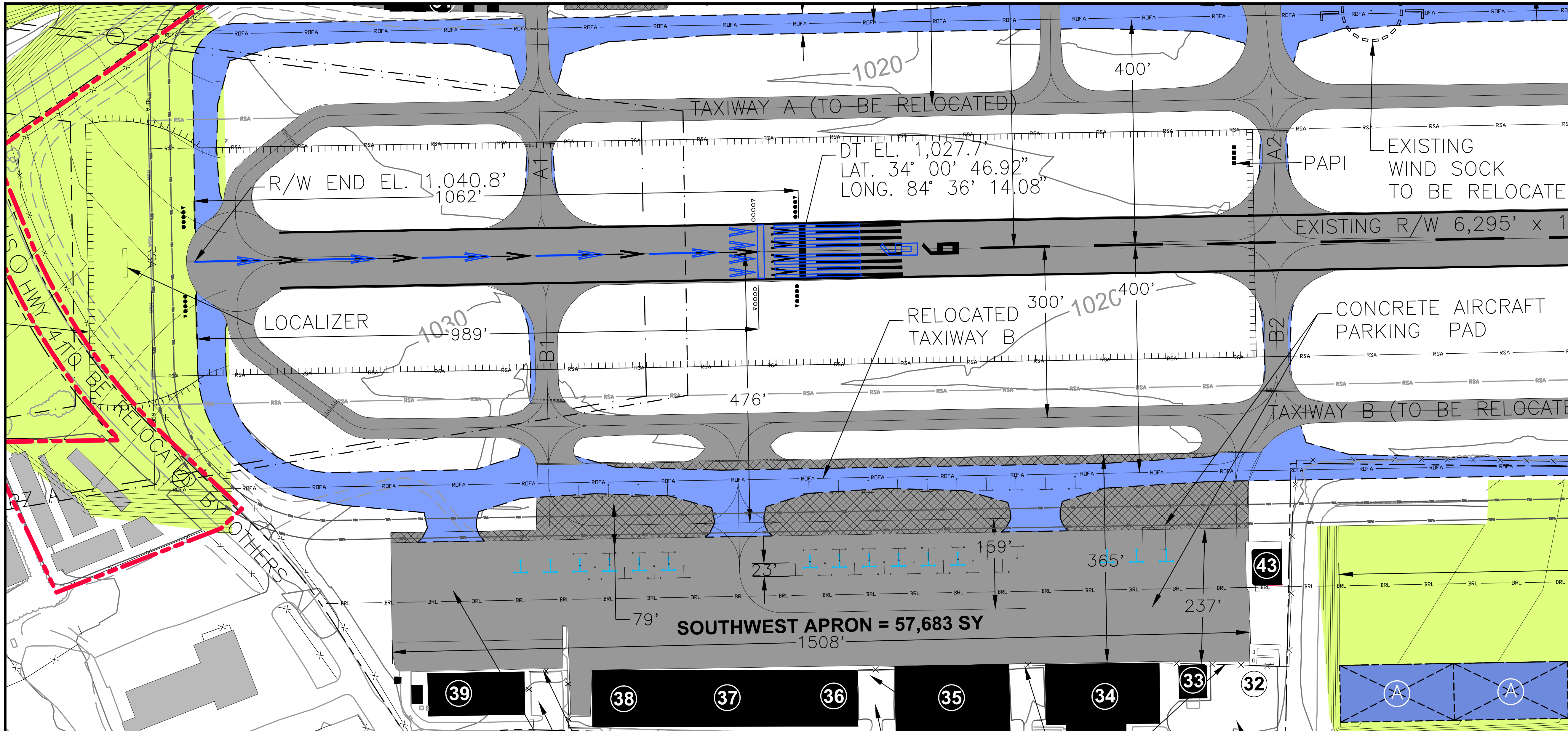
Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
NORTHSIDE TERMINAL AREA DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:
Y:\Planning\ATP - Cobb Co. Apt\2018 Approved ALP\ATP ALP 12-14 - Terminal Area.dwg Last Modified: Mar 15, 2018 - 9:42am by Fabishak.Shelton

Date: MARCH 2018
Division: PLANNING
Scale: 1" = 200'
Drawing Number: 12



LEGEND

DESCRIPTION	EXISTING	ULTIMATE
PROPERTY LINE		
PROPOSED GRADING LIMITS	N/A	
AIRPORT BUILDINGS		
OFF-AIRPORT BUILDINGS		N/A
PAVEMENT		
ROADS		
RUNWAY MARKINGS		
AIRPORT REFERENCE POINT (ARP)		
PACS/SACS		N/A
RSA	RSA	RSA
ROFA	ROFA	ROFA
OFZ	OFZ	OFZ
BRL	BRL BRL	SAME
TSA	TSA	TSA
TOFA	TOFA	TOFA
RPZ		
NAVAIDS / LIGHTING		
FENCE	x	N/A
NAVAID CRITICAL AREA		
TREES / BRUSH		N/A
GROUND CONTOURS	480	480
PAVEMENT REMOVAL	N/A	
ENVIRONMENTAL WETLANDS		N/A

BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
1	2601 CESSNA LANE	1,041.5'		NONE	NO
2	10-BOX HANGARS 714-732	1,043.0'	2008-ASO-438-NRA	NONE	NO
3	2-BOX HANGARS 710-712	1,043.0'	2008-ASO-438-NRA	NONE	NO
4	2600 CESSNA LANE	1,041.9'	6/11/1996 ADO LETTER	NONE	NO
5	HANGAR 700	1,084.0'	2008-ASO-30-NRA	NONE	NO
6	4-BOX HANGARS 734-740	1,043.0'	2008-ASO-438-NRA	NONE	NO
7	2-BOX HANGARS 723-725	1,043.0'	2008-ASO-438-NRA	NONE	NO
8	2-BOX HANGARS 729-731	1,043.0'	2008-ASO-438-NRA	NONE	NO
9	HANGAR 350	1,049.0'	2007-ASO-733-NRA	NONE	NO
11	AIRPORT MAINTENANCE BUILDING	1,029.2'	98-ATL-041-NRA	NONE	NO
12	ATCT (NEW CONTROL TOWER)	1,104.0'	2013-ASO-99-NRA	RED LIGHT	NO
13	HANGAR 200	1,048.0'	2004-ASO-233-NRA	NONE	NO
14	HANGAR 300	1,037.6'		NONE	NO
15	FUEL FARM	-	93-ATL-106-NRA	NONE	YES
16	3-BOX HANGARS 410-430	1,037.1'		NONE	YES
17	HANGAR 460	1,043.0'		NONE	NO
18	NORTH FBO TERMINAL BLDG 500	-	93-ATL-40-NRA	NONE	YES
18A	2-HANGARS 501-502	1,045.2'		NONE	NO
19	T - HANGARS 601-609	1,034.2'	97-ATL-059-NRA	NONE	NO
20	T - HANGARS 610-620	1,038.9'	9/26/2005 ADO LETTER	NONE	NO
20A	50x69 HANGAR	1,061.0'	2005-ASO-641-NRA	NONE	NO
23	HANGAR 800	1,068.8'	02-ASO-0069-NRA/5/20/2003 ADO LETTER	NONE	NO
24	HANGAR 900	1,061.0'		NONE	NO
25	HANGAR 902	1,061.0'	2005-ASO-641-NRA	NONE	NO

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
26	3-BOX HANGARS 904-908	1,061.0'	2005-ASO-641-NRA	NONE	NO
27	HANGAR 910	1,061.0'	2005-ASO-641-NRA	NONE	NO
28	3-BOX HANGARS 912-916	1,061.0'	2005-ASO-641-NRA	NONE	NO
29	3- BOX HANGARS 918-922	1,061.0'	2005-ASO-641-NRA	NONE	NO
29A	OFFICE BLDG 922	1,046.0'	2008-ASO-441-NRA	NONE	NO
30	PORTABLE T - HANGARS 40-47	1,029.2'	2004-ASO-0333-NRA	NONE	YES
31	PORTABLE T - HANGARS 1001-1005	1,046.3'	91-ATL-136-NRA	NONE	YES
32	FUEL FARM	-	12/15/2004 ADO LETTER	NONE	NO
33	SOUTH TERMINAL BLDG	-	6/9/1992 ADO LETTER	NONE	NO
34	HANGAR 1	-		NONE	NO
35	HANGAR 2	1,073.6'		NONE	NO
36	HANGAR 3	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
37	HANGAR 4	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
38	HANGAR 5	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
39	1900 AIRPORT RD HANGAR	1,070.1'		NONE	NO
40	RESTAURANT BLDG	-	1/22/2003 ADO LETTER	NONE	YES
41	AIRPORT MAINTENANCE BLDG	1,005.0'	2008-ASO-601-NRA	NONE	YES
42	ADMINISTRATION BUILDING	-	94-ATL-015-NRA	NONE	NO
43	U.S. CUSTOMS BUILDING	1,044.0'	2012-ASO-2153-NRA	NONE	NO
44	3-CORPORATE HANGARS	1,047.0'	2007-ASO-576-NRA	NONE	NO
45	CORPORATE HANGAR	1,047.0'	2007-ASO-576-NRA	NONE	NO

PROPOSED BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING
A	PROPOSED 100x200 CORPORATE HANGAR	1,045.0'		NONE
B	RELOCATED NORTH TERMINAL BLDG	1,045.0' (EST.)		NONE
C	HANGAR	1,045.0' (EST.)		NONE
D	HANGAR	1,045.0' (EST.)		NONE
E	6- 60x60 HANGARS	1,025.0' (EST.)		NONE
F	FIRE STATION	1,020.0' (EST.)		NONE
G	RELOCATED AIRPORT MAINTENANCE BLDG	1,005.0' (EST.)		NONE
H	RELOCATED FUEL FARM	1,020.0' (EST.)		NONE

MAGNETIC DECLINATION
4° 95' WEST (2017)
ANNUAL RATE OF CHANGE
0.0833' WEST
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

100 200 300
SCALE IN FEET

COBB COUNTY INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer: TGM
Technician: SMS, TGM
Checked by: JCD
Project Number: 146975

NOTES

1. ALL EXISTING HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 212' TO 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE. ALL ULTIMATE HOLDING POSITION MARKINGS FOR RUNWAY/TAXIWAY INTERSECTIONS ARE 250' FROM RUNWAY CENTERLINE AND PERPENDICULAR TO TAXIWAY CENTERLINE.
2. COORDINATES SHOWN HEREON ARE IN NAD83.
3. ELEVATIONS SHOWN HEREON ARE IN NAVD88 AND ARE ABOVE MEAN SEA LEVEL (AMSL).
4. SEE EXHIBIT "A" AIRPORT PROPERTY MAP FOR PROPERTY LINE METES AND BOUNDS.
5. THERE ARE NO MODIFICATION OF STANDARDS.
6. NO OFZ OBJECT PENETRATIONS.
7. SEE INNER PORTION OF RUNWAY APPROACH SURFACE DRAWINGS FOR THRESHOLD SITING SURFACE OBJECT PENETRATIONS.
8. ALL NEW TAXIWAYS ARE 50' UNLESS OTHERWISE NOTED.

REVISIONS

No.	Description	Date	By

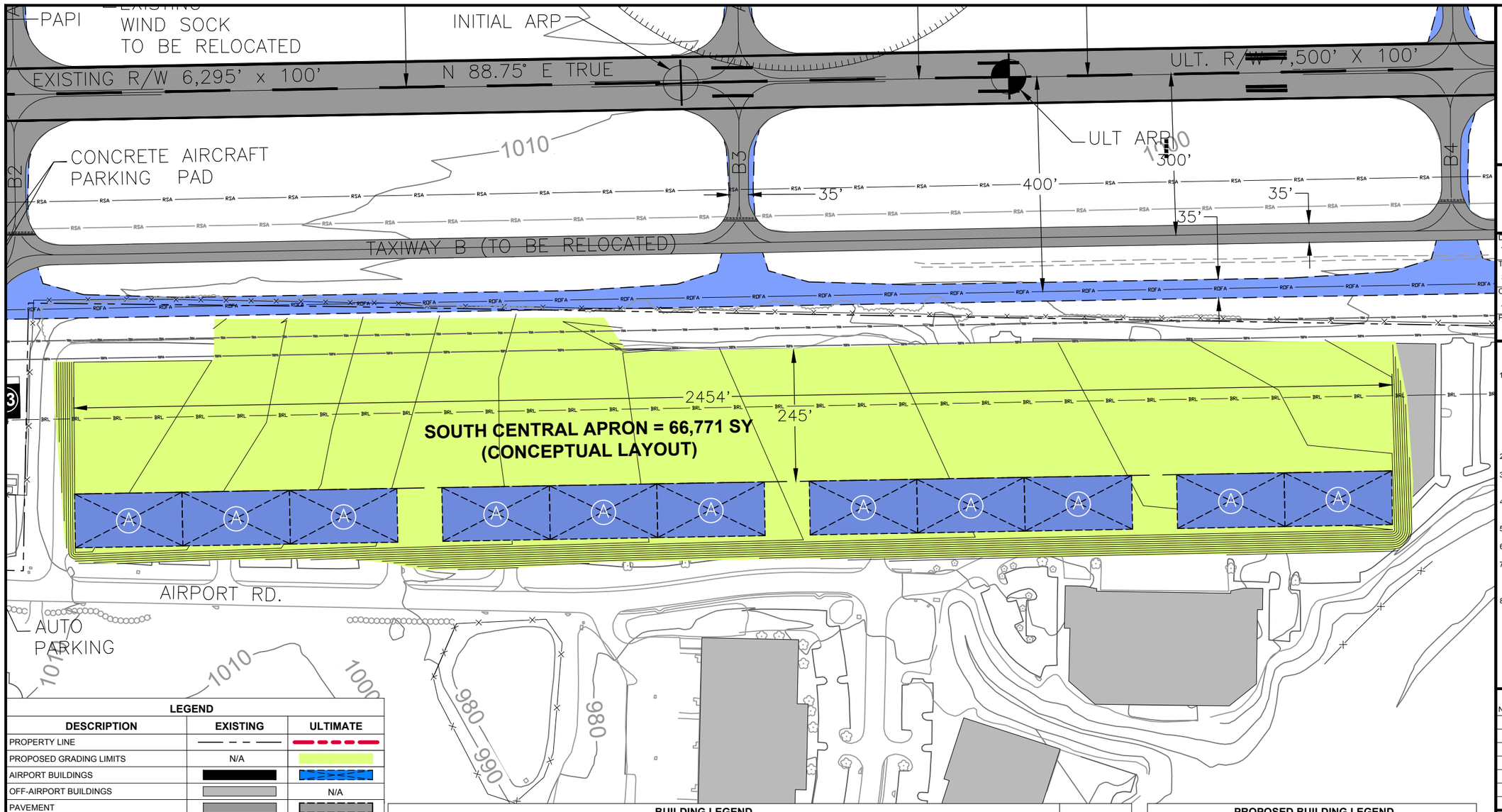
Project Name:
AIRPORT MASTER PLAN UPDATE

Drawing Name:
SOUTHWEST TERMINAL AREA DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018
Division: PLANNING
Scale: 1" = 100'
Drawing Number: 13



LEGEND

DESCRIPTION	EXISTING	ULTIMATE
PROPERTY LINE		
PROPOSED GRADING LIMITS	N/A	
AIRPORT BUILDINGS		
OFF-AIRPORT BUILDINGS		N/A
PAVEMENT		
ROADS		
RUNWAY MARKINGS		
AIRPORT REFERENCE POINT (ARP)		
PACS/SACS		N/A
RSA	RSA	RSA
ROFA	ROFA	ROFA
OFZ	OFZ	OFZ
BRL	BRL BRL	SAME
TSA	TSA	TSA
TOFA	TOFA	TOFA
RPZ		
NAVAIDS / LIGHTING		
FENCE	X	N/A
NAVAID CRITICAL AREA		
TREES / BRUSH		N/A
GROUND CONTOURS	480	480
PAVEMENT REMOVAL	N/A	
ENVIRONMENTAL WETLANDS		N/A

BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
1	2601 CESSNA LANE	1,041.5'		NONE	NO
2	10-BOX HANGARS 714-732	1,043.0'	2008-ASO-438-NRA	NONE	NO
3	2-BOX HANGARS 710-712	1,043.0'	2008-ASO-438-NRA	NONE	NO
4	2600 CESSNA LANE	1,041.9'	6/11/1996 ADO LETTER	NONE	NO
5	HANGAR 700	1,084.0'	2008-ASO-30-NRA	NONE	NO
6	4-BOX HANGARS 734-740	1,043.0'	2008-ASO-438-NRA	NONE	NO
7	2-BOX HANGARS 723-725	1,043.0'	2008-ASO-438-NRA	NONE	NO
8	2-BOX HANGARS 729-731	1,043.0'	2008-ASO-438-NRA	NONE	NO
9	HANGAR 350	1,049.0'	2007-ASO-733-NRA	NONE	NO
11	AIRPORT MAINTENANCE BUILDING	1,029.2'	98-ATL-041-NRA	NONE	NO
12	ATCT (NEW CONTROL TOWER)	1,104.0'	2013-ASO-99-NRA	RED LIGHT	NO
13	HANGAR 200	1,048.0'	2004-ASO-233-NRA	NONE	NO
14	HANGAR 300	1,037.6'		NONE	NO
15	FUEL FARM	-	93-ATL-106-NRA	NONE	YES
16	3-BOX HANGARS 410-430	1,037.1'		NONE	YES
17	HANGAR 460	1,043.0'		NONE	NO
18	NORTH FBO TERMINAL BLDG 500	-	93-ATL-40-NRA	NONE	YES
18A	2-HANGARS 501-502	1,045.2'		NONE	NO
19	T - HANGARS 601-609	1,034.2'	97-ATL-059-NRA	NONE	NO
20	T - HANGARS 610-620	1,038.9'	9/26/2005 ADO LETTER	NONE	NO
20A	50x69 HANGAR	1,061.0'	2005-ASO-641-NRA	NONE	NO
23	HANGAR 800	1,068.8'	02-ASO-0069-NRA 5/20/2003 ADO LETTER	NONE	NO
24	HANGAR 900	1,061.0'		NONE	NO
25	HANGAR 902	1,061.0'	2005-ASO-641-NRA	NONE	NO

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING	TO BE REMOVED OR RELOCATED
26	3-BOX HANGARS 904-908	1,061.0'	2005-ASO-641-NRA	NONE	NO
27	HANGAR 910	1,061.0'	2005-ASO-641-NRA	NONE	NO
28	3-BOX HANGARS 912-916	1,061.0'	2005-ASO-641-NRA	NONE	NO
29	3- BOX HANGARS 918-922	1,061.0'	2005-ASO-641-NRA	NONE	NO
29A	OFFICE BLDG 922	1,046.0'	2008-ASO-441-NRA	NONE	NO
30	PORTABLE T - HANGARS 40-47	1,029.2'	2004-ASO-0333-NRA	NONE	YES
31	PORTABLE T - HANGARS 1001-1005	1,046.3'	91-ATL-136-NRA	NONE	YES
32	FUEL FARM	-	12/15/2004 ADO LETTER	NONE	NO
33	SOUTH TERMINAL BLDG	-	6/9/1992 ADO LETTER	NONE	NO
34	HANGAR 1	-		NONE	NO
35	HANGAR 2	1,073.6'		NONE	NO
36	HANGAR 3	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
37	HANGAR 4	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
38	HANGAR 5	1,071.1'	6/19/1996 ADO LETTER	NONE	NO
39	1900 AIRPORT RD HANGAR	1,070.1'		NONE	NO
40	RESTAURANT BLDG	-	1/22/2003 ADO LETTER	NONE	YES
41	AIRPORT MAINTENANCE BLDG	1,005.0'	2008-ASO-601-NRA	NONE	YES
42	ADMINISTRATION BUILDING	-	94-ATL-015-NRA	NONE	NO
43	U.S. CUSTOMS BUILDING	1,044.0'	2012-ASO-2153-NRA	NONE	NO
44	3-CORPORATE HANGARS	1,047.0'	2007-ASO-576-NRA	NONE	NO
45	CORPORATE HANGAR	1,047.0'	2007-ASO-576-NRA	NONE	NO

PROPOSED BUILDING LEGEND

#	DESCRIPTION	TOP ELEVATION (AMSL)	AIRSPACE STUDY	OBSTRUCTION LIGHTING
A	PROPOSED 100x200 CORPORATE HANGAR	1,045.0'		NONE
B	RELOCATED NORTH TERMINAL BLDG	1,045.0' (EST.)		NONE
C	HANGAR	1,045.0' (EST.)		NONE
D	HANGAR	1,045.0' (EST.)		NONE
E	6- 60x60 HANGARS	1,025.0' (EST.)		NONE
F	FIRE STATION	1,020.0' (EST.)		NONE
G	RELOCATED AIRPORT MAINTENANCE BLDG	1,005.0' (EST.)		NONE
H	RELOCATED FUEL FARM	1,020.0' (EST.)		NONE

MAGNETIC DECLINATION
4° 95' WEST (2017)
ANNUAL RATE OF CHANGE
0.0833' WEST
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

N

100 200 300
SCALE IN FEET

COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

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REVISIONS

No.	Description	Date	By

Project Name:

AIRPORT MASTER PLAN UPDATE

Drawing Name:

SOUTH CENTRAL TERMINAL AREA DRAWING

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Y:\Planning\ATP - Cobb Co. Apt\2018 Approved ALP\ATP ALP 12-14 - Terminal Area.dwg Last Modified: Mar 15, 2018 - 8:43am by Fitzsimons,Shelton

Date:	MARCH 2018
Division:	PLANNING
Scale:	1" = 100'
Drawing Number:	14

KENNESAW UNITED METHODIST CHURCH
BEN KING RD
SAINT CATHERINE OF SIENA CATHOLIC SCHOOL
SAINT CATHERINE OF SIENA CATHOLIC CHURCH
BIG SHANTY SCHOOL
KENNESAW CHURCH OF GOD
MOON STATION RD
CHEROKEE ST
MAIN ST
PINE HILL DR
LOCKHART DR
TOWN POINT DR
BARRETT LAKES BLVD
INTERSTATE 75
KENNESAW BRANCH LIBRARY
ADAMS PARK
KENNESAW CHARTER SCHOOL
CARRIE FARM RD
DUNCAN RD
WATTS DR
KENNESAW SCHOOL
BIG SHANTY DR
DUNCAN DR
MCCOLLUM PKWY
LIGHTHOUSE CHURCH
QUARRY
PROPOSED NORTHWEST BASING AREA
NORTH TERMINAL AREA
EXISTING AWOS
MAIN ST
EXIST APP RPZ
ULT APP RPZ
EXIST DEP RPZ
ULT APP RPZ
75 DNL
70 DNL
65 DNL
PROPOSED SOUTH BASING AREA
GLIDE SLOPE CRITICAL AREA
RELOCATED GLIDE SLOPE/ PAPI
LOCALIZER CRITICAL AREA
SOUTH TERMINAL AREA
PROPOSED PUBLIC PARK
KENNESAW DUE WEST RD
AIRPORT RD
US 41 COBB PKWY
PRECINCT 1 POLICE STATION
COBB COUNTY FIRE STATION NUMBER 8
VAUGHN RD
COBB PLACE BLVD
COBB PLACE PKWY
ERNEST BARRETT PKWY
OLD 41 HWY
AUTO PARK DR
COBB INTERNATIONAL BLVD
ROBERTS BLVD
GREERS CHAPEL
BARRETT LAKES BLVD
HOOD PKWY
GREERS CHAPEL
NOONDAY CHURCH

MAGNETIC DECLINATION
4° 95' WEST (2017)
ANNUAL RATE OF CHANGE
0.0833' WEST
SOURCE: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

N

600 0 600 1,200 1,800
SCALE IN FEET

LEGEND

ON-AIRPORT LAND USE

- AIRFIELD OPERATIONS

OFF-AIRPORT LAND USE

- COMMERCIAL
- LOW DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- INDUSTRIAL
- PARK, CONSERVATION
- PUBLIC, INSTITUTIONAL
- TRANSPORTATION, UTILITIES
- 65 DNL NOISE CONTOUR
- 70 DNL NOISE CONTOUR
- 75 DNL NOISE CONTOUR
- INITIAL AIRPORT PROPERTY LINE
- ULTIMATE AIRPORT PROPERTY LINE
- AVIGATION EASEMENT
- RUNWAY PROTECTION ZONE
- SCHOOL
- CHURCH

COBB COUNTY INTERNATIONAL AIRPORT McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

1. BASE MAP TAKEN FROM AERIAL PHOTOGRAPHY FLOWN ON JANUARY 2, 2015.
2. LAND USE TAKEN FROM GIS FILES FROM THE CITY OF KENNESAW, 2006 AND COBB COUNTY, 2006.
3. HEIGHT RESTRICTION ZONING IS REGULATED ACCORDING TO THE STATUTES CONTAINED IN "OFFICIAL CODE, COUNTY OF COBB, ARTICLE 1, CHAPTER 134, SECTION 275".

REVISIONS

No.	Description	Date	By

Project Name:

AIRPORT MASTER PLAN UPDATE

Drawing Name:

LAND USE DRAWING

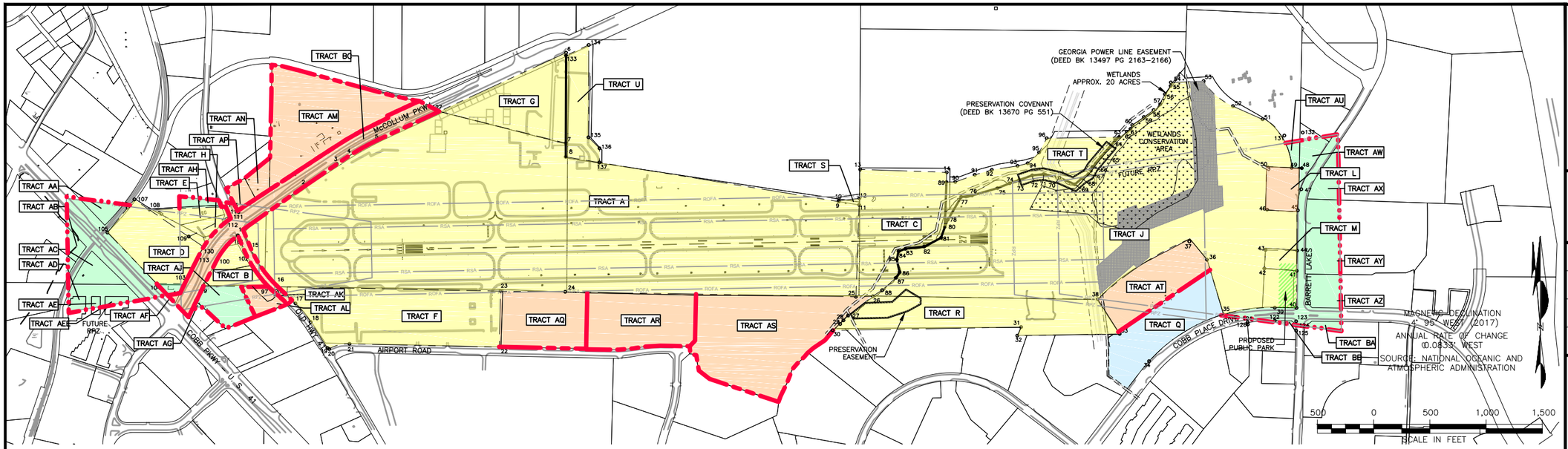
FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Y:\Planning\AYY - Cobb Co. Apt\2018 Approved ALP\AYY ALP 15 - Land Use.dwg Last Modified: Mar 15, 2018 - 8:55am by Fokstrock.Shelton

Date:	Division:
MARCH 2018	PLANNING

Scale:	Drawing Number:
1" = 600'	15



TRACT A

LINE	BEARING	DISTANCE
1-2	N 54°49'37"E	649.26'
2-3	N 55°31'54"E	367.07'
3-4	N 56°28'39"E	113.21'
4-5	N 60°48'53"E	A=336.22' R=2220.74'
5-127	N 65°09'08"E	574.97'
127-7	S 75°54'52"E	1160.79'
7-8	S 00°16'07"W	122.30'
8-9	S 80°42'53"E	2459.42'
9-11	S 80°42'58"E	182.87'
11-25	S 01°57'42"W	816.87'
25-24	N 89°02'22"W	2581.96'
24-23	N 89°21'49"W	578.23'
23-120	N 88°51'48"W	1977.59'
120-16	N 46°08'39"W	22.33'
16-15	N 35°07'44"W	A=388.36' R=1010.00'
15-1	N 22°12'15"W	192.01'

TRACT B

LINE	BEARING	DISTANCE
99-100	N 27°39'15"E	239.04'
100-101	N 39°41'37"E	A=309.39' R=676.44'
101-102	S 22°55'33"E	163.91'
102-97	S 34°01'38"E	A=370.26' R=1070.0'
97-99	N 89°08'58"W	576.90'

TRACT C

LINE	BEARING	DISTANCE
13-14	S 88°02'36"E	768.28'
14-89	S 01°57'42"W	86.39'
89-80	S 01°57'42"W	399.68'
80-81	S 19°48'03"W	102.14'
81-82	S 61°51'56"W	166.37'
82-83	S 83°50'22"W	172.18'
83-84	S 68°43'54"W	64.84'
84-85	S 10°26'09"W	77.19'
85-86	S 12°40'11"E	113.91'
86-87	S 34°21'25"W	59.81'
87-88	S 48°14'36"W	161.62'
88-26	S 57°21'31"W	100.36'
26-25	S 88°01'13"W	149.32'
25-11	N 01°57'42"E	816.87'
11-12	N 01°57'42"E	57.74'
12-13	N 01°57'42"E	257.98'

TRACT D

LINE	BEARING	DISTANCE
105-106	N 39°07'39"E	287.39'
106-107	N 39°41'36"E	A=91.14' R=1408.10'
107-108	S 55°52'29"E	159.28'
108-109	S 55°26'12"E	425.00'
109-130	S 55°25'09"E	160.26'
130-113	S 28°52'17"W	A=69.10' R=836.44'
113-103	S 26°38'19"W	299.06'
103-104	N 88°57'32"W	251.44'
104-105	N 43°53'49"W	626.69'

TRACT E

LINE	BEARING	DISTANCE
108-114	N 87°45'19"E	680.72'
114-110	S 23°05'16"E	90.49'
110-109	S 63°09'27"W	410.50'
109-108	N 55°18'03"W	425.00'

TRACT F

LINE	BEARING	DISTANCE
120-23	S 88°51'48"E	1977.59'
23-22	S 01°07'24"W	498.32'
22-21	N 88°43'17"W	1332.21'
21-20	S 76°11'11"W	A=193.01' R=265.30'
20-19	N 56°59'01"W	17.33'
19-18	N 32°40'25"W	272.45'
18-17	N 39°24'32"W	A=214.37' R=911.80'
17-120	N 46°08'39"W	214.73'

TRACT G

LINE	BEARING	DISTANCE
127-6	N 65°09'08"E	1242.84'
6-7	S 00°08'07"W	804.76'
7-127	N 75°54'52"W	1160.79'

TRACT H

LINE	BEARING	DISTANCE
109-110	N 63°09'27"E	410.50'
110-111	S 25°02'44"E	22.75'
111-112	S 62°13'45"W	11.65'
112-130	S 43°04'32"W	A=343.11' R=836.44'
130-109	N 56°01'40"W	160.26'

TRACT J

LINE	BEARING	DISTANCE
26-88	N 57°21'31"E	100.36'
88-87	N 48°14'36"E	161.62'
87-86	N 34°21'25"E	59.81'
86-85	N 12°40'11"W	113.91'
85-84	N 10°26'09"E	77.19'
84-83	N 68°43'54"E	64.84'
83-82	N 83°50'22"E	172.18'
82-81	N 61°51'56"E	166.37'
81-80	N 19°48'03"E	102.14'
80-78	N 21°50'32"E	69.01'
78-77	N 30°33'56"E	237.16'
77-76	N 82°44'18"E	96.99'
76-75	N 73°54'17"E	234.76'
75-74	N 68°16'31"E	116.77'
74-73	N 71°02'39"E	89.51'
73-72	N 70°37'29"E	122.78'
72-71	N 83°19'27"E	103.07'
71-70	S 76°53'40"E	143.93'
70-69	S 66°18'40"E	147.94'
69-68	N 48°22'24"E	79.85'
68-67	N 59°06'52"E	70.53'
67-66	N 30°12'30"E	77.24'
66-65	N 40°33'06"E	113.01'
65-64	N 39°46'33"E	199.08'
64-63	N 53°47'49"E	44.31'
63-62	N 55°54'20"E	80.34'
62-61	N 50°10'35"E	44.03'
61-60	N 23°51'13"E	35.87'
60-59	N 55°18'58"E	125.18'
59-58	N 54°33'35"E	106.58'
58-57	N 48°40'10"E	78.44'
57-56	N 24°41'56"E	98.03'
56-55	N 34°51'47"E	90.59'
55-54	N 01°38'38"E	30.72'
54-53	N 87°38'04"E	291.84'
53-52	S 49°31'26"E	A=348.32' R=602.96'
52-51	S 66°04'26"E	287.52'
51-49	S 36°21'45"E	A=563.25' R=542.98'
49-50	N 88°50'04"W	269.69'
50-46	S 01°18'10"W	375.00'
46-45	S 88°40'32"E	273.69'
45-44	S 01°08'59"W	358.10'
44-43	N 88°51'47"W	280.60'
43-42	S 03°27'35"W	165.40'
42-41	S 85°52'25"E	287.97'
41-40	S 00°14'00"W	328.77'
40-39	N 89°01'15"W	193.37'
39-35	S 82°05'37"W	A=461.89' R=1489.20'
35-36	N 16°49'03"W	511.06'
36-37	N 44°10'32"W	224.06'
37-38	S 57°53'12"W	A=970.30' R=2199.33'
38-26	N 89°14'52"W	1999.08'

TRACT S

LINE	BEARING	DISTANCE
9-10	N 00°56'06"W	7.80'
10-12	N 83°37'29"E	183.72'
12-11	S 01°57'42"W	57.74'
11-9	N 80°42'58"W	182.87'

TRACT L

LINE	BEARING	DISTANCE
50-49	S 88°50'04"E	269.69'
49-48	S 88°50'04"E	29.83'
48-47	S 01°19'29"W	187.80'
47-45	S 09°06'17"W	A=190.55' R=608.19'
45-46	N 88°40'32"W	273.69'
46-50	N 01°18'10"E	375.00'

TRACT M

LINE	BEARING	DISTANCE
43-44	S 88°51'47"E	280.60'
44-41	S 01°03'00"W	180.28'
41-42	N 85°52'25"W	287.97'
42-43	N 03°27'35"E	165.40'

TRACT Q

LINE	BEARING	DISTANCE
38-37	N 57°53'12"E	A=970.30' R=2199.33'
37-36	S 44°10'32"E	224.06'
36-35	S 16°49'03"E	511.06'
35-34	S 58°00'55"W	A=789.78' R=1489.20'
34-33	N 47°10'41"W	356.32'
33-38	N 32°18'53"W	366.25'

TRACT R

LINE	BEARING	DISTANCE
30-29	N 49°36'23"E	86.57'
29-28	N 41°51'29"E	44.06'
28-27	N 43°11'12"E	59.64'
27-26	N 51°59'23"E	278.94'
26-38	S 89°14'52"E	1999.08'
38-33	S 32°18'53"E	366.25'
33-32	S 89°01'30"W	910.00'
32-31	N 24°02'31"E	82.76'
31-30	S 89°01'30"W	1674.71'

TRACT T

LINE	BEARING	DISTANCE
89-90	N 89°04'09"E	79.22'
90-91	N 69°54'13"E	184.51'
91-92	N 73°44'33"E	157.84'
92-93	N 81°20'51"E	231.28'
93-94	N 75°49'45"E	93.18'
94-95	N 46°16'55"E	140.48'
95-96	N 28°04'02"E	142.83'
96-63	N 89°03'54"E	645.37'
63-64	S 53°47'49"W	44.31'
64-65	S 39°46'33"W	199.08'
65-66	S 40°33'06"W	113.01'
66-67	S 30°12'30"W	77.24'
67-68	S 59°06'52"W	70.53'
68-69	S 48°22'24"W	79.85'
69-70	N 66°18'40"W	147.94'
70-71	N 76°53'40"W	143.93'
71-72	S 83°19'27"W	103.07'
72-73	S 70°37'29"W	122.78'
73-74	S 71°02'39"W	89.51'
74-75	S 68°16'31"W	116.77'
75-76	S 73°54'17"W	234.76'
76-77	S 82°44'18"W	96.99'
77-78	S 30°33'56"W	237.16'
78-80	S 21°50'32"W	69.01'
80-89	N 01°57'42"E	399.68'

TRACT U

LINE	BEARING	DISTANCE
8-7	N 00°16'08"E	122.30'
7-133	N 00°08'07"E	780.03'
133-134	N 65°09'05"E	222.58'
134-135	S 00°08'07"W	821.36'
135-136	S 44°55'57"E	138.26'
136-137	S 00°08'07"W	125.64'
137-8	N 80°42'53"W	303.78'

PROPOSED LAND ACQUISITION (EASEMENT OR FEE SIMPLE)

TRACT ID	EXISTING OWNER	ACREAGE	PURPOSE
AA	CROSSINGS PARTNERS THE LLC	5.90	RPZ & HEIGHT PROTECTION
AB	COLUMNS DEVELOPMENT COMPANY LLC	25.746	RPZ & HEIGHT PROTECTION
AC	COBB COUNTY	1.5	RPZ & HEIGHT PROTECTION
AD	HITACHI MAXCO LTD	5.8451	RPZ & HEIGHT PROTECTION
AE	MCNEEL HARRY H	2.2002	RPZ & HEIGHT PROTECTION
AEE	JONES ARTHUR	2.6418	RPZ & HEIGHT PROTECTION
AF	KRAFT FOR GROUP H	0.39	RPZ & HEIGHT PROTECTION
AG	SKATING CLUBS OF NORTH GEORGIA INC	.3	RPZ & HEIGHT PROTECTION
AH	HEIDARA REZA & MOKHTARI NAHID	0.735	RPZ & HEIGHT PROTECTION
AM	STONE FOREST MATERIALS LLC	0.86	RPZ & HEIGHT PROTECTION
AU	VULCAN LANDS INC	21.55	RPZ & HEIGHT PROTECTION
AW	PET PLAY PLACE LLC	1.32	RPZ & HEIGHT PROTECTION
AX	IPT BARRETT LAKES DC LLC	26.5570	RPZ & HEIGHT PROTECTION
AY	RLF TB SPE LLC	13.569	RPZ & HEIGHT PROTECTION
AZ	DDRTC BARRETT PAVILION LLC	7.164	RPZ & HEIGHT PROTECTION
BA	J DWELL PROPERTIES LLLP	2.26	RPZ & HEIGHT PROTECTION
BB	HOWELL BARRETT LAKES LLC	1.52	RPZ & HEIGHT PROTECTION

PROPOSED LAND ACQUISITION (FEE SIMPLE)

TRACT ID	EXISTING OWNER	ACREAGE	PURPOSE
	JRC INC	2.5	DEVELOPMENT
AK	CURTIS DANIEL B & MARGARET M	0.41	DEVELOPMENT
AL	CURTIS DANIEL B & MARGARET M	1	DEVELOPMENT
AM	GEORGIA NATIONAL GUARD	13.7	DEVELOPMENT
AN	EUROPEAN SINK REAL ESTATE LLC	0.922	DEVELOPMENT
AP	RNW INVESTMENTS LLC	0.953	DEVELOPMENT
AQ	LIT HODGES DEVELOPMENT HOLDCO LLC	8.73	DEVELOPMENT
AR	LIT HODGES DEVELOPMENT HOLDCO LLC	10.84	DEVELOPMENT
AS	LIT HODGES DEVELOPMENT HOLDCO LLC	21.8	DEVELOPMENT
AT	PROLOGIS MACQUARIE US LLC	8.08	DEVELOPMENT
BC	COBB COUNTY HOA	11.56	DEVELOPMENT

EXISTING PROPERTY AND EASEMENTS

TRACT ID	PREVIOUS OWNER	TYPE OF INTEREST	ACREAGE	TYPE OF CONVEYENCE	DEED BOOK	DEED PAGE	DATE	NOTES/GRANT NUMBER
A	Belle Ellison	FEE SIMPLE	1462	DEED	305	307	8/6/1957	FAAP-07 (3 Deeds)
A	Vulcan Materials	FEE SIMPLE		DEED	322	121	11/28/1958	
A	D L and Maude Vaughn	FEE SIMPLE		DEED	337	542	3/29/1960	
B	Charles Erchak and Georgia Erchak	FEE SIMPLE	3.01	DEED	511	212	8/10/1956	FAAP-07
C	D L and Maude Vaughn	FEE SIMPLE	15.03	DEED	537	542	3/30/1960	FAAP-07
D	Vondelle Pope	FEE SIMPLE	7.36	DEED	0873	504	11/28/1967	LOCAL
E	Vondelle Pope	FEE SIMPLE	2.42	DEED	5469	210	9/29/1989	LOCAL
F	Senior Corp	FEE SIMPLE	20.07	DEED	3145	231	6/5/1984	FAAP-07
G	First Financial Corporation	FEE SIMPLE	10.41	DEED	4859	3805	10/29/1985	FAAP-02
H	J.A. Blanchard	FEE SIMPLE	0.54	DEED	3764	392	12/3/1985	FAAP-04
J	Senior Corp	FEE SIMPLE	93.83	DEED	7719	384	10/14/1992	FAAP-07 (Closing included 2 Deeds) (3.45 acres)
J	Senior Corp				7764	133	11/5/1993	(84.41 acres)
L	BKE JEVIN LLC	EASEMENT	2.56	DEED	11446	333	8/3/1998	LOCAL
M	Thomas and Bobbie Sawyer	FEE SIMPLE	1.13	DEED	9646	169	3/23/1998	LOCAL
O	Security Capital Industrial Trust	EASEMENT	9.86	DEED	11181	405	3/24/1998	LOCAL
R	Amli Land Development Limited Partnership	FEE SIMPLE	15.47	DEED	8961	143	7/6/1995	FAAP-08
S	Vulcan Materials Company	FEE SIMPLE	0.14	DEED	9424	388	11/2/1995	FAAP-08 MINERAL RIGHTS RETAINED BY VULCAN MATERIAL COMPANY, DEED BOOK 9424 PAGE 388
T	Maude P. Vaughn	FEE SIMPLE	7.75	DEED	9474	374	11/2/1995	FAAP-08 MINERAL RIGHTS RETAINED BY MAUDE P. VAUGHAN DEED BOOK 9474 PAGE 374
U	Vulcan Materials Company	FEE SIMPLE	4.82	DEED	13427	2153	10/25/2001	LOCAL
AT	Prologis Macquire U S LLC	EASEMENT	5.36	DEED	11181	405	3/24/1998	LOCAL

SOURCE: COBB COUNTY GIS WEBSITE

COBB COUNTY
INTERNATIONAL AIRPORT
McCOLLUM FIELD
KENNESAW, GEORGIA

Michael Baker INTERNATIONAL

Designer:	TGM
Technician:	SMS, TGM
Checked by:	JCD
Project Number:	146975

NOTES

1. "McCOLLUM FIELD EXHIBIT A" BY MAYES, SUDDERTH, & ETHEREDGE, DATED JULY 30, 1993 WAS USED IN THE PREPARATION OF THIS EXHIBIT.
2. "BOUNDARY SURVEY OF McCOLLUM AIRPORT" BY TRANSPORTATION SYSTEMS DESIGN, INC., DATED 6-11-96 WAS USED IN THE PREPARATION OF THIS EXHIBIT.
3. THE NEED FOR THIS LAND WILL BE DETERMINED PRIOR TO PROJECT DESIGN COMPLETION.

LEGEND

DESCRIPTION	
EXISTING PROPERTY LINE	
PROPOSED PROPERTY LINE	
EXISTING EASEMENT	
PROPOSED EASEMENT OR FEE SIMPLE (SEE NOTE 3)	
EXISTING PARCEL LINES	
EXISTING RSA	RSA
EXISTING ROFA	ROFA
EXISTING RPZ	RPZ

REVISIONS

No.	Description	Date	By

Project Name:

AIRPORT MASTER PLAN UPDATE

Drawing Name:

EXHIBIT A
AIRPORT PROPERTY MAP

FAA AIP# / STATE GRANT #

Autocad Drawing Reference:

Date: MARCH 2018	Division: PLANNING
Scale: 1" = 500'	Drawing Number: 16

Chapter 7 – Capital Improvement Plan

7.1 Introduction

This purpose of this chapter is to provide guidance for the funding and implementation of the recommendations contained within Chapter 5, Development Concepts. The airport Capital Improvement Program (CIP) is developed by the airport and submitted to GDOT 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 RYY management, GDOT, and FAA with the information needed to integrate the Master Plan Update's development concepts 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.

7.2 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, RYY 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.

RYY 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 to RYY 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 103 publicly-owned airports in Georgia. As federally funded projects are typically funded at 95% 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% or 100%. 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 for RYY are the responsibility of Cobb County Department of Transportation, 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. Additional funds also may be obtained from Cobb County DOT, including the use of Special Purpose Local Option Sales Tax (SPLOST) or for large, costly projects, it may be necessary to consider long-term debt, normally in the form of a loan or an airport revenue bond.

Private Investment

At RYY, significant 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. RYY 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.

7.3 Cost Estimates and Phasing

Each of the project costs shown are estimated planning figures in 2017 dollars. The costs are an estimated total figure which includes items such as design, engineering, planning, grading, supplies, construction and associated utilities. These costs should be used for planning purposes only and detailed cost estimates should be obtained prior to implementation of each project. Recommended improvements for the short term and intermediate term with the associated costs and funding sources are displayed in **Table 7-1**. A graphical depiction of the proposed phasing plan is depicted in **Figure 7-1**.

TABLE 7-1
PROPOSED DEVELOPMENT SUMMARY AND TIMELINE
INITIAL (FY 2017 - FY 2021), INTERMEDIATE AND LONG TERM

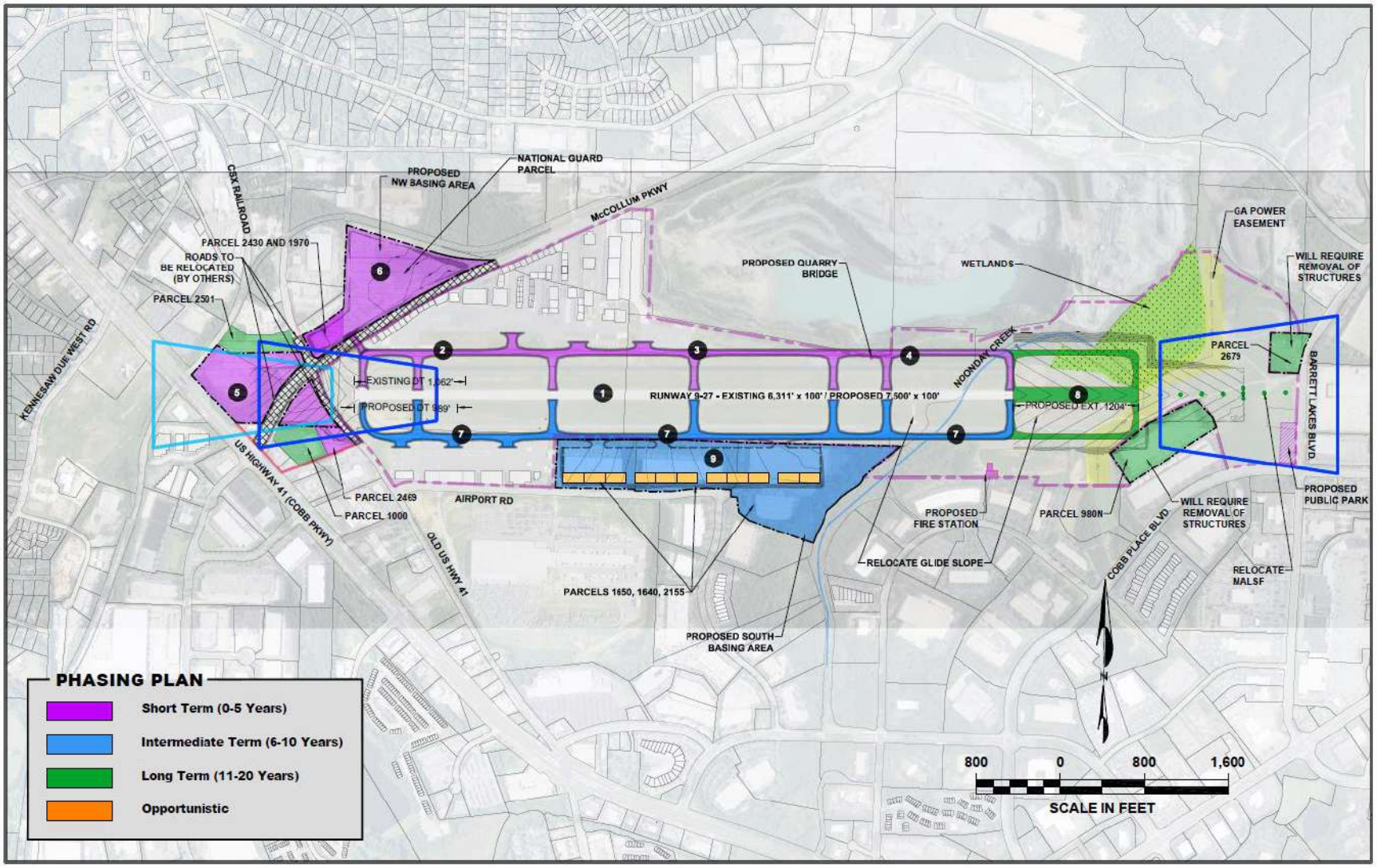
TIMELINE	MAP ID	PROPOSED PROJECT DESCRIPTION	ACTION ITEMS/ NEXT STEPS/STATUS/COMMENTS	FUNDING PLAN	ESTIMATED COST
FY2017		**Master Plan Reimbursement**	Remaining expenses not covered by existing grants.	FEDERAL	$38,131
		Environmental Assessment (EA) of Master Plan Projects	Complete Master Plan. GDOT review and approval of EA project scope.	FEDERAL	$250,000
	1	**Runway 9/27 & Taxiway A/B Remarking**	Contract awarded.	STATE	$200,000
		Pavement Strength Study	Evaluate current pavement strength to support critical aircraft. Update published pavement strength.	FEDERAL	$40,000
		Roadway Relocation (Planning) (By Others)	Road Planning Services contract awarded Spring of 2017. Project (by others) would relocate McCollum Pkwy out of Runway 9 RSA and RPZ.	OTHERS	
				TOTAL FY 2017	**$528,131**
FY2018		**Taxiway A Relocation (Design)**	Complete EA. Project necessary to meet 400 ft runway-to-taxiway separation. Includes geotech and quarry bridge design.	FEDERAL	$425,000
		Taxiway A Relocation Permitting	Pursue permitting for Taxiway A.	FEDERAL	$500,000
		Roadway Relocation (Environmental) (By Others)	Environmental permitting for McCollum Pkwy/Old 41 road relocation.	OTHERS	
				TOTAL FY 2018	**$925,000**
FY2019		***Roadway Relocation (Design) (By Others)***	Roadway relocation environmental clearance received. Roadway design underway.	OTHERS	
	2	**Taxiway A Relocation (Construction Phase 1)**	Complete environmental permitting. Construct northwest section of Taxiway A.	FEDERAL	$4,400,000
		Joint-Use Airport Fire Station (By Others)		OTHERS	
				TOTAL FY 2019	**$4,400,000**
FY2020	3	**Taxiway A Relocation (Construction Phase 2)**	Construct north-central section of Taxiway A.	FEDERAL	$4,400,000
		Roadway Relocation (Design) (By Others)	Continue roadway relocation design (by others).	OTHERS	
				TOTAL FY 2020	**$4,400,000**
FY2021	4	**Taxiway A Relocation (Construction Phase 3)**	Construct northeast section of Taxiway A. Contingent upon quarry easement. Seek MOS for 321-foot separation for northeast section of Taxiway A as alternative if quarry easement not successful.	FEDERAL	$7,200,000
				TOTAL FY 2021	**$7,200,000**
				TOTAL FIVE YEAR	**$17,453,131**

TABLE 7-1
PROPOSED DEVELOPMENT SUMMARY AND TIMELINE
INITIAL (FY 2017 - FY 2021), INTERMEDIATE AND LONG TERM

TIMELINE	MAP ID	PROPOSED PROJECT DESCRIPTION	ACTION ITEMS/ NEXT STEPS/STATUS/COMMENTS	FUNDING PLAN	ESTIMATED COST
INTERMEDIATE TERM (6-10 YEARS)		***Roadway Relocation (ROW Acquisition)***	Acquire right-of-way for McCollum Parkway relocation (by others).	OTHERS	
		Road Relocation (By Others)	Relocate Roads McCollum Pkwy and Old 41 from Rwy 9 RPZ (by others). Contingent upon potential SPLOST funding.	OTHERS	
		Land Acquisition - Northwest Basing Area Development- National Guard Parcel	Contingent upon successful McCollum Pkwy relocation (by others).	FEDERAL	$8,000,000
		Land Acquisition - Northwest Basing Area Development - Parcel 2430 and 1970	Contingent upon successful McCollum Pkwy relocation (by others).	FEDERAL	$1,500,000
		Land Acquisition - (Runway 9 RSA Improvements - Parcel 2469)	Contingent upon successful McCollum Pkwy relocation (by others). Land is required for RSA/OFA grading.	FEDERAL	$750,000
	5	**Runway 9 RSA Improvements - Site Demolition, Design and Construction**	Improve existing RSA upon successful relocation of McCollum Pkwy/Old 41.	FEDERAL	$2,800,000
	6	**Northwest Basing Area - Site Demolition, Design and Grading**	Prepare northwest basing expansion area site for development.	FEDERAL/PRIVATE	$3,100,000
		Taxiway B Relocation - Land Acquisition (Parcels 1650, 1640, 2155)	To achieve D-III design standards.	FEDERAL	$31,500,000
	7	**Taxiway B Relocation - Design and Construction**	To achieve D-III design standards. Seek MOS for 300-ft separation if land acquisition unsuccessful.	FEDERAL	$12,875,000
	9	**Southside Basing Area Expansion Site Demolition, Design and Grading**	Develop land acquired as a result of Taxiway B relocation project.	FEDERAL/PRIVATE	$19,325,000
				TOTAL INTERMEDIATE	**$79,850,000**
LONG TERM (11-20 YEARS)		**Land Acquisition (Runway 27 RPZ - Parcel 980N)**	Necessary for runway extension and RPZ clearing.	FEDERAL	$7,500,000
		Land Acquisition (Parcel 2679 in Runway 27 RPZ)	Necessary for runway extension and RPZ clearing.	FEDERAL	$1,350,000
	8	**Runway 27 Extension (1,204 ft Extension) Design and Construction**	To support runway length requirements of the Gulfstream 550. Ops are projected to reach >500 annual operations by 2020.	FEDERAL	$26,000,000
		Land Acquisition (Runway 9 RPZ - Parcel 1000)	Clear Runway 9 RPZ of incompatible land use.	FEDERAL	$1,500,000
		Easement Acquisition (Runway 9 RPZ - Parcel 2501)	Acquire easement to protect from incompatible land uses.	FEDERAL	$35,000
				TOTAL LONG TERM	**$38,385,000**
OPPORTUNISTIC					
				TOTAL OPPORTUNISTIC	**$0**
				TOTAL ALL TIMEFRAMES (2017 DOLLARS)	**$135,688,131**

Source: Michael Baker International, 2016-2017

Figure 7-1 Phasing Plan



APPENDIX A

September 1, 2017

Sec. 134-275. - Civilian airport hazard district.

(a) Definitions and acronyms. The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Above ground level ("AGL") means a reference of elevation above ground level.

Airport means Cobb County Airport-McCollum Field and Fulton County Airport - Charlie Brown Field and other civilian use public-owned airfields, including heliports as recognized by the State of Georgia.

Airport impact zones means the six areas closest to airport under which airport operations regularly occur, as shown on the airport impact zones land use map.

Airport impact zones land use map means map describing compatible land uses within the vicinity of each airport.

Airport manager means the administrative representative of each airport.

Airport operations means take off, climb out, approach, landing, and traffic pattern operations that may vary for each aircraft.

Airspace surfaces means the same areas as stated in the Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces as amended from time-to-time.

Federal Aviation Administration ("FAA") means the federal agency titled "Federal Aviation Administration" which is charged with oversight and regulation of civil aviation to promote safety, including that of most publicly owned airports.

Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces means regulated airspace surfaces promulgated in 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace.

Hazard to air navigation means an object which, as a result of an aeronautical study, the FAA determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

Mean sea level ("MSL") means the elevation reference for objects above sea level.

Nonconforming use means any structure, natural growth or use of land which does not conform to a regulation prescribed in this chapter or an amendment thereto, as of the effective date of such regulations.

Obstruction to air navigation means an object of greater height than any of the heights or surfaces presented in Federal Aviation Regulations Part 77 Airspace Surfaces. (Obstructions to air navigation are presumed to be hazards to air navigation until an FAA aeronautical study has determined otherwise.)

Runway means an airport's paved or cleared strip on which planes land and take off.

Runway elevation means height limitations originate from the nearest airport's runway mean sea level. Runway elevations are documented in the airport's master plan.

TERPS means terminal instrument procedures, which is the standard instrument approach procedures and takeoff minimums and obstacle departure procedures based on the criteria contained in FAA Order 8260.3 U.S. Standard for Terminal Instrument Procedures.

(b) Height zoning. Height limitation zoning applies to structures and natural growth objects within the airspace as defined by the Federal Aviation Regulations Part 77 Airspace Surfaces and TERPS.

(1) Construction or alteration requiring notice to the FAA. Except for construction less than 25 feet AGL or as provided in FAR Part 77.15, any construction or alteration that meets or exceeds the height criteria established in FAR Part 77.13 as amended from time to time, shall complete the FAA notification process as provided in FAR Part 77.17 as amended from time to time, using the FAA Notice of Proposed Construction or Alteration form 7460-1 as amended from time to time.

(2) Height limitation. The Civilian Airport Hazard District Ordinance does not preclude approval of obstructions to air navigation with heights in excess of those height limitations prescribed in FAR Part 77 and/or TERPS, if either of the following is met:

a. A determination of "No Hazard to Air Navigation" is issued from a FAA Airspace Study resulting from the Notice Requirement of FAR part 77.17 and the Airport Manager supports the determination; or

b. A variance application may be considered by the Board of Zoning Appeals, when such action is considered advisable to effectuate the purposes of this section and reasonable in the circumstances when considering the results of the determination of an FAA Airspace Study and the input from the Airport Manager.

(c) Land use zoning recommendations. Land use zoning recommendations prescribes land uses and zoning designations that are deemed compatible within the airport operations areas, as shown on the airport impact zones land use maps. Table 1 presents recommended conforming land uses within each airport impact zone.

TABLE 1
AIRPORT IMPACT ZONES LAND USE RECOMMENDATIONS

Land Usage	Runway Protection one	Inner Safety Zone	Turning Zone	Outer Safety Zone	Side Line Safety Zone	Traffic Pattern Zone
Residential	N	N	Y[1]	Y	N	Y
Commercial	N	N	Y	Y	N	Y
Industrial	N	Y	Y	Y	N	Y
Schools/Institutional	N	N	N	N	N	Y
Day Care Center	N	N	N	N	N	Y
Place of Worship	N	N	N	N	N	Y
Parks/Open Space	N	N	N	N	N	Y/Y
Passive Parks	Y	Y	Y	Y	Y	Y
Nursing Home	N	N	N	N	N	Y
Hospital	N	N	N	N	N	Y
Solid Waste Landfill	N	N	N	N	N	N

[1]/Low density residential

(1) Generally. Notwithstanding any other provisions of this chapter, no use may be made of land within the zones listed in this section in such a manner as to create electrical interference with radio communication between the Airport and any aircraft, make it difficult for flyers to distinguish between airfield lights and other lights, result in glare in the eyes of flyers using the airfield, impair visibility in the vicinity of the airfield, attract birds, or otherwise endanger the landing, takeoff or maneuvering of any aircraft.

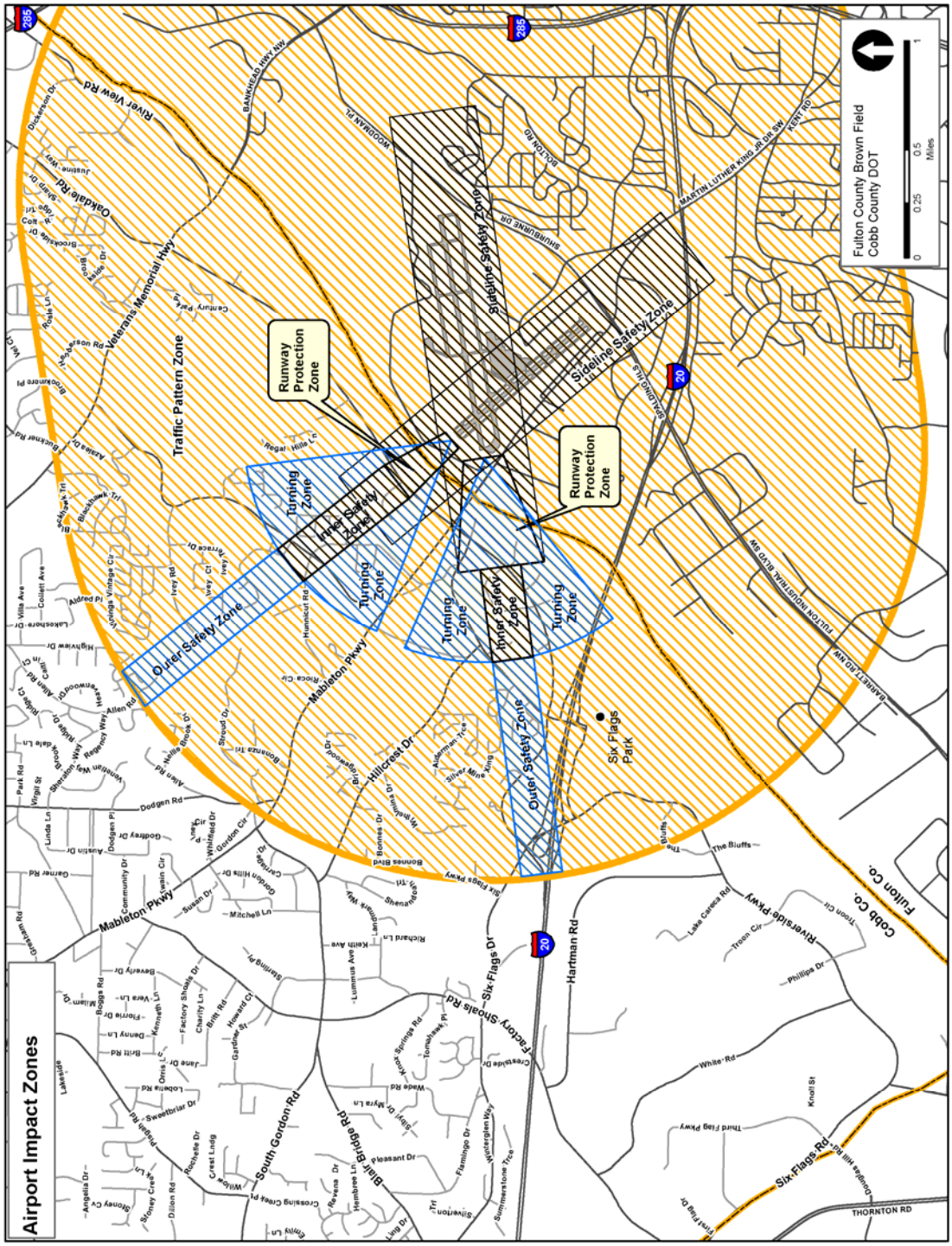
(d) Existing nonconforming uses or heights. This section shall not be construed to require the removal, lowering, change or alteration of any previously approved nonconforming use or structure, or otherwise interfere with the continuance of any previously approved nonconforming use or structure, except as otherwise provided by this section, including those previously approved nonconforming uses or structures under construction.

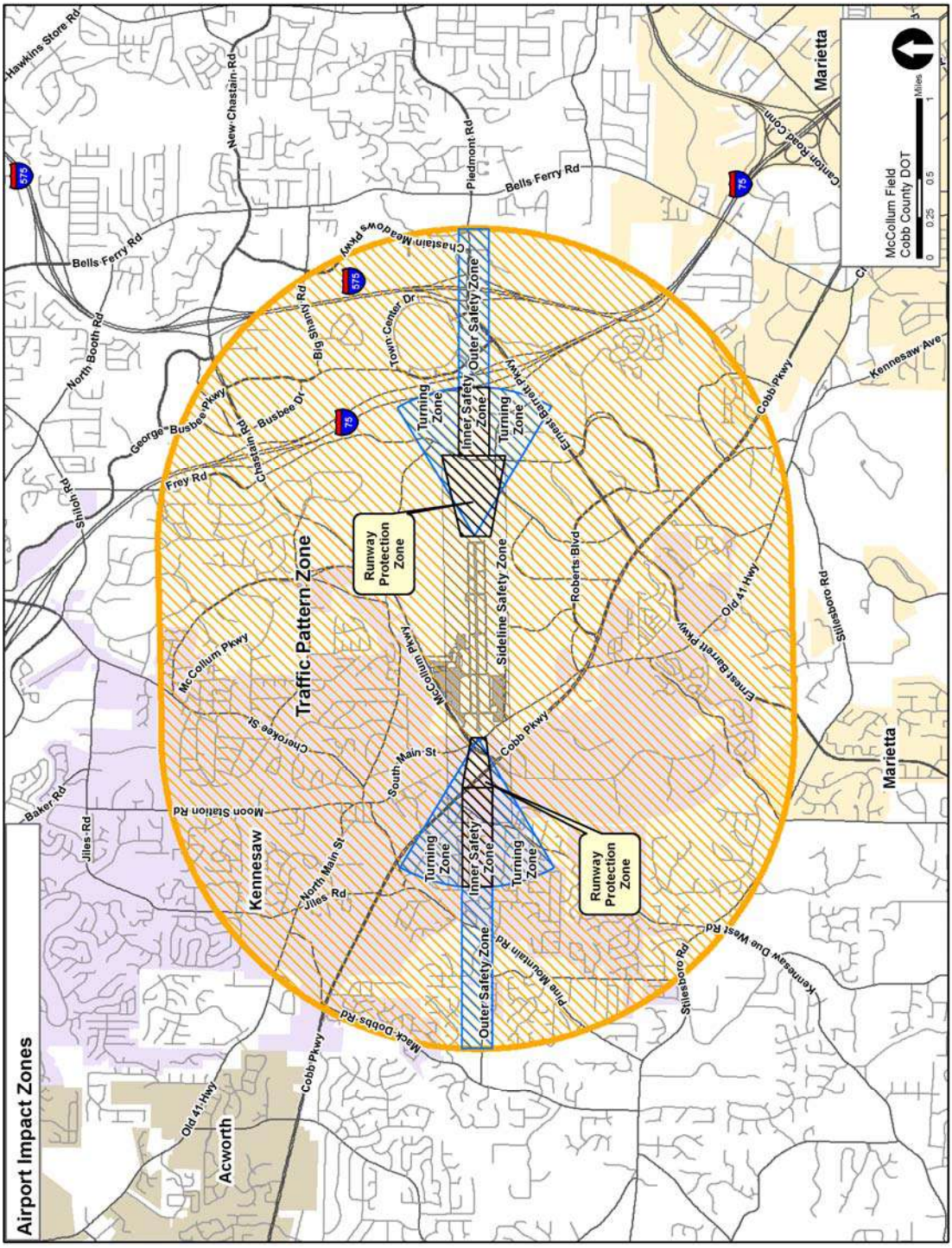
(1) Nothing in this section shall contradict the limitations placed on nonconforming uses of a building, structure or land as described in section 134-31 of the county ordinances, nonconforming uses.

(2) Notwithstanding the preceding subsection, this section shall provide the right to require the owner of any existing nonconforming structure to mark and/or light any structure as deemed necessary by Cobb County.

(3) Notwithstanding the preceding subsection, no existing nonconforming natural growth may become higher, or become a greater hazard to air navigation than it was on the effective date of this ordinance.

(e) Conflicting regulations. In case of conflict between the regulations of this chapter and other regulations, unless otherwise stated, the more stringent regulations shall control.


Airport Impact Zones
Fulton County Brown Field
Cobb County DOT
0
0.25
0.5
1
Miles
Traffic Pattern Zone
Runway Protection Zone
Runway Protection Zone
Sideline Safety Zone
Sideline Safety Zone
Turning Zone
Turning Zone
Turning Zone
Turning Zone
Inner Safety Zone
Inner Safety Zone
Outer Safety Zone
Outer Safety Zone
Six Flags Park
Mableton Pkwy
Hillcrest Dr
Six Flags Dr
Factory Shoals Rd
Hartman Rd
South Gordon Rd
Blair Bridge Rd
Six Flags Rd
Riverside Pkwy
Fulton Co.
Cobb Co.
THORNTON RD
285
20



(Ord. of 12-26-72; Ord. of 12-11-90, § 3-28-17.1; Ord. of 6-24-97 (eff. 7-1-97); Ord. of 2-28-12)

Sec. 134-275.1. - Military airport hazard district.

(1) Intent and purpose. The military airport hazard district is established to contribute to the safe operation of Dobbins Air Reserve Base (ARB), to facilitate orderly development around the airfield, to protect property values, and to control and minimize noise and potential accident impacts on the surrounding

areas of Cobb County and the City of Marietta. The military airport hazard district promotes development patterns which are appropriate for the airfield vicinity and protect the public's safety and welfare by limiting land uses near the airport which require or generate large concentrations of individuals. The boundaries, contained herein are taken directly from the 2011 Air Installation Compatible Use Zone Study at Dobbins Air Reserve Base conducted by the United States Air Force.

(2) Applicability. Properties subject to the military airport hazard district provisions and the specific land use controls encumbering those properties shall be referenced as an overlay on the official zoning map of Cobb County and contained in the Cobb County Comprehensive Plan and known as airport impact zones. The military airport hazard district regulates and recommends uses for the affected properties within the accident potential and noise zones depicted on the maps and shall be considered complementary of any other zoning district standards. Properties located within the military airport hazard district and seek to develop after the adoption of this section are subject to the rules and regulations set by this section.

(3) Definitions.

Definitions and acronyms. The following words, words and phrases, when used in this section, shall have the meaning ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Above ground level ("AGL") means a reference of elevation above ground level.

Accident Potential Zone I. This is an airport impact zone area extending outward from the clear zone an additional 5,000 feet by 3,000 feet (the runway centerline is the midpoint for the width) presenting a risk of aircraft accident less than the clear zone but greater than APZ II; thereby, extra protection is required. Accident Potential Zone I includes all land encompassed within the area designated APZ I on the official zoning map of Cobb County.

Accident Potential Zone II. This is an airport impact zone area extending outward from Accident Potential Zone I an additional 7,000 feet by 3,000 feet (the runway centerline is the midpoint for the width) presenting a risk of accident less than both the clear zone and Accident Potential Zone I, but a measurable risk nonetheless; thereby, extra protection is required. Accident Potential Zone II includes all lands encompassed within the area designated APZ II on the official zoning map of Cobb County.

Airport manager means the administrative representative of each airport.

Airport operations means take off, climb out, approach, landing, and traffic pattern operations that may vary for each aircraft.

Airspace surfaces means the same areas as stated in the Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces as amended from time-to-time.

Clear zone. This is an airport impact zone area starting at the end of the runway and extending outward 3,000 feet by 3,000 feet (the runway centerline is the midpoint for the width), presenting the greatest accident risk of all the designated accident potential zones; thereby, extra protection is required The clear zone includes all lands encompassed within the area designated CZ on the official zoning map of Cobb County.

DBA. The "A" weighting in noise measurements (an official method of measuring sound per industry accepted standards) that assists in determining acceptable noise levels.

Federal Aviation Administration ("FAA") means the federal agency titled "Federal Aviation Administration" which is charged with oversight and regulation of civil aviation to promote safety, including that of most publicly owned airports.

Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces means regulated airspace surfaces promulgated in 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace.

Hazard to air navigation means an object which, as a result of an aeronautical study, the FAA determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

Mean sea level ("MSL") means the elevation reference for objects above sea level.

Noise Contour 1. This is a depiction of an area that has a day night average sound level of between 65 and 69 DBAs.

Noise Contour II. This is a depiction of an area that has a day night average sound level of between 70 and 74 DBAs.

Noise Contour III. This is a depiction of an area that has a day night average sound level of between 75 and 79 DBAs.

Nonconforming use means any structure, natural growth or use of land which does not conform to a regulation prescribed in this chapter or an amendment thereto, as of the effective date of such regulations.

Obstruction to air navigation means an object of greater height than any of the heights or surfaces presented in Federal Aviation Regulations Part 77 Airspace Surfaces. (Obstructions to air navigation are presumed to be hazards to air navigation until an FAA aeronautical study has determined otherwise.)

Runway means an airport's paved or cleared strip on which planes land and take off.

Runway elevation means an elevation as measured by mean sea level. Height limitations established herein will be measured against the closest runway and its mean sea level. Runway elevations are documented in the airport's master plan.

TERPS means terminal instrument procedures, which is the standard instrument approach procedures and takeoff minimums and obstacle departure procedures based on the criteria contained in FAA Order 8260.3 U.S. Standard for Terminal Instrument Procedures.

(4) Permitted uses.

1. Three primary determinants are used in promoting compatibility between the airfield and nearby areas: accident potential to land users, aircraft noise, and hazards to operations from land uses (height, obstructions, etc.). The military airport hazard district establishes use restrictions, recommended noise reduction measures, and height limitations as necessary to produce compatible land uses in each of these three areas: Clear zones, Accident Potential Zone I, Accident Potential Zone II. No development in an accident potential zone shall be approved unless in accordance with the requirements of this section, including the land use compatibility standards chart.

2. Land use zoning recommendations. Land use zoning recommendations prescribes land uses and zoning designations that are deemed compatible within the airport operations areas, as shown on the airport impact zones land use maps. The land use compatibility standards table presents recommended conforming land uses within each airport impact zone and noise contour. If there is a conflict between an airport impact zone and a noise contour area recommendation, the more restrictive regulation shall control. the board of commissioners may use the future land use map designations and this Code to determine appropriate density and intensity of land uses in order to protect individual property owners and Dobbins Air Reserve Base.

Land Use Compatibility Standards						
	Clear Zone	APZ I	APZ II	Noise Contour 1	Noise Contour 2	Noise Contour 3
Residential	N	N	Y[2]	Y[1]	Y[1]	N
Commercial	N	N	Y[2]	Y	Y[1]	Y[1]

Industrial	N	Y	Y	Y	Y^1	Y^1
Schools/institutions	N	N	N	Y^1	N	N
Day care center	N	N	N	Y^1	N	N
Place of worship	N	N	N	Y^1	Y^1	N
Parks/open space	N	Y	Y	Y	Y	N
Passive park	N	Y	Y	Y	Y	N
Nursing home	N	N	N	Y^1	Y^1	N
Hospital	N	N	N	Y^1	Y^1	N
Solid waste landfill	N	N	N	Y	Y	Y

Legend:

Y - a use is compatible

N - a use is not compatible

Y^1 - a use is compatible if noise reduction measures are required in construction

Y^2 - density and intensity of land uses should reviewed for compatibility with operations at Dobbins Air Reserve Base on a case by case basis.

3. Land uses not specifically listed in the land use compatibility standards table shall be governed by the standards applicable to the land use most similar to the proposed use.

4. Generally, notwithstanding, any other provisions of this chapter, no use may be made of land within the zones listed in this section in such a manner as to create electrical interference with radio communication between the airport and any aircraft, make it difficult for flyers to distinguish between airfield lights and other lights, result in glare in the eyes of flyers using the airfield, impair visibility in the vicinity of the airfield attract birds, or otherwise endanger the landing, takeoff, or maneuvering of any aircraft.

5. The community development agency shall notify any person submitting a building permit application, application for rezoning or variance, or an application for land use permit or special land use permit if the property in question is within the clear zone, or APZ I or APZ II.

6. The community development agency shall notify Dobbins Air Reserve Base if an application for a rezoning, variance, land use permit or special land use permit is submitted for consideration. This provides the commander of Dobbins ARB, or his/her designee with an opportunity to provide an official response.

7. The Cobb County Department of Transportation shall notify the FAA when a rezoning, variance, land use permit or special land use permit is submitted for consideration. This provides the FAA with an opportunity to provide an official response.

(5) Height zoning. Height limitation zoning applies to structures and natural growth objects within the airspace as defined by the Federal Aviation Regulations Part 77 Airspace Surfaces and TERPS.

1. Construction or alteration requiring notice to the FAA. Except for construction less than 25 feet AGL or as provided in FAR Part 77.15, any construction or alteration that meets or exceeds the height criteria established in FAR Part 77.13 as amended from time to time, shall complete the FAA notification process as provided in FAR Part 77.17 as amended from time to time, using the FAA Notice of Proposed Construction or Alteration form 7460-1 as amended from time to time.

2. Height limitation. The military airport hazard district ordinance does not preclude approval of obstructions to air navigation with heights in excess of those height limitations prescribed in FAR Part 77 and/or TERPS, if either of the following is met:

a. A determination of "No Hazard to Air Navigation" is issued from a FAA airspace study resulting from the notice requirement of FAR part 77.17 and the airport manager supports the determination; or

b. A variance application may be considered by the board of zoning appeals, when such action is considered advisable to effectuate the purposes of this section and reasonable in the circumstances when considering the results of the determination of an FAA airspace study and the input from the airport manager.

(6) Permits. Any building permit or business license application submitted for properties within the military airport hazard district shall be reviewed by the community development agency to determine whether it meets the standards set forth in this Code. Those applications which do not meet these criteria shall be required to seek approval from the board of commissioners via other business.

1. No permit shall be granted by the community development agency that would allow the establishment of a flight hazard or use not authorized by this section or permit a nonconforming use, structure, or natural growth to become higher, or become a greater hazard to air navigation or become less compatible in use than it was on the effective date of this section.

2. Before any existing use or structure within any portion of the military airport hazard district may be altered in such a manner as to increase its base height, a letter from Dobbins Air Reserve Base is required. The letter should state that the air base does not object to the alteration of the height limit.

(7) Existing nonconforming uses or heights. This section shall not be construed to require the removal, lowering, change or alteration of any previously approved nonconforming use or structure, or otherwise interfere with the continuance of any previously approved nonconforming use or structure, except as otherwise provided by this section, including those previously approved nonconforming uses or structures under construction.

1. Nothing in this section shall contradict the limitations placed on nonconforming uses of a building, structure or land as described in section 134-31 of the county ordinances, nonconforming uses.

2. Notwithstanding the preceding subsection, this section shall provide the right to require the owner of any existing nonconforming structure to mark and/or light any structure as deemed necessary by Cobb County.

3. Notwithstanding the preceding subsection, no existing nonconforming natural growth may become higher, or become a greater hazard to air navigation than it was on the effective date of this section.

(8) Conflicting regulations. In case of conflict between the regulations of this chapter and other regulations, unless otherwise stated, the more stringent regulations shall control.

APPENDIX B

September 1, 2017

2.01.06 - Special Districts

The following special zoning districts are established:

A. HIS, Historic District. The historical and architectural heritage of Kennesaw is among its most valued and important assets. The purpose of the Kennesaw Historic District (HIS) is to promote the cultural, economic and general welfare of the city, and the preservation and protection of the old, historic or architecturally worthy structures in quaint areas or neighborhoods which impact a distinct aspect of the city and which serve as visible reminders of the cultural, social, economic and architectural heritage of the city, the state, and the nation.

1. Boundary. The boundary of the historic properties shall be those specific properties as specified by the Kennesaw Historic Preservation Commission and so designated by ordinances adopted by the Mayor and Council, or designated on state or national registers, pursuant to the provisions of O.C.G.A. §44-10-26 (the Georgia Historic Preservation Act—Acts 1980, pages 1723—1729). All historic properties shall be designated on a map entitled "Official Historic Properties Map of the City of Kennesaw," which shall be as adopted by the Mayor and Council, and the same required boundaries to be shown on the "Official Zoning Map of the City of Kennesaw."

2. Relationship to Zoning District.

   a) All that tract and parcel of land delineated on the historical district map of historic properties for the City of Kennesaw, dated May 19, 1978, presented on August 20, 1979, by Phil Secrist (Chairman of the Kennesaw Historical Society), and approved by Georgia Department of Natural Resources in October, 1979, and approved for the National Historic Register in April, 1980, which map is hereby incorporated by reference, shall be classified for zoning purposes as KHD (Kennesaw Historical District) and shall be designated as being a part of zoning district KHD (Kennesaw Historical District). Such zoning classification and designation shall be in addition to and not in lieu of the zoning classification and zoning designation applicable to such property at the time such property is designated as being a part of the historic district or is designated as historic property.

   b) If a conflict exists with regard to a use which is available to property having more than one zoning classification or zoning district designation, then the more liberal or less restrictive use shall apply to such property; however, the minimum dimensional requirements applicable to such property shall be those requirements applicable to zoning district HIS (Historic Kennesaw District).

3. Classification of historic properties and development standards.

   a) The Historic Preservation Commission shall evaluate all properties as designated on the Official Historic Properties Map of the City of Kennesaw, and the Official Zoning Map of the City of Kennesaw. All properties so designated shall be classified as one of the following categories:

      i. Historic: More than 50 years old and contributing to the community's historic character;

      ii. Historic-obscured: More than 50 years old but not contributing to the historical character of the community due to unsympathetic but not irreparable alterations;

      iii. Non-historic: Less than 50 years old and contributing to the historic character of the community by possessing architectural character;

      iv. Intrusion: Structures of any age which detract from the historic character of the district; and

      v. Vacant.

b) All historic, historic-obscured, non-historic, and intrusion property classifications in the Kennesaw Historic District shall be shown on the Official Historic Properties Map of the City of Kennesaw, and the Official Zoning Map of the City of Kennesaw. In the event a question arises over the classification of the property, the property owner may file an appeal stating the reason(s) for the appeal with the zoning administrator. On such appeal, the commission shall reconsider their original finding and classify the property based on their current evaluation. If such appeal has not been remedied, the commission shall submit a report to the Mayor and Council indicating the reason(s) for their classification of the individual property. After considering the appeal as requested by the individual property owner on the classification of his property, the Mayor and Council may reclassify the property or any portion thereof as they determine.

Refer to Chapter 10 of this UDC for information regarding the appeals process.

B. HPV, Historic Preservation Village. The HPV district is established to set aside certain properties for the purpose of providing an area that will be designed and used as a historic village. It is encouraged that resourcefulness and ingenuity will be used to assure that the property will meet the goals of the master plan of the City of Kennesaw as adopted by the Mayor and Council in June, 1995. The classification is primarily intended for properties located within Land Lot 138, 20th District, 2nd Section, and is bounded on the North by Cherokee Street and Big Shanty Road, on the east by Sardis Street, on the South by Old Highway 41, and on the West by CSX Railroad, and more particularly, Parcels 69, 70, 71, 72, 73, 74, 76, 77, 78, 79, 80, 173 and 201.

C. CBD, Central Business District. The CBD is established in order to preserve and protect the cultural and historic aspects of downtown Kennesaw and simultaneously provide for the stimulation and enhancement of the vitality and economic growth of this special area. The classification is primarily intended for a focal point for upscale retail trade, tourism, and financial and public uses. The intent of the CBD is to develop a compact core to encourage and facilitate pedestrian movement and provide convenient access to the amenities of Historic Downtown Kennesaw. The CBD is designed to achieve the following:

1. Create an environment where residents and visitors can live, work, meet, and play.
2. Promote a balanced mix of retail, office-professional, entertainment, residential, civil, and cultural uses in the core downtown area.
3. Allow for growth of a healthy economic business district.
4. Incorporate aesthetically compatible design from gateway points to the core of the city to improve the aesthetics of street and built environments.
5. Ensure compatibility with the historic district to achieve architectural and design integrity and consistency.
6. Provide accessible and sufficient parking that is unobtrusive by encouraging shared, underground, and deck parking and alternative modes of transportation including pedestrian and bicycles.
7. Promote a pedestrian environment though sidewalk-oriented buildings and attractive street-facing façades that encourage pedestrian activity.
8. Provide safe and accessible parks and public and private open space.

D. Conservation Subdivision/Open Space development. The purposes of the Conservation Subdivision/Open Space development are:

1. To provide for the preservation of greenspace as a nonstructural stormwater runoff and watershed protection measure.
2. To provide a residential zoning district that permits flexibility of design in order to promote environmentally sensitive and efficient uses of the land.

3. To preserve in perpetuity unique or sensitive natural resources such as groundwater, floodplains, wetlands, streams, steep slopes, woodlands and wildlife habitat.
4. To permit clustering of houses and structures on less environmentally sensitive soils, which will reduce the amount of infrastructure, including paved surfaces and utility easements, necessary for residential development.
5. To reduce erosion and sedimentation by minimizing land disturbance and removal of vegetation in residential development.
6. To promote interconnected greenways and corridors throughout the community.
7. To promote contiguous greenspace with adjacent jurisdictions.
8. To encourage interaction in the community by clustering houses and orienting them closer to the street, providing public gathering places and encouraging use of parks and community facilities as focal points in the neighborhood.
9. To encourage street designs that reduces traffic speeds and reliance on main arteries.
10. To promote construction of convenient landscaped walking trails and bike paths both within the subdivision and connected to neighboring communities, businesses, and facilities to reduce reliance on automobiles.
11. To conserve scenic views and reduce perceived density by maximizing the number of houses with direct access to and views of open space.
12. To preserve important historic and archaeological sites.
13. To encourage the development of residential communities designed to preserve and protect environmental resources, scenic vistas, and natural and cultivated landscapes.
14. To reduce infrastructure impact as a result of efficient community design.

E. SLO, Senior Living Overlay district. The purpose of this overlay zoning district is:

1. Establish high quality living standards for senior oriented housing
2. Create a self sufficient development that addresses transportation and service delivery issues specific to the area.
3. Create a unique site plan design that accomplishes the housing goals as adopted under the City of Kennesaw Comprehensive Plan.

F. Civilian Airport Hazard District

1. Definitions and Acronyms—The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

    a. Above Ground Level ("AGL") means a reference of elevation above ground level.
    b. Airport means Cobb County Airport-McCollum Field and Fulton County Airport - Charlie Brown Field and other civilian use public-owned airfields, including heliports as recognized by the State of Georgia.
    c. Airport Manager means the administrative representative of each Airport.
    d. Runway Elevation means height limitations originate from the nearest Airport's runway Mean Sea Level. Runway Elevations are documented in the Airport's Master Plan.
    e. Airport Impact Zones means the Six (6) areas closest to Airport under which Airport operations regularly occur, as shown on the Airport Impact Zones Land Use Map.
    f. Airport Operations means take off, climb out, approach, landing, and traffic pattern operations that may vary for each aircraft.

g. Airport Impact Zones Land Use Map means map describing compatible land uses within the vicinity of each Airport.

h. Airspace Surfaces means the same areas as stated in the Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces as amended from time-to-time.

i. Federal Aviation Administration ("FAA") means the federal agency titled "Federal Aviation Administration" which is charged with oversight and regulation of civil aviation to promote safety, including that of most publicly-owned airports.

j. Federal Aviation Regulations ("FAR") Part 77 Airspace Surfaces means regulated airspace surfaces promulgated in 14 Code of Federal Regulations (CFR) Part 77, Objects Affecting Navigable Airspace.

k. TERPS means Terminal Instrument Procedures, which is the standard instrument approach procedures and takeoff minimums and obstacle departure procedures based on the criteria contained in FAA Order 8260.3 U.S. Standard for Terminal Instrument Procedures

l. Mean Sea Level ("MSL") means the elevation reference for objects above sea level.

m. Non-conforming Use means any structure, natural growth or use of land which does not conform to a regulation prescribed in this chapter or an amendment thereto, as of the effective date of such regulations.

n. Obstruction to Air Navigation means an object of greater height than any of the heights or surfaces presented in Federal Aviation Regulations Part 77 Airspace Surfaces. (Obstructions to air navigation are presumed to be hazards to air navigation until an FAA aeronautical study has determined otherwise.)

o. Hazard to Air Navigation means an object which, as a result of an aeronautical study, the FAA determines will have a substantial adverse effect upon the safe and efficient use of navigable airspace by aircraft, operation of air navigation facilities, or existing or potential airport capacity.

p. Runway means an airport's paved or cleared strip on which planes land and take off.

2. Height Zoning—Height limitation zoning applies to structures and natural growth objects within the airspace as defined by the Federal Aviation Regulations Part 77 Airspace Surfaces and TERPS.

   a. Construction or Alteration Requiring Notice to the FAA. Except for construction less than Twenty-five (25) feet AGL or as provided in FAR Part 77.15, any construction or alteration that meets or exceeds the height criteria established in FAR Part 77.13 as amended from time to time, shall complete the FAA notification process as provided in FAR Part 77.17 as amended from time-to-time, using the FAA Notice of Proposed Construction or Alteration form 7460-1 as amended from time-to-time.

   b. Height Limitation. The Civilian Airport Hazard District Ordinance does not preclude approval of obstructions to air navigation with heights in excess of those height limitations prescribed in FAR Part 77 and/or TERPS, if either of the following is met:

      i. A determination of "No Hazard to Air Navigation" is issued from a FAA Airspace Study resulting from the Notice Requirement of FAR part 77.17 and the Airport Manager supports the determination.

      ii. A variance is granted when such action is considered advisable to effectuate the purposes of this section and reasonable in the circumstances when considering the results of the determination of an FAA Airspace Study and the input from the Airport Manager.

3. Land Use Zoning Recommendations—Land use zoning recommendations prescribes land uses and zoning designations that are deemed compatible within the Airport Operations

areas, as shown on the Airport Impact Zones Land Use Map. Table 1 presents recommended conforming land uses within each Airport Impact Zone.

TABLE 1
AIRPORT IMPACT ZONES LAND USE RECOMMENDATIONS

Land Usage	Runway Protection Zone	Inner Safety Zone	Turning Zone	Outer Safety Zone	Side Line Safety Zone	Traffic Pattern Zone
Residential	N	N	Y (1)	Y	N	Y
Commercial	N	N	Y	Y	N	Y
Industrial	N	Y	Y	Y	N	Y
Schools/Institutional	N	N	N	N	N	Y
Day Care Center	N	N	N	N	N	Y
Place of Worship	N	N	N	N	N	Y
Parks/Open Space	N	N	N	N	N	Y
Passive Parks	Y	Y	Y	Y	Y	Y
Nursing Home	N	N	N	N	N	Y
Hospital	N	N	N	N	N	Y
Solid Waste Landfill	N	N	N	N	N	N

a. Low density residential

i. Generally. Notwithstanding any other provisions of this chapter, no use may be made of land within the zones listed in this section in such a manner as to create electrical interference with radio communication between the Airport and any aircraft, make it difficult for flyers to distinguish between airfield lights and other lights, result in glare in the eyes of flyers using the airfield, impair visibility in the vicinity of the airfield, attract birds, or otherwise endanger the landing, takeoff or maneuvering of any aircraft.

4. Existing Non-Conforming Uses or Heights. This Ordinance shall not be construed to require the removal, lowering, change or alteration of any previously-approved nonconforming use or structure, or otherwise interfere with the continuance of any previously-approved nonconforming use or structure, except as otherwise provided by this section, including those previously-approved nonconforming uses or structures under construction.

    a. Nothing in this Section shall contradict the limitations placed on Non-conforming Uses of a building, structure or land as described in Section 134-31 of the City Ordinances—Non-conforming Uses.

        i. Notwithstanding the preceding section, this Ordinance shall provide the right to require the owner of any existing nonconforming structure to mark and/or light any structure as deemed necessary by Cobb County.

        ii. Notwithstanding the preceding section, no existing non-conforming natural growth may become higher, or become a greater hazard to air navigation than it was on the effective date of this ordinance.

5. Conflicting Regulations. In case of conflict between the regulations of this Chapter and other regulations, unless otherwise stated, the more stringent regulations shall control.

(Ord. No. 2012-03, 5-7-12)

2.02.00 - LAND USES PERMITTED IN EACH ZONING DISTRICT

2.02.01 - Generally

The tables describe those uses that are permissible in each base zoning district. Buildings, structures, or land shall be occupied or used only in conformity with all of the regulations set forth herein for the district in which they are located. The zoning districts for the City of Kennesaw are shown on the "Official Zoning Map, City of Kennesaw, Georgia."

2.02.02 - How to Read the Table of Uses

A. The table is provided for the convenience of the user; however, please consult the permitted uses (P) or special exception use (SE) sections of the specific zoning district(s) for possible use limitations for specific permitted uses or special exception uses.

B. Within the following table the letter "P" indicates that the land use is permissible, subject to compliance with the standards of the zoning district.

C. The letters "SE" indicates that the land use is permissible as a special exception use, subject to compliance with the standards of the zoning district, and the supplemental standards specified for the use. Supplemental standards are contained in Chapter 4

D. A blank cell indicates the land use is prohibited.

E. Any land use that is not identified in the table is prohibited unless it is found to be substantially similar by the Planning and Zoning Administrator.

    1. A requested use shall be considered substantially similar when the characteristics of the requested use are equivalent in type, intensity, degree, or impact when compared to a use named in the table. Such characteristics include, but are not limited to:

        a. Typical hours of operation;

        b. Use of outdoor storage;

c. Trip generation rates;

d. Generation of noise, light pollution, odor, smoke, electromagnetic interference, or vibration; and

e. Customary functions of the use.

2. The administrative interpretation shall be subject to appeal, as set forth in Chapter 10 of the UDC.

2.02.03 - Table of Land Uses — Residential Districts

CBD - Central Business District Uses to be found under Chapter 4.02.03(C)

TYPE OF USE	HPV	CBD	R-30	R-20	R-15	R-12	R-10	PUD-R	RA-4	RM-8	RM-12	FST	MHP	SLO
Accessory retail sales and services		P												
Agricultural produce stands														
Ambulance services														
Ambulance services, if accessory to hospitals or funeral homes														
Amphitheaters		P												
Amusement centers														
Ancillary retail sales		P												
Animal hospitals		P												
Appliance repair (major)														
Arcades														

Asphalt plants														
Assembly halls														
Associated low intensity offices and limited retail uses	P													
Athletic and health clubs		P												
Automobile, truck, and trailer lease and rental facilities (accessory use)														
Automobile, truck, and trailer lease and rental facilities (principal use)														
Automobile and truck sales and service facilities														
Automotive paint and body repair shops														
Automotive parking lots or garages														
Automotive repair and maintenance facilities														
Automotive salvage and wrecking yards														

Automotive storage yards and wrecker service														
Automotive upholstery shops														
Aviation airports (private)														
Banks/financial institutions with drive-in establishments and/or automated transfer machines														
Billiards and pool halls														
Biomedical waste transfer and disposal facilities														
Boat sales and service establishments														
Breeding and boarding kennels														
Building materials stores														
Buildings of historic significance	P	P												
Bus stations														

Bus stations for freight														
Car washes														
Cemeteries	SE		SE	SE	SE	SE	SE	SE	SE	SE	SE	SE		
Chemical plants or storage facilities														
Churches, chapels, temples, synagogues, and other places of worship	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE		
Clinics														
Clubs or lodges (noncommercial)			P	P	P	P	P	P						
Coliseums, stadiums, and convention centers (privately owned)														
Colleges and universities (private), including but not limited to research and training facilities														
Commercial greenhouses and plant nurseries														
Commercial indoor recreation uses														

Commercial outdoor recreation uses														
Commercial recreation restaurant														
Community fairs			P	P	P	P	P	P	P	P	P	P	P	
Community retail uses														
Composting plants														
Concrete plants														
Condominiums										P				
Contractors (general, heavy, special)														
Convenience food stores with self-service fuel sales														
Corporate or administrative offices for any permitted uses														
Crematories, human or animal														
Cultural facilities														
Dairies														

Designated recycling collection locations			P	P	P	P	P	P	P	P	P	P	P	
Drive-in theaters														
Dry cleaning plants														
Eating and drinking establishments (including drive-in fast food restaurants)														
Electrical supply stores														
Emissions/inspection stations (not to exceed five months)														
Executive golf courses			P	P	P	P	P	P	P	P	P	P		
Exterminating facilities (insect and/or rodent)														
Farm and garden supply stores														
Farm equipment stores/repair facilities														
Farmers markets (fully enclosed)		P												
Field crops														

Film developing and printing facilities														
Flea markets														
Fraternity and sorority houses/residence halls		P								P	P			
Freight terminals														
Fruit Trees, Nuts and Vegetables			P	P								P		
Fuel and ice dealers														
Full service gasoline stations														
Funeral homes														
Golf courses (Par 3)			P	P	P	P	P	P	P	P	P	P		
Golf courses (18-hole regulation; private and public)			P	P	P	P	P	P	P	P	P	P		
Group homes			P	P	P	P	P		P			P		
Halfway houses														
Hazardous waste sites														
Heavy automotive repair establishments														

Heavy manufacturing establishments														
Heavy repair service and trade shops														
Helicopter landing areas														
High rise apartments														
Hospitals														
Hotels														
Hotels—Historic	P								P	P	P	P		
In-home day care			P	P	P	P	P	P						
Landfills (private)														
Laundry and dry cleaning pick-up establishments														
Light automotive repair establishments														
Limited home occupations			P	P	P	P	P	P	P	P	P	P	P	
Light manufacturing establishments														
Limited retail uses														

Linen and diaper services											P		
Livestock, nondomestic and wild animals, and poultry													
Livestock sales pavilions													
Machine shops													
Manufactured homes			P	P	P	P	P	P	P				
Mausoleums	SE		SE	SE	SE	SE	SE	SE					
Medical and dental laboratories, provided that no chemicals are manufactured on site													
Mining operations													
Motels													
Motorcycle, ATV, and three-wheel vehicle sales and service facilities													
Multifamily dwelling units		P								P	P		
Museums	P	P											

Neighborhood retail uses														
Newspaper publishing facilities														
Nightclubs														
Nonautomotive repair service establishments														
Nonprofit riding stables			P	P	P	P	P	P	P	P	P	P		
Nonprofit (seasonal use) fishing lakes			P	P	P	P	P	P	P	P	P	P		
Nursery schools and child day care centers														
Offices not elsewhere classified														
Office service and supply establishments														
Other consumer goods and services														
Outdoor commercial racing (motorcycle, automobile, truck, tractor and motorized vehicles)														

Outdoor golf driving ranges														
Overnight travel trailer parks														
Pain Management Clinic														
Parking for vehicles		P												
Pawn shops														
Petroleum or bulk storage stations														
Photography studios														
Plumbing and/or heating equipment dealers														
Poultry hatcheries														
Printing, publishing, and lithography establishments														
Private community centers	SE		SE	SE	SE	SE	SE	SE	SE	SE	SE	SE		
Private parks	P		P	P	P	P	P	P	P	P	P	P	P	P
Private schools of general and special education	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE		
Pro shops (accessory to														

driving ranges/golf courses)														
Professional offices														
Radio and television stations														
Radio, television, and other communication towers and antennas			SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	
Rail stations														
Railroad car classification yards														
Railroad stations for freight														
Recreation grounds other than tennis courts and golf courses			P	P	P	P	P	P	P	P	P	P		P
Recycling centers														
Research and development centers														
Research testing laboratories														
Rest/personal care/convalescent homes														

Restaurants—sit down dining		P												
Re-upholstery and furniture repair establishments														
Rooming houses and boardinghouses														
Sawmills (temporary)														
Self-service laundry facilities														
Self-service storage facilities														
Shelters (homeless)														
Signs and outdoor advertising facilities														
Single-family dwelling units (attached)		P						P	P	P	P	P		P
Single-family dwelling units (detached)		P	P	P	P	P	P	P	P	P	P	P		P
Studios and supplies														
Taxi stands and dispatching agencies														

Telephone business offices														
Temporary uses			P	P	P	P	P	P	P	P	P	P		
Theaters														
Tire retreading and recapping facilities														
Townhouse dwelling units (attached)								P				P		
Trailer salesrooms and sales lots														
Transportation equipment storage and maintenance facilities														
Truck terminals														
Two-family dwelling units								P		P	P	P		P
Utility facilities (private)														
Vending machine sales, service, rental, or repair establishments														
Vocational schools (commercial)														
Warehouse and storage facilities														

Wholesale sales offices														
Wholesale trade and distribution facilities														
Wholesale trade offices in conjunction with office showrooms														
Zoos														

This chart is provided for the convenience of the user; however, please consult the permitted uses (P) or special exception use (SE) sections of the specific zoning district(s) for possible use limitations for specific permitted uses or special exception uses.

(Ord. No. 2012-03, 5-7-12)

2.02.04 - Table of Land Uses — Non-Residential Districts

CBD - Central Business District Uses to be found under Chapter 4.02.03(C)

TYPE OF USE	CBD**	OI	NS	NRC	PSC	GC	HGB	CRC	UVC	PVC	LI	HI
Accessory retail sales and services	P	P									P	
Agricultural produce stands											P	P
Ambulance services						P	P				P	P
Ambulance services, if accessory to		P			P	P	P	P		P	P	P

hospitals or funeral homes												
Amphitheaters						P	P			P	P	
Amusement centers						SE	SE				SE	SE
Ancillary retail sales	P										P	P
Animal hospitals		P			P	P	P	P		P	P	P
Appliance repair (major)											P	
Arcades					SE	SE	SE	SE				
Asphalt plants												SLUP/SE
Assembly halls		P				P	P	P			P	P
Associated low intensity offices and limited retail uses	P											
Athletic and health clubs	P			P	P	P	P	P		P		
Automobile, truck, and trailer lease and rental facilities (accessory use)						SE	SE				SE	SE
Automobile, truck, and trailer lease and rental facilities (principal use)						SE	SE				SE	SE

Automobile and truck sales and service facilities						SE	SE				SE	SE
Automotive paint and body repair shops						P	P				P	P
Automotive parking lots or garages	P			P	P	P	P	P	P	P	P	P
Automotive repair and maintenance facilities						P	P				P	P
Automotive salvage and wrecking yards												SLUP
Automotive storage yards and wrecker service											SE	SE
Automotive upholstery shops						P	P	P			P	P
Aviation airports (private)										P	P	P
Banks/financial institutions with drive-in establishments and/or automated transfer machines	P	P	P	P	P	P	P	P	P	P		
Billiards and pool halls				SE	SE	SE	SE	SE				

Biomedical waste transfer and disposal facilities												SLUP/SE
Boat sales and service establishments							P				P	P
Breeding and boarding kennels							P				P	P
Building materials stores					P	P	P	P		P	P	P
Bus stations						P	P				P	P
Bus stations for freight											P	P
Car washes				P	P	P	P	P		P	P	P
Check Cashing business						P	P					
Cemeteries	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Chemical plants or storage facilities												SLUP/SE
Churches, chapels, temples, synagogues, and other places of worship	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Cigar, smoke shops, tobacco stores				SLUP	SLUP	SLUP						
Clinics		P		P	P	P	P	P	P	P	P	P

Clubs or lodges (noncommercial)		P			P	P	P	P	P	P	P	P
Coliseums, stadiums, and convention centers (privately owned)					SLUP/SE			SLUP/SE			SLUP/SE	SLUP/SE
Colleges and universities (private), including but not limited to research and training facilities		P			P	P		P		P	P	P
Commercial greenhouses and plant nurseries					P	P	P	P		P	P	P
Commercial indoor recreation uses					P	P	P	P		P	P	
Commercial outdoor recreation uses					P	P	P	P		P	P	
Commercial recreation restaurant						P	P	P				
Community fairs	P	P	P	P	P	P	P	P	P	P	P	P
Community retail uses					P	P	P	P				
Composting plants												SLUP/SE

Concrete plants												SLUP/SE
Condominiums												
Contractors (general, heavy, special) (office/warehouse)											P	P
Convenience food stores with self-service fuel sales						P	P					
Corporate or administrative offices for any permitted uses		P					P	P		P	P	P
Crematories, human or animal						SE	SE	SE			SE	SE
Cultural facilities (Private)	P	P	P	P	P	P	P	P	P	P		
Dairies											P	P
Designated recycling collection locations	P	P	P	P	P	P	P	P	P	P	P	P
Drive-in theaters						SE	SE				SE	SE
Dry cleaning plants											P	P
Eating and drinking establishments				P	P	P	P	P	P	P		

(including drive-in fast food restaurants)												
Electrical supply stores						P	P				P	P
Emissions/inspection stations						P	P	P			P	P
Executive golf courses					P	P	P	P	P	P	P	P
Exterminating facilities (insect and/or rodent)						P	P				P	P
Farm and garden supply stores					P	P	P	P			P	
Farm equipment stores/repair facilities						P	P				P	P
Farmers markets (fully enclosed)	P					P	P				P	
Film developing and printing facilities	P		P	P	P	P	P	P		P		
Flea markets					SE	SE	SE				SE	
Fraternity and sorority houses/residence halls	P	P			P	P	P	P		P		
Freight terminals											P	P

Fruit stores, markets				P	P	P	P	P				
Fuel and ice dealers											P	P
Full service gasoline stations						P	P	P			P	P
Funeral homes					P	P	P	P			P	
Golf courses (par 3)		P			P	P	P	P	P	P	P	P
Golf courses (18-hole regulation; private and public)				P	P	P	P	P	P	P	P	P
Group Homes		P				P					P	
Growlers	P			P	P	P	P	P	P	P		
Halfway Houses		P				P					P	P
Hazardous waste sites												SLUP/SE
Heavy automotive repair establishments											P	P
Heavy manufacturing establishments												SE
Heavy repair service and trade shops												P

Helicopter landing areas					P	P	P	P		P	P	P
Hookah Bar				P		P	P					
Hospitals		P			P	P	P	P		P	P	
Hotels					P	P	P	P	P	P		
Landfills (private)												SLUP/SE
Laundry and dry cleaning pick-up establishments				P	P	P	P	P		P	P	P
Light automotive repair establishments						P	P				P	P
Light manufacturing establishments											P	P
Limited retail uses	P		P	P								
Linen and diaper services						P	P				P	P
Livestock sales pavilions											P	
Machine shops											P	P
Manufactured homes												
Massage Therapy	P					P	P					

Massage Therapy associated with medical, chiropractic and sports medicine establishments	P	P										
Mausoleums		SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Medical and dental laboratories, provided that no chemicals are manufactured on site		P			P	P	P	P			P	P
Mining operations												SE
Mobile food vending unit	P			P		P	P				P	
Motels					P	P	P	P	P	P		
Motorcycle, ATV, and three-wheel vehicle sales and service facilities						SE	SE				SE	
Multifamily dwelling units	P								P	P		
Museums	P	P				P	P	P	P			
Neighborhood retail uses				P	P	P	P	P	P*	P		
Newspaper publishing facilities						P	P				P	P

Nightclubs						P	P					
Nonautomotive repair service establishments				P	P	P	P	P		P	P	P
Nonprofit riding stables						P					P	P
Nonprofit (seasonal use) fishing lakes		P	P	P	P	P	P	P	P	P		
Nursery schools and child day care centers		P	P	P	P	P	P	P	P	P		
Office service and supply establishments				P	P	P	P	P	P	P	P	P
Other service establishments					P	P	P				P	
Outdoor commercial racing (motorcycle, automobile, truck, tractor and motorized vehicles)												SLUP/SE
Outdoor golf driving ranges						P	P				P	P
Overnight travel trailer parks							P					
Pain Management Clinic		P				P	P				P	

Parking for vehicles	P	P	P	P	P	P	P	P	P	P	P	P
Pawn shops				P		P	P					
Petroleum or bulk storage stations												SLUP/SE
Photography studios					P	P	P	P		P		
Plumbing and/or heating equipment dealers											P	P
Poultry hatcheries											P	
Printing, publishing, and lithography establishments					P	P	P	P		P	P	P
Private community centers	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Private parks	P	P	P	P	P	P	P	P	P	P		P
Private schools of general and special education	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Pro shops (accessory to driving ranges/golf courses)					P	P	P	P		P	P	P
Professional offices	P	P	P	P	P	P	P	P	P	P	P	

Quarry or mining operation												SLUP/SE
Radio and television stations					P	P	P	P			P	P
Radio, television, and other communication towers and antennas		SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP	SLUP
Rail stations (Commuter)						P	P	P			P	P
Railroad car classification yards											P	P
Railroad stations for freight											P	P
Recreation grounds other than tennis courts and golf courses	P			P	P	P	P	P			P	P
Recycling centers												SLUP/SE
Regional shopping center						P	P	P				
Medical Research Centers		P			P	P	P				P	P
Research testing laboratories						P					P	P

Rest/personal care/convalescent homes	P	P		P	P	P	P	P	P	P		
Restaurants/sit down dining	P											
Re-upholstery and furniture repair establishments						P	P	P			P	P
Rooming houses and boardinghouses						P	P					
Sawmills (temporary)											P	P
Self-service laundry facilities				P	P	P	P	P	P	P		
Self-service storage facilities						P	P	P			P	P
Shelters (homeless)						P	P				P	P
Sports/Medical Physical Therapy	P	P										
Tattoo Business						P	P					
Taxi stands and dispatching agencies						P	P				P	P
Theaters (movies, live performing arts	P				P	P	P	P				

Tire retreading and recapping facilities											P	P
Townhouse dwelling units (attached)	P											
Trailer salesrooms and sales lots						P	P					
Transportation equipment storage and maintenance facilities											P	P
Truck terminals											P	P
Utility facilities (private)											P	P
Vending machine sales, service, rental, or Repair establishments							P				P	P
Vocational schools (commercial)					P	P	P				P	P
Warehouse and storage facilities											P	P
Waste Transfer Station												SLUP/SE
Wholesale sales offices											P	P

Wholesale trade and distribution facilities											P	P
Wholesale trade offices in conjunction with office showrooms						P					P	P
Wireless Telecommunications Facilities											SLUP	SLUP
Zoos						P					P	P

(Ord. No. 2012-03, 5-7-12; Ord. No. 2012-15, § 1, 12-17-12)

APPENDIX C

September 1, 2017

WILDLIFE HAZARD ASSESSMENT

for

COBB COUNTY AIRPORT-McCOLLUM FIELD

July 2014-June 2015

Prepared by

United States Department of Agriculture
Animal and Plant Health Inspection Service
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Elizabeth Miller
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September 2015

Reviewed by

Odin Stephens	**Steve Smith**
District Supervisor	**State Director**

EXECUTIVE SUMMARY

A Cooperative Service Agreement (CSA) between the Georgia Department of Transportation (GDOT) and the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service's (APHIS) Wildlife Services (WS) program was created in June 2014. Pursuant to this CSA, WS developed this Wildlife Hazard Assessment (WHA) for Cobb County Airport-McCollum Field (KRYY) to provide baseline data on wildlife hazards to aircraft/human safety. This assessment provides recommendations for reducing wildlife hazards to human health and safety. In addition, the WHA serves as a basis from which a Wildlife Hazard Management Plan (WHMP) may be developed.

The WHA at KRYY had four main objectives:

1. Conduct a review of the available wildlife strike records for KRYY.
2. Determine wildlife population parameters such as abundance, location, movements, activity, habitat use, and daily/seasonal occurrences for species identified on and near KRYY.
3. Identify local wildlife attractants and hazardous land use practices in the vicinity of KRYY that present a risk to aircraft.
4. Provide KRYY with habitat management recommendations for reducing wildlife hazards.

This WHA focuses on those wildlife attractants and hazards within the airfield environment. However, additional wildlife attractants that fall within a five-mile radius are also addressed and discussed in the WHA. Such attractants may be hazardous to incoming and outgoing air traffic at KRYY.

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LIST OF FIGURES

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LIST OF ACRONYMS

ADC	Animal Damage Control
APHIS	Animal and Plant Health Inspection Service
CFR	Code of Federal Regulations
CSA	Cooperative Service Agreement
DoD	Department of Defense
FAA	Federal Aviation Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
GA	General Aviation
GDNR	Georgia Department of Natural Resources
GDOT	Georgia Department of Transportation
ICAO	International Civil Aviation Organization
IWDM	Integrated Wildlife Damage Management
KRYY	Cobb County Airport-McCollum Field
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
NOAA	National Oceanic and Atmospheric Administration
USAF	United States Air Force
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WHA	Wildlife Hazard Assessment
WHMP	Wildlife Hazard Management Plan
WS	Wildlife Services

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1.0 INTRODUCTION

The Wright brothers first achieved powered flight in 1903. Two years later, Orville Wright recorded the first collision between wildlife and aircraft when he hit a bird over a corn field in Ohio (Thorpe 2003). In 1912, Cal Rodgers became the first fatality of a wildlife strike when a gull collided with his aircraft and jammed the rudder control, sending his plane crashing into the ocean (Thorpe 2003). Since 1912, wildlife have continued to compromise and disrupt air travel, risking lives in the air and on the ground.

Since 1990, over 156,114 strikes have been reported nationwide (Dolbeer et al. 2015). Combined, these strikes have resulted in over $708 million in costs and almost 1 million hours of aircraft down time. At least 26 people have been killed, while another 388 reported injury. A total of 67 aircraft have been destroyed as a result of strikes in the U.S. during this time. Globally, total records across time indicate that at least 276 human fatalities and 258 destroyed aircraft can be attributed to wildlife strikes (Thorpe 2010, Dolbeer et al. 2015). According to U.S. reports, wildlife strikes cause an estimated 567,000 hours of down time each year (FAA AC 150/5200-32B). Incidences which do not result in crashes may cause major structural and mechanical damage (Cleary et al. 2004). Each incident often affects other flights through costly delays or altering approach and departure paths.

Increases in wildlife strikes over the past century in the U.S. can be attributed to three primary factors: wildlife populations have increased and are adapting well to urban environments, commercial air traffic and enplanements have drastically increased, and the fleets of commercial air carriers are largely composed of quieter, two-engine aircraft that wildlife detect and avoid less easily than three- and four-engine aircraft more prevalently flown in the past (Dolbeer et al. 2015). As growing wildlife and human populations concurrently increase and interact with one another, the potential for conflict rises. The Federal Aviation Administration (FAA) began keeping strike records in 1965, but detailed monitoring of strikes ensued in the 1990's (Dolbeer et al. 2015). Strike reporting has increased from 1,851 accounts in 1990 to 11,315 reported in 2013. Currently, the majority of strike reports (83% in 2013) are filed electronically.

In response to this safety hazard, certificated airports are required by regulation (Title 14, Code of Federal Regulations (CFR) 139.337) to have a Wildlife Hazard Assessment and Wildlife Hazard Management Plan when one of the following specific events occur on or near an airport:

1. An air carrier experiences multiple strikes.
2. An air carrier aircraft experiences substantial damage from striking wildlife.
3. An air carrier aircraft experiences an engine ingestion of wildlife.
4. Wildlife of a size, or in numbers, capable of causing an event described in 1, 2, or 3 is observed to have access to any flight pattern or aircraft movement area.

Currently, General Aviation (GA) airports are not required, but recommended to adhere to these regulations. Strikes at GA airports are not decreasing, unlike strike trends at Part 139 certificated airports (Dolbeer et al. 2015). Of 67 reported strikes resulting in destroyed aircraft from 1990-2014 in the U.S., 40 occurred at GA airports.

Many species pose a threat to aircraft safety, although these threats vary in potential hazard (FAA AC 150/5200-33B). Considering the body mass of an animal, frequency of occurrence, behavior, and overall abundance on the airfield assists in determining potential hazardous wildlife. In an advisory circular, the FAA created a ranking system which combined three hazard scores to determine a species' relative hazard to aviation. These criteria were damage (defined as aircraft incurred at least some damage [destroyed, substantial, minor, or unknown] from strike), major damage (defined as aircraft incurred damage or structural failure, which adversely affected the structure strength, performance, or flight characteristics, and which would normally require major repair or replacement of the affected component, or the damage sustained makes it inadvisable to restore aircraft to airworthy condition), and effect on flight (defined as aborted takeoff, engine shutdown, precautionary landing, or other)(FAA AC 150/5200-33B). Body density and flock size of a species are two strong predictors of potential strike damage. For every increase of 100 grams in body mass per individual struck, there is a 1.27% increase in the likelihood of damage in a wildlife-aircraft strike (Dolbeer et al. 2015). The more individuals present in a flock, the more likely multiple engine ingestions are to occur.

While it is impossible to predict a wildlife-aircraft strike, a Wildlife Hazard Assessment makes it possible to gauge a species' potential of causing a damaging collision with an aircraft (Cleary and Dolbeer 2005). However, be advised that this WHA denotes the potential of and not the probability of a strike. A wildlife hazard is defined as: a potential for a damaging aircraft collision with wildlife on or near an airport (14 CFR 139.337). A WHA only represents a fraction of time during the entire survey period. Adverse conditions during a WHA (inclement weather, airfield maintenance activities, etc.) may over or under estimate wildlife that utilize the airfield.

An airfield's relative position to migratory flyways and landscape features (such as bodies of water, wetlands, and other wildlife habitats) create a variation in potential hazards from site to site. To develop a site specific WHA, each airport must have baseline data regarding wildlife species composition, abundance, behavior, habitat use, and daily and seasonal movement patterns. This information is most effectively collected and analyzed by wildlife biologists trained in wildlife damage/conflict management. This information, combined with the expertise of airfield managers provides the foundation for an effective Wildlife Hazard Management Plan. USDA's Wildlife Services program protects human health and safety and has become increasingly involved in assisting the United States Air Force (USAF) and civilian airports in resolving wildlife-aircraft hazards.

2.0 LEGAL AUTHORITY OF WILDLIFE SERVICES

The U.S. Department of Agriculture, Wildlife Services program has a Memorandum of Understanding (MOU) with the Federal Aviation Administration to manage wildlife hazards to aviation. The MOU established that WS has the wildlife damage management expertise and may provide technical and operational assistance (when funded by an airport or other entity) to alleviate wildlife hazards at airports. WS may conduct a WHA to serve as a basis for the WHMP, but the responsibility of development, approval, and implementation of the WHMP lies with the airport manager.

The primary statutory authority by which WS operates is the Animal Damage Control (ADC) Act of March 2, 1931, as amended (7 U.S.C. 426-426c; 46 Stat. 1468). WS has the authority to manage migratory bird damage as specified in the Code of Federal Regulations. In addition, the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988 authorizes and directs the Secretary of Agriculture to cooperate with states, individuals, public and private agencies, organizations, and institutions in the control of nuisance mammals and birds deemed injurious to the public. The MOU and legislation allow WS to conduct initial on-site investigations, biological assessments (short-term studies), wildlife hazard assessments (ecological studies), wildlife management operations, and to assist airports with the development of a wildlife hazard management plan.

Wildlife is a significant public resource, greatly valued by the American people. Additionally, it is a dynamic and mobile resource which can cause damage to agricultural and industrial resources, pose risks to human health and safety, and impact other natural resources. WS has the federal responsibility to help resolve conflicts which occur when human activity and wildlife are in close proximity to one another. Additionally, WS has the primary responsibility of responding to threats caused by migratory birds.

Wildlife Services Directive 2.305, Wildlife Hazards to Aviation, provides guidance for WS wildlife biologists in providing technical assistance or direct control to airport managers, state aviation agencies, the aviation industry, the FAA, and the Department of Defense (DoD) regarding hazards caused by wildlife to airport safety. WS assists federal agencies, state agencies, local agencies, airport managers, the aviation industry, and the military in reducing wildlife hazards on and in the vicinity of airports and air bases according to the Animal Damage Control MOU with FAA and DoD.

In addition, it is the responsibility of WS personnel that observe existing or potential wildlife hazards at airports or airbases to immediately notify the appropriate aviation authorities.

WS may enter into cooperative agreements to develop WHAs, WHMPs, and to conduct direct wildlife hazard reduction programs. These activities are performed pursuant to agreements that are funded by the cooperating entities.

WS biologists may provide training for airport and air base personnel in wildlife and hazard identification. Additionally, WS may provide training on the safe and proper use of control equipment and techniques.

3.0 OBJECTIVES

The objectives of this WHA are to:

1. Conduct a review of the available wildlife strike records for KRYY.
2. Determine wildlife population parameters such as abundance, location, movements, activity, habitat use, and daily/seasonal occurrences for species identified on and near KRYY.
3. Identify local wildlife attractants and hazardous land use practices in the vicinity of KRYY that present a risk to aircraft.
4. Provide KRYY with habitat management recommendations for reducing wildlife hazards.

4.0 KRYY BACKGROUND

4.1 LOCATION, AIRPORT OPERATIONS, FACILITIES

KRYY opened in December of 1942 (AirNav 2015). The airport is located approximately 21 miles northwest of Atlanta near Interstate 75. It is bordered on the north by the Vulcan Materials Company rock quarry, the northwest by McCollum Parkway, the west and southwest by Old 41 Highway NW, and the south and the east by numerous industrial parks and office buildings. The airport operates a single runway and a newly-constructed tower which is open from 0700-2300. KRYY is a general aviation airport publicly–owned by Cobb County (Figure 1).

Statistical figures from 2013 report an average of 169 operations per day, with 60% of those operations classified as transient general aviation. An additional 4% is classified as air taxi, 1% as military, and the remaining 35% as local general aviation. Two-hundred thirty eight aircraft are based on the field. Of which, 195 are single-engine airplanes, 31 are multi-engine airplanes, 48 jet airplanes, and 9 are helicopters.

Runway 9/27, measuring 6295 x 100 feet is constructed of concrete and reported to be in good condition. Runway surfaces are listed as 998.2-1040.4 feet in elevation.

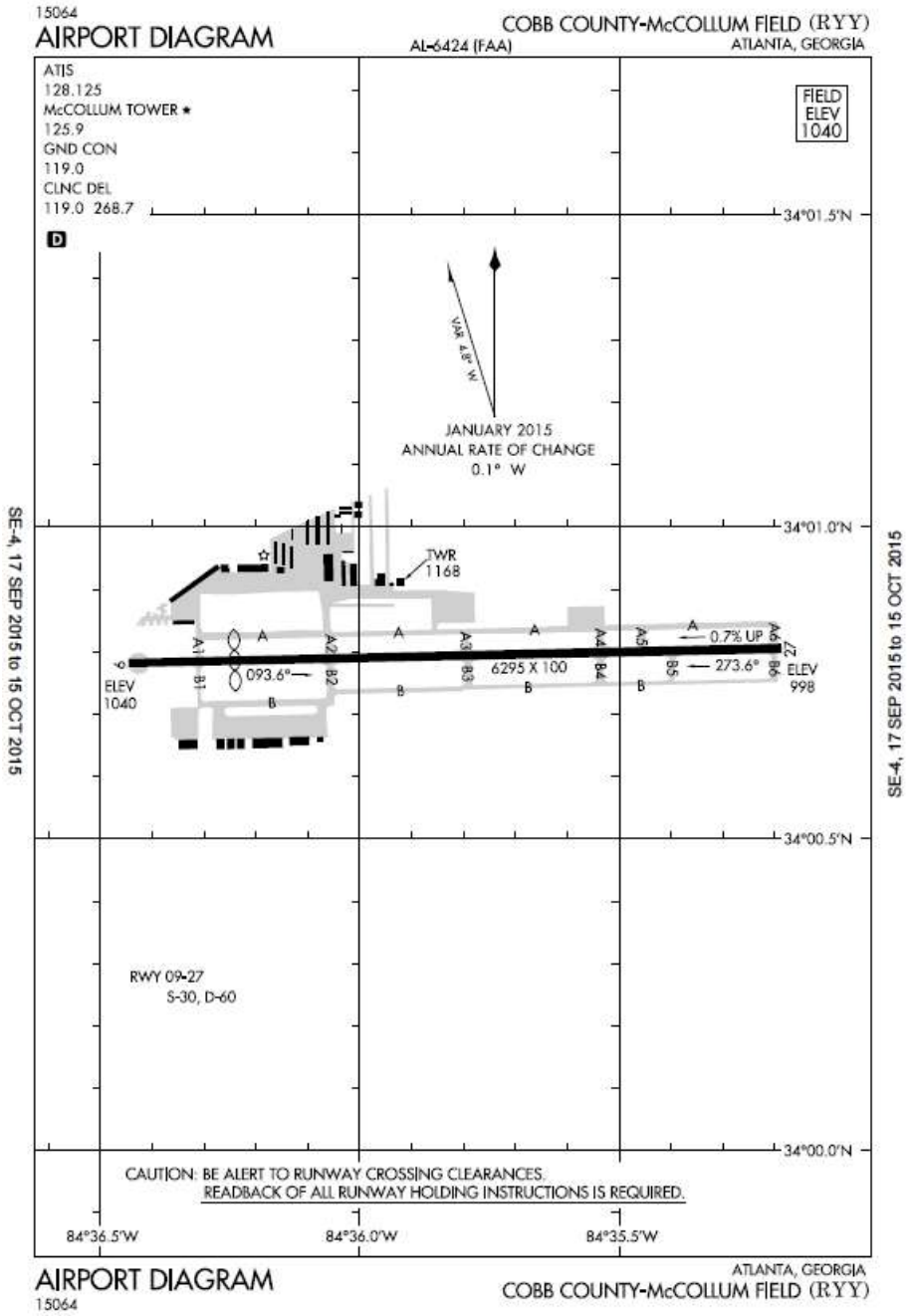

Figure 1. Airport diagram provided by the FAA of KRYY runways and facilities.

Multiple business reside on-site and offer a variety of services include fueling, ground support services, car rentals, flight lessons, and a restaurant.

4.2 SURROUNDING LANDSCAPE

There are several locations within a 5-mile radius of KRYY that provide wildlife habitat at a scale which could affect aviation safety at KRYY. Community ponds and parks, the Vulcan

Materials Company rock quarry, and Kennesaw Mountain National Battlefield Park are among some of those which are nearest or most notable.

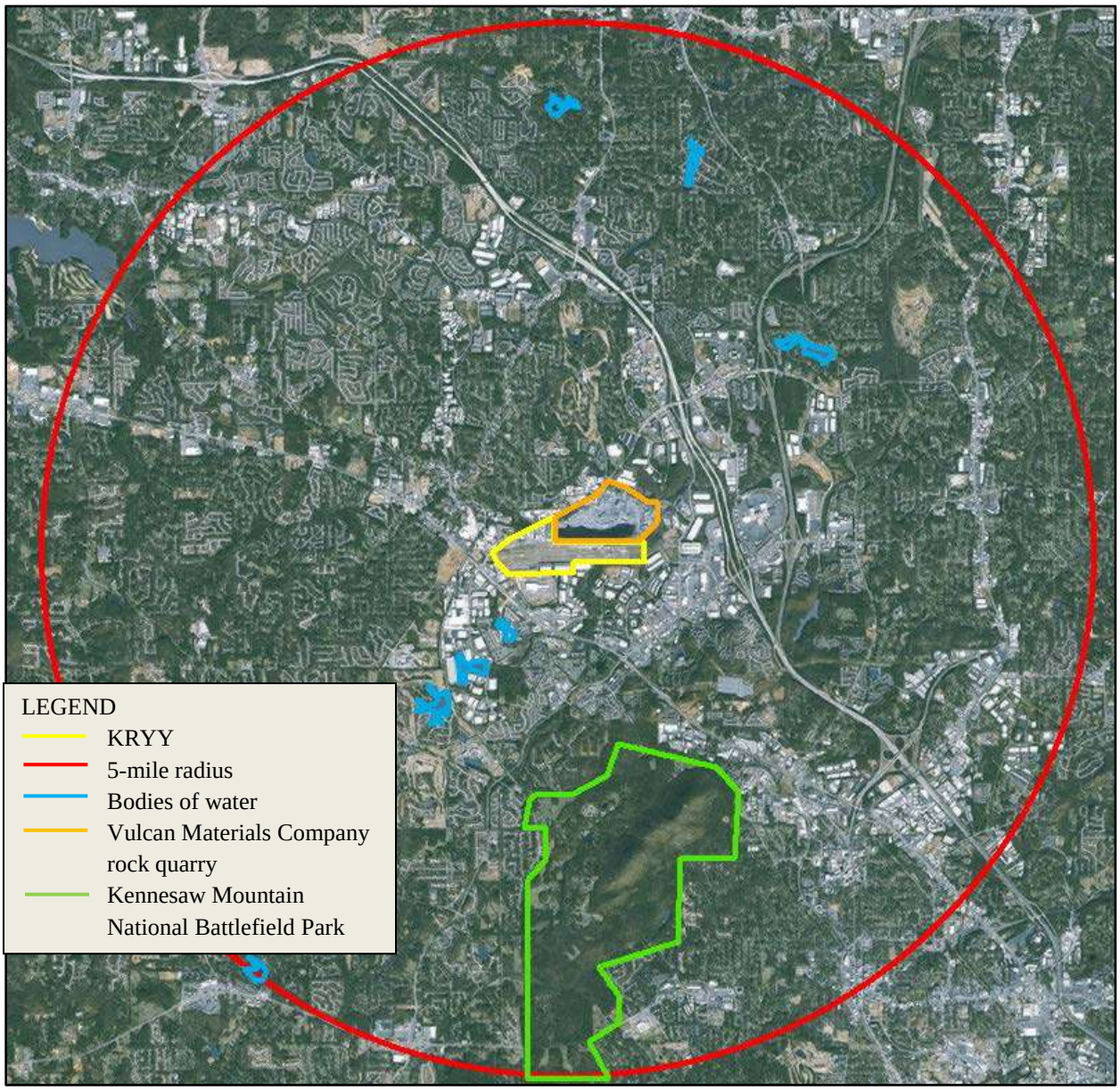

Figure 2. Locations of potential wildlife hazard attractants within 5 miles of KRYY.

Community Ponds and Parks

There are numerous parks and communities near KRYY. Some of these entities have bodies of water, while some provide wildlife habitat by simply being a green space in ultra-developed areas (Figure 2). Standing bodies of water may attract resident and migratory waterfowl. The combination of well-manicured grasses next to water may attract geese, which are largely non-migratory in Georgia. Parks and yards, especially those with the cover of trees and shrubs, provide habitat for small mammals. Many of the

neighborhoods in the 5-mile radius of KRYY are older and have mature tree communities associated with them. This provides cover and food to many wildlife species.

Vulcan Materials Company Rock Quarry

Located just north of the airport at 1272 Duncan Road NW (Figure 2), the quarry is likely attractive to many species. Specifically, vultures and coyotes exhibit specialized uses of this space. Vultures use columns of heated rising air, called thermals, to conserve energy as they soar overhead looking for sources of food. Thermals exist in areas where the ground heats at different rates than its surroundings, like roads or in this case a rock quarry. Coyotes use the quarry for hunting habitat, looking for small mammals which nest or seek cover within the many layers of exposed rock in the quarry. The quarry has well-established roads that may be travel corridors for coyotes. Coyotes may establish dens in the cover between the airport and the quarry, as it provides ideal proximity to multiple resources.

Kennesaw Mountain National Battlefield Park

Kennesaw Mountain National Battlefield Park covers an area just less than 3,000 acres on the other side of Barrett Parkway from KRYY (Figure 2). Mostly wooded and undeveloped, this area provides ideal habitat for most species of Georgia's native wildlife. Kennesaw Mountain National Battlefield Park is a source for potential wildlife hazards at KRYY as young animals disperse or as animals leave the park in search of vital resources or new territories.

4.3 WILDLIFE STRIKE ANALYSIS

According to the FAA in AC 150/5200-33B, a wildlife strike has occurred when:

1. A pilot reports a strike.
2. Aircraft maintenance personnel identify aircraft damage as having been caused by a wildlife strike.
3. Personnel on the ground report seeing an aircraft strike 1 or more birds or other wildlife.
4. Bird or other wildlife remains, whether in whole or in part, are found within 200 feet of a runway centerline, unless another reason for the animal's death is identified.
5. The animal's presence on the airport had a significant negative effect on a flight (i.e., aborted takeoff, aborted landing, high-speed emergency stop, or aircraft left pavement area to avoid collision with animal).

Historical analysis of strike data can provide valuable information as to which factors pose the greatest threats to aviation at an airport. Trends may be observed in seasonality, time-of-day, altitude, and species among other influential factors. Behavior and habitat requirements of each

species assist with explaining these trends in strike data. Historical strike data for KRYY is available from 1990-2014, with 12 strikes reported over these 25 years. However, it is important to keep in mind that an estimated 80% of strikes go unreported (Cleary and Dolbeer 2005), and the last reported strike at KRYY occurred in 2011.

Unidentified birds (medium, small, and unlabeled) are responsible for 7 out of 12 reported strikes (Figure 3). As for those animals which were identified (blackbirds, Canada geese, coyotes, unidentified waterfowl [ducks], and sparrows), they are each attributed with a single strike.

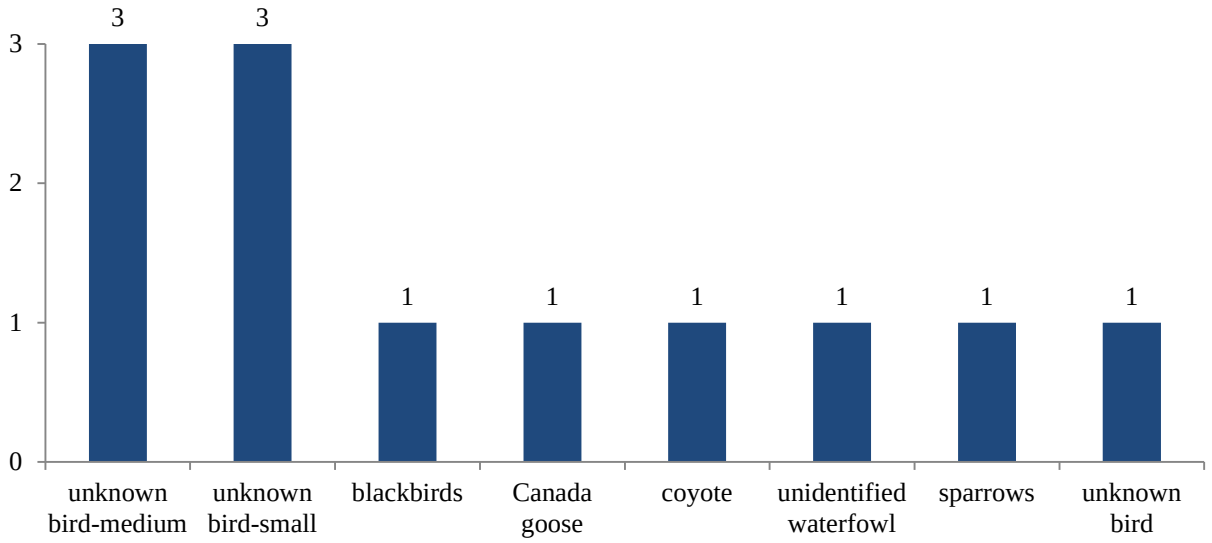

Figure 3. Number of bird strikes from 1990-2014 at KRYY by species or guild of bird.

Strikes occurred fairly evenly across all phases of flight, with approach claiming 42% (Figure 4). Only two other phases of flight were reported in the historical strike data for KRYY: take-off run (25%) and climb (33%). Phases of flight which were not reported to have incurred any strikes are the landing roll and the descent.

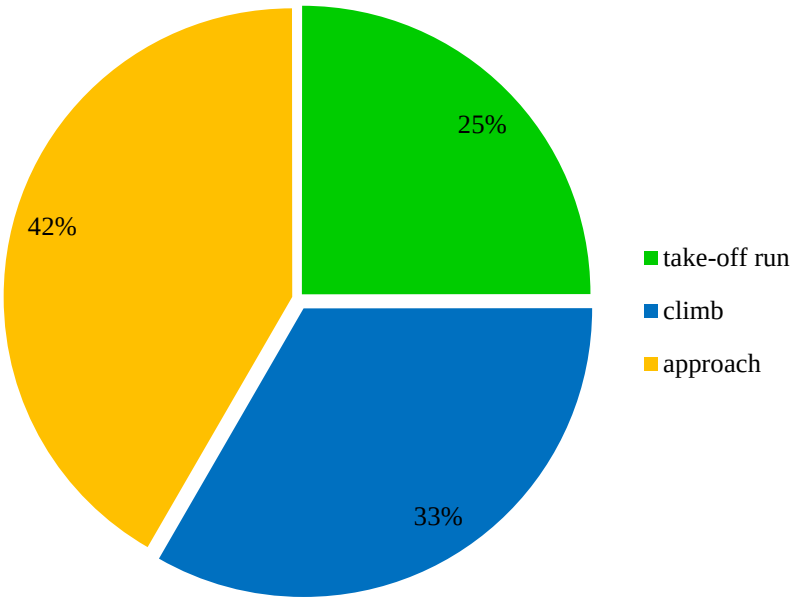

Figure 4. Percentage of strikes occurring at each phase of flight from 1990-2014.

Only 3 of 12 reported strikes claimed the incident caused any damage (Table 1). In all 3 instances, the damage is recorded as minor. Damage codes were developed by the International Civil Aviation Organization (ICAO) in 1989: minor=the aircraft can be rendered airworthy by simple repairs or replacements and an extensive inspection is not necessary; uncertain=the aircraft was damaged, but details as to the extent of the damage are lacking; substantial=the aircraft incurs damage or structural failure that adversely affects the structure strength, performance, or flight characteristics of the aircraft and that would normally require major repair or replacement of the affected component (specifically excluded are bent fairings or cowlings; small dents or puncture holes in the skin; damage to wing tips, antenna, tires, or brakes; and engine blade damage not requiring blade replacement); destroyed=the damage sustained makes it inadvisable to restore the aircraft to an airworthy condition. Strikes which resulted in minor damage involved an unknown medium bird, Canada geese, and an unidentified duck species (Table 1).

Animals can often be patterned to specific behaviors for certain times of day. For instance, most songbirds are heavily active during morning and evening hours as they come and go from roosting or nesting areas. Owls and predators are primarily nocturnal, and hawks are some of the more active species observable during the middle of the day. Understanding these patterns exposes specific risks to aviation which can be managed or monitored. At KRYY, an overwhelming 76% of strikes were reported during daylight hours, as opposed to 8% each for dawn, dusk, and night (Figure 5).

Table 1. All strikes reported at KRYY from 1990-2014, by date.

Wildlife species	Date	Aircraft Type	Damage classification	Cost of repairs ($)	Effect on flight
Blackbirds	9/1/1996	C-152	None	unk	Aborted Take-off
Unknown bird - medium	11/15/1996	PA-28	Minor	250	None
Coyote	7/1/1997	C-650	None	unk	unk
Unknown bird - small	7/22/1998	LEARJET-35	None	unk	Precautionary Landing
Unknown bird - small	4/30/2001	C-210 CENTUR	None	unk	None
Canada goose	8/28/2001	C-560	Minor	unk	Aborted Take-off
Ducks	4/22/2002	PA-28	Minor	unk	None
Sparrows	6/21/2002	C-152	None	unk	Precautionary Landing
Unknown bird - small	7/12/2002	PA-46 MALIBU	None	unk	None
Unknown bird - medium	8/27/2008	BE-55 BARON	None	unk	None
Unknown bird - medium	10/22/2009	C-182 SKYLAN	None	unk	None
Unknown bird	10/7/2011	SOCATA TBM700	None	unk	None

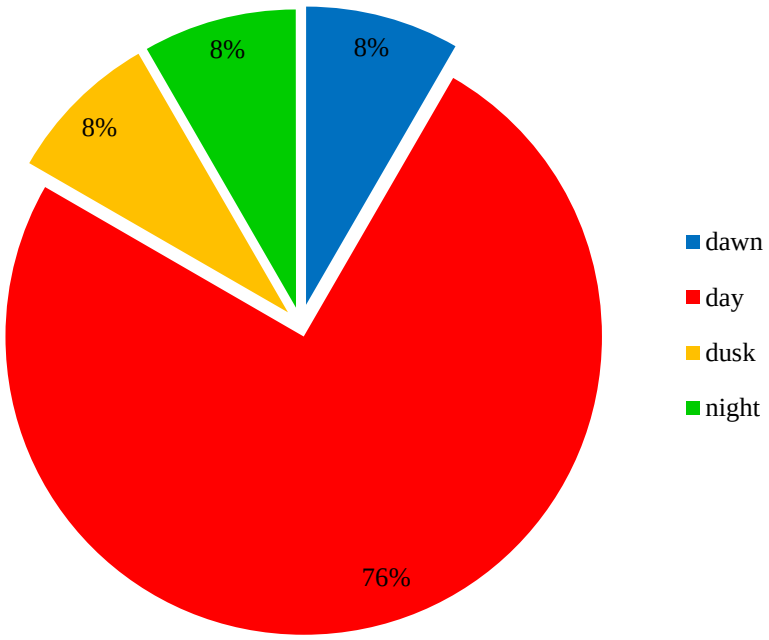

Figure 5. Percentage of strikes occurring at each time of day from 1990-2014.

Many North American birds are migratory species. Migratory bird species embark on an annual, large-scale movement between their summer breeding grounds and their winter non-breeding grounds. This results in a strong seasonality to bird presence, abundance, and hazard on airports. Figure 6 illustrates peaks in reported strikes in April, July, and October, with no strikes ever reported from December through March across the 25-year time period. These peak could be due to these seasonal migrations of many bird species, including blackbirds, neo-tropical migrant passerines, waterfowl, raptors, and doves.

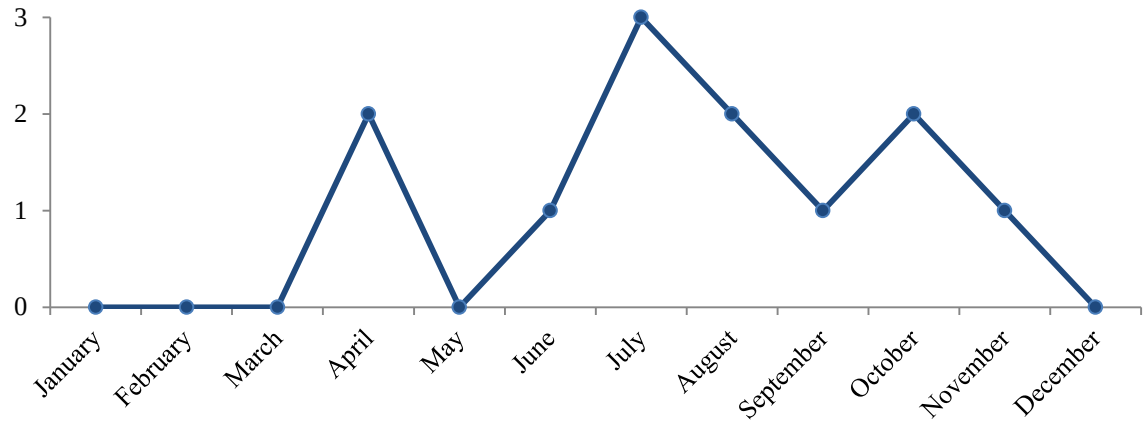

Figure 6. Number of strikes reported per month from 1990-2014.

5.0 WILDLIFE ATTRACTANTS AT KRYY

5.1 HABITAT TYPES

Habitat is the combination of resources needed by a species for survival including food, cover, water, and special factors (Leopold 1933). Each environment on an airfield presents adequate habitat for a variety of local species. KRYY provides a diversity of food, cover, and water on or near the airport which serves as habitat for wildlife. KRYY can be categorized into 5 main habitat types.

Herbaceous

KRYY has multiple habitat types which support dietary requirements of wildlife found in and around the airport. Areas close to the paved surfaces are mostly herbaceous, composed primarily of native and nonnative grass species and forbs (Figure 7). Mowed regularly, these areas are typically kept at a height meant to mitigate the amount of food and cover provided to wildlife species.

Common grass species at KRYY include dallisgrass, bahiagrass, crabgrass, Johnson grass, and foxtail. Various forbs like rabbit tobacco, horseweed, lespedeza, goldenrod and thistle are present. While ranging in value to wildlife, most of the plants offer some resource (food and/or cover) to species prevalent at KRYY (Figure 8).

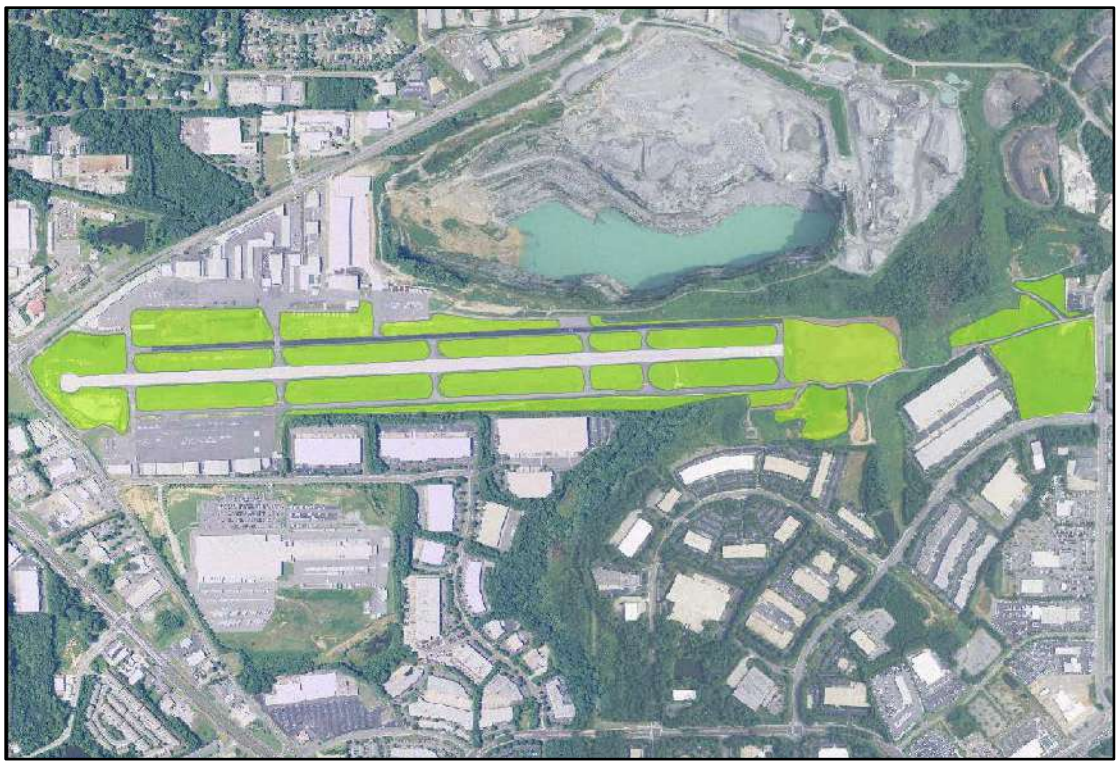

Figure 7. Herbaceous areas of KRYY, 2015.

Figure 8. An eastern cottontail rabbit eats in an herbaceous area at KRYY, August 2014.

Disturbed

Disturbed areas mostly refer to areas which have recently undergone change, or have features which keep the land from returning to a natural forest state. At KRYY, these areas are the areas east of the runway which include the large power line right-of-way and the large dirt mounds adjacent to that area (Figure 9). Disturbance (any event which resets or interrupts normal forest succession) tends to promote the growth of some early successional plant species, many of which retain high wildlife value as food sources for birds and mammals. Eventually, perennial plants may out-compete the annual early successional plants at a disturbed site and that location will transform into another habitat type at the airport.

Figure 9. Disturbed areas at KRYY, 2015.

The power line right-of-way which runs throught the eastern part of the airport follows portions of a small creek. The large metal poles and the creek make maintaining this area difficult, and it seems as though it is mowed less frequently. In 2 locations (one northeast of the power line and one southwest of the power line), large deposits of earth designate additional disturbed sites. These sites cannot be mowed, but native vegetation emerges from the ground here and can grow quickly into thick cover for wildlife (Figure 10). Plants present at these disturbed sites include native grasses, legumes (lespedezas and littleleaf sensitive brier), and woody plants like sumacs, blackberries, and kudzu.

Figure 10. A deer beds at night in native vegetation at a disturbed site at KRYY, May 2015.

Developed Areas

Buildings on the airport can provide some habitat for wildlife, primarily in the form of cover or perching and roosting habitat. Pigeons and sparrows may roost in hangars, while hawks might perch on buildings while searching for prey. Mesomammals may burrow or den underneath buildings. Ornamental plants associated with strategic placement near buildings or walkways for aesthetics also provide food, cover, and perching/roosting habitat (Figure 11).

Figure 11. Developed areas at KRYY, 2015.

Wooded

This designation is reserved for those parts of the airfield dominated by trees and woody shrubs. At KRYY, these areas fragment the airfield, but are contained to the periphery (Figure 12). However, some of these edges of the airport are actually quite close to the runway and taxiways. These areas are largely a mix of pines and hardwoods, with woody shrubs and vines like kudzu and sumac. Willows are common in the lower lying areas more closely associated with water. These plants provide forage and cover for many wildlife species at KRYY (Figure 13).

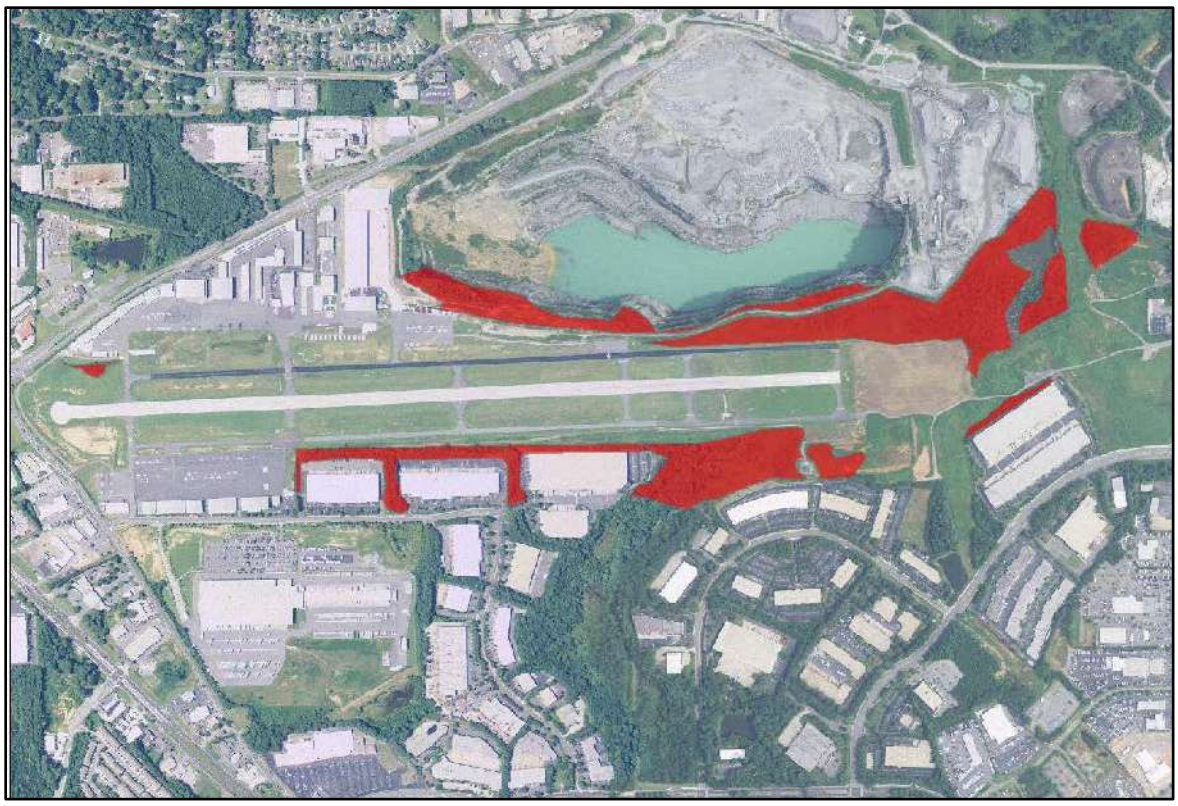

Figure 12. Wooded areas at KRYY, 2015.

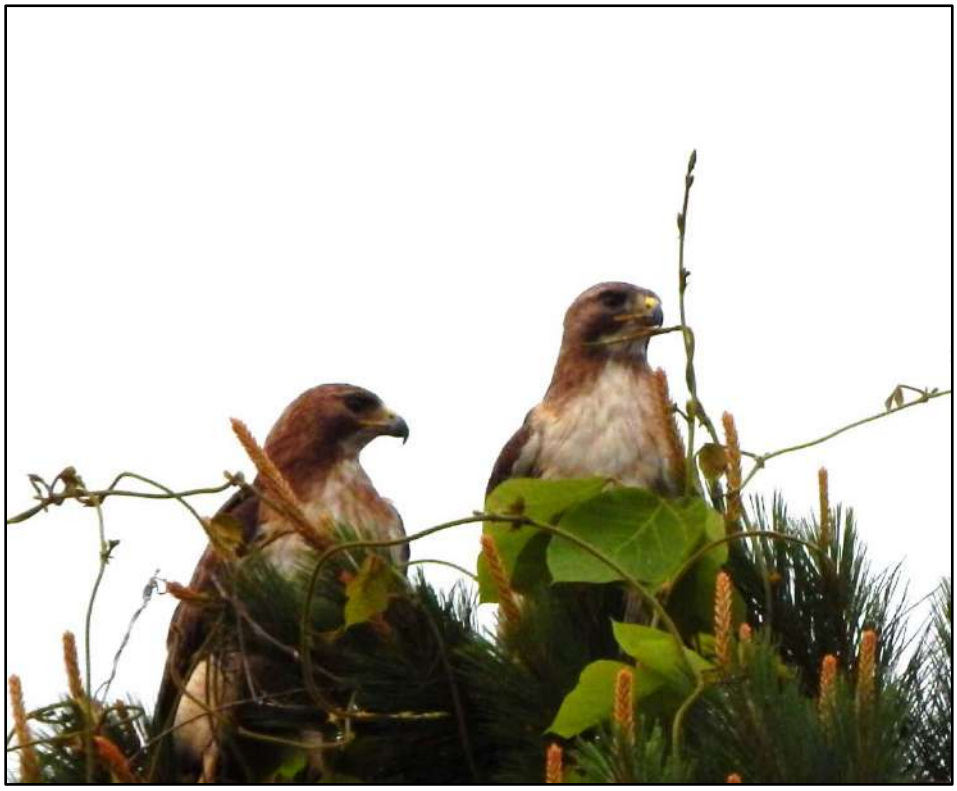

Figure 13. Two red-tailed hawks perch atop a tree being overtaken by kudzu at KRYY, June 2015.

Water

There are no areas of permanent water inside the perimeter fence at KRYY (Figure 14). However, the quarry which immediately neighbors KRYY to the north holds permanent water. The lowest areas of the airfield, primarily ditches and drainage canals, will accumulate water temporarily after heavy weather events. Temporary standing water supports reptiles and amphibians which will attract wading birds and potentially other predators. Shallow, pooling water could attract a diversity of insects which provides food sources for bats and insectivorous birds like swallows.

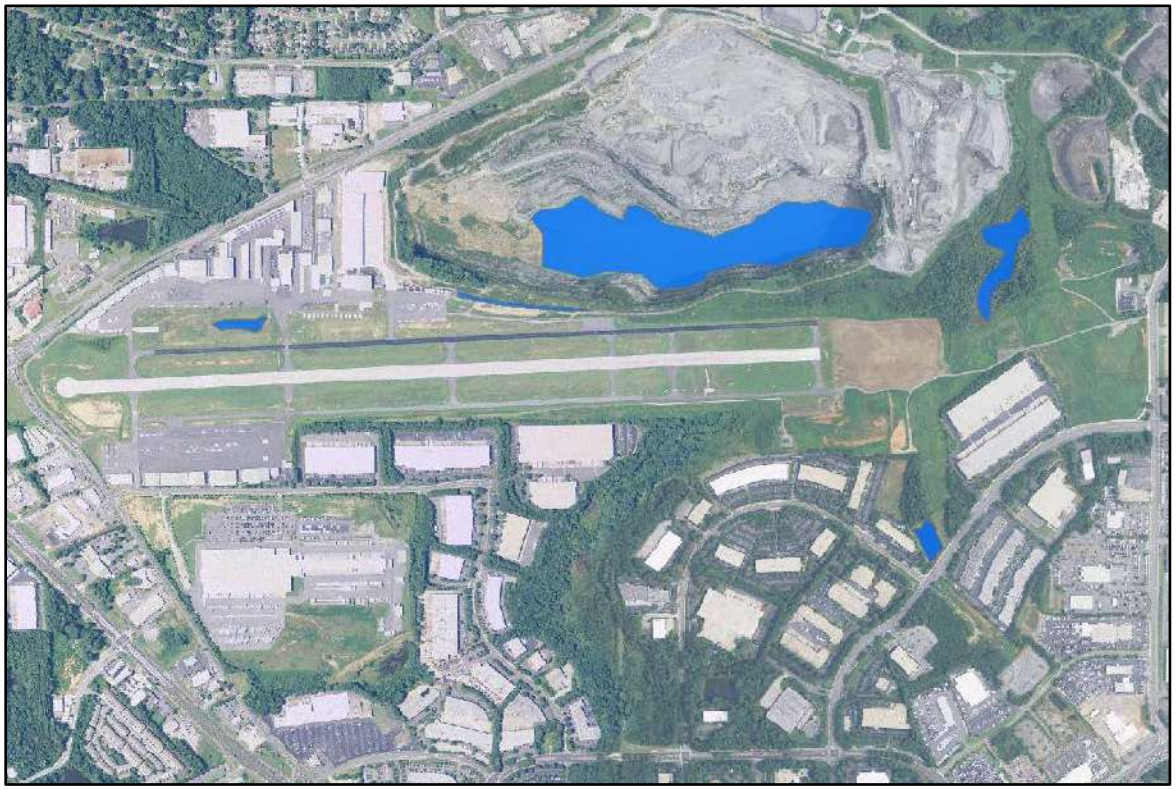

Figure 14. Water sources (permanent and temporary) at KRYY, 2015.

5.2 FOOD SOURCES

Herbaceous variety

The ideal groundcover at an airport is a monoculture of a grass species with little wildlife palatability and value. Grass height manipulation should be achieved before the seed heads mature. Generally, a large variety of forages on the airfield will have the capability to attract a large variety of animal species. Additionally, seed maturity rates may be different making grass manipulation difficult. Legumes on the airfield are attractive to mammalian herbivores such as rabbits and deer. Producing both legumes and grass varieties on the airfield will be attractive to both indirect and direct hazards. Examples of

indirect hazards are prey species like rabbits, which may bring coyotes (the direct hazard) to the airport as they search for food resources. Some of the grasses, legumes and other forage found on the airfield at KRYY include lespedeza, thistle, and kudzu.

Fruiting plants

Some vegetative species produce fruits and nuts which may be a major attractant to wildlife. Herbaceous fruiting plants and shrubs will typically produce soft mast (fruits and berries) during spring and summer months. Nut producing trees will typically produce a hard mast (a nut) during fall and winter months. Some of the species that occur on KRYY include sumac, blackberries, greenbriers, grapes, and various oaks.

Water

It is recommended that stagnant water bodies, such as wetlands, be eliminated from the airport environment. These areas can support an abundance of indirect hazards, as well as attract migrating waterfowl and wading birds. Additionally, it may provide a food source from emergent wetland vegetation for many waterfowl species. Insect eating birds and mammals are also attracted to open water.

Small mammals, insects and birds

Insects, small mammals and birds can be attractive food sources for larger mammalian and avian species. A variety of bird species feed exclusively on insects, while opportunistic predators like coyotes may have more diverse diets (such as insects, birds, and small mammals). Small mammals are considered to be indirect hazards and are attractive to direct hazards such as feral cats, coyotes and various raptors such as red-tailed hawks.

Artificial

Uncovered trash receptacles attract a variety of avian and mammalian scavengers. Crows, feral dogs and cats, raccoons, starlings, sparrows, and many others will feed on food scraps or other select debris discarded in trash.

5.3 WATER

Water is a fundamental element of survival for wildlife species. Some sources of water may support food sources of wildlife present at airports like wetland vegetation, or serve a role in the emergence or hatching of various stages of the life cycle of some insect species. Water and water bodies that are typically found on an airfield are classified as one of three different types: permanent, intermittent, and ephemeral. KRYY does not have permanent water sources on the airfield, but the Vulcan Materials Company rock quarry immediately to the north does house permanent water. Additionally, a retention pond is located at the intersection of Vaughn Road NW and Cobb Place Boulevard NW in which various waterfowl were often observed.

Intermittent

Intermittent water bodies refer to those which hold water seasonally. The former beaver swamp holds shallow water throughout the rainy season, as does the creek which runs into it. Some ditches around the airfield may hold water long enough to be considered intermittent.

Ephemeral

Ephemeral water sources hold water for even shorter periods of time than intermittent water sources, typically during precipitation events. Ephemeral bodies of water mostly occur in low-lying grassy areas throughout the airfield.

5.4 COVER

Wooded areas

Wooded areas are often used by a number of wildlife species for food as well as cover. These areas may be used by birds and mammals during the day as predatory refuge, as a wind break during cold months, or as shaded areas to reduce heat stress. KRYY has wooded areas, most of which are limited to the airport property boundaries and to the airport-owned properties outside the perimeter fence. Unfortunately, some of these boundaries lie very close to taxiways.

Grassy areas

Grassy areas provide thick cover for mammal species such as eastern cottontail rabbits and cotton rats. These mammals may use this cover year-round. Bird species like the eastern meadowlark spend most of their time in this cover-type.

Airport facilities and structures

This designation includes hangars, storage facilities, equipment, power lines, etcetera. Such structures are often used for loafing, nesting, and/or roosting by pigeons and European starlings. Power lines and fences are used as perches for loafing by these and other avian species such as eastern bluebirds, mourning doves, raptors, etc. The large power line which passes through the airport east of the runway provides a considerable amount of perching structure, which accommodates massive groups of migrating birds (Figure 15).

Figure 15. Hundreds of blackbirds perched on the extensive power line which runs through the eastern part of KRYY, October 2014.

Disturbed areas

This includes areas that are difficult to maintain due to terrain or obstructions such as fences or that have recently undergone change which reset forest succession. These areas often become overgrown with vegetation such as briars, other forbs, and small trees. Such areas often become prime habitat for indirect hazards, namely cotton rats, rabbits, and small birds. Direct hazards, such as predatory mammals and birds, may be drawn to these areas for foraging purposes and concealment.

Developed areas

Structures on airports can create perching and roosting habitat for birds. Mammals may also burrow under foundations or utilize crawl spaces for cover. Hangars, which may have doors that remain open for long periods of time, attract synanthropic birds like pigeons and sparrows which will utilize an environment heavy in human activity.

6.0 LEGAL STATUS OF WILDLIFE SPECIES AT KRYY

Most wildlife and their associated habitats are protected by one or more federal, state, and/or municipal laws. Before administering management options at KRYY, the legal status of the target species should be determined and any potential threats to non-target animals identified. Agencies involved in regulating wildlife may require permits to harass or lethally control

wildlife species, and will issue these permits depending on the species and method of control. Airports are responsible for adhering to current regulations regarding wildlife control and for obtaining the appropriate permits to take and/or harass specific types of wildlife.

Currently, resident Canada geese on airports fall under a special Depredation Control Order from the U.S. Fish and Wildlife Service (USFWS; 50 CFR Part 21.49). Blackbirds and cowbirds can be lethally taken without a permit when they are "…concentrated in such number and manner as to constitute a health hazard or other nuisance." (50 CFR 21.43). No federal or state permits are required for lethally controlling pigeons, house sparrows and European starlings.

6.1 FEDERAL REGULATIONS

The U.S. Government has passed several acts for the protection of wildlife including the Migratory Bird Treaty Act (MBTA), Lacey Act, Endangered Species Act, Bald and Golden Eagle Protection Act, National Environmental Policy Act, and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). These acts constitute the foundation of most wildlife regulations that have been issued in the Code of Federal Regulation. Several agencies are responsible for implementing these regulations and many of these regulations affect wildlife control operations at airports. Most federal wildlife laws are administered by the USFWS and primarily involve migratory birds protected under the Migratory Bird Treaty Act and Endangered Species Act. Permits from the USFWS must be updated annually unless the permit states otherwise.

Migratory Bird Treaty Act (CFR 50, Part 21.43)

The Migratory Bird Treaty Act of 1918 conserves migratory birds, their active nests, and eggs from being destroyed. No permit is needed to harass (scare) depredating migratory birds other than endangered or threatened species or eagles. Under the MBTA, a federal depredation permit is required for the taking (euthanize, trap, capture, etc.) of birds at airports. This permit can be used for the direct control of wildlife species such as vultures, waterfowl, hawks, and egrets that pose an immediate threat to aircraft and human safety. All permits must be annually renewed. As part of the permitting requirements, the USFWS requires an annual report detailing the number of birds removed on airport property and methods used.

Endangered Species Act (CFR 50 Part 17)

The Endangered Species Act of 1973 requires that all federal agencies seek to conserve threatened and endangered species and utilize their authorities in furtherance of the purposes of the act. The act prohibits the harassment, trapping, killing, and destroying of any species listed as threatened or endangered. It also affords protection to the habitat of threatened and endangered species. The harassment and killing of endangered species may be allowed under certain circumstances. However, a special permit for such actions must be issued by the USFWS prior to any actions involving listed species. The list of

threatened and endangered species in Georgia should be updated regularly because the status of species changes over time. The USFWS should be contacted at least once per year to obtain a current listing of species' status, or update your list by accessing http://www.fws.gov/endangered/. This list should be reviewed prior to conducting operational control work such as hazing, shooting, or habitat manipulation to ensure that KRYY remains in compliance with federal and state wildlife regulations. KRYY may be required to mitigate for actions that destroy or negatively alter habitat located on airport property which is deemed critical to any of these species.

Bald and Golden Eagle Protection Act of 1940 (CFR 50 Part 22.23)
This act prevents bald and golden eagles, their nests, and eggs from being either harassed, killed, or destroyed without a permit. An eagle depredation permit allows the harassment of bald eagles, but prohibits killing, injuring, or capturing. The USFWS may issue a temporary permit for eagle harassment to alleviate hazards to aircraft and human safety on airports, but the process of obtaining such permits can be lengthy. It is not likely that KRYY will have to pursue permits to deter eagles from utilizing the airfield, as KRYY is not in the range of or does not have necessary habitat for bald and golden eagles.

6.2 STATE AND LOCAL REGULATIONS

In Georgia, the Department of Natural Resources (GDNR) accepts the Federal depredation permit for non-game bird species, but requires a special permit for most native mammals and game birds. All permits must be renewed annually. However, there are exceptions to the state permit. Nuisance species (as classified by GDNR) may be taken without a permit year-round. Species included in this list which one may encounter as a hazard in the airport environment include coyotes, beavers, pigeons, house sparrows, European starlings, armadillos, and groundhogs. Should questions arise regarding legal status of a species, GDNR should be contacted for clarification.

7.0 WILDLIFE HAZARD ASSESSMENT METHODS

7.1 DATA COLLECTION

Effective wildlife hazard management on airports is dependent upon the identification of those species that are concentrated or in a high abundance on the airfield and areas surrounding the airports. However, wildlife abundance is not the sole indicator for assessing potential strike hazards. To properly evaluate aircraft-strike hazards, species abundance, body size, and behavioral attributes should be evaluated. Identifying the time of year when certain species are present on the airfield is a fundamental key in developing a wildlife management plan. In addition to seasonality, weather events may trigger responses from wildlife that are hazardous to

aviation. For each observation, the following information was recorded when determinable: date, time, species, number of individuals observed, behavior of observed individual(s), cover type being utilized by the individual(s) (Table 2), and basic weather conditions.

Table 2. Cover types utilized by wildlife and their qualifying criteria for the WHA conducted at KRYY, July 2014-June 2015.

Cover Type	Description
Asphalt/concrete/gravel	Areas other than ramps, runways, or taxiways
Ditch	Areas designated for water runoff and drainage into larger detention areas
Fence	Any fencing on the airfield
Long grass	Grass areas >12" in height
Marsh/wetland	Areas that hold water ≤ 48 hours and contain wetland vegetation
Pond/lake/reservoir	Permanent bodies of water
Runway	Paved surface of the runway and the airspace above it
Short grass	Grass areas ≤12" in height
Shrubs	Any woody vegetation <10' in height
Structure	Any man-made object (ex. Buildings, hangars) including navigational aids and infrastructure
Taxiway	Paved surface of the taxiway and airspace above it
Tree	Any area containing woody vegetation over 10' in height
Unpaved surface	Any area covered with barren earth
Utility infrastructure	Streetlights, poles, wires, transformers, power lines

7.1.1 Day-time

A total of 60 day-time surveys (5 each month) were conducted at KRYY during the WHA. These surveys were classified into 1 of 3 time frames: morning, midday, or evening and conducted as a modified point-count survey. These points served as checkpoints along a driven route which allowed for adequate viewing of the airfield (Figure 16). Most bird activity peaks close to sunrise and sunset, so the sampling protocol ensures that these events were captured at some point each month. Temporal criteria for these categories changed monthly, as sunrise and sunset times fluctuated. Morning and evening surveys always occurred within 2.5 hours of sunrise and sunset, respectively (Table 3).

Table 3. Number and time of surveys conducted monthly at KRYY from July 2014-June 2015.

	Number of Surveys	Time Captured
Morning	2	06:00-10:00*
Midday	1	09:00-16:00
Evening	2	16:00-19:00**
Night-time	1	18:00-06:00***
Off-site	1	06:00-19:00
*Time captured will be within 2.5 hours of sunrise and will change seasonally		
**Time captured will be within 2.5 hours of sunset and will change seasonally		
***Night surveys ended 30 minutes prior to sunrise or started 30 minutes after sunset		

7.1.2 Night-time

Once monthly, a night-time survey was conducted by spotlight. Unlike the day-time surveys, survey points were not utilized to sample wildlife during this survey. Instead, a perimeter route was slowly driven (10-15 mph) while the spotlight was used to detect animal activity, which was primarily mammalian (Figure 16). Surveys were concluded 30 minutes prior to sunrise in the early mornings, or started 30 minutes after sunset in the evenings (Table 3).

Many vertebrates have a layer of specialized crystalline cells called a tapetum lucidum on the back of their retina which reflects light. It is an adaptation to nocturnal lifestyles and helps these animals see more definitively at night. The resulting eyeshine is more easily detected at night than the animal itself, especially at substantive distances from the surveyor or in the midst of dense vegetation.

7.1.3 Off-site

Once a month, an off-site survey point was observed at the observation deck of the Vulcan Materials Company rock quarry. This survey point consisted of a 5 minute observation where wildlife sightings, vocalizations, or other sign was recorded. This location was selected as an additional survey point due to its potential attraction to local wildlife. The same information was recorded for these observations as was for the day-time and night-time survey.

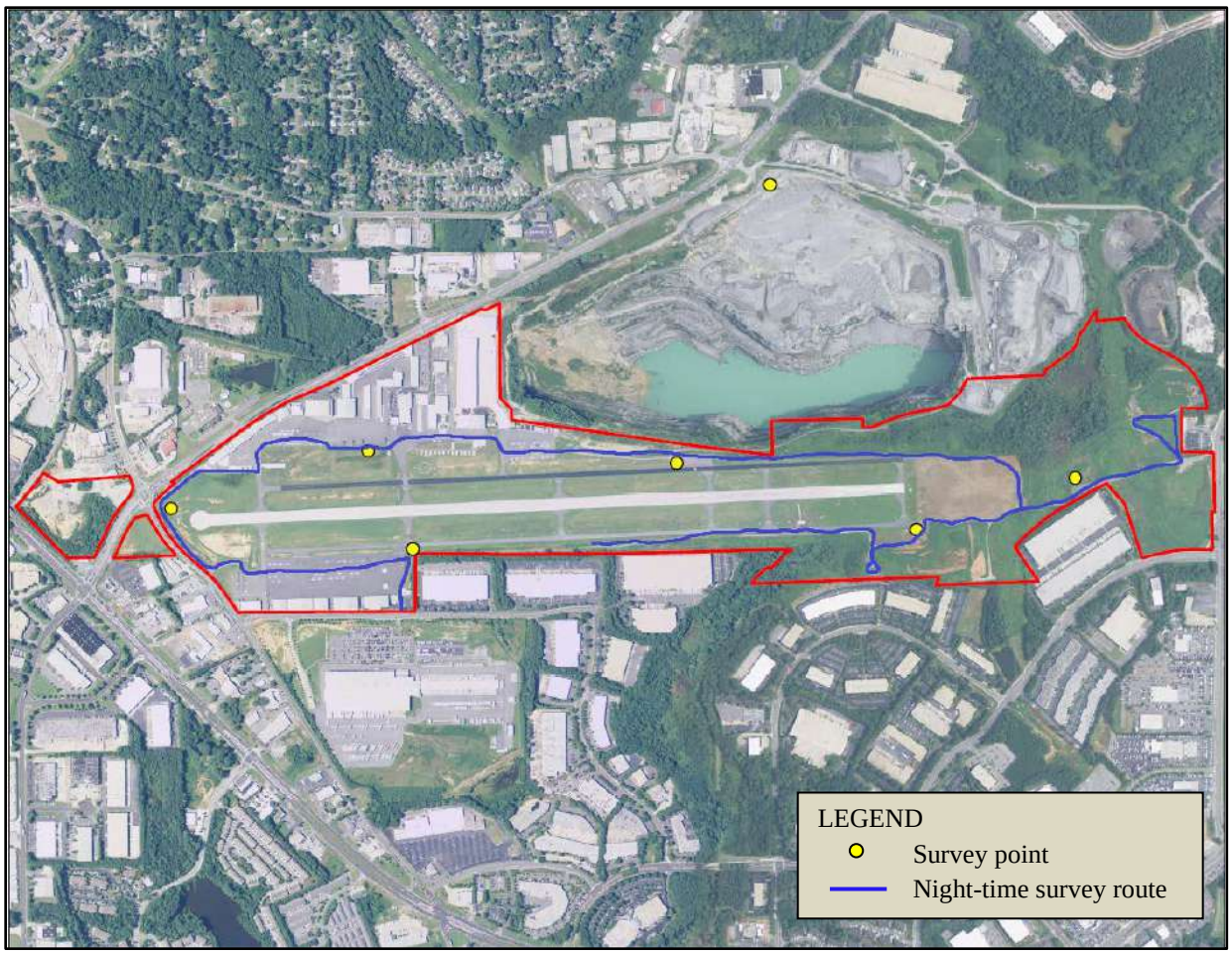

Figure 16. Location of survey points and the night-time survey route at KRYY during July 2014-June 2015.

7.2 GUILD CLASSIFICATION

To simplify analyses, wildlife species that were observed during WHA surveys were grouped into guilds based primarily on behaviors exhibited by each species during observation periods. Animals with similar behaviors and habitat requirements can largely be managed by similar techniques. While these guilds may differ slightly from published scientific literature on animal taxonomy, they are still mostly representative of traditional taxonomic classifications. Guilds, along with common and scientific names of those species observed from each during surveys at KRYY, can be viewed in Appendix A.

Columbids

This guild included members of the taxonomic family Columbidae and was composed of only two species: mourning doves and rock doves. Rock doves, or pigeons, are well-habituated to human activities and urban environments. They can often be found roosting, loafing, or nesting on buildings or other structures. They are non-native in the U.S. Mourning doves are both common and native in the southeastern United States. Both birds are strictly grain and seed eaters and are therefore commonly found in open

fields with little to no ground cover. They will both form large flocks when they've identified a readily available food source and can be frequently observed perching on structures like fences and power lines.

Corvids

The bird family Corvidae is represented at KRYY by American crows and blue jays. Corvids are omnivorous birds and will scavenge to find food. Crows are medium-sized birds that utilize almost all available habitat types at KRYY. During the winter, crows tend to flock together more frequently than in other months. Blue jays are more closely associated with forested lands, and were recorded by vocalization from trees more often than visually.

Icterids

The bird family Icteridae is composed of blackbird species. At KRYY, the most common Icterids observed were red-winged blackbirds, brown-headed cowbirds, European starlings, and eastern meadowlarks. The size of a single individual from this guild is not very threatening to aviation; however, these birds tend to flock into incredibly large congregates in the autumn months. These flocks are regularly observed nationwide in surplus of a million individuals. Generally, the probability of multiple strikes occurring simultaneously increases with flock size. Such events can equate a hazardous environment and jeopardize aviation safety. Starlings are non-native, but red-winged blackbirds, brown-headed cowbirds, and eastern meadowlarks are native species. They are all associated with grassland habitats, with red-winged blackbirds also closely associated with wet hayfields, marshes, or brushy swamps during their breeding season.

Eastern meadowlarks are unique to this group in that they don't seem to flock in the same large masses as other species in this guild. Also, there is less seasonality to their presence at KRYY. They are routinely observed, but in smaller numbers unlike other members of this family.

Passerines

Passerines are the largest, most diverse guild of birds. This guild is primarily composed of songbirds like eastern bluebirds, American robins, northern mockingbirds, northern cardinals, and many sparrows and finches. These birds vary in diet and habitat requirements, but spend most of their time utilizing groundcover, thickets, and trees as concealment and foraging habitat. In the winter, American robins are seen in greater numbers than the rest of the year as they use wooded edges and thickets of vegetation for communal roosting habitat.

Raptors

Accipitridae and Falconidae contain raptor species commonly referred to as hawks and falcons, respectively. Raptors pose a threat to aviation because their relatively large body sizes and foraging behavior. Raptor species at KRYY include, American kestrels, owls, and multiple hawk species (primarily red-tailed hawks).

Family Cathartidae includes black vultures and turkey vultures. Vultures are large, dark birds with wing spans up to 6 feet and weigh about 4 pounds. Both turkey and black vultures are year-round residents with local numbers increasing during the winter months as northern migrants arrive. Both species typically display soaring behavior and feed on carrion. Vultures could potentially be active throughout the entire day, while most avian species are active during morning and evening hours. Also, soaring numbers are typically high over roost sites during late mornings and early afternoon hours.

Shorebirds

This guild is represented at KRYY exclusively by a single species in family Charadriidae: the killdeer. This bird is common across most of North America and is easily identifiable by its unique vocalizations and double black breast bands. While capable of flight, killdeer are often seen running across the ground and are closely associated with barren earth, gravel, and asphalt which are common surfaces at an airport.

Waterfowl

Members of the waterfowl guild come from the Order Anseriformes. These birds feed on a variety of aquatic sources including vegetation, insects, and sometimes fish. They are most often associated with water but some species (e.g., geese) graze in short grassy areas. Many of the species are migratory and are most abundant during the spring and fall migrations. Body size range from small to large and are often a major concern due to body density. A couple of species of migrating waterfowl were observed in the vicinity of KRYY, with Canada geese being the most commonly recorded species of this guild.

Mammals

This classification includes all mammals that may have been seen or otherwise noted on the airfield during the assessment. This includes, but is not limited to, coyotes, eastern cottontails, and white-tailed deer. The primary threat to aviation with mammals is body size.

7.3 DATA ANALYSIS

Data analyses were conducted using Microsoft Excel® to determine wildlife abundance and observations among survey periods and during all months of the assessment. Moreover, daily and seasonal wildlife trends were identified for each guild to represent temporal wildlife activity

at KRYY. In addition, ArcGIS 10.0 (Environmental Systems Research Institute 2010) was used to display spatial locations of wildlife observed and to provide aerial photo mapping of areas of increased wildlife use on the airfield. Results of these analyses are intended as spatial and temporal indices and not as wildlife population estimates for KRYY. Spotlight data were analyzed to determine the extent of nocturnal hazards, specifically mammals.

8.0 RESULTS AND DISCUSSION

This analysis includes the combination of all data collected (day-time surveys, general observations, off-site surveys, and night-time spotlight surveys) at KRYY. The frequency of wildlife observations rises and remains elevated from April through July and peaks once more in October (Figure 17). Abundances reported across all monthly observations peaks in October (Figure 18).

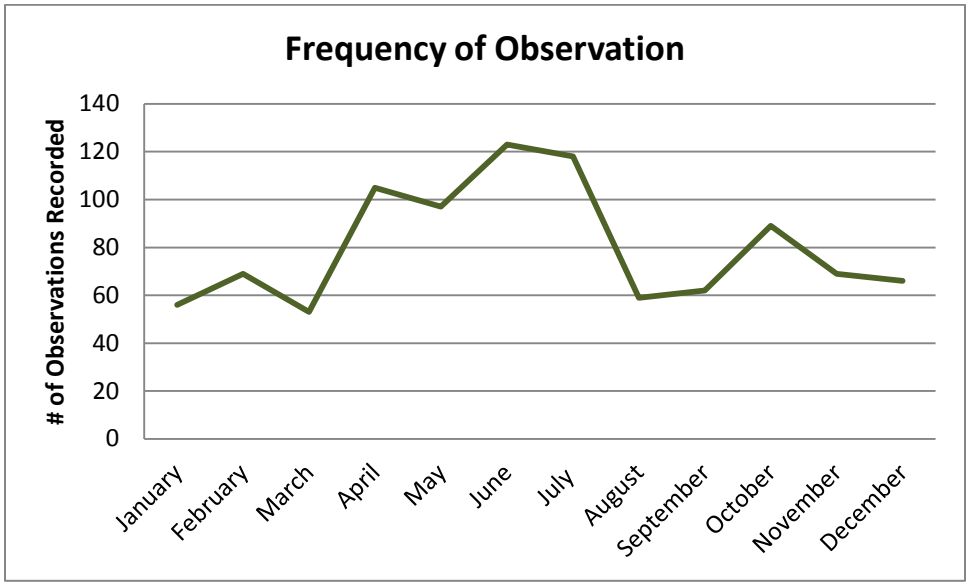

Figure 17. Frequencies of observations made during surveys at KRYY from July 2014-June 2015.

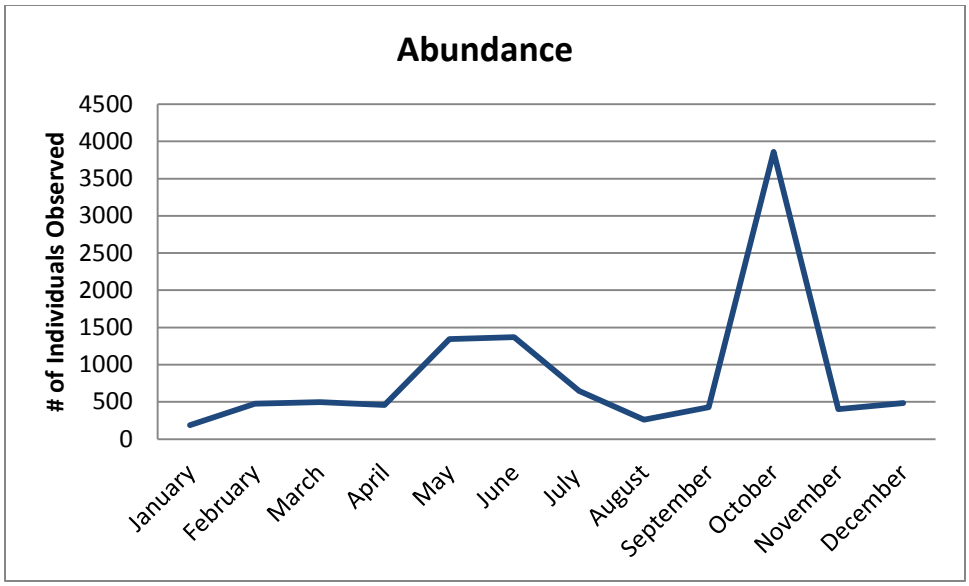

Figure 18. Abundances of wildlife observed during surveys at KRYY from July 2014-June 2015.

Graphs measuring abundance and frequency of observation are both displayed for each guild. The distinction between the two provides information which may be useful to direct control or management of these species. For instance, 50 observations of 1 American robin is not equally as hazardous as 1 observation of 50 American robins. Frequency of observation denotes how many times that species was recorded, regardless of the flock size. This indicates the regularity of this species' use of the airport. Abundance measures the number of individuals observed per observation, which is totaled for each month in the graphs presented. This may provide valuable information regarding the flocking tendency of certain species at KRYY. Frequency of observation suggests a hazard, as does the concentration of a species (abundance) during any given observation. For this reason, abundance and observation rates are both considered in these results.

Figure 19 illustrates the distribution and concentration of observations recorded throughout the entire survey process at KRYY. High numbers of wildlife are associated with the large power line and accompanying right-of-way, the shrubby area located between the airport and southwestern border of the quarry, and the fence line along between the end of the runway and the intersection of McCollum Parkway NW and Old 41 Highway NW. There are several contributing factors to these distribution and concentration results. Detection of wildlife decreases the further away it is from the surveyor, so it is expected that wildlife observations are most abundant close to the path driven to collect data and the survey points. Fences and other perching structure near these paths provide habitat which increases detectability compared to birds perching in dense vegetation. Perhaps the most important explanation is the phenomenon called edge effect. Edge effect occurs at the junction of two habitat types, and is often associated with an increase in wildlife utilization due to the broader appeal resulting in a variety of resources available. For instance, eastern cottontail rabbits were routinely observed feeding at

the grassy areas immediately adjacent to woodlines. These rabbits were utilizing the herbaceous habitat to feed, but staying at the edge of wooded habitat to find cover quickly. The combination of increased detection, perching structure, and edge effect contribute to the distribution of detected wildlife at KRYY throughout the survey process (Figure 19).

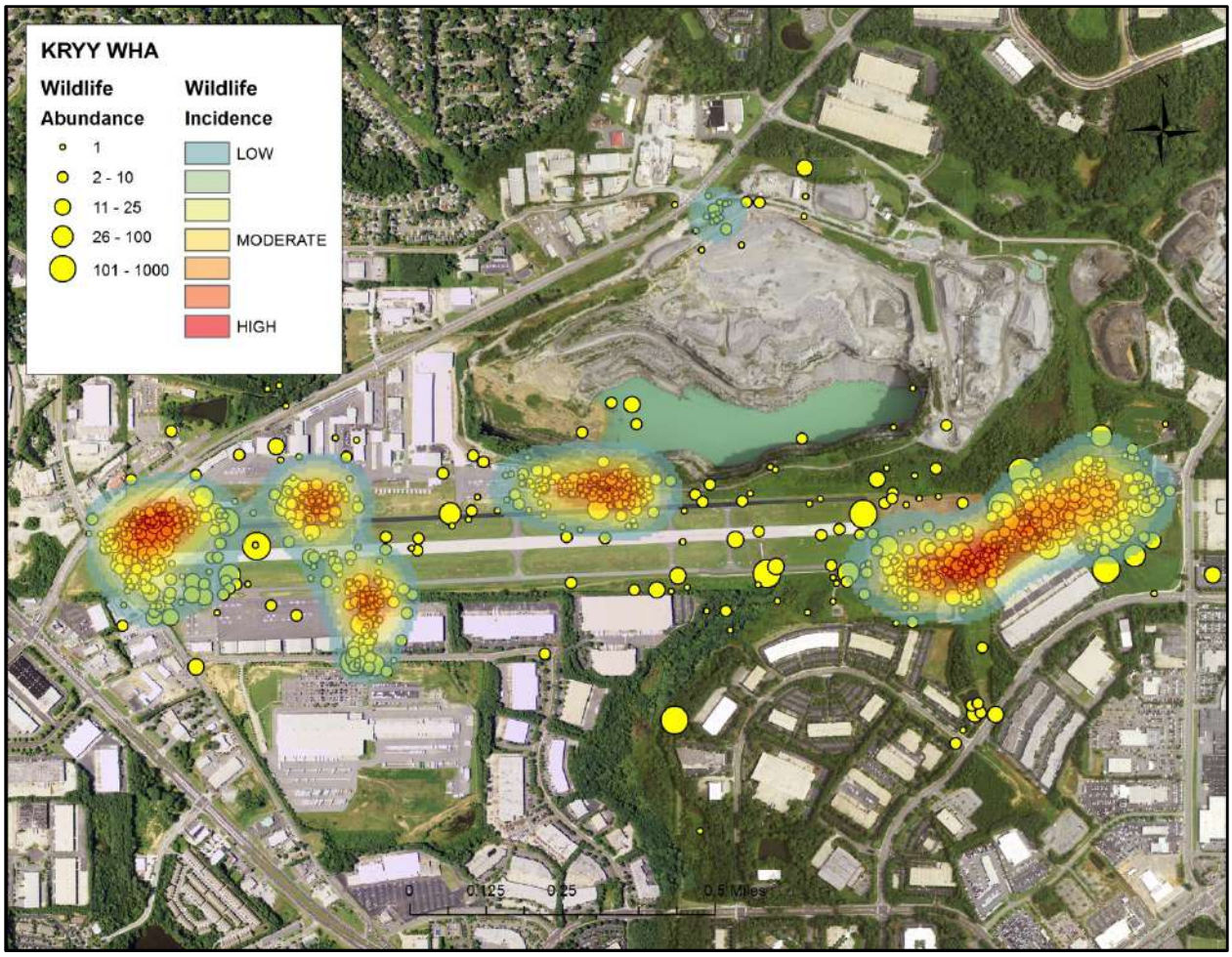

Figure 19. Wildlife abundances and incidence rates across KRYY during surveys from July 2014- June 2015.

Seasonal changes in the spatial distribution of incidence rates can be seen in Figure 20. These changes can partly be attributed to migrations, changes in available habitat, and changes in behavior of the observed species (e.g. breeding seasons or nesting behaviors), among others. It is important to understand that as the seasonal requirements of each species present at KRYY change, so might their behavior and space use of the airport. This will undoubtedly change many facets of these species' management at KRYY.

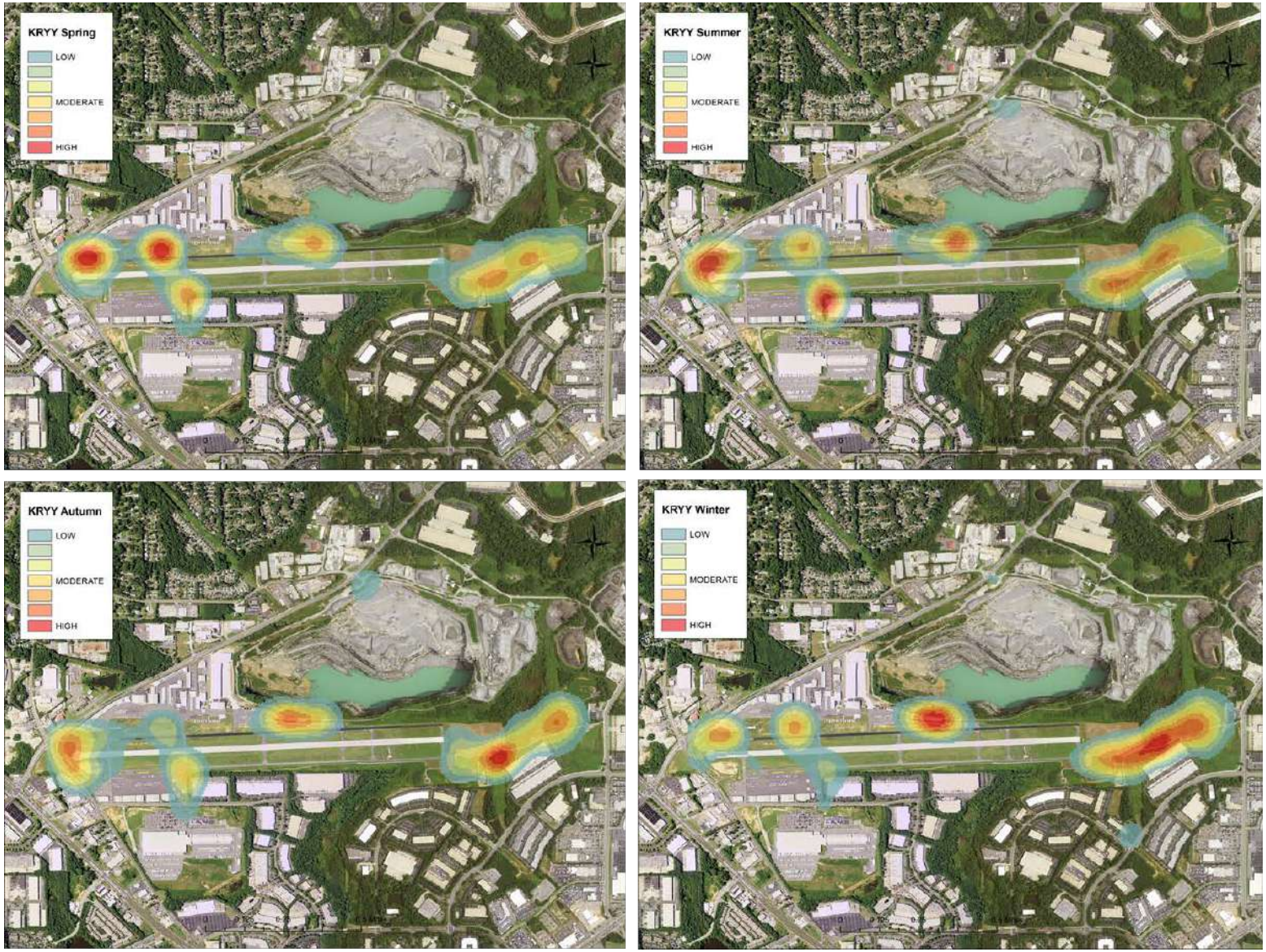

Figure 20. Wildlife incidence rates by season. Spring (March 2015-May 2015), summer (June 2015, July 2014, August 2014), fall (September-November 2014), winter (December 2014-February 2015).

8.1 COLUMBIDS

Columbid sightings are attributed to mourning doves and pigeons at KRYY. Birds were often viewed in large groups perching on the fence or various structures around the airport. The majority of doves were seen perching on the wires of the power line which runs through KRYY east of the runway (Figure 21). They roosted in nearby wooded areas. Abundances peaked in October (Figure 22) following a peak in the frequency of observations in June and September (Figure 23), both of which culminated after a gradual increase starting in late winter.

Doves are ranked number 18 out of the 25 most relatively hazardous species to aircraft, while pigeons are 13th on the list (FAA AC 150/5200-33B). Nationally, mourning doves and pigeons also accounted for $21.7 million in reported costs and over 53,355 hours of aircraft downtime to civil aircrafts during 1990-2014 (Dolbeer et al. 2015).

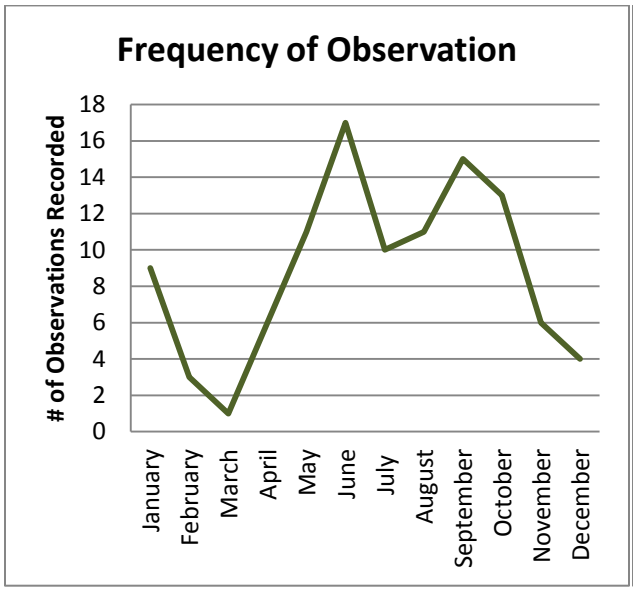

Figure 23. Frequency of observations for columbids at KRYY from July 2014-June 2015.

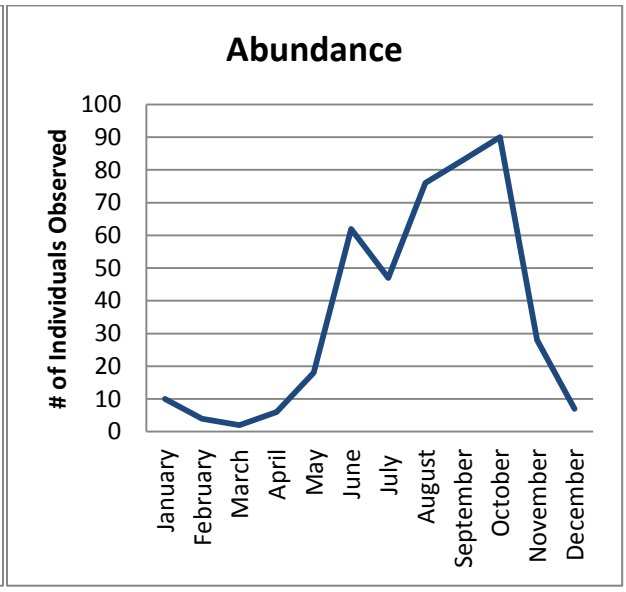

Figure 22. Abundance for columbids at KRYY from July 2014-June 2015.

This group of birds often uses bare ground and areas with short grass for foraging on the airfield. The gravel and grit associated with secondary and tertiary roads and paved surfaces, especially those adjacent to fences or other perching structure like power lines, provide foraging habitat for the doves at KRYY (Figure 21). Identifying and removing plant species providing forage for the doves should be the primary proactive management against doves utilizing KRYY. Establish a monoculture of a non-preferred grass species in those plants' place. Grass height manipulation (maintaining a height of 8-10" and cutting before it produces seed) and harassment techniques need to be continued by qualified airport maintenance or operations personnel to discourage dove activity on the airfield. The use of exclusionary devices on airport structures will discourage loafing/perching behavior and the continued elimination of wooded areas will

eliminate roosting habitat. If exclusion, harassment, and habitat modification are not effective means at dispersing columbids at KRYY, then lethal methods should be implemented to permanently remove individuals habituated to other control techniques.

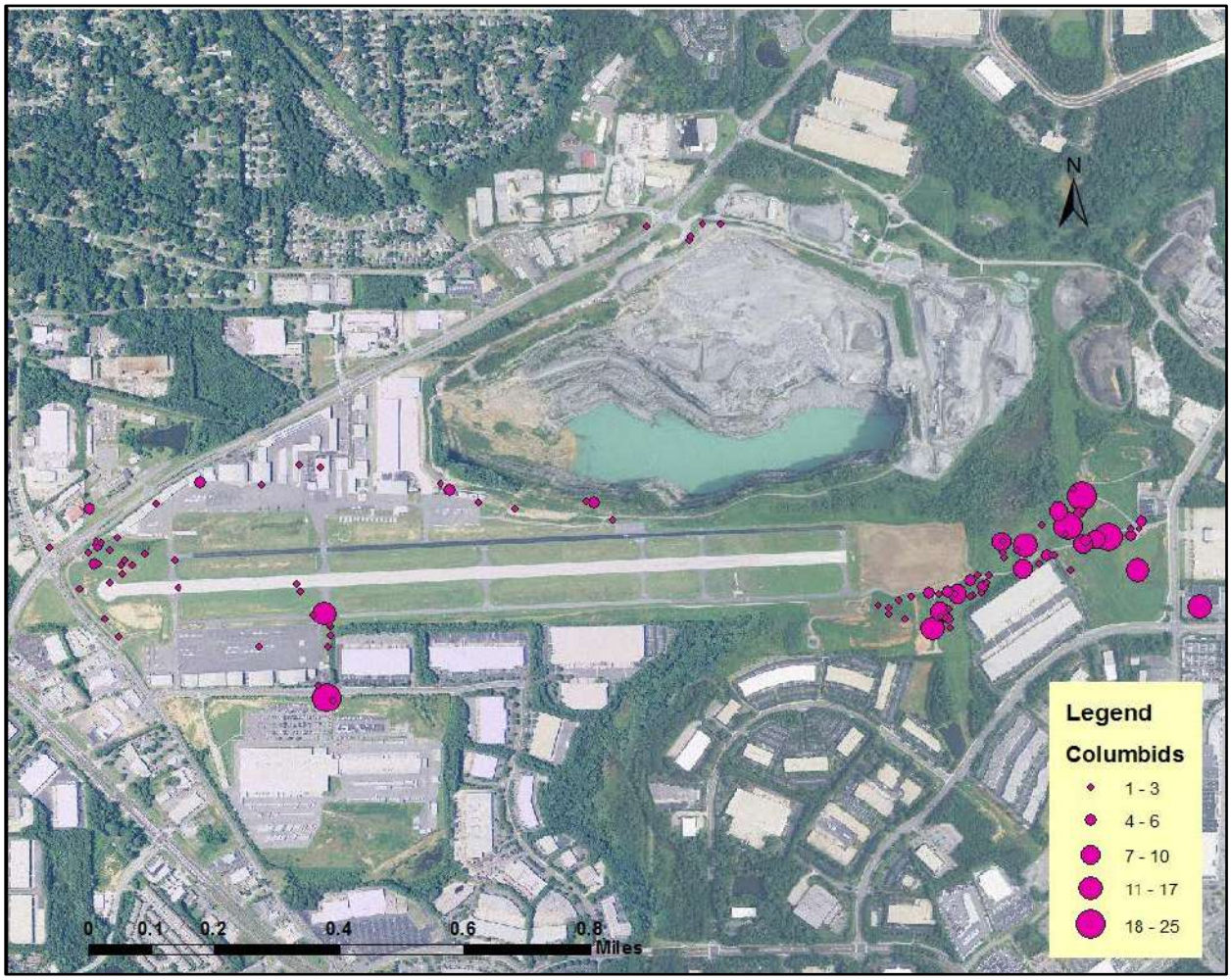

Figure 21. Graduated distribution of columbid observations at KRYY, July 2014- June 2015.

8.2 CORVIDS

At KRYY, this group is composed of American crows and blue jays. While blue jays were mostly identified by vocalizations from the cover of wooded areas, and not by sight, crows were more frequently heard and seen flying around the airfield. A larger sized bird, crows are social and were seen flocking in smaller groups regularly. Crows utilized a variety of habitat types and were primarily observed flying, vocalizing, or perching in trees or on various structures around the airport.

In the 25-year period from 1990-2014, corvids accounted for almost $2.7 million in reported damages and grounded aircraft for over 9,672 hours across the nation (Dolbeer et al. 2015).

Crows (combined with ravens) are listed as the 16th most relatively hazardous species to aircraft by the FAA (FAA AC 150/5200-33B).

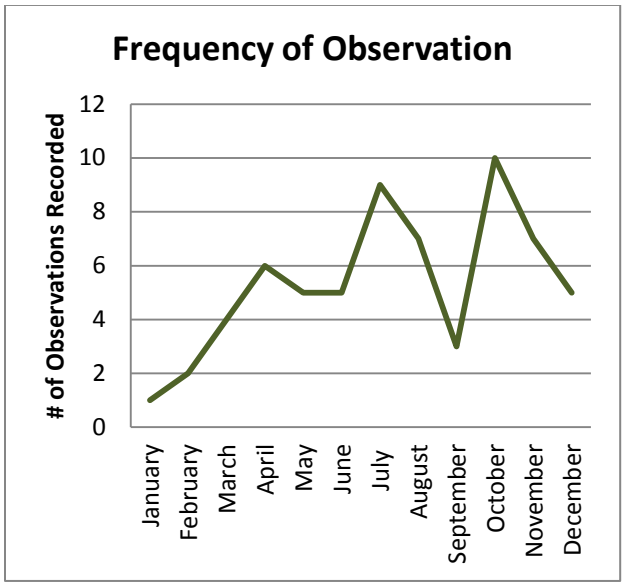

Figure 24. Frequency of observations for corvids at KRYY from July 2014-June 2015.

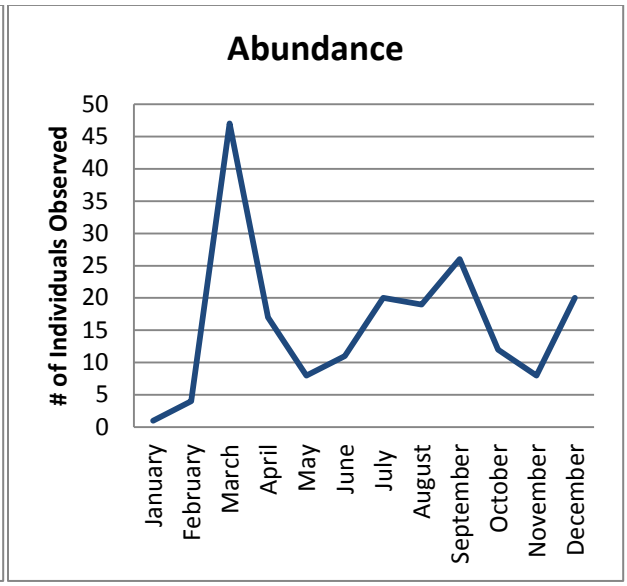

Figure 25. Abundance for corvids at KRYY from July 2014-June 2015.

Crows are one of the most widespread bird species in North America and were most frequently observed in July and October (Figure 24), with considerably fewer observations recorded in January and February. Abundances peaked in March and September (Figure 25). Corvids were often seen flying from one side of the runway to the other, perching in trees along the taxiways (Figure 26).

Corvids are omnivorous feeders known for scavenging on carcasses and refuse, as well as predating on small mammals, reptiles, amphibians, and birds. They are highly intelligent, having been observed building tools for procuring food from places their bills won't reach. Crows may scavenge for food after mowing events and on runways. Eliminating available refuse from and near the airport, such as covering all trash receptacles will reduce the area's attractiveness. Other means of habitat modification may be less effective means of control due to the plasticity in the diet of these species. Corvids can be hazed; however, they can habituate quickly if hazing techniques only rely on one or two methods. Thus, any hazardous individual(s) not responding to harassment can and should be removed when necessary.

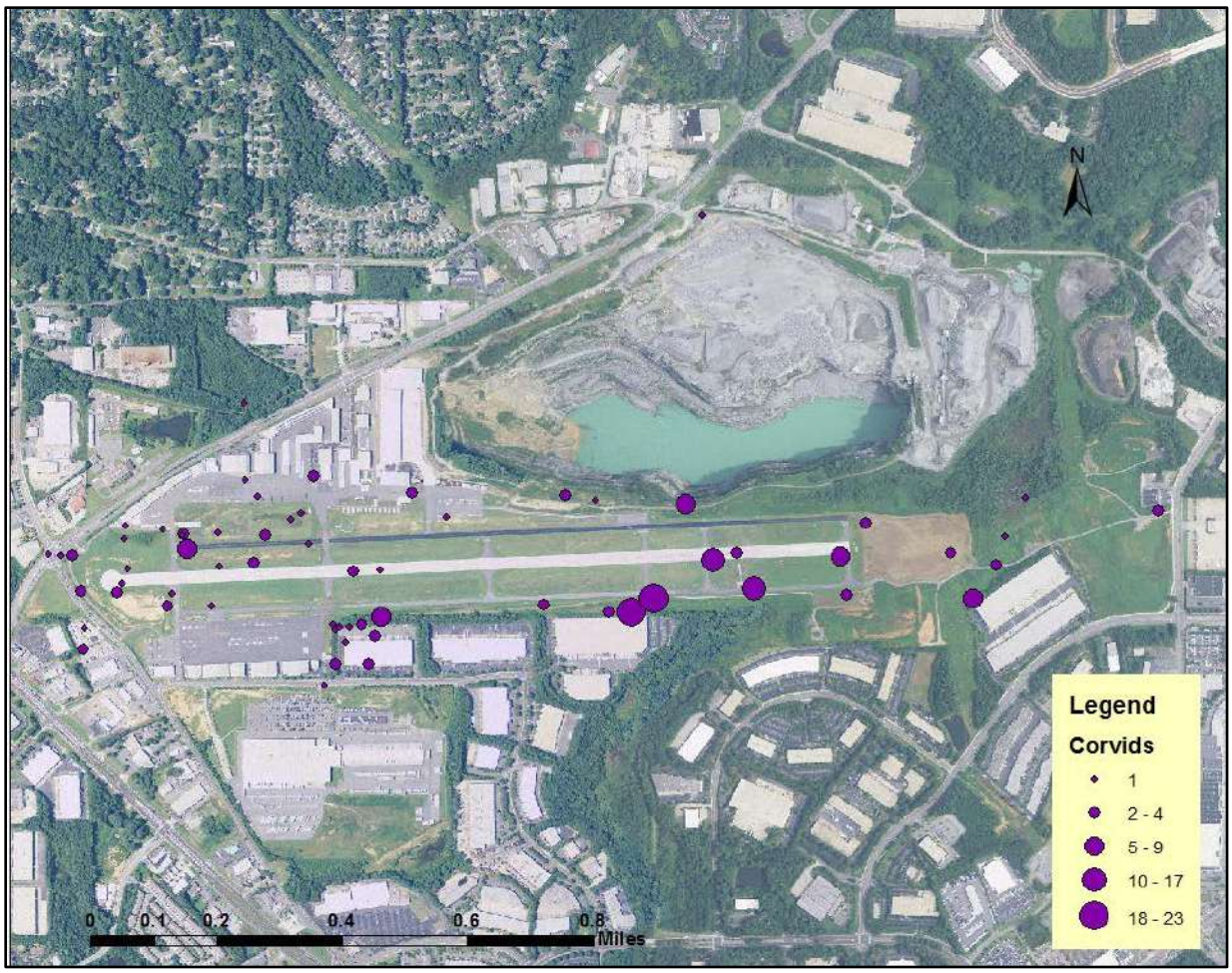

Figure 26. Graduated distribution of corvid observations at KRYY from July 2014- June 2015.

8.3 ICTERIDS

This group designates the blackbirds. The most commonly observed species at KRYY within the icterid guild included eastern meadowlarks, red-winged blackbirds, European starlings, and brown-headed cowbirds. These birds are relatively small in body size, but present hazards to aviation because most species can flock up into groups of thousands. These flocks can be comprised of multiple species or can be difficult to identify to species from afar, so they were often recorded as "unidentified blackbirds" or "various blackbirds."

Blackbirds and European starlings form a group which is ranked the 20th out of the 25 species groups evaluated for relative hazard to aircraft (FAA AC 150/5200-33B). Nationally, from 1990-2014, blackbirds cause $9.9 million in reported repair costs and grounded aircraft for 5,073 hours (Dolbeer et al. 2015).

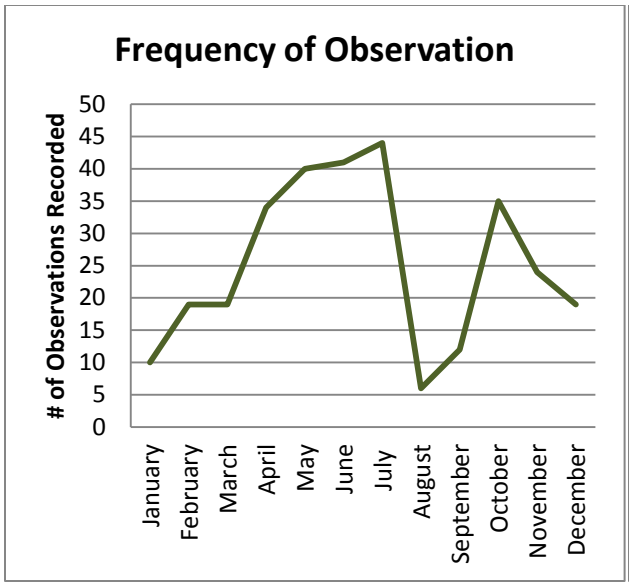

Figure 29. Frequency of observations for icterids at KRYY from July 2014-June 2015.

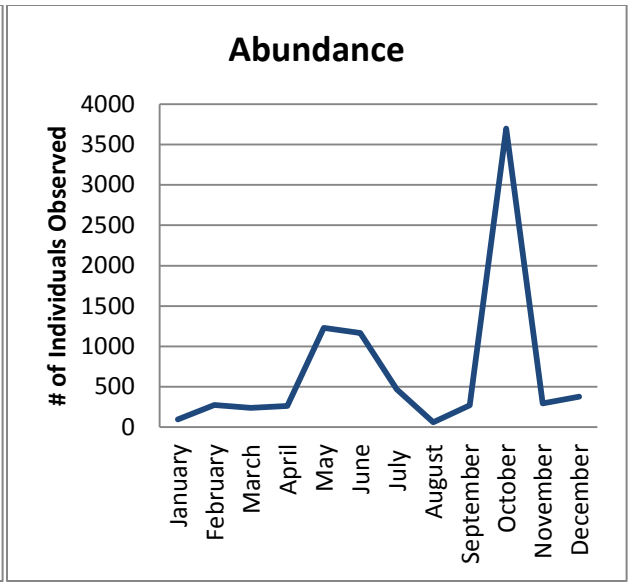

Figure 28. Abundance for icterids at KRYY from July 2014-June 2015.

Blackbirds at KRYY most often utilized areas of open, short grass for loafing and feeding (Figure 27). They perched on the large power line which runs through KRYY east of the runway. The red-winged blackbirds are particularly associated with wet areas that have perching structure, such as the willows which lie on adjacent to the very northwestern part of the runway. All of these areas lie in close proximity to taxiways and the runway, or directly in the approach or departure of the runway. This proximity of preferred habitat to high traffic areas and preferred habitat increases the likelihood of a strike. Blackbirds, especially the meadowlarks, perch on navigational aids like runway lights where they can broadcast vocalizations. Flocking tendencies increase in the winter (October) and the summer (May and June), as illustrated by reported abundances in Figure 28. These increases in abundances are correlated to similar increases in the frequencies of observations, which peak at similar times (Figure 29). Grass height manipulation (maintain a height of 8-10”) and harassment techniques need to continue to discourage blackbird activity. Elimination of roosting habitat and employing scare tactics near desired loafing and feeding locations will discourage flying behavior around the airfield.

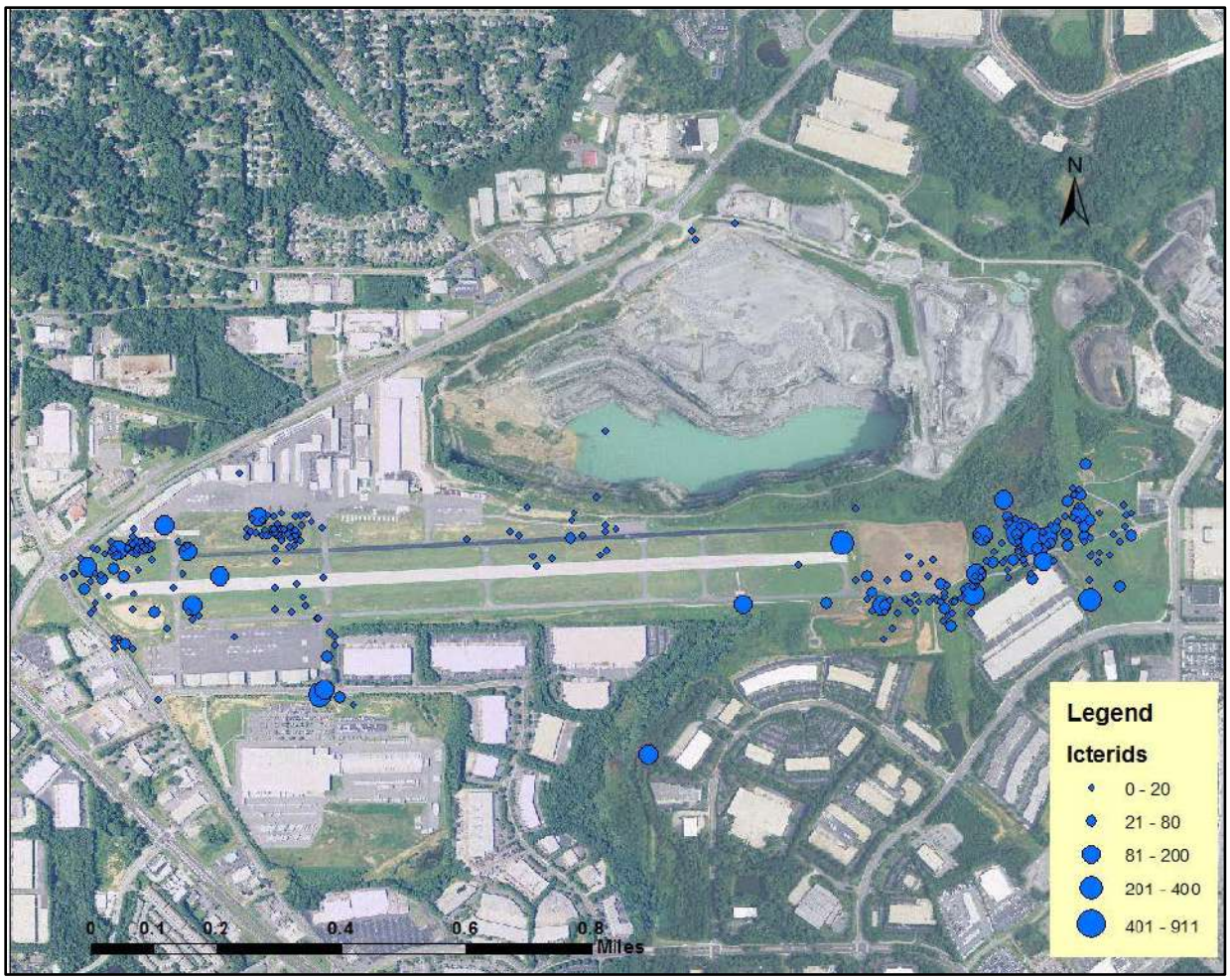

Figure 27. Graduated distribution of icterid observations at KRYY, July 2014-June 2015.

8.4 PASSERINES

These birds are small, and were mostly observed in the trees or perching on the perimeter fence. While this is a widely-encompassing guild, most of these species do not flock up in areas where they will frequently travel in masses across airspace, like blackbirds. Dozens of species were recorded in close association to the electric fence and the edges of wooded areas (Figure 30), but only a few were of particular concern to aviation safety at KRYY. Both frequency of observation (Figure 31) and abundances (Figure 32) rise and remain elevated through the spring and summer. These warm-season spikes can likely be attributed to the migration of neotropical migrants, like swallows.

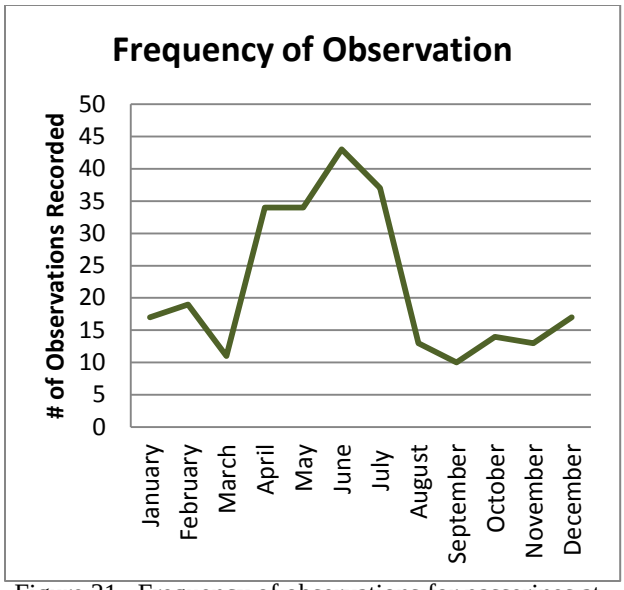

Figure 31. Frequency of observations for passerines at KRYY from July 2014-June 2015.

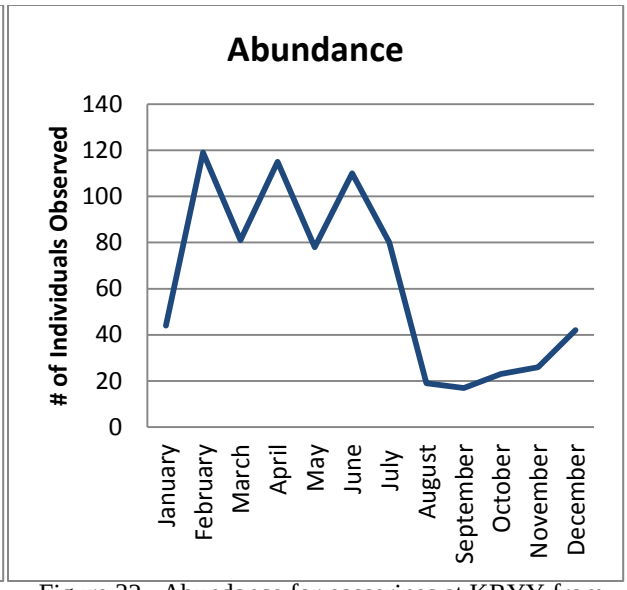

Figure 32. Abundance for passerines at KRYY from July 2014-June 2015.

Swallows

Barn swallows and northern rough-winged swallows were regularly observed at KRYY from April to July. Members of family Hirundinidae, swallows employ aerial feeding tactics to hunt flying insects. Barn swallows are more closely associated with human activity than northern rough-winged swallows, often building their nests on man-made structures. Standing water supports many insect populations. By removing this water, or treating standing water with chemical pesticides, KRYY can limit food resources sought after by swallows on the airfield.

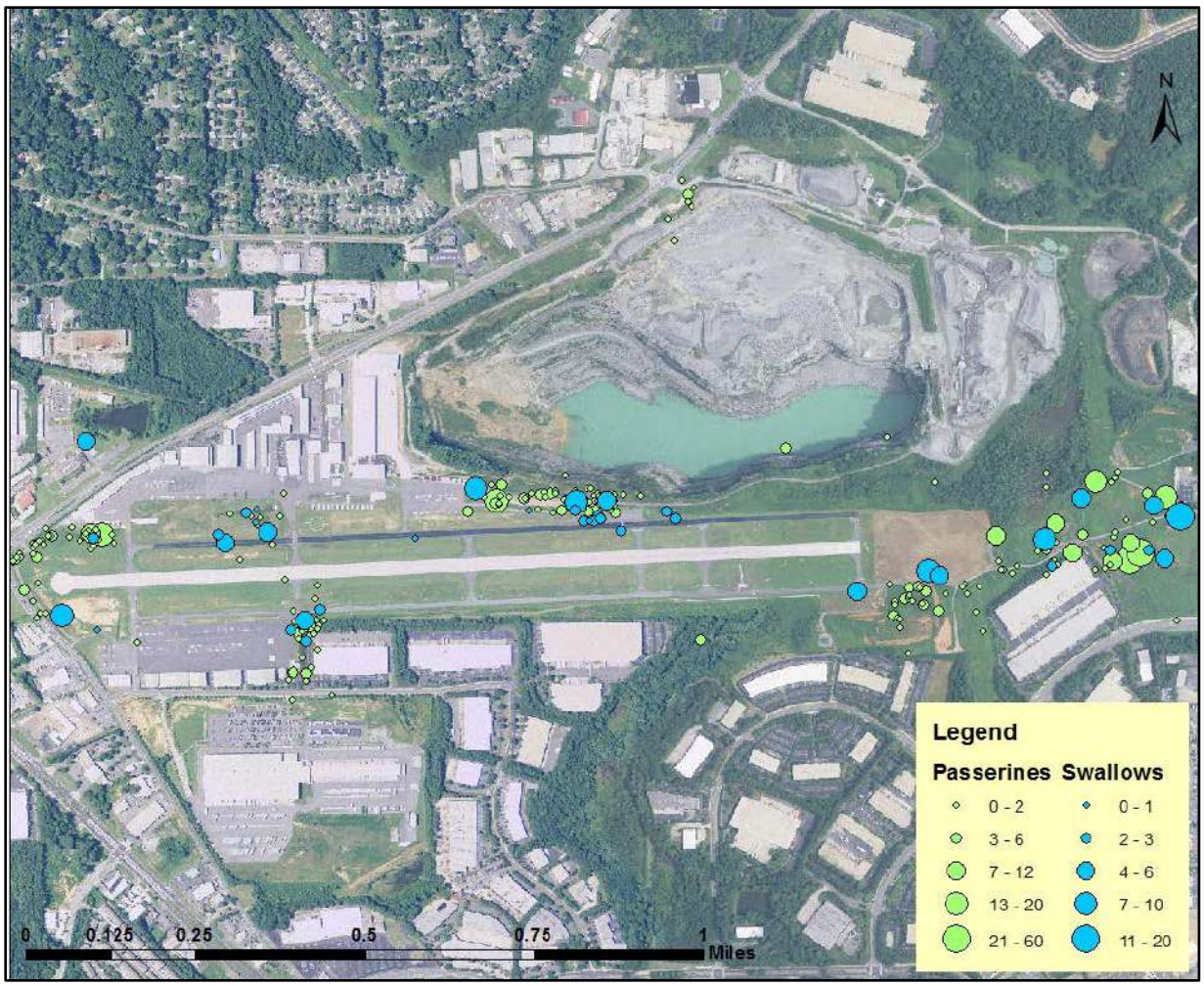

Figure 30. Graduated distribution of passerines at KRYY from July 2014-June 2015. Swallows (barn and northern rough-winged combined) are highlighted in blue to display the number and location of swallow sightings which accounted for passerine observations at KRYY from July 2014- June 2015.

8.5 RAPTORS

The abundances and frequency of observations of raptors at KRYY follow similar trends (Figures 33, 34). They remained consistent throughout most of the year, indicating that the same individuals maintain a territory at the airport. A spike in both graphs in April could be due to new offspring or migrating raptors. This localized increase is something to be aware of annually if the trend continues in future years. The red-tailed hawk and American kestrel were the most observed raptor throughout the surveys, although several other species of hawks and vultures were observed as well. Owls were not observed during this assessment, but likely utilize this space.

Hawks, eagles, vultures, falcons, caracaras, and owls are responsible for grounding aircraft for a claimed 130,203 hours, costing a reported $117 million in damages from 1990-2014 (Dolbeer et

al. 2015). Hawks are ranked 11 and American kestrels ranked 21 out of 25 species evaluated for relative hazard to aircraft (FAA AC 150/5200-33B).

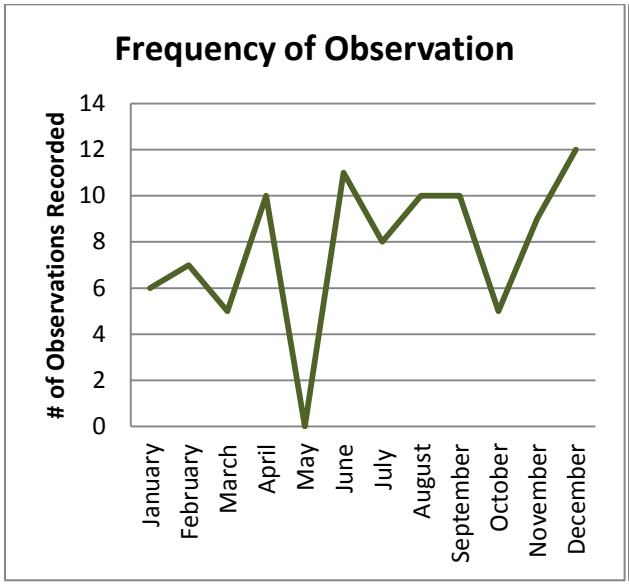

Figure 33. Frequency of observations for raptors at KRYY from July 2014-June 2015.

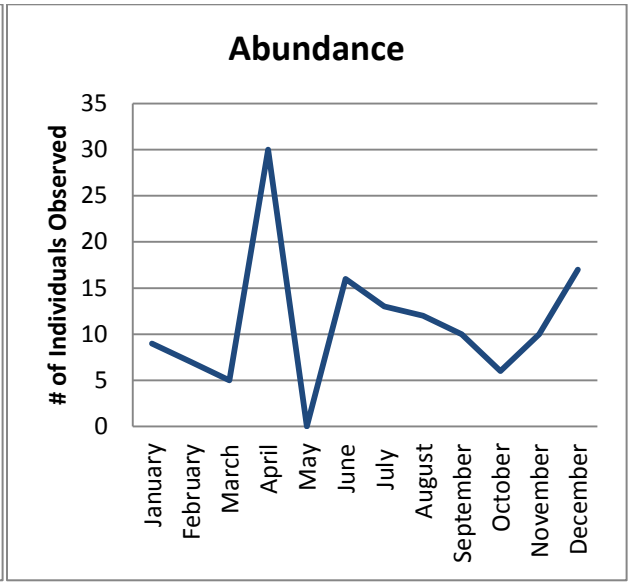

Figure 34. Abundance for raptors at KRYY from July 2014-June 2015.

Figure 35 illustrates the space use of raptors, and vultures specifically, around the airport. Hawks and kestrels utilized perching structure from which to hunt. Perching along the power line seems preferable due to the small mammal habitat the right-of-way directly underneath provides.

Vultures

There are two native vulture species in Georgia: the turkey vulture and the black vulture. Behaviorally and physically, there are slight differences between the two but they have similar implications for aviation safety. Combined, vultures are ranked 2nd on FAA's list of relatively hazardous species to aviation (FAA AC 150/5200-33B). Pyrotechnics are a recommended tool for vultures kettling over an airport, while effigies disperse roosts with great efficacy should vultures establish one near the airfield. Vultures at KRYY utilize thermal columns over the quarry to aid in energy conservation during flight (Figure 35). This area should be considered when focusing management efforts. If large groups of vultures are seen kettling in the afternoon, especially on a regular basis, it is likely that they roost nearby. Vulture roosts can hold hundreds of birds. Finding this roost and dispersing the birds is highly recommended due to the threat vultures pose to aircraft.

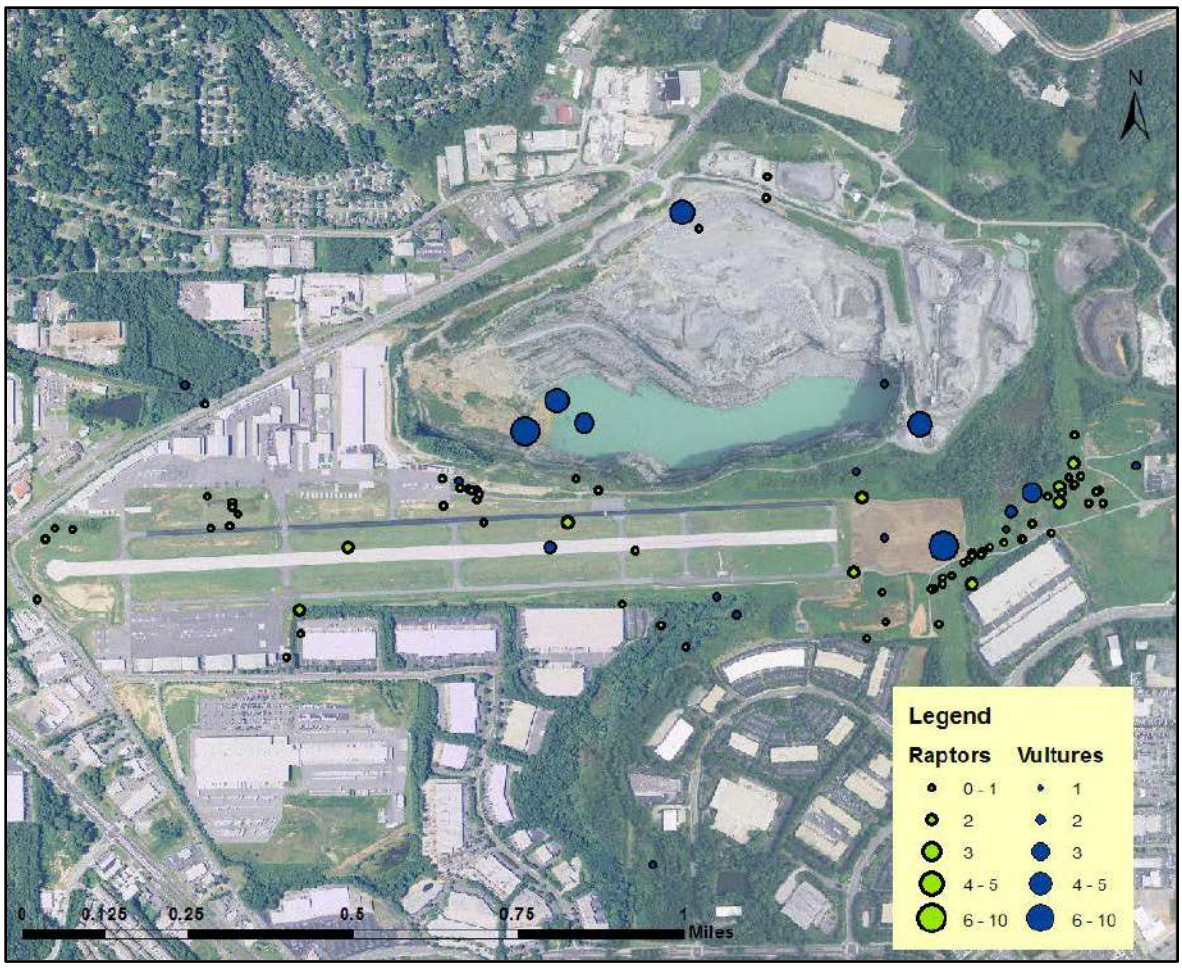

Figure 35. Graduated distribution of raptor observations at KRYY from July 2014- June 2015. Those raptor sightings which were identified as vultures are highlighted in blue.

8.6 SHOREBIRDS

This category is represented exclusively by killdeer at KRYY. This species was often seen utilizing taxiways, runways, and the grassy areas immediately next to those and other paved surfaces almost year-round, although significant peaks were observed in the abundance of killdeer in March (Figure 36) and in frequency of observation of killdeer in September (Figure 37). Both measures see seasonal peaks in mid-spring and late-summer with low numbers the remainder of the year. These birds were most often observed on the western half of the runway (Figure 38), although this half of the runway was more easily observed from the survey route, so detectability here is high.

Nationally, killdeer have caused 859 hours of aircraft downtime and $4 million in reported damage costs (Dolbeer et al. 2015). They are not ranked in the top 25 most relatively hazardous species to aircraft (FAA AC 150/5200-33B).

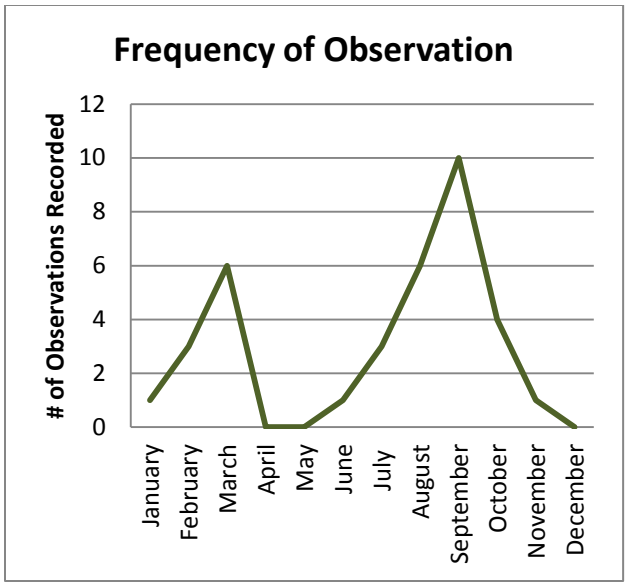

Figure 36. Frequency of observations for shorebirds at KRYY from July 2014-June 2015.

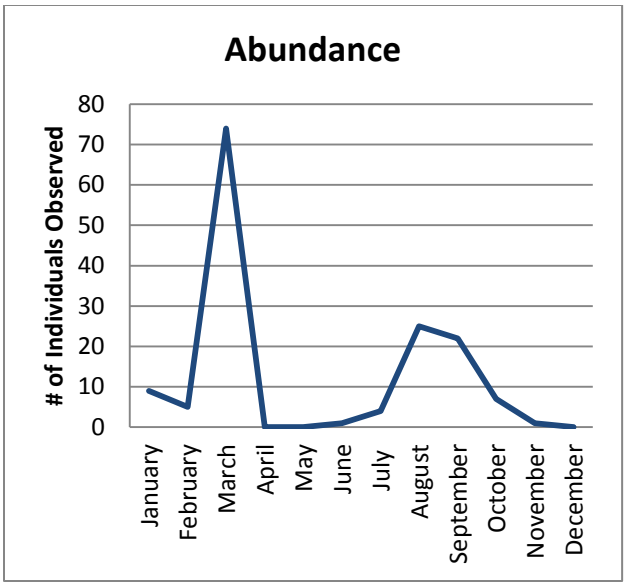

Figure 37. Abundance for shorebirds at KRYY from July 2014-June 2015.

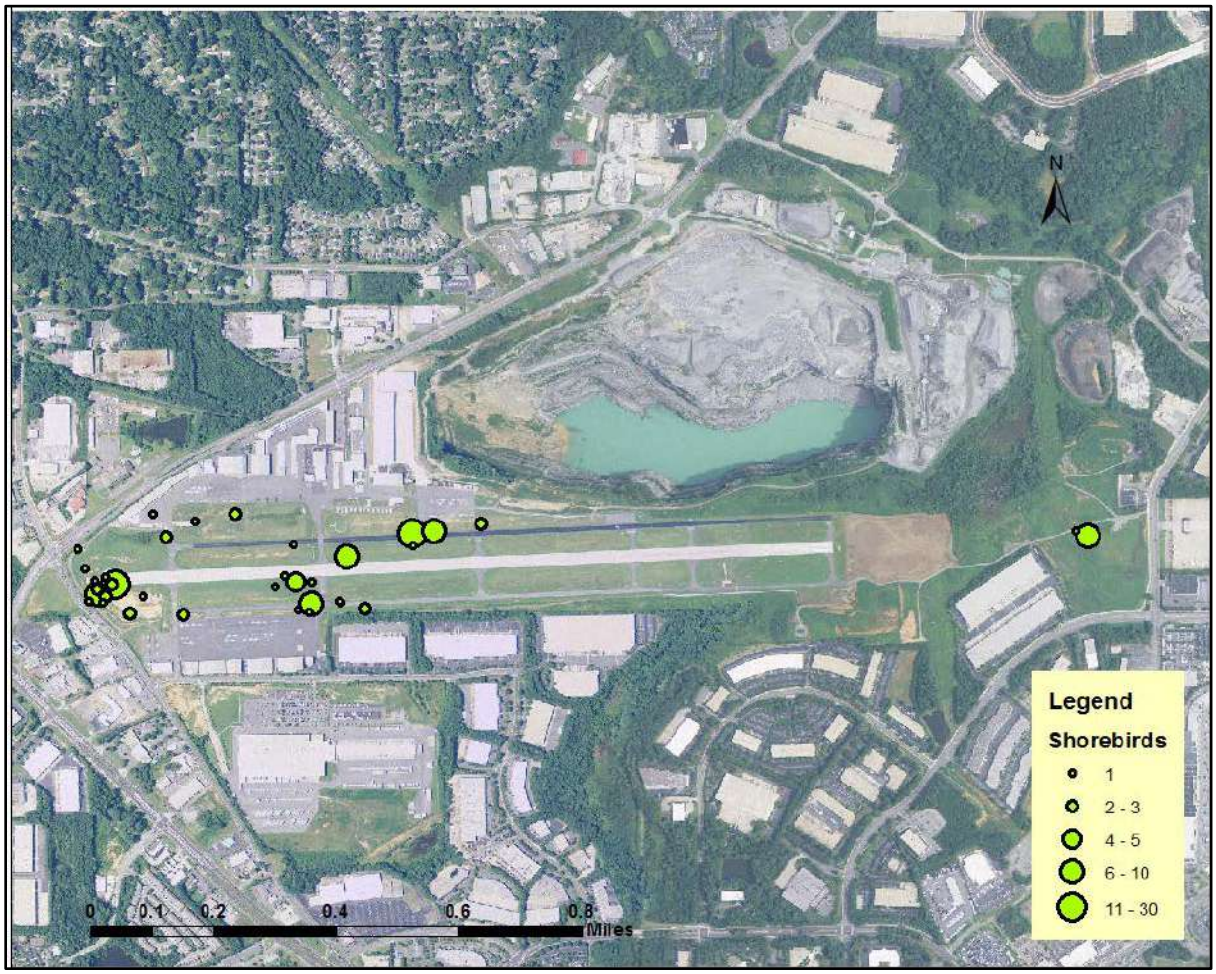

Figure 38. Graduated distribution of shorebird observations at KRYY from July 2014-June 2015.

Due to habitat availability (i.e. low grass and gravel/asphalt areas that are maintained around the runways and taxiways) and the propensity of killdeer to use asphalt areas for loafing and foraging, it would be difficult to eliminate these species from the airfield. Establishing herbaceous groundcover over barren or gravel areas, where appropriate, may reduce available habitat. Harassment techniques also need to be implemented by qualified airport operations personnel to discourage shorebird activity on the airfield.

8.7 WATERFOWL

This category was compromised of primarily Canada geese, with some infrequent observations of some redheads and hooded mergansers. Peaks in frequency of observation (Figure 39) and abundance (Figure 40) follow similar trends which can be explained by the migratory patterns of waterfowl. Georgia hosts a healthy population of resident geese, but these local birds are joined seasonally by some migrants from other parts of the country. When present, waterfowl of any species or numbers are a serious threat to safe aviation.

Geese are the 3rd most relatively hazardous species to aircraft (FAA AC 150/5200-33B). Nationally, geese caused over a reported $125 million in damages to aircraft, resulting in over 94,000 hours of downtime from 1990-2014 (Dolbeer et al. 2015).

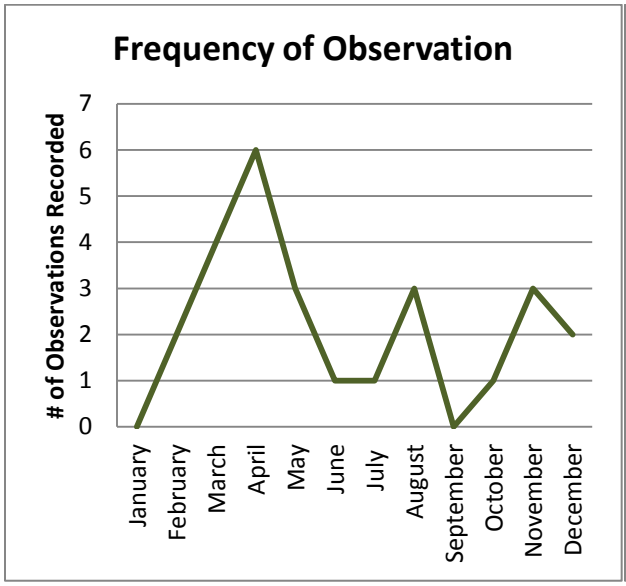

Figure 39. Frequency of observations for waterfowl at KRYY from July 2014-June 2015.

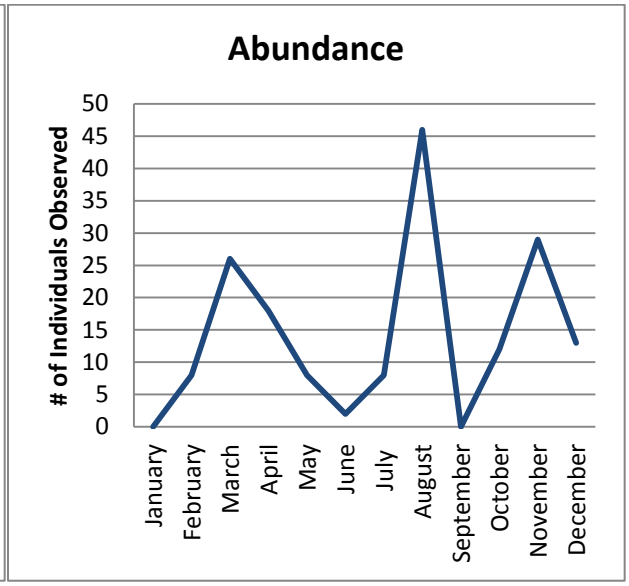

Figure 40. Abundance for waterfowl at KRYY from July 2014-June 2015.

Open water will be a major attractant to all waterfowl. It will be difficult to eliminate the bodies of water at parks, communities, and other institutions near KRYY, so harassment and lethal control will be important management techniques for these birds. Continued use of harassment techniques on adjacent lands where appropriate is encouraged to further prevent airfield usage by

this guild. Canada geese are primarily grazers and could be attracted to short grassy areas on the airfield, or similar areas with grass for grazing and open visibility (Figure 41). They were also observed in the small pond at the intersection of Vaughn Road NW and Cobb Place Boulevard NW. Due to their large size and flocking behavior, a zero tolerance management policy is recommended to be implemented by airport personnel as a strike incident often results in damage. Waterfowl should be immediately dispersed with harassment techniques at KRYY. Individuals which become habituated to harassment techniques should be immediately removed from the airport by lethal means. Lethal control, through a depredation order or permit, should also be incorporated into harassment efforts to reinforce non-lethal techniques.

Large groups of geese were observed in the area immediately west of the runway after the taxiway construction occurred. These geese were likely eating the seed and sprouting grass that was established here (Figure 42). Geese loafing and feeding here is particularly dangerous because any flight paths from this location could result in a multiple bird strike with aircraft landing or taking off from KRYY.

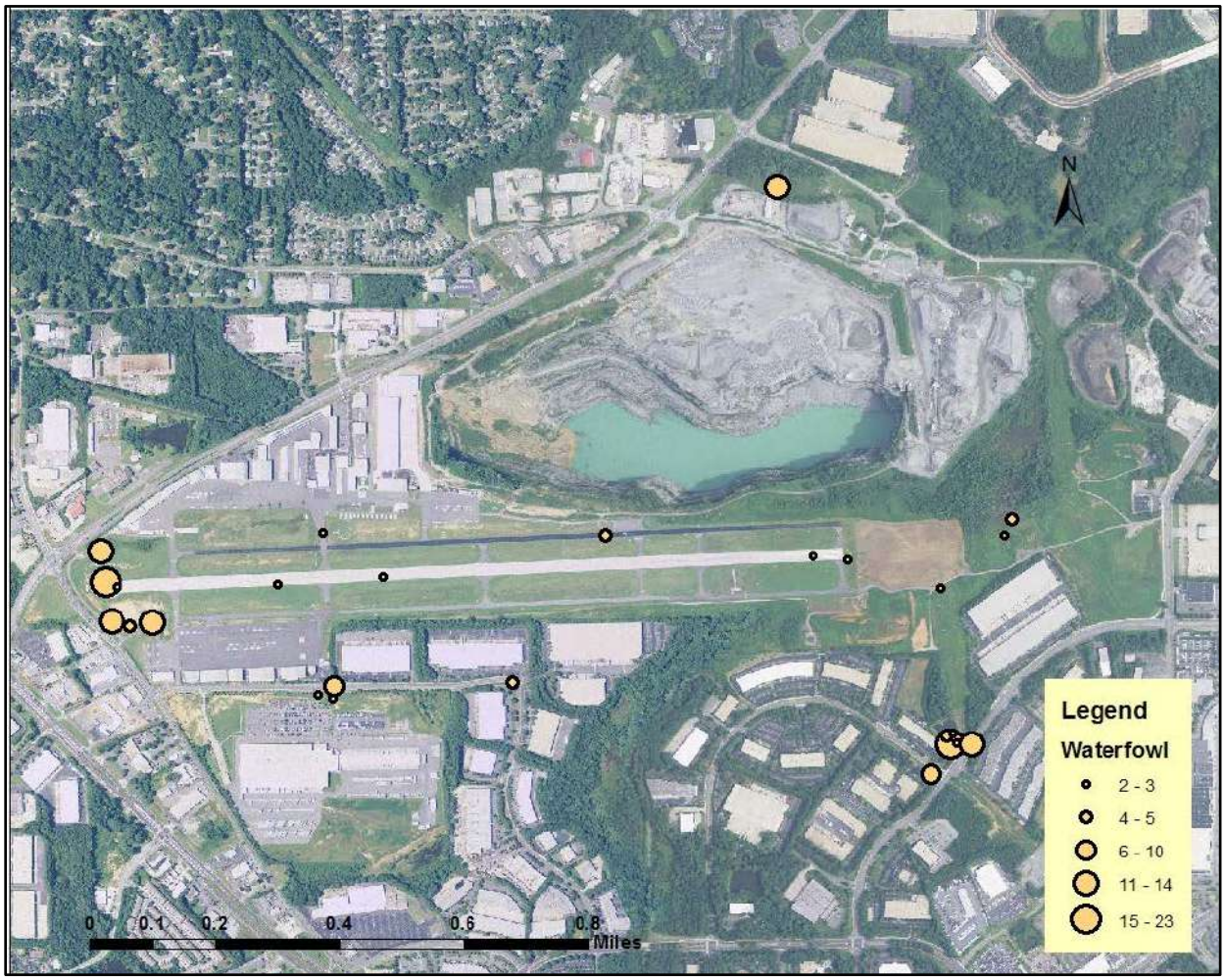

Figure 41. Graduated distribution of waterfowl at KRYY, July 2014-June 2015.

Figure 42. Canada geese feeding and loafing in a newly seeded area following taxiway construction, August 2014.

8.8 MAMMALS

During the night-time surveys, coyotes, feral dogs, and white-tailed deer were identified as the primary direct mammalian hazard to aviation at KRYY. Eastern cottontail rabbits, an indirect hazard, were also frequently observed during surveys. Eastern cottontail rabbit abundance may increase coyote activity on the airfield. Coyotes and feral dogs were identified at KRYY by tracks, scat, and direct observations. Observations and recorded abundances fluctuated throughout the year, with a substantial peak for both occurring in February (Figures 43, 44).

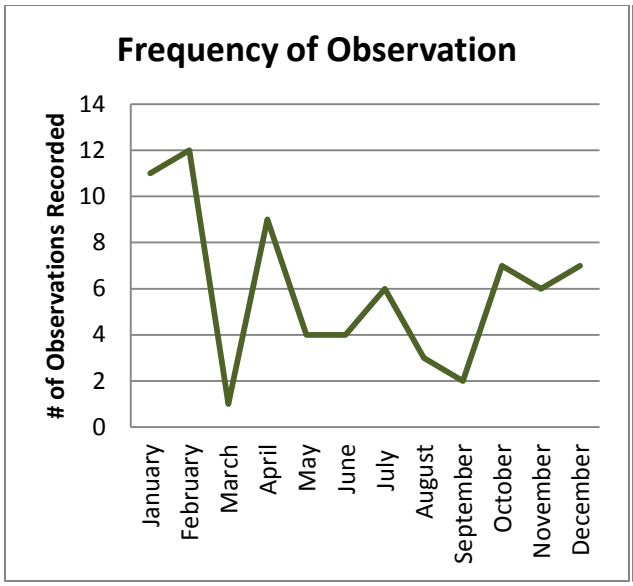

Figure 43. Frequency of observations for mammals at KRYY from July 2014-June 2015.

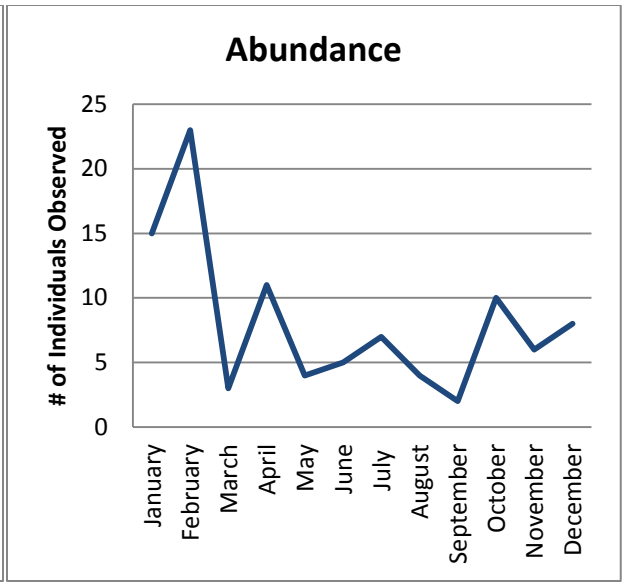

Figure 44. Abundance for mammals at KRYY from July 2014-June 2015.

Coyotes frequently used roads as travel routes (Figure 45) and will stray from the cover of the wooded areas. Eastern cottontails were almost always observed near cover, as were deer. Feral dogs were the most infrequent mammalian observation, but those observations occurred most sporadically in spatial distribution and also occurred during daylight hours.

White-tailed deer are the single most relatively hazardous species to aircraft (FAA AC 150/5200-33B). The best action to prevent deer from utilizing and airport is a well-maintained perimeter fence. Deer are accessing the airfield through holes underneath the fence around drainage areas. Deer are strict herbivores and prefer many of the identified plant species found at KRYY. Fencing is a proactive management technique, which is always encouraged before reactive techniques. A zero tolerance policy should be adopted when deer are seen at KRYY. Deer should be immediately dispersed with harassment techniques. Individuals which become habituated to harassment techniques should be immediately removed from the airport by lethal means. Lethal control, through a depredation order or permit, should also be incorporated into harassment efforts to reinforce non-lethal techniques. A reduction in the population of eastern cottontail rabbits may discourage coyotes from hunting at the airport. All animals that are lethally removed should be recovered and disposed of to ensure that the carrion does not attract vultures to the airport. All the mammals utilizing KRYY will seek cover in wooded areas between the perimeter fence and the runway. Eliminating this resource will eliminate some of the desirability of this airport to mammalian wildlife.

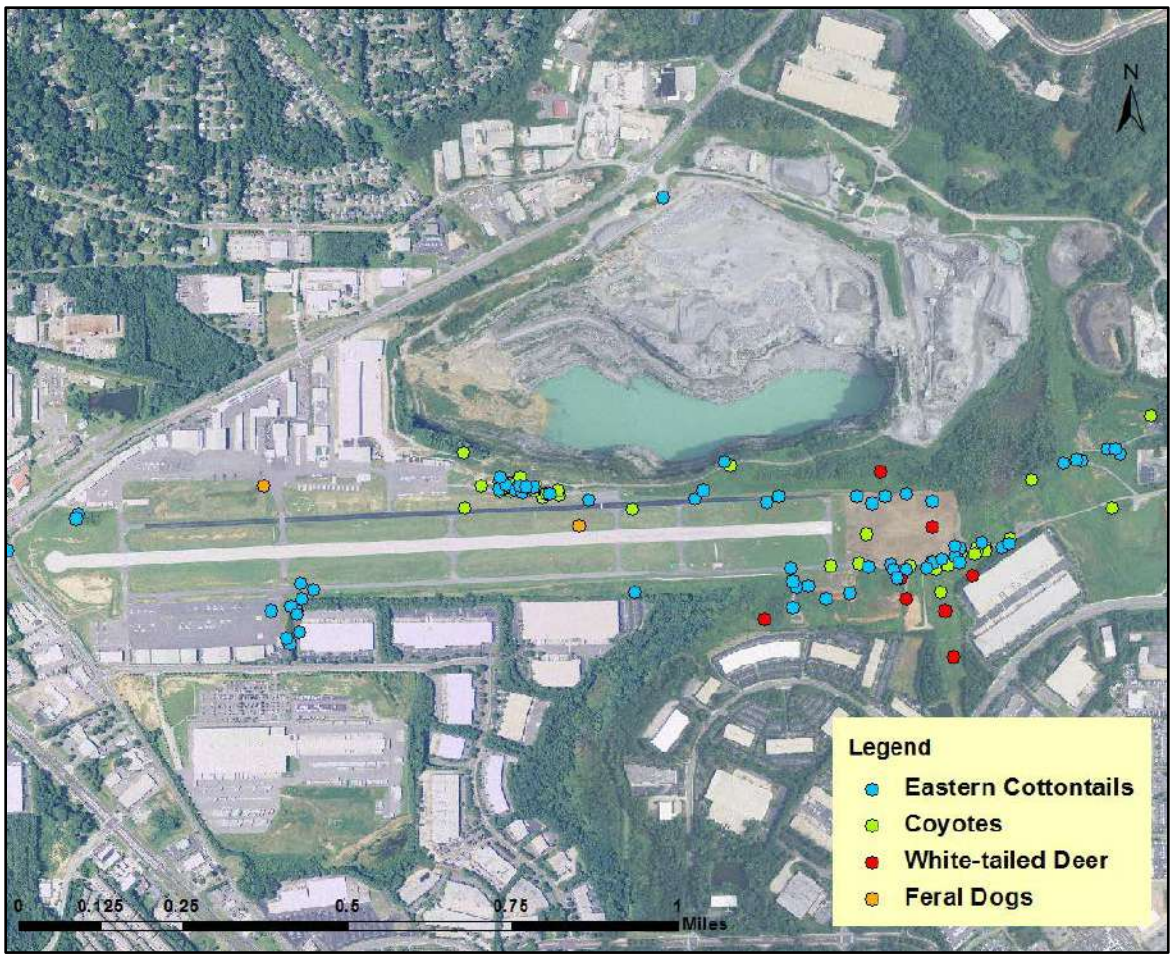

Figure 45. Distribution of mammal observations by multiple species, July 2014-June 2015.

8.9 OTHER CONSIDERATIONS

American woodcock and Wilson's snipe (Figure 46) were the only upland game birds recorded at KRYY, with each being recorded once. These birds are both small, stocky, long-billed birds who consume a diet of mostly earthworms. They both belong to the family Scolopacidae. While both require wet habitats, the woodcock is more associated with woodlands while the snipe is more closely associated with open fields and marshes. These observations were both made in the winter (January and March) and both occurred in the area east of the runway (Figure 47).

Figure 46. A Wilson's snipe stands in short grass near a ditch next to the gravel access road east of the runway, March 2015.

Figure 47. Graduated distributions of amphibians (shown in green) and upland game birds (shown in red) at KRYY, July 2014-June 2015.

Vocalizations of amphibians (chorus frogs) were recorded 3 times in February and March. Amphibians may attract a variety of predators, which are direct hazards to aviation at KRYY. Bobcats, coyotes, foxes, raccoons, wading birds, and hawks may all consume amphibians. Chorus frogs will commune in large groups to breed after rain events during late winter and early spring, which is what these animals were doing for each of these 3 observations. Otherwise, these frogs are rarely seen. These frogs were heard in areas of standing water east of the runway Figure 47).

9.0 CONCLUSIONS

MANAGEMENT RECOMMENDATIONS

Wildlife Services uses an Integrated Wildlife Damage Management (IWDM) approach to resolve conflicts between humans and wildlife. An IWDM approach requires the implementation of several strategies. These strategies involve modification of habitat, alteration of cultural practices, behavioral modification (of humans and animals), as well as removal of individuals and general population control. There are numerous solutions to any given problem and the associated cost and benefits of each must be considered prior to implementation. Habitat modification (if attainable) should be the basis for a successful WHMP and is considered a proactive approach. Harassment and lethal control activities are considered a reactive approach because the species are already utilizing the airfield environment.

9.1 GENERAL DISCUSSION

Management decisions should be centered on mitigating hazardous species present at airports. Both birds and mammals could be a potential aviation hazard at KRYY. The bird species of greatest concern are blackbirds (various species), mourning doves, raptors, geese, and swallows (when present in late spring through summer). Some of these are large and/or dense bodied birds, while others form large flocks creating a potential for multiple strikes to occur at the same time. Geese are both large-bodied and flocking. Qualified airport operations personnel should continue to use pyrotechnics to harass flocking species such as blackbirds and large, dense species such as hawks and Canada geese. Large numbers of hazardous birds should continue to be removed when present. Eliminating and/or treating temporary standing water on the airfield may discourage foraging behavior of insectivorous species like swallows and also discourage amphibian breeding events which may attract predators. Perching structure for all birds, especially large-bodied raptors, falcons, and kestrels, should be removed or modified (via perch inhibitors) to discourage foraging behavior. In particular, runway and taxiway markers, approach lights, and other structures immediately adjacent to travel lanes for aircraft should be the priority for excluding birds. The large power line provides tremendous surface area for perching birds. Unfortunately, this structure cannot be moved or modified with perch inhibitors. Extra attention should be directed at monitoring this area and harassing birds attempting to perch

there. This area lies directly in the approach/departure of the runway, so vigilance in deterring birds is highly recommended.

KRYY has mammal activity as well. The mammals present at KRYY primarily utilize the airfield at night, with some residual activity at dusk and dawn. Eastern cottontail rabbits, rodents, and squirrels are considered indirect hazards to aviation. These animals themselves are not likely to cause damage if struck by aircraft, but they are preferred prey species of direct hazards, like coyotes and hawks. In other words, they attract directly hazardous predator species to the airfield in pursuit of a food resource. Coyotes were regular observations at KRYY and white-tailed deer were seen multiple times also. Both of these animals present a clear and present danger to aviation at KRYY. White-tailed deer are the single most relatively hazardous species to aircraft (FAA AC 150/5200-33B). A zero tolerance policy should be adopted for coyote and deer management. Coyotes and deer should be removed from the airfield when observed and access points in the perimeter fence should be addressed to prevent re-entry. This will also aid in preventing other terrestrial mammals, like feral dogs, from accessing the airfield. WS recommends maintaining edges along the perimeter fence so a routine perimeter check can easily identify and address mammalian access points. No permits are required for the lethal control of coyotes, but KRYY will need to contact GDNR to obtain and maintain a permit to take deer. Lethal control should be incorporated into harassment efforts to reinforce non-lethal techniques.

9.2 DOCUMENTATION OF BIRD STRIKES

Consistent and accurate documentation of bird strikes is an important component of wildlife hazard management plans at airports. Detailed strike reports are necessary to assess the nature and extent of wildlife hazards; without such documentation effective management plans cannot be developed. Damaging and non-damaging strikes must be reported and every effort must be made to recover bird remains for identification. In the future, bird remains should be submitted to the Smithsonian Institute for identification (Appendix B). This lab has the capability to identify species genetically with limited remains. The Smithsonian recommends collecting bird remains with a damp coffee filter and to collect any feathers, if present. An attempt should be made to identify species from bird strikes. Contact information and sampling protocol can be found in the Appendix.

Location of strikes will also be an important aspect in managing potential hazards on the airfield. FAA form 5200-7 should be completed and mailed once a wildlife strike has been determined. Pilots, ground crew, maintenance, and tower personnel should know the collection procedures and immediately notify airport operations when a strike is observed or otherwise occurs. Airport operations personnel should have the responsibility to collect, document, and submit bird remains. Additionally, airport operations personnel should be familiar with current reporting procedures and complete reports in a timely fashion. Increasing report accuracy and detail will further aid KRYY in identifying hazardous species/habitats. Many bird strikes occur off the

installation and accurate location data are necessary in order to identify and mitigate hazardous off-site locations.

There are likely deficits in historical strike data from KRYY. Missing information from reports, or not reporting strikes at all, become missed opportunities to make informed management decisions on the airfield. Efforts should be made to complete all the fields of a strike report, especially the identification of the species involved.

9.3 AIRFIELD DITCHES WITH STANDING WATER

Ditches should not be allowed to become overgrown with vegetation such as trees and shrubs. Such vegetation persists because moist soils and terrain inhibits mowing machines from the manipulating the vegetation. As a result, tall vegetation along these ditches provides cover, food, and roosting habitat for birds and mammals. Lack of ditch maintenance on the airfield may result in sediment collection, allowing vegetation to grow and slow down the draining of water. Consequently, flooding conditions could persist following periods of rain. Ditches lined with rip rap can help prevent the growth of vegetation and wading bird access. A costly but ideal alternative is establishing an underground ditch system which would eliminate all associated habitats/safety issues. It is recommended that all airfield ditches be treated in a similar manner.

Exclusion on ditches that exit the airfield should be maintained to prevent mammal species from entering the airfield. Installation of dark colored plastic flaps is recommended in areas that receive heavy water flow during rain events. This would prevent an accumulation of debris and subsequent flooding at ditch exit points.

Filling in areas of localized low-elevation is an option to eliminate temporary standing water. Eliminating these areas will greatly reduce insect load and attraction to both indirect and direct hazards. Since many of these areas at KRYY are adjacent to the runway or taxiway, considerations should be made to reduce or eliminate this attractant.

9.4 GRASS MANAGEMENT

It is recommended that a monoculture of grass be established and maintained at a height of 6-10 inches (Transport Canada 1994) or 7-14 inches (Cleary and Dolbeer 2005). However, studies are limited and somewhat conflicting on this matter (Barras and Seamans 2002). Often, grass management is dependent on the site and time of year. Tall grass will inhibit visibility, ground movement, and feeding activity of flocking birds. However, longer grass heights may attract ground-nesting birds and support prey species such as insects and small mammals (Barras and Seamans 2002). In addition, long grass impedes the vision of bird dispersal personnel and may hide potential problems. In comparison, short grass may provide loafing and foraging areas for some species of birds (Blokpoel 1976). Based on observations during the WHA at KRYY, WS recommends grass height to be maintained at 6-14 inches. It is recommended to maintain a longer grass height (10-14”) during the fall and winter months to discourage flocking birds from

utilizing the airfield. During the spring and summer months, a shorter grass height (6-10") is recommended to discourage prey items, such as insects and rodents, that would attract various species to the airfield for foraging purposes (swallows, predators, etc.).

It is also important to note that grass height manipulation should take place before grass seed heads are developed. Developed seed heads, if dispersed by a mowing regime, would attract a variety of avian species.

Species composition of the airfield grassland community should also be carefully managed. Broad-leaved forbs like vetches, sedges, and legumes are present at KRYY and are attractants for herbivores including deer and rabbits and should be eliminated from the airfield through herbicide applications. Typically, airfields with a monoculture of bahiagrass, a warm-season perennial, requires less mowing and produces a weed seed head that is less attractive to birds.

9.5 DISTURBED AREA MANAGEMENT

To discourage native vegetation growth from the seed bank, debris should be collected or stored on solid surfaces, such as pavement or gravel. Applying herbicide to these areas to eliminate vegetation is a management recommendation. In place of native vegetation and the previously removed hardwood communities, sprigging or seeding of non-preferred plants species (bahiagrass, Bermuda grass, etc.) is recommended. Utilizing annuals for soil stabilization with fast maturity rates (such as browntop millet) or highly palatable or preferred forages are not recommended. Such grasses could potentially provide a food source after seed installment and during grass maturity.

9.6 DEVELOPED AREA MANAGEMENT

Continued use and additional installation of perch inhibitors or bird spikes is recommended on airfield structures (approach lights and utility structures). This would discourage raptors from utilizing these structures for foraging purposes and discourage mourning doves from utilizing these areas for loafing. Continual maintenance of perch inhibitors is needed to achieve desired effects; habituation to these devices can occur. Elimination of nests and harassment of roosts in and on buildings at KRYY should be practiced to keep birds like swallows and pigeons from utilizing man-made structures. Depending on the species and the time of year, permits may need to be obtained.

9.7 PERMITS

In some cases, lethal control of animals may be a necessary tool in reducing potential strikes to aircraft and enhancing harassment techniques. Resident Canada geese can be removed without a permit, under a depredation order from the USFWS, between the dates of April 1 and September 15. All geese removed will have to be reported to USFWS before the end of the calendar year. Pigeons, starlings, and house sparrows are non-native species and can be lethally controlled

without a permit. Pigeons on an airfield are often limited to a group of birds that regularly use the area in or around the airfield. In such instances they may be causing damage to buildings and structures where loafing and nesting activity exist. Pneumatic rifles can be an effective tool in removing these birds. WS recommends that all airports obtain a migratory bird depredation permit from the USFWS that will allow the airport to apply lethal methods to migratory birds that are not threatened or endangered. Lethal methods should only be used when birds are an immediate hazard or when they have habituated to harassment techniques. Initial steps to obtain this permit include an online application and contacting the WS state office. The airport should contact GDNR to obtain a permit to remove deer, and should avoid using bait in this process as it may attract additional animals to the airport. Only airport employees will be authorized to operate under these permits. Allowing hunters access to airport properties may aid in a reduction of numbers of deer populations, but this will only apply during the allowed season and these hunters must be in compliance with all regulations. Local firearm discharge ordinances may be in place. Contact local authorities to be informed of any existing laws regarding this. It is also advised that local authorities are made away of wildlife control activities, in which the potential use of a firearms exist, before activities commence and again once they are completed.

9.8 CONTINUED WILDLIFE SURVEILLANCE AND PATROLS

In order to fully understand avian and mammal usage on the airfield, a continuance of wildlife surveillance is recommended. Wildlife patrols can also be utilized during peak movement times to deter unwanted species from the airfield. A daily log of wildlife activity and management actions should be maintained on a standardized form. This information can be summarized in monthly and annual statistics. Furthermore, this information can assist airport personnel in future management decision and illustrates airport operators exercising due diligence in managing wildlife hazards.

For additional information pertaining to wildlife hazard management, please refer to FAA Advisory Circulars entitled, “Reporting Wildlife Aircraft Strikes” (AC 150/5200-32B), “Hazardous Wildlife Attractants On or Near Airports” (AC 150/5200-33B), “Construction or Establishment of Landfills Near Public Airports” (AC 150/5200-34), Certalert 04-16 (Deer Hazard to Aircraft and Deer Fencing), Certalert 04-09 (Relationships Between FAA and WS) and the FAA manual entitled, “Wildlife Hazard Management at Airports”. Many of these documents are available from the FAA’s website (http://www.faa.gov).

SPECIAL THANKS

Wildlife Services would like to thank the Cobb County Airport Administration, Operations, and Maintenance staff who assisted in site familiarization and preliminary steps in beginning the survey process. Data collection would not have been possible without the airport’s cooperation and assistance. J. Kougher of USDA APHIS WS Colorado provided assistance throughout the survey and assessment writing process, particularly with the GIS components of this project.

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APPENDIX A- Common and Scientific Names of Species Recorded at KRYY by Guild

Columbid

mourning dove	*Zenaida macroura*
rock dove (pigeon)	*Columba livia*

Corvids

American crow	*Corvus brachyrhynchos*
blue jay	*Cyanocitta cristata*

Icterids

brown-headed cowbird	*Molothrus ater*
common grackle	*Quiscalus quiscula*
eastern meadowlark	*Sturnella magna*
European starling	*Sturnus vulgaris*
red-winged blackbird	*Agelaius phoeniceus*

Passerines

American goldfinch	*Carduelis tristis*
American robin	*Turdus migratorius*
barn swallow	*Hirundo rustica*
blue grosbeak	*Passerina caerulea*
brown thrasher	*Toxostoma rufum*
chipping sparrow	*Spizella passerina*
common yellowthroat	*Geothlypis trichas*
eastern bluebird	*Sialia sialis*
eastern kingbird	*Tyrannus tyrannus*
eastern phoebe	*Sayornis phoebe*
eastern towhee	*Pipilo erythorphthalmus*
field sparrow	*Spizella pusilla*
house finch	*Carpodacus mexicanus*
indigo bunting	*Passerina cyanea*
northern cardinal	*Cardinalis cardinalis*
northern mockingbird	*Mimus polyglottos*
northern rough-winged swallow	*Stelgidopteryx serripennis*
tufted titmouse	*Baeolophus bicolor*
yellow-breasted chat	*Icteria virens*

Raptors

American kestrel	*Falco sparverius*
Cooper's hawk	*Accipiter cooperii*
red-shouldered hawk	*Buteo lineatus*
red-tailed hawk	*Buteo jamaicensis*
turkey vulture	*Cathartes aura*

Shorebirds

killdeer	*Charadrius vociferus*

Upland Game Birds

American woodcock	*Scolopax minor*
Wilson's snipe	*Gallinago delicata*

Waterfowl

Canada goose	*Branta canadensis*
hooded merganser	*Lophodytes cucullatus*
redhead	*Aythya americana*

Mammals

coyote	*Canis latrans*
eastern cottontail rabbit	*Sylvilagus floridanus*
feral dog	*Canis lupus familiaris*
northern raccoon	*Procyon lotor*
white-tailed deer	*Odocoileus virginianus*

Amphibians

upland chorus frog	*Pseudacris feriarum*

APPENDIX B- Smithsonian Institute Submittal Procedures for Bird Remains

Methods of Identification

The National Museum of Natural History houses one of the largest collections of bird specimens in the world. Over 650,000 specimens of all types, ages, and sexes of birds line the drawers in a collection that is over 150 years old. It is ideal to work in such a large collection because many species of birds exhibit extreme variation in sex, age and geographic plumages. A wide variety of individuals are necessary for quick and accurate identification. The identification of feathers combines several techniques to identify what is left of birds after they have been sucked into engines, smashed through windscreens and aircraft wings, or found dead on the airfield. Forensic ornithologists work in the only laboratory in the country specifically set up to analyze bird strike remains at the Smithsonian Institution.

Feathers that are identified from bird strike remains usually go through two steps. First, the materials are usually washed and dried to remove dirt, grease, and other debris from the surface of the feather. This also helps restore the feather's natural shape and color. Next, the feathers are compared with specimens in the museum collection to find a perfect match. Most often, species identifications are made by comparing whole feather characters with specimens in the collection. When the feather sample is still questionable (containing few or no macroscopic diagnostic characters) or if the sample is minute, the remains are examined using light microscopy.

Collecting Remains

- Collect all information pertaining to the strike, such as: aircraft type, tail number, impact points, types of damage, etc.
- Fill out for FAA 5200-7 or file a report electronically at Wildlife Strike Report (http://wildlife.pr.erau.edu/strikeform/birdstrikeform.html)
- Collect all feathers, fuzz, beak, bones, talons, etc. that are found in the engine, on the aircraft, or on the airfield.

Usually, remains can be gathered by simply picking material out by hand or with tweezers and placing the material in a plastic/Ziploc bag.

A cloth or paper towel can be used to wipe off material. The cloth can also be placed in plastic bag with the feather material.

For extremely small samples, material can be placed in a folded piece of paper and placed into plastic/Ziploc bag. If material is dried, a light spray of water from a spray bottle may aid in collection.

- The more material/evidence the better-this helps ensure a quicker identification.
- Be sure to send as much of the material as you can find. Never cut feathers from the bird's body because the fluffy down at the very base of the feather is often important in making identifications. DO NOT USE TAPE or any sticky substance to attach feather material. The individual downy barbs of the feather get tangled and destroyed.
- Send feather material and completed form FAA 5200-7 (of Confirmation Number if submitted online) to:

Until further notice, this PO Box address must be used to insure efficient delivery of the mail:

Dr. Carla Dove
Smithsonian Institution
PO Box 37012
NHB, E600, MRC 116
Washington, D.C. 20013-7012

Any non-FedEx mail sent to the old address may be delayed due to the irradiation process. Material send during the time no service was provided is slowly coming in. We still recommend

using FedEx to send priority cases. The material can be identified as "safety investigation material". Any material send via FedEx needs to be send to the following address:

Dr. Carla Dove
Smithsonian Institution
10th & Constitution Ave NW
NHB, E600, MRC 116
Washington, D.C. 20560-0116

APPENDIX D

September 1, 2017

5/15/13

LETTER OF AGREEMENT

EFFECTIVE: August 1, 2013

SUBJ: Designation of Movement/Non-Movement Areas and Control of Vehicular Traffic on Airport Movement Areas

1. PURPOSE: This agreement defines responsibility for the control of aircraft, vehicular, and pedestrian traffic within the Cobb County Airport - McCollum Field Airport.

2. SCOPE: To limit risks on the airport involving an aircraft, vehicle, person or an object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, landing, or intending to land.

3. CANCELLATION: Letter of Agreement, Aircraft Movement Area, dated May 15, 2000.

4. DEFINITIONS:

a. Movement Area. The runways, taxiways, and other areas of an airport which are used for taxiing, departing or landing exclusive of loading ramps and aircraft parking areas.

b. Airport Movement Areas controlled by McCollum Tower are:

(1) Runways 9/27.

(2) Taxiways A and B.

(3) Intermediate Taxiways A1, A2, A3, A4, A5, A6, B1, B2, B3, B4, B5, B6, ½ of the NE Run-Up Pad, and Ramp Connectors at A1, A2 and NE Ramp.

c. Movement areas or portions thereof that have been closed by Airport Management are not considered active surfaces (under Tower control); and as such remain inactive (not under Tower control) until returned to active service by Airport Management.

5. RESPONSIBILITIES:

a. McCollum Tower shall:

(1) Control all aircraft and vehicular traffic in the defined movement areas when the tower is officially open (7 AM to 11 PM). Prearranged operations areas for helicopters, blimps, and other airport activities will be individually coordinated through the Airport Managers office. All ramp areas and other non-movement areas are not under the control of the Tower. All information related to aircraft movement on the loading ramps or parking areas is advisory in nature and does not imply control responsibility by the Tower. All movement areas are under the direct control of the Tower unless closed by the Airport Authority.

(2) Immediately notify the Airport Managers office of observed taxiway or runway incursions committed by pedestrians or vehicle operators.

(3) Immediately report any such unauthorized entries onto the Movement Area IAW FAA Orders.

(4) Immediately notify the Airport Managers office of a wildlife hazard when observed from the Tower or report received via a pilot report (PIREP).

(5) Apply Movement Area Restrictions:

(a) When weather conditions at McCollum Airport are two (2) miles or less visibility and 800 feet or less ceiling:

(aa) Require that no aircraft takeoff or land while an aircraft with a wingspan of 110 feet or more is on Taxiway A. Aircraft examples are described in Appendix 1.

(bb) Require that no aircraft or vehicle will be on Taxiway A during a Category D aircraft takeoff or landing. If an aircraft or vehicle is inadvertently on Taxiway A during a Category D operation, the tower will not be required to send a landing aircraft around or abort a departure. Aircraft examples are described in Appendix 1.

(b) Require that no aircraft with a wingspan greater than 80 ft. taxi on Taxiway B between B-5 and B-6. Aircraft examples are described in Appendix 1.

b. McCollum Airport Manager shall:

(1) Ensure each employee, tenant, or contractor who operates a ground vehicle on any portion of the airport that has access to the movement area is familiar with the Airport's procedures for the operation of ground vehicles and the consequences of non-compliance; and shall limit access only to those ground vehicles necessary for airport operations.

(2) Require those authorized use of the movement area to receive authorization from Tower personnel on the Ground Control frequency 119.0.

(3) Ensure all other tenants requiring an escort are aware of the procedures required to obtain an authorized Airport escort.

(4) Instruct movement area users of the requirement for either:

(a) Amber strobe light;
(b) Amber rotating beacon;
(c) Emergency response flashing lights; or
(d) A checkered flag (daytime use only).

(5) Issue NOTAMS as soon as practical making known any condition on or in the vicinity of the airport, existing or anticipated which would prevent, restrict, or present a hazard to arriving or departing aircraft.

(6) Issue a NOTAM restricting Taxiway B between B-5 and B-6 to aircraft with a wingspan 80 feet or less.

(7) Conduct daily Airport Self-Inspections (pavement checks, etc.) and upon Tower's request following a safety concern. The entire Airport Inspection will be conducted on Ground Control frequency.

6. DEVIATIONS: Deviations to this agreement will only be approved by the Airport Authority Manager and the Air Traffic Manager after coordination has been accomplished which completely defines responsibility in each case.

Air Traffic Manager, David Cranford, McCollum ATCT

Airport Manager, Karl Von Hagel, Cobb County – McCollum Field Airport

APPENDIX 1 –LOA AIRPORT MOVEMENT AREA

Aircraft Greater than 80' Wingspan that may potentially use RYY

Examples:	BAC 111	88'
	G-V	93'
	DC-9	93'
	B-737-100	93'
	Global Express	94'
	B-17	103'

Aircraft Greater than 110' Wingspan that may potentially use RYY

Examples:	BBJ	118'
	C-130	133'

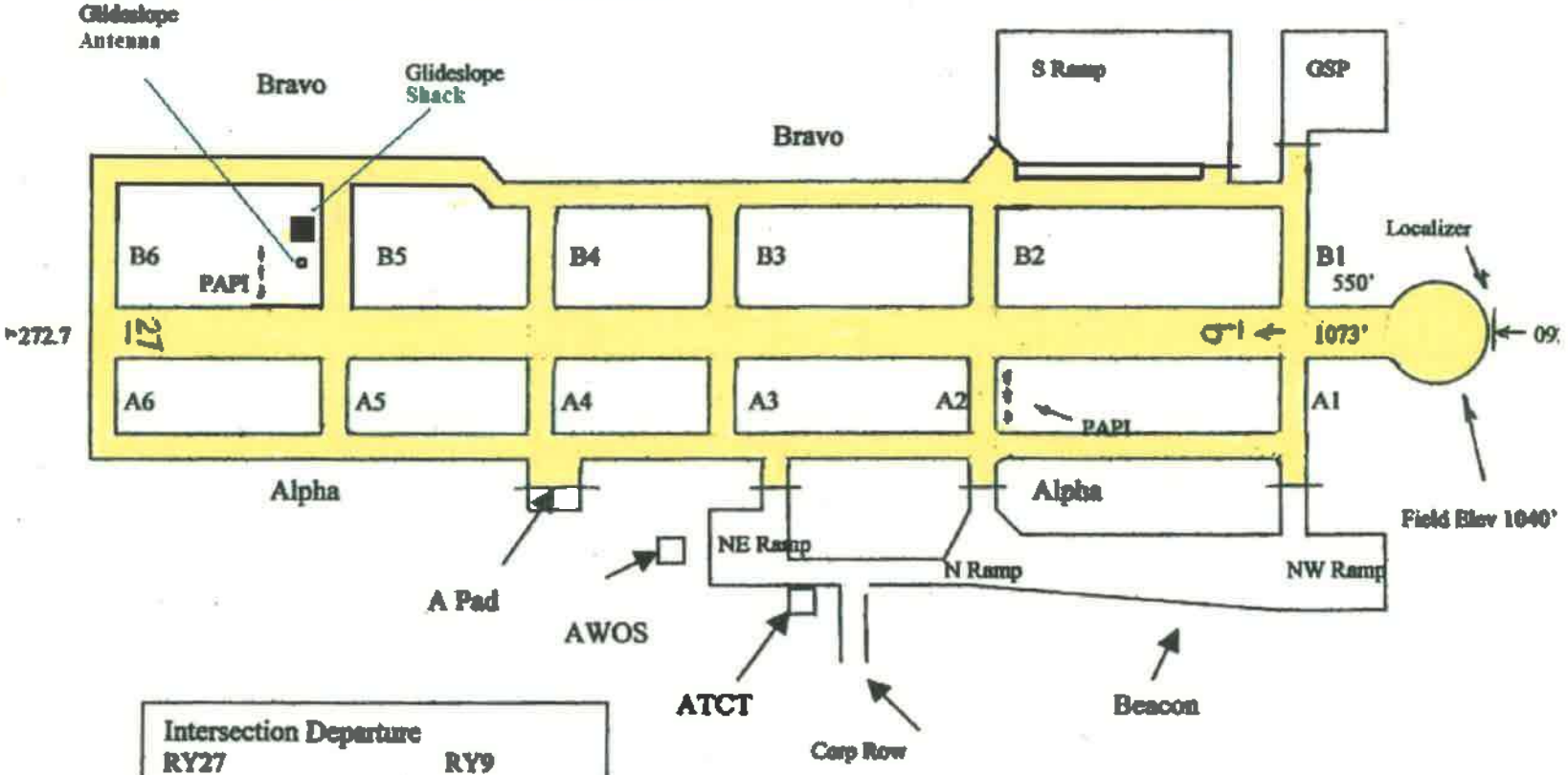
Example Class D Aircraft that use RYY

Gates Learjet 35A/36A
Gulfstream II
Gulfstream IV

Atlanta/Cobb County, McCollum Airport
RY 9/27 6,305' X 100' CONC/GRVD
Taxiway Alpha 40'
Taxiway Bravo 35'

Movement Area Highlighted

Drawing Not To Scale



Intersection Departure RY27		RY9	
A6	6300'	A1/B1	5700'
B5	5350'	A2/B2	4400'
A5	5100'	A3/B3	3050'
A4/B4	4600'	A4/B4	1700'
A3/B3	3250'	A5	1200'
A2/B2	1900'	B5	950'
A1/B1 No Takeoff			

Note: Center to Center – Taxiway Alpha and Runway 267'
Center to Center -- Bravo B2 toB6 and Runway 288'