Airport Master Plan ~ Final Report

Hawkins Field

presented to

Jackson Municipal Airport Authority

January 10, 2012

BWSC Barge Waggoner Sumner & Cannon, Inc.®

HAWKINS FIELD

AIRPORT MASTER PLAN UPDATE

January 10, 2012

Prepared for:
Jackson Municipal Airport Authority

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Hawkins Field
Airport Master Plan

Table of Contents

Chapter 1 – Introduction

Chapter 2 – Vision of the Airport's Future

Chapter 3 – Inventory and Existing Conditions

Chapter 4 – Aviation Activity Forecasts

Chapter 5 –Demand Capacity/Facility Requirements

Chapter 6 –Alternatives

Chapter 7 –Environmental Overview

Chapter 8 –Airport Layout Plan Drawings

Chapter 9 –Financial/Implementation Plan

List of Tables

Chapter 3

Chapter 4

Chapter 5

Chapter 6

Chapter 9

List of Figures

Chapter 3

Chapter 4

Chapter 5

Chapter 6

Chapter 8

Appendix

CHAPTER 1
INTRODUCTION

1.0 Introduction

Development of the Airport Master Plan Update for Hawkins Field was undertaken by the Jackson Municipal Airport Authority for the purpose of examining the Airport's existing and future role and to provide direction for long term development of the Airport. Financial assistance for the preparation of the Master Plan Update was provided by the Jackson Municipal Airport Authority and the Federal Aviation Administration.

1.1 Purpose of Study

The purpose of this study is to determine the aviation needs of Hawkins Field and its service area for the next 20 years. The study is part of the continuing planning process necessary to assure adequate and compatible airport improvements as required to meet the growing aviation demands associated with the Airport.

1.2 Goals and Objectives

The overall goal of this study is to provide the Jackson Municipal Airport Authority with an effective planning tool to guide the future development of Hawkins Field. This Master Plan Update provides local officials with such guidance while ensuring that the development of the airport is accomplished in a manner that respects the local environment and is consistent with the financial policies of the Authority. Accomplishment of this goal requires the evaluation of existing airport activity and facilities, and determination of actions needed to maintain an adequate, safe and reliable airport facility to meet the needs of the City of Jackson, and the surrounding areas.

Specific objectives of the Master Plan include the following purposes:

- Inventory existing airside, landside and other support facilities and services currently at the Airport, as well as, the local and regional economic development and growth affecting the Airport;
- Update historical aviation data and develop new forecasts based on historical trends and major changes anticipated for the future;
- Document the methodology, findings, analysis and conclusions for the technical investigation of concepts and alternatives which were performed to develop the proposed plan;
- Propose a viable, phased 5, 10, and 20-year financial plan for achieving the planned airport development and implementation schedule;
- Identify anticipated airport funding needs and proposed airport development policies for consideration by the Jackson Municipal Airport Authority.

1.3 Master Plan Organization

The Airport Master Plan Update for Hawkins Field is organized into functional chapters on the following plan elements:

- Introduction – Purpose of study and overall goals and objectives;
- Airport Inventory – Inventory existing airport facilities and services including airside, landside and airport related land uses;
- Aviation Demand Forecasts – Develop forecasts of aeronautical demand for the short-term (5 years), medium (10 years) and long range (20 year) periods;
- Demand Capacity/Facilities Requirements – Determine existing airport facilities' ability to accommodate the forecasted aeronautical demands and identify needed improvements to provide the required safety and capacity of airport facilities;
- Environmental Overview – Identify and analyze potential environmental impacts of the planned airport development and its alternatives;
- Airport Layout Plans – Provide recommended plans for airports development, including the Airport Layout Plan (ALP), Terminal Area Plan, Part 77 Airspace Plan, Inner Portion of Approach Surface Drawing, Land Use Drawing, and Property Map;
- Recommended Capital Improvement Program and Financial Plan – A schedule and cost estimates of the proposed development will be prepared along with a Financial Plan that identifies future revenues, expenses, and income, as well as funding sources for the recommended facilities requirements.

The organization and format of the Hawkins Field Airport Master Plan Update is designed to provide an easily readable, yet comprehensive presentation of the complete plan.

1.4 Related Studies

During the early part of the study, several sources of background information were assembled to be used throughout the remainder of the study. These publications have been acquired from various Federal, State, and local agencies.

1. Terminal Area Forecast Fiscal Years 2008-2025, U.S. Department of Transportation, Federal Aviation Administration, December 2008.

2. National Plan of Integrated Airport Systems (NPIAS) 2005-2009, U.S. Department of Transportation, Federal Aviation Administration, September 2004.

3. FAA Aviation Forecasts Fiscal Years 2009-2025, U.S. Department of Transportation, Federal Aviation Administration, December 2008.

4. Mississippi Statewide Airports Study, Mississippi Department of Transportation, Aeronautics Division, May 1999.

5. FAA AC 150/5070-6B, Airport Master Plans, U.S. Department of Transportation, Federal Aviation Administration.

6. 2010 Complete Economic and Demographic Data Source (CEDDS), Woods & Poole Economics.

7. U. S. Bureau of Labor Statistics, August 2009.

8. Hawkins Field Master Plan, March 2000.

9. Hawkins Field Historic Terminal Building – Estimate of Probable Construction Costs for Adaptive Reuse, Gresham Smith and Partners, October 10, 2008.

CHAPTER 2
VISION OF THE AIRPORT'S FUTURE

2.1 Introduction

The Master Plan for Hawkins Field presents a vision for the future of the airport over the next 20 years and is based on input from the many individuals and groups that have a stake in the future of the airport. The visioning process combines input from airport tenants, community leaders, elected officials, and professionals in the areas of aviation, transportation and economic development and uses their input to build consensus on a description of their preferred future for Hawkins Field.

Stakeholder participation began with one-on-one interviews that were conducted during the fall 2009 and winter 2010. The interviews were followed by focus group meetings that were conducted in spring 2010. The three groups included an Aviation Group, an Economic Development Group and a Community Group. The interviews and meetings provided an open forum for discussing issues and desirable conditions for the future of Hawkins Field. Input from the interviews and focus group meetings was used to draft a shared vision of HKS's future and to assess the airport's strengths, weaknesses, opportunities, and threats.

This chapter presents the draft vision. The draft vision was presented for public comment at the Master Plan's first public workshop July 19, 2010.

2.2 Vision Themes

Stakeholders articulated a very comprehensive vision for the future of the airport. They envisioned Hawkins Field as a premier destination for aviation users, a catalyst for economic development, and an important component of the West Jackson community. The three vision themes are amplified below. The themes are expressed in present tense and represent a desired future state to be supported by the Master Plan's physical improvement plan.

HKS is a premier aviation destination

This vision theme promotes the continued use and improvement of Hawkins Field to enhance its position as a premier aviation destination. The current general aviation role of the airport is retained and it continues as the longest serving airport in the state of Mississippi. It is promoted as an executive general aviation airport.

Realization of the facility recommendations in the Master Plan is essential for this vision theme. The airport's all-weather capability is retained and is provided by the airfield's two-runway configuration including a crosswind runway, instrument approach capability and air traffic control staff. Over time, the airport's facilities are upgraded to enhance its stature as one of the most up-to-date technological airports in the Southern U.S.

As a destination airport, HKS is to be recognized for its reasonable rates, amenities and friendliness. Local and transient aircraft users alike are attracted to the airport by suitable landside facilities to accommodate aircraft storage, ramp parking, passenger and pilot lounges, and amenities such as a restaurant, multi-use space and meeting facilities. The airport's entrance is upgraded and establishes a gateway to the City of Jackson.

Fulfillment of this vision theme also requires the upgrade of existing facilities. Restoration of the old terminal is important to a wide spectrum of the airport's stakeholders and an award-winning restoration is desired. Likewise, property beautification is important and stakeholders envision HKS receiving an award for its physical improvements and for setting the standard for property beautification.

HKS is a catalyst for economic development

This vision theme elevates HKS's economic contribution and furthers its role as a catalyst for economic development opportunities for West Jackson. Economic development initiatives and airport improvement programs work together to bring more jobs to West Jackson and, in turn, stimulate more activity at the airport. A complement to airport improvement, expansion of the industrial park increases employment opportunities and generates greater tax revenues. The airport's role is addressed in strategic initiatives that define economic development priorities such as current initiatives to promote aerospace and health care. Opportunities for financial incentives for aviation related industries are jointly pursued by JMAA and Jackson's economic development agencies and advocates.

Using the airport as a catalyst for furthering economic development initiatives is a vision theme that is accomplished beyond the focus of the airport's master plan. The airport's Master Plan addresses aviation needs as a priority and does not set economic policy. However, once aviation needs are satisfied, the Master Plan can identify areas available for revenue producing opportunities that are in sync with and supportive of economic development objectives.

HKS is in partnership with the community

This vision theme promotes HKS's partnership with the adjoining community, particularly its support of the community's social and educational networks.

As a catalyst for community change, this vision theme anticipates HKS being able to further educational opportunities in the community. Where possible, JMAA will seek partnerships with others to advance educational opportunities. For example, JMAA might partner with the military to develop a museum or to sponsor a job fair. An aerospace education center could be developed if aerospace industries develop near the airport.

From a social perspective, this vision theme anticipates that family friendly activities are held at the airport. Setting aside space for a picnic area and airport viewing area is an example of such a family friendly activity anticipated with this vision theme.

Fulfillment of this vision theme requires that the JMAA, city planning, educational institutions and community groups work together to identify and fund suitable opportunities that emerge. An ultimate end state is for the airport community to evolve in to one of the best places to live and work in America. Although the Master Plan is not a forum for setting social policy, physical improvements recommended in the plan can support family friendly activities and educational opportunities.

2.3 Analysis of Strengths, Weaknesses, Opportunities, and Threats

The vision themes describing the desired future of HKS are based on stakeholders' input concerning the airport's strengths and weaknesses and the opportunities and threats confronting its future. As a group, stakeholders are very proud of the airport and interested in its continued improvement.

Strengths and weaknesses describe existing conditions that the planning process should recognize at the onset. A strength can be viewed as an asset or advantage of Hawkins Field relative to its position or situation. A weakness is viewed as a limitation or deficiency that impedes the airport's ability to reach its full potential. Strengths and weaknesses are identified early on in the planning process so that the Master Plan can be responsive to existing issues and current conditions. Opportunities and threats are potential, future conditions for the planning effort to anticipate when developing the airport's 20-year plan.

The focus of the outreach effort was to engage stakeholders in open discussions about Hawkins Field. Many of the points that were made pertain to aspects or issues that the Master Plan can address. Some items or issues may be more appropriately addressed outside the context of the Master Plan but are included in this discussion to provide a comprehensive view of the opinions of the many groups and individuals that have a stake in the future of Hawkins Field.

Strengths

Hawkins Field has important strengths that provide a foundation for the Master Plan. These strengths are principally its location, the quality of its facilities, and related attributes derived from its urban setting.

The most often cited strength of Hawkins Field is its location. Close to downtown, the airport is only 10 minutes drive from Jackson's central business district and the nearby medical complex. It is readily accessible to the entire metropolitan area. An exit for the airport and the industrial park is designated on I-220 and the interchange with I-220 is only minutes from the airport's front door. Hawkins Field is centrally located in the southeastern portions of the U.S. and is one of the largest general aviation airports in the region. Because of its central location in the southeastern portions of the U.S., Hawkins Field provides refuge during national disasters and emergencies such as Hurricane Katrina.

Stakeholders cite the airport's facilities as an important strength. The airfield has two runways, including a crosswind runway that enables the airport's use in most wind conditions. The airfield has ample capacity to accommodate its users and operates without aircraft delay. The presence of air traffic control personnel and the navigational aids that accompany the runway system provide all-weather capability to the airport's users. Two Fixed Base Operators (FBOs) are available to provide based and transient aircraft users with fuel, aircraft storage, and routine aircraft maintenance. Moreover, airport users incur fewer and lower fees and do not experience the many restrictions imposed by the Transportation Security Administration (TSA) at Jackson-Evers International Airport. Stakeholders say that Hawkins Field is well kept and a model for other executive, general aviation airports in a dense urban setting. They say that the airport is customer friendly and easy to use.

Activities at Hawkins Field or in the nearby community are additional strengths because these activities draw people to West Jackson. The air show at Hawkins Field and the nearby zoo attract visitors to West Jackson. The Mississippi Army National Guard is a very visible tenant at the airport and its presence has increased activity. The airport is connected to an industrial park and the surrounding community hosts a labor pool of "thousands".

Weaknesses

A wide range of weaknesses were cited by stakeholders. Weaknesses ranged from physical facility issues and deficiencies to negative perceptions and a need for increased public awareness.

Airport users most often cited a physical issue as a weakness. Aircraft landing weight limitations associated with airfield pavement conditions were mentioned. The need for a longer runway and inadequate facilities for transient aircraft users, such as lounges for passengers and pilots, were mentioned. Poor drainage, insufficient hangar space, and insufficient ramp space for helicopter parking were viewed as weaknesses, and many stakeholders mentioned the original terminal's state of disrepair as a weakness. Stakeholders also noted that Hawkins Field is landlocked without much room for it to grow. These physical issues are to be addressed in the Master Plan.

Economic and community stakeholders also mentioned facility issues but focused on the interface between the airport and adjoining areas. Specifically, they cited the need for better and bigger signage to establish the airport's main entry, the need for a more attractive entrance and better lighting on access roads to the airport.

Security was mentioned in each of the focus groups, especially the need for more security at night. Airport users were concerned about potential damage to aircraft and airport buildings as a result of vandalism in the surrounding community. They expressed concern with potential deterioration of surrounding neighborhoods as older residents move away and as homes are abandoned and used for criminal activities.

Several of the weaknesses that were cited dealt with perceptions. For example, Economic Development Stakeholders said that there are negative public perceptions of the airport. They also noted an issue with rumors, e.g., the potential closure of the secondary runway. The Community Group spoke of the public's mistaken perception of a drug issue at the airport, an issue that local law enforcement confirmed to be a myth. Other stakeholders had negative perceptions of vandalism in the surrounding community.

Weaknesses noted by Community Group stakeholders centered on their lack of connection to the airport. Adjoining neighborhoods have an “outside, looking in” feeling about the airport. There is no “sense of place”. These stakeholders said that there is no link between Hawkins Field and the schools; the airport does not provide the advantages of a learning experience. The general public’s lack of awareness of what goes on at the airport is a weakness, and stakeholders suggested that there should be more events at the airport to increase public awareness.

Finally, community stakeholders expressed concern that more aircraft activity might mean more noise impacts to surrounding areas, particularly the zoo.

Opportunities

Stakeholders cited many opportunities for Hawkins Field to capture in the future, and one stakeholder described the airport as a “diamond in the rough”. Opportunities ranged from improving the airport’s facilities to enhancing its economic contribution, increasing its public image and visibility, and strengthening relationships with the adjoining community.

Opportunities for improving the physical facilities addressed items that would make the airport more attractive as a destination. To encourage aviation use, stakeholders identified opportunities such as improving the entrance to make it a gateway entry, constructing more hangars, lengthening the runway(s), and adding express and just-in-time cargo facilities. Starting a good restaurant at the airport, described as a coffee shop or hamburger joint, was a popular suggestion by the stakeholders. Meeting facilities that could attract both aviation users and non users alike were suggested. Renovation of the old terminal was often cited as an opportunity for multiple uses. These improvements are opportunities that are explored in the Master Plan.

Many opportunities for enhancing economic development were cited. The availability of warehousing space near the airport is viewed as an asset and stakeholders said that future economic development incentives at the airport should take advantage of the adjoining industrial park. Creation of accessible, developable sites at or adjacent to the airport would enhance the development potential of the airport area. Regional economic development priorities have been established for health care and aerospace, and development at Hawkins Field could target these economic sectors. Hawkins Field is very close to the region’s medical center complex and can serve as a gateway for patients and medical supplies arriving by air. Aerospace initiatives could be supported by financial incentives for attracting aviation related industries such as avionics and aircraft refurbishing to Hawkins Field. Additional opportunities include a technology park and a Jackson State University e-Center technology park for incubator businesses. An expanded role for military operations at Hawkins Field could be explored, perhaps making it a base for Homeland Security activities.

Stakeholders suggested using the airport to further educational opportunities in the community, and some mentioned that the old terminal is an “educational jewel”. The airport could be used as a location for job training or sponsoring a summer job initiative. The airport could partner with the military to host a career fair day. ROTC and JROTC activities could be relocated to the airport. A partnership could be formed with community college educational programs. For example, Hinds Community College has a program for air traffic control and mechanics.

Stakeholders also suggested that the airport could be used to sponsor more events of interest to the community. Nearby recreational destinations such as the zoo and the golf course enhance the airport as a location for more community events. Setting aside a picnic area or viewing area, for example, would bring more people out to the airport. Another potential partnership for pursuing community event opportunities is to tap the churches and the senior centers.

Finally, opportunities were mentioned for improving public awareness of the airport. Stakeholders suggested more marketing of Hawkins Field as an executive, general aviation airport and more marketing of its use for major events such as regional equestrian competitions. The creation of more jobs, even non aviation jobs near the airport, will bring people out to Hawkins Field and increase public awareness of the airport. Educational tours would increase public awareness as well.

Threats

Although stakeholders pointed to many opportunities to capture for Hawkins Field, fewer treats to its future were predicted. Threats generally focused on adverse economic forces, community encroachment, and potential security issues.

Adverse economic forces that could affect the future of Hawkins Field are continued economic decline and competition from other airports. If continued, outmigration beyond the City's boundaries will affect activity at the airport and tenants could relocate elsewhere. As an example, stakeholders said that a loss of business and industry to Raymond MS already is being experienced. Additionally, competition from other airports is a threat, especially completion from another airport that is perceived as safer and has lower fees and insurance requirements. Funding reductions loom as threat that could limit the airport's ability to reach its full potential.

Encroaching community development could limit aviation activity and economic development at Hawkins Field. The proximity of residential uses could limit development of a large-scale industrial user. There also is the potential that increasing activity at the airport could cause community impact issues such as noise.

Potential security issues and vandalism in adjoining neighborhoods are viewed as threats. Stakeholders said that the perception of vandalism in adjoining neighborhoods could deter airport growth if not resolved. Also, conversion of the airport to another use is viewed by some as a potential threat to the airport's future.

CHAPTER 3
INVENTORY AND EXISTING CONDITIONS

3.1 Introduction

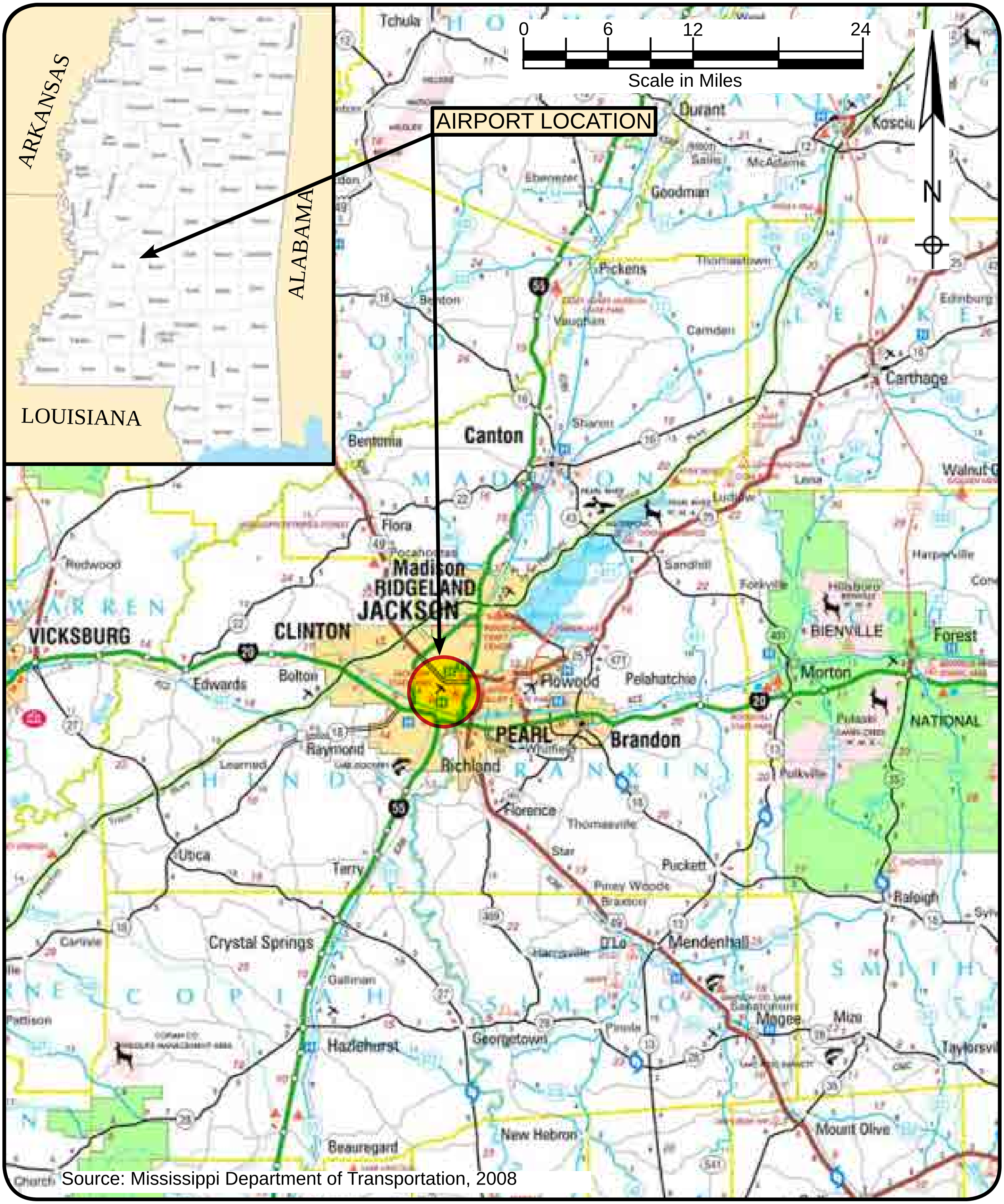
Preparation of the Airport Master Plan Update for Hawkins Field (HKS) requires collection and analysis of various data relating to the airport, as well as the area it serves. This includes an inventory of the existing airport facilities, airspace and pertinent local and regional conditions as well as historical information. The data presented was collected through on-site inspections, interviews with Airport Authority members, the Federal Aviation Administration (FAA), internet sites, and a review of previous reports, maps, and aerial photographs. Data contained in this chapter will be used as references to conduct additional analyses in subsequent chapters.

3.2 Airport Setting

Hawkins Field is located within the City of Jackson, Mississippi, approximately three miles northwest of the central business district in Hinds County, as illustrated in **Figure 3-1**. The airport is located to the south and southeast of Interstate 220 and bounded by Boiling Street to the west, Medgar Evers Blvd. to the north/northeast, and Bullard Street to the south. Ground access to the airport is Interstate 220 to Industrial Blvd. from the north and south. The airport is situated on approximately 600 acres of land. The field elevation is 341 feet MSL and the existing airport reference point (ARP) is latitude 32° 20’ 05.181” N, longitude 90° 13’ 21.114” W. The mean maximum temperature is 91.4°F.

3.3 Airport Development History

In February 1928, 151 acres of land was purchased to open Davis Field, Jackson, Mississippi’s first airport. Davis Field now known as Hawkins Field officially opened on November 9, 1928. Davis Field was the terminus for Delta Airline’s first commercial flight in 1929 from Dallas, Texas. In 1941 the airfield was renamed Hawkins Field after A.F. Hawkins, a city commissioner. That same year, the airfield became designated as the Jackson Army Airbase, used by the United States Army Air Force Flying Training Command as a basic flying training airfield and by the Mississippi Institute of Aeronautics as a contract Flying School. The airbase was also used by the Royal Netherlands Military Flying School during World War II. The facility was used as a pilot training facility center through January 1949, at which time it reverted to civilian aviation status.



Location Map

Figure 3-1

3.4 Airport Role

Hawkins Field operates as a public-use airport facility owned and operated by the Jackson Municipal Airport Authority (JMAA). At the national level, it is included in the Federal Aviation Administration's (FAA) National Plan of Integrated Airport System (NPIAS) as a general aviation service airport. The NIPAS includes a total of 3,356 airports according to the last updated report presented in 2007-2008. Hawkins Field is one of 74 airports in Mississippi that is included in the NIPAS and one of 65 airports in Mississippi classified as a general aviation airport. An airport must be included in the NIPAS to be eligible for federal funding.

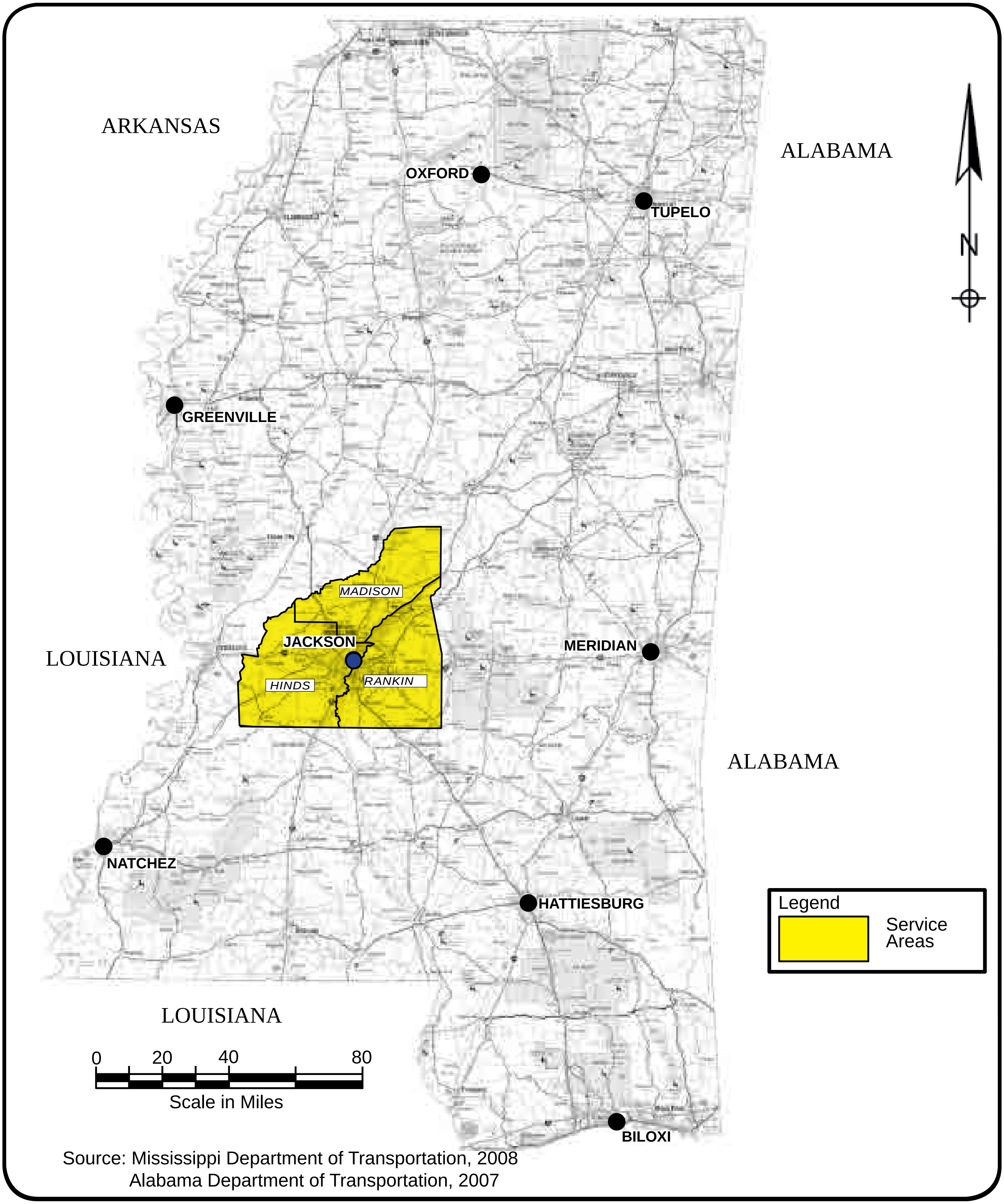
At the state level, Hawkins Field is included in the Mississippi Statewide Airports Plan. The purpose of the plan is to provide a comprehensive look at each airport and the overall air transportation needs of the State for the next 20 years. In addition, this study serves as a template to provide the Aeronautics Division with the tools needed to continue to improve Mississippi's system of airports in a logical and cost-effective manner. In addition to reviewing the aviation system's future capital needs, the Study includes a detailed analysis of the economic impact aviation has on Mississippi.

3.5 Airport Service Area

Service area for GA airports may be considered the location where the majority of based aircraft owners are likely to be drawn as well as the community that is most affected by the presence of the airport. The 2000 Master Plan Update identified the service area for HKS as the Jackson Area, which comprises Hinds County, Rankin County, and Madison County. Based on the information obtained for this Master Plan Update, the three-county airport services area was determined to still be relevant for HKS. The service area for HKS is illustrated in **Figure 3-2**.

3.6 Vicinity Airports

There are eight public use airports within a 40 NM range of Hawkins Field. All of the facilities serve the needs of the general aviation users. Jackson-Evers International Airport is the only airport that provides commercial service within this area. The inventory of surrounding airports is presented in **Table 3-1**.



Airport Service Areas Figure 3-2

TABLE 3-1 VICINITY AIRPORTS									
Item	***Hawkins Field***	***Magee Municipal***	***G.V. Montgomery***	***Copiah County***	***Jackson-Evers International***	***Bruce Campbell Field***	***John Bell Williams***	***Yazoo County***	***Vicksburg Municipal***
FAA ID	HKS	17M	2M4	M11	JAN	MBO	M16	87I	VKS
County	Hinds	Simpson	Scott	Copiah	Rankin	Madison	Hinds	Yazoo	Warren
Distance From HKS[1]	0 NM	35 NM SE	38 NM E	27 NM S	8 NM E	8 NM NE	10 NM W	35 NM N	36 NM W
Service Level	General Aviation	General Aviation	General Aviation	General Aviation	Commercial	General Aviation	General Aviation	General Aviation	General Aviation
Longest Runway[1]	5,387 Feet	3,104 Feet	3,600 Feet	3,000 Feet	8,500 Feet	4,444 Feet	5,501 Feet	5,000 Feet	5,000 Feet
Best Approach (Visibility)[1]	ILS (1/2-Mile)	N/A	N/A	N/A	ILS (CAT III)	GPS (1-Mile)	LPV (1-Mile)	GPS (1-Mile)	GPS (1-Mile)
Tower[1]	Yes	No	No	No	Yes	No	No	No	No
1999 MSAS Service Level[2]	Type III (Enhanced)	Type I	Type I	Type III (Enhanced)	Air Carrier	Type II	Type III	Type III	Type III (Enhanced)

Sources: Barge Waggoner Sumner & Cannon, Inc. March 2010, and:
(1) AirNav.com.
(2) 1999 Mississippi Statewide Airports Study (MSAS), Wilbur Smith Associates.

3.7 Existing Airside Facilities

Airport facilities can be functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities that provide a terminal interface between surface and air transportation, as well as support services such as aircraft storage and maintenance. Airside facilities include runways, taxiways, lightning, signs, marking, and navigational aids. **Table 3-2** provides a listing of the existing facilities and **Figure 3-3** illustrate those facilities.

Runways

The airfield is currently served by two runways designated as Runway 16/34 and Runway 11/29 Runway 16/34 is the primary runway. It is 5,387 feet in length and 150 feet wide, and constructed of asphalt. Based on FAA data, Runway 16/34 is listed as having a pavement strength of 30,000 pounds (single wheel), 40,000 pounds (dual wheel), and 80,000 pounds (double tandem load). Per the request of JMAA, a separate analysis was performed based on the geotechnical report prepared by Burns Cooley Dennis, Inc., dated June 24, 1994. The results of this analysis indicated that pavement strength for Runway 16/34 was 31,000 pounds (SW), 37,000 pounds (DW), and 97,000 pounds (double tandem). FAA 5010-1 reports that the runway is in "Good" condition which was verified during the onsite inspection.

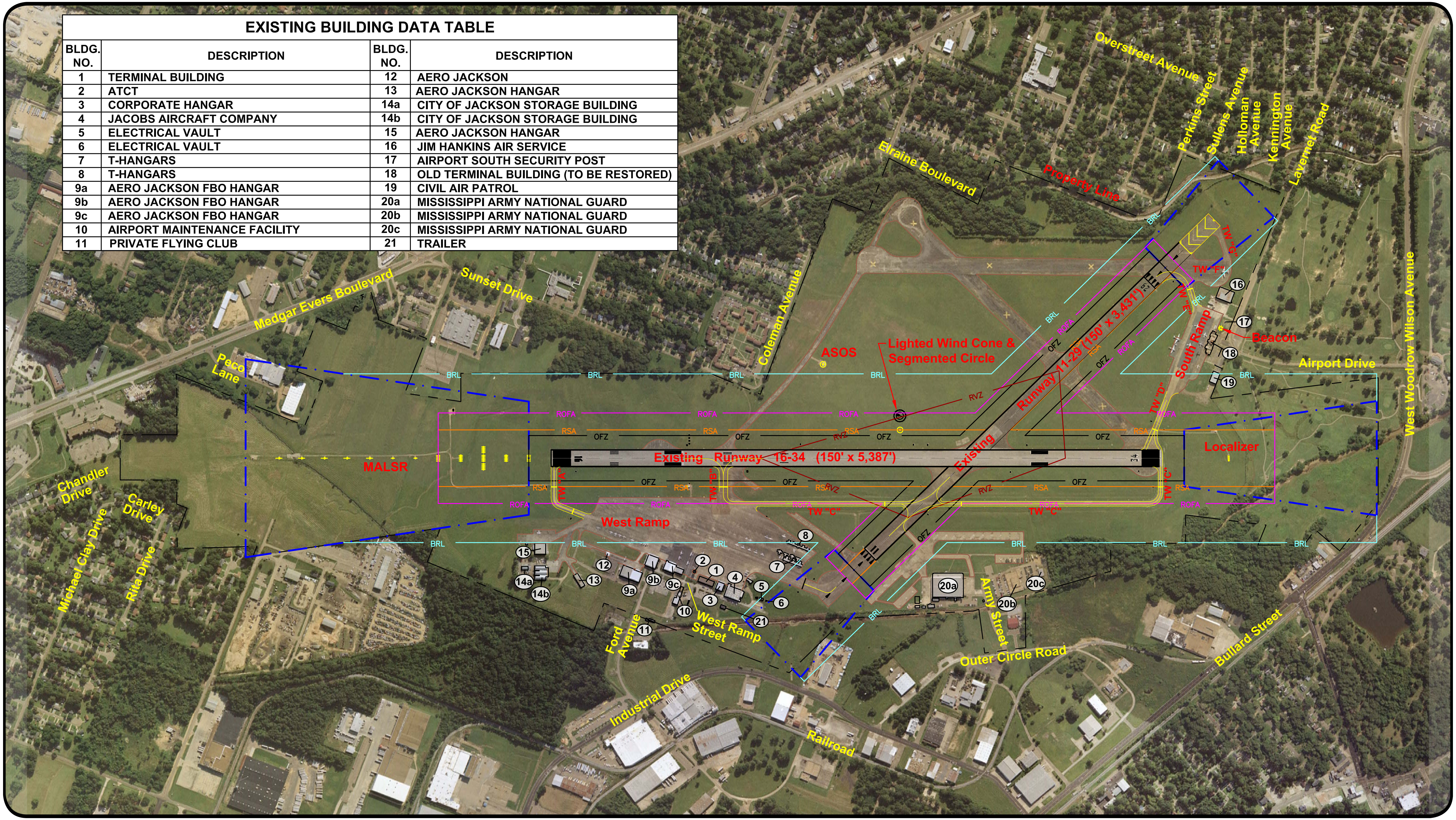
Runway 11/29 is the crosswind runway, or secondary runway. It is 3,431 feet in length and 150 feet wide, and constructed of concrete. The Runway 11 end is displaced 588 feet, and the Runway 29 end is displaced 793 feet. Runway 11/29 is listed as having a pavement strength of 30,000 pounds (single wheel), 40,000 pounds (dual wheel), and 80,000 pounds (double tandem load). FAA 5010-1 reports the runway is in "Fair" condition, which was verified during the onsite inspection.

Table 3-2
Existing Facilities
Hawkins Field

Airport Name:	Hawkins Field	
Identifier:	HKS	
FAA Site Number:	11282.*A	
Ownership:	Jackson Municipal Airport Authority	
Field Elevation:	341 MSL	
Acreage:	602	
CATF:	119.65	
UNICOM:	122.95	
RUNWAY DATA		
Runway ID	RWY 16/34	RWY 11/29
Bearing:	N 21° 19’ 01.1”W	N 65° 32’ 11.1” W
Length:	5,387’	3,441’
Width:	150’	150’
Strength:	S-31,000, D-37,000, DT-97,000	S-30,000,D-40,000, DT-80,000
Marking:	Precision	Basic
Surface:	Asphalt	Concrete
Condition:	Good	Fair
AIRFIELD LIGHTING		
Identification Lighting	Rotating Beacon	
Runway Lighting:	HIRL	MIRL
Taxiway Lighting;	MITL	MITL
Approach Lighting:	MALSR/None	None/None
VASI:	PAPI-4L	None/None
REIL:	None/Yes	None/None
TAXIWAYS		
Parallel:	Full	None
Condition:	Good	Poor
Connector:	Yes	Yes
NAVIGATIONAL AIDS		
Air Traffic Control Tower	Yes	
Wind Indicator:	Yes-Lighted	
Segmented Circle:	Yes	
Non-Directional Beacon:	No	
ILS	RWY 16	
GPS	RNAV (GPS) RWY 16 & 34	
WEATHER REPORTING		
ASOS:		

EXISTING BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	BLDG. NO.	DESCRIPTION
1	TERMINAL BUILDING	12	AERO JACKSON
2	ATCT	13	AERO JACKSON HANGAR
3	CORPORATE HANGAR	14a	CITY OF JACKSON STORAGE BUILDING
4	JACOBS AIRCRAFT COMPANY	14b	CITY OF JACKSON STORAGE BUILDING
5	ELECTRICAL VAULT	15	AERO JACKSON HANGAR
6	ELECTRICAL VAULT	16	JIM HANKINS AIR SERVICE
7	T-HANGARS	17	AIRPORT SOUTH SECURITY POST
8	T-HANGARS	18	OLD TERMINAL BUILDING (TO BE RESTORED)
9a	AERO JACKSON FBO HANGAR	19	CIVIL AIR PATROL
9b	AERO JACKSON FBO HANGAR	20a	MISSISSIPPI ARMY NATIONAL GUARD
9c	AERO JACKSON FBO HANGAR	20b	MISSISSIPPI ARMY NATIONAL GUARD
10	AIRPORT MAINTENANCE FACILITY	20c	MISSISSIPPI ARMY NATIONAL GUARD
11	PRIVATE FLYING CLUB	21	TRAILER



Existing Facilities

Figure 3-3

Taxiways

The Airport has a series of taxiways that provide access between the runway and apron areas. A summary of the existing taxiway system is contained in **Table 3-3.**

Table 3-3
Taxiway Data

Taxiway	Type	Width	Construction	Condition
"A"	Exit/Connector	40'	Asphalt	Good
"B"	Exit/Connector	40'	Asphalt	Good
"C"	Full Parallel	40'	Asphalt	Good
"D"	Exit/Connector	40'	Asphalt	Good
"E"	Exit/Connector	40'	Asphalt	Good
"F"	Exit/Connector	40'	Asphalt	Good
"G"	Exit/Connector	40'	Asphalt	Good

Taxiway "C" is the full parallel taxiway and traverses the entire length of the primary runway (16/34). However, approximately one-quarter of this parallel taxiway is shared with the west ramp aircraft parking apron. Taxiway "A" connects the Runway 16 end with Taxiway "C". Taxiway "B" connects the west apron area to the runway. Taxiway "D" connects Runway 34 end with Taxiway "C". Taxiway "D" continues to the west apron area. The secondary or crosswind runway (11/29) does not have a parallel taxiway. However, access to the Runway 11 end can be accomplished without taxing on the runway through the use of the adjacent west ramp aircraft parking apron. Taxiway "E" connects the south apron area to Taxiway "F". Taxiway "F" connects to Runway 29 end. Taxiway "G" provides access from Taxiway "F" to the blast pad located behind Runway 29.

Airfield Lightning

Airfield lightning systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lightning systems are installed at the airport for this purpose. They are classified as follows:

Identification Lightning

The location of the airport at night is universally identified by a rotating beacon. The rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The beacon is located adjacent to the Old Terminal Building.

Pavement Edge Lightning

Pavement edge lightning utilizes edge light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. The lightning is essential for safe operations during night and/or time of low visibility, in order to maintain safe and efficient access to and from the runway, and aircraft parking areas. Runway 16/34 has a high intensity runway lightning (HIRL) system and Runway 11/29 is equipped with a medium intensity runway lightning system

(MIRL). All major taxiways and apron edge taxiway lanes, as well as connector taxiways are equipped with medium intensity taxiway lights (MITL).

Visual Approach Lightning

Precision approach path indicators (PAPI-4L) are available for the approach to Runway 16. The PAPIs provide approach path guidance with a series of light units. The four-unit PAPI gives the pilot an identification of whether their approach is above, below, or on-path, through the pattern or red and white light visible from the light unit.

Runway Threshold Lightning

Runway threshold lights identify the runway end. Runway threshold lights have specifically-designed lights that are green on one side and red on the other. Each end of Runway 16/34 and Runway 11/29 runway ends are equipped with runway threshold lights.

Runway End Identification Lightning

Runway end identifier lights (REILS) provide rapid and positive identification of the approach end of a runway. The REIL system consists of two synchronized flashing lights located laterally on each side of the runway threshold facing the approaching aircraft. REILS are installed at the Runway 34 runway end.

Medium Intensity Approach Lighting System (MALSR)

The approach end of Runway 16 is equipped with a Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). A MALSR consists of a series of light bars that begin at the runway threshold and extend 2,400 feet into the runway approach area. This system is especially helpful to pilots who use it in conjunction with the ILS approach available to Runway 16. The ILS approach and MALSR allow aircraft to continue to operate on the runway in visibility minimums as low as a half of mile. This gives Hawkins Field the ability to continue operations in inclement weather that would otherwise require aircraft to deviate to an alternate airport or circle until the visibility minimums improve to the point that aircraft can land safely.

Airfield Signage

Airfield identification signs assist pilots in identifying their location on the airfield and directing them to their desired location. Lighted signs are installed at all taxiways and runway intersections. These signs also identify the aircraft holding position. All of these signs are lighted for operations at night and during low visibility periods.

Airfield Markings

Pavement markings aid in the movement if aircraft along airport surfaces and identify closed or hazardous areas on the airport. Runway 16/34 is equipped with precision runway markings and Runway 11/29 is equipped with basic markings.

Taxiway and apron taxilane centerline markings are provided to assist aircraft using these airport surfaces. Centerline markings assist pilots in maintaining proper clearance from pavement and objects near the taxilane/taxiway edges. Aircraft hold positions are also marked on all taxiway surfaces. Pavement markings identify aircraft parking positions.

A segmented circle and lighted wind cone is located at the center of the airport, just east of the intersection of the runways. The segmented circle identifies the traffic pattern to pilots, and the wind cone indicates wind direction and approximate speed. Additional lighted wind cones are located throughout the airfield.

3.8 Weather Reporting

An Automated Surface Observing System (ASOS) is available at Hawkins Field to inform pilots of the weather conditions there. The ASOS provides automated aviation weather observations 24 hours a day. The ASOS provides pilots with information regarding temperature, wind speed and direction, thunderstorm advisories, and other information that allows pilots to make better decisions and conduct safer operations. The ASOS is located approximately 700 feet east of Runway 16/34.

3.9 Runway Navigational Aids

Navigational Aids are electronic devices that transmit radio frequencies, which pilots with properly equipped aircraft translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft flying to or from Hawkins Field include: ILS and GPS.

Instrument Landing System (ILS) - Runway 16 is equipped with an ILS, which is an electronic ground station consisting of several components that provide properly equipped aircraft with vertical and horizontal guidance to a runway threshold. Components of the ILS include a localizer which provides for horizontal guidance and a glide slope which provides for vertical guidance. This allows pilots to land aircraft during periods of low visibility when visual and non-precision approaches are not possible. In addition, DME serves as the outer marker for the ILS, and transmits electronic signals that allow properly equipped aircraft to determine the distance to the station. The ILS allows aircraft to make precision approaches to Runway 16.

Global Positioning Satellite System (GPS) - In addition to the localizer, a GPS allows properly equipped aircraft to make non-precision approaches to Runways 16 and 34. A GPS works by using satellites to triangulate an aircraft's position, thereby providing the pilot with information regarding the aircraft's location, distance from the airport, height, speed, descent rate, and other information that make it possible for aircraft to make safe approaches to the runway.

3.10 Airport Navigational Aids

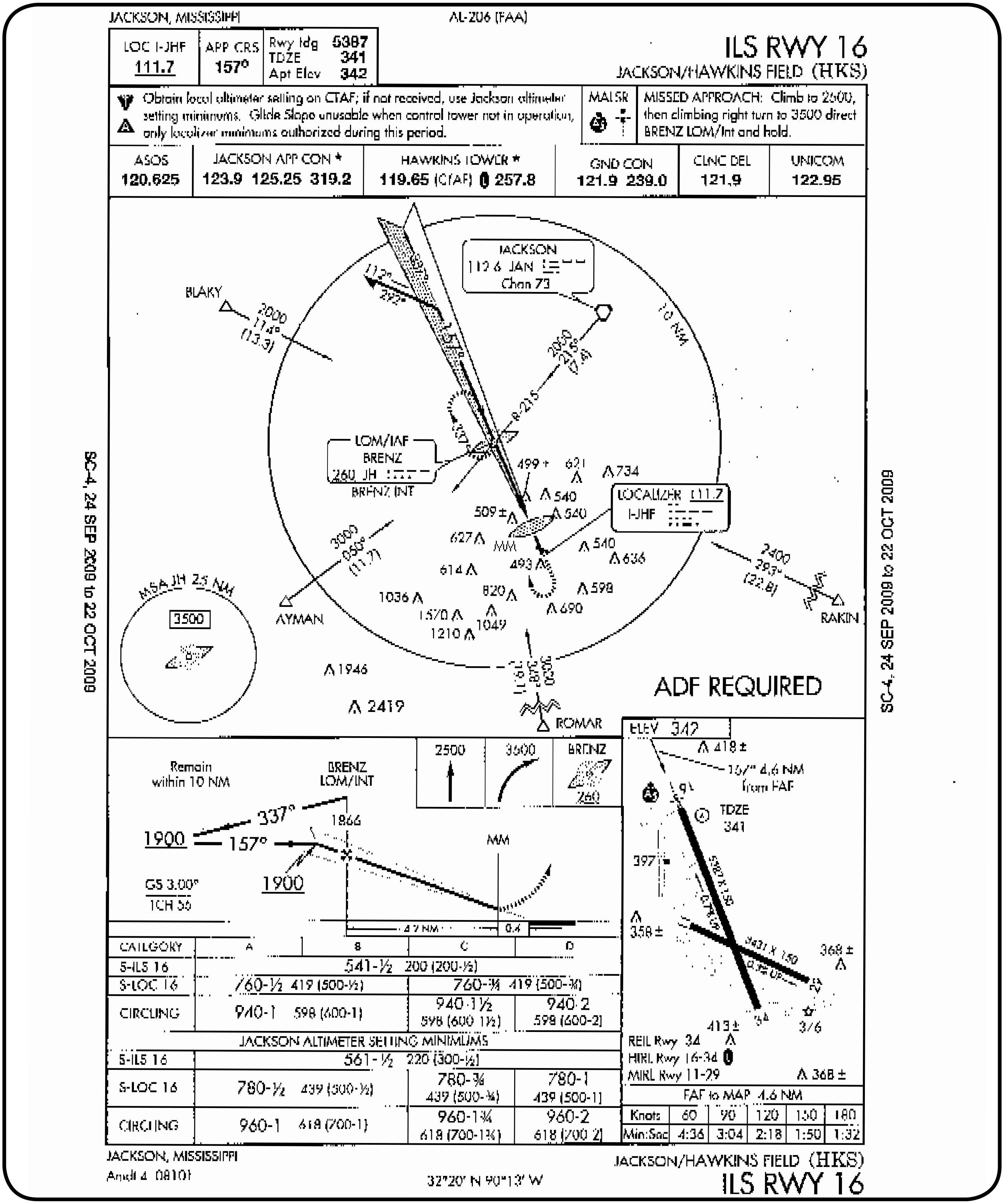
In addition to those navigational aids noted above for runways, Hawkins Field has several facilities associated with navigation to and from the airfield. These navigational facilities include: air traffic control tower, rotating beacon, and lighted windsock/segmented circle..

3.11 Instrument Approach Procedures

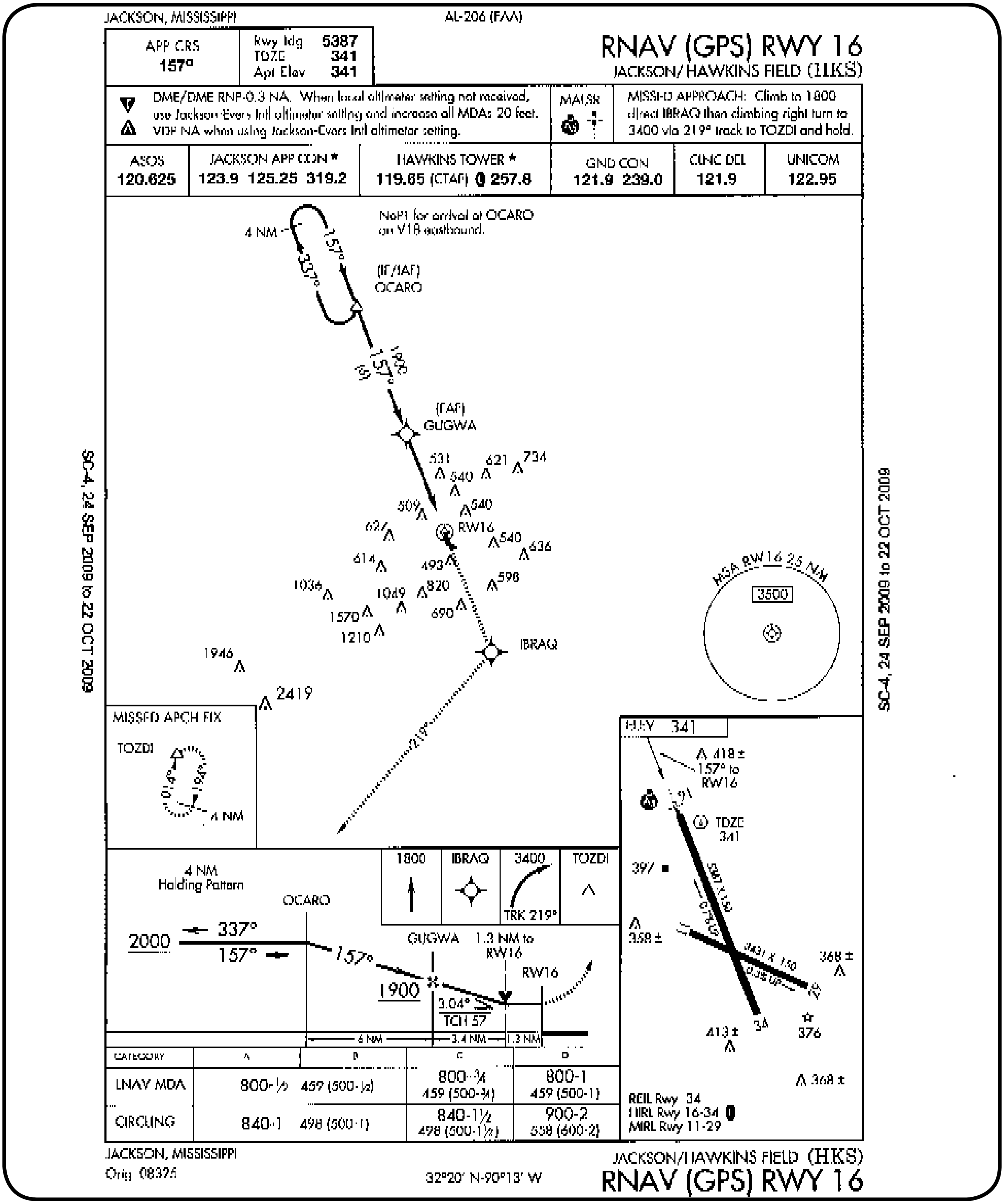
Instrument approach procedures are a series of predetermined maneuvers established by the FAA, using electronic navigational aids that assist pilots in locating and landing at an airport, especially during instrument flight conditions. As found in the United States Government Flight Information Publication *U.S. Terminal Procedures,* Hawkins Field offers three published instrument approaches.

These approaches are listed below, and illustrated in **Figures 3-4** through **3-6**.

- ILS RWY 16
- RNAV (GPS) RWY 16
- RNAV (GPS) RWY 34



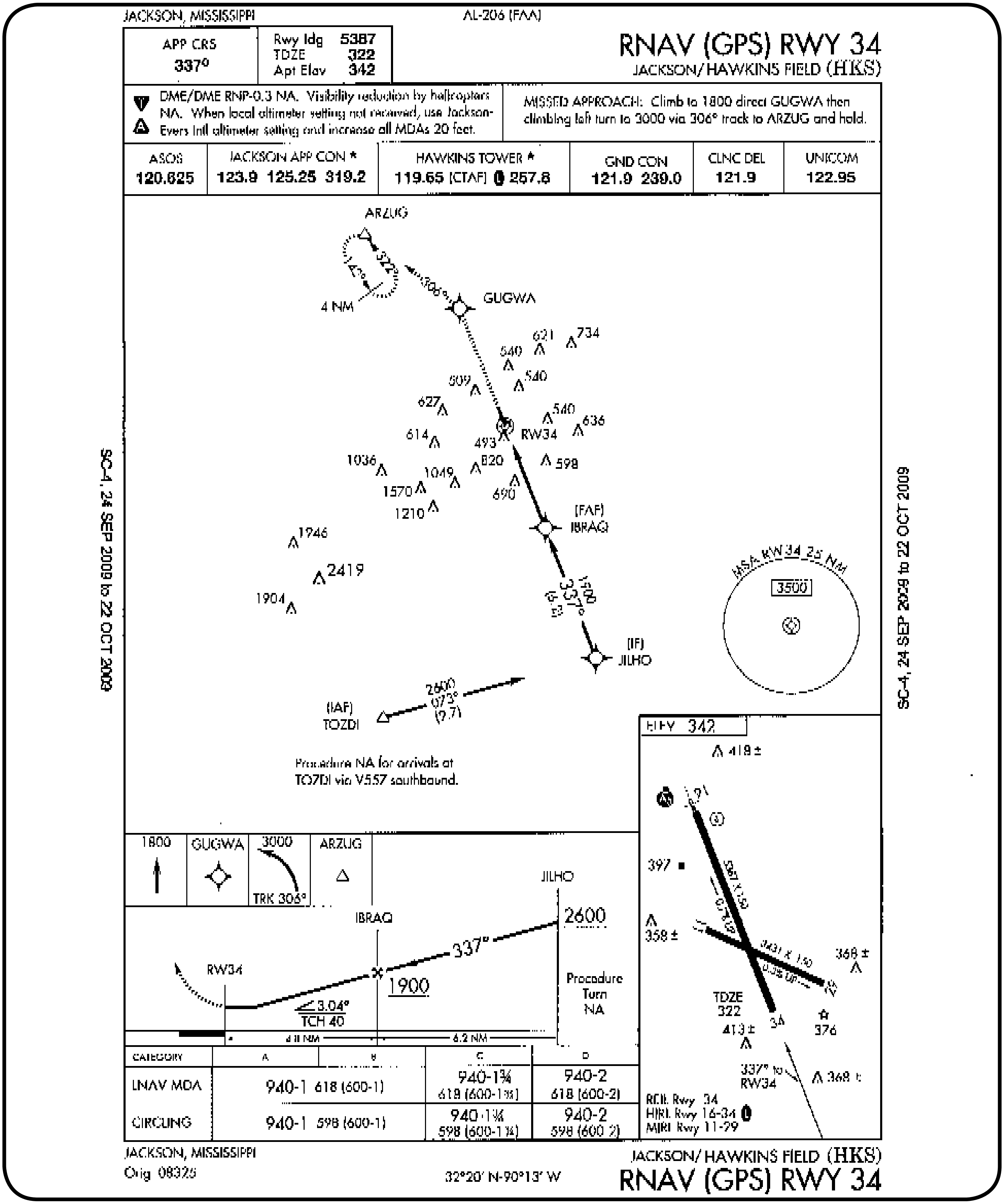
ILS RWY 16 Figure 3-4



CATEGORY	A	B	C	D
LNAV MDA	800-½ 459 (500-½)		800-¾ 459 (500-¾)	800-1 459 (500-1)
CIRCLING	840-1 498 (500-1)		840-1½ 498 (500-1½)	900-2 558 (600-2)

RNAV (GPS) RWY 16

Figure 3-5



RNAV (GPS) RWY 34

Figure 3-6

Table 3-4 provides information about these approaches.

Table 3-4 Approach Minimums				
Runway	**Type**	**Approach**	**Decision Height**	**Visibility**
16	Precision	ILS	541’	½ Mile
16	Non-Precision	RNAV / GPS	800’	½ Mile
34	Non-Precision	RNAV / GPS	940’	1 Mile

3.12 Existing Landside Facilities

Landside facilities are the facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include a terminal building, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage, automobile parking, and connecting roadway system.

Landside facilities at Hawkins Field are located on the west and south side of the airfield and referred to locally as the West and South Ramps. The West Ramp, located along Runway 16/34, is the larger of the two development areas and supports much of the activity at Hawkins Field. The South Ramp is located on the southern end of the airfield between the approach ends of Runway 34 and Runway 29.

West Ramp Facilities
Facilities included in the West Ramp area include the general aviation terminal building, air traffic control tower, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as fuel storage and automobile parking roadway access.

Terminal Building
Constructed in 1984, the terminal building is approximately 7,000 square feet and located approximately 1000 feet south of Runway 16/34, along the West Ramp Road. The terminal building serves as a terminal for enplaning or deplaning passengers and pilots. Facilities within the terminal building include a public lobby/conference area, vacant office areas, and public restrooms. In addition, Blue Sky Aviation, a flight instruction school is housed within the terminal building.

Aircraft Hangars
There are seven (7) conventional hangars located along the West Ramp, totaling approximately 75,000 square feet. These include the Aero Jackson hangars, the Jacobs Aircraft Company hangar, and the Daily Equipment hangar.

There are also 2 sets of T-Hangars of the port-a-port type located in the middle of the apron on the southern end of the West Ramp. The western most set of T-Hangars consists of 7-units and the eastern set consists of 5-units. Four of the T-Hangars are privately owned and the remaining 8 are leased to individuals by Jacobs Aircraft Company.

Fixed Base Operators (FBOs)

Hawkins Field currently has two full service FBOs – Aero Jackson and Jacobs Aircraft Company. Aero Jackson and Jacobs Aircraft Company are located on the West Ramp. The following is a discussion of facility services provided by each FBO.

Aero Jackson is located just north of the control tower and operates five (5) of the conventional hangars. Services provided by Aero Jackson include fuel, oxygen service, aircraft maintenance, aircraft parking, and passenger terminal/lounge. The fuel farm operated by Aero Jackson is located directly behind on the west side of the Airport Maintenance Facility. The fuel farm consists of three steel underground storage tanks, one 10,182 gallon 100LL, one 12,032 gallon Jet A and one 10,000 gallon Jet A. Three fuel trucks provide fuel to aircraft and include a 750 gallon for 100LL, a 3,000 gallon for Jet A, and a 2,200 gallon for Jet A.

Jacobs Aircraft Company is located just south of the ATC and terminal building. Services provided by Jacobs Aircraft Company include fuel, oxygen service, rental cars, pilot supplies, aircraft maintenance, aircraft parking, and pilots lounge. The fuel farm operated by Jacobs Air Service is located on the southern end of the West Ramp. The fuel farm consists of three fiberglass underground storage tanks, one 10,000 gallon 100LL, and two 10,000 gallon Jet A. Three fuel trucks include a 1,000 gallon 100LL, 3,000 gallon Jet A, and a 2,000 gallon Jet A.

Aircraft Parking Apron

The aircraft parking apron on the West Ramp has approximately 90,800 square yards of pavement for aircraft parking and circulation taxilanes. The apron area consists of 30 by 10 foot concrete slabs whose condition is considered fair. The concrete slab joints appear to have been sealed in order to prevent further deterioration of the apron. There is a portion of the apron located in front of the Aero-Jackson hangar that appears to have been recently overlayed with asphalt

Automobile Parking

Parking for passengers visiting or departing from the Airport is available on the West Ramp in either one of the two designated parking lots or in designated or undesignated spaces along the access road adjacent to the southern Aero Jackson hangar.

Approximately 35 designated automobile parking spaces are located in front of the terminal building. There are also 56 parking spaces located in a designated lot west of the Aero Jackson hangars.

An additional 16 designated spaces are located along the access road in front of the Jacobs Hangar and 5 spaces are located in front of the trailer occupied by the Airport Security Staff and Airport Maintenance. In addition to the designated parking lot across from the Aero Jackson hangar, there are seven additional parking spaces provided along an access stub to the apron adjacent to the administration offices of the Airport Maintenance hangar facility. Ten parking spaces are provided and reserved for Robinson Aviation, Inc. (ATCT personnel) directly on the apron behind the ATCT.

Airport Ground Access

The primary access to Hawkins Field is via Industrial Drive. The airport is located in west Jackson just off of I-220 at the Industrial Park Blvd. interchange. I-220 is centered between I-20 (to the south) and I-55 (to the north). State Highway 49 is also one interchange to the north from the I-220 Industrial Park Blvd.

Other Facilities

Other aviation and non-aviation related facilities are also situated within the West Ramp area. The Mississippi Army National Guard (MANG) is located south of the West Ramp across from the Runway 11 end. This facility is currently home to the 185th Aviation Battalion whose operations combine to form a central helicopter flight and maintenance training facility.

Located directly west and behind the ATCT is the Airport Maintenance Facility. The 5,000 square foot building is utilized for the airport maintenance office and storage areas. In addition, the Airport Security and Maintenance Staff occupies the trailer located behind Aero Jackson hangar.

The City of Jackson’s Traffic Department operates three Quonset hut storage buildings on the northern end of the West Ramp that are primarily used for storage of equipment.

South Ramp Facilities

Facilities included in the South area include the old terminal building, aircraft storage/maintenance hangars, aircraft parking aprons, and support facilities such as automobile parking.

Old Terminal Building

Constructed in 1936, this is the site of the original terminal building. This facility, which is designated as a Mississippi historic landmark, operated exclusively as the only airport terminal serving the air transportation needs of the Jackson areas until 1963 when Jackson International Airport began air carrier operations. This building is currently unoccupied and awaiting refurbishment.

Aircraft Hangars

Two hangars are located on the South Ramp, east and west of the Old Terminal Building. Jim Hankins Air Service, operates a 44,000 square foot hangar to the east of the Old Terminal Building.

The second hangar on the South Ramp is owned by JMAA and leased to the Mississippi Civil Air Patrol (MCAP). This hangar is approximately 6,000 square feet and is used primarily as administrative and operations offices, as well as for aircraft storage.

Operators

Jim Hankins Air Service operates on the South Ramp just east of the Old Terminal Building. He is a Specialized Aeronautical Services Operator (SASO) providing air charter, air taxi, and air ambulance services. The fuel farm operated by Jim Hankins Air Service consists of three above ground storage tanks. 20,000 gallon 100LL, 10,000 gallon Jet A and a 12,000 gallon which is currently empty. Two fuel trucks include a 800 gallon 100LL, and a 1,200 gallon Jet A.

Aircraft Parking Apron

The apron area on the South Ramp is approximately 19,160 square yards. The apron is in good conditions.

Automobile Parking

A common parking area is located directly south of the Old Terminal Building along Lavernet Road and is shared between Jim Hankins Air Service and the Mississippi Civil Air Patrol. This lot is approximately 28,759 square feet and can provide approximately 40 parking spaces.

3.13 Air Traffic Control Tower (ATCT)

The Air Traffic Control Tower at Hawkins Field is situated in the middle of the West Ramp adjacent to the terminal building. Constructed in 1970 to replace the former World War II era Army Air Base Control Tower, the tower is approximately 65 feet in height and provides the traffic controllers an excellent view of the entire airfield with one exception. There is a partially impeded view of the runway surface at the Runway 29 threshold due to T-Hangars located on the West Ramp apron. The ATCT is a Level 1 Visual Flight Rule (VFR) control facility responsible for VFR traffic within a five statute mile radius of the airport and up to, but not including, 3,000 feet altitude above the field. Jackson ATCT is ultimately responsible for instrument operations into Hawkins Field. The ATCT is a FAA contracted tower operated by Robinson Aviation, Inc.

3.14 Utilities

The availability and capacity of the utilities serving the Hawkins Field Airport is an important factor in determining the development potential of airport property, as well as the land immediately adjacent to the facility. Of primary concern in the inventory investigation is the availability of the water, sanitary sewer systems, electricity, and storm sewer. The adequacy of each utility in meeting the future needs of the Airport will be discussed in later chapters of this update. The locations of the existing utilities are depicted in Figure 2-7.

Water

The Hawkins Field Airport is served with potable water from the City of Jackson. The water is transported via a 16-inch water main on Industrial Drive and an 8-inch water line on Ford Avenue. The 8-inch water line on Ford Avenue enters the western side of the Airport. Also, the 16-inch water main on Industrial Drive continues south to a small street connecting the west ramp of the Airport. At the intersection of this connecting street, the 16-inch water main connects with a 14-inch water main coming from the south. This 14-inch main runs northerly along the west ramp of the Airport and serves the terminal building. Also, a 6-inch line is located on Lavernet Street just south of the former terminal building on the southern side of the Airport. There is no elevated storage tank on the Airport property.

***Sanitary Sew*er**

Sanitary sewer lines are available to the Airport on the western side and southern side. A 27-inch line runs southwesterly along the western side and picks up an 8-inch line that serves the terminal building area and runs southerly along the west ramp of the Airport. Also, a 6-inch line serves the southern side from Lavernet Street to Woodrow Wilson Avenue, where it changes to an 8-inch line.

Storm Sewer

Rainfall runoff is collected by a combination of surface drainage channels and storm sewers, which discharge on the western side of the Airport into Town Creek and on the eastern side into a tributary of Town Creek. A drainage improvement project is currently underway. Phase I is located along the west side of Runway 16. Phase II is located along the east side of Runway 16/34.

Electricity

Entergy Mississippi provides the electrical needs at the Hawkins Field Airport. Service is provided on the western side of the Airport from Ford Avenue, on the southern side from Lavernet Street, and on the eastern side from Sunset Street.

Natural Gas

Natural gas is supplied by Atmos Energy Corporation by a 4-inch line that runs along Industrial Drive and connects with 3-inch and 2-inch lines on Ford Avenue.

Telephone/Internet

Telephone and internet service is provided to the Airport by AT&T by underground and overhead lines that run along Industrial Drive and Ford Avenue. Currently, the service is very poor.

Existing Utilities Map

Figure 3-7

3.15 Airport Land Use and Zoning

Land Use

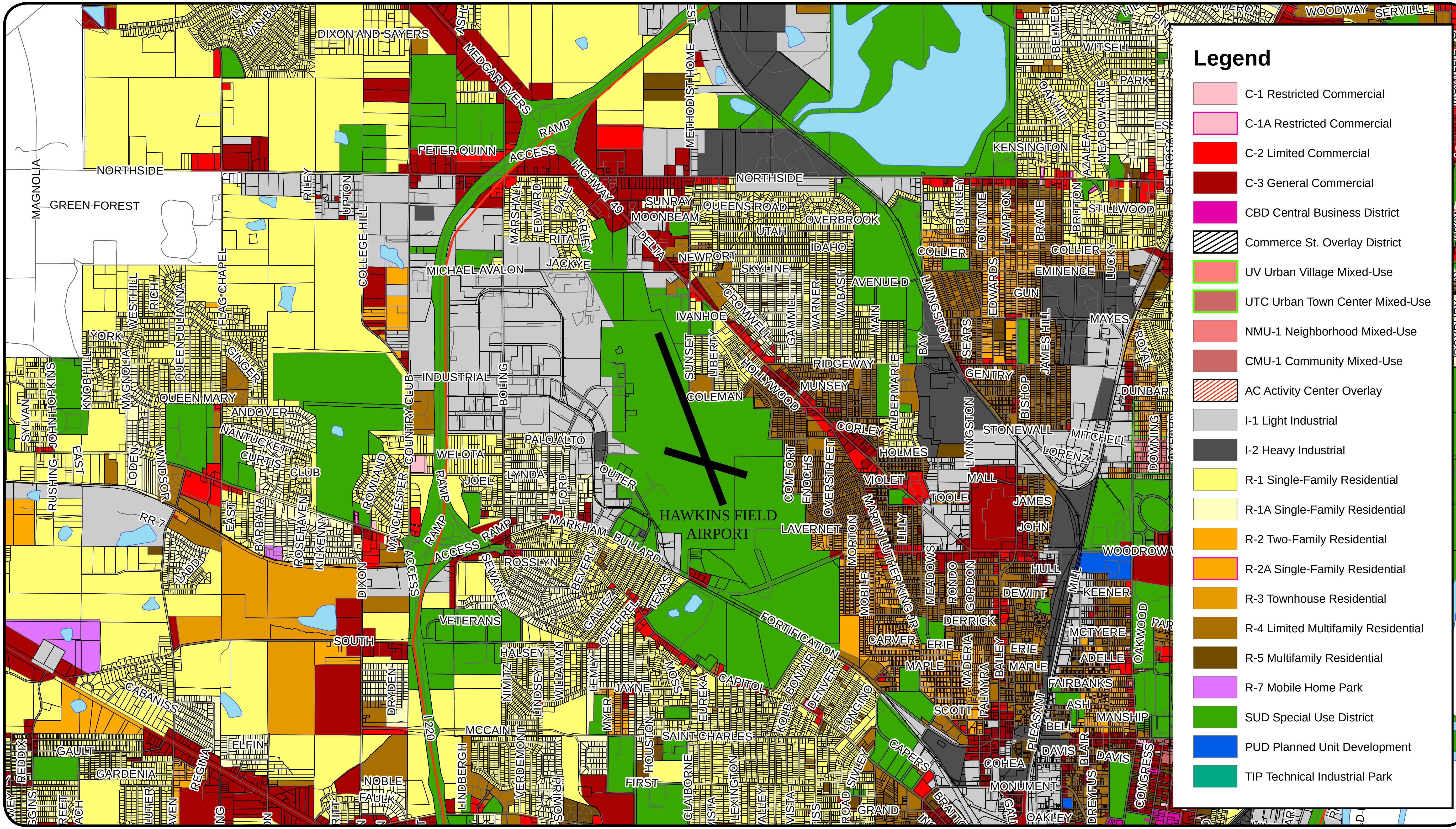
The airport is located within the Hawkins Field Industrial Park. Hawkins Field is the City of Jackson's largest and oldest industrial park and houses over 120 manufacturing, distributing and warehousing businesses. Hawkins Field is immediately accessible to the Canadian National and the Kansas City Southern Railroad line. Hawkins Field is in a Foreign Trade Sub Zone. Immediately to the west is the Industrial Park. To the southwest are residential neighborhoods. To the immediate south, is a city owned golf course and beyond that is the Jackson Zoo. To the north, are residential neighborhoods along with the Jackson branch of Hinds Community College. To the east are residential neighborhoods including the Georgetown and Virden Addition Communities.

Zoning

Hawkins Air Field has a zoning ordinance as per the City of Jackson – Future Land Use Map adopted by the Jackson City Council on March 2, 2004. The airport as well as the Hawkins Field Industrial Park is zoned I-1 Industrial. Most of the neighborhoods surrounding are zoned R-1 residential. **Figure 3-8** illustrates the Existing Land Use/Zoning Map in and around Hawkins Field.

3.16 Historical, Archaeological, and Cultural Resources

The files of the Mississippi Department of Archives and History (MDAH) were researched for sites of historic, architectural, or cultural resource significance. The HPD determined that no archaeological resources are listed or eligible for listing in the National Register of Historic Places. A cultural resources survey of the airport was conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended. According to the National Register of Historic Places and the Mississippi Historic sites database, Hawkins Airfield has not been designated as a historic site. However, located on the property is the Original Hawkins Air field terminal which has been included as a Mississippi Historical site.



Existing Land Use/Zoning Map

Figure 3-8

3.17 Airspace Structure

Airspace within the United States is classified as either "controlled" or uncontrolled". The difference between controlled and uncontrolled airspace relates primarily to requirements for pilot qualifications, ground-to-air communications, navigation and air traffic services, and weather conditions. Six classes of airspace have been designated in the United States as depicted in **Figure 3-9**. Airspace designated as Class A, B, C, D, or E is considered controlled airspace. Each of these classes has different dimensions, purposes, and requirements. A portion of the Memphis Sectional Aeronautical Chart illustrating the airspace surrounding Hawkins Field is shown in **Figure 3-10**.

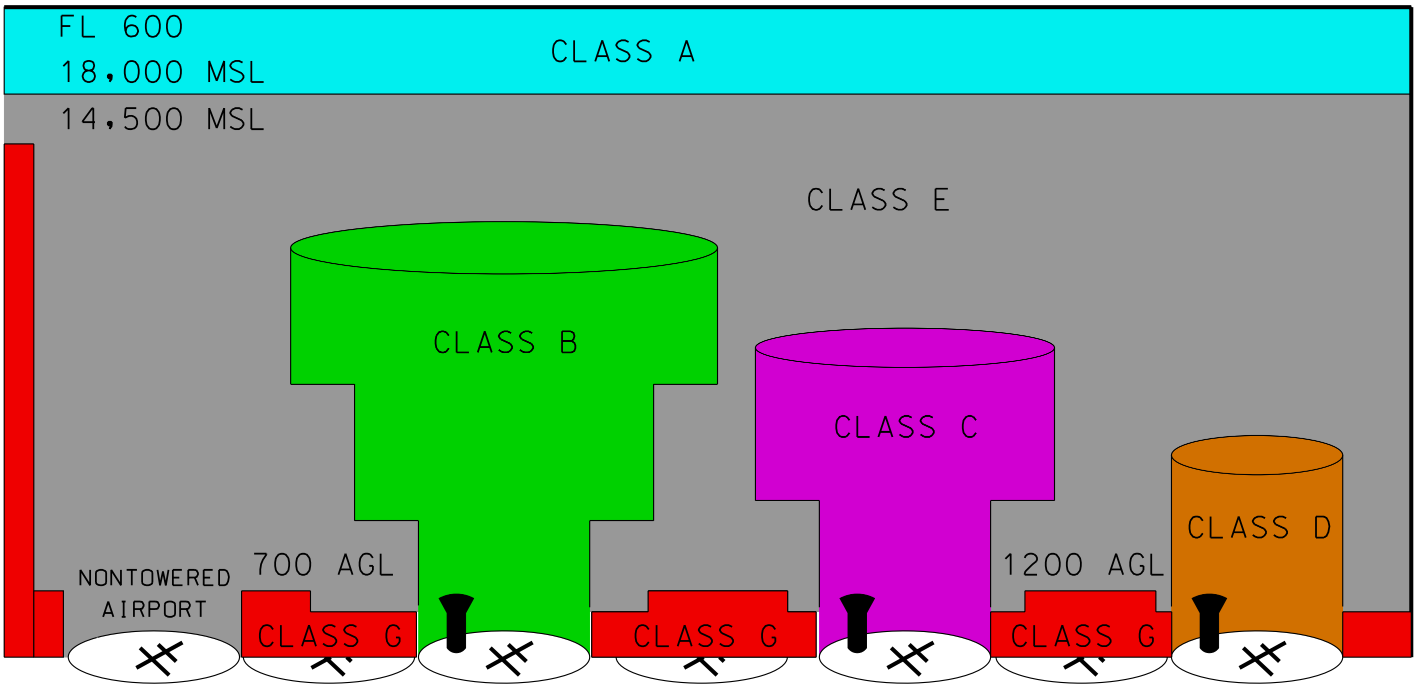
Class A Airspace
Class A Airspace includes all airspace from 18,000 feet to 60,000 feet above mean sea level (MSL). Aircraft flying in Class A airspace are required to operate under Instrument Flight Rules (IFR). The aircraft must have special radio and navigational equipment, and the pilot must obtain clearance from an air traffic control (ATC) facility to enter Class A airspace.

Class B Airspace
Class B airspace has been designated around some of the country's major airports, in order to separate arriving and departing aircraft. Class B airspace is designed to regulate the flow of uncontrolled traffic, above, around, and below the arrival and departure airspace required for high-performance, passenger-carrying aircraft at major airports.

Class C Airspace
Class C airspace is designed to regulate the flow of uncontrolled traffic above, around, and below the arrival and departure airspace required for high–performance, passenger-carrying aircraft at major airports. Class C airspace is that airspace from the surface to 4,000 feet above airport elevation surrounding those airports that have an operational air traffic control tower, are serviced by a radar approach control, and have a certain number of IFR operations or passenger enplanements.

Class D Airspace
The airspace encompassing Hawkins Field is Class D. Class D airspace is controlled airspace surrounding airports with an operating ATCT. Class D airspace is that area from the surface to 2,500 feet above the airport elevation having an operational control tower. The Class D airspace for Hawkins Field extends approximately 10 nautical miles around the airport.

Class E Airspace
Class E is usually described as controlled airspace that is not classified as class A, B, C, or D. Class E is designated to accommodate all of the instrument approach procedures required to land at an airport during IFR conditions.

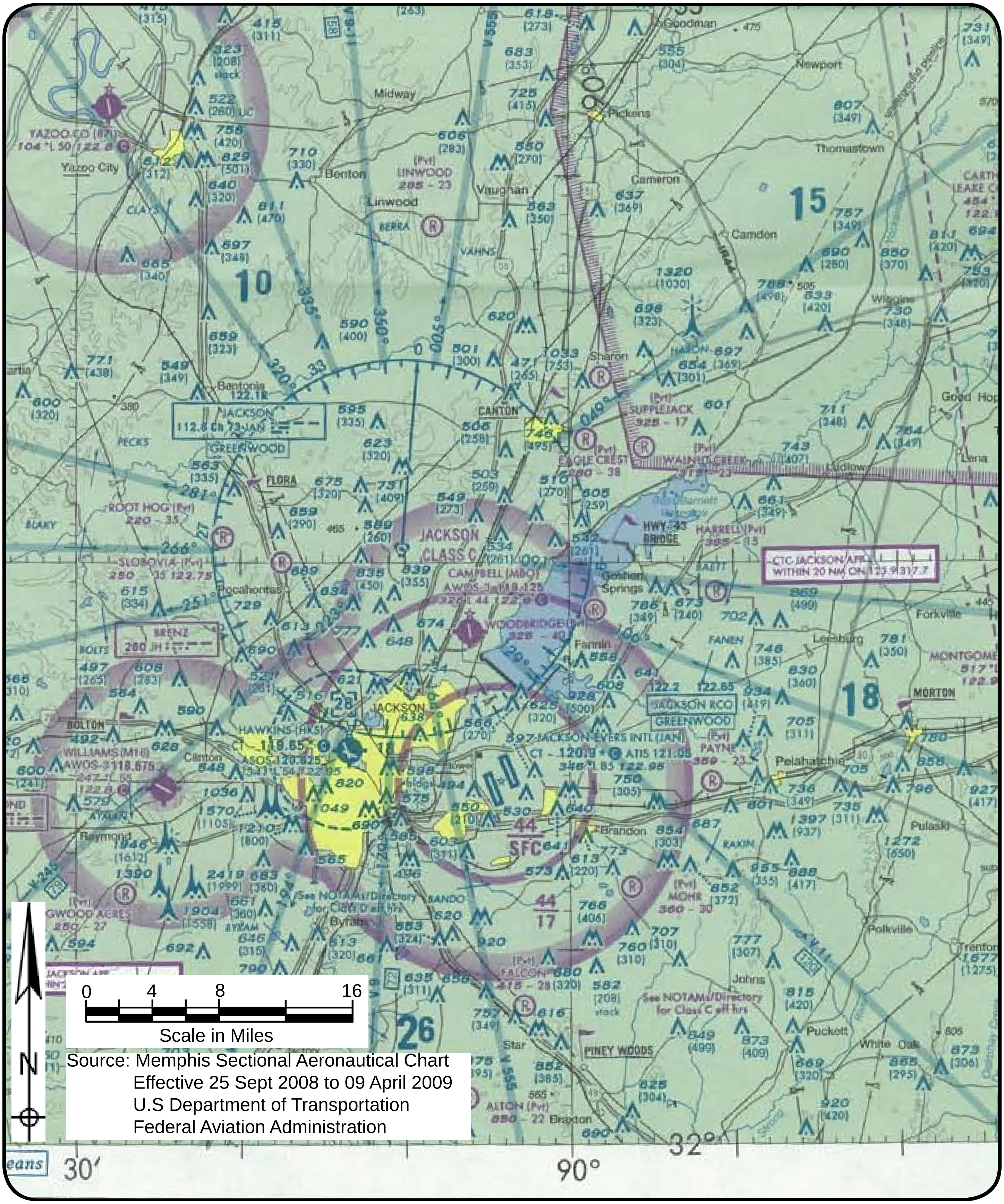


MSL - MEAN SEA LEVEL
AGL - ABOVE GROUND LEVEL
FL - FLIGHT LEVEL

(cyan)	CLASS A	Generally airspace above 18,000 MSL up to and including FL 600.
(green)	CLASS B	Generally multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports.
(magenta)	CLASS C	Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.
(orange)	CLASS D	Generally airspace from the surface to 2,500 feet AGL surrounding towered airports.
(gray)	CLASS E	Generally controlled airspace that is not Class A, Class B, Class C, or Class D.
(red)	CLASS G	Generally uncontrolled airspace that is not Class A, Class B, Class C, or Class D.

Airspace Classes

Figure 3-9



Airspace Structure

Figure 3-10

3.18 Meteorological Data

Climate

Jackson, Mississippi has a warm and humid climate as well as abundant rainfall. Average temperatures range from a low of 35 degrees Fahrenheit in January to a high of 92 degrees Fahrenheit in July.

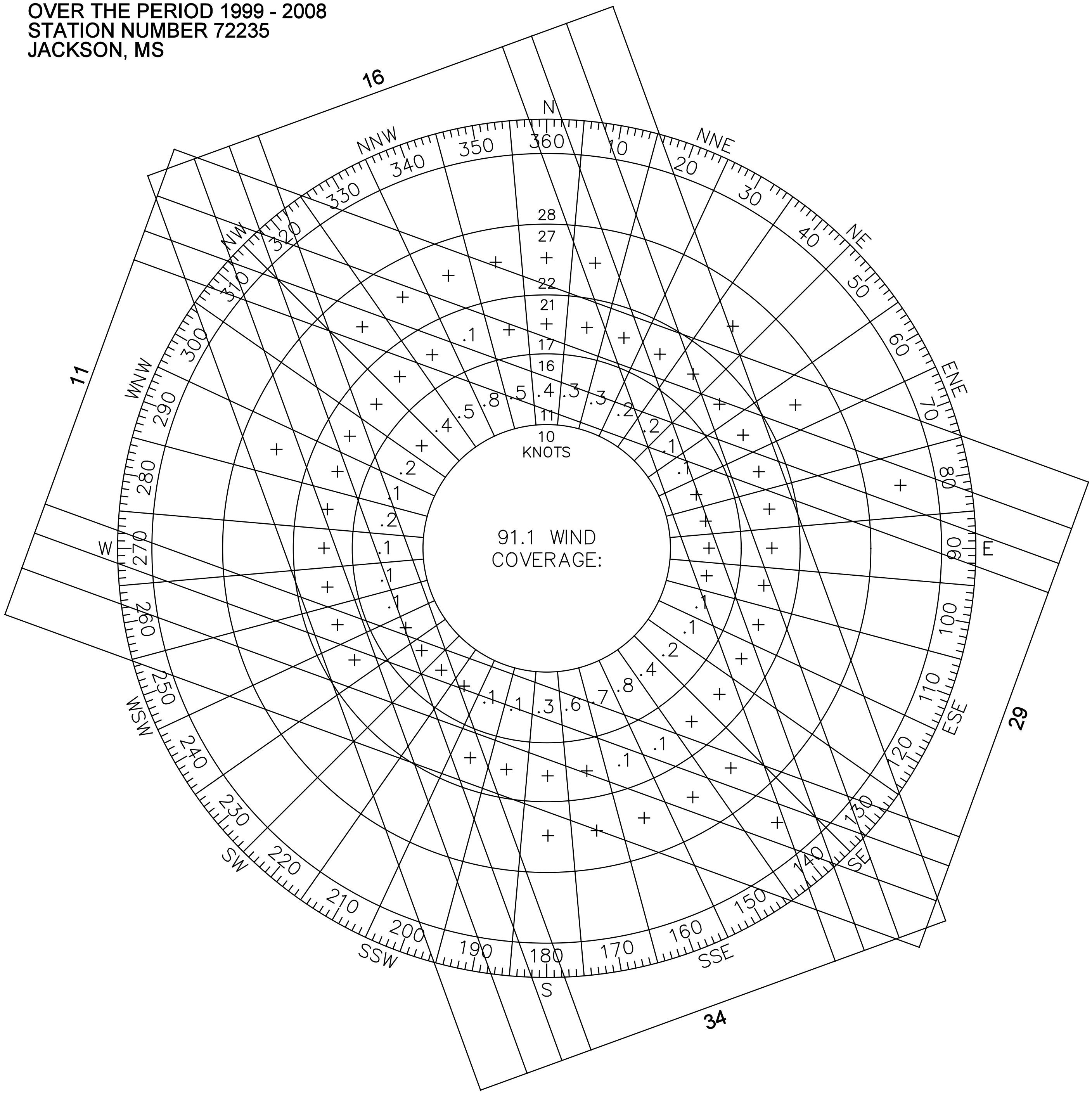
The average rainfall is approximately 55 inches per year. The wettest season is summer, while fall is the driest. Rains in winter and spring may last for several days, but they usually occur as brief showers along the leading edge of a mass of cold air. Rains in summer come as local thundershowers.

Wind Analysis

An All Weather Wind Rose is presented in **Figure 3-11** which illustrates the percentage of wind occupancy, by direction and velocity, under all-weather conditions. The IFR Wind Rose is illustrated in **Figure 3-12.**

Wind coverage indicates what percentage of the time that the crosswind components are within acceptable velocity. For the purpose of runway wind analysis, a crosswind component can be defined as the wind that occurs at a right angle to the runway centerline. In the case of Hawkins Field, a 16-knot crosswind component is required for runways with Airport Reference Codes of D-II and a 13-knot crosswind component for runways with an Airport Reference Code of B-II. As the All Weather Wind Rose indicates, Runway 16/34 provides 99.92 percent wind coverage and Runway 11/29 provides wind coverage of 98.19 percent, using the respective crosswind component. Both runways combine for a total wind coverage of 99.94 percent. This exceeds the FAA guidelines for recommended wind coverage. During IFR conditions, Runway 16/34 provides 99.42 percent wind coverage and Runway 11/29 provides wind coverage of 98.16 percent. A 13-knot crosswind component is used during IFR conditions. Both runways combine for a total wind coverage of 99.87 percent.

75840 OBSERVATIONS MADE
OVER THE PERIOD 1999 - 2008
STATION NUMBER 72235
JACKSON, MS

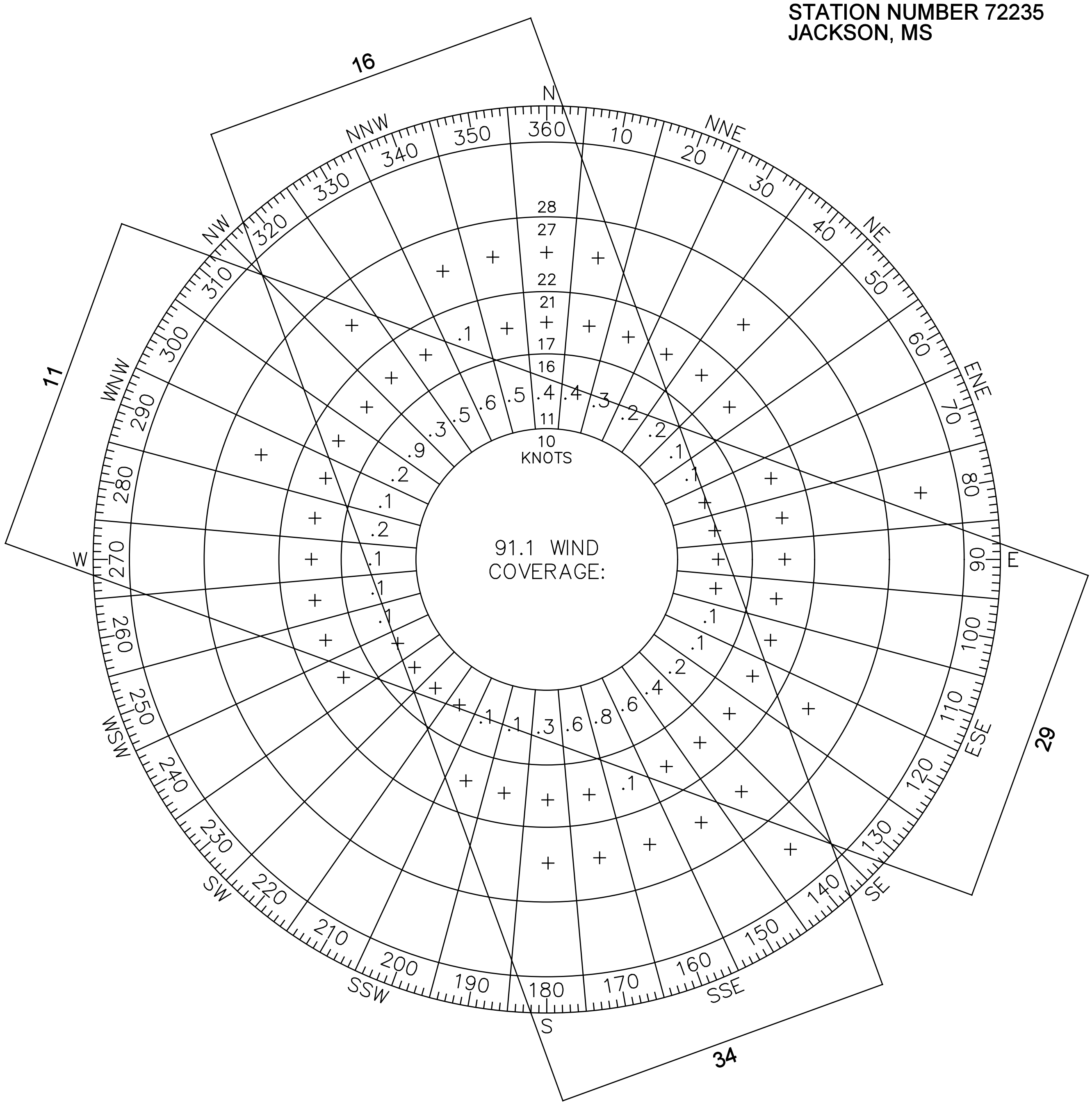


WIND COVERAGE	10.5 KNOTS	13 KNOTS	16 KNOTS	20 KNOTS
RUNWAY 16/34	98.60	99.40	99.92	99.99
RUNWAY 11/29	95.85	98.19	99.77	99.97
COMBINED	99.48	99.87	99.99	100.00

All WeatherWind Rose

Figure 3-11

70907 OBSERVATIONS MADE
OVER THE PERIOD 1999 - 2008
STATION NUMBER 72235
JACKSON, MS



WIND COVERAGE	13 KNOTS
RUNWAY 16	83.26
RUNWAY 34	80.32
RUNWAY 11	87.27
RUNWAY 29	85.44
RUNWAY 16/34	99.42
RUNWAY 11/29	98.16
COMBINED	99.87

SOURCE: NATIONAL CLIMATIC DATA CENTER
ASHEVILLE, NC

IFR Wind Rose

Figure 3-12

3.19 Aerial Photogrammetry

New rectified aerial photogrammetry was completed as part of the study. Photogrammetry combines controlled aerial photography taken during high visibility times with reliable measurements made in the office using tri-dimensional instrumentation and digital software. The digital mapping depicts existing features, such as paved areas, buildings, above ground utilities, fencing, tree lines, and water bodies. Topography at a contour interval of five feet is depicted for the airport property. In addition, a high altitude aerial photograph was also taken that encompasses the airport and adjacent areas, there by providing a current inventory of land use.

CHAPTER 4
AVIATION ACTIVITY FORECASTS

4.0 Introduction

During the development of this Master Plan Update for Hawkins Field Airport (HKS), the United States was struggling through an economic recession that began in December 2007. Many general aviation (GA) airports, including HKS, experienced record low activity levels in 2008 that were expected to decline even further by year-end 2009. However, in September 2009, the federal government was beginning to issue statements regarding an economic turnaround. At the same time, several encouraging projects were occurring in the airport's home city of Jackson, Mississippi. Because factors like these can be critical in the determination of airport forecasts, this chapter presents a comprehensive analysis of ongoing and anticipated trends that could influence short- and long-term activity growth at HKS.

Considering the ongoing economic recession and the Federal Aviation Administration's (FAA's) updated projections of aviation activity, it was only reasonable to forecast conservative growth for HKS during the 20-year planning period from 2008 to 2028. Still, the conservative growth forecasts allowed for a beneficial master planning effort that addressed key goals of the Jackson Municipal Aviation Authority (JMAA) and airport tenants. Due to the presence of an on-site Air Traffic Control Tower (ATCT) and other FAA data sources, up-to-date and accurate activity data was incorporated into this forecasting effort.

According to **FAA Advisory Circular (AC) 150/5070-6**, *Airport Master Plans*, aviation forecasting "should consider socioeconomic data, demographics, disposable income, geographic attributes, and external factors such as fuel costs and local attitudes towards aviation."[1] As mentioned, particular attention was given to these types of factors in the development of the following forecasts:

- Operations Totals
- Annual Instrument Operations
- Operations by Flight Type
- Operations by Aircraft Type
- Based Aircraft Totals
- Based Aircraft by Type
- Peak Period Operations

This chapter identifies forecast values for each year of the 20-year planning period from 2008 to 2028. The forecast base year was established as 2008 because it represented the most recent full-year of airport activity. Additionally, use of 2008 as the forecast base year allowed for the full impact of the economic recession to be illustrated. Milestone years for short-, mid-, and long-term growth include 2013, 2018, and 2028, respectively.

[1] FAA AC 150/5070-6B, Airport Master Plans, page 37.

4.1 Needs and Benefits

Forecasts of future activity represent a key component of a master planning study because every subsequent decision related to the purpose, size, design, and location of any structure or equipment relies on estimated levels of activity. Failure to properly plan for the future can result in negative consequences to the capacity, activity, safety, and efficiency of the airport. Therefore, the forecast planning horizon term is 20 years to ensure that adequate facilities are in-place for the operator, the traveling public, and the surrounding community.

4.2 Forecasting Limitations

Forecasting future activity is a complex assessment based on a multitude of factors, both controllable and those beyond an airport's control. Forecasts are not to be construed with predictions of the future but rather an educated guess of future activity based upon a variety of predictors, mathematical formulae, assumptions, and subjective judgment.

The accuracy of the estimates decline as the planning term is extended, by unforeseen local or geo-political events, natural disasters, or longer-term weather or climatological events. These caveats notwithstanding, the forecasts provided in this chapter employ a variety of methodologies, which together constitute best practices in the industry.

4.3 Existing and Forecast Socioeconomic Characteristics

- Service areas for GA airports may be considered the location where the majority of based aircraft owners are likely to be drawn as well as the community that is most affected by the presence of the airport. Therefore, it is important to evaluate historical, present, and forecast economic variables within an airport's service area, such as population, employment, and income, to see if a correlation exists between the growth or decline in historical airport activity and historical economic factors. It is also important to recognize the airport's numerous benefits to the service area including economic benefits, recreational benefits, emergency relief and medical benefits, etc.
- The 2000 Master Plan Update identified the service area for HKS as the Jackson Area, which comprises Hinds County, Rankin County, and Madison County. As described in **Chapter 3**, *Inventory of Existing Conditions*, HKS and Mississippi's Capital City of Jackson are located in Hinds County. Jackson is located in the northeast corner of Hinds County and borders Rankin County to the east and Madison County to the north. This three-county airport service area was determined to still be relevant for HKS because of the following:
    - Rankin and Madison Counties contain many of the suburbs of Jackson. According to historical economic data from Woods & Poole Economics, the population of Hinds County has experienced a slight annual decrease since 2000 (approximately -0.15 percent per year), while at the same time the populations of Rankin and Madison Counties have experienced strong annual growth (approximately 2.5 percent per year). Therefore, it is evident that past activity growth at HKS, which peaked at 63,207 operations in 2004, must be attributed in some way to the overall growth in population, employment, and per capital income in the three-county service area.

Population

The population around an airport often has a direct influence on the airport's use. Under general circumstances, the greater the population, the more based aircraft and operations there will be at the airport. **Table 4-1** shows historical and forecast population growth for the Hawkins Field Service Area, the State of Mississippi, and the United States from 1980 to 2028.

TABLE 4-1
HISTORICAL AND FORECASTED POPULATION
HAWKINS FIELD SERVICE AREA, MISSISSIPPI, AND THE U.S., 1980-2028

Year	*Hawkins Field Service Area*	*Mississippi*	*United States*
1980	362,877	2,524,026	227,225,622
1990	396,448	2,578,897	249,622,814
2000	441,836	2,848,293	282,171,936
Forecast			
2008	479,920	2,938,618	304,059,724
2013	507,318	3,057,644	319,189,413
2018	535,671	3,182,543	334,925,342
2023	576,379	3,363,297	357,582,283
2028	605,753	3,494,016	373,944,193

Hawkins Field Service Area Average Annual Growth Rate		
2008-2013	1.12%	Hawkins Field Service Area Population Growth 2008-2028 ----- 26.22%
2013-2018	1.09%	
2018-2028	1.03%	
Mississippi Average Annual Growth Rate		
2008-2013	0.80%	Mississippi Population Growth 2008-2028 ----- 18.90%
2013-2018	0.80%	
2018-2028	0.78%	
United States Average Annual Growth Rate		
2008-2013	0.98%	United States Population Growth 2008-2028 ----- 22.98%
2013-2018	0.97%	
2018-2028	0.92%	

Source: 2010 Complete Economic and Demographic Data Source (CEDDS), Woods & Poole Economics.

Employment

Previous studies have shown that employment has a direct impact on airport activity levels. Since 1980, the Hawkins Field Service Area has gained over 120,000 jobs. It is projected that the Hawkins Field Service Area will experience a growth rate in jobs of 30.67 percent through 2028, compared to 25.82 percent for Mississippi and 26.40 percent for the United States. **Table 4-2** compares historical and forecasted employment for the Hawkins Field Service Area, Mississippi, and the U.S. from 1980 to 2028.

TABLE 4-2
HISTORICAL AND FORECASTED EMPLOYMENT
HAWKINS FIELD SERVICE AREA, MISSISSIPPI, AND THE U.S., 1980-2028

Year	*Hawkins Field Service Area*	*Mississippi*	*United States*
1980	197,479	1,114,270	114,231,260
1990	228,849	1,209,585	139,380,830
2000	288,334	1,492,684	166,758,806
Forecast			
2008	318,204	1,566,637	180,600,292
2013	332,158	1,630,270	187,967,077
2018	354,686	1,723,428	199,022,617
2023	389,029	1,863,584	215,601,880
2028	415,812	1,971,163	228,283,967
Hawkins Field Service Area Average Annual Growth Rate			
2008-2013	0.86%	Hawkins Field Service Area Employment Growth 2008-2028 ----- 30.67%	
2013-2018	1.32%		
2018-2028	1.33%		
Mississippi Average Annual Growth Rate			
2008-2013	0.80%	Mississippi Employment Growth 2008-2028 ----- 25.82%	
2013-2018	1.12%		
2018-2028	1.13%		
United States Average Annual Growth Rate			
2008-2013	0.80%	United States Employment Growth 2008-2028 ----- 26.40%	
2013-2018	[illegible].15%		
2018-2028	1.15%		

Source: 2010 Complete Economic and Demographic Data Source (CEDDS), Woods & Poole Economics.

Per Capita Income (PCI)

Per capita income (PCI) is the income per person in a population. It is often used as a gauge to measure a community's standard of living. The PCI for the Hawkins Field Service Area has remained greater to the PCI of the State of Mississippi since 1980. However, it has continuously remained below the national average. **Table 4-3** exhibits the historical and forecasted PCI for the Hawkins Field Service Area, Mississippi, and the U.S.

TABLE 4-3
HISTORICAL AND FORECASTED PER CAPITA INCOME
HAWKINS FIELD SERVICE AREA, MISSISSIPPI, AND THE U.S., 1980-2028

Year	*Hawkins Field Service Area*	*Mississippi*	*United States*
1980	$8,837	$7,011	$10,114
1990	$16,056	$13,089	$19,477
2000	$26,414	$21,008	$29,847
Forecast			
2008	$36,306	$29,586	$39,755
2013	$43,575	$36,092	$47,577
2018	$54,924	$45,575	$59,841
2023	$77,799	$64,627	$84,559
2028	$100,890	$83,838	$109,512

Hawkins Field Service Area Average Annual Growth Rate		
2008-2013	3.72%	Hawkins Field Service Area PCI Growth 2008-2028 ----- 177.89%
2013-2018	4.74%	
2018-2028	5.20%	
Mississippi Average Annual Growth Rate		
2008-2013	4.06%	Mississippi PCI Growth 2008-2028 ----- 183.37%
2013-2018	4.78%	
2018-2028	5.21%	
United States Average Annual Growth Rate		
2008-2013	3.66%	United States PCI Growth 2008-2028 ----- 175.47%
2013-2018	4.69%	
2018-2028	5.17%	

Source: 2010 Complete Economic and Demographic Data Source (CEDDS), Woods & Poole Economics.

4.4 Historical and Current Airport Activity

Historical activity trends may reveal valuable clues about the types of factors that could influence future growth. For example, as part of the FAA's Terminal Area Forecast (TAF) for many GA airports, growth is projected according to nationwide economic and aviation trends. Thus, a review of historical airport activity might identify local factors that could be used to augment the FAA's projections. Since HKS has an on-site ATCT, historical activity has been well-documented by specific flight type (local and itinerant, air taxi, GA, military, etc.). GA operations have consistently represented the majority of airport operations, but the Mississippi Army National Guard (ARNG) continues to have a considerable military presence at HKS, as does the Mississippi Wing of the Civil Air Patrol (CAP). Further, by reviewing historical based aircraft levels and the based aircraft fleet mix, past development trends for aprons, hangars, and other landside facilities can be examined to see if airport users were adequately served.

Historical and Current Operations

Many elements compose the broad definition of GA activity. In simplest terms, GA includes all segments of the aviation industry except those conducted by scheduled commercial air carriers and the U.S. military. GA activities may include pilot training, sightseeing, aerial photography, law enforcement, and medical flights, as well as business, corporate, and personal travel. GA operations are divided into the categories of local or itinerant. Local operations are those arrivals or departures performed by aircraft that remain within the airport traffic pattern, or those that occur within sight of the airport. This covers an area within a 20 nautical mile radius of the airfield. Local operations are most often associated with training activity and flight instruction (e.g., touch-and-gos). Itinerant operations are arrivals or departures that do not remain within the airport traffic pattern.

The FAA defines an operation as either a single aircraft landing or takeoff. Under this definition, touch-and-go training procedures are considered two operations (one takeoff plus one landing) and are deemed local operations. Itinerant GA operations are typically comprised of private, business/corporate, and air taxi flight activity. Additionally, itinerant activity may include law enforcement and medical flights. As shown in **Table 4-4**, the FAA maintains historical operations counts for HKS as part of their Draft 2009 TAF.

The FAA develops a TAF each year for all airports in the National Plan of Integrated Airport Systems (NPIAS). Depending upon the level of service provided at the subject airport (i.e., commercial or general aviation), the TAF may present forecasts of passenger enplanements, operations, and based aircraft. The FAA website indicates that the "TAF system is the official forecast of aviation activity at FAA facilities. These forecasts are prepared to meet the budget and planning needs of FAA and provide information for use by state and local authorities, the aviation industry, and the public."[2] As described later in this chapter, the TAF is used by FAA as a benchmark for evaluating detailed airport forecasts.

[2] http://aspm.faa.gov/main/taf.asp.

TABLE 4-4
FAA DRAFT 2009 TAF HISTORICAL OPERATIONS

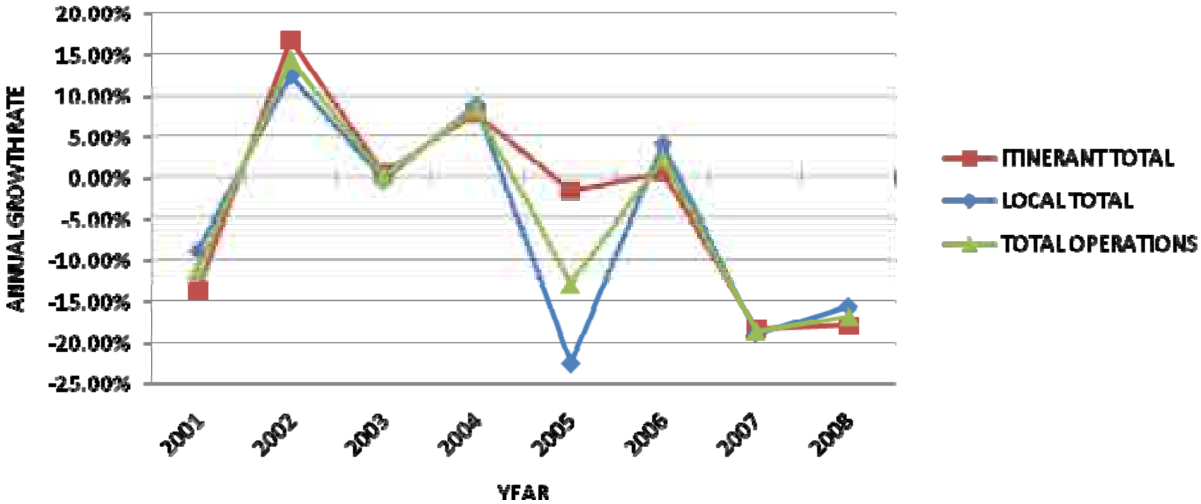
Year	Itinerant Operations				Local Operations			Total Operations
	Air Taxi & Commuter	GA	Military	Total	GA	Military	Total	
1990	116	25,708	4,613	30,437	17,078	2,980	20,058	50,495
1991	57	28,171	4,304	32,532	17,540	3,224	20,764	53,296
1992	1,504	27,789	5,844	35,137	19,974	3,488	23,462	58,599
1993	4,244	25,226	5,525	34,995	21,358	3,116	24,474	59,469
1994	1,467	23,604	4,144	29,215	17,570	1,849	19,419	48,634
1995	456	20,463	3,968	24,888	18,003	1,289	19,292	44,180
1996	221	21,527	3,872	25,620	20,547	1,644	22,191	47,811
1997	372	19,077	2,932	22,381	18,148	1,599	19,747	42,128
1998	257	19,523	2,978	22,758	20,701	2,028	22,729	45,487
1999	1,708	19,309	2,335	23,352	23,086	1,877	24,963	48,315
2000	2,529	21,242	2,750	26,521	28,666	1,984	30,650	57,171
2001	1,411	18,442	3,044	22,897	25,323	2,604	27,927	50,824
2002	2,157	21,236	3,372	26,765	28,971	2,456	31,427	58,192
2003	3,042	20,879	3,015	26,936	28,922	2,405	31,327	58,263
2004	4,638	21,970	2,456	29,064	32,379	1,764	34,143	63,207
2005	3,802	22,200	2,567	28,569	24,787	1,684	26,471	55,040
2006	3,264	22,625	2,855	28,744	21,460	6,090	27,550	56,294
2007	2,770	19,047	1,667	23,484	19,172	3,187	22,359	45,843
2008	1,966	15,700	1,612	19,278	17,207	1,664	18,871	38,149
AAGR 1990-2000	36.10%	-1.89%	-5.04%	-1.37%	5.32%	-3.99%	4.33%	1.25%
GROWTH 1990-2000	2080.17%	-17.37%	-40.39%	-12.87%	67.85%	-33.42%	52.81%	13.22%
AAGR 2000-2008	-3.10%	-3.71%	-6.46%	-3.91%	-6.18%	-2.17%	-5.88%	-4.93%
GROWTH 2000-2008	-22.26%	-26.09%	-41.38%	-27.31%	-39.97%	-16.13%	-38.43%	-33.27%

Source: FAA Draft 2009 TAF for HKS.

At the time of this writing (September 2009), the Draft 2009 TAF was determined to be most appropriate for analysis in this Master Plan Update. The FAA typically releases the Official TAF in December of each year, thus the Official 2008 TAF did not account for the effects of the economic recession to the same extent as the Draft 2009 TAF. Further, discussions with the FAA indicated that no drastic changes to the Draft 2009 TAF were anticipated before the release of the Official 2009 TAF for HKS. As shown in **Table 4-4**, HKS experienced a record low number of operations in 2008, which is illustrative of the harsh effects of the economic recession throughout the U.S. Still, past activity at HKS has shown a strong resiliency to quickly rebound after periods of decline.

Figure 4-1 presents a comparison of annual growth rates for itinerant, local, and total operations at HKS between 2001 and 2008. By comparing this information to national and local trends in the economy and aviation industry, the following can be inferred about HKS activity:

FIGURE 4-1
HISTORICAL ACTIVITY ANNUAL GROWTH RATE COMPARISON

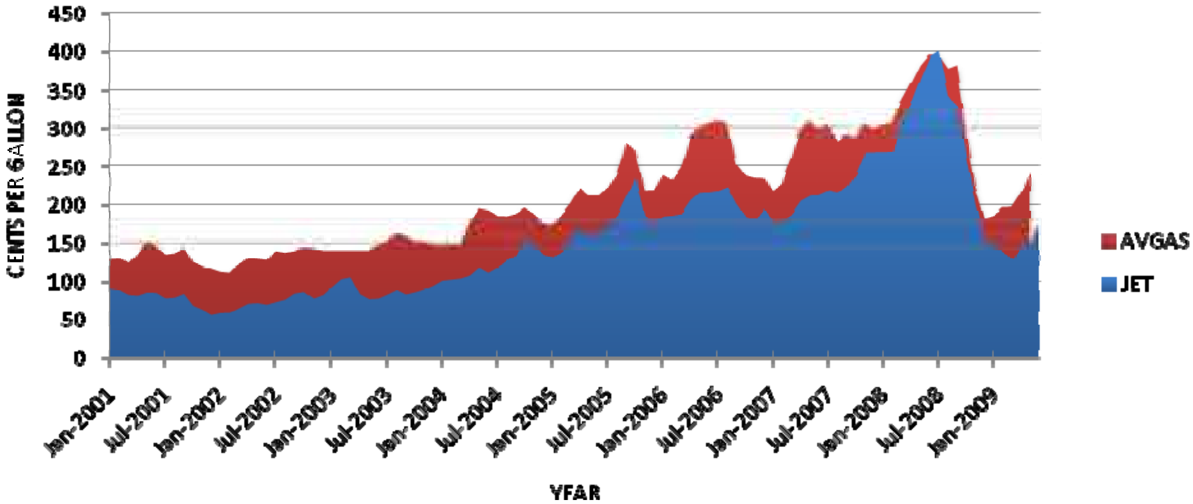


Sources: FAA Draft 2009 TAF for HKS and The LPA Group Incorporated, September, 2009.

- Unlike many GA airports that experienced large activity declines in the years immediately following September 11, 2001, all activity at HKS grew in 2002 and continued a positive growth trend until 2005. During the same time, HKS' itinerant traffic showed greater stability than local traffic, which was a circumstance of increased aviation fuel prices and a general unwillingness or inability to pay the added costs for local training operations.
- There was a considerable amount of air taxi & commuter traffic at HKS during the 2000s. According to the article, *Hawkins Field Industrial Park Sees Airport Traffic Boost*, much of this growth was associated with diverted traffic from Jackson-Evers International Airport (JAN), which allowed for increased visibility of HKS and the adjacent Hawkins Field Industrial Park.[3]
- Hurricane Katrina hit the Gulf Coast of Mississippi on August 29, 2005. As shown in **Figure 4-2**, a sharp increase in the price of aviation fuel occurred shortly thereafter because "Of the approximately 20 refineries and production facilities along the Gulf Coast – from Corpus Christi, Texas to Tampa, Florida – Katrina temporarily closed nine facilities and shut down two completely, reducing U.S. oil supplies by about 1.4 million barrels a day, or 8 percent of total U.S. production."[4]
- Aircraft fuel prices remained high after 2005 and peaked during the summer of 2008. Then, in 2009 aircraft fuel prices sharply declined to pre-2005 levels. Between the second quarter of 2009 and the fourth quarter of 2010, the U.S. Energy Information Administration predicts that jet fuel prices (from refiner) will increase from $1.59 to $2.12, which is still significantly less than the July 2008 peak price of $4.01.[5]

[3] Hawkins Field Industrial Park Sees Airport Traffic Boost, Mississippi Business Journal, July 25, 2005.
[4] Hurricane Katrina Underscores Tenuous State of U.S. Oil Refining Industry, PBS Online NewsHour, September 9, 2005.
[5] Short-Term Energy Outlook, Energy Information Administration, August 2009.

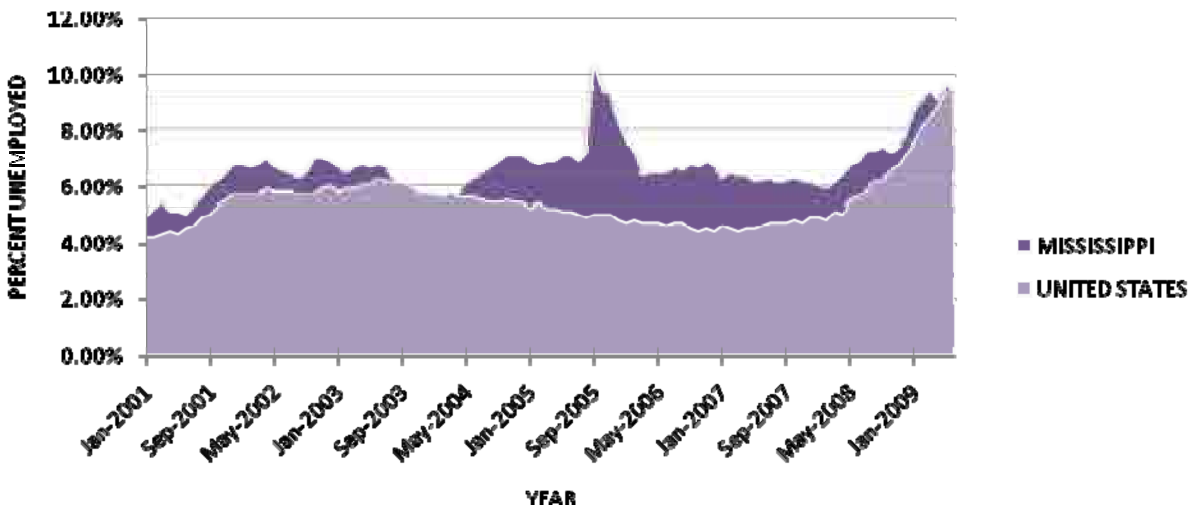
FIGURE 4-2
HISTORICAL AIRCRAFT FUEL SALES BY REFINER



Sources: Energy Information Administration of the U.S. Department of Energy and The LPA Group Incorporated, September 2009.

- In September 2009, the U.S. was struggling through an economic recession. As shown in **Figure 4-3**, the U.S. unemployment rate was 9.6 percent in June 2009, which was approximately four points higher than June 2008. Mississippi has historically faced high unemployment rates, although the June 2009 state unemployment rate (9.0 percent) was below the national average.[6]

FIGURE 4-3
HISTORICAL UNEMPLOYMENT RATES (SEASONALLY ADJUSTED)



Sources: U.S. Bureau of Labor Statistics and The LPA Group Incorporated, September 2009.

[6] U.S. Bureau of Labor Statistics, August 2009.

By tracing past these historical trends, potential influences to future activity growth can be better understood. As described later in this chapter, HKS has shown a strong resiliency to quickly grow after periods of decline, and in some instances was less impacted by nationwide economic and/or aviation trends. With decreasing aviation fuel prices and some signs of an economic turnaround in September 2009, it was believed that HKS could experience an optimistic rebound in the short-term.

Historical and Current Based Aircraft

Historical based aircraft data for HKS was also obtained from the FAA's Draft 2009 TAF. As shown in **Table 4-5**, the 2008 mix of based aircraft included 73 single-engines, 33 multi-engines, 1 jet, 4 helicopters, and 19 other military aircraft, which matched the most recent inventory of based aircraft that was conducted in 2008 as well as the current reporting on HKS' **FAA Form 5010-1**, *Airport Master Record* (dated July 2, 2009). Based on discussions with airport tenants, the following observations about historical based aircraft levels were ascertained:

- **Single-Engines –** The recent growth in based single-engine aircraft was primarily related to flight training at Spirit Aviation, which was established in 2002.
- **Multi-Engines –** The number of multi-engine aircraft has not changed drastically since 1990.
- **Jets –** There is currently only one based jet at HKS, whereas there have been as many as four based jets in previous years. Airport tenants identified insufficient runway length as a key reason why jets have left HKS.
- **Helicopters –** See general comments below.
- **Other/Military –** In past years, based military aircraft included a mix of both fixed-wings and helicopters. Today, all 19 military aircraft based at HKS are helicopters. Several military aircraft may have been relocated to the Mississippi Air National Guard (ANG) facility at JAN.
- **Operations Per Based Aircraft (OPBA) –** While actual aircraft counts may not have been verified in all years shown, the 2008 numbers are from an actual count that was conducted in 2008. As indicated in **Table 4-2**, the OPBA ratio in 2008 was the lowest of all years shown, which illustrates that less flight activity was occurring during the economic recession.
- **General –** Security is a concern of based aircraft owners and airport tenants. Past security issues on and around the airport has caused some HKS based aircraft owners to relocate their plane elsewhere.

TABLE 4-5 FAA DRAFT 2009 TAF HISTORICAL BASED AIRCRAFT							
Year	***Single-Engine***	***Multi-Engine***	***Jet***	***Helicopter***	***Other/Military***	***Total***	***OPBA***
1990	65	31	4	6	40	146	346
1991	68	31	0	5	23	127	420
1992	68	31	0	5	23	127	461
1993	68	31	0	5	23	127	468
1994	61	31	0	4	32	128	380
1995	44	26	0	4	31	105	421
1996	44	27	2	6	21	100	478
1997	46	37	1	6	40	130	324
1998	46	37	1	6	40	130	350
1999	46	37	2	6	40	131	369
2000	46	37	2	6	40	131	436
2001	46	37	2	10	40	135	376
2002	46	37	4	10	19	116	502
2003	46	37	4	10	18	115	507
2004	46	37	4	10	19	116	545
2005	46	37	4	10	19	116	474
2006	46	37	4	10	19	116	485
2007	46	37	4	10	19	116	395
2008	73	33	1	4	19	130	293
AAGR 1990-2000	-3.40%	1.79%	-6.70%	0.00%	0.00%	-1.08%	2.35%
GROWTH 1990-2000	-29.23%	19.35%	-50.00%	0.00%	0.00%	-10.27%	26.19%
AAGR 2000-2008	5.94%	-1.42%	-8.30%	-4.94%	-8.89%	-0.10%	-4.84%
GROWTH 2000-2008	58.70%	-10.81%	-50.00%	-33.33%	-52.50%	-0.76%	-32.76%

Source: FAA Draft 2009 TAF for HKS.

4.5 Regression Analysis and Socioeconomic Correlation

Often times, a correlation can be made between historical airport activity and historical socioeconomic characteristics, which were presented in earlier sections of this chapter. In order to test if such a correlation exists, regression analysis is used to determine if an independent variable (X) can be used to predict a dependent variable (Y). Some regression analyses provide strong correlations (e.g., a comparison of automobile insurance rates to population within a square mile). The increased traffic in higher populated areas results in an additional number of accidents, thefts, etc., and therefore causes insurance rates to increase. In this example, the population per square mile would be the independent variable (X), whereas the cost of insurance would be the dependent variable (Y). In aviation forecasting, the independent variable is typically a socioeconomic characteristic (e.g., population or employment), while the dependent variable is generally passenger enplanements, airport operations, or based aircraft.

According to the FAA report, *Forecasting Aviation Activity by Airport (July 2001)*, the ability of an independent variable to predict a dependent variable is measured by the Coefficient of Determination or R-Squared (R^2) regression statistic. "An R^2 of 0.00 indicates that there is no statistical relationship between changes in the independent and dependent variables. R^2 values near 1.00 mean there is a very strong statistical relationship." [7] The R^2 value "measures the percent of the variation in *Y* [e.g., historical change in airport activity] that is explained by the variation in *X* [e.g., historical change in population]."[8] In aviation forecasting, an R^2 value of 0.90 percent or greater should be achieved for the independent variable (*X*) to be considered a confident predictor of the dependent variable (*Y*).

For HKS, the independent variables (*X*) were population, employment, and per capita income for the three-county airport service area (Hinds, Rankin, and Madison Counties), and the dependent variables (*Y*) were annual operations and based aircraft. The objective of the regression analyses was to determine if a correlation existed between historical socioeconomic variables and historical airport activity between the years 2001 and 2008. If such a correlation were to exist (i.e., producing an R^2 value of 0.90 percent or greater), then it would be reasonable to assume that forecasts of the socioeconomic variables could be used to determine future airport activity. However, because of the large variation in historical airport operations and based aircraft levels year-to-year while all three socioeconomic characteristics generally showed consistent and positive growth, regression did not prove to be a useful forecasting tool as shown by the extremely low R^2 values in **Table 4-6**. Also, since the airport experienced a general decline in activity levels after 2004, any regression-based forecast for HKS would illustrate a negative trend over the 20-year planning period as demonstrated in **Figure 4-4**. Consequently, regression was rejected from further consideration as a forecasting method in this Master Plan Update.

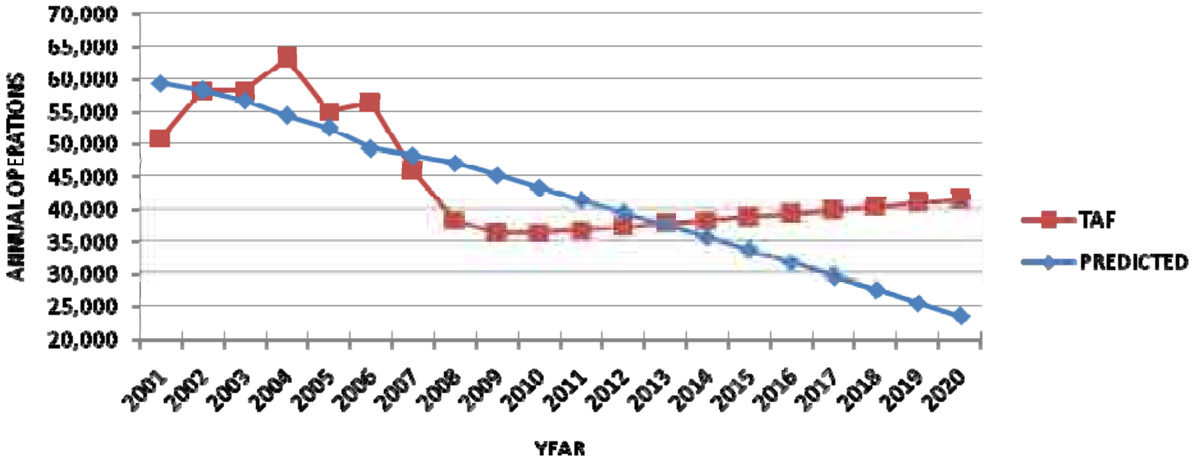
TABLE 4-6
REGRESSION ANALYSIS – SOCIOECONOMIC CHARACTERISTICS

Socioeconomic Variable (X)	***Operations (Y)***	***Conclusion***	***Based Aircraft (Y)***	***Conclusion***
Total Population – R^2 Value	0.344	Reject	0.011	Reject
Total Employment – R^2 Value	0.376	Reject	0.004	Reject
Total PCI – R^2 Value	0.415	Reject	0.002	Reject

Source: The LPA Group Incorporated, September 2009.

[7] FAA Forecasting Aviation Activity by Airport, July 2001.
[8] Basic Statistics for Business and Economics, Third Edition, 2000.

FIGURE 4-4
SAMPLE REGRESSION – HKS POPULATION (X) TO OPERATIONS (Y)



Source: The LPA Group Incorporated, September 2009.

4.6 Factors and Opportunities Affecting Activity Levels

As described throughout this chapter, historical activity trends at HKS indicate that economic events, aviation fuel prices, and natural disasters have the potential to influence operational demand. Although it is impossible to forecast many of these factors (e.g., Hurricane Katrina), they were considered in the evaluation and selection of the preferred forecasts. It is also important to identify ongoing and anticipated trends at HKS, as well as within the airport service area and the U.S. aviation system as a whole.

Unanticipated Events

Unanticipated events like natural disasters and terrorist actions have the potential to influence aviation activity. For example, when Hurricane Katrina hit the Gulf Coast of Mississippi on August 29, 2005, aviation fuel prices increased shortly thereafter which resulted in declining activity levels at HKS. At the same time, damage and displacement from Hurricane Katrina caused a sharp increase in Mississippi unemployment levels, but a significant infusion of federal relief funds has allowed the state to be less impacted by the ongoing economic recession (as of September 2009). Although HKS was not directly hit by Hurricane Katrina, the impacts of such a natural disaster can still impact aviation activity throughout the U.S., especially when fuel refineries are damaged in the Gulf Coast Region.

As evidenced by the events of September 11, 2001, and the British bomb plot in 2006 that resulted in liquids restrictions on commercial airlines, terrorism and security issues are a current and serious threat to aviation demand. The level and type of threats impacting all airports is constantly changing. Due in part to these past terrorist actions, the Transportation Security Administration (TSA) is also proposing stricter security measures for GA airports and aircraft operators that may affect future aviation demand.

FAA Next Generation Air Transportation System (NextGen)

In an effort to reduce congestion around the country, the FAA has begun to implement the Next Generation Air Transportation System (NextGen), which is a "plan to modernize the National Airspace System (NAS) through 2025. Through NextGen, the FAA is addressing the impact of air traffic growth while simultaneously improving safety, environmental impacts, and user access to the NAS."[9] The primary goals of NextGen are to provide order-of-magnitude improvements in the efficiency of the NAS by allowing aircraft to fly more direct routes (i.e., GPS-guided point-to-point paths), to safely reduce aircraft separation standards, and to provide more data to aircrews for operating their aircraft. The FAA's ongoing roll-out of NextGen initiatives should help to improve access and approach capability for airports around the country. However, commercial and busier GA airports are more likely to see major benefits from NextGen programs in the short-term.

Aircraft Trends

Many GA activity trends presented in the *FAA Aerospace Forecast Fiscal Years 2009-2025* were drastically different than FAA predictions in previous years. This was due to factors like the ongoing economic recession, in addition to bankruptcies and failures within the Very Light Jet (VLJ) sector that was previously expected to show rapid growth. Also, as the harsh effects of the economic recession began to unravel in 2008, particularly amongst U.S. automakers and financial institutions, the general image of expensive corporate jet travel took a hit. Although the FAA has scaled-back their VLJ growth expectation to approximately 4,875 active aircraft by 2025, the demand for corporate jets is still expected to remain strong because "corporate safety/security concerns for corporate staff, combined with increasing flight delays at some U.S. airports have made fractional, corporate, and on-demand charter flights practical alternatives to travel on commercial flights."[10] Therefore, this Master Plan Update assumes that there is a strong potential for continued jet activity growth at HKS. Other nationwide activity trends from the *FAA Aerospace Forecast Fiscal Years 2009-2025* are referenced throughout this chapter.

Jackson, Mississippi and Hawkins Field Airport

Commonly referred to as the *City With Soul*, Mississippi's Capital City of Jackson has undergone many significant improvements in recent years. Some improvements have focused on encouraging residential, retail, and business growth within the downtown core through mixed-use, *new-urbanism-centered*, development concepts. By bringing people back to the city to live, work, and shop, the leaders of Jackson hope to strengthen the city's tax base so that future investments can include revitalization efforts for aging neighborhoods. Because these types of projects have the potential to stimulate economic growth in Jackson, they also have the potential to induce future activity growth and development at HKS.

For example, according to Southwest Airlines' August 2009 edition of *Spirit Magazine*, "More than $3.2 billion in new projects are already on the table in the Magnolia State's capital….Now, local visionaries are collaborating to transform the downtown landscape into a living expression of new urbanism, with green spaces and pedestrian-friendly neighborhoods and business districts. Downtown developments are playing off each other, each one generating excitement

[9] FAA NextGen Fact Sheet, October 29, 2008.
[10] FAA Aerospace Forecast Fiscal Years 2009-2025, page 41.

for the next….Projects like the newly opened $65 million Jackson Convention Complex make the city a meeting planner's dream. The convention center provides 330,000 square feet of meeting space and high-tech features like wireless Internet access and plasma data screens."[11]

Although many planned developments in Jackson focus on the downtown core, the city is also concerned with revitalizing aging neighborhoods around HKS to improve the quality of life for its citizens. With recent and planned developments in Jackson, the anticipated economic growth should induce activity growth and development at the airport and adjacent Hawkins Field Industrial Park. Further, the 1999 Mississippi Statewide Airports Study (MSAS) classified HKS as a *Type III (Enhanced)* facility with a total annual economic impact of $10,539,800 in 1997 dollars – the greatest economic impact of any GA airport in Mississippi at the time of the study.

Other factors worth mentioning about HKS include:

- HKS is home to the Mississippi Wing of the CAP. The CAP's continued presence at HKS will help promote aviation growth and education.
- The Mississippi ARNG has a considerable military presence at HKS. Several thousand military operations are conducted at HKS each year by helicopters and other aircraft.
- According to Delta.com, in 1929 "Delta operates first passenger flights over route stretching from Dallas, Texas, to Jackson, Mississippi, via Shreveport and Monroe. Travel Air S-6000B airplanes carry five passengers and one pilot."[12] The original Delta Terminal is still located on the south side of HKS and there may be future opportunities to restore the facility. Therefore, HKS is deeply-rooted in aviation history, and where possible, the JMAA intends to preserve important features of the airport.
- Medgar Evers' home, which is listed on the National Register of Historic Places, is located in the neighborhood just east of the airport. This is the location where NAACP and Civil Rights leader Medgar Evers was assassinated on June 12, 1963.[13] Therefore, even the surrounding neighborhood has historic significance.
- As shown in **Table 4-7**, the JMAA operates both HKS and JAN. With increasing commercial airline, cargo, and military activity at JAN, the provision of two airports for Jackson allows for greater separation of GA and commercial traffic, thus creating more comfortable operating conditions for all pilots. Of the airports in the region, the existing facilities in-place at HKS such as the ATCT, precision approach capability, adjacent industrial park designated as a Foreign Trade Zone (FTZ), as well as proximity to population and business clusters, provides HKS with many advantages and opportunities for accommodating future corporate and GA activity growth.

[11] Meet Jackson, Southwest Airlines Spirit Magazine, August 2009.
[12] Delta through the Decades, Delta.com.
[13] A Tribute to Medgar Evers, EversTribute.com.

TABLE 4-7
REGIONAL AIRPORT COMPARISON

Item	*Hawkins Field*	*Jackson-Evers International*	*Bruce Campbell Field*	*John Bell Williams*	*Yazoo County*	*Vicksburg Municipal*
FAA ID	HKS	JAN	MBO	M16	87I	VKS
County	Hinds	Rankin	Madison	Hinds	Yazoo	Warren
County Pop. (2009)[1]	174,785	78,026	59,548	174,785	28,452	48,203
Distance From HKS[2]	0 NM	8 NM E	8 NM NE	10 NM W	35 NM N	36 NM W
Service Level	General Aviation	Commercial	General Aviation	General Aviation	General Aviation	General Aviation
Longest Runway[2]	5,387 Feet	8,500 Feet	4,444 Feet	5,501 Feet	5,000 Feet	5,000 Feet
Best Approach (Visibility)[2]	ILS (1/2-Mile)	ILS (CAT III)	GPS (1-Mile)	LPV (1-Mile)	GPS (1-Mile)	GPS (1-Mile)
Tower[2]	Yes	Yes	No	No	No	No
Foreign Trade Zone	Yes – FTZ 158, Site 2	Yes – FTZ 158, Site 6	No	No	No	Yes – FTZ 158, Site 4
1999 MSAS Service Level[3]	Type III (Enhanced)	Air Carrier	Type II	Type III	Type III	Type III
1997 Economic Impact[3]	$10,539,800	$137,826,400	$1,208,600	$569,200	$346,700	$910,300

Sources: The LPA Group Incorporated, September 2009, and:
(1) 2010 Complete Economic and Demographic Data Source (CEDDS), Woods & Poole Economics.
(2) AirNav.com.
(3) 1999 Mississippi Statewide Airports Study (MSAS), Wilbur Smith Associates.

4.7 Review of Previous Forecasting Efforts

Cycles of growth and decline resulting from the price of fuel, new development at the subject airport, new development at a competing airport, population growth, economic conditions, business success or failure (e.g., flight school), natural disasters, etc., may be common at some GA airports. However, aviation forecasting efforts typically portray unconstrained growth scenarios where these types of potentially unforeseen circumstances are not wholly accounted for. Rather than underestimate and insufficiently plan for long-term growth, unconstrained forecasts help to establish realistic estimates for determining future airport facility requirements. Previous forecasting efforts for HKS were conducted in this manner, including the 1999 MSAS and the 2000 Master Plan Update. This section describes the previous forecasting efforts in relation to the FAA's Draft 2009 TAF and historical activity at HKS.

A NOTE ON THE PREVIOUS FORECASTING EFFORTS: *Airport activity data is much easier to access and track today than it ever has been in the past. For this reason, previous forecasting efforts may show different values for past based aircraft or operations counts. Also, the interpretation of previous forecasting efforts can be subjective without knowing every detail of why and how it was conducted. In an attempt to provide clarity for future updates to HKS activity forecasts, this Master Plan Update includes detailed explanations of data sources, rationales for growth, and applied procedures.*

Draft 2009 Terminal Area Forecast (TAF)

The FAA's Draft 2009 TAF was previously determined to be most appropriate for analysis in this Master Plan Update. As such, the Draft TAF shown in **Table 4-8** was used as a benchmark for evaluation in this updated forecasting effort. While HKS was expected to experience continued activity decline through year-end 2009, the Draft TAF illustrates a slow recovery in the short-term, followed by a modest recovery for the remainder of the 20-year planning period.

At the time of this writing, the Draft 2009 TAF did not include updated based aircraft forecasts for the years 2008 to 2028. Further, because of the ongoing effects of the economic recession and the updated based aircraft counts in 2008, the growth rates in the Official 2008 TAF were determined to be inappropriate for consideration in this Master Plan Update. Alternatively, an adjusted TAF forecast was developed for based aircraft using the long-term growth rate of operations from the Draft 2009 TAF (i.e., 0.98%). As shown in **Table 4-8**, this growth rate was applied to all years through 2028 with the exception of 2009, resulting in a total of 26 additional based aircraft by the end of the 20-year planning period.

TABLE 4-8 FAA DRAFT 2009 TAF FORECAST										
Year	***Itinerant Operations***				***Local Operations***			***Total Operations***	***Total Based Aircraft****	***OPBA***
	Air Taxi & Commuter	***GA***	***Military***	***Total***	***GA***	***Military***	***Total***			
2008	1,966	15,700	1,612	19,278	17,207	1,664	18,871	38,149	130	293
2009	1,481	15,308	2,334	19,123	14,498	2,606	17,104	36,227	130	279
2010	1,481	15,155	2,334	18,970	14,726	2,606	17,332	36,302	131	277
2011	1,481	15,276	2,334	19,091	14,957	2,606	17,563	36,654	133	277
2012	1,481	15,540	2,334	19,355	15,192	2,606	17,798	37,153	134	278
2013	1,481	??Ă80	2,334	19,624	15,431	2,606	18,037	37,661	135	279
2014	1,481	16,082	2,334	19,897	15,673	2,606	18,279	38,176	136	280
2015	1,481	16,360	2,334	20,175	15,919	2,606	18,525	38,700	138	281
2016	1,481	16,643	2,334	20,458	16,169	2,606	18,775	39,233	139	282
2017	1,481	16,931	2,334	20,746	16,423	2,606	19,029	39,775	141	283
2018	1,481	17,224	2,334	21,039	16,681	2,606	19,287	40,326	142	284
2019	1,481	17,522	2,334	21,337	16,943	2,606	19,549	40,886	143	285
2020	1,481	17,825	2,334	21,640	17,209	2,606	19,815	41,455	145	286
2021	1,481	18,133	2,334	21,948	17,479	2,606	20,085	42,033	146	288
2022	1,481	18,447	2,334	22,262	17,753	2,606	20,359	42,621	148	289
2023	1,481	18,766	2,334	22,581	18,032	2,606	20,638	43,219	149	290
2024	1,481	19,091	2,334	22,906	18,315	2,606	20,921	43,827	150	291
2025	1,481	19,421	2,334	23,236	18,603	2,606	21,209	44,445	152	293
2026	1,481	19,757	2,334	23,572	18,895	2,606	21,501	45,073	153	294
2027	1,481	20,099	2,334	23,914	19,192	2,606	21,798	45,712	155	295
2028	1,481	20,447	2,334	24,262	19,493	2,606	22,099	46,361	156	296
AAGR 2008-2013	-5.51%	0.14%	7.68%	0.36%	-2.16%	9.39%	-0.90%	-0.26%	0.78%	-1.03%
AAGR 2013-2018	0.00%	1.73%	0.00%	1.40%	1.57%	0.00%	1.35%	1.38%	0.98%	0.39%
AAGR 2018-2023	0.00%	1.73%	0.00%	1.42%	1.57%	0.00%	1.36%	1.40%	0.98%	0.41%
AAGR 2023-2028	0.00%	1.73%	0.00%	1.45%	1.57%	0.00%	1.38%	1.41%	0.98%	0.43%
AAGR 2008-2028	-1.41%	1.33%	1.87%	1.16%	0.63%	2.27%	0.79%	0.98%	0.93%	0.05%
Growth 2008-2028	-24.67%	30.24%	44.79%	25.85%	13.29%	56.61%	17.11%	21.53%	20.35%	0.98%
Increase 2008-2028	-485	4,747	722	4,984	2,286	942	3,228	8,212	26	3

Source: FAA Draft 2009 TAF for HKS.
** Forecast adjusted per updated based aircraft counts in 2008.*

1999 Mississippi Statewide Airports Study (MSAS)

The 1999 MSAS was intended to provide the Mississippi Aeronautics Division "with a guide for developing, maintaining, and promoting airports in Mississippi."[14] The 1999 plan was the last update conducted for the MSAS. As mentioned earlier, the 1999 MSAS classified HKS as a *Type III (Enhanced)* facility, which represents a critical airport for corporate jet traffic but is one-step below commercial service status like JAN. The 1999 MSAS presented recommendations for HKS in accordance with the requirements established for *Type III (Enhanced)* facilities, which are explored in **Chapter 5**, *Demand Capacity/Facility Requirements*. With increases in corporate jet activity at HKS since 1999, it is evident that HKS continues to fit into the *Type III (Enhanced)* category of airports in Mississippi.

[14] Mississippi Statewide Airports Study, page 1-1, Wilbur Smith Associates, May 1999.

The 1999 MSAS referred to the preferred based aircraft forecast for all system airports as the *Top Down Methodology*, which "projected statewide based aircraft using a market share approach. The State's market share of U.S. active general aviation aircraft was examined to determine historical growth trends and to develop a projection of statewide based aircraft. Then, each airport's share of the statewide based aircraft was used to project based aircraft on an individual basis."[15] This *share analysis* forecasting approach is commonly used in system planning studies so that growth can be projected for multiple airports. Specifically, the 1999 MSAS determined that HKS' share of based aircraft historically represented 5.77 percent of all system airports in Mississippi, and applied that ratio to develop the based aircraft forecast shown in **Table 4-9**.

TABLE 4-9
1999 MSAS FORECASTS

Year	*Based Aircraft*	*Operations*
1997	103	41,398
2002	111	41,400
2007	114	41,400
2017	116	41,400
AAGR 1997-2002	1.51%	0.00%
AAGR 2005-2007	0.53%	0.00%
AAGR 2007-2017	0.17%	0.00%
AAGR 1997-2017	0.60%	0.00%
GROWTH 1997-2017	12.62%	0.00%

Source: 1999 Mississippi Statewide Airports Study, Tables 4-35 and 4-43.

The 1999 MSAS used historical growth rate trends for each airport to forecast operations from 1997 to 2017. At the time of the 1999 MSAS study, HKS was experiencing a downward trend in operations year-to-year, thus no growth was forecast between 1997 and 2017 as shown in **Table 4-9**. However, with the exception of 2001, HKS generally saw an upward trend in operations from 1997 to 2006, peaking at 63,207 in 2004. For that reason, the value of using historical growth trends in HKS activity as a forecasting tool is investigated later in this chapter.

2000 Master Plan Update

The 2000 Master Plan Update indicates that the *FAA Long-Range Aerospace Forecasts (June 1999)* predicted a 1.0 percent annual increase in GA based aircraft and activity levels, which was applied to determine the forecast shown in **Table 4-10**. The most recent edition of the FAA's Aerospace Forecast was used as a reference throughout this updated forecasting effort.

[15] Mississippi Statewide Airports Study, page 4-44, Wilbur Smith Associates, May 1999.

TABLE 4-10 2000 MASTER PLAN UPDATE FORECASTS		
Year	***Based Aircraft***	***Operations***
1999	130	42,305
2000	131	42,673
2001	133	43,099
2002	134	43,530
2003	135	43,966
2004	137	47,821
2005	138	48,299
2006	139	48,782
2007	141	49,270
2008	142	49,763
2009	144	53,850
2010	145	54,389
2011	146	54,933
2012	148	55,482
2013	149	56,037
2014	151	60,370
2015	152	60,974
2016	154	61,584
2017	155	62,200
2018	157	62,822
2019	159	63,450
2020	160	64,084
AAGR 1999-2005	1.00%	2.23%
AAGR 2005-2010	0.99%	2.40%
AAGR 2010-2015	0.95%	2.31%
AAGR 2015-2020	1.03%	1.00%
AAGR 1999-2020	0.99%	2.00%
GROWTH 1999-2020	23.08%	51.48%

Source: 2000 Master Plan Update, Table 4-1.

4.8 Forecasting Methods Considered

The previous sections of this chapter introduced historical, present, and future trends that represent key considerations for this updated forecasting effort. Growth cannot simply be forecast for HKS without recognizing factors that might influence growth. This section presents the results of the forecasting methods that were investigated for their reliability in determining future operations and based aircraft levels throughout the 20-year planning period. **FAA Advisory Circular 150/5070-6**, *Airport Master Plans*, identifies the following methods for aviation forecasting:

- "**Regression Analysis –** A statistical technique that ties aviation demand (dependent variables), such as enplanements, to economic measures (independent variables), such as population and income. Regression analysis should be restricted to relatively simple models with independent variables for which reliable forecasts are available.

- **Trend analysis and Extrapolation –** Typically uses the historical pattern of an activity and projects this trend into the future. This approach is useful where unusual local conditions differentiate the study airport from other airports in the region.
- **Market Share Analysis or Ratio Analysis –** This technique assumes a top-down relationship between national, regional, and local forecasts. Local forecasts are a market share (percentage) of regional forecasts, which are a market share (percentage) of national forecasts. Historical market shares are calculated and used as a basis for projecting future market shares. This type of forecast is useful when the activity to be forecast has a constant share of a larger aggregate forecast.
- **Smoothing –** A statistical technique applied to historical data, giving greater weight to the latest trend and conditions at the airport; it can be effective in generating short-term forecasts."[16]

Regression analysis was previously rejected from consideration as a forecasting method due to the extremely poor correlations that were observed between historical socioeconomic variables and HKS activity. Where applicable, the remaining forecasting methods were investigated.

Operations Forecasting Methods

In 2008 there were a total of 38,149 operations at HKS. According to data from the ATCT (through July 2009), operations were projected to decline even further by year-end 2009. HKS previously experienced a cycle of decline in the 1990s, then rebounded into the 2000s until Hurricane Katrina and rising fuel prices started impacting activity levels in 2005. **Table 4-11** illustrates the year-to-year percent growth or decline in annual operations since 1990. While the economic recession had an impact on HKS' operations in 2008 and 2009, factors like reduced fuel prices, a $2.8 billion infusion into Mississippi from the American Recovery and Reinvestment Act (ARRA) of 2009, and public assistance funds from the Federal Emergency Management Association (FEMA) for ongoing rebuilding after Hurricane Katrina were expected to help slow the negative impacts of the economic recession.[17] Considering these factors, **Table 4-12** and **Figure 4-5** present the following operations forecasting methods for HKS:

- **Growth Rate –** As shown in **Table 4-11**, HKS experienced cycles of growth and decline spanning three U.S. recessions dating back to 1990. From 1990 until the most recent downtrend started in 2004, operations at HKS grew at an average annual rate of 1.62 percent. After two years of decline in 1994 and 1995, operations grew at an average annual rate of 4.06 percent from 1995 to 2004 until the next major decline cycle hit HKS in 2005. This indicates that HKS has been very resilient after periods of decline, showing quick ability to recover and once again grow. However, growth has not been quite as strong over the long-term due to economic recessions and cycles of decline. The FAA's Draft 2009 TAF only illustrated negative growth through 2009, followed by a slow recovery thereafter. This was consistent with projections of Federal Reserve Chairman Ben Bernake at the time, who indicated that "the U.S. economy is on the verge of a long-awaited recovery after enduring a brutal recession and the worst financial crisis since the Great Depression. Economic activity

[16] FAA Advisory Circular 150/5070-6B, Airport Master Plans, page 40.
[17] Mississippi Economic Review and Outlook, June 2009.

in both the U.S. and around the world appears to be leveling out, and the prospects for a return to growth in the near term appear good."[18] Therefore, considering the past resiliency of HKS activity, the Growth Rate Forecast took an alternative approach to the TAF and assumed a strong annual growth rate of 4.06 percent for 2010 and 2011 operations, but used a conservative annual growth rate of 1.62 percent for the remainder of the planning period to be consistent with historical long-term growth.

TABLE 4-11
HISTORICAL GROWTH SUMMARY

Year	*Total Operations*	*Annual Change*	*Key Dates*
1990	50,495		First Year of Available Data
1991	53,296	5.55%	U.S. Recession – Jul 1990-Mar 1991
1992	58,599	9.95%	
1993	59,469	1.48%	
1994	48,634	-18.22%	
1995	44,180	-9.16%	End of Decline Cycle
1996	47,811	8.22%	
1997	42,128	-11.89%	
1998	45,487	7.97%	
1999	48,315	6.22%	
2000	57,171	18.33%	
2001	50,824	-11.10%	U.S. Recession – Mar 2001-Nov 2001
2002	58,192	14.50%	
2003	58,263	0.12%	
2004	63,207	8.49%	Last Year of Growth Cycle
2005	55,040	-12.92%	
2006	56,294	2.28%	
2007	45,843	-18.57%	U.S. Recession – Jul 2007-Present
2008	38,149	-16.78%	
TAF 2009	36,227	-5.04%	
AAGR 1990-2004	**1.62%** (represents 14 years of growth including two U.S. recessions)		
AAGR 1995-2004	**4.06%** (represents an activity rebound cycle including one U.S. recession)		

Sources: Recession.org and The LPA Group Incorporated, September 2009.

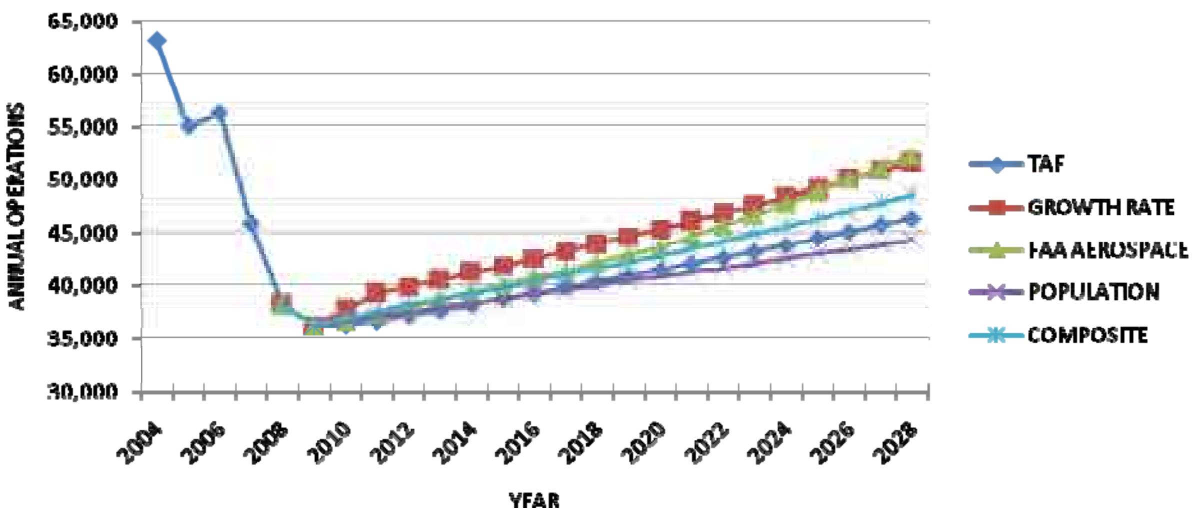
- **FAA Aerospace –** The FAA publishes long-term forecasts for nationwide aviation demand each year. Although the FAA Aerospace Forecasts do not forecast GA operations, there is a forecast of *General Aviation Hours Flown* that is comparable to the anticipated growth in operations. According to the *FAA Aerospace Forecast Fiscal Years 2009-2025*, "The number of general aviation hours flown is projected to increase by 1.8 percent yearly over the forecast period."[19] The FAA further splits this forecast into the following periods and rates of annual growth, which were applied to HKS' operations:
  - 2008-2010 – 1.14% annual growth
  - 2010-2020 – 1.76% annual growth
  - 2020-2025 – 2.25% annual growth

[18] Bernake Says US Economy is on the Cusp of Recovery, Yahoo News, August 21, 2009.
[19] FAA Aerospace Forecast Fiscal Year 2009-2025, page 42.

- **Population –** Although regression analysis illustrated no correlation between historical population and historical operations, the combined populations of Hinds, Rankin, and Madison Counties showed similar average annual growth between 1990 and 2000 (1.09 percent) as airport operations during the same period (1.25 percent). Therefore, population may be a reasonable indicator of long-term aviation growth at HKS. As such, the following growth rates from Woods & Poole's population forecast of the airport's three-county service area were applied to operations:
    - 2008-2013 – 1.12% annual growth
    - 2013-2018 – 1.09% annual growth
    - 2018-2028 – 1.03% annual growth

- **Composite –** The Composite Forecast is the average of all forecasts presented including the FAA's Draft 2009 TAF, Growth Rate Forecast, FAA Aerospace Forecast, and Population Forecast. The Composite Forecast may be considered an applicable forecast because it incorporates anticipated growth rate trends on the local and national levels.

FIGURE 4-5
SUMMARY OF OPERATIONS FORECASTING METHODS



Source: The LPA Group Incorporated, September 2009.

TABLE 4-12 SUMMARY OF OPERATIONS FORECASTING METHODS					
Year	***TAF***	***Growth Rate (Preferred)***	***FAA Aerospace***	***Population***	***Composite***
2008	38,149	38,149	38,149	38,149	38,149
2009	36,227	36,227	36,227	36,227	36,227
2010	36,302	37,698	36,639	36,631	36,818
2011	36,654	39,228	37,286	37,041	37,552
2012	37,153	39,862	37,945	37,454	38,103
2013	37,661	40,507	38,615	37,872	38,664
2014	38,176	41,162	39,296	38,286	39,230
2015	38,700	41,827	39,990	38,705	39,806
2016	39,233	42,503	40,696	39,128	40,390
2017	39,775	43,191	41,415	39,556	40,984
2018	40,326	43,889	42,146	39,989	41,588
2019	40,886	44,599	42,890	40,401	42,194
2020	41,455	45,320	43,648	40,817	42,810
2021	42,033	46,052	44,631	41,237	43,488
2022	42,621	46,797	45,637	41,662	44,179
2023	43,219	47,554	46,665	42,091	44,882
2024	43,827	48,322	47,716	42,524	45,597
2025	44,445	49,104	48,791	42,962	46,326
2026	45,073	49,898	49,890	43,405	47,066
2027	45,712	50,704	51,014	43,852	47,821
2028	46,361	51,524	52,164	44,303	48,588
AAGR 2008-2013	-0.26%	1.21%	0.24%	-0.15%	0.27%
AAGR 2013-2018	1.38%	1.62%	1.77%	1.09%	1.47%
AAGR 2018-2023	1.40%	1.62%	2.06%	1.03%	1.54%
AAGR 2023-2028	1.41%	1.62%	2.25%	1.03%	1.60%
AAGR 2008-2028	0.98%	1.51%	1.58%	0.75%	1.22%
Growth 2008-2028	21.53%	35.06%	36.74%	16.13%	27.36%
Increase 2008-2028	8,212	13,375	14,015	6,154	10,439
Difference From 2004	-26.65%	-18.48%	-17.47%	-29.91%	-23.13%
Source: The LPA Group Incorporated, September 2009.					

In reviewing the operations forecasting methods for HKS, it was determined that the Growth Rate Forecast most realistically projected short- and long-term growth while remaining consistent with the FAA's national growth trends. Between 2008 and 2028, the Growth Rate Forecast illustrates an average annual growth rate of 1.51 percent, which is below the FAA Aerospace rate of 1.58 percent. Although the Growth Rate Forecast is more optimistic than the TAF, historical trends at HKS show strong resiliency after cycles of decline that the TAF does not consider. Further, the Growth Rate Forecast presents a very conservative growth scenario because operations in 2028 are still predicted to be 18.48 percent lower than 2004 levels, and also because growth was projected from a record low number of operations in 2008. Therefore, the Growth Rate Forecast was identified as the Preferred Operations Forecast for HKS.

FAA TAF / Preferred Operations Forecast Comparison

According to the FAA memorandum, *Review and Approval of Aviation Forecasts June 2008*, "When reviewing a sponsor's forecast, FAA must ensure that the forecast is based on reasonable planning assumptions, uses current data, and is developed using appropriate forecasting methods." The FAA also reviews forecasts for consistency with the TAF, with consistency defined as follows: "Forecasts differ by less than 10 percent in the five-year forecast period, and 15 percent in the ten-year forecast period."[20] As shown in **Table 4-13** and **Figure 4-6**, the Growth Rate Forecast is consistent with the TAF, per the above criteria. Therefore, the Growth Rate Forecast is considered in-line with FAA projections and is used as the Preferred Operations Forecast throughout this chapter to calculate derivative operations forecasts (peak hour, operations by aircraft type, etc.).

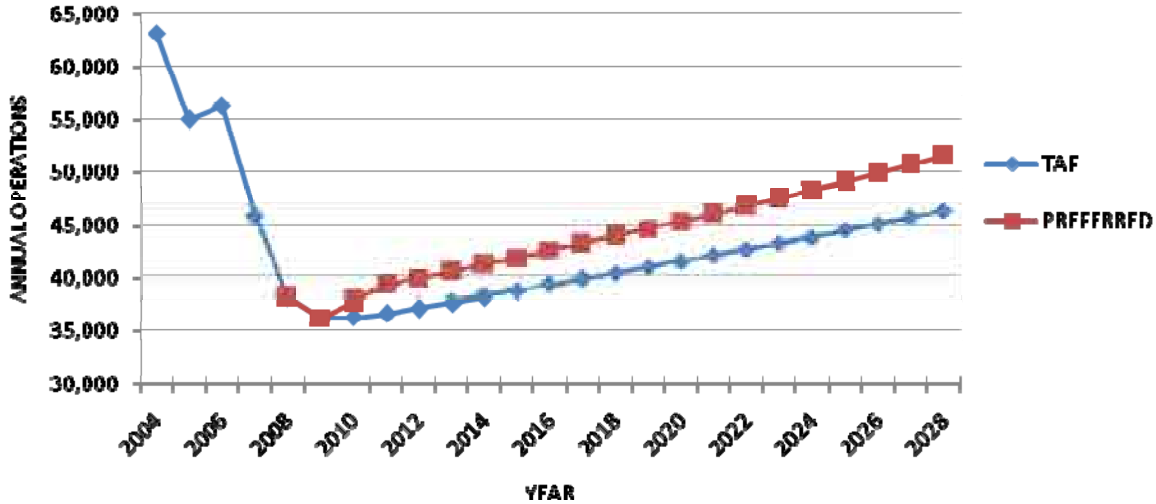
TABLE 4-13
FAA TAF / PREFERRED OPERATIONS FORECAST COMPARISON

Year	*TAF*	*Growth Rate*	*Deviation From TAF*
2008	38,149	38,149	0.00%
10% Deviation Acceptable in a Five-Year Period			
2009	36,227	36,227	0.00%
2010	36,302	37,698	3.84%
2011	36,654	39,228	7.02%
2012	37,153	39,862	7.29%
2013	37,661	40,507	7.56%
15% Deviation Acceptable in a Ten-Year Period			
2014	38,176	41,162	7.82%
2015	38,700	41,827	8.08%
2016	39,233	42,503	8.34%
2017	39,775	43,191	8.59%
2018	40,326	43,889	8.84%
No FAA Requirement for Last Ten Years			
2019	40,886	44,599	9.08%
2020	41,455	45,320	9.32%
2021	42,033	46,052	9.56%
2022	42,621	46,797	9.80%
2023	43,219	47,554	10.03%
2024	43,827	48,322	10.26%
2025	44,445	49,104	10.48%
2026	45,073	49,898	10.70%
2027	45,712	50,704	10.92%
2028	46,361	51,524	11.14%

Source: The LPA Group Incorporated, September 2009.

[20] FAA Memorandum, Review and Approval of Aviation Forecasts, June 2008.

FIGURE 4-6
PREFERRED OPERATIONS FORECAST



Source: The LPA Group Incorporated, September 2009.

Instrument Operations Forecast

According to the FAA report, *Forecasting Aviation Activity by Airport (July 2001)*, instrument operations consist of "Arrivals, departures, and overflights conducted by an FAA approach control facility for aircraft with an Instrument Flight Rule (IFR) flight plan or special Visual Flight Rule procedures."[21] At HKS, instrument operations generally consist of approaches and departures by aircraft with FAA Filed Flight Plans (FAA Form 7233-1). By reviewing the FAA's Operations Network (OPSNET) database for the years 2005 to 2008, it was determined that instrument operations at HKS historically represented an average of 21.83 percent of annual activity (which was applied to 2008 activity). However, the *FAA Aerospace Forecast Fiscal Years 2009-2025* indicates that GA IFR activity is projected to grow at an average annual rate of 1.3 percent from 2008 to 2025. This is consistent with continuous upgrades to runway approach and departure procedures, aviation technologies, and the FAA's NextGen initiatives. Thus, as shown in **Table 4-14**, the 1.3 percent growth rate was applied to each year of the instrument operations forecast for HKS.

[21] Forecasting Aviation Activity by Airport, page A-2, July 2001.

TABLE 4-14 INSTRUMENT OPERATIONS FORECAST			
Year	***Preferred Operations***	***Instrument Operations***	***Percent Instrument Operations***
2008	38,149	8,330	21.83%
2009	36,227	8,438	23.29%
2010	37,698	8,548	22.67%
2011	39,228	8,659	22.07%
2012	39,862	8,771	22.00%
2013	40,507	8,885	21.94%
2014	41,162	9,001	21.87%
2015	41,827	9,118	21.80%
2016	42,503	9,236	21.73%
2017	43,191	9,356	21.66%
2018	43,889	9,478	21.60%
2019	44,599	9,601	21.53%
2020	45,320	9,726	21.46%
2021	46,052	9,853	21.39%
2022	46,797	9,981	21.33%
2023	47,554	10,110	21.26%
2024	48,322	10,242	21.19%
2025	49,104	10,375	21.13%
2026	49,898	10,510	21.06%
2027	50,704	10,646	21.00%
2028	51,524	10,785	20.93%
AAGR 2008-2013	1.21%	1.30%	
AAGR 2013-2018	1.62%	1.30%	
AAGR 2018-2023	1.62%	1.30%	
AAGR 2023-2028	1.62%	1.30%	
AAGR 2008-2028	1.51%	1.30%	
Growth 2008-2028	35.06%	29.48%	
Increase 2008-2028	13,375	2,455	

Source: The LPA Group Incorporated, September 2009.

Operations by Flight Type

As shown in **Table 4-15**, the FAA records airport activity according to flight type. The different flight categories represent aircraft flying under different certifications, traffic patterns, or weather conditions. For example, air taxi & commuter operations include aircraft flying under **Federal Aviation Regulations (FAR) Part 135 Certification**, *Operating Requirements: Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft.* It is important to forecast each flight category since each might have a specific function in the facility requirements analysis. This forecast was conducted for each flight category by applying the year-to-year activity splits from the FAA's Draft 2009 TAF (as a percent of total annual operations) to operations at HKS. Overall, air taxi & commuter is the only flight category that is not projected to exceed 2008 levels by 2028, which the FAA purposely scaled-back due to recent bankruptcies and failures by VLJ manufacturers like Eclipse Aviation and VLJ on-demand service providers like DayJet. However, growth in jet activity is still expected at HKS during the planning period, as described below.

TABLE 4-15 OPERATIONS BY FLIGHT TYPE										
Year	Itinerant Operations				Local Operations			Preferred Operations	Itinerant Split	Local Split
	Air Taxi & Commuter	GA	Military	Total	GA	Military	Total			
2008	1,966	15,700	1,612	19,278	17,207	1,664	18,871	38,149	50.53%	49.47%
2009	1,481	15,308	2,334	19,123	14,498	2,606	17,104	36,227	52.79%	47.21%
2010	1,538	15,738	2,424	19,699	15,292	2,706	17,998	37,698	52.26%	47.74%
2011	1,585	16,349	2,498	20,432	16,007	2,789	18,796	39,228	52.08%	47.92%
2012	1,589	16,673	2,504	20,766	16,300	2,796	19,096	39,862	52.10%	47.90%
2013	1,593	17,004	2,510	21,107	16,597	2,803	19,400	40,507	52.11%	47.89%
2014	1,597	17,340	2,517	21,453	16,899	2,810	19,709	41,162	52.12%	47.88%
2015	1,601	17,682	2,523	21,805	17,205	2,817	20,022	41,827	52.13%	47.87%
2016	1,604	18,030	2,529	22,163	17,517	2,823	20,340	42,503	52.14%	47.86%
2017	1,608	18,385	2,534	22,528	17,833	2,830	20,663	43,191	52.16%	47.84%
2018	1,612	18,746	2,540	22,898	18,155	2,836	20,991	43,889	52.17%	47.83%
2019	1,615	19,113	2,546	23,274	18,481	2,843	21,324	44,599	52.19%	47.81%
2020	1,619	19,487	2,552	23,657	18,813	2,849	21,662	45,320	52.20%	47.80%
2021	1,623	19,867	2,557	24,047	19,150	2,855	22,006	46,052	52.22%	47.78%
2022	1,626	20,254	2,563	24,443	19,492	2,861	22,354	46,797	52.23%	47.77%
2023	1,630	20,648	2,568	24,846	19,840	2,867	22,708	47,554	52.25%	47.75%
2024	1,633	21,049	2,573	25,255	20,194	2,873	23,067	48,322	52.26%	47.74%
2025	1,636	21,457	2,579	25,672	20,553	2,879	23,432	49,104	52.28%	47.72%
2026	1,640	21,872	2,584	26,095	20,917	2,885	23,802	49,898	52.30%	47.70%
2027	1,643	22,294	2,589	26,526	21,288	2,891	24,179	50,704	52.31%	47.69%
2028	1,646	22,724	2,594	26,964	21,664	2,896	24,560	51,524	52.33%	47.67%
AAGR 2008-2013	-4.12%	1.61%	9.26%	1.83%	-0.72%	10.99%	0.55%	1.21%		
AAGR 2013-2018	0.24%	1.97%	0.24%	1.64%	1.81%	0.24%	1.59%	1.62%		
AAGR 2018-2023	0.22%	1.95%	0.22%	1.65%	1.79%	0.22%	1.58%	1.62%		
AAGR 2023-2028	0.20%	1.93%	0.20%	1.65%	1.77%	0.20%	1.58%	1.62%		
AAGR 2008-2028	-0.88%	1.87%	2.41%	1.69%	1.16%	2.81%	1.33%	1.51%		
Growth 2008-2028	-16.28%	44.74%	60.91%	39.87%	25.90%	74.05%	30.15%	35.06%		

Source: The LPA Group Incorporated, September 2009.

Operations by Aircraft Type

Jet operations at HKS drive much of the demand for airfield facilities such as runway length, approach capability, and separation criteria. Although the airport has relatively few based jets, jets still operate there on a regular basis. According to the *FAA Aerospace Forecast Fiscal Years 2009-2025*, "As the demand for business jets has grown over the past several years, the current forecast assumes that business use of general aviation aircraft will expand at a more rapid pace than that for personal/sport use."[22] As shown in **Table 4-16**, the FAA's Enhanced Traffic Management System Counts (ETMSC) database was used to query historical jet operations for

[22] FAA Aerospace Forecast Fiscal Years 2009-2025, page 41.

the years 2000 to 2008. The ETMSC database summarizes FAA Filed Flight Plans and therefore records the majority of jet and turboprop activity. **Chapter 5**, *Demand Capacity/Facility Requirements*, provides specific analysis of the types, sizes, and flight categories of jets operating at HKS.

TABLE 4-16
HISTORICAL JET OPERATIONS

Year	*Jet Operations*
2000	1,287
2001	1,249
2002	1,474
2003	2,439
2004	3,059
2005	2,163
2006	2,216
2007	2,234
2008	1,548

Source: FAA ETMSC database.

The FAA ETMSC database recorded 1,548 jet operations and 2,699 turboprop operations at HKS in 2008. As presented in **Table 4-17**, the forecast of operations by each aircraft type was conducted as follows:

- **Jets –** Jet operations were forecast to decline in 2009 based upon the anticipated decline in annual operations between 2008 and 2009 (5.4 percent). Thereafter, growth rates from FAA *Aerospace Forecast Fiscal Years 2009-2025* were used to project future growth in jet activity for HKS. The following annual growth rates were applied to jet operations during the planning period:
    - 2010 – 8.33% annual growth
    - 2010-2020 – 5.14% annual growth
    - 2020-2028 – 4.08% annual growth

- **Turboprops –** Turboprop operations were forecast to decline in 2009 based upon the anticipated decline in annual operations between 2008 and 2009 (5.4 percent). Thereafter, growth rates from FAA *Aerospace Forecast Fiscal Years 2009-2025* were used to project future growth in turboprop activity for HKS. The following annual growth rates were applied to turboprop operations during the planning period:
    - 2010 – 0.87% annual growth
    - 2010-2020 – 1.42% annual growth
    - 2020-2028 – 1.15% annual growth

- **Helicopters –** All-inclusive counts for helicopter and piston aircraft activity are not recorded by the FAA. Therefore, it was determined that the sum of all itinerant and local military operations best represented helicopter operations at HKS for each year of the 20-year planning period.

- **Pistons** – After jet, turboprop, and helicopter operations were determined, piston aircraft operations were calculated as the remainder of total annual operations. It was estimated that single-engine pistons represented 75 percent of the remaining operations and multi-engine pistons represented 25 percent of the remaining operations.

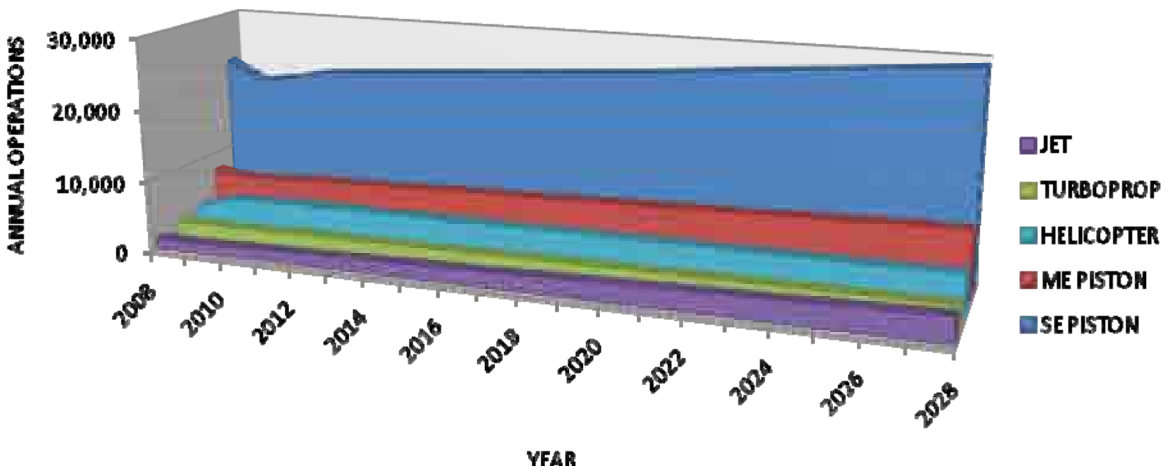
TABLE 4-17
OPERATIONS FORECAST BY AIRCRAFT TYPE

Year	*Preferred Operations*	*Single-Engine Piston*	*Multi-Engine Piston*	*Turboprop*	*Jet*	*Helicopter*
2008	38,149	22,970	7,657	2,699	1,548	3,276
2009	36,227	20,440	6,813	2,563	1,470	4,940
2010	37,698	21,292	7,097	2,585	1,592	5,130
2011	39,228	22,233	7,411	2,622	1,674	5,287
2012	39,862	22,607	7,536	2,660	1,760	5,300
2013	40,507	22,984	7,661	2,697	1,851	5,313
2014	41,162	23,365	7,788	2,736	1,946	5,326
2015	41,827	23,750	7,917	2,775	2,046	5,339
2016	42,503	24,139	8,046	2,814	2,152	5,352
2017	43,191	24,532	8,177	2,854	2,262	5,364
2018	43,889	24,929	8,310	2,895	2,379	5,376
2019	44,599	25,330	8,443	2,936	2,501	5,389
2020	45,320	25,733	8,578	2,978	2,630	5,401
2021	46,052	26,168	8,723	3,012	2,737	5,412
2022	46,797	26,608	8,869	3,047	2,848	5,424
2023	47,554	27,054	9,018	3,082	2,965	5,435
2024	48,322	27,505	9,168	3,117	3,086	5,447
2025	49,104	27,961	9,320	3,153	3,212	5,458
2026	49,898	28,423	9,474	3,189	3,343	5,469
2027	50,704	28,890	9,630	3,226	3,479	5,480
2028	51,524	29,363	9,788	3,263	3,621	5,490
AAGR 2008-2013	1.21%	0.01%	0.01%	-0.01%	3.64%	10.15%
AAGR 2013-2018	1.62%	1.64%	1.64%	1.42%	5.14%	0.24%
AAGR 2018-2023	1.62%	1.65%	1.65%	1.26%	4.50%	0.22%
AAGR 2023-2028	1.62%	1.65%	1.65%	1.15%	4.08%	0.20%
AAGR 2008-2028	1.51%	1.24%	1.24%	0.95%	4.34%	2.62%
Growth 2008-2028	35.06%	27.83%	27.83%	20.88%	133.91%	67.59%

Source: The LPA Group Incorporated, September 2009.

As shown in **Figure 4-7**, while single-engine piston aircraft are forecast to continue to comprise the majority of HKS' operations, jet operations are forecast to experience the highest average annual growth rate of 4.34 percent between 2008 and 2028. Still, 2028 is only projected to experience 562 more jet operations than were conducted in 2004.

FIGURE 4-7
OPERATIONS BY AIRCRAFT TYPE



Source: The LPA Group Incorporated, September 2009.

Based Aircraft Forecasting Methods

Historical based aircraft levels at HKS do not follow similar trends as historical operations. Factors like new flight schools or businesses, insufficient runway length, military aircraft relocation, and sense of security were previously identified as reasons affecting based aircraft growth or decline. Recent discussions with airport tenants identified no noticeable changes in based aircraft levels between 2008 and 2009, thus the following based aircraft forecasting methods illustrated no growth for 2009 as shown in **Table 4-18** and **Figure 4-8**:

- **FAA Aerospace –** The *FAA Aerospace Forecast Fiscal Years 2009-2025* forecasts the active general aviation fleet to increase at an average annual rate of 1.0 percent over the forecast period. The FAA further splits this forecast into the following periods and rates of annual growth, which were applied to HKS' based aircraft:
  - 2008-2010 – 0.94% annual growth
  - 2010-2020 – 0.94% annual growth
  - 2020-2025 – 1.00% annual growth

- **Population –** Similar to the operations forecasting method, the following growth rates from Woods & Poole's population forecast of the airport's three-county service area were applied to based aircraft:
  - 2008-2013 – 1.12% annual growth
  - 2013-2018 – 1.09% annual growth
  - 2018-2028 – 1.03% annual growth

- **Operations Per Based Aircraft (OPBA) –** In 2008 there were 293 operations per based aircraft. For every year of the recommended operations forecast that showed positive growth over 2008 (i.e., every year except 2009 and 2010), the number of annual operations was divided by 293 to determine the OPBA forecast.

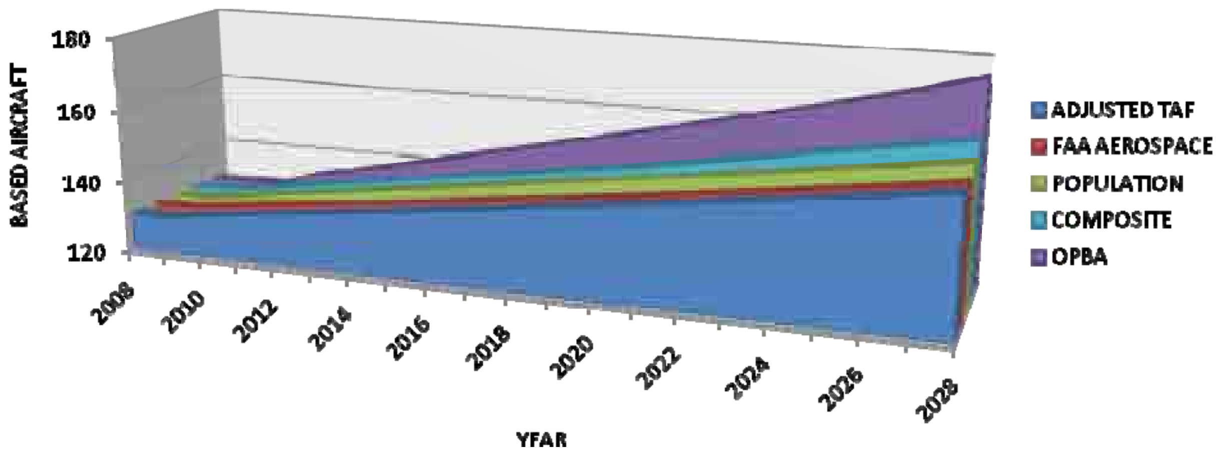
- **Composite –** A composite forecast was also developed for based aircraft by determining the average of all forecasts presented including the Adjusted TAF, FAA Aerospace Forecast, Population Forecast, and OBPA Forecast.

TABLE 4-18
SUMMARY OF BASED AIRCRAFT FORECASTING METHODS

Year	*Adjusted TAF (Preferred)*	*FAA Aerospace*	*Population*	*OPBA*	*Composite*
2008	130	130	130	130	130
2009	130	130	130	130	130
2010	131	131	131	130	131
2011	133	132	133	134	133
2012	134	134	134	136	134
2013	135	135	136	138	136
2014	136	136	137	140	138
2015	138	138	139	143	139
2016	139	139	140	145	141
2017	141	140	142	147	142
2018	142	141	143	150	144
2019	143	143	145	152	146
2020	145	144	146	154	147
2021	146	146	148	157	149
2022	148	147	150	159	151
2023	149	148	151	162	153
2024	150	150	153	165	154
2025	152	151	154	167	156
2026	153	153	156	170	158
2027	155	155	157	173	160
2028	156	156	159	176	nfor
AAGR 2008-2013	0.78%	0.75%	0.89%	1.21%	0.91%
AAGR 2013-2018	0.98%	0.94%	1.09%	1.62%	1.16%
AAGR 2018-2023	0.98%	0.98%	1.03%	1.62%	1.16%
AAGR 2023-2028	0.98%	1.00%	1.03%	1.62%	1.17%
AAGR 2008-2028	0.93%	0.92%	1.01%	1.51%	1.10%
Growth 2008-2028	20.35%	20.06%	22.29%	35.06%	24.44%
Increase 2008-2028	26	26	29	46	32

Sources: The LPA Group Incorporated, September 2009.

FIGURE 4-8
SUMMARY OF BASED AIRCRAFT FORECASTING METHODS



Source: The LPA Group Incorporated, September 2009.

Through careful consideration of historical based aircraft trends at HKS, it was determined that the Adjusted TAF Forecast most realistically depicted future based aircraft demand and consistency with national growth trends, and was therefore selected as the Preferred Based Aircraft Forecast. The reasons for the selection of the Adjusted TAF Forecast will become more apparent in the based aircraft forecast by type discussion below. For example, the largest decline in recent based aircraft levels was associated with military aircraft, which are not necessarily the types of aircraft that drive the demand for GA facility development. Also, more single-engine aircraft are based at HKS today than there have been since at least 1990. Consequently, the total based aircraft forecast may be misleading without some separation by aircraft type.

Based Aircraft Forecast by Type

The previous sections of this chapter presented FAA based aircraft counts according to single-engines, multi-engines, jets, helicopters, and other. This section further splits the based aircraft forecasts by single-engine pistons, multi-engine pistons, turboprops, jets, helicopters, and military. The identification of turboprops is important because the dimensions and airfield design requirements of many turboprops are very different than piston-powered aircraft. The 2008 based aircraft counts at HKS included a total of 130 aircraft: 72 single-engine pistons, 19 multi-engine pistons, 15 turboprops, 1 jet, 4 helicopters, and 19 military. By 2028, the Preferred Based Aircraft Forecast grows to 156 with an additional 26 based aircraft.

In order to determine the based aircraft forecast by type, it was necessary to revisit the role of HKS within the City of Jackson. As mentioned earlier, there are two airports that serve Jackson, HKS being the GA airport and JAN being the commercial airport. With the continued growth in commercial activity at JAN, the JMAA would like HKS to "To serve as the premiere general aviation airport in the State and to function as an economic generator for the City and State."[23] The adjacent Hawkins Field Industrial Park also continues to expand with new corporate tenants, and the airport has plenty of developable property to accommodate further corporate traffic and based aircraft. As such, the forecast of based aircraft by type focuses on the ability to plan for new facilities that would accommodate the potential corporate aircraft growth at HKS. The following growth rates were employed to determine the forecast of based aircraft by type shown in **Table 4-19**:

TABLE 4-19
BASED AIRCRAFT FORECAST BY AIRCRAFT TYPE

Year	*Preferred Based Aircraft*	*SEP*	*MEP*	*Turboprop*	*Jet*	*Helicopter*	*Military*
2008	130	72	19	15	1	4	19
2009	130	72	19	15	1	4	19
2010	131	73	19	15	1	4	19
2011	133	74	19	15	1	4	19
2012	134	74	19	16	1	4	19
2013	135	75	19	16	2	4	19
2014	136	76	19	16	2	5	19
2015	138	77	19	16	2	5	19
2016	139	78	19	17	2	5	19
2017	141	78	19	17	2	5	19
2018	142	79	19	17	3	5	19
2019	143	80	19	17	3	5	19
2020	145	80	19	18	3	6	19
2021	146	81	19	18	4	6	19
2022	148	81	19	18	4	6	19
2023	149	82	19	18	5	6	19
2024	150	83	19	19	5	6	19
2025	152	83	19	19	6	6	19
2026	153	83	19	19	6	7	19
2027	155	84	19	19	7	7	19
2028	156	84	19	20	8	7	19
AAGR 2008-2013	0.78%	0.88%	0.00%	1.15%	9.15%	2.37%	0.00%
AAGR 2013-2018	0.98%	0.97%	0.00%	1.44%	11.57%	2.97%	0.00%
AAGR 2018-2023	0.98%	0.76%	0.00%	1.44%	11.57%	2.97%	0.00%
AAGR 2023-2028	0.98%	0.43%	0.00%	1.44%	11.57%	2.97%	0.00%
AAGR 2008-2028	0.93%	0.76%	0.00%	1.37%	10.96%	2.82%	0.00%
Growth 2008-2028	20.35%	16.38%	0.00%	31.26%	700.00%	74.32%	0.00%

Source: The LPA Group Incorporated, September 2009.

- **Jets –** In previous years HKS had as many as four based jets. Of the aircraft categories discussed herein, the *FAA Aerospace Forecast Fiscal Years 2009-2025 (GA Active Fleet Forecasts)* predicts the strongest annual growth rate for jets. Thus, to sufficiently plan for

[23] 2000 Master Plan Update, page 1-3, System Consultants Associates, Inc., G.C.R. & associates, inc., and Charbonner & Associates planners and Consultants, Inc.

the potential growth in based jets at HKS, it was estimated that the number of based jets could reach eight by the end of the 20-year planning period (i.e., two times previous levels).

- **Turboprops –** The *FAA Aerospace Forecast Fiscal Years 2009-2025* forecasts the number of turboprops to grow at an average annual rate of 2.97 percent.
- **Helicopters –** The *FAA Aerospace Forecast Fiscal Years 2009-2025* forecasts the number of helicopters to grow at an average annual rate of 3.0 percent.
- **Military** – There was no evidence to support growth or decline in based military aircraft during the forecast period.
- **Multi-Engine Pistons –** The *FAA Aerospace Forecast Fiscal Years 2009-2025* does not illustrate growth in the number of multi-engine piston aircraft.
- **Single-Engine Pistons –** The forecast of based single-engine pistons was determined as the remainder of total based aircraft after the calculations above were conducted.

4.9 Peak Period Forecasts

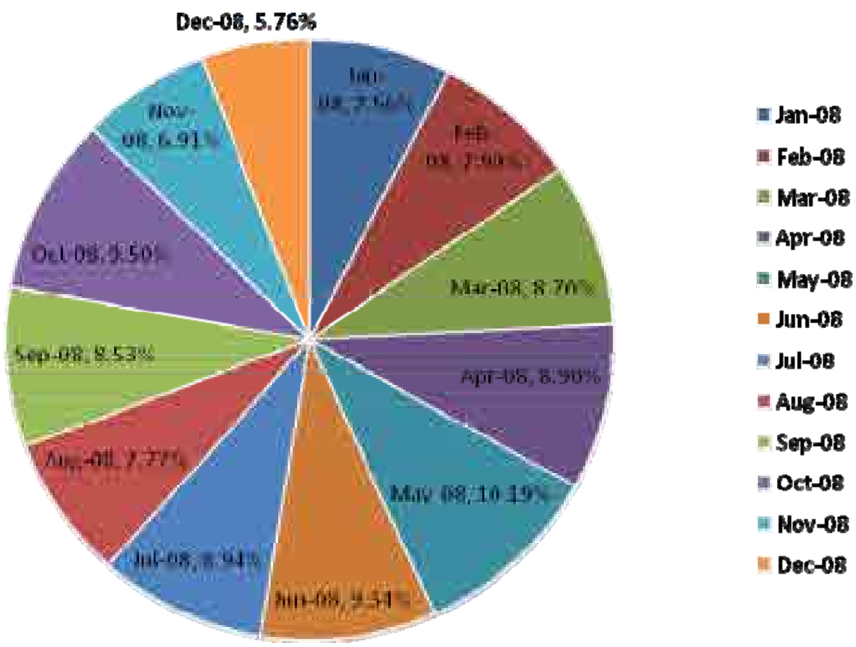
At many GA airports like HKS, flight training activity may be significantly less during winter months than summer months, thus resulting in variable levels of operations throughout the year. The FAA recommends planning for those periods when the greatest amount of stress is placed on the airport, which are referred to as peak periods. Peak period forecasts are used to determine long-term requirements for airfield capacity, transient ramp, Fixed Base Operator (FBO) facilities, etc. For this Master Plan Update, the following procedures were used to develop the peak period forecasts for HKS:

- **Average Peak Month** – Monthly activity counts for HKS were queried from the FAA's Air Traffic Activity Data System (ATADS) for the years 2005 through 2008. May was the peak month in 2005 and represented 9.47 percent of annual activity, 2006 was March (9.45 percent of annual activity), 2007 was March (9.93 percent of annual activity), and 2008 was May (10.19 percent of annual activity) – the 2008 monthly activity distribution is shown in **Figure 3-9**. Between 2005 and 2008, the peak month represented an average of 9.76 percent of annual activity, which was used to forecast peak month activity throughout the 20-year planning period.
- **Average Peak Day –** Using the FAA's ATADS database, the top 25 peak activity days were queried for 2008 operations at HKS. Subsequently, it was determined that the average peak day represented 0.54 percent of annual activity in 2008.
- **Average Peak Hour –** The 2000 Master Plan Update identified HKS' average peak hour as 15 percent of peak day operations.[24]
- **Itinerant and Local Peak Hour –** Using the FAA's ATADS database, the top 25 peak activity days were queried for 2008 itinerant and local GA operations at HKS. The ATADS data indicated that, on average in 2008, itinerant peak day operations represented 0.20 percent of annual operations and local peak day operations represented 0.34 percent. Accordingly, as a percentage of peak hour operations, itinerant peak hour operations represented 37.03 percent and local peak hour operations represented 62.97 percent.
- **Itinerant Peak Hour Passengers –** Itinerant operations at HKS range in size from small piston aircraft to medium jets. These aircraft carry anywhere from one to ten or more

[24] 2000 Master Plan Update, page 7-5, System Consultants Associates, G.C.R., and Charbonner & Associates.

passengers, but the majority of HKS' itinerant operations consist of smaller pistons and turboprops with a few passengers. As such, it was determined that an average of three passengers per itinerant operation would provide a realistic estimate considering the fleet mix variation.

FIGURE 4-9
2008 MONTHLY OPERATIONS DISTRIBUTION



Sources: FAA ATADS and The LPA Group Incorporated, September 2009.

Table 4-20 presents the results of the peak period forecasts for HKS. As shown, average peak hour activity is forecast to reach 41 operations by 2028, consisting mostly of local operations (e.g., touch-and-gos). Although HKS is forecast to experience more itinerant traffic during each year of the planning period, this does not mean that the average itinerant peak hour must be greater than the average local peak hour; rather, local traffic tends to be more prevalent on weekends and during warm months whereas itinerant traffic may exhibit a steadier daily pattern. Further, average itinerant peak hour passengers are forecast to increase from 34 in 2008 to 46 by 2028.

TABLE 4-20
PEAK ACTIVITY FORECASTS

Year	Preferred Operations	Peak Month	Peak Day	Peak Hour	Itinerant Peak Hour	Local Peak Hour	Itinerant Peak Hour Passengers
2008	38,149	3,723	204	31	11	19	34
2009	36,227	3,536	194	29	11	18	32
2010	37,698	3,679	202	30	11	19	34
2011	39,228	3,828	210	32	12	20	35
2012	39,862	3,890	213	32	12	20	36
2013	40,507	3,953	217	33	12	20	36
2014	41,162	4,017	220	33	12	21	37
2015	41,827	4,082	224	34	12	21	37
2016	42,503	4,148	228	34	13	22	38
2017	43,191	4,215	231	35	13	22	39
2018	43,889	4,283	235	35	13	22	39
2019	44,599	4,353	239	36	13	23	40
2020	45,320	4,423	243	36	13	23	40
2021	46,052	4,494	247	37	14	23	41
2022	46,797	4,567	251	38	14	24	42
2023	47,554	4,641	255	38	14	24	42
2024	48,322	4,716	259	39	14	24	43
2025	49,104	4,792	263	39	15	25	44
2026	49,898	4,870	267	40	15	25	45
2027	50,704	4,948	272	41	15	26	45
2028	51,524	5,028	276	41	15	26	46
AAGR 2008-2013	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%	1.21%
AAGR 2013-2018	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%
AAGR 2018-2023	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%
AAGR 2023-2028	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%	1.62%
AAGR 2008-2028	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%	1.51%
Growth 2008-2028	35.06%	35.06%	35.06%	35.06%	35.06%	35.06%	35.06%

Source: The LPA Group Incorporated, September 2009.

4.10 Forecast Summary

In summary, the data and methods used to forecast aviation demand for HKS are consistent with those used by the FAA and other airports in the State of Mississippi. The forecasts presented in this chapter, as summarized in **Table 4-21**, are considered to accurately reflect the activity anticipated at HKS through 2028, provided that facilities necessary to accommodate the demand are made available.

TABLE 4-21
AIRPORT PLANNING FORECASTS
FORECAST LEVELS AND GROWTH RATES

Hawkins Field Airport, Jackson, Mississippi
Base Year: 2008

							Average Annual Compound Growth Rates				
	Base Yr. Level 2008	**Base Yr. + 1yr. 2009**	**Base Yr. + 5yrs. 2013**	**Base Yr. + 10yrs. 2018**	**Base Yr. + 15yrs. 2023**	**Base Yr. + 20yrs. 2028**	**Base yr. to +1 2009**	**Base yr. to +5 2013**	**Base yr. to +10 2018**	**Base yr. to +15 2023**	**Base yr. to +20 2028**
OPERATIONS											
Itinerant Operations:											
Air Carrier	0	0	0	0	0	0	0.00%	0.00%	0.00%	0.00%	0.00%
Air Taxi	1,966	1,481	1,593	1,612	1,630	1,646	-24.67%	-4.12%	-1.97%	-1.24%	-0.88%
GA	15,700	15,308	17,004	18,746	20,648	22,724	-2.50%	1.61%	1.79%	1.84%	1.87%
Military	1,612	2,334	2,510	2,540	2,568	2,594	44.79%	9.26%	4.65%	3.15%	2.41%
Total Itinerant Operations	19,278	19,123	21,107	22,898	24,846	26,964	-0.80%	1.83%	1.74%	1.71%	1.69%
Local Operations:											
GA	17,207	14,498	16,597	18,155	19,840	21,664	-15.74%	-0.72%	0.54%	0.95%	1.16%
Military	1,664	2,606	2,803	2,836	2,867	2,896	56.61%	10.99%	5.48%	3.69%	2.81%
Total Local Operations	18,871	17,104	19,400	20,991	22,708	24,560	-9.36%	0.55%	1.07%	1.24%	1.33%
TOTAL OPERATIONS	38,149	36,227	40,507	43,889	47,554	51,524	-5.04%	1.21%	1.41%	1.48%	1.51%
Instrument Operations	8,330	8,438	8,885	9,478	10,110	10,785	1.30%	1.30%	1.30%	1.30%	1.30%
Peak Hour Operations	31	29	33	35	38	41	-5.04%	1.21%	1.41%	1.48%	1.51%
BASED AIRCRAFT											
Single-Engine Piston	72	72	75	79	82	84	0.00%	0.88%	0.93%	0.87%	0.76%
Multi-Engine Piston	19	19	19	19	19	19	0.00%	0.00%	0.00%	0.00%	0.00%
Turboprop	15	15	16	17	18	20	0.00%	1.15%	1.30%	1.35%	1.37%
Jet	1	1	2	3	5	8	0.00%	9.15%	10.35%	10.75%	10.96%
Helicopter	4	4	4	5	6	7	0.00%	2.37%	2.67%	2.77%	2.82%
Military	19	19	19	19	19	19	0.00%	0.00%	0.00%	0.00%	0.00%
TOTAL BASED AIRCRAFT	130	130	135	142	149	156	0.00%	0.78%	0.88%	0.91%	0.93%
OPERATIONAL FACTORS											
Total GA Operations Per Based Aircraft (OPBA)	293	279	300	309	319	329	-5.04%	0.42%	0.53%	0.56%	0.58%
Local GA Operations Per Based Aircraft	145	132	144	148	152	157	-9.36%	-0.23%	0.19%	0.32%	0.39%

Source: The LPA Group Incorporated, September 2009.

CHAPTER 5
DEMAND CAPACITY/FACILITY REQUIREMENTS

5.0 Introduction

In order to adequately plan for the future development of Hawkins Field Airport (HKS), activity characteristics and capacity levels must be analyzed. Previous sections of this Master Plan Update identified the airport's strengths, weaknesses, and opportunities, and presented an inventory of existing airport facilities and the surrounding area. Next, aviation demand forecasts were established for the planning years 2008 through 2028. Based on the information from previous chapters and the goals of the Jackson Municipal Airport Authority (JMAA), the facility requirements evaluates all airport facilities for their consistency with applicable Federal Aviation Administration (FAA), state, and local standards, specifically identifying requirements for the following components:

- Crosswind Runway 11/29 Disposition
- Airfield Capacity and Delay
- Airport Reference Code and Critical Aircraft
- Runway Length
- Runway Strength
- Taxiways
- Airfield Design Criteria
- Airfield Markings, Signage, Lighting, and Miscellaneous Navigation Equipment
- Approach Procedures
- Airfield Energy Efficiency
- General Aviation Facilities
- Support Facilities
- Security
- Summary

The facility requirements are intended as a general planning guide, not necessarily a "must do" list of items, and will require detailed review on an item-by-item basis as construction of each facility becomes imminent.

5.1 Crosswind Runway 11/29 Disposition

The ultimate disposition of crosswind Runway 11/29 was an important discussion item for this Master Plan Update. Due to current funding limitations, the FAA is requiring sufficient justification for all funding requests, even rehabilitation projects for existing runways. This policy helps ensure that federal funds are directed towards critical airport projects throughout the country. In particular, when rehabilitation of Runway 11/29 becomes necessary, FAA funding would only be available if the runway satisfies federal eligibility requirements at the time. As a crosswind, Runway 11/29 is only justified if primary Runway 16/34 alone does not provide 95 percent wind coverage "for any aircraft forecasted to use the airport on a regular basis."[1] However, the wind rose analysis in the inventory chapter indicated that Runway 16/34 provides greater than 95 percent wind coverage for all small and large aircraft. Where appropriate, additional runways can be justified for other reasons such as environmental mitigation (e.g., noise), capacity, and separation of aircraft classes.

Therefore, at a minimum, JMAA intends to keep Runway 11/29 open until rehabilitation becomes necessary, at which time all funding mechanisms would be reevaluated and a final determination regarding the preservation or closure of Runway 11/29 would be made. Consequently, no specific facility requirements are presented for Runway 11/29, with the exception of improvements necessary to comply with FAA design standards or to enhance safety for taxiing aircraft. Closure of Runway 11/29 must also be evaluated during the alternatives analysis since the runway might not be available for aircraft use throughout the duration of the planning period. For these reasons, this chapter focuses on critical improvements to primary Runway 16/34 (length, taxiways, approaches, etc.) that would benefit all airport users from the standpoints of safety, access, and efficiency. Separate from this Master Plan Update, JMAA may conduct an engineering analysis of Runway 11/29 to forecast the remaining life of the pavement.

5.2 Airfield Capacity

The methodology for calculating an airfield's Annual Service Volume (ASV) and hourly capacity is described in **FAA Advisory Circular (AC) 150/5060-5**, *Airport Capacity and Delay*. ASV is a tool that can be used to assess the adequacy of airfield design, including the number of runways and their orientation. ASV is defined as a reasonable estimate of an airport's annual capacity. As the number of annual operations increases and approaches the ASV, the average delay of aircraft increases. When annual operations are equal to the ASV, the average delay for each aircraft is approximately one to four minutes. When the number of annual operations exceeds the ASV, moderate to severe congestion will occur. This study also examines the hourly capacity of the airfield. Hourly capacity is defined as the maximum number of aircraft operations that can be accommodated by the airfield system in one hour. It is used to evaluate the airfield's ability to accommodate peak hour operations.

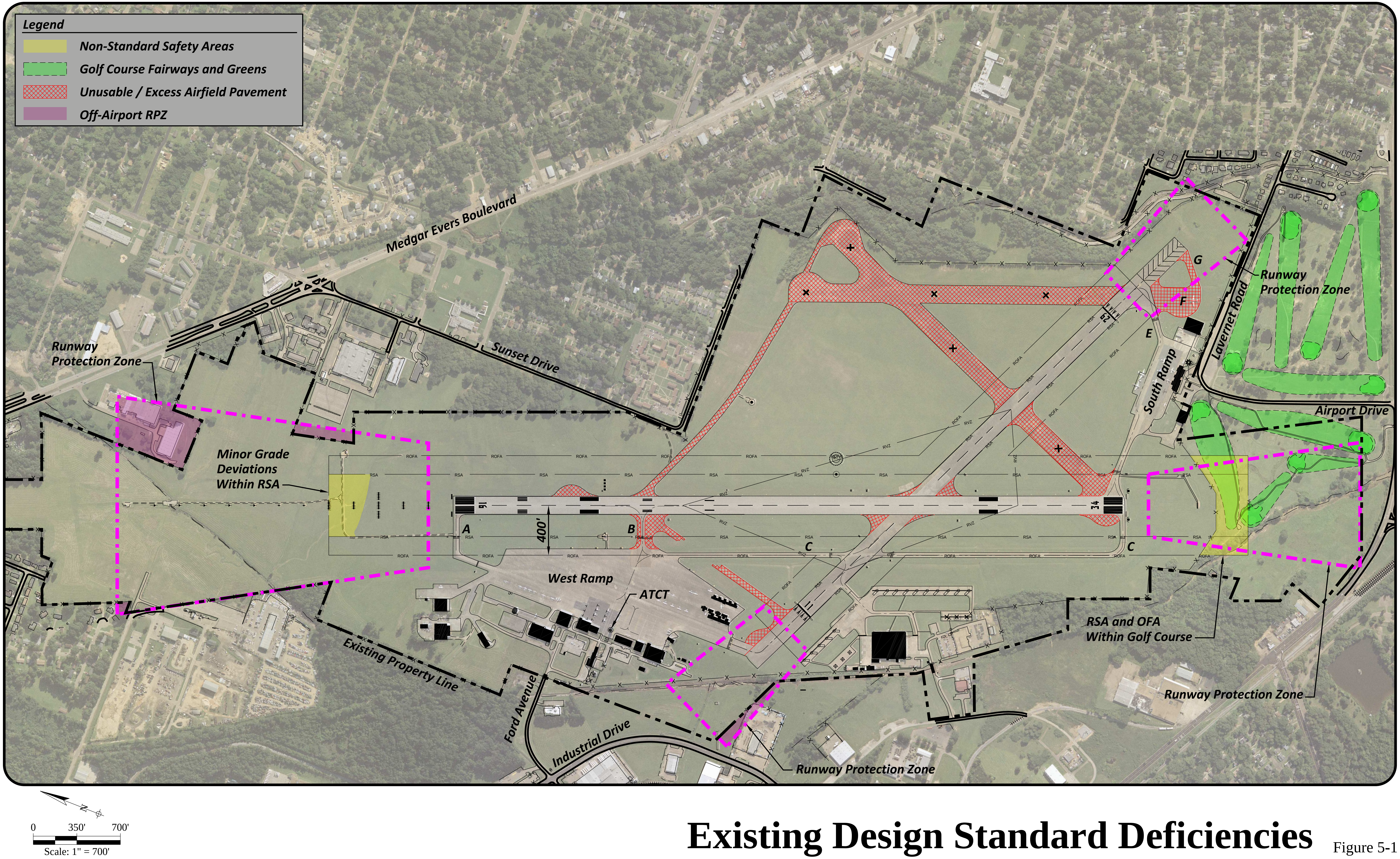
Several characteristics of the airport must be considered as part of the airfield capacity analysis, including runway and taxiway configuration, aircraft fleet mix, runway utilization and instrumentation, weather conditions, and potential airspace constraints, many of which were previously addressed in the inventory chapter. Each of these characteristics was reviewed to see if any known variables were preventing HKS from maximizing the potential capacity of Runways 16/34 and 11/29. It is noted that the ASV and hourly capacity values presented herein would be identical under a one-runway configuration. The following items partially impact HKS' ability to maximize airfield capacity:

- **Taxiway Configuration –** The calculations in the *Capacity AC* assume that all runways are provided with a full-length parallel taxiway, ample runway entrance/exit taxiways, and no taxiway crossing problems. As can be seen in **Figure 5-1**, neither runway at HKS

[1] *FAA Advisory Circular 150/5300-13, Airport Design, page 10.*

is currently provided with an unrestricted full-length parallel taxiway. Specifically, parallel Taxiway C, which runs along the west side of Runway 16/34, merges with the West Ramp and does not provide straight access to the Runway 16 end, and Runway 11/29 is not served by a parallel taxiway. The airfield capacity calculations are further maximized when each runway is provided with four or more exit taxiways. Therefore, the existing airfield at HKS is not configured to maximize capacity, and the following improvements would be necessary to achieve the ASV and hourly capacity values presented herein: 1) improve Taxiway C to be a full-length parallel taxiway for Runway 16/34, 2) provide a full-length parallel taxiway for Runway 11/29 (which is unlikely to be recommended), and 3) ensure that at least four exit taxiways are provided along each runway (including the end exits). According to **FAA AC 150/5300-13**, *Airport Design (Table A16-1A)*, a parallel taxiway is required for a runway with a precision instrument approach procedure such as the Instrument Landing System (ILS) approach to Runway 16. However, there are no specific parallel taxiway requirements for Runway 11/29 which only has visual approaches.

- **Airspace –** HKS lies within the outer circle of Jackson-Evers International Airport's (JAN) Class C airspace (Class C airspace surrounds airports served by radar approach control), and HKS is also surrounded by its own Class D airspace (Class D airspace surrounds other towered airports). Consequently, all traffic arriving and departing HKS must communicate with controllers at HKS, JAN, or both, depending upon the nature of activity, flight altitude, location, and time of day. Since all Instrument Flight Rules (IFR) arrivals and departures are handled by JAN controllers, IFR activity at JAN may take precedence because of the airport's commercial status. However, the traffic separation between HKS and JAN should not be a significant concern during the planning period, particularly as the FAA continues to upgrade the nation's airspace through initiatives of the Next Generation Air Transportation System (NextGen).



Existing Design Standard Deficiencies

Figure 5-1

FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems*, states that Chapter 2 of the *Capacity AC* ("Capacity and Delay Calculations for Long-Range Planning") should be used for most airports, particularly where capacity is not a constraining factor. Because of the moderate levels of existing and forecast activity at HKS, this method of determining airfield capacity and delay was employed considering the following assumptions during the 20-year planning period:

- Both Runways 16/34 and 11/29 will remain available. However, the ASV and hourly capacity values presented herein would be identical under a one-runway configuration.
- Approximately 15 percent of HKS' operations are conducted by aircraft weighing more than 12,500 pounds Maximum Takeoff Weight (MTOW). The remaining 85 percent of operations are conducted by aircraft weighting less than 12,500 pounds MTOW.
- The number of arrivals and departures are generally equal for each runway end.
- Monthly and hourly peaking may be significant due to summer training operations, regular business activity, and special events.
- HKS will remain a general aviation airport throughout the 20-year planning period.
- Touch-and-go training operations comprise less than 50 percent of airport activity.

Based on these assumptions, an hourly airfield capacity of 98 VFR operations and 59 IFR operations was calculated for each year of the planning period, with an ASV of 230,000 operations. These are theoretical values that represent the maximum number of operations that might be accommodated at HKS under ideal conditions. **FAA Order 5090.3C** also identifies timeframes when planning for airfield improvements should be conducted, which are triggered when annual activity reaches a certain percentage of ASV or when peak hour operations reach a specific level. In addition to the parallel and exit taxiway improvements previously mentioned, HKS meets the criteria for recommending bypass taxiways or holding aprons because more than 30 operations currently occur during the peak hour and nearly 20,000 itinerant operations are conducted each year. Bypass taxiways and holding aprons are capacity improvements that allow for enhanced maneuverability and flexibility for aircraft awaiting departure clearance. **Table 5-1** presents a comparison of the theoretical ASV and hourly airfield capacity values to the forecasts of aviation demand for HKS.

Other airfield improvements may be considered for HKS in accordance with the recommendations presented in **FAA Engineering Brief No. 75 (EB-75)**, *Incorporation of Runway Incursion Prevention into Taxiway and Apron Design*. The FAA defines a "runway incursion" as any unauthorized intrusion onto a runway, regardless of whether or not an aircraft presents a potential conflict. EB-75 provides guidance on design strategies of taxiways and aprons to help prevent runway incursions, although the strategies do not represent FAA standards. The EB-75 design strategies include, but are not limited to, the following:

- Limit the number of aircraft crossing an active runway
    - The preference is for aircraft to cross in the last third of the runway whenever possible, since within the middle third of the runway the arriving/departing aircraft is usually on the ground and traveling at a high rate of speed

- Optimize pilots' recognition of entry to the runway (increase situational awareness) through design of taxiway layout, for example:
  - Use a right angle for taxiway-runway intersections (except for high speed exits)
  - Limit the number of taxiways intersecting in one spot
  - Avoid wide expanses of pavement at runway entry
- Insure the taxiway layouts take operational requirements and realities into account to:
  - Safely and efficiently manage departure queues
  - Avoid using runways as taxiways
  - Use taxiway strategies to reduce the number of active runway crossings
  - Correct runway incursion "hot spots"

It is important to note that HKS has various wide expanses of pavement throughout the airfield (including the wide expanses of taxiway pavement at runway intersections and the closed runway pavements shown in **Figure 5-1**), as well as angled exit taxiways that lead directly to aircraft parking areas, which should be improved to increase situational awareness for taxiing aircraft. Where possible, the alternatives analysis incorporates the design strategies of EB-75 to encourage a smoother and safer aircraft operating environment at HKS.

TABLE 5-1
AIRFIELD CAPACITY CALCULATIONS

Year	*Total Operations*			*Itinerant Peak Hour*		*Local Peak Hour*		*Delay Per Aircraft (Minutes)*	
	Forecast	*ASV*	*% ASV*	*Forecast*	*Capacity*	*Forecast*	*Capacity*	*Low*	*High*
2008	38,149	230,000	16.59%	11	59	19	98	0.00	0.10
2013	40,507	230,000	17.61%	12	59	20	98	0.10	0.10
2018	43,889	230,000	19.08%	13	59	22	98	0.10	0.10
2023	47,554	230,000	20.68%	14	59	24	98	0.10	0.10
2028	51,524	230,000	22.40%	15	59	26	98	0.10	0.10

5.3 Airport Reference Code (ARC)

As defined in **FAA AC 150/5300-13**, *Airport Design*, the Airport Reference Code (ARC) is a system used to relate airport design criteria to the operational and physical characteristics of aircraft anticipated to operate at the airport. The ARC reflects the aircraft approach category (depicted by a letter) and the Airplane Design Group (ADG) (depicted by a Roman numeral). The determination of an ARC may be specific to each runway at an airport, based on current and anticipated operations by the critical aircraft, or the most demanding aircraft (or group of aircraft) that conducts at least 500 annual operations. At HKS, the ARC and associated critical aircraft is different for Runways 16/34 and 11/29, and is used throughout this chapter to evaluate requirements for runway length, apron and hangar areas, airfield separations, and various other airport components. The FAA defines an aircraft's approach category as "a grouping of aircraft based on 1.3 times their stall speed in the landing configuration at the certificated maximum flap setting and maximum landing weight at standard atmospheric conditions." The five categories are listed below.

- Category A: Speeds less than 91 knots.
- Category B: Speeds of 91 knots or more, but less than 121 knots

- Category C: Speeds of 121 knots or more, but less than 141 knots.
- Category D: Speeds of 141 knots or more, but less than 166 knots.
- Category E: Speeds of 166 knots or more.

The ADG is a group of airplanes based on wingspan. The six groups are as follows:

- Group I: Up to but not including 49 feet.
- Group II: 49 feet up to but not including 79 feet.
- Group III: 79 feet up to but not including 118 feet.
- Group IV: 118 feet up to but not including 171 feet.
- Group V: 171 feet up to but not including 214 feet.
- Group VI: 214 feet up to but not including 262 feet.

The previous Airport Layout Plan (ALP) for HKS identified an ARC of C-III for both runways. However, through a review of recent FAA flight plan activity data (shown in **Table 5-2)**, an actual ARC of C-II was determined for Runway 16/34 and B-II for Runway 11/29. Because there is no evidence to support a change in ARC during the planning period, in terms of known opportunities for larger based aircraft and activity, the following ARCs and representative critical aircraft were applied to the runways at HKS:

- Primary Runway 16/34 – ARC C-II, Cessna Citation X corporate jet
    - Wingspan – 64 feet
    - Maximum Takeoff Weight (MTOW) – 36,100 pounds
    - Approach Speed – 131 knots
- Crosswind Runway 11/29 – ARC B-II, Beechcraft King Air B200GT turboprop
    - Wingspan – 55 feet
    - MTOW – 12,500 pounds
    - Approach Speed – 103 knots

Again, these critical aircraft are intended to represent the grouping of the most demanding aircraft using the runways at HKS. Actual design requirements such as pavement strength are project specific and are evaluated during the engineering phase.

TABLE 5-2
SAMPLE OF HKS JET OPERATIONS BY FLEET CATEGORY (2007-2008)

Jet Model	Jet Manufacturer	ARC	Fleet Category	2007 Operations					2008 Operations				
				Total	ARC B	ARC C OR D	75% Fleet	100% Fleet	Total	ARC B	ARC C OR D	75% Fleet	100% Fleet
328JET	Fairchild Dornier	B-II	COMMERCIAL	4	4	0	0	0	4	4	0	0	0
Astra 1125	Israel Aircraft	C-II	100	10	0	10	0	10	8	0	8	0	8
BAe HS 125/1000	British Aerospace	C-II	100	2	0	2	0	2	0	0	0	0	0
BAe HS 125/1-2-3	British Aerospace	C-I	100	2	0	2	0	2	2	0	2	0	2
BAe HS 125/700-800	British Aerospace	C-II	100	31	0	31	0	31	61	0	61	0	61
BD-100 Challenger300	Canadair Bombardier	B-II	100	4	4	0	0	4	0	0	0	0	0
Beechjet 400/Hawker	Beech/Raytheon	B-I	75	72	72	0	72	0	60	60	0	60	0
Citation 1	Cessna Aircraft	B-I	75	29	29	0	29	0	63	63	0	63	0
Citation X	Cessna Aircraft	C-II	100	9	0	9	0	9	3	0	3	0	3
Citation 1-SP	Cessna Aircraft	B-I	75	183	183	0	183	0	148	148	0	148	0
Citation 2	Cessna Aircraft	B-II	75	256	256	0	256	0	204	204	0	204	0
Citation 3/6/7	Cessna Aircraft	B-II	100	13	13	0	0	13	30	30	0	0	30
Citation 5	Cessna Aircraft	B-II	75	58	58	0	58	0	48	48	0	48	0
Citation CJ2	Cessna Aircraft	B-II	75	16	16	0	16	0	18	18	0	18	0
Citation CJ3	Cessna Aircraft	B-II	75	4	4	0	4	0	4	4	0	4	0
Citation Excel/560XL	Cessna Aircraft	B-II	75	41	41	0	41	0	19	19	0	19	0
Citation Sovereign	Cessna Aircraft	B-II	75	4	4	0	4	0	5	5	0	5	0
Citationjet C525	Cessna Aircraft	B-I	75	53	53	0	53	0	70	70	0	70	0
CL600/610 Challenger	Canadair Bombardier	C-II	100	12	0	12	0	12	8	0	8	0	8
DC-9-10	McDonnell-Douglas	C-III	COMMERCIAL	30	0	30	0	0	2	0	2	0	0
DC-9-30	McDonnell-Douglas	C-III	COMMERCIAL	3	0	3	0	0	0	0	0	0	0
Diamond 1	Mitsubishi	B-I	75	0	0	0	0	0	2	2	0	2	0
Diamond 1, MU3	Mitsubishi	B-I	75	6	6	0	6	0	8	8	0	8	0
ERJ-135	Embraer	C-II	COMMERCIAL	0	0	0	0	0	2	0	2	0	0
Falcon 10	Dassault-Breguet	B-I	100	0	0	0	0	0	1	1	0	0	1
Falcon 10/Mystere 10	Dassault-Breguet	B-I	75	2	2	0	2	0	4	4	0	4	0
Falcon 20/Mystere 20	Dassault-Breguet	B-II	75	491	491	0	491	0	73	73	0	73	0
Falcon 2000	Dassault-Breguet	B-II	100	14	14	0	0	14	4	4	0	0	4
Falcon 50/Mystere 50	Dassault-Breguet	B-II	75	14	14	0	14	0	37	37	0	37	0
Gulfstream 3	Gulfstream Aerospace	C-II	LARGE	0	0	0	0	0	4	0	4	0	0
Gulfstream 4	Gulfstream Aerospace	C-II	LARGE	6	0	6	0	0	0	0	0	0	0
Gulfstream 5	Gulfstream Aerospace	D-III	LARGE	8	0	8	0	0	2	0	2	0	0
Gulfstream200	IAI	C-II	100	2	0	2	0	2	2	0	2	0	2
Learjet 24	Gates Learjet	C-I	75	70	0	70	70	0	4	0	4	4	0
Learjet 25	Gates Learjet	C-I	75	174	0	174	174	0	52	0	52	52	0
Learjet 31/A/B	LearJet, Inc.	C-I	75	37	0	37	37	0	36	0	36	36	0
Learjet 35	Gates Learjet	D-I	75	72	0	72	72	0	42	0	42	42	0
Learjet 40	Gates Learjet	C-I	75	4	0	4	4	0	4	0	4	4	0
Learjet 45	Gates Learjet	C-I	100	151	0	151	0	151	187	0	187	0	187
Learjet 55	Gates Learjet	C-I	100	0	0	0	0	0	1	0	1	0	1
Learjet 60	LearJet, Inc.	D-I	100	20	0	20	0	20	0	0	0	0	0
Mystere Falcon 200	Dassault-Breguet	B-II	100	2	2	0	0	2	31	31	0	0	31
Mystere Falcon 900	Dassault-Breguet	B-II	100	8	8	0	0	8	6	6	0	0	6
Premier 1	Hawker	B-I	75	31	31	0	31	0	27	27	0	27	0
Sabreliner 265	Rockwell	B-II	100	0	0	0	0	0	6	6	0	0	6
Westwind 1124	Israel Aircraft	C-I	75	21	0	21	21	0	14	0	14	14	0
TOTAL OPERATIONS BY CATEGORY (REPRESENTS A SAMPLE OF HKS JET ACTIVITY)				**1,969**	**1,305**	**664**	**1,638**	**280**	**1,306**	**872**	**434**	**942**	**350**

Source: Flightwise.com, August 2010.
Note: This table only identifies FAA-recorded flight plans and therefore only represents a portion of annual jet operations.

5.4 Runway Length Requirements

FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides guidelines for determining recommended runway lengths for new runways or extensions to existing runways. The *Runway Length AC* contains various approaches for determining runway length requirements depending upon the specific critical aircraft. At HKS, the purpose of having two runways is to separate airplane classes and to accommodate crosswind conditions. In this case, the runway length requirements for primary Runway 16/34 is determined according to the most demanding airplane that uses the airport on a regular basis (e.g., Citation X corporate jet) and the length requirements for Runway 11/29 is determined according to the next less demanding airplane (e.g., King Air turboprop).

As shown in **Table 5-3**, the Citation X falls into the category of airplanes with MTOW greater than 12,500 pounds but less than 60,000 pounds, and the King Air falls into the category of airplanes with MTOW equal to or less than 12,500 pounds with more than 10 passenger seats. Subsequently, the length requirements for Runway 16/34 were determined using a set of curves for a family or grouping of large airplanes, factoring in airport elevation, mean daily maximum temperature of the hottest month, weather conditions, runway gradient, and the respective useful loads of the critical aircraft. Useful load "is considered to be the difference between the maximum allowable structural gross weight and the operating empty weight."[2] The length requirements for Runway 11/29 were determined using a set of curves for a family or grouping of small airplanes with more than 10 passenger seats.

<table>
<tr><th colspan="5">TABLE 5-3
AIRPLANE WEIGHT CATEGORIZATION FOR RUNWAY LENGTH REQUIREMENTS</th></tr>
<tr><th colspan="3">AIRPLANE WEIGHT CATEGORY
MAXIMUM CERTIFICATED TAKEOFF WEIGHT (MTOW)</th><th>DESIGN APPROACH</th><th>LOCATION OF DESIGN GUIDELINES (IN AC)</th></tr>
<tr><td rowspan="4">12,500 pounds or less
(RUNWAY 11/29)</td><td colspan="2">Approach Speed less than 30 knots</td><td>Family Grouping of Small Airplanes</td><td>Chapter 2;
Paragraph 203</td></tr>
<tr><td colspan="2">Approach Speeds of at least 30 knots but less than 50 knots</td><td>Family Grouping of Small Airplanes</td><td>Chapter 2;
Paragraph 204</td></tr>
<tr><td rowspan="2">Approach Speeds of 50 knots or more</td><td>With Less than 10 Passengers</td><td>Family Grouping of Small Airplanes</td><td>Chapter 2;
Paragraph 205; Figure 2-1</td></tr>
<tr><td>With More than 10 Passengers</td><td>Family Grouping of Small Airplanes</td><td>Chapter 2;
Paragraph 205; Figure 2-2</td></tr>
<tr><td colspan="3">Over 12,500 pounds but less than 60,000 pounds
(RUNWAY 16/34)</td><td>Family Grouping of Large Airplanes</td><td>Chapter 3;
Figure 3-1 or 3-2 and Tables 3-1 or 3-2</td></tr>
<tr><td colspan="3">60,000 pounds or more or Regional Jets</td><td>Individual Large Airplane</td><td>Chapter 4; Airplane Manufacturer Websites</td></tr>
<tr><td colspan="5">Source: FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, Table 1-1.</td></tr>
</table>

Runway 16/34 Runway Length Requirements

According to the *Runway Length AC*, the Citation X is one of the more demanding jets in the subject weight category – referred to as an "airplane that makes up 100 percent of the fleet." As can be seen in **Table 5-2**, in some years HKS experienced at least 350 operations by aircraft in this category – since this only represents a sample of jet activity at HKS, it is likely that the

[2] *FAA AC 150/5325-4B, Runway Length Requirements for Airport Design, page 2.*

numbers would be higher if every jet operation was accurately recorded. However, Runway 16/34 serves all jet operations at HKS, including those jets classified as "airplanes that make up 75 percent of the fleet." By applying HKS' elevation (341.3 feet AMSL) and mean daily maximum temperature of the hottest month (91.4 degrees Fahrenheit) to the curves in the *Runway Length AC*, the runway length requirements shown in **Table 5-4** were determined for Runway 16/34. Where applicable, the takeoff and landing length requirements were adjusted to account for effective runway gradient (i.e., runway elevation changes) and wet and slippery conditions.

The selection of a recommended runway length depends upon the nature of operations at HKS in terms of useful load. The airport serves a variety of jets with different sizes and runway length demands, most of which are used for on-demand corporate travel around the world. All four runway length categories illustrate some deficiency in the current 5,387 foot length of Runway 16/34. Due to the current number of operations by jets in the 100 percent of the fleet category, and the forecast growth in total jet operations from 1,548 in 2008 to 3,263 by 2028, the "100 percent of fleet at 60 percent useful load" category was determined be the most appropriate runway length recommendation for Runway 16/34. Specifically, under HKS conditions, the "100 percent of fleet at 60 percent useful load category" requires 6,000 feet for takeoff and 5,500 feet for landing. Alternatives for extending Runway 16/34 to meet the identified takeoff and landing requirements are investigated in Chapter 6.

TABLE 5-4
RUNWAY LENGTH REQUIREMENTS

Fleet Category	*Runway 16/34 Lengths (Feet)*			*Runway 11/29 Lengths (Feet)*		
	Baseline	*Takeoff*	*Landing*	*Baseline*	*Takeoff*	*Landing*
75% of Fleet @ 60% Useful Load	4,800	5,200	5,500	4,300	4,300	4,300
75% of Fleet @ 90% Useful Load	6,900	7,300	7,000			
100% of Fleet @ 60% Useful Load	5,600	6,000	5,500			
100% of Fleet @ 90% Useful Load	8,600	9,000	7,000			
Effective Runway Gradient (Elevation Difference)	High (341.3') - Low (305.6') = 35.7' x 10 = 357' Takeoff Adjustment			No Adjustment Required		
Existing Length	**5,387**			**3,431**		
Recommendations	**6,000 Takeoff, 5,500 Landing**			**Investigate Runway Use Options**		

Notes: Baseline runway lengths unadjusted for effective runway gradient and wet and slippery conditions. Runway length requirements shown were rounded in accordance with the procedures described in FAA AC 150/5325-4B.

Runway 11/29 Runway Length Requirement

As mentioned, the runway length requirements for a secondary or crosswind runway are determined based on the next less demanding airplane that utilizes the airport. In comparison to the analysis for Runway 16/34 that was based on jet operations, Runway 11/29 should be designed for small airplanes with more than 10 passenger seats such as the King Air turboprop. Under HKS conditions, the *Runway Length AC* indicates that these aircraft require 4,300 feet for both takeoff and landing. However, as previously mentioned, this facility requirements analysis does not recommend any future improvements for the current 3,431 foot length of Runway 11/29 because of the runway's unknown disposition for the remainder of the planning period. For that reason, the alternatives analysis only considers options for the preservation of the current Runway 11/29 length and potential closure.

Next Steps

In order to provide a more flexible operating environment for existing airport users, extending Runway 16/34 is considered an important project for HKS. This analysis has shown that all jet categories currently operating at HKS require more runway length for takeoff and/or landing than is provided by the 5,387 foot length of Runway 16/34. Thus, per the guidelines of the *Runway Length AC*, existing airport activity warrants an extension of Runway 16/34. Chapter 6 presents various alternatives for extending Runway 16/34, and ultimately recommends a preferred development alternative for the 20-year planning period. Subsequent chapters of this Master Plan Update identify the recommended phasing plan for the environmental review, design, construction, and funding of the preferred runway extension. At the time of implementation, the FAA may require the preparation of a detailed justification study to ensure that activity still warrants an extension of Runway 16/34.

5.5 Runway Strength Requirements

As previously mentioned, actual pavement strength requirements are determined during the engineering design phase of a project, based on the airport's existing and anticipated aircraft mix. However, existing runway pavement strengths are still reviewed as part of the planning process for their ability to meet the demands of the critical aircraft. According to Airport Master Record data for HKS (i.e., FAA Form 5010-1), the strengths of both Runways 16/34 and 11/29 are published at 30,000 pounds single wheel (SW), 40,000 pounds double wheel (DW), and 80,000 pounds double tandem (DT). Although the strength of Runway 11/29 should be sufficient throughout the planning period, not considering possible rehabilitation needs, further analysis was warranted for Runway 16/34.

Using pavement boring data from a 1994 Geotechnical Investigation, the minimum strengths of Runway 16/34 were estimated at 31,000 pounds SW, 37,000 pounds DW, and 97,000 pounds DT. As such, the strength of Runway 16/34 is sufficient to accommodate the critical aircraft for Runway 16/34, the Citation X corporate jet, which has a MTOW of 36,100 pounds DW, in addition to occasional operations by heavier aircraft. For example, as previously shown in **Table 5-2**, the airport accommodated several operations by large commercial and cargo jets in recent years, including more than 30 operations by McDonnell Douglas DC-9 jets with MTOWs over 90,000 pounds DW – although, in some circumstances, DC-9 jets and Convair 580 turboprops (MTOW of 58,140 pounds DW) have been excluded from operating at HKS due to insufficient pavement strength. The ability to continue to accommodate operations by these larger aircraft is important for the existing businesses at HKS, thus all relevant factors should be considered during the engineering design phase of any project. It is noted that JMAA plans to conduct a Runway 16/34 overlay project in their 2011 fiscal year.

5.6 Taxiway Requirements

The taxiway requirements were previously addressed as part of the airfield capacity analysis. In terms of maximizing airfield capacity and correcting layout issues, the following taxiway requirements were identified:

- Improve Taxiway C to be a full-length parallel taxiway for Runway 16/34

- Ensure that at least four exit taxiways are provided along Runway 16/34 (including the end exits)
- Remove wide expanses of pavement to increase situational awareness. This could include wide expanses of taxiway pavement at runway intersections or the closed runway pavements at HKS (refer to **Figure 5-1**).
- Provide bypass taxiways or holding aprons along Taxiway C (or near the runway ends) to improve capacity during peak hour operations
- Other taxiway projects may be considered to improve access to existing airport facilities or to provide access to new facilities. Through the taxiway improvements identified, the airfield environment at HKS would be considered more fluid with enhanced capacity to meet anticipated demands throughout the planning period.

5.7 Airfield Design Criteria

FAA AC 150/5300-13, *Airport Design*, defines airfield design criteria based on the specific ARC of the runway. **Table 5-5** identifies the airport's current airfield configuration in comparison to FAA standard requirements. Where deficiencies exist, potential corrective actions are summarized below and illustrated in **Figure 5-1**. Since this Master Plan Update must show consistency with FAA design standards, opportunities for correcting these non-standard features are further investigated during the alternatives analysis.

- **Runway Safety Area (RSA) – FAA AC 150/5300-13** dictates that RSA shall be: "1) cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations; 2) drained by grading or storm sewers to prevent water accumulation; 3) capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft; and 4) free of objects, except for objects that need to be located in the RSA because of their function." The RSA beyond Runway 34 is non-standard primarily because it contains a portion of the golf course, and therefore only provides about 600 feet of clearance beyond the runway end instead of the required 1,000 feet. Additionally, the RSA beyond Runway 16 includes minor grade deviations that must be addressed. RSA standards cannot be waived like other airport design standards. In accordance with **FAA Order 5200.8**, *Runway Safety Area Program*, alternatives for correcting the non-standard RSAs are evaluated in subsequent chapters. This may include an evaluation of corrective options such as grading and filling, declared distances, threshold displacement, and/or Engineered Materials Arresting System (EMAS).
- **Runway Object Free Area (ROFA) –** The ROFA must be clear of ground objects protruding above the RSA edge elevation. The ROFA beyond Runway 34 contains trees which must be removed to meet ROFA standards. Further, the ROFA beyond Runway 34 encompasses portions of the golf course which represents a non-standard condition.
- **Runway Protection Zone (RPZ) –** The RPZs function is to enhance the protection of people and property on the ground. This is achieved through airport owner control over RPZs, preferably through acquisition of sufficient property interest in the RPZ. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. While it is desirable to clear all objects from the RPZs at HKS, such an effort may be infeasible and is not currently mandated by the FAA. In regards to the

small portions of RPZ that extend off HKS property beyond all runway ends, JMAA should consider acquisition or easement of those RPZ portions to obtain proper control.

- **Runway Blast Pad –** Runway blast pads provide blast erosion protection beyond runway ends. Stabilized turf blast pads are typically acceptable for runways that serve ADG II and lower aircraft, which includes both Runways at HKS. However, paved blast pads should be considered beyond both ends of Runway 16/34 to prevent erosion resulting from the substantial jet activity.

TABLE 5-5
AIRFIELD DESIGN STANDARD ANALYSIS

Design Standard	*ARC C-II Criteria (RW 16/34)*	*ARC B-II Criteria (RW 11/29)*	*RW 16*	*RW 34*	*RW 11*	*RW 29*
RW Width	100 Feet	75 Feet	150 Feet		150 Feet	
RW Safety Area (RSA) Width	500 Feet	150 Feet	Minor Grade Deviations	Extends into Golf Course	Standard	
RSA Length Beyond RW End	1,000 Feet	300 Feet				
RW Object Free Area (ROFA) Width	800 Feet	500 Feet	Standard	Contains Trees, Extends into Golf Course	Standard	
ROFA Length Beyond RW End	1,000 Feet	300 Feet				
RW Visibility	Specific to Runway End		1/2-Mile	1-Mile	1-Mile	1-Mile
RW Protection Zone (RPZ) Inner Width			1,000 Feet	500 Feet	500 Feet	500 Feet
RPZ Outer Width			1,750 Feet	1,010 Feet	700 Feet	700 Feet
RPZ Length			2,500 Feet	1,700 Feet	1,000 Feet	1,000 Feet
RPZ Notes (Acreage Off Airport)			Desirable to Clear Objects, Extends Off Airport (16 – 7.2 Acres, 34 – 0.1 Acres)		Desirable to Clear Objects, Extends Off Airport (11 – 1.0 Acres, 29 – 0.1 Acres)	
RW Blast Pad Width	120 Feet	95 Feet	Not Provided	Not Provided	Not Provided	Not Provided
RW Blast Pad Length	150 Feet	150 Feet				
RW Shoulder Width	10 Feet	10 Feet	Stabilized Turf Acceptable		Stabilized Turf Acceptable	
RW Centerline to Parallel TW Centerline	400 Feet	240 Feet	400 Feet		N/A	
RW Centerline to Holdline	250 Feet	200 Feet	250 Feet		Varies	
Full-Length Parallel TW	Required	Not Required	Full Length Not Provided		Not Provided	
TW Width	35 Feet	35 Feet	Minimum 35 Feet			
TW Safety Area (TSA) Width	79 Feet	79 Feet	Ensure that Proper Clearance is Provided for Apron Taxiways			
TW Object Free Area (TOFA) Width	131 Feet	131 Feet				
TW Shoulder Width	10 Feet	10 Feet	Stabilized Turf Acceptable		Stabilized Turf Acceptable	
RW Visibility Zone (RVZ)	Clear Line of Sight Within		Clear			
Summary of Non-Standard Items			RSA, RPZ, Blast Pad, Parallel TW	RSA, ROFA, RPZ, Blast Pad, Parallel TW	RPZ	RPZ

5.8 Airfield Markings, Signage, Lighting, and Miscellaneous Navigation Equipment

Airfield Markings

A project was recently conducted at HKS to upgrade all airfield markings in accordance with the standards prescribed in **FAA AC 150/5340-1**, *Standards for Airport Markings*. Airport pavements are marked with reflective painted lines and numbers which aid in the identification of runways from the air and provide information to pilots during the approach phase of flight. At HKS, Runway end 16 is marked precision, Runway ends 34 is marked nonprecision, and Runway ends 11 and 29 are marked visual (basic). The marking types are consistent with the existing approaches to each runway end. Further, in compliance with the *Markings AC*, enhanced taxiway centerline markings were recently painted prior to all runway holding positions at HKS.

Airfield Signage

A project was recently conducted at HKS to upgrade airfield signage in accordance with the standards prescribed in **FAA AC 150/5340-18**, *Standards for Airport Sign Systems*. Therefore, airfield signage improvements would only be necessary during the planning period as new projects are developed or as standards may change.

Airfield Lighting

Consistent with the available approaches, both runways at HKS are provided with the appropriate edge and approach lighting. Specifically, the precision Instrument Landing System (ILS) to Runway 16 is provided with a Medium Intensity Approach Lighting System (MALSR) that extends 2,400 feet beyond the runway end, and the nonprecision and circling approaches to Runway 34 are supplemented by Runway End Identifier Lights (REILs). The High Intensity Runway Lights (HIRLs) along Runway 16/34 are standard for runways with precision approaches. There are no specific requirements for edge or approach lighting on visual runways such as Runway 11/29. Medium Intensity Taxiway Lights (MITLs) should be sufficient throughout the planning period, although the location of taxiway edge lighting should be corrected at those portions of the airfield with wide expanses of pavement; in other words, wide expanses of pavement should be removed and the taxiway edge lights should be relocated accordingly.

Miscellaneous Navigation Equipment

Various airfield features are discussed as miscellaneous navigation equipment, including Visual Glide Slope Indicators (VGSI), Automated Surface Observing System (ASOS), windcones, and the rotating beacon. Often, as new airport projects are recommended, these features conflict with the location of proposed facilities. It is therefore important to consider the need for relocating or replacing these features during the alternatives analysis. In regards to VGSI equipment, Runway 16 is the only runway end supplemented with a 4-box Precision Approach Path Indicator (PAPI-4), and a PAPI-4 should also be installed for the published approaches to Runway 34, thereby providing beneficial visual approach guidance to assist with flying stabilized approaches. A PAPI-4 is typically installed for runways that serve jet traffic, whereas a 2-box PAPI (PAPI-2) may be installed for runways with visual approaches if there is a need to do so (e.g., significant training activity or obstructions). A new high intensity rotating beacon was recently installed on the South Apron.

5.9 Approach Procedures

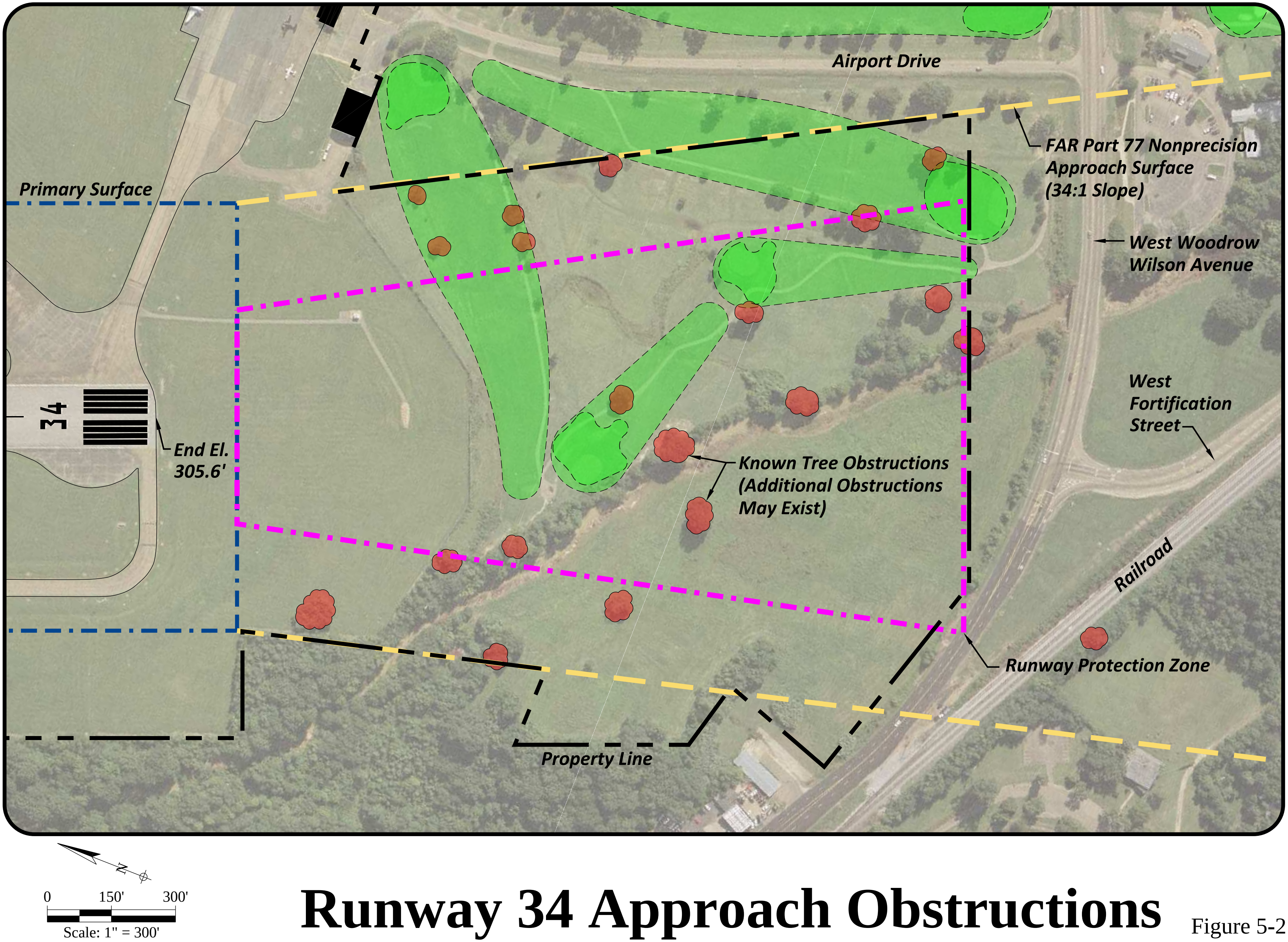
As described in the inventory chapter, both ends of Runway 16/34 have published instrument approach procedures. This section includes a brief analysis of the existing instrument approach procedures, and potential considerations for improving the airport's approach capability. Runway 16 is supplemented by a precision ILS approach as well as nonprecision approaches including Area Navigation (RNAV) Global Positioning System (GPS) and Localizer Performance with Vertical Guidance (LPV). The ILS approach uses ground-based equipment that provides horizontal and vertical course guidance to aircraft, and can therefore be flown when visibility minimums are lower and with a lower decision altitude. By definition, nonprecision approaches provide only horizontal course guidance transmitted by satellite and GPS, and typically have higher visibility minimums and decision altitudes. However, newer approaches like LPV are often grouped into the nonprecision category, in terms of Part 77 Imaginary Surfaces, and provide both horizontal and vertical course guidance.

Due to the provision of a MALSR approach lighting system, the Runway 16 approaches can be flown when visibility minimums are as low as ½-mile, thus providing ample capability for corporate aircraft operations at HKS. Runway 34 is supplemented by nonprecision approaches including GPS and LPV. While the Runway 34 approach with horizontal guidance only and higher decision altitude can be flown when visibility minimums are as low as 1-mile, the approaches that also have vertical guidance (LPV) have lower decision altitudes and higher visibility minimums (as high as 1¾ miles). As shown in **Figure 5-2**, the high LPV minimums to Runway 34 may be related to the numerous tree obstructions located at the adjacent Sonny Guy Golf Course, in addition to other potential obstructions (e.g., water tower near the Jackson Zoo). However, updated survey would have to be conducted based on the procedures described in **FAA AC 150/5300-18B**, *General Guidance and Specifications for Submission of Aeronautical Surveys to NGS Field Data Collection and Geographic Information System Standards*, in order for the FAA to properly determine the controlling obstacles and necessary actions for reducing the LPV minimums. Consequently, the airport should investigate tree and obstruction removal options to maximize the capability of the approaches to Runway 34 and safety for all runway approaches. Using available mapping and FAA databases, the ALP presents an analysis of obstructions within the approach surface dimensions and obstruction clearance slopes shown in **Table 5-6**. No approach procedures are currently provided for Runway 11/29, nor are any planned.

TABLE 5-6
EXISTING AND PROPOSED RUNWAY APPROACH DATA

Runway	*Approach Category*	*Length (Feet)*	*Inner Width (Feet)*	*Outer Width (Feet)*	*Approach Slope*
16	Precision (½-Mile)	50,000	1,000	16,000	50:1*
34	Nonprecision (1-Mile)	10,000	1,000	3,500	34:1
11	Visual	5,000	250	1,500	20:1
29	Visual	5,000	250	1,500	20:1

Source: FAR Part 77, Objects Affecting Navigable Airspace.
**Approach slopes for runway ends with precision approach capability extend outward at a slope of 50:1 for the first 10,000 feet and 40:1 for the remaining 40,000 feet.*



Runway 34 Approach Obstructions

Figure 5-2

5.10 Airfield Energy Efficiency

One of the FAA's key goals is to improve airfield energy efficiency through various upgrades to aging lighting and navigational facilities, investigating new methods for developing longer-sustaining pavements and markings, encouraging airports to purchase fuel-efficient or alternative energy vehicles, and improving airfield capacity. By focusing on these types of activities, long-term cost savings to the airport and operators can be realized, in addition to the environmental benefits to the community, which can then be used to pay for other needed airport improvements. The FAA continues to encourage projects which encourage energy efficiency through such efforts as NextGen. As new projects are developed at HKS, the airport should carefully evaluate design options to determine if long-term cost savings and environmental benefit can be realized from using more efficient and sustainable products and practices.

5.11 General Aviation Requirements

The purpose of this section is to determine the space requirements needed during the planning period for the following types of facilities normally associated with corporate and general aviation terminal areas:

- Aircraft Parking Apron
- Aircraft Storage Hangars
- Fixed Base Operator (FBO) Facilities

Figure 5-3 illustrates the West Ramp facilities to facilitate the remaining discussions herein.

Aircraft Parking Apron

Aircraft storage requirements are determined according to based aircraft owner preferences and the forecasts of aviation demand. In terms of rental fees, apron tie-down parking is always less expensive than hangar storage, but hangar storage helps protect aircraft from harsh weathering that may occur while utilizing a tie-down, in addition to providing an extra level of security. Consequently, tie-down parking is commonly occupied by older piston aircraft or by flight training aircraft that may conduct several operations a day. Adequate aircraft parking apron should be provided to accommodate those local or based aircraft not stored in hangars, as well as transient or visiting aircraft. At HKS, most local aircraft tie-down parking is located near the south end of the West Ramp. Transient aircraft parking is provided in front of the general aviation terminal building and FBO facilities. The West Ramp covers an area of approximately 90,000 square yards, the South Ramp covers an area of approximately 19,000 square yards, and there are nearly 80 dedicated tie-down positions at HKS.

In determining future apron requirements, it is necessary to examine local and transient tie-down facilities as separate entities. The local apron should at least meet the demand represented by the number of aircraft currently parked on tie-downs. However, it must be noted that if hangar facilities were available at HKS, many aircraft currently occupying the tie-downs might be interested in leasing a hangar. Transient parking requirements can be determined from knowledge of peak day operations, and assuming that a certain percentage of those operations will require temporary parking at HKS. Then, those values are applied to the planning criteria of

300 square yards per local aircraft and 360 square yards per transient aircraft, in accordance with the procedures described in **FAA AC 150/5300-13**, *Airport Design*. Based on this analysis, it was determined that the existing apron areas are sufficient throughout the planning period. For example, the West Ramp encompasses an area of roughly 90,000 square yards, so assuming a perfect configuration using the planning criteria above, the West Ramp itself should theoretically be capable of handling 300 local aircraft or 250 transient aircraft, far exceeding the 2028 forecast value of 156 based aircraft. This is probably not entirely accurate for the West Ramp because of the layout of facilities, actual aircraft mix, required separations from taxiways/taxilanes, and general pavement condition, but it still indicates that more parking area is provided than needed for local and transient aircraft during the planning period. Thus, future projects may consider utilizing portions of the existing West Ramp area, such as the provision of a full-length parallel taxiway for Runway 16/34 or additional facility development on or around the West Ramp.

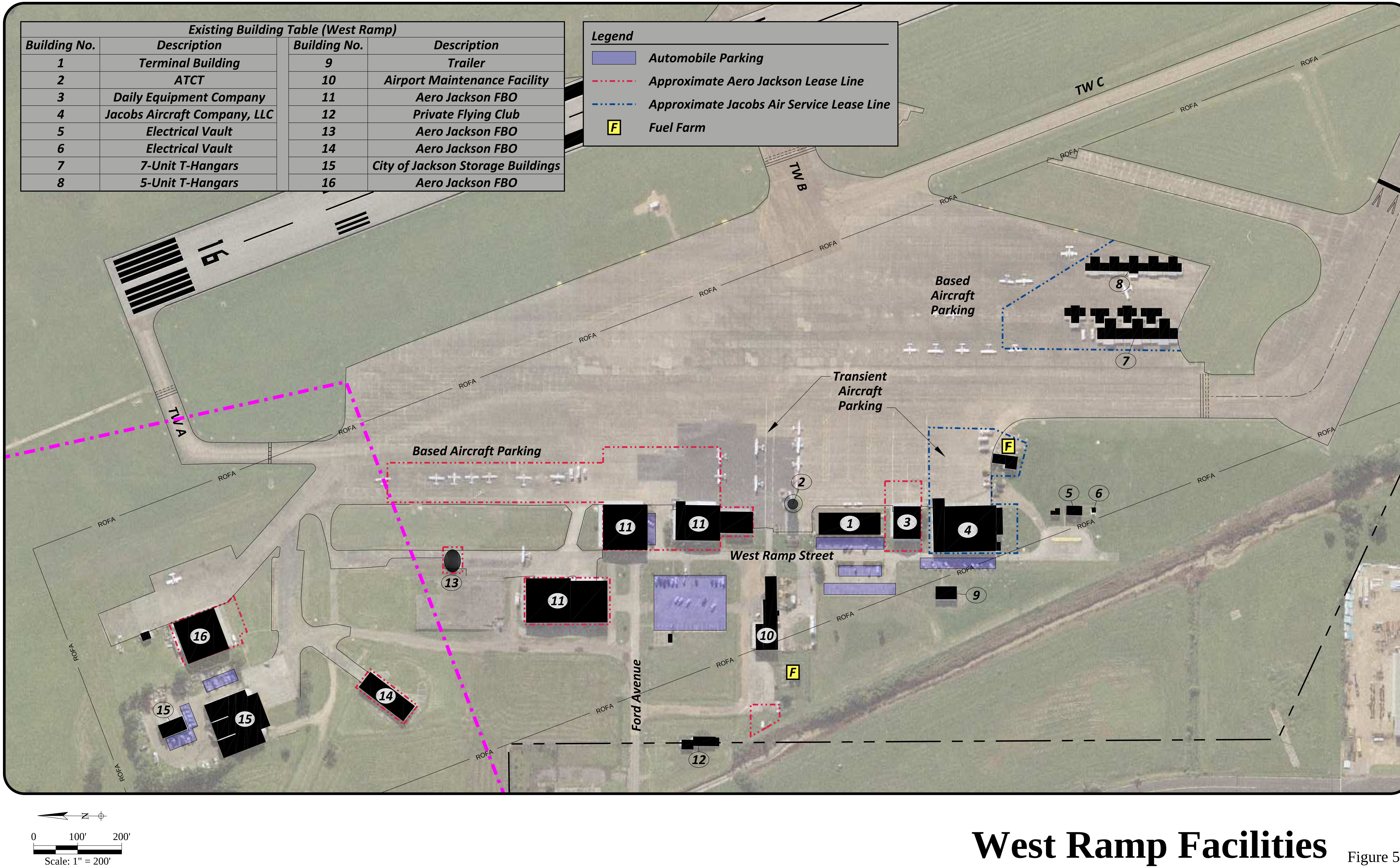
It is noted that the South Ramp pavement is currently in poor condition and requires rehabilitation in the short-term, whereas the West Ramp pavement should be rehabilitated in the mid-term. The recommendations of this Master Plan Update should be reviewed to evaluate overall pavement rehabilitation needs, in terms of the future layout of airport facilities.

Aircraft Storage Hangars

As mentioned in the inventory chapter, there are seven (7) conventional hangars located along the West Ramp with aircraft storage area totaling 75,000 square feet, in addition to 12 port-a-port t-hangar bays which are approximately 1,500 square feet each. The demand for hangar facilities typically depends on the number and type of aircraft expected to be based at the airport. Use by general aviation aircraft is expected to grow and it is very important to determine the type and degree of development required to accommodate this most important component. It is noted that JMAA prefers to only plan for the development of new conventional or corporate hangar facilities, rather than t-hangars. As such, **Table 5-7** presents estimated requirements for conventional hangar storage. Using the storage preferences identified and associated storage requirements per aircraft, an existing and future deficit of conventional hangar space was identified for HKS. Because all habitable hangar facilities are currently occupied at HKS, and many aircraft park on tie-downs that would be better suited in a hangar, there is a known demand for new hangar construction. The identified requirement might be satisfied with a mix of larger bulk storage hangars that hold multiple aircraft and smaller corporate hangars that hold one or two aircraft, depending upon demand, layout issues, financing, liability and aircraft management preference, etc. These types of factors are considered as part of the alternatives analysis.

TABLE 5-7
HANGAR STORAGE REQUIREMENTS

Aircraft Type	*Storage Preference*	*Representative Aircraft*	*Requirement Per Aircraft*	*2008 Requirement*	*2028 Requirement*
Single-Eng. Piston	80% Conventional	Cessna Skyhawk	1,500 SF	86,400 SF	100,800 SF
Multi-Eng. Piston	90% Conventional	Piper Seminole	1,500 SF	25,650 SF	25,650 SF
Turboprop	100% Conventional	Beechcraft King Air	3,000 SF	45,000 SF	60,000 SF
Jet	100% Conventional	Cessna Citation X	5,500 SF	5,500 SF	44,000 SF
Helicopter	100% Conventional	Bell 206B-3	1,000 SF	4,000 SF	7,000 SF
Conventional Hangar Requirement (Total)				166,550 SF	237,450 SF
Existing Hangar Availability (Includes Port-A-Port Area)				93,000 SF	93,000 SF
Conventional Hangar Deficiency				73,550 SF	144,450 SF



Existing Building Table (West Ramp)			
Building No.	**Description**	**Building No.**	**Description**
1	Terminal Building	9	Trailer
2	ATCT	10	Airport Maintenance Facility
3	Daily Equipment Company	11	Aero Jackson FBO
4	Jacobs Aircraft Company, LLC	12	Private Flying Club
5	Electrical Vault	13	Aero Jackson FBO
6	Electrical Vault	14	Aero Jackson FBO
7	7-Unit T-Hangars	15	City of Jackson Storage Buildings
8	5-Unit T-Hangars	16	Aero Jackson FBO

West Ramp Facilities

Figure 5-3

Fixed Base Operator (FBO) Facilities

Both FBOs at HKS, Aero Jackson and Jacobs Aircraft Company, are located on the West Ramp and provide traditional FBO services at their respective facilities (passenger waiting, pilots lounge and flight planning, concessions, rental cars, etc.). Jim Hankins Air Service is located on the South Ramp and is considered an air charter Specialized Aeronautical Services Operator (SASO) as opposed to a traditional FBO, but is still grouped in this section for overall discussion purposes. According to **FAA AC 150/5190-7**, *Minimum Standards for Commercial Aeronautical Activities*, "SASOs are sometimes known as single-service providers or special FBOs performing less than full services. These types of companies differ from a full service FBO in that they typically offer only a specialized aeronautical service such as aircraft sales, flight training, aircraft maintenance, or avionics services."[3] With the combination of these three airport businesses, the airport should be capable of accommodating the demands of itinerant and local traffic throughout the planning period. However, development around the FBOs would be necessary to provide new aircraft storage hangars, automobile parking and access improvements, and expansion needs. As such, future development of the FBO facilities will be considered during the alternatives analysis.

5.12 Support Facility Requirements

Support facilities are those airport features that are not necessarily specific to aircraft operations, movement, and storage, but which are vital to ensuring the efficiency, safety, and persistency of aircraft activity. For HKS, the existing support facilities consist of the terminal building, automobile parking and access, fuel storage, air traffic control tower, and airport maintenance. A review of HKS' existing support facilities is presented in this section.

Terminal Building

The airport's terminal building was constructed on the West Ramp in 1984 and covers an area of approximately 7,000 square feet. The terminal building is mostly used for JMAA administration purposes, although there is also public space for passengers and pilots and leased space for a flight school. Since, however, the two FBOs serve most of the transient aircraft traffic at HKS, they both provide the traditional amenities of a general aviation terminal building (passenger waiting, pilots lounge and flight planning, concessions, rental cars, etc.). Between the two FBO facilities, it is anticipated that all pilot and passenger demands could be accommodated throughout the planning period, with their ongoing and planned renovation and expansion projects. For that reason, JMAA is planning on constructing a new complex that would serve all their administration, maintenance, and security needs, in an alternate location on the airport property. Space within the existing terminal building would subsequently become available for lease.

It should be noted that reuse options continue to be evaluated for the old terminal building on the South Ramp. Due to its designation as a historic Mississippi landmark, grant opportunities may ultimately be available for the restoration and preservation of the facility. For that reason, this Master Plan Update assumes that the old terminal building will be restored at some point during

[3] *FAA AC 150/5190-7, Minimum Standards for Commercial Aeronautical Activities, page 14.*

the planning period, with the building utilized for a mix of leasable tenant space and other purposes.

Automobile Parking & Access

Automobile parking requirements for HKS are dictated by the *Zoning Ordinance of Jackson, Mississippi (last amended March 8, 2008)*. However, as is often the case for airports, the requirements for automobile parking at airports are not as clear as they may be for other types of facilities (e.g., retail spaces and hospitals), due to the various activities that might be conducted at an airport (aircraft storage, air traffic control, maintenance, administrative offices, transportation, etc.). Thus, it is important to review local zoning ordinances, building codes, and airport activity to determine realistic automobile parking requirements. For general office uses, the *Zoning Ordinance of Jackson, Mississippi* identifies a parking requirement of one space per 300 square feet of gross floor area. If applied to the existing terminal building area of 7,000 square feet, a parking requirement of 24 spaces would be applicable for that building alone. While the terminal building is served by more than 24 parking spaces, some airport facilities require additional automobile parking and/or reconfigured parking to more appropriately serve user demands and address potential security and safety issues (e.g., automobile parking on aircraft aprons). Opportunities for providing additional parking for existing facilities for based aircraft owners, tenants, and visitors are considered in the alternatives analysis, and new parking areas are depicted for proposed developments.

As part of the planning process, focus group meetings were held with various airport stakeholders in March 2010. Access and signage upgrades were identified as key improvements needed at HKS. It was further suggested that HKS needs a “gateway entrance” that would enhance the airport’s image and potential for business investment. The primary entrance to the airport’s West Ramp facilities is via Industrial Drive to Ford Avenue. Signage improvements are needed along Industrial Drive, as well as at major intersections in the area, to assist with providing directions to HKS. Along Ford Avenue, physical roadway, landscaping, and signage improvements should be considered to enhance the airport’s image, and also to better delineate the location of the various airport businesses. Other improvements may be warranted for accessing the airport’s South Ramp facilities (via Airport Drive), as roadway rehabilitation is conducted in that area and reuse options are investigated for the historic old terminal building. Through the implementation of automobile parking and access improvements for existing facilities, as well as the development of new facilities, both the external access and internal circulation of HKS can be enhanced to provide a more encouraging environment for corporate aviation growth. However, facilities must continually be maintained in order for such growth to be realistic.

Fuel Storage

Both FBOs at HKS, Aero Jackson and Jacobs Aircraft Company, and Jim Hankins Air Service maintain their own tanks for 100LL and Jet A fuel storage, thus each business determines their own fuel storage requirements and delivery schedules as needed. Each business supplies fuel to aircraft via fuel delivery trucks, and no self-service pumps are currently provided at HKS (nor are any planned). Potential areas for future expansion or replacement of fuel storage tanks may be identified as part of the alternatives analysis, in conjunction with the selected long-term development plan. It is noted that both Aero Jackson and Jacobs Aircraft Company utilize underground storage tanks (USTs), whereas Jim Hankins Air Service utilizes aboveground tanks. If the USTs ultimately require replacement, the installation of aboveground fuel storage tanks should be considered to facilitate the implementation of secondary containment measures and future expansion ease.

Air Traffic Control Tower (ATCT)

As mentioned in the inventory chapter, the ATCT is approximately 65 feet in height and provides the traffic controllers with an excellent view of the entire airfield with one exception. There is a partially impeded view of the runway surface at the Runway 11 threshold due to t-hangars located on the West Ramp. Because the T-hangars are port-a-port or portable hangars, it should be possible to relocate as many of them as necessary to provide an unimpeded view of the Runway 11 threshold. With this improvement, the current ATCT location on the West Ramp should be sufficient for managing air and ground traffic at HKS, particularly considering the somewhat complex taxiway system and various classes of aircraft that operate at the airport (GA, corporate, and military).

Airport Maintenance

The current airport maintenance facility is located just west of the ATCT and contains all the equipment needed to maintain the airport on a day-to-day basis. Due to its age and size, the airport is considering the construction of a new airport maintenance facility within the same general vicinity. The new maintenance facility would allow for internally housing all equipment (tractors, mowers, etc.), as opposed to the current facility which requires some equipment to be parked outdoors. The new maintenance facility may be co-located with new administrative offices for JMAA.

5.13 Land Area Requirements

All opportunities for land development on the airport property are identified in conjunction with the alternatives analysis in Chapter 6, as well as potential impacts to off-airport properties (e.g., RPZ impacts from future projects). Specifically, landside development zones are evaluated on the airport property in terms of potential use, aircraft and automobile access, and feasibility of development. By conducting this evaluation as part of the alternatives analysis, the relationships between long-term airfield and landside developments can be clearly examined. As a result, the future expansion possibilities for general aviation, military, JMAA, and other airport activities can be identified.

5.14 Airport Security

In May of 2004, the Transportation Security Administration (TSA) developed *Security Guidelines for General Aviation Airports*. According to the TSA website, “this listing of recommended guidelines or "best practices" was designed to establish non-regulatory standards for general aviation airport security. Their primary purpose is to help prevent the unauthorized use of a general aviation aircraft in an act of terrorism against the United States…*Security Guidelines for General Aviation Airports* constitutes a set of federally endorsed guidelines for enhancing airport security at GA facilities throughout the nation. It is intended to provide GA airport owners, operators, and users with guidelines and recommendations that address aviation security concepts, technology, and enhancements."

The *Security Guidelines for General Aviation Airports* provides a measurement tool that is used to assess vulnerability characteristics of each general aviation airport. The TSA's measurement tool applies points and ultimately a total score to each type of facility based on a variety of characteristics including its location relative to sensitive sites and to mass population areas, type and number of based aircraft, runway length, and also relative to the number and types of operations conducted. An evaluation of HKS using the TSA's measurement tool revealed that due to the airport's proximity to downtown Jackson, and also due to the types and frequency of operational activity etc., the overall score given to HKS was a 46. By comparing this score (i.e., points) versus suggested guidelines shown in **Figure 5-4** below, it is recommended that HKS implement all security procedures and recommendations described in the *Security Guidelines for General Aviation Airports*. It should be reiterated that these are recommended best practices and not necessarily requirements; however, since the TSA document is the only guidance available for identifying security standards at general aviation airports, it was utilized to establish security requirements for HKS. Although HKS already has many of the TSA's suggested security measures in-place, existing security procedures should still be reviewed to determine what, if any, additional measures could be taken to enhance airport security. For example, while the airport is surrounded entirely by fencing, once beyond the main gate along Ford Avenue, no additional fencing is provided to provide entry onto the operational airfield. As such, additional access controls are recommended, such as card reader gates and fencing, to better control access to the airfield.

While it would be beneficial for security improvements to be implemented at HKS, such improvements can be extremely expensive and require additional staff for monitoring. The FAA and airport owners typically must prioritize funding for key airfield projects (pavement rehabilitations, runway extensions, tree obstruction removal, etc.), with limited money remaining for security improvements. Overall, JMAA should compare the information in *Security Guidelines for General Aviation Airports* against existing security procedures and features at HKS to determine if feasible improvements may be warranted for the short or long-term. Later chapters of this Master Plan Update identify recommended security improvements and the anticipated funding sources.

FIGURE 5-4
TSA SUGGESTED SECURITY ENHANCEMENTS FOR GENERAL AVIATION AIRPORTS

<table>
<tr><th colspan="4">Points/Suggested Guidelines</th></tr>
<tr><th>>45</th><th>25-44</th><th>15-24</th><th>0-14</th></tr>
<tr><td>• Fencing (Section 3.3.3)
• Hangars (Section 3.3.1)
• CCTV (Section 3.4.5)
• Intrusion Detection System (Section 3.4.6)</td><td></td><td></td><td></td></tr>
<tr><td colspan="2">• Access Controls (Section 3.3.3)
• Lighting System (Section 3.3.4)
• Personnel ID system (Section 3.3.6)
• Vehicle ID system (Section 3.3.6)
• Challenge Procedures (Section 3.4.1)</td><td></td><td></td></tr>
<tr><td colspan="3">• LEO Support (Section 3.4.4)
• Security Committee (Section 3.4.3)
• Transient Pilot Sign-In/Out Procedures (Section 3.1.4)</td><td></td></tr>
<tr><td colspan="4">• Signs (Section 3.3.5)
• Documented Security Procedures (Section 3.5.1)
• Positive Passenger/Cargo/Baggage ID (Section 3.1.1)
• All Aircraft Secured (Section 3.2)
• Community Watch Program (Section 3.4.1)
• Contact List (Section 3.5.3)</td></tr>
</table>

Source: TSA Security Guidelines for General Aviation Airports, Appendix B.

5.15 Facility Requirements Summary

This chapter identified several improvements that should be conducted at HKS to improve airfield capacity and safety, provide more flexibility for corporate jet operations, add opportunities for additional aircraft storage, and to improve the overall image of the airport. A summary of the identified requirements is presented in **Table 5-8**.

TABLE 5-8
FACILITY REQUIREMENTS SUMMARY

Airport Component	*Requirement*
Crosswind RW 11/29	Conduct pavement analysis, reevaluate need when rehabilitation becomes necessary
Airfield Capacity	Full parallel TW for RW 16/34, add exit and bypass taxiways, consider EB-75 recommendations
RW 16/34 Length	6,000 feet takeoff, 5,500 feet landing
RW 11/29 Length	Investigate runway use options
RW Strength	Evaluate strength requirements during engineering design phase
Airfield Design	Correct RSA beyond both ends of RW 16/34, ROFA beyond RW 34, and RPZ beyond all RW ends. Consider blast pads beyond both ends of RW 16/34.
PAPI	Install PAPI-4 for RW 34 approaches
Approach Procedures	Conduct updated approach survey, evaluate tree obstructions at Sonny Guy Golf Course to improve RW 34 approach minimums
Storage Hangars	2008 Requirement: 73,550 SF, 2028 Requirement: 144,450 SF
Terminal Building	Construct replacement administration/maintenance facility for JMAA, consider reuse options for old terminal building
Automobile Parking/Access	Improve existing parking areas where necessary, conduct access and signage upgrades
Airport Maintenance	Construct replacement administration/maintenance facility for JMAA
Land Area	Evaluate land area requirements in conjunction with the alternatives analysis
Airport Security	Implement access controls (card reader gates and fencing) to better control access to the airfield

CHAPTER 6
PRELIMINARY ALTERNATIVES

6.0 Introduction to Preliminary Alternatives

This chapter introduces the "preliminary alternatives" for Hawkins Field Airport (HKS), which are intended for discussion purposes between the various airport stakeholders including the Jackson Municipal Airport Authority (JMAA), tenants, and public. The individual components of each preliminary alternative were evaluated to aid in the selection of a "preferred alternative" representing the desired development plan for the 20-year planning period (from 2008 to 2028). For that reason, the preliminary alternatives should be viewed as flexible development plans that may be refined or combined to best satisfy the needs of airport stakeholders. Whereas the preferred alternative illustrates the recommended layout of landside developments such as corporate hangars and aprons (i.e., physical features), the preliminary alternatives highlight potential development zones on the airport property. The preliminary alternatives should subsequently be viewed as a broad examination of relationships between required and desired airside and landside developments, also considering costs and known environmental consequences, thus encouraging a proactive decision making process and a clear understanding of the airport's possibilities and limitations.

In reference to the previous statement, the possibilities and limitations of HKS are most affected by runway development options and Runway Safety Area (RSA) corrective measures. As such, each of the three preliminary alternatives illustrates different airfield development options to highlight impacts to landside development and access. Although it is not practical to explain every component of the preliminary alternatives herein, please be aware that every attempt was made to satisfy required FAA design standards for airfield separations, obstructions, markings, etc., but still should be viewed as schemes that may drastically differ after engineering design, or may never be implemented whatsoever due to insufficient funding or demand.

Generally speaking, the preliminary alternatives are discussed by component: 1) airfield development; 2) landside development; 3) comparative sizing of landside developments; and 4) access improvements. As a potential clean-up opportunity, pavement removal is shown for all unused airfield pavements. However, order-of-magnitude cost estimates are only presented for airfield developments (e.g., runway and taxiway extensions and RSA corrections). Only descriptive characteristics of the landside development zones are included for the preliminary alternatives, in terms of potential use, aircraft and automobile access, and feasibility of development. Detailed cost estimates and environmental consequences are provided for every component of the preferred alternative.

6.1 Declared Distances Terms

It is important to define declared distances terms prior to introducing the preliminarily alternatives. Simply stated, the entire length of a runway might not be declared available for aircraft takeoff and/or landing calculations because of issues such as non-standard RSA or Runway Object Free Area (ROFA) length beyond a runway end, obstructions to approach or departure surfaces, or other property conflicts associated with movement of Runway Protection

Zones (RPZ). According to **FAA Advisory Circular (AC) 150/5300-13**, *Airport Design*, "the use of declared distances for airport design shall be limited to cases of existing constrained airports where it is impracticable to provide the RSA, ROFA, or the RPZ in accordance with [FAA design standards]."[1] Since no declared distances are currently published for the runways at HKS (i.e., the full lengths of both runways are available for aircraft takeoff and landing calculations), future runway developments should only consider modifications to the following distances if no other practicable options are available:

- **Takeoff Run Available (TORA) –** The runway length declared available and suitable for the ground run of an airplane taking off. The entire runway length is typically declared available for TORA, unless obstructions to the departure surface or property conflicts make movement of the departure RPZ infeasible. General aviation aircraft usually follow TORA when evaluating takeoff requirements, as opposed to commercial and corporate aircraft that have stricter operating requirements. TORA is only addressed in preliminary Alternative 1, specifically related to maintaining the current departure RPZ locations for Runway 11-29.
- **Takeoff Distance Available (TODA) –** The TORA plus the length of any remaining clearway beyond the far end of the TORA. At HKS, TODA should always be equal to the runway length.
- **Accelerate-Stop Distance Available (ASDA) –** The distance to accelerate from brake release to V_1 (i.e., takeoff decision speed) and then to decelerate to stop, plus safety factors. ASDA is the runway length available during an aborted takeoff and is used by commercial and corporate aircraft to evaluate takeoff requirements. Restrictions to ASDA occur when there is insufficient RSA length beyond a runway end, such as the RSA length beyond both ends of Runway 16-34 at HKS.
- **Landing Distance Available (LDA) –** The distance from the threshold to complete the approach, touchdown, and decelerate to stop, plus safety factors. If the full runway is not available for landing, a displaced threshold is typically provided to indicate the point where aircraft can touchdown. Common impacts to LDA include obstructions to the approach surface, property conflicts that make movement of the approach RPZ infeasible, and insufficient RSA length prior to the landing threshold.

6.2 Preliminary Alternatives

The fundamental goals of each preliminary alternative were to satisfy the identified length requirements for Runway 16-34 (6,000 feet takeoff, 5,500 feet landing) and to correct the non-standard RSA beyond both ends of Runway 16-34. No specific requirements were identified for Runway 11-29, except to determine a preferred course of action that would most adequately serve HKS.

As a result, **Preliminary Alternative 1** includes the airfield development summarized in **Table 6-1** and depicted in **Figure 6-1**, with the associated landside development zones described in **Table 6-2**.

[1] *FAA AC 150/5300-13, Airport Design, Appendix 14.*

Airfield developments for **<u>Preliminary Alternative 2</u>** are summarized in **Table 6-3** and depicted in **Figure 6-2**, with the associated landside development zones also described in **Table 6-2**.

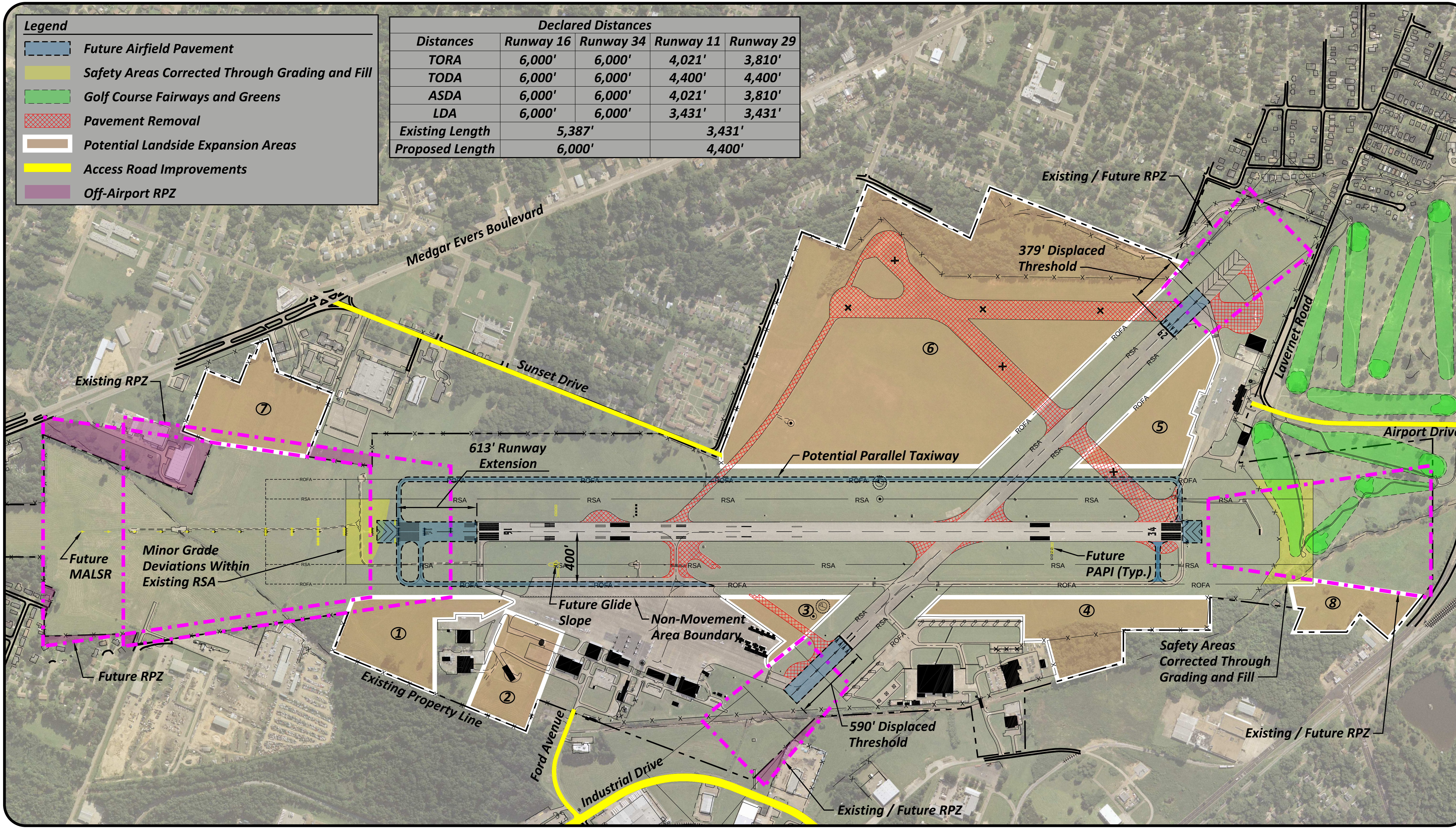
Airfield developments for **<u>Preliminary Alternative 3</u>** are summarized in **Table 6-4** and depicted in **Figure 6-3**, with the associated landside development zones described in **Table 6-5**.

Each table of airfield developments includes a general evaluation using the criteria recommended in **FAA AC 150/5070-6**, *Airport Master Plans*, including order-of-magnitude cost estimates. More detailed information on project costs and environmental consequences are presented with the preferred alternative in Chapter 7. Considering the airfield developments shown under each preliminary alternative, possible landside development zones are evaluated in terms of potential use, aircraft and automobile access, and feasibility of development. The landside development zones do not encompass every portion of the airport property that could be considered for development, just general zones with suggested uses.

TABLE 6-1
ALTERNATIVE 1 AIRFIELD DEVELOPMENT

Action	Runway 16 Extension	Runway 34 RSA Correction (Grading and Fill)	Runway 11-29 Pavement Reclamation	Other Airfield Projects
Identified Requirement	Provide 6,000' for takeoff, 5,500' for landing.	Standard RSA length beyond runway end is 1,000' and 600' prior to the landing.	Identify a preferred course of action that would most adequately serve HKS.	Provide bypass taxiways and potentially consider blast pad installation at the Runway 34 end, removal of unused airfield pavements, and future parallel taxiway construction.
Alternative Description	Includes a 613' extension of the Runway 16 end for a total Runway 16-34 length of 6,000', with installation of a paved blast pad, extension of parallel Taxiway A, and standard RSA. Combined with the Runway 34 RSA correction (grading and fill), full use of Runway 16-34 would be provided for all operations (i.e., no declared distances required).	Includes correction of the RSA and ROFA beyond Runway 34 through grading and filling. Specifically, the RSA and ROFA would be extended into the adjacent golf course to provide 1,000' of clearance beyond the runway end. No activities would be allowed within the associated RSA and ROFA, meaning that reconfiguration of the golf course would be necessary. Although this may be an unpopular corrective measure, the FAA requires such a filling and grading option to at least be considered.	Includes reclamation of the pavement beyond each end of Runway 11-29 for takeoff only. On the Runway 11 end, 590' of former runway pavement might be reclaimed as a displaced threshold, and 379' could be reclaimed on the Runway 29 end as a displaced threshold, thus increasing the total runway length from 3,431' to 4,400'. However, to avoid movement of the approach and departure RPZs (i.e., preventing further off-airport acquisitions), this option calls for the application of declared distances.	1. Bypass taxiways on both ends of Runway 16-34 to improve long-term capacity during peak periods. 2. Paved blast pad installation at the Runway 34 end to prevent jet blast erosion. 3. Potential removal of unused airfield pavements to make the airport more aesthetically appealing (pavement removal shown is approximate). 4. Future parallel taxiways for both Runways 16-34 and Runway 11-29 for improved access to existing and future landside facilities.
Cost Estimate (Preliminary)	$3,200,000	$2,300,000 ($2,000,000 estimated for impacts to golf course and associated mitigation)	May have been partially implemented in conjunction with recent markings and signage project.	$500,000 (bypass taxiways) $300,000 (Runway 34 blast pad) $4,300,000 (future parallel taxiway)
Operational Performance	Satisfies the identified requirements for aircraft takeoff and landing length. Therefore, the 613' extension of the Runway 16 end would improve the runway's operational performance and the airport's ability to better accommodate existing users. Relocation of the MALSR, RPZ, glide slope, and PAPI would be required.	Would provide a standard RSA beyond Runway 34, thus meeting FAA design standards for safe aircraft operation on Runway 16-34. The provision of standard RSA through grading and filling would also prevent the airport from having to implement declared distances for Runway 16-34 operations.	The application of declared distances, particularly for a general aviation runway with no instrumentation, is generally not preferred for runway improvements. However, because additional takeoff length may be provided without significant additional investment, it is worthwhile to discuss the pros and cons of reclaiming pavement on Runway 11-29.	These improvements would produce a more fluid airfield environment for aircraft operations, allowing for improved long-term capacity and access.
Environmental	The RPZ relocation would encompass additional off-airport land (from currently 7.2 acres to 8.9 acres), including some residential properties which are considered incompatible land uses within RPZs. FAA AC 150/5300-13, Airport Design, indicates that "land uses prohibited from the RPZ are residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.)" Therefore, property acquisition may be required with any relocation of the RPZ. Noise analysis may also be necessary.	Because the golf course is a publically-owned recreational facility (Sonny Guy Municipal Golf Course owned by the City of Jackson), this RSA and ROFA correction would impact a Section 4(f) resource. Consequently, it would be preferable to select another means of RSA and ROFA correction if possible.	The pavement reclamation includes no RSA, ROFA, or RPZ relocation, thus it would be limited to restoring existing paved runway sections. Noise analysis may be necessary.	Limited environmental impacts would be expected.
Feasibility	Off-airport RPZ impacts should be discussed with the FAA to determine required mitigation.	Again, this RSA and ROFA corrective action must be evaluated as a matter of FAA procedure. The feasibility of implementing such a filling and grading option is likely to be hindered by the required reconfiguration of the golf course and a possible lack of public support.	This option could be hindered by obstructions to the future Part 77 Imaginary Surfaces. For example, while the portable T-hangars on the south end of the West Ramp are not currently Part 77 obstructions, some would be obstructions with the future displaced threshold extension of the Runway 11 end. As such, this option might impact existing airport buildings, and also impact the potential to access other areas of the airport for potential development.	Depends primarily on demand, desire, and funding. However, reserving for their potential implementation encourages smart planning of future landside facility developments.
Other Considerations	Obstructions to the relocated precision approach surface would have to be evaluated. The existing precision ILS approach procedure, as well as the existing nonprecision approach procedures, would have to be revised for the new Runway 16 end.	Other RSA and ROFA corrective actions are investigated that would not impact the golf course.	If the pavement was reclaimed beyond Runway 29, access to Potential Landside Expansion Zone 6 could only be provided from predominately residential roads to the east of the airport. Other alternatives allow for access to be provided from Airport Drive and around the Runway 29 end.	These improvements may require relocation of certain navigational aids (e.g., wind cone and segmented circle).

Declared Distances				
Distances	Runway 16	Runway 34	Runway 11	Runway 29
TORA	6,000'	6,000'	4,021'	3,810'
TODA	6,000'	6,000'	4,400'	4,400'
ASDA	6,000'	6,000'	4,021'	3,810'
LDA	6,000'	6,000'	3,431'	3,431'
Existing Length	5,387'		3,431'	
Proposed Length	6,000'		4,400'	



N

0 350' 700'

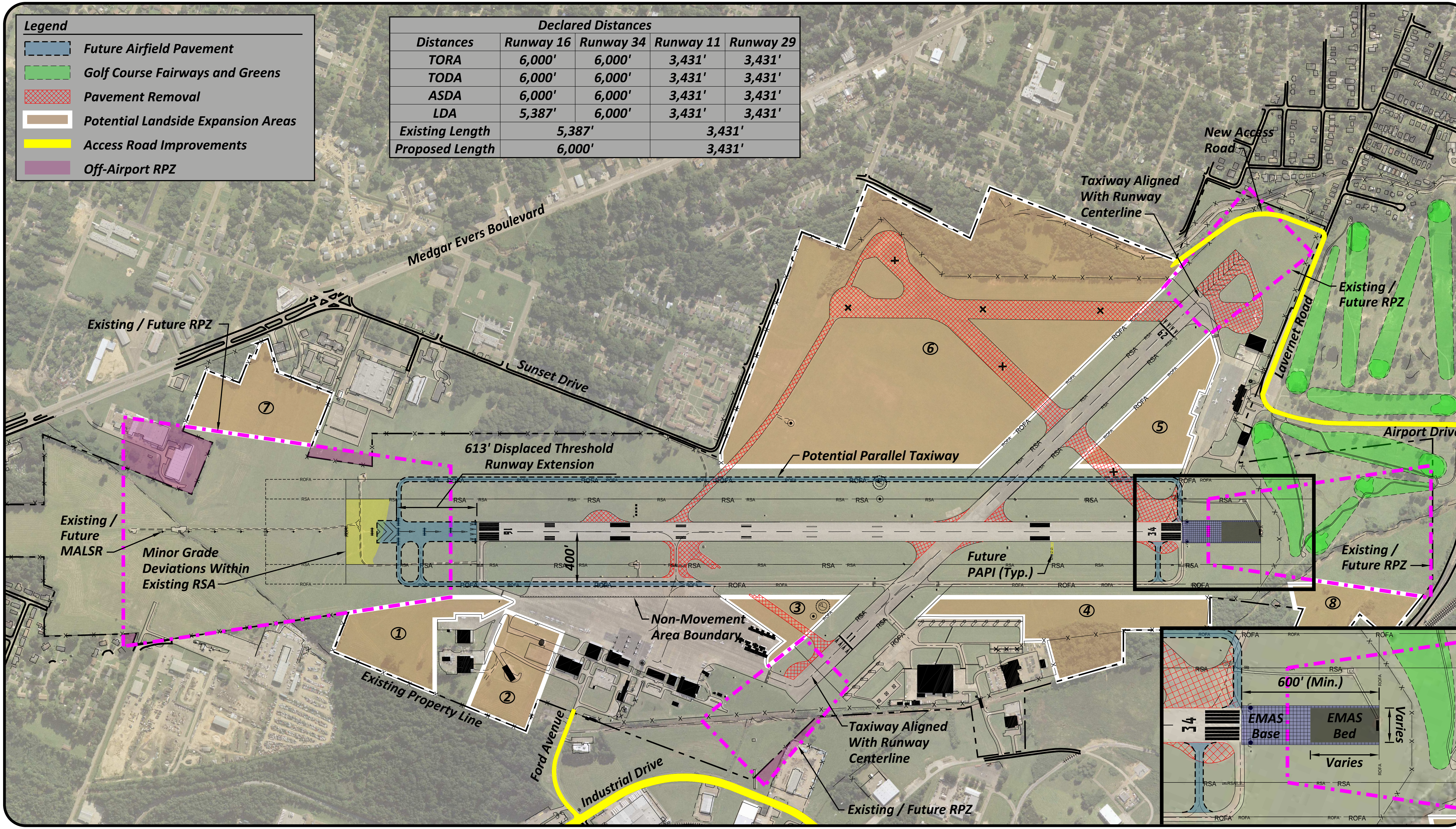
Scale: 1" = 700'

Preliminary Alternative 1

Figure 6-1

TABLE 6-2 ALTERNATIVES 1 AND 2 LANDSIDE DEVELOPMENT ZONES				
Landside Zone	**Approximate Acreage**	**Potential Use**	**Access**	**Feasibility of Development**
Zone 1	Alternative 1 – 11.3 Acres Alternative 2 – 10.3 Acres	Located near the proposed Runway 16 end, this area may best serve future aircraft storage facilities like those adjacent provided by Aero Jackson. Because of the available depth, several corporate hangars could be built along "U" shaped corridors with hangars on all sides of the "U" facing in towards a shared apron. Building should be offset in accordance with the established building restriction line (BRL) to prevent obstructions. It is recommended that any pursuit in Zone 1 maximize development to the property line.	Aircraft access could be provided via a connection to the extended Taxiway A, or by traveling to the West Ramp while maintaining proper clearance from Taxiway A (taxiway-taxilane centerline clearance of 105). Automobile access could be provided by the existing on-airport roads that lead to Aero Jackson, with minor expansion. *Note: Access improvements along Industrial Drive, Ford Avenue, and Airport Drive are included with all alternatives. This may include landscape improvements, a loop road, roadway and parking lot reconfigurations, etc. that would provide the airport with a "gateway entry."*	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply as described in the City of Jackson Code of Ordinances (enacted November 13,2009), Chapter 62 (Floods), Article I (Flood Damage Prevention Ordinance). This may be the most ideal location at HKS for short-term hangar development. Unlike many sites which require removal of old buildings and pavements, there appears to be no existing airport facilities that would hinder development in Zone 1. Further, Zone 1 is relatively flat and its seclusion makes it a safe area for new aircraft storage facilities.
Zone 2	Alternative 1 – 8.6 Acres Alternative 2 – 8.6 Acres	Similar to Zone 1, Zone 2 could also be considered for aircraft storage facilities (e.g., corridors of T-hangars, a "U" shaped corridor of corporate hangars, or combination thereof). However, due to the prime frontage along the West Ramp, it is likely that this area would cater to further expansion of fixed base operator (FBO) terminal, maintenance, or aircraft storage facilities. It is recommended that any pursuit in Zone 2 maximize development to the property line.	Aircraft access would be provided along the existing West Ramp. Automobile access could be provided by the existing on-airport roads that lead to Aero Jackson, with minor expansion.	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply. With some removal of old buildings, Zone 2 would be the next logical choice for new hangar developments. One issue with Zone 2 development is that it might limit the visibility of Aero Jackson's facilities.
Zone 3	Alternative 1 – 3.8 Acres Alternative 2 – 4.3 Acres	This site is only suitable for expansion of the West Ramp.	Aircraft access would be provided along the existing West Ramp. Automobile access would not be necessary.	It is unlikely that expansion of the West Ramp would be necessary, unless existing portions of the West Ramp were used for new building developments. Preliminary Alternative 3 illustrates closure of Runway 11-29 which would open-up a significant amount of property on the west side of the airport (near Zone 3) and thus be beneficial for new hangar developments near Jacobs Aircraft Company.
Zone 4	Alternative 1 – 15.1 Acres Alternative 2 – 15.1 Acres	Expansion of Mississippi Air National Guard facilities.	Aircraft access could be provided via a connection(s) to Taxiway A.	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply. This area should be reserved for expansion of the Mississippi Air National Guard facilities.
Zone 5	Alternative 1 – 10.5 Acres Alternative 2 – 10.5 Acres	Much of the area shown is only suitable for expansion of the South Ramp. However, following restoration of the historic terminal building, the South Ramp itself could be used for a minimal amount of new building development.	Aircraft access could be provided via existing connections to the runways or future parallel taxiway construction. Automobile access would not be necessary.	Some expansion of the South Ramp may ultimately be necessary, particularly considering induced activity growth that might occur following restoration of historic terminal building. As such, this area should be reserved for that purpose.
Zone 6	Alternative 1 – 108.3 Acres Alternative 2 – 108.3 Acres	Due to the large acreage, this area could cater to a mixture of aviation and non-aviation developments such as aircraft storage, FBO, corporate jet maintenance facility, cargo, light industrial, recreational park, etc. Although the area is shown to the property line, development would be constrained in areas because of drainage canals and proximity to residences. Therefore, sensitivity to the adjacent residential areas should be considered with any future developments, and a dense tree buffer should remain. Alternatively, some portion of Zone 6 might be used to develop a recreational park and community center.	Aircraft access could be provided via connections to future parallel taxiways. Under preliminary Alternative 1, it appears that automobile access to Zone 6 could only be provided along existing residential roads (e.g., Sunset Drive) due to obstruction clearance requirements. However, under preliminary Alternative 2, it may be possible to construct a new automobile access road that wraps around the Runway 29 end (pending approval from the FAA). Therefore, automobile access under Alternative 2 might not require non-preferential use of existing residential roads.	Demand and access are the most significant factors driving development within Zone 6. Aviation development in this area would be costly because entirely new aprons, taxiways, and all other associated infrastructure (water, sewer, electric, roads, etc.) would have to be provided. The same would be true for light industrial developments. As mentioned, sensitivity to adjacent residential areas must be considered as part of any new developments within Zone 6. Less costly short-term developments might include a recreational park and community center.
Zone 7	Alternative 1 – 13.2 Acres Alternative 2 – 11.3 Acres	This site is located adjacent to Hinds Community College, and may therefore be considered for expanding their facilities.	If used for aviation purposes, aircraft access could be provided via a connection to a future parallel taxiway. Automobiles can access the site from Medgar Evers Boulevard.	The airport should discuss development options with Hinds Community College and other adjacent property owners.
Zone 8	Alternative 1 – 6.5 Acres Alternative 2 – 6.5 Acres	Due to the location of this site along West Woodrow Wilson Avenue, the area may be best suited for non-aviation development.	This is the only on-airport site with immediate automobile access to West Woodrow Wilson Avenue. The location of this site does not lend itself well to aviation development or access.	Height restrictions may limit development opportunities within this zone, in addition to the presence of floodplains.

TABLE 6-3 ALTERNATIVE 2 AIRFIELD DEVELOPMENT				
Action	**Runway 16 Displaced Threshold Extension**	**Runway 34 RSA Correction (EMAS)**	**Runway 11-29 Maintenance**	**Other Airfield Projects**
Identified Requirement	Provide 6,000' for takeoff, 5,500' for landing.	Standard RSA length beyond runway end is 1,000' and 600' prior to the landing.	Identify a preferred course of action that would most adequately serve HKS.	Provide bypass taxiways and potentially consider removal of unused airfield pavements and future parallel taxiway construction.
Alternative Description	Includes a 613' displaced threshold extension of the Runway 16 end for a total Runway 16-34 length of 6,000', with installation of a paved blast pad, extension of parallel Taxiway A, and standard RSA. The purpose of the displaced threshold extension is to prevent movement of the approach RPZ, thus preventing the need to acquire additional off-airport properties. Further, no relocation of the MALSR (through in-pavement lighting), glide slope, and PAPI would be necessary with a displaced threshold extension, and the existing approach procedures may not have to be revised. The application of declared distances would still be necessary for Runway 16 landing calculations.	Includes correction of the RSA and ROFA beyond Runway 34 by installing an Engineered Material Arresting System (EMAS) – a crushable concrete designed to stop aircraft with maximum takeoff weights greater than 12,500 pounds. According to the FAA's Fact Sheet on EMAS (dated February 16, 2010), "EMAS technology provides safety benefits in cases where land is not available, where it would be expensive for the airport sponsor to buy the land off the end of the runway, or where it is otherwise not possible to have the standard 1,000' overrun [in reference to RSA area]. A standard EMAS installation extends 600' from the end of the runway." By installing an EMAS beyond Runway 34, the RSA and ROFA would be pulled-in to 600' beyond the runway end, thus avoiding impacts to the golf course.	No changes to the existing 3,431' length of Runway 11-29.	1. Bypass taxiways on both ends of Runway 16-34 to improve long-term capacity during peak periods. 2. Potential removal of unused airfield pavements to make the airport more aesthetically appealing (pavement removal shown is approximate). 3. Future parallel taxiways for both Runways 16-34 and Runway 11-29 for improved access to existing and future landside facilities.
Cost Estimate (Preliminary)	$3,100,000	$4,000,000	Administrative	$500,000 (bypass taxiways) $4,300,000 (future parallel taxiway)
Operational Performance	The application of declared distances is generally not preferred for runway improvements, unless no other practicable options are available. Specifically, the displaced threshold extension would not provide additional landing length (i.e., LDA remains 5,387') for Runway 16 operations. Consequently, the identified landing length requirement of 5,500' would not be satisfied for Runway 16 operations, which is the most utilized runway end for HKS approaches.	The installation of an EMAS would enhance the operational performance and safety of the airport by correcting the RSA and ROFA beyond Runway 34.	No changes.	These improvements would produce a more fluid airfield environment for aircraft operations, allowing for improved long-term capacity and access.
Environmental	Limited environmental impacts would be expected. Noise analysis may be necessary.	Limited environmental impacts would be expected.	None.	Limited environmental impacts would be expected.
Feasibility	This may be the most feasible Runway 16 extension option, although the landing length restriction would not satisfy the identified requirement of 5,500' for Runway 16 operations.	EMAS installation is expensive and the FAA tends to prioritize EMAS funding for commercial airports with critical RSA deficiencies. As of June 2010, there were 4 general aviation airports in the U.S. with an EMAS: Greenville Downtown (SC), Dutchess County (NY), Worcester Regional (MA), and Reading Regional (PA). Consequently, the likelihood of funding an EMAS at HKS should be discussed with the FAA.	Not applicable.	Depends primarily on demand, desire, and funding. However, reserving for their potential implementation encourages smart planning of future landside facility developments.
Other Considerations	Future Part 77 Imaginary Surfaces would have to be evaluated for potential obstructions.	EMAS installation beyond Runway 34 would not impact the golf course, and would not restrict ASDA and LDA calculations for Runway 16 operations.	By maintaining the current Runway 29 end location, it may be possible to construct a new access road beyond the Runway 29 end without obstructing the Part 77 Imaginary Surfaces (if approved by the FAA).	These improvements may require relocation of certain navigational aids (e.g., wind cone and segmented circle).

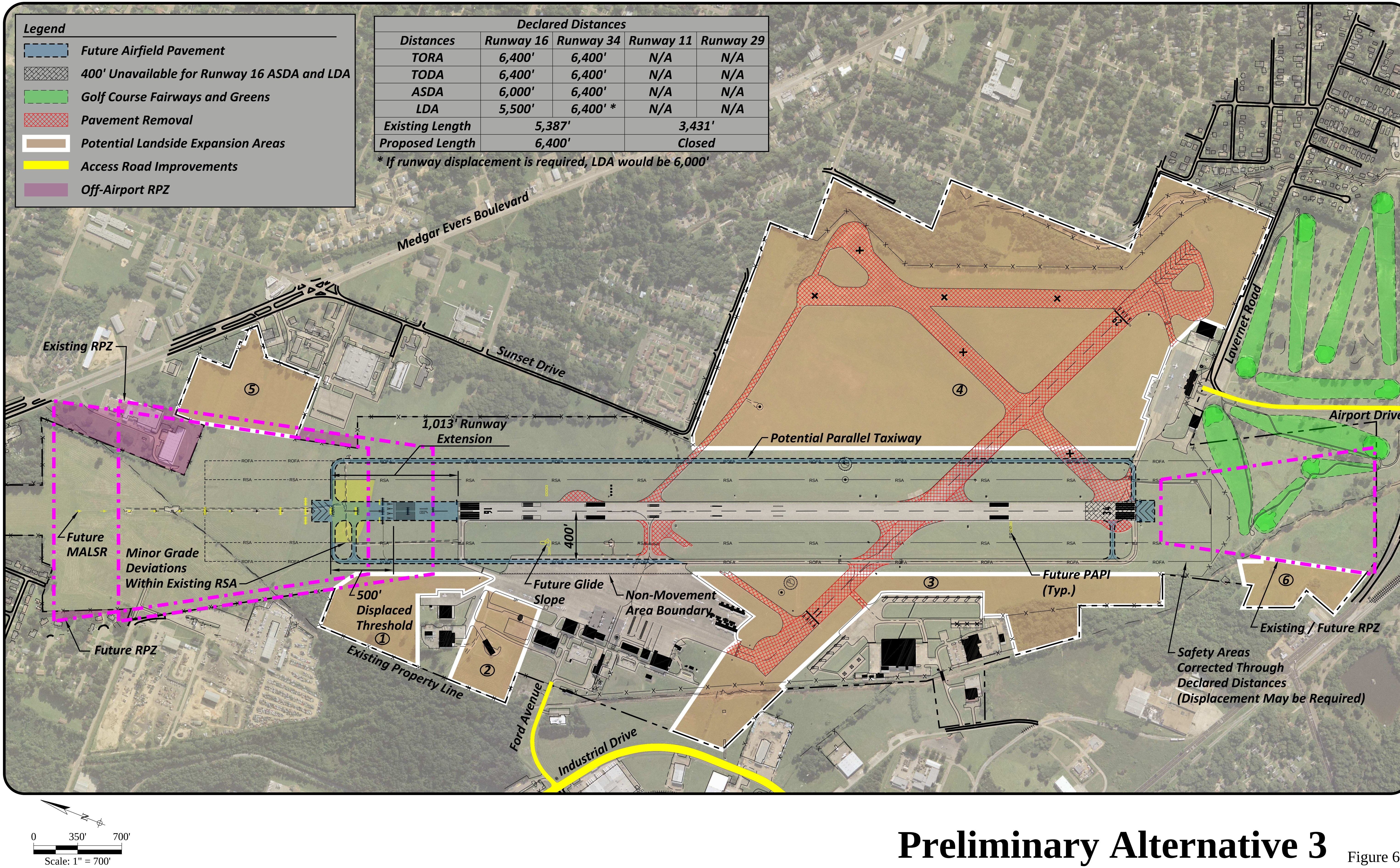


Declared Distances				
Distances	Runway 16	Runway 34	Runway 11	Runway 29
TORA	6,000'	6,000'	3,431'	3,431'
TODA	6,000'	6,000'	3,431'	3,431'
ASDA	6,000'	6,000'	3,431'	3,431'
LDA	5,387'	6,000'	3,431'	3,431'
Existing Length	5,387'		3,431'	
Proposed Length	6,000'		3,431'	

Preliminary Alternative 2

Figure 6-2

TABLE 6-4 ALTERNATIVE 3 AIRFIELD DEVELOPMENT				
Action	**Runway 16 Combination Extension**	**Runway 34 RSA Correction (Declared Distances)**	**Runway 11-29 Closure**	**Other Airfield Projects**
Identified Requirement	Provide 6,000' for takeoff, 5,500' for landing.	Standard RSA length beyond runway end is 1,000' and 600' prior to the landing threshold.	Identify a preferred course of action that would most adequately serve HKS.	Provide bypass taxiways and potentially consider blast pad installation at the Runway 34 end, removal of unused airfield pavements, and future parallel taxiway construction.
Alternative Description	Includes a 1,013' extension of the Runway 16 end for a total Runway 16-34 length of 6,400', with installation of a paved blast pad, extension of parallel Taxiway A, and standard RSA. The extension consists of 513' of standard runway construction, plus a 500' displaced threshold. This extension was designed in conjunction the RSA improvements that simply call for a 400' reduction in the ASDA and LDA for Runway 16 operations (i.e., RSA correction through declared distances – no physical construction required). To offset the 400' loss in ASDA and LDA caused by the RSA correction, the 1,013' extension meets the identified takeoff and landing requirements (6,000' ASDA, 5,500' LDA) for Runway 16 operations. Runway 34 operations would be provided with 6,400' for TORA, TODA, ASDA, and LDA.	Includes correction of the RSA and ROFA beyond Runway 34 through the application of declared distances. Specifically, a 400' reduction in the ASDA and LDA for Runway 16 operations would pull the RSA and ROFA beyond Runway 34 in by 400'. *Note: In order to implement this option, the FAA might still require a 400' displacement of the Runway 34 end to satisfactorily meet all RSA and ROFA requirements. However, this situation would not change the declared distances shown for Runway 16 operations – the only change would be a reduction in Runway 34 LDA from 6,400' to 6,000'.*	Includes closure and removal of Runway 11-29. This option was considered because of the runway's deteriorating condition and no commitment of rehabilitation funding from the FAA. Therefore, this alternative illustrates removal of Runway 11-29 to highlight the landside development opportunities that would become available.	1. Bypass taxiways on both ends of Runway 16-34 to improve long-term capacity during peak periods. 2. Paved blast pad installation at the Runway 34 end to prevent jet blast erosion. 3. Potential removal of unused airfield pavements to make the airport more aesthetically appealing (pavement removal shown is approximate). 4. Future parallel taxiway for Runway 16-34 for improved access to existing and future landside facilities.
Cost Estimate (Preliminary)	$5,000,000	Administrative	Administrative	$500,000 (bypass taxiways) $300,000 (Runway 34 blast pad) $4,600,000 (future parallel taxiway)
Operational Performance	The application of declared distances is generally not preferred for runway improvements, unless no other practicable options are available. However, this option meets and in some cases exceeds the identified takeoff and landing requirements. Relocation of the MALSR, RPZ, glide slope, and PAPI would be required to implement this alternative.	The application of declared distances would enhance the operational performance and safety of the airport by correcting the RSA and ROFA beyond Runway 34. However, declared distances is generally not preferred for runway improvements, unless no other practicable options are available.	HKS would go from a two-runway airport to a one-runway airport. Consequently, HKS would not have a backup runway when Runway 16-34 is closed for maintenance, in addition to for occasional crosswind conditions and touch-and-go operations.	These improvements would produce a more fluid airfield environment for aircraft operations, allowing for improved long-term capacity and access.
Environmental	The RPZ relocation would encompass additional off-airport properties (from currently 7.2 acres to 8.6 acres), including some potentially incompatible land uses. Therefore, property acquisition may be required with any relocation of the RPZ. Noise analysis may also be necessary.	None.	Limited environmental impacts would be expected.	Limited environmental impacts would be expected.
Feasibility	Off-airport RPZ impacts should be discussed with the FAA to determine required mitigation.	Not applicable.	It is anticipated that the FAA would not have any issues with decommissioning Runway 11-29. However, many airport stakeholders might be sensitive to this action.	Depends primarily on demand, desire, and funding. However, reserving for their potential implementation encourages smart planning of future landside facility developments.
Other Considerations	Obstructions to the relocated precision approach surface would have to be evaluated. The existing precision ILS approach procedure, as well as the existing nonprecision approach procedures, would have to be revised for the new Runway 16 threshold.	This Runway 34 RSA correction option should only be selected in combination with a simultaneous extension of Runway 16, thereby maintaining the operational performance of Runway 16-34.	The pros (financial, added development opportunities, etc.) and cons (loss of a backup runway) of this action should be carefully evaluated by airport stakeholders.	These improvements may require relocation of certain navigational aids (e.g., wind cone and segmented circle).



Declared Distances				
Distances	Runway 16	Runway 34	Runway 11	Runway 29
TORA	6,400'	6,400'	N/A	N/A
TODA	6,400'	6,400'	N/A	N/A
ASDA	6,000'	6,400'	N/A	N/A
LDA	5,500'	6,400' *	N/A	N/A
Existing Length	5,387'		3,431'	
Proposed Length	6,400'		Closed	

* If runway displacement is required, LDA would be 6,000'

Preliminary Alternative 3

Figure 6-3

TABLE 6-5 ALTERNATIVE 3 LANDSIDE DEVELOPMENT ZONES				
Landside Zone	**Approximate Acreage**	**Potential Use**	**Access**	**Feasibility of Development**
Zone 1	11.1 Acres	Located near the proposed Runway 16 end, this area may best serve future aircraft storage facilities like those adjacent provided by Aero Jackson. Because of the available depth, several corporate hangars could be built along "U" shaped corridors with hangars on all sides of the "U" facing in towards a shared apron. Building should be offset in accordance with the established building restriction line (BRL) to prevent obstructions. It is recommended that any pursuit in Zone 1 maximize development to the property line.	Aircraft access could be provided via a connection to the extended Taxiway A, or by traveling to the West Ramp while maintaining proper clearance from Taxiway A (taxiway-taxilane centerline clearance of 105). Automobile access could be provided by the existing on-airport roads that lead to Aero Jackson, with minor expansion. *Note: Access improvements along Industrial Drive, Ford Avenue, and Airport Drive are included with all alternatives. This may include landscape improvements, a loop road, roadway and parking lot reconfigurations, etc. that would provide the airport with a "gateway entry."*	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply as described in the City of Jackson Code of Ordinances (enacted November 13,2009), Chapter 62 (Floods), Article I (Flood Damage Prevention Ordinance). This may be the most ideal location at HKS for short-term hangar development. Unlike many sites which require removal of old buildings and pavements, there appears to be no existing airport facilities that would hinder development in Zone 1. Further, Zone 1 is relatively flat and its seclusion makes it a safe area for new aircraft storage facilities.
Zone 2	8.6 Acres	Similar to Zone 1, Zone 2 could also be considered for aircraft storage facilities (e.g., corridors of T-hangars, a "U" shaped corridor of corporate hangars, or combination thereof). However, due to the prime frontage along the West Ramp, it is likely that this area would cater to further expansion of fixed base operator (FBO) terminal, maintenance, or aircraft storage facilities. It is recommended that any pursuit in Zone 2 maximize development to the property line.	Aircraft access would be provided along the existing West Ramp. Automobile access could be provided by the existing on-airport roads that lead to Aero Jackson, with minor expansion.	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply. With some removal of old buildings, Zone 2 would be the next logical choice for new hangar developments. One issue with Zone 2 development is that it might limit the visibility of Aero Jackson's facilities.
Zone 3	40.3 Acres	Through closure of Runway 11-29, this site would become available and suitable for expansion of the West Ramp, new building development adjacent to Jacobs Aircraft Company, and expansion of Mississippi Air National Guard facilities.	Aircraft access would be provided via connections to Taxiway A. Automobile access could be provided by the existing on-airport roads that lead to Jacobs Aircraft Company and the Mississippi Air National Guard, with minor expansion.	Because much of this site is located within a 100-year and 500-year floodplain, specific building standards may apply. If Runway 11-29 were ultimately decommissioned, Zone 3 would be ideal for development. However, the presence of drainage canals may prevent full utilization to the property line.
Zone 4	163.6 Acres	Due to the large acreage, this area could cater to a mixture of aviation and non-aviation developments such as expansion of the South Ramp, aircraft storage, FBO, corporate jet maintenance facility, cargo, light industrial, recreational park, etc. Although the area is shown to the property line, development would be constrained in areas because of drainage canals and proximity to residences. Therefore, sensitivity to the adjacent residential areas should be considered with any future developments, and a dense tree buffer should remain. Alternatively, some portion of Zone 4 might be used to develop a recreational park and community center.	Aircraft access could be provided via connection to a future parallel taxiway. Automobile access would be provided from Airport Drive.	Demand and access are the most significant factors driving development within Zone 4, in addition to closure of Runway 11-29. Aviation development in this area would be costly because new apron area, parallel taxiway, and associated infrastructure (water, sewer, electric, roads, etc.) would have to be provided. The same would be true for light industrial developments. As mentioned, sensitivity to adjacent residential areas must be considered as part of any new developments within Zone 4. Less costly short-term developments might include a recreational park and community center.
Zone 5	12.9 Acres	This site is located adjacent to Hinds Community College, and may therefore be considered for expanding their facilities.	If used for aviation purposes, aircraft access could be provided via a connection to a future parallel taxiway. Automobiles can access the site from Medgar Evers Boulevard.	The airport should discuss development options with Hinds Community College and other adjacent property owners.
Zone 6	6.5 Acres	Due to the location of this site along West Woodrow Wilson Avenue, the area may be best suited for non-aviation development.	This is the only on-airport site with immediate automobile access to West Woodrow Wilson Avenue. The location of this site does not lend itself well to aviation development or access.	Height restrictions may limit development opportunities within this zone, in addition to the presence of floodplains.

6.3 Comparative Sizing of Landside Developments

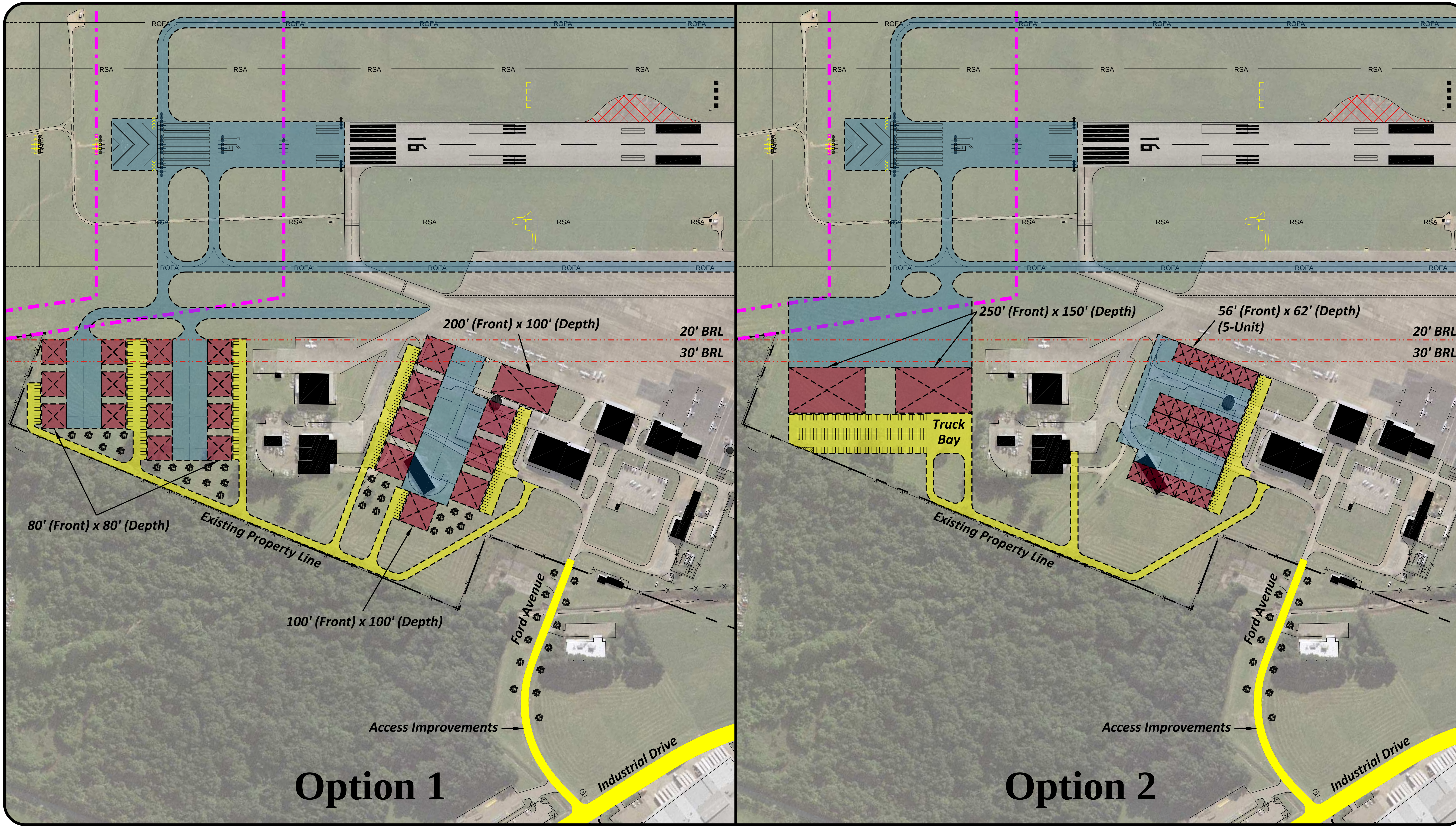
In conjunction with the evaluation of landside development zones on the airport property, a graphic was prepared to facilitate the discussion of potential uses and to obtain a better perspective of facility sizing at HKS. As a result, **Figure 6-4** illustrates different options for developing hangars near the West Ramp, in logical areas for constructing new aircraft storage facilities at HKS. However, because parts of the sites are located within a 100-year and 500-year floodplain, specific building standards may apply as described in the *City of Jackson Code of Ordinances (enacted November 13, 2009), Chapter 62 (Floods), Article I (Flood Damage Prevention Ordinance).* Again, these developments are only shown for sizing and discussion purposes, and should not be considered the only possible development options.

Option 1 depicts three distinct corporate hangar development areas. The northernmost developments include several 80 foot by 80 foot hangars that could be used to store individual corporate aircraft, such as a Citation X jet or a King Air turboprop, or more than one smaller piston aircraft. With the configuration shown, the northernmost areas could serve aircraft with wingspans up to 79 feet in Airplane Design Group (ADG) II. On the West Ramp, 100 foot by 100 foot hangars could be constructed to accommodate larger corporate aircraft in ADG III. While any of the three development areas alone would exceed the identified hangar requirement during the 20-year planning period, they could be phased to be constructed according to demand.

Option 2 depicts two different hangar development concepts in the same areas as **Option 1**. Two 37,500 square foot hangars are shown in the northernmost area and could be utilized for bulk aircraft storage, maintenance, or some other aviation-related business operations. On the west ramp, 20 box hangars are shown that could accommodate piston aircraft or smaller corporate aircraft. Overall, the airport should use this information to evaluate what types of uses might be best for specific areas of the airport while considering long-term demand.

6.4 Potential Access Improvements

As part of the planning process, focus group meetings were held with various airport stakeholders in March 2010. Access and signage upgrades were identified as key improvements needed at HKS. It was further suggested that HKS needs a “gateway entrance” that would enhance the airport’s image and potential for business investment. **Figure 6-5** illustrates a potential loop concept to aid in the discussion of access improvements. This is not intended to represent a roundabout with high volumes of continuously flowing traffic. Although actual loop road construction might require significant alteration from what is shown, such a concept would allow for distinct wayfinding to the various airport businesses through signage and individual entrances and exits (via the loop road). Regardless, physical improvements of the Ford Avenue pavement, with landscaping, should be considered. Intersection improvements may also be possible as an alternate solution.



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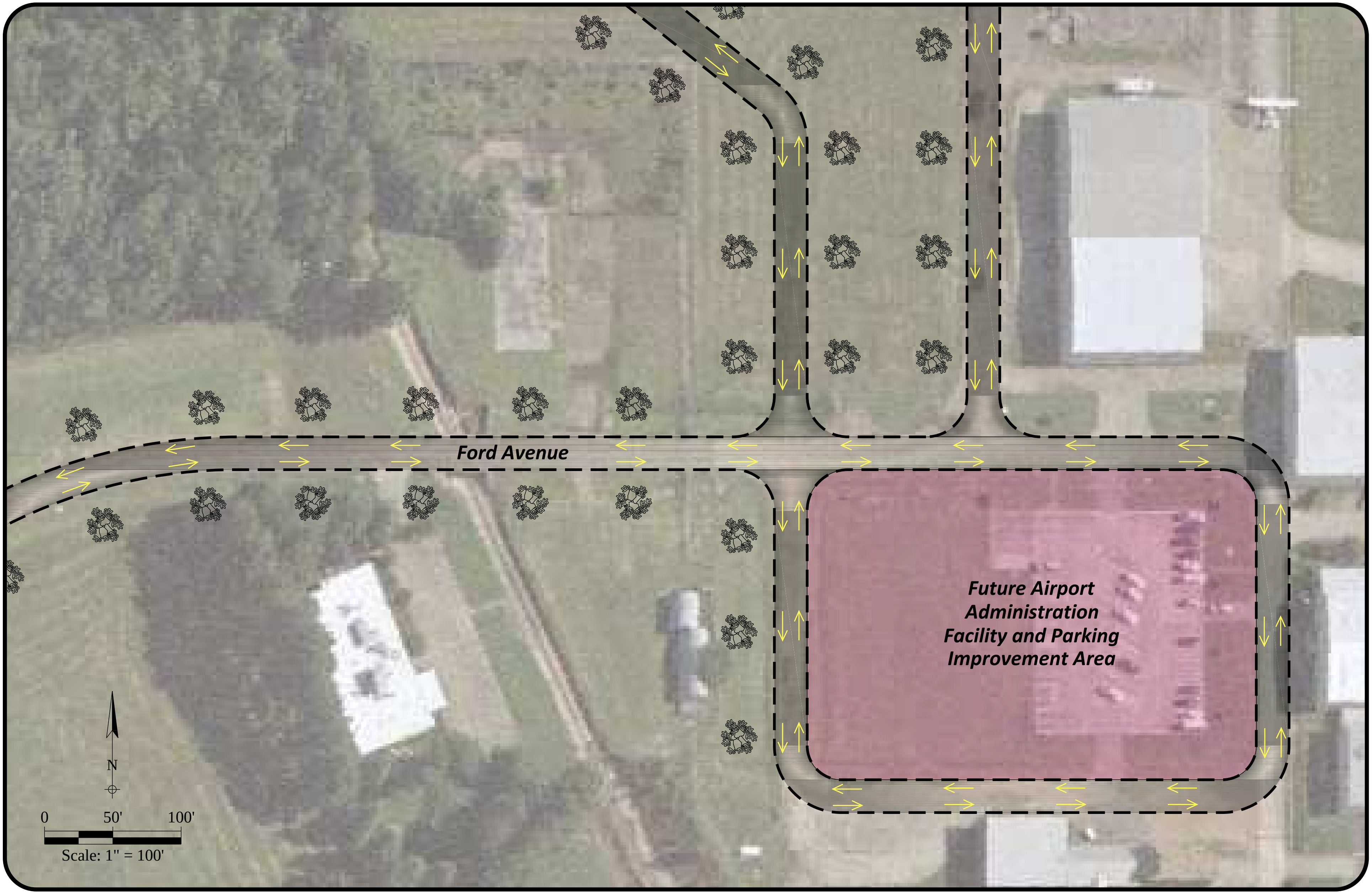
Scale: 1" = 300'

Comparative Sizing Alternative

Figure 6-4



Potential Access Improvements

Figure 6-5

6.5 Preferred Alternative

Based on comparison of the alternatives and consultation with Jackson Municipal Airport Authority, Alternative 3 was selected as the preferred alternative. In addition to being the least expensive to implement, Alternative 3 provides the most opportunity for aviation-related and non-aviation development for the airport. The preferred alternative is illustrated in **Figure 6-6.**

6.6 Aviation-Related and Non-Aviation Development

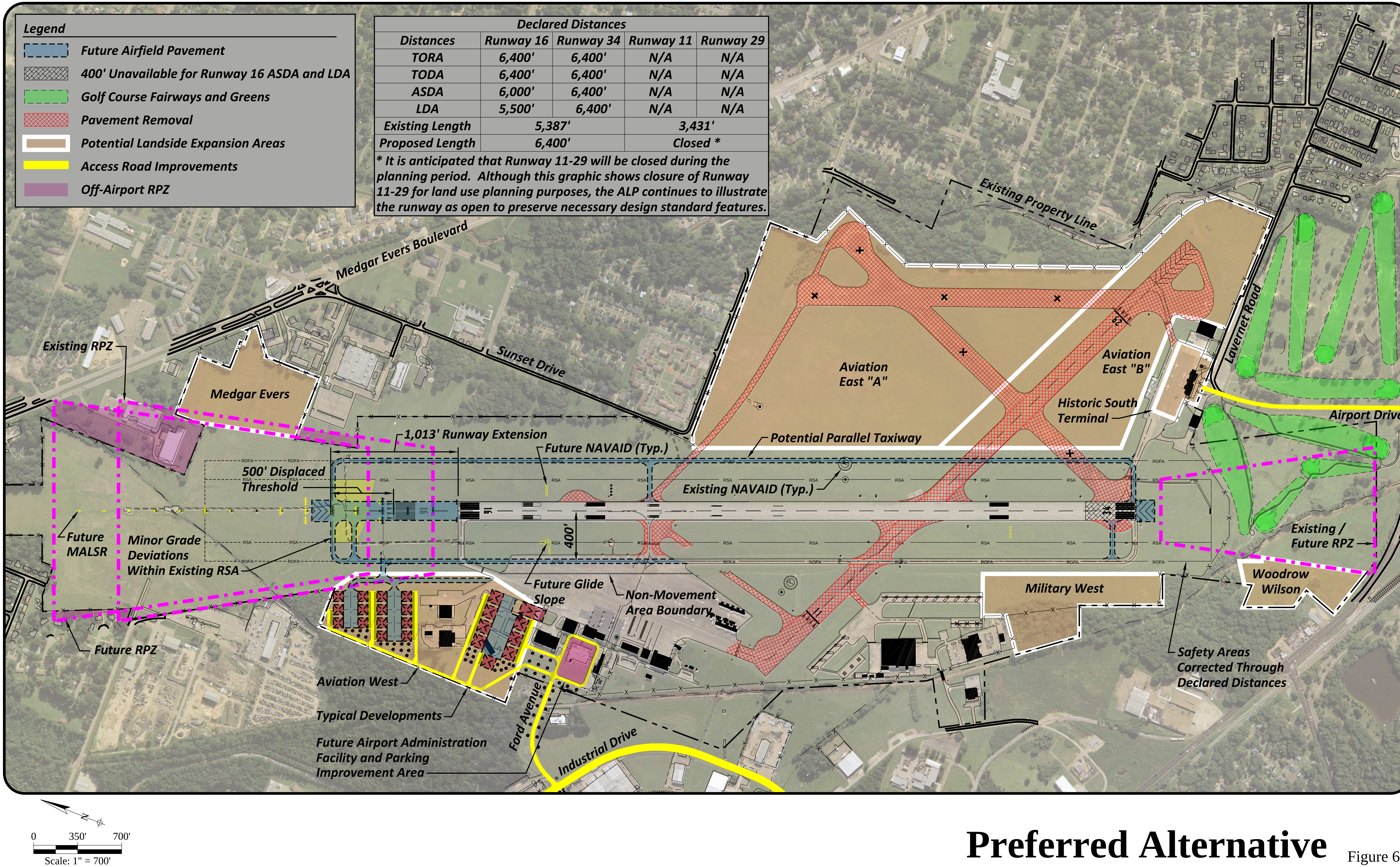
An important consideration of the Master Plan Update for HKS was an identification of opportunities for developing land to stimulate job growth and economic development in West Jackson and also to generate revenues to support future airport improvements. These opportunities are examined within the context of the economic and community development initiatives that provide a framework for further development at HKS.

Related Economic Development Initiatives

The City of Jackson and the surrounding region comprise the largest urban area in Mississippi and are in a cycle of redevelopment and expansion. Over the last decade, major developments have occurred such as Nissan Motor Company's $930M assembly plant and other commercial expansion in Madison County and major retail development in Rankin County.

As the capitol city of the State of Mississippi, Jackson is both its geographic center and largest employment center. Its leading industries are government, health care services, education, research, automotive, and telecommunications. The majority of development activity in the City of Jackson has focused on the Central Business District and includes such prominent developments as the state-of-the- art Telecommunication Center, the Jackson Convention and Visitors Center, and the Pinnacle Office Building. The restored Electric Building, the Plaza, the King Edwards Hotel, and Standard Life Building have significantly increased the residential offerings in downtown Jackson.

Other areas have begun transformative economic development projects as well, specifically in West Jackson near the Airport. Jackson State University has completed the first phase of a 50-acre planned $125M residential and commercial development - University Place of Jackson. The University of Mississippi Medical Center, a nationally renowned medical school and medical research facility, as well as one of the state's leading health care facilities, is planning the creation of a Medical District. The medical facility cluster will include expansion along West Woodrow Wilson Avenue directly east of HKS. The Jackson Medical Mall, in collaboration with the surrounding neighborhoods, has developed a Master Neighborhood Plan to attract additional retail and residential development in an area just east of HKS. A new subdivision and commercial outlets are planned along West Woodrow Wilson Avenue, Livingston Road, and Bailey Avenue. Additional West Jackson initiatives include: Highway 80 corridor, a new multi-million dollar facility at the Jackson Zoo, and the redevelopment of Metrocenter Mall off of Interstate 220.



Declared Distances				
Distances	Runway 16	Runway 34	Runway 11	Runway 29
TORA	6,400'	6,400'	N/A	N/A
TODA	6,400'	6,400'	N/A	N/A
ASDA	6,000'	6,400'	N/A	N/A
LDA	5,500'	6,400'	N/A	N/A
Existing Length	5,387'		3,431'	
Proposed Length	6,400'		Closed *	

* It is anticipated that Runway 11-29 will be closed during the planning period. Although this graphic shows closure of Runway 11-29 for land use planning purposes, the ALP continues to illustrate the runway as open to preserve necessary design standard features.

Preferred Alternative

Figure 6-6

Potential Development Areas at HKS

HKS is well positioned geographically to participate in and be supportive of on-going economic and community development initiatives for West Jackson. Consequently, an analysis was undertaken to identify the highest and best use of land at HKS. The analysis was conducted concurrently with the Master Plan Update's evaluation of alternatives for accommodating the needs of existing and future aviation requirements. The analysis addressed opportunities for aviation-related and non-aviation uses that will complement the preferred aviation development alternative and be compatible with the economic and community development initiatives noted above.

Six areas of HKS were identified for evaluation and are depicted in **Figure 6-7**. As a first step, each site was evaluated to identify:

- Approximate acreage available for development
- Convenience of taxiway access to the airfield
- Availability of vehicular access
- Natural and manmade features that limit development
- Availability of gas, electric, water, and sanitary sewer utilities
- Current zoning classification and permitted uses
- Other attributes influencing development

A strategy session was conducted with JMAA and Jackson's private and public economic development interests to gather their input regarding the development potential of the six areas and to identify potential uses. The matrix depicted in **Figure 6-8** summarizes pertinent information concerning potential uses and characteristics of each site. Each site is discussed in detail below.

Aviation West Site

The Aviation West site has good airfield and vehicular access and is already served by utilities. The site is flat, secluded, and located near the Hawkins Industrial Park. These attributes make it suitable for corporate aviation, medical air transport, and other commercial or industrial uses that are aviation-related.

Approximately 25 acres in size, this parcel currently accommodates the City of Jackson's paint shop and an aircraft hangar. Participants at the strategy session suggested that the JMAA partner with the City of Jackson to develop the entire site, relocating the existing paint shop and hangar to accommodate new development.

There are no severe limitations for development at this location. It is in a 100-year flood plain which can be addressed by the appropriate construction methods. Height limitations range from approximately 30 feet for the portion of the site closest to the runway, to 40 feet for the portion farthest from the runway.

This area, as well as most of the Airport's land, is zoned by the City of Jackson as a Special Use District (SUD). The purpose and intent of the SUD classification is to "to establish needed zoning districts for a number of specific types of land use development with do not fit

0 800 1600

1" = 800'

Development Sites

Figure 6-7

DEVELOPMENT SITE INFORMATION									
Area		**Approximate Acres**	**Possible Users**	**Airfield Access**	**Vehicular Access**	**Development Limitations**	**Utilities**	**Zoning**	**Other Attributes**
Aviation West		24.72	Corporate Aviation, Medical Transport, Aviation Services	Good	Good	100 and 500-Year Floodplain	Gas, Electric, Water, Sanitary Sewer	SUD	Flat, Secluded, Near Industrial Park
Military West		12.2	Reserved For Military Expansion	Excellent	Only Via ANG	100-Year Floodplain, Height Limitations	None - But Gas, Electric, Water, and Sanitary Sewer Nearby	SUD	Secure
Woodrow Wilson		6.9	Commercial, Restaurant	None	Frontage on Bullard West Woodrow Wilson Requires Entry	Aircraft Noise, Height Limitations, Portion in 500-Year Floodplain	None - But Available Nearby	SUD	Frontage on a Main Throughfare, Near Golf Course
Historic South Terminal		4.4	Aviation Related Mixed Use	Good	Good		Gas, Electric, Water, and Sanitary Sewer Available Nearby	SUD	Mississippi Historic Landmark, Near Golf Course
Aviation East			Aeronautical/MRO, Industrial, Biomedical/Research, Aviation Related Corporate Campus	Possible with Parallel Taxiway Construction	Challenging	Requires Community Buffer	None - But Available Nearby	SUD	Large Site, Secluded
	A	79.8							
	B	43.4							
Medgar Evers		11.3	Education Commercial Office	None	Frontage on Medgar Evers but Requires Entry	Height Limitations	None - But Available Nearby	SUD, I-1	Frontage on Main Throughfare

Development Site Matrix

Figure 6-8

compatibility into the established zoning districts because of their size, unique characteristics or institutional nature." Airports are among the permitted uses in a SUD as are directly-related medical, recreational, educational, and civic facilities and uses.

Military West Site

A considerable amount of land is available at HKS for expanding military activities. The Military West site is adjacent on the southeast portion of the Mississippi Army National Guard's (MANG) current facilities. The Military West site is approximately 12 acres. A much larger site can be assembled if the 12-acre parcel is combined with property on its western edge that is owned by the City of Jackson.

The Military West site is being reserved for expansion by the military. The location is secure and access is available via the MANG's entry only. It has excellent airfield access and utilities are available nearby. Height restrictions must be considered in further development of the site due to its flight line location and range from 30 feet to 40 feet depending proximity to the runway. Appropriate construction methods will be necessary to adjust for the site's location in a 100-year flood plain.

Woodrow Wilson Site

Approximately seven acres in size, the Woodrow Wilson site has frontage on West Woodrow Wilson Avenue, a main thoroughfare, and is near two recreational attractions, i.e., the Sonny Guy Municipal Golf Course and the Zoo. Although not located on site, utilities are available nearby.

Non-aviation uses are most appropriate because this site has no direct access to the airfield. A gas station and food distribution business are located just west of the site on Bullard Street. However, some uses in this area are not prospering; these include a vacant convenience store and a vacant warehousing/distribution facility that is for sale. To make the site more attractive for development participants in the economic development strategy session suggested acquiring adjacent property to provide a larger parcel that would be more attractive to developers. Future development by others on nearby properties may bring more traffic to the area and create a market for developing the Woodrow Wilson site. In the meantime, only non-capital intensive uses are suggested, e.g., a farmers' market and food service truck/canteen.

Future uses at this site should consider some of its limitations. The site is near the Runway Protection Zone for Runway 34. Consequently, aircraft overflights and noise are possible. Height restricts ranging from approximately 25 to 30 feet will affect development as well. A portion of the site is in a 500-year flood plain. Additionally, this site is zoned SUD and a zoning change may be necessary to allow future development that is not directly related to airport, medical, recreation, education, or civic facilities and uses.

Historic South Terminal Site
This location encompasses the historic, former terminal building at HKS and its apron area. The site is approximately four acres in size and the building has approximately 11,000 square feet. The JMAA recently received a grant to stabilize this Mississippi Historic Landmark and prevent any further deterioration. Participants in the economic development strategy session consider this site to be one of the most attractive development opportunities at HKS; they stated that its reuse should “make a statement”. Successful reuse of the historic terminal could be a linchpin for stimulating further economic development in this area.
A wide variety of uses are potentially suitable for the Historic South Terminal and an aviation-related mixed use is preferable. This location has good airfield access and apron space for aircraft parking. It has excellent vehicular access to the Central Business District and the region via Airport Drive and West Woodrow Wilson and has community access via Lavernet Road. Its scenic entry is flanked by the Sonny Guy Municipal Golf Course. Utilities are available at the site.

Flooding and aircraft noise are not significant issues in this location. Similar to other areas of HKS, this location is zoned SUD. A zoning change may be necessary depending on the use(s) under consideration.

Aviation East Site
The Aviation East location presents the largest amount of available acreage for development. This is a green field site, located between the Airport’s primary runway and the community of Georgetown. Available acreage ranges from approximately 80 to 120 acres, with the greater area available if the Airport’s secondary runway, 11-29 is closed. A variety of potential uses are suitable here including aeronautical manufacturing, major aircraft repair and overhaul, industrial, biomedical/research, and aviation-related corporate uses. The previous master plan for HKS identified the area for a high tech corporate complex.

Substantial infrastructure improvements are necessary to ready this location for development. Access from West Woodrow Wilson and Airport Road requires a new road onto airport property from Lavernet Road. Vehicular assess from the north or east is not ideal because of the residential nature of the adjoining neighborhood. Airfield access requires a significant taxiway improvement, and the preferred airfield alternative includes a full parallel taxiway on that side of Runway 16-34. There are no utilities on the site today, but utilities are available nearby.

Although there is a stream running along the eastern limits, this location is not in a 100-year or 500-year flood plain. Height limitations and aircraft noise are not significant concerns affecting development here. The entire site is zoned SUD, and a zoning change may be necessary depending on the use. Because of the proximity of residential areas to the east and north, a green space buffer should be incorporated with site development.

Development of the Aviation East site is likely to be a long-term prospect given the lack of infrastructure and the high cost associated with providing airfield and vehicular access. Participants in the economic development strategy session favored the closure and removal of

Runway 11-29 in order to provide as large a site as possible for development and also to facilitate vehicular access to the site.

Medgar Evers Site

The sixth location is next to Hinds Community College and has limited frontage on Medgar Evers Boulevard. Approximately, 11 acres are available for development. Potentially suitable uses include commercial office and educational activities. Medical office space may be suitable at this site and would be compatible with the other medical office space and elderly housing facilities located here. Expanded facilities for Hinds Community College might also be suitable at this location.

The portion of Medgar Evers Boulevard in this area is congested, in need of repair, and requires significant upgrades to enhance its function as a major urban thoroughfare. Development of the site is not likely until such improvements are undertaken and an access point is provided onto the property from Medgar Evers Boulevard.

This location does not have direct access to the Airport's facilities and is not suitable for aviation uses. However, it is near Runway 16, the principal aircraft arrival and departure point at HKS. Aircraft noise and height restrictions should be considered in the site's development plan but do not significantly limit development options. Neither a 100- nor a 500-year flood plain is located in this area. Utilities are readily available nearby. A portion of the site is zoned SUD and another portion is zoned I-1, Light Industrial. Commercial uses would require a change in zoning classification unless they are directly related to medical, recreational, educational, or civic facilities or uses.

6.7 Summary

To conclude, the preferred alternative for HKS accommodates the needs of existing and future users and also creates an opportunity for aviation-related and non-aviation development. Airfield improvements that are identified in the preferred alternative will provide compliance with FAA standards and offer additional runway length capability. Landside development sites will provide ample opportunities for expanding military facilities, adding corporate aviation space, and accommodating medical air transport. Over the long-term, the closure of the crosswind runway will reduce maintenance costs and open a large area of HKS for aviation-related development. Areas of HKS that do not have direct access to the airfield are slated for non-aviation uses compatible with economic and community development initiatives. Together, the aviation, aviation-related and non-aviation opportunities embodied in the preferred alternative will support revenue enhancement objectives for the JMAA, the City of Jackson, neighboring communities, and area businesses.

CHAPTER 7
ENVIRONMENTAL OVERVIEW

7.0 Introduction

This environmental analysis provides federal, state, and local officials as well as the general public with an understanding of the possible environmental impacts of the proposed development at Hawkins Field. The analysis presented in this chapter is modeled after the format and content of an Environmental Assessment, as described in FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*. This format will accommodate the extraction of appropriate information for use in a formal Environmental Assessment, if necessary. (All correspondence and supporting documentation related to this overview is included in Appendix 2 of this document.)

7.1 Federal Environmental Requirements

The *National Environmental Policy Act* (NEPA) was enacted by Congress in 1969 to establish a national policy which ensured that potential environmental impacts would be thoroughly reviewed in all federally-funded projects. Prior to receiving any federal grant, the potential grantee must consider the alternatives to the proposed project(s); identify any mitigation measures that may be necessary; coordinate with appropriate federal, state, and local agencies for review; and document public participation during the decision-making process.

For airport development projects, the FAA is typically the lead governmental agency because the FAA provides funding for most major airport projects. It is also the agency responsible for reviewing the impacts, including social, economic, and environmental, of a proposed airport development project. FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, provides policies and procedures for considering environmental impacts of airport development.

Depending on the nature and extent of airport development, there are three levels of FAA environmental review:

- Development projects that are normally categorically excluded from further environmental analysis.
- Development projects normally requiring an Environmental Assessment (EA).
- Development projects normally requiring an Environmental Impact Statement (EIS).

<u>Categorical Exclusions</u>

FAA Order 5050.4B defines certain airport development projects as categorically excluded from formal environmental study. When a project is identified as a Categorical Exclusion (CE), the proposed airport development project is allowed to proceed without further environmental studies. Airport development actions that are typically categorically excluded from environmental review (EA or EIS) include:

- Runway, taxiway, apron, or loading ramp construction or repair work including extension, strengthening, reconstruction, resurfacing, marking, grooving, fillets, jet blast facilities, and new heliports on existing airports (except where such projects would create environmental impacts off-airport property).
- Installation or upgrading of airfield lighting systems, including runway end identifier lights, visual approach aids, beacons, and electrical distribution systems.
- Installation of miscellaneous items including segmented circles, wind or landing direction indicators, measuring devices, or fencing.
- Construction or expansion of passenger handling facilities.
- Construction, relocation, or repair of entrance or service roads.
- Grading or removal of obstructions on airport property and erosion control measures with no off-airport impacts.
- Landscaping generally and landscaping or construction of physical barriers to diminish impact of airport blast and noise.
- Projects to carry out noise compatibility programs.
- Land acquisition and relocation associated with any of the above items.
- Federal release of airport land.
- Removal of displaced thresholds.

<u>Environmental Assessment</u>
An Environmental Assessment (EA) examines potential impacts to determine whether they exceed a predefined threshold of significance or create sufficient controversy to require the FAA to prepare a full Environmental Impact Statement. If the potential impacts do not exceed the predefined threshold, the FAA can provide a Finding of No Significant Impact (FONSI) and the proposed airport development can proceed. Actions normally requiring an EA include the following:

- A new airport location.
- A new runway.
- A major runway extension that would involve extraordinary circumstances
- Runway strengthening that would result in a 1.5 DNL (the average day-night sound level) increase in noise impacting a sensitive area within the 65 DNL contour.
- Construction or relocation of entrance or service road connections to public roads that adversely affect the capacity of such roads.
- Land acquisition associated with any of the above items including land acquisition that would result in the relocation of residential units when there is evidence of insufficient compatible replacement dwellings, major disruption of business activities, or acquisition that involves land covered under Section 4(f) of the *Department of Transportation Act of 1966*.
- Establishment or relocation of an Instrument Landing System (ILS) or an approach lighting system.

An airport development action that involves extraordinary circumstances or involves historical, archeological, architectural, or cultural significance; land acquisition for conversion of farm land; impacts to wetlands, coastal areas, or floodplains; or endangered and threatened species.

Environmental Impact Statement

If the proposed development will likely result in a significant environmental impact, an Environmental Impact Statement (EIS) may be required. An EIS is a thorough review process that provides local, regional, state, federal, and other agencies an opportunity to participate on the project as coordinating or commenting agencies. The detail of the EIS is determined either by the EA or during the FAA environmental scoping process. Full evaluation of the proposed project or action and all reasonable and prudent alternatives must be undertaken. Actions normally requiring an EIS include:

- The development of a first time airport layout plan or airport location approval for a commercial service airport in a Standard Metropolitan Statistical Area (SMSA).
- Financial participation in or airport layout plan approval of, a new runway capable of handling air carrier aircraft at a commercial service airport in a SMSA.

7.2 Proposed Projects Requiring Environmental Approval

The primary elements of the improvements proposed in this Master Plan include the following:

- Extend Runway 16 (1013’x150)
- Relocation of MALSR Runway 16
- Strengthen/Overlay Runway 16/34

The remainder of this chapter will analyze the typical impact categories included in an Environmental Assessment. While it provides an overview, the FAA-Jackson ADO as well as the appropriate federal, state, and local agencies should be contacted prior to any construction activities to determine the appropriate level of environmental study necessary.

7.3 Environmental Consequences

Noise

When development or expansion of an airport is proposed, one of the primary criticisms that are voiced from people who live or work nearby is the anticipated increase in noise. Land uses surrounding an airport become a very important factor in reducing noise impacts to nearby citizens while, at the same time, maximizing the economic benefits of the airport. Noise exposure maps are useful as a planning tool for both the airport operator and those who plan the growth of the communities in the vicinity of the airport. Based on the noise analysis, the 65 DNL noise contour does not impact any off airport communities. The noise analysis is described in Appendix 1.

Compatible Land Use

The compatibility of existing and planned land uses in the vicinity of airports is usually associated with the extent of the impact from noise. Hawkins Field is located in an urbanized area within the corporate limits of Jackson, Mississippi. Major land uses in the vicinity of Hawkins Field are residential and industrial. Although noise is a major component of compatible land use around an airport, it is not the only factor. The height of structures around an airport should be carefully controlled to prevent obstructions, which can limit the utility and development potential of the airport. Airport zoning ordinances are an effective method of preventing non-compatible land uses and obstructions. Adoption of such zoning ordinances, if not currently in place, is recommended to protect Hawkins Field from incompatible land uses and obstructions.

Social Impacts

An action is judged as having significant social impacts if it involves any of the following:

- The relocation of any residences or businesses.
- The alteration of surface transportation patterns.
- The division or disruption of established communities.
- The disruption of orderly planned development.
- An appreciable change in employment.

No residences or businesses will be relocated nor will any established communities be divided or disrupted due to implementation of the proposed improvements. Alterations to surface transportation patterns may be affected only if proposed access roads as a part of new development occur. Orderly, planned development in the Airport vicinity is not expected to be disrupted. Future development may increase employment in the area but should not affect the traffic flow enough to cause any noticeable impact. Therefore, the proposed Airport improvements will not have a significant social impact based on the above criteria.

Induced Socioeconomic Impacts

Induced socioeconomic impacts involve shifts in patterns of population growth, public service demands, and changes in economic and business activities as a result of airport development. The proposed improvements and or developments are not expected to cause shifts in population growth or public service demands. Proposed developmental improvements actions will ensure that the City of Jackson and Hinds County continue to provide excellent facilities for access to the nation’s air transportation system and will assist regional efforts to provide a competitive business environment.

Air Quality
In accordance with the guidelines set forth in FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects*, an air quality analysis must be performed if the proposed action involves the following:

- Airport location (new airport site).
- Airport development allowing an increase in aircraft operations.
- The construction or expansion of passenger handling or parking facilities.

Based on the detailed air quality assessment procedures outlined in FAA-EE-82-21, *Air Quality Procedures for Civilian and Air Force Bases*, an air carrier airport must exceed 1.3 million annual passenger enplanements or 180,000 general aviation operations to warrant further air quality assessment.

Water Quality

The *Clean Water Act* of 1977, as amended, requires proper authorities to establish water quality standards, control discharges into surface and subsurface waters, develop waste treatment management plans and practices, and issue permits for discharges and for dredge and fill operations. An environmental assessment requires description of design, mitigation measures, and construction controls as they apply to the proposed improvements in order to demonstrate that local, state, and federal water quality standards and permit requirements will be met.

In accordance with the 1982 *Airport Act*, a water quality certification is required for the approval of an Airport Improvement Program application when a project involves airport location, a major runway extension, or a runway location. The Mississippi Department of Environmental Quality should be contacted prior to initiation of construction activities at the Airport to determine if a water quality certification is needed.

Potential adverse impacts to surface and ground water quality are normally related to those resulting from construction activities and the maintenance and use of the new facility. Potential construction-related impacts in water ways include increased turbidity, sedimentation, the improper use of fertilizers, and accidental releases of petroleum products from equipment and machinery. Increased turbidity is a temporary phenomenon while sedimentation, the improper use of fertilizers, and petroleum contamination may have a long-term adverse effect on aquatic organisms and habitats. A National Pollutant Discharge Elimination System (NPDES) Construction General Permit for Storm Water Discharges from Construction Activities will be required from MDEQ for any proposed developmental improvements.

The construction phase of any proposed development should include measures to control erosion and the discharge of suspended materials into water bodies as prescribed in FAA Advisory Circular 150/5370-10B *Standards for Specifying Construction of Airports*. The plans and specifications for the proposed project should incorporate those design and construction measures necessary to control erosion, minimize the impact of sedimentation, and prevent pollution. Specific measures to protect water quality may include the use of silt fences and traps, staked hay bales, seeding and mulching of exposed soils, sedimentation traps, diversion ditches, and ditch and slope linings. The construction phase of the proposed project should also incorporate the use of Best Management Practices (BMPs), as recommended by MDEQ, in an effort to maintain the quality of any storm water discharged from the construction site and to minimize the potential for groundwater contamination during construction efforts. The use of BMPs is required by state-issued NPDES permits for construction projects.

A Notice of Intent (NOI) should be filed and a NPDES permit should be obtained from MDEA prior to initiation of any construction activities associated with the proposed project. Best management practices identify commonly-accepted measures that can be taken, depending on the specific situation, to control erosion and sedimentation. Best management practices also detail recommended procedures related to the handling and storage of petroleum products and other potentially hazardous materials on the construction site.

Potential adverse impacts related to the use and maintenance of the improvements may result from the occasional use of fertilizers, herbicides, and pesticides; random spills; and storm water runoff. The improper use of fertilizers, herbicides, and pesticides can be detrimental to water quality and aquatic organisms. However, if used properly, these substances have very little effect on water quality or aquatic organisms. In regard to random spills, the frequency and magnitude of accidents cannot be accurately predicted. Vehicles and aircraft will have the potential to be involved in accidents which could result in pollution of adjacent water bodies. Airfield storm water runoff may contain varying levels of suspended solids, heavy metals, oils, nutrients, and other pollutants. The potential impact of the pollutant load on adjacent water bodies varies greatly and is influenced by numerous factors including the frequency and duration of rainfall events, wind, vegetation, traffic volumes, and adjacent land uses.

Construction of the proposed improvements to the airport, utilizing erosion and sedimentation control measures and pollution prevention practices, will have minimal short-term and long-term adverse impacts on water quality and aquatic habitats. The potential to adversely impact water quality in adjacent water bodies as a result of normal use and maintenance of the improvements should be no greater than if the proposed projects were not constructed.

Another potential impact to water quality involves Section 404 of The Clean Water Act of 1977 (33 USC 1344) which prohibits the filling activities in waters, including wetlands, of the United States without securing a permit from the U.S. Army Corps of Engineers (USACE). Prior to any proposed construction activities, the USACE should be contacted.

Department of Transportation Act, Section 4(f)

Section 4(f) of *The Department of Transportation Act of 1966* requires that the Secretary of Transportation not approve any project that requires the use of any publicly owned land from public parks, recreation areas, historic sites, or wildlife and waterfowl refuges unless there is no practicable alternative available and provisions to minimize the possibility of harm are included in the planning. Such mitigation measures can include replacement in-kind of land facilities or design measures to mitigate any adverse effects. The Mississippi Department of Environmental Quality (MDEQ), the Mississippi Department of Archives and History (MDAH) and U.S. Fish and Wildlife Service (USFWS) should be contacted for comments.

Historic, Architectural, Archeological, and Cultural Resources

An environmental review for the proposed development actions at the Hawkins Field Airport requires the examination of thresholds concerning two basic laws that apply to impacts to historic and archeological resources. The first law, *The National Historic Preservation Act of 1966*, as amended, requires an initial review to determine whether or not any land involved in potential environmental impact is either in, or eligible for, inclusion into the National Register of Historic Places. The second law, *The Archeological and Historic Preservation Act of 1974*, provides for the survey, recovery, and preservation of significant scientific, prehistoric, historical, or archeological data that could be damaged or irretrievably lost as the result of a development which has received federal funding.

According to a National Register of Historic Places database, no sites were mapped in the target area. However, public records reveal that the Old Hawkins Industrial Terminal Building is registered as a "State Historical Place" and under the Mississippi Antiquities Act; the building is protected from demolition by the Mississippi Department of Archives and History (MDAH). Any proposed development that will involve this building should first contact the MDAH with their proposed construction plans. (See Appendix 2)

Biotic Communities

Biotic communities are defined as areas where plants (flora) and animals (fauna) share a mutual habitat necessary for sustenance and propagation. The level of anticipated impacts determines the level of biotic assessment needed. Several factors are examined to determine the anticipated impacts to biotic communities:

- If there is any taking or impact to public owned wildlife or waterfowl refuge areas with local, regional, state or federal significance.
- If there is threatened or endangered species in the area of immediate impact.
- If the proposed development affects water resources (i.e., wetlands, groundwater, impoundment, diversion, deepening, controlling, modifying, polluting, dredging or filling).

There will be no taking or impact to any public owned wildlife or waterfowl refuge areas with local, regional, state or federal significance. According to the U.S. Fish and Wildlife Service (USFWS), no threatened or endangered species, or their critical habitats, are known to occur in the project area. (See Appendix 2)

Endangered and Threatened Species

According to correspondence from the U.S. Fish and Wildlife Service, there are no federally listed endangered or threatened present in the Airport vicinity. (See Appendix 2)

Wetlands

In general, wetlands are lands that are saturated by surface or ground water at a frequency and duration sufficient to support vegetation and wildlife typically adapted for life in saturated soil conditions. Examples of wetlands include marshes, swamps, and bogs. This unique habitat is valuable to the ecosystem because they provide natural water quality improvement, flood protection, shoreline erosion control, natural resources, and recreation opportunities.

Department of Transportation Order 5660.1A, *Preservation of the Nation's Wetlands*, provides that federal agencies:

1. Avoid, to the extent possible, the short-term and long-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative, and;
2. Avoid the undertaking or providing assistance for new construction located in wetlands unless the agency finds:
   a. that there is no practicable alternative to such construction, and
   b. that the proposed action includes all practicable measures to minimize harm to wetlands, which may result from such use.

Section 404 of *The Clean Water Act of 1977* establishes a program to regulate the discharge of dredged and filled material into waters of the United States, which includes wetlands. Coordination with the U.S. Army Corps of Engineers, which is the permitting authority, is necessary to determine if any jurisdictional wetlands will be directly altered or impacted by a proposed project. In determining whether to issue a permit, the USACE may take into account environmental, economic, and other pertinent factors. According to the National Wetlands Inventory Maps, the airport is not listed as a wetland. However, a formal wetland study that corresponds with specific proposed development is recommended prior to any construction project that involves land disturbing activities. (See Appendix 2)

Floodplains

Floodplains are defined as lowland and relatively flat areas adjoining inland and coastal waters. At a minimum, floodplains include areas that are subject to a 1 percent or greater chance of flooding in any given year (i.e., the area that would be inundated by a 100-year flood). Executive Order 11988, *Floodplain Management*, directs federal agencies to take action to reduce the risk of flood loss, to minimize the impacts of floods on human safety, and to restore and preserve the natural and beneficial values served by floodplains.

Methods that may be used to minimize harm to floodplains include construction controls to minimize erosion and sedimentation, design of the proposed improvements to allow adequate flow circulation and to preserve natural drainage, use of pervious surfaces where practicable, control of runoff, and waste and spoils disposal to avoid contamination of ground and surface water. There are no floodways or floodplains located on the airport.

According to the FEMA Floodplain Map, various areas of the Hawkins Field Airport are located within a 100 and or 500 year flood plain. Therefore, any proposed development should thoroughly review these maps. (See Appendix 2)

Wild and Scenic Rivers

In October 1968, the U.S. Congress created the National Wild and Scenic Rivers System to preserve selected rivers and stream segments in their free-flowing condition to protect the water quality of these rivers and to fulfill other national conservation purposes. In addition to the National Park Service, there are four other federal agencies charged with protecting and managing the wild and scenic rivers: Bureau of Land Management, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Forest Service. There are no wild and scenic rivers located on the airport or in immediate area.

Prime and Unique Farmlands

The Farmland Protection Policy Act (FPPA) of 1981 was designed to minimize the contribution of federal programs to the unnecessary and irreversible conversion of farmland to uses other than those that are agricultural in nature. Farmland protected under this act is defined as “prime” farmland, “unique” farmland, and farmland of local or state importance. Prime farmland is defined as land that has the best combination of physical and chemical characteristics for producing agricultural crops with minimum input of fuel, fertilizer, pesticides, and labor, and without intolerable soil erosion. Unique farmland is land used for production of specific high-value food and fiber crops.

According to Section 523-11-C of the Farmland Protection Policy Act, activities not subject to provisions of FPPA include projects on land already in urban development or used for water storage. There are no prime and unique farmlands located on the airport.

Energy Supply and Natural Resources

Energy requirements associated with airport operations have been divided into two general categories. The first category involves those requirements that relate to an increased demand for electricity from stationary facilities such as the FBO/terminal area and airfield lighting. The second category involves those requirements which relate to providing aircraft fuel. As increased aviation activity and landside development occurs at the airport, the energy requirement will increase, but should not create a substantial demand on local energy supplies. Impacts to any mineral resources that are in short supply or are unusual in nature are not anticipated; however, the Mississippi Division of Environmental Quality, Environmental Geology Division, should be consulted prior to any proposed construction activities.

Light Emissions

Airport lighting systems are generally located in the airfield, apron, terminal, parking lots, and access roadways. FAA Order 5050.4A states that the airport sponsor should consider the extent to which any lighting associated with an airport action will create an annoyance among people in the vicinity of the installation. Several factors are considered to determine if an annoyance may exist:

- Site location of lights or lighting systems.
- Purpose of the light system, either pole or ground mounted, beam angle, intensity, color, flashing frequency, and other pertinent characteristics.
- Possible measures, including shielding or angular adjustments, available to lessen any annoyances.

Light emissions that may create an annoyance to residences in the vicinity of an airport must be taken into account. The Airport is located in an urbanized area and existing land uses surrounding the Airport include primarily residential, commercial, and light industrial. The potential for annoyances as a result of light emissions from the proposed actions is minimal.

Solid Waste

Solid waste is typically affected by commercial, industrial, and terminal development rather than airfield development. Projects that relate only to airfield development, such as runways and taxiways, do not normally result in any direct impact to solid waste collection, control, or disposal other than that associated with the construction itself. It is anticipated that the potential impact of any proposed development would result in a minimal increase in solid waste.

Construction Impacts

The construction of the proposed projects will result in some temporary, unavoidable impacts related to air quality, noise levels, water quality, and traffic inconveniences. The project construction plans will require that the contractor use appropriate measures to minimize any impacts that could possibly occur. The incorporation of the provisions and specifications of FAA Advisory Circular 150/5370-10, *Standards for Specifying the Construction of Airports*, Item P-156, will be used in order to avoid and/or minimize adverse construction impacts. The following discussion briefly describes the possible impacts and measures that may minimize the impacts.

The amount of airborne suspended particulates will be expected to increase temporarily in the project area during construction activities. To minimize impacts from fugitive dust, the contractor will be required to implement adequate dust control measures. Such measures may include, but not be limited to, watering of dirt stockpiles and exposed areas. Additionally, the open burning of vegetation and wood wastes, if undertaken, will be conducted in accordance with all state air pollution control regulations and local ordinances.

Improvements and proposed site developments may cause a slight and temporary impact from the noise and dust associated with the delivery of materials and the operation of machinery on site. The impacts may be mitigated, to some extent, by requiring that the contractor use designated haul routes to avoid residential and other noise sensitive receptors. On-site construction noise may have a negligible, temporary impact on nearby residences and businesses.

The construction of the proposed improvements will include the use of commonly accepted measures to minimize erosion, sedimentation, and water pollution. Erosion and sedimentation control measures may include, but not be limited to, the use of staked hay bales and silt fences during construction. Soils exposed during construction will be re-seeded as soon as practical to minimize erosion potential and establish permanent ground cover.

The construction activities will require a NPDES Permit. Implementation of Best Management Practices by the contractor, as mandated by the required NPDES permit, will ensure that all steps necessary to maintain the quality of water discharged from the construction site into adjacent water courses, wetlands, and water bodies are taken. Wastes, loose soil, and other debris will not be deposited into streams or other water bodies.

The disposal of wastes, debris, and excavated material will be handled in accordance with applicable state and local requirements. The contractor will be required to use legally operating landfills for the disposal of wastes, debris, and materials generated during the construction of the proposed project.

Prior to implementation of any construction activities, the Mississippi Department of Environmental Quality, the Mississippi Department of Archives and History as well of other local, state and federal agencies should be contacted to ensure that all applicable permits have been obtained.

Chapter 8
Airport Layout Plans

8.0 Introduction

This chapter provides a graphic description of the recommended airport development program for both airfield and landside facilities which is recommended in the Hawkins Field Master Plan Update. The airport plan drawings include the following components:

- Cover Sheet
- Airport Layout Plan Drawing (ALP)
- Terminal Area Drawings
- Airport Airspace Drawings (1 of 3)
- Airport Airspace Drawings (2 of 3)
- Airport Airspace Drawings (3 of 3)
- Inner Portion of Approach Surface Drawing – Runway 11-29
- Inner Portion of Approach Surface Drawing – Runway 16
- Inner Portion of Approach Surface Drawing – Runway 34
- Land Use Drawing
- Airport Property Map Drawing

Drawings depicted in these plans are contained in the 11” x 17” set of airport plan sheets accompanying this Master Plan Update. Additional 24” x 36” plans are provided to the Airport sponsor, MDOT, and FAA as a part of the approval process as well. An explanation of the purpose and highlights of each of these plans is improved in the following sections.

8.1 Airfield Design Standards

The airfield planning and design standards depicted on this plan set are based upon the future role of the Airport and the critical aircraft expected to utilize the Airport. The FAA publishes advisory circulars containing airfield design standards that are intended to provide guidance, with flexibility in application, to insure the safety, economy, efficiency, and longevity of the Airport.

The FAA advisory circular that applies to design of airfield facilities at the Airport is FAA Advisory Circular 150/5300-13, Change 13 - *Airport Design*.

8.2 Cover Sheet

The Airport Layout Plan (ALP) is shown in Figure 8-1

8.3 Airport Layout Plan Drawing

The Airport Layout Plan Drawing (ALP) is shown in Figure 8-2 and depicts the existing airport facilities as well as the recommended facilities required to accommodate forecast demand through the Year 2029.

AIRPORT LAYOUT PLAN SET

HAWKINS FIELD AIRPORT
JACKSON, HINDS COUNTY, MISSISSIPPI

MISSISSIPPI

LOCATION MAP
NOT TO SCALE

VICINITY MAP
NOT TO SCALE

INDEX TO DRAWINGS

DRAWING NO.	DESCRIPTION
1	COVER SHEET
2	AIRPORT LAYOUT PLAN DRAWING
3	TERMINAL AREA DRAWING
4	AIRPORT AIRSPACE DRAWING (1 OF 3)
5	AIRPORT AIRSPACE DRAWING (2 OF 3)
6	AIRPORT AIRSPACE DRAWING (3 OF 3)
7	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11-29
8	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 16
9	INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 34
10	LAND USE DRAWING
11	AIRPORT PROPERTY MAP DRAWING

May 2011

PREPARED FOR:

Jackson Municipal Airport Authority

PREPARED BY:

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:

The LPA Group Incorporated

THE LPA GROUP LPA AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

FAA A.I.P. Project Number: 3-28-0037-041-2008

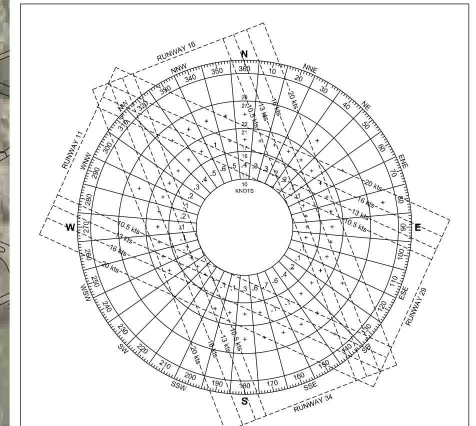
Hawkins Field Airport (HKS)

Jackson, Hinds County, Mississippi

BWSC — Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH: THE LPA GROUP AVIATION CONSULTANTS — A UNIT OF MICHAEL BAKER CORPORATION

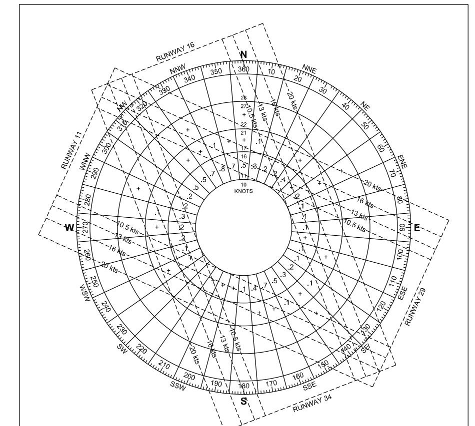
Designer:	Checked by:
APN	PJ
Technician:	Project Number:
APN	PL809001



Crosswind Component (kts/mph)	Wind Coverage % Runway 11-29	Runway 16-34	Combined
10.5 / 12	96.34	98.60	99.40
13 / 15	98.45	99.40	99.83
16 / 18	99.81	99.92	99.99
20 / 23	99.98	99.99	100.00

Wind Data Source:
National Climatic Data Center
Station 72235 - Jackson, MS
75,840 Observations
Period Of Record: (1999 - 2008)

ALL WEATHER WINDROSE



Crosswind Component (kts/mph)	Wind Coverage % Runway 11-29	Runway 16-34	Combined
10.5 / 12	96.63	98.09	99.44
13 / 15	98.68	99.06	99.83
16 / 18	99.77	99.78	99.94
20 / 23	99.95	99.96	99.99

Wind Data Source:
National Climatic Data Center
Station 72235 - Jackson, MS
4,444 Observations
Period Of Record: (1997 - 2006)

IFR WINDROSE

MAGNETIC DECLINATION 0° 12' W OCT 2010
ANNUAL RATE OF CHANGE 0° 7' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

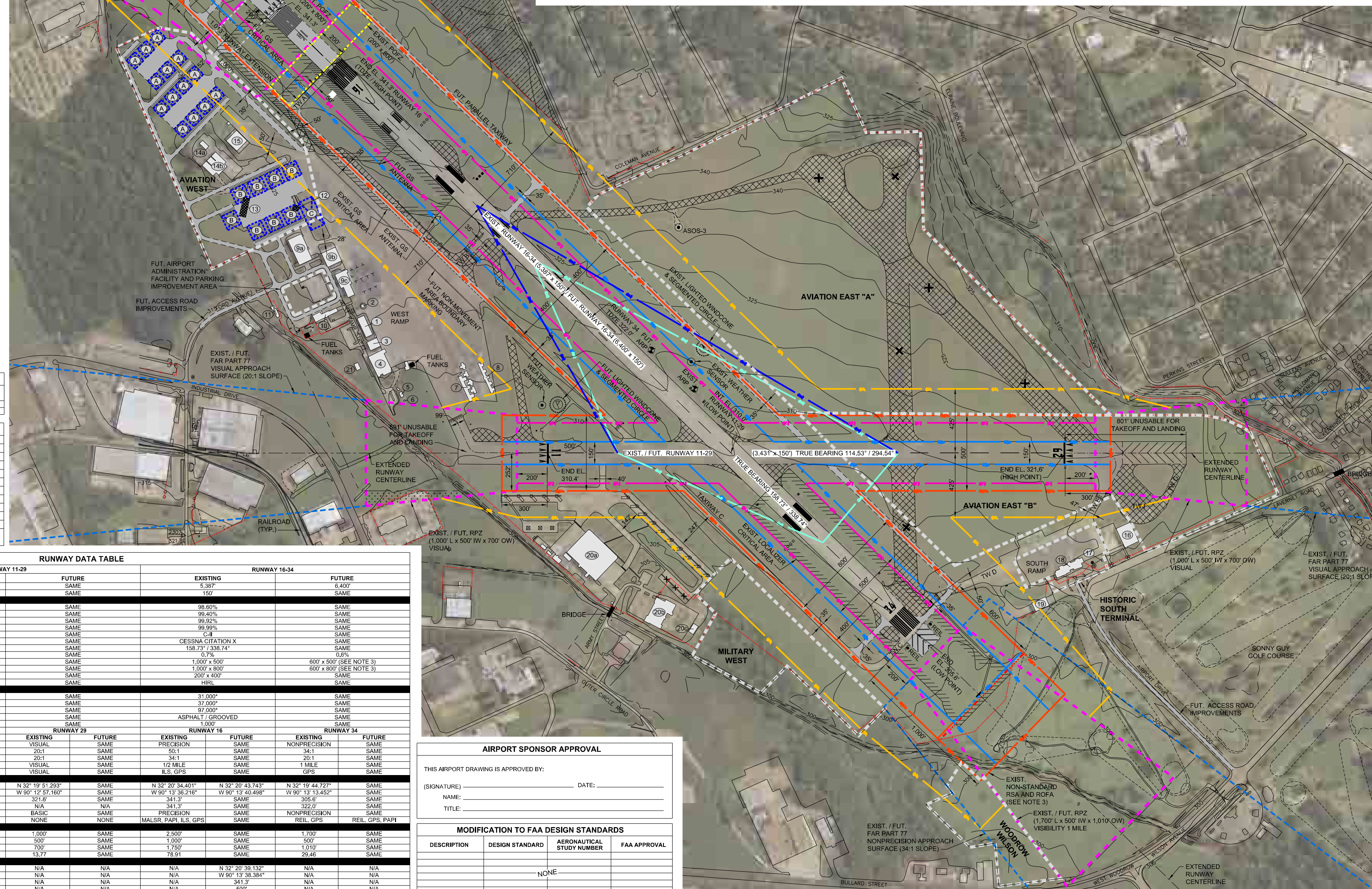
0 150' 300' 600'
SCALE: 1" = 300'

LEGEND

DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		N/A
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
DRAINAGE FEATURE		N/A
RVZ		
RSA		
ROFA		
OFZ		
BRL		
NAVAIDS / LIGHTING		
FENCE		
AIRPORT BEACON		
LANDSIDE DEVELOPMENT ZONE	N/A	
PAVEMENT REMOVAL	N/A	
EASEMENT		
BUILDING REMOVAL / RELOCATION	N/A	

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. EXISTING RSA BEYOND RUNWAY 16 INCLUDES NON-STANDARD GRADE. TO BE GRADED OR CORRECTED IN CONJUNCTION WITH FUTURE EXTENSION OF RUNWAY 16.
3. EXISTING RSA AND ROFA BEYOND RUNWAY 34 EXTEND INTO GOLF COURSE. TO BE CORRECTED THROUGH DECLARED DISTANCES.
4. BUILDING RESTRICTION LINES (BRL) DEPICT THE FOLLOWING:
   - PARALLEL TO RUNWAY 16-34, THE BRL IS BASED ON A TRANSITIONAL SURFACE ELEVATION OF 30'. FUTURE BUILDINGS WITHIN THE BRL WOULD BE CONSTRUCTED SUCH THAT THEY WOULD NOT PENETRATE THE TRANSITIONAL SURFACE.
   - PARALLEL TO RUNWAY 11-29, THE BRL IS BASED ON A TRANSITIONAL SURFACE ELEVATION OF 25'.
5. PAVEMENT REMOVAL SHOWN REPRESENTS DESIRED IMPROVEMENTS TO ENCOURAGE FUTURE DEVELOPMENT AND PREVENT RUNWAY INCURSIONS IN ACCORDANCE WITH FAA ENGINEERING BRIEF NO. 75: INCORPORATION OF RUNWAY INCURSION PREVENTION INTO TAXIWAY AND APRON DESIGN.
6. JMAA INTENDS TO KEEP RUNWAY 11-29 OPEN UNTIL REHABILITATION BECOMES NECESSARY, AT WHICH TIME ALL FUNDING MECHANISMS WOULD BE REEVALUATED AND A FINAL DETERMINATION REGARDING THE PRESERVATION OR CLOSURE OF RUNWAY 11-29 WOULD BE MADE. IF RUNWAY 11-29 IS ULTIMATELY CLOSED, THE ASSOCIATED LAND WOULD BECOME AVAILABLE FOR FUTURE AVIATION DEVELOPMENT.



EXISTING BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	± TOP ELEV.
1	TERMINAL BUILDING	348.2'
2	ATCT	387.0'
3	CORPORATE HANGAR	347.4'
4	JACOBS AIRCRAFT COMPANY	343.4'
5	ELECTRICAL VAULT	329.1'
6	ELECTRICAL VAULT	322.8'
7	T-HANGARS	334.7'
8	T-HANGARS	328.5'
9a	AERO JACKSON FBO HANGAR	351.2'
9b	AERO JACKSON FBO HANGAR	350.4'
9c	AERO JACKSON FBO HANGAR	352.6'
10	AIRPORT MAINTENANCE FACILITY	340.9'
11	PRIVATE FLYING CLUB	330.0'
12	AERO JACKSON *	340.0'
13	AERO JACKSON HANGAR *	339.9'
14a	CITY OF JACKSON STORAGE BUILDING	343.6'
14b	CITY OF JACKSON STORAGE BUILDING	350.7'
15	AERO JACKSON HANGAR	354.0'
16	JIM HANKINS AIR SERVICE	343.1'
17	AIRPORT SOUTH SECURITY POST	325.0'
18	OLD TERMINAL BUILDING (TO BE RESTORED)	348.0'
19	CIVIL AIR PATROL	323.7'
20a	MISSISSIPPI ARMY NATIONAL GUARD	359.6'
20b	MISSISSIPPI ARMY NATIONAL GUARD	328.5'
20c	MISSISSIPPI ARMY NATIONAL GUARD	320.0'
21	TRAILER	328.4'

* BUILDING TO BE REMOVED OR RELOCATED

NOTE:
ALL BUILDING TOP ELEVATIONS ARE ESTIMATED

FUTURE BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	± TOP ELEV.
A	80'x80' HANGAR (14)	348.5'
B	100'x100' HANGAR (8)	350.5'
C	200'X100' HANGAR	350.5'

NOTE:
FUTURE BUILDING ELEVATIONS ARE ESTIMATED USING HIGHEST GROUND ELEVATION IN VICINITY

FUTURE DECLARED DISTANCES

DISTANCES	RUNWAY 16	RUNWAY 34	RUNWAY 11	RUNWAY 29
TORA	6,400'	6,400'	N/A	N/A
TODA	6,400'	6,400'	N/A	N/A
ASDA	6,000'	6,400'	N/A	N/A
LDA	5,500'	6,400'	N/A	N/A
EXISTING LENGTH	5,387'		3,431'	
PROPOSED LENGTH	6,400'		3,431'	

NOTE:
NO DECLARED DISTANCES ARE CURRENTLY PUBLISHED FOR EITHER RUNWAY

LIST OF NON-STANDARD ITEMS

DESCRIPTION	DESIGN STANDARD	NON-STANDARD CONDITION	COMMENTS
RUNWAY 16 RSA	1,000' x 500'	GRADE	SEE NOTE 2
RUNWAY 34 RSA AND ROFA	1,000' x 500'	LENGTH	SEE NOTE 3

AIRPORT DATA TABLE

DESCRIPTION		EXISTING	FUTURE
AIRPORT ACREAGE		602.29	SAME
SERVICE LEVEL (NPIAS)		GENERAL AVIATION	SAME
AIRPORT REFERENCE CODE (ARC)		C-II	SAME
AIRPORT ELEVATION (AMSL)		341.3'	SAME
MEAN MAX. TEMP. (HOTTEST MONTH)		91.4° JULY	SAME
AIRPORT REFERENCE POINT	LATITUDE	N 32° 20' 05.197"	N 32° 20' 08.691"
(NAD 83)	LONGITUDE	W 90° 13' 21.143"	W 90° 13' 22.919"
MAGNETIC DECLINATION		0° 12' W	SAME
AIRPORT IDENTIFIER		HKS	SAME
TAXIWAY LIGHTING		MITL	MITL
AIRPORT NAVAIDS		BEACON, PAPI, GPS, ILS, LOC, REIL, MALSR	SAME

RUNWAY DATA TABLE

	RUNWAY 11-29 EXISTING	RUNWAY 11-29 FUTURE	RUNWAY 16-34 EXISTING	RUNWAY 16-34 FUTURE
RUNWAY LENGTH	3,431'	SAME	5,387'	6,400'
RUNWAY WIDTH	150'	SAME	150'	SAME
RUNWAY WIND COVERAGE % (ALL WEATHER)				
10.5KTS / 12MPH	96.34%	SAME	98.60%	SAME
13KTS / 15MPH	98.45%	SAME	99.40%	SAME
16KTS / 18MPH	99.81%	SAME	99.92%	SAME
20KTS / 23MPH	99.98%	SAME	99.99%	SAME
AIRPORT REFERENCE CODE	B-II	SAME	C-II	SAME
CRITICAL AIRCRAFT	BEECHCRAFT KING AIR B200GT	SAME	CESSNA CITATION X	SAME
TRUE BEARING	114.53° / 294.54°	SAME	158.73° / 338.74°	SAME
EFFECTIVE GRADIENT (%)	0.3%	SAME	0.7%	0.6%
RSA DIMENSIONS (RUNWAY END)	300' x 150'	SAME	1,000' x 500'	600' x 500' (SEE NOTE 3)
ROFA DIMENSIONS (RUNWAY END)	300' x 500'	SAME	1,000' x 800'	600' x 800' (SEE NOTE 3)
OFZ DIMENSIONS (RUNWAY END)	200' x 400'	SAME	200' x 400'	SAME
RUNWAY LIGHTING	MIRL	SAME	HIRL	SAME
PAVEMENT STRENGTH:				
SINGLE WHEEL GEAR (LBS)	30,000	SAME	31,000*	SAME
DUAL WHEEL GEAR (LBS)	40,000	SAME	37,000*	SAME
DUAL TANDEM WHEEL GEAR (LBS)	80,000	SAME	97,000*	SAME
SURFACE COMPOSITION	CONCRETE	SAME	ASPHALT / GROOVED	SAME
PRIMARY SURFACE WIDTH (FAR PART 77)	500'	SAME	1,000'	SAME

	RUNWAY 11 EXISTING	RUNWAY 11 FUTURE	RUNWAY 29 EXISTING	RUNWAY 29 FUTURE	RUNWAY 16 EXISTING	RUNWAY 16 FUTURE	RUNWAY 34 EXISTING	RUNWAY 34 FUTURE
APPROACH CATEGORY	VISUAL	SAME	VISUAL	SAME	PRECISION	SAME	NONPRECISION	SAME
APPROACH SURFACE SLOPE	20:1	SAME	20:1	SAME	50:1	SAME	34:1	SAME
THRESHOLD SITING SURFACE	20:1	SAME	20:1	SAME	34:1	SAME	20:1	SAME
APPROACH MINIMUMS	VISUAL	SAME	VISUAL	SAME	1/2 MILE	SAME	1 MILE	SAME
TYPE OF APPROACH TO RUNWAY END	VISUAL	SAME	VISUAL	SAME	ILS, GPS	SAME	GPS	SAME
RUNWAY END COORDINATES								
LATITUDE (NAD 83)	N 32° 20' 05.387"	SAME	N 32° 19' 51.293"	SAME	N 32° 20' 34.401"	N 32° 20' 43.743"	N 32° 19' 44.727"	SAME
LONGITUDE (NAD 83)	W 90° 13' 33.537"	SAME	W 90° 12' 57.160"	SAME	W 90° 13' 36.216"	W 90° 13' 40.498"	W 90° 13' 13.452"	SAME
RUNWAY END ELEVATION (NAVD 88)	310.4'	SAME	321.6'	SAME	341.3'	SAME	305.6'	SAME
TOUCHDOWN ZONE ELEVATION (NAVD 88)	N/A	N/A	N/A	N/A	341.3'	SAME	322.0'	SAME
RUNWAY MARKINGS	BASIC	SAME	BASIC	SAME	PRECISION	SAME	NONPRECISION	SAME
NAVAIDS	NONE	NONE	NONE	NONE	MALSR, PAPI, ILS, GPS	SAME	REIL, GPS	REIL, GPS, PAPI
RUNWAY PROTECTION ZONE:								
LENGTH	1,000'	SAME	1,000'	SAME	2,500'	SAME	1,700'	SAME
INNER WIDTH	500'	SAME	500'	SAME	1,000'	SAME	500'	SAME
OUTER WIDTH	700'	SAME	700'	SAME	1,750'	SAME	1,010'	SAME
ACRES	13.77	SAME	13.77	SAME	78.91	SAME	29.46	SAME
DISPLACED THRESHOLD COORDINATES								
LATITUDE (NAD 83)	N/A	N/A	N/A	N/A	N/A	N 32° 20' 39.132"	N/A	N/A
LONGITUDE (NAD 83)	N/A	N/A	N/A	N/A	N/A	W 90° 13' 38.384"	N/A	N/A
DISPLACED THRESHOLD ELEVATION	N/A	N/A	N/A	N/A	N/A	341.3'	N/A	N/A
DISPLACED THRESHOLD DISTANCE	N/A	N/A	N/A	N/A	N/A	500'	N/A	N/A

* PAVEMENT STRENGTHS OBTAINED FROM 1994 GEOTECHNICAL INVESTIGATION

AIRPORT SPONSOR APPROVAL

THIS AIRPORT DRAWING IS APPROVED BY:

(SIGNATURE): ______________________ DATE: ____________

NAME: ______________________

TITLE: ______________________

MODIFICATION TO FAA DESIGN STANDARDS

DESCRIPTION	DESIGN STANDARD	AERONAUTICAL STUDY NUMBER	FAA APPROVAL
NONE			

CONSTRUCTION NOTICE REQUIREMENT

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

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name: **AIRPORT LAYOUT PLAN UPDATE**

Drawing Name: **AIRPORT LAYOUT PLAN DRAWING**

FAA AIP Project Number: 3-28-0037-041-2008

Date:	Division:
MAY 2011	
Scale: (30X42)	Sheet Number:
1"=300'	
	Drawing Number: 2

Major airfield improvements incorporated in the ALP are summarized as follows:
1. Extend Runway 16 – 1503'x150'
2. Apron Rehabilitation
3. Strengthen/Overlay Runway 16/34
4. Correct Airfield Deficiencies

The ALP illustrates graphically the existing and proposed facilities identified in the Layout Plan Update. Phased development, estimated project costs and funding sources for the recommended improvements according to the 5 -, 10 -, and 20 – year planning periods are recommended in Chapter 9, "Capital Improvement Program."

8.4 Terminal Area Drawing

The Terminal Area Drawing for Hawkins Field is shown in Figure 8-3. This drawing shows a higher level of detail regarding the existing and proposed terminal area facilities.

8.5 Airport Airspace Drawings

Ideally, airports should be located so that the surrounding airspace is free and clear of obstructions that could be hazardous to aircraft on takeoff or approach paths. It is therefore necessary to maintain the surrounding airspace free of obstacles, preventing the development and growth of obstructions to airspace that could cause the airport to become unusable. The regulations for the protection of airspace in the vicinity of airports are established by a set of imaginary obstacle limitation surfaces, penetration of which represents an obstacle to air navigation. The geometry of the imaginary surfaces is governed by the regulations set forth in Federal Aviation Regulations (FAR) Part 77. Protected airspace around airports is made up of five principal imaginary surfaces, which are shown on the FAR Part 77 Airspace Drawing:

- Primary Surface – A surface that is longitudinally centered on the runway, extending 200 feet beyond the threshold in each direction in the case of paved runways.
- Approach Surface – An inclined plane or combination of planes of varying width and slope running from the ends of the primary surface.
- Horizontal Surface – A horizontal plane 150 feet above the established airport elevation. Its dimensions are governed by the runway service category and approach procedure desired.
- Transitional Surface – An inclined plane with a slope of 7:1 extending upward and outward from the Primary Surface and Approach Surface, terminating at the horizontal surface where these two planes meet.
- Conical Surface – An inclined plant at a slope of 20:1 extending upward and outward from the periphery of the horizontal surface for a horizontal distance of 4,000 feet.

Figures 8-4 – 8-6 present the Airport Airspace Drawings, which depicts the proposed surfaces. The plan should be officially adopted and integrated into the planning and zoning ordinances for the city in order to prevent obstructions that could preclude future development.

Hawkins Field Airport

HKS

Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

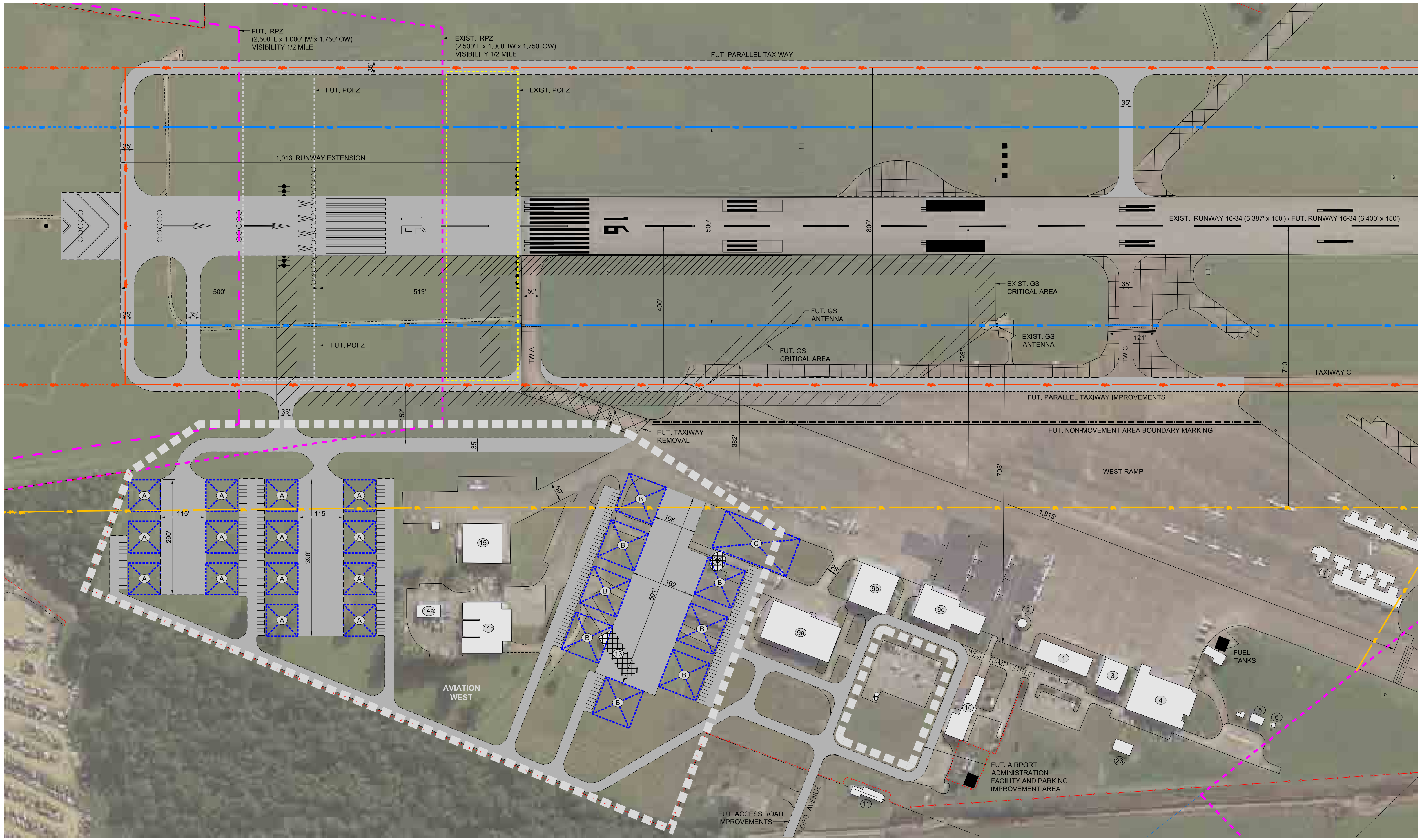
IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

MAGNETIC DECLINATION 0° 12' W OCT 2010
ANNUAL RATE OF CHANGE 0° 7' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

TRUE
MAGNETIC

0 50' 100' 200'
SCALE: 1" = 100'



LEGEND		
DESCRIPTION	**EXISTING**	**FUTURE**
PROPERTY LINE		N/A
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
RSA		
ROFA		
BRL		
NAVAIDS / LIGHTING		
FENCE		
PAVEMENT REMOVAL	N/A	
BUILDING REMOVAL / RELOCATION	N/A	

EXISTING BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	≈ TOP ELEV.
1	TERMINAL BUILDING	348.2'
2	ATCT	387.0'
3	CORPORATE HANGAR	347.4'
4	JACOBS AIRCRAFT SERVICE	343.4'
5	ELECTRICAL VAULT	329.1'
6	ELECTRICAL VAULT	322.8'
7	T-HANGARS	334.7'
9a	AERO JACKSON FBO HANGAR	351.2'
9b	AERO JACKSON FBO HANGAR	350.4'
9c	AERO JACKSON FBO HANGAR	352.6'
10	AIRPORT MAINTENANCE FACILITY	340.9'
11	PRIVATE FLYING CLUB	330.0'
12	AERO JACKSON *	340.0'
13	AERO JACKSON HANGAR *	339.9'
14a	CITY OF JACKSON STORAGE BUILDINGS	343.6'
14b	CITY OF JACKSON STORAGE BUILDINGS	350.7'
15	AERO JACKSON HANGAR	354.0'

* BUILDING TO BE REMOVED OR RELOCATED

NOTE:
ALL BUILDING ELEVATIONS ARE ESTIMATED

FUTURE BUILDING DATA TABLE

BLDG. NO.	DESCRIPTION	≈ TOP ELEV.
A	80'x80' HANGAR (14)	348.5'
B	100'x100' HANGAR (8)	350.5'
C	200'X100' HANGAR	350.5'

NOTE:
FUTURE BUILDING ELEVATIONS ARE ESTIMATED USING HIGHEST GROUND ELEVATION IN VICINITY

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. BUILDING RESTRICTION LINES (BRL) DEPICT THE FOLLOWING:
   - PARALLEL TO RUNWAY 16-34, THE BRL IS BASED ON A TRANSITIONAL SURFACE ELEVATION OF 30'. FUTURE BUILDINGS WITHIN THE BRL WOULD BE CONSTRUCTED SUCH THAT THEY WOULD NOT PENETRATE THE TRANSITIONAL SURFACE.
   - PARALLEL TO RUNWAY 11-29, THE BRL IS BASED ON A TRANSITIONAL SURFACE ELEVATION OF 25'.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name:

AIRPORT LAYOUT PLAN UPDATE

Drawing Name:

TERMINAL AREA DRAWING

FAA AIP Project Number: 3-28-0037-041-2008

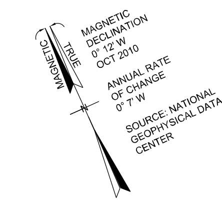
Date: MAY 2011

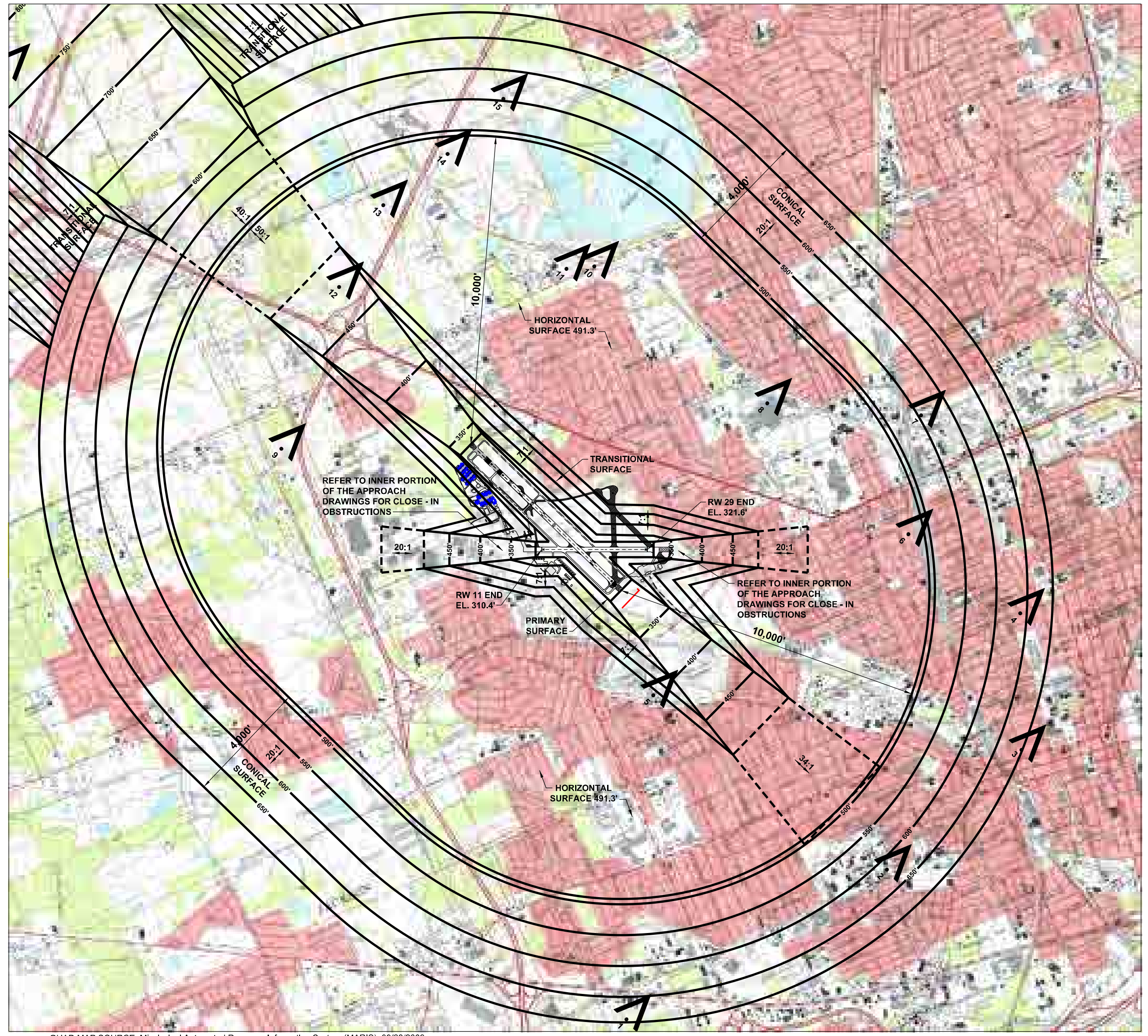
Division:

Scale: (30X42) 1"=100'

Sheet Number:

Drawing Number: 3

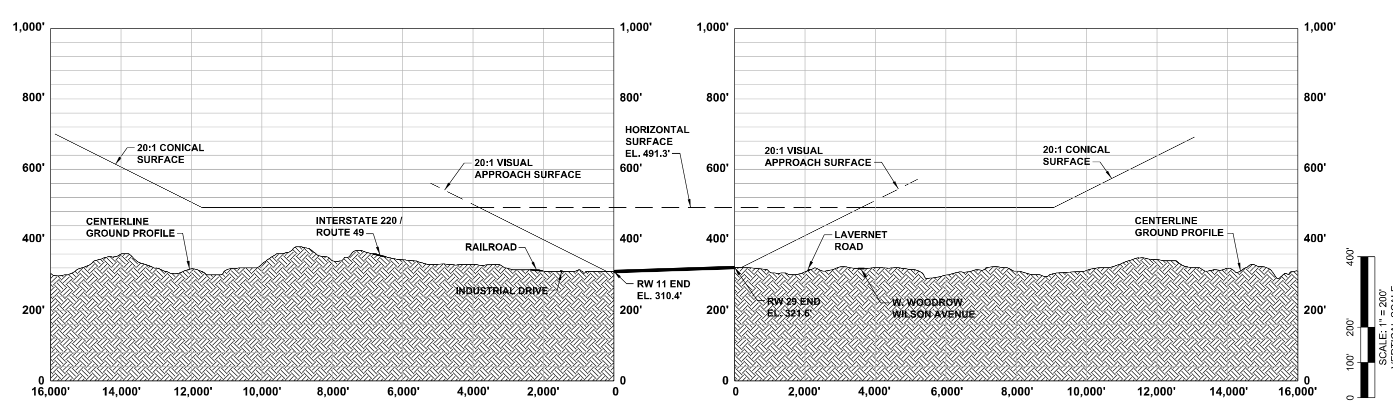




QUAD MAP SOURCE: Mississippi Automated Resource Information System (MARIS) 09/28/2009

PLAN VIEW RUNWAY 11-29

0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE



PROFILE VIEW RUNWAY 11-29

0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE

OBSTRUCTION DATA TABLE

#	CITY	TYPE	AGL	AMSL	LIGHTING	MARKING	FAA STUDY #
1	JACKSON	TOWER	315	649	RED LIGHTING	NONE	
2	JACKSON	BLDG	216	530	UNKNOWN	NONE	
3	JACKSON	TANK	143	493	RED LIGHTING	UNKNOWN	
4	JACKSON	T-L TWR	52	427	NO LIGHTS	UNKNOWN	
5	JACKSON	TOWERS 3	160	526	RED LIGHTING	MARKED	1992ASO01486OE
6	JACKSON	TOWER	156	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2002ASO05103OE
7	JACKSON	T-L TWR	52	437	NO LIGHTS	NONE	
8	JACKSON	STACK	176	506	RED LIGHTING		
9	JACKSON	TOWER	164	509	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2005ASO00184OE
10	JACKSON	TOWER	186	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	1998ASO01202OE
11	JACKSON	TOWER	150	519	OTHER, LIGHTING NOT LISTED ABOVE	NONE	
12	JACKSON	T-L TWR	52	427	NO LIGHTS	UNKNOWN	
13	JACKSON	TOWERS 3	160	526	RED LIGHTING	MARKED	1992ASO01486OE
14	JACKSON	TOWER	156	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2002ASO05103OE
15	JACKSON	T-L TWR	52	437	NO LIGHTS	NONE	

OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), JULY 2009

HKS Hawkins Field Airport
Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:
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A UNIT OF MICHAEL BAKER CORPORATION

Designer:	Checked by:
APN	PJ
Technician: APN	Project Number: PL809001

NOTES:

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2. THE AIRPORT PROPERTY IS ZONED AS A SPECIAL USE DISTRICT (SUD) WITHIN THE CITY OF JACKSON. THE JACKSON, MISSISSIPPI ZONING ORDINANCE (ADOPTED MAY 29, 1974, LAST AMENDED MARCH 8, 2006) DEFINES ZONING CLASSIFICATIONS, REGULATIONS, AND PERMITTED LAND USES WITHIN THE CITY BOUNDARIES. NO HEIGHT RESTRICTION ZONING IS CONTAINED WITHIN THE JACKSON, MISSISSIPPI ZONING ORDINANCE.

REVISIONS

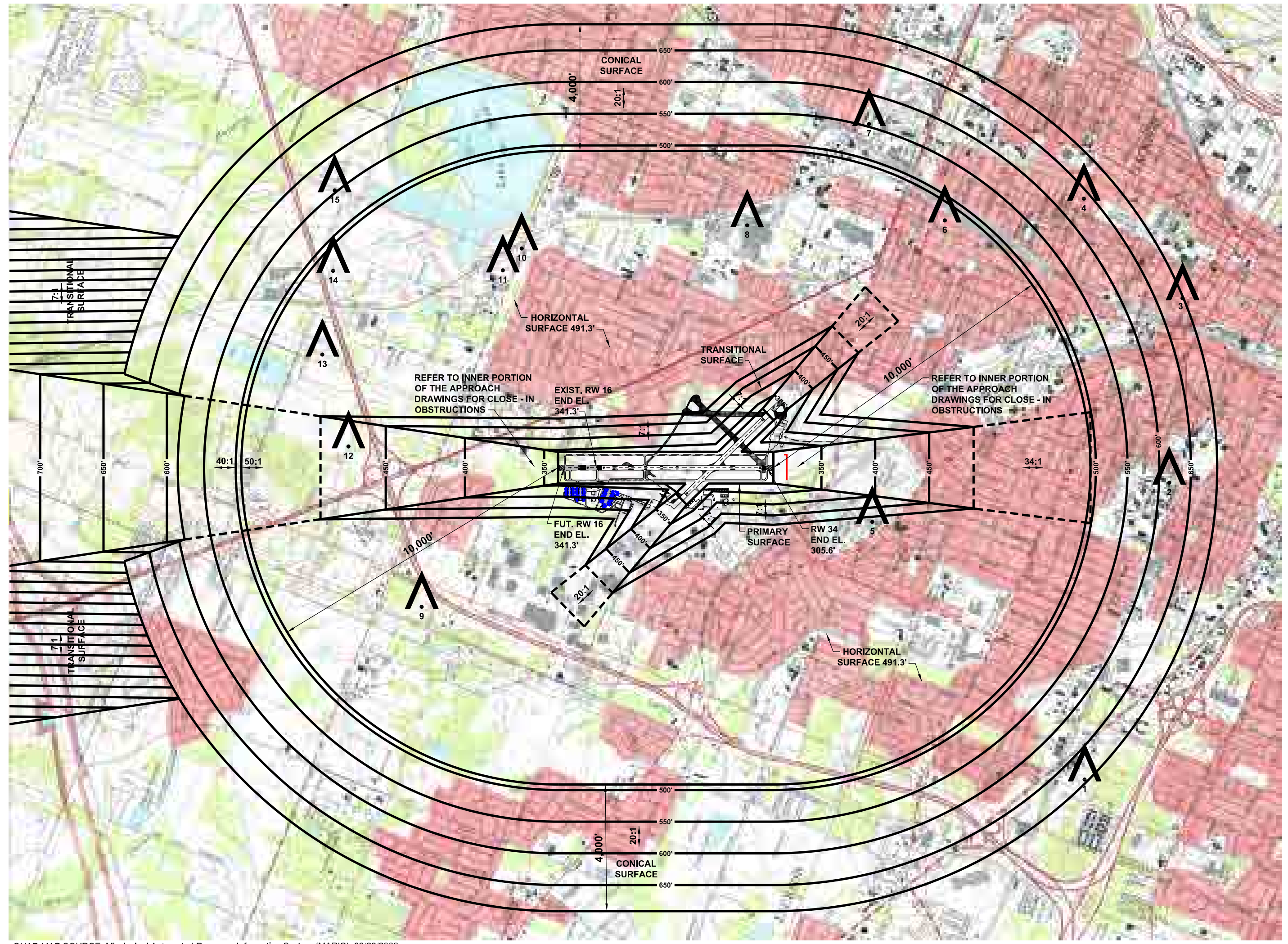
NO.	DESCRIPTION	DATE	BY

Project Name:
AIRPORT LAYOUT PLAN UPDATE

Drawing Name:
AIRPORT AIRSPACE DRAWING (1 OF 3)

FAA AIP Project Number: 3-28-0037-041-2008

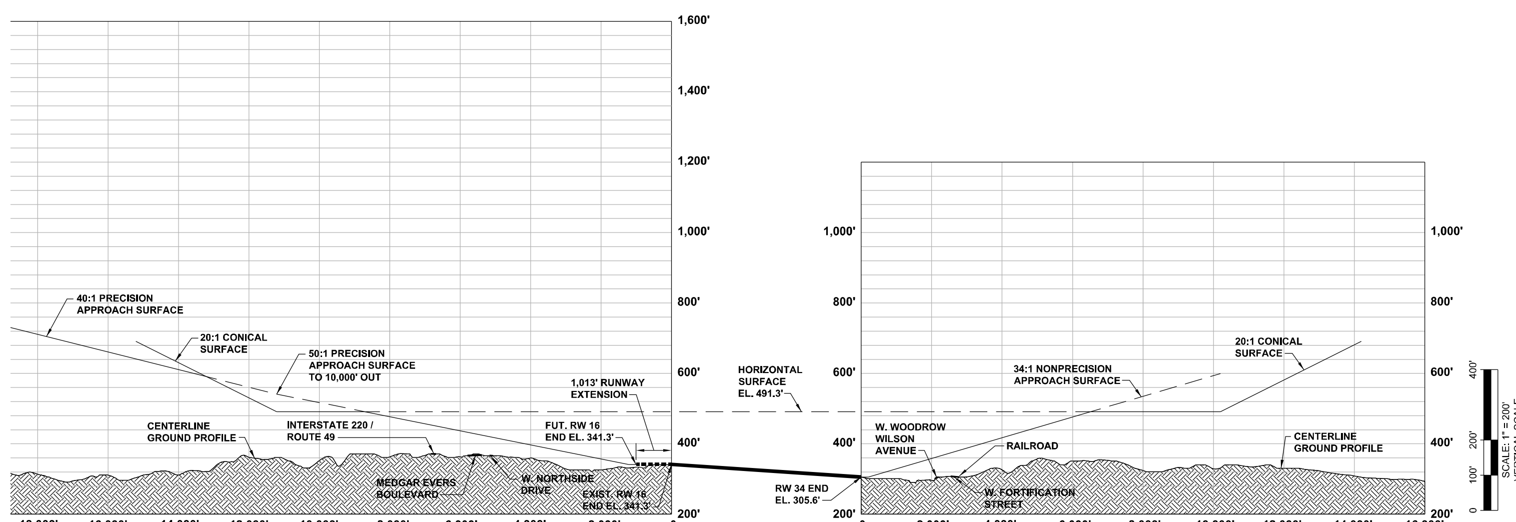
Date: MAY 2011	Division:
Scale: (30X42) AS SHOWN	Sheet Number:
	Drawing Number: 4



QUAD MAP SOURCE: Mississippi Automated Resource Information System (MARIS) 09/28/2009

PLAN VIEW RUNWAY 16-34

0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE



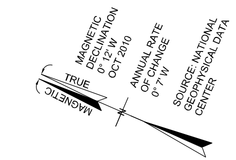
0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE

PROFILE VIEW RUNWAY 16-34

OBSTRUCTION DATA TABLE

#	CITY	TYPE	AGL	AMSL	LIGHTING	MARKING	FAA STUDY #
1	JACKSON	TOWER	315	649	RED LIGHTING	NONE	
2	JACKSON	BLDG	216	530	UNKNOWN	NONE	
3	JACKSON	TANK	143	493	RED LIGHTING	UNKNOWN	
4	JACKSON	T-L TWR	52	427	NO LIGHTS	UNKNOWN	
5	JACKSON	TOWERS 3	160	526	RED LIGHTING	MARKED	1992ASO01486OE
6	JACKSON	TOWER	156	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2002ASO05103OE
7	JACKSON	T-L TWR	52	437	NO LIGHTS	NONE	
8	JACKSON	STACK	176	506	RED LIGHTING		
9	JACKSON	TOWER	164	509	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2005ASO00184OE
10	JACKSON	TOWER	186	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	1998ASO01202OE
11	JACKSON	TOWER	150	519	OTHER, LIGHTING NOT LISTED ABOVE	NONE	
12	JACKSON	T-L TWR	52	427	NO LIGHTS	UNKNOWN	
13	JACKSON	TOWERS 3	160	526	RED LIGHTING	MARKED	1992ASO01486OE
14	JACKSON	TOWER	156	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2002ASO05103OE
15	JACKSON	T-L TWR	52	437	NO LIGHTS	NONE	

OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), JULY 2009



HKS Hawkins Field Airport
Jackson, Hinds County, Mississippi

BWSC BARGE WAGGONER SUMNER & CANNON, INC.

IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer:	Checked by:
APN	PJ
Technician: APN	Project Number: PL809001

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. THE AIRPORT PROPERTY IS ZONED AS A SPECIAL USE DISTRICT (SUD) WITHIN THE CITY OF JACKSON. THE JACKSON, MISSISSIPPI ZONING ORDINANCE (ADOPTED MAY 29, 1974, LAST AMENDED MARCH 8, 2006) DEFINES ZONING CLASSIFICATIONS, REGULATIONS, AND PERMITTED LAND USES WITHIN THE CITY BOUNDARIES. NO HEIGHT RESTRICTION ZONING IS CONTAINED WITHIN THE JACKSON, MISSISSIPPI ZONING ORDINANCE.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name:
AIRPORT LAYOUT PLAN UPDATE

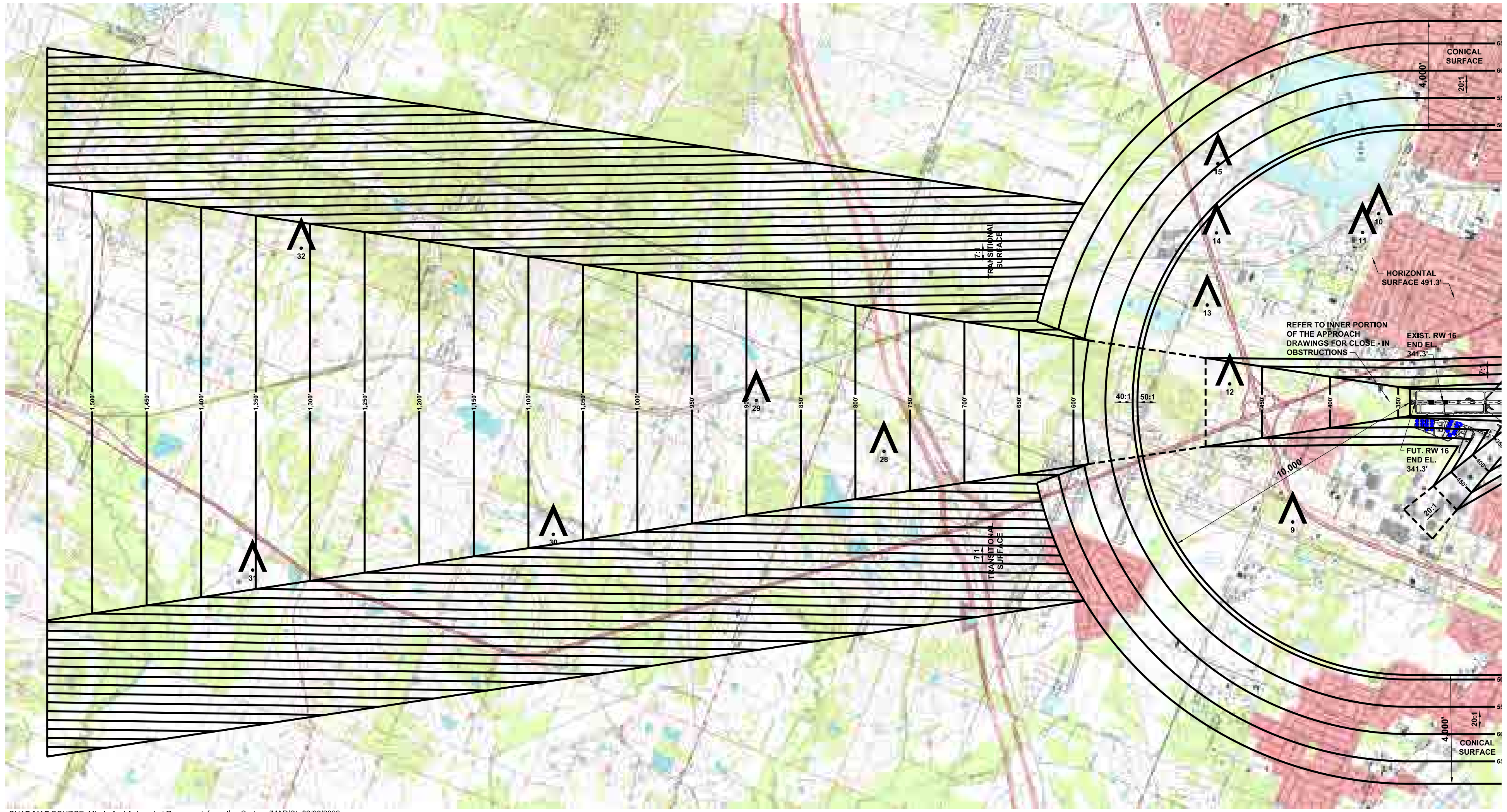
Drawing Name:
AIRPORT AIRSPACE DRAWING (2 OF 3)

FAA AIP Project Number: **3-28-0037-041-2008**

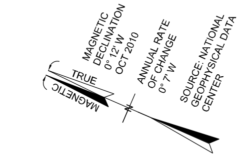
Date: **MAY 2011** | Division:

Scale: (30X42) **AS SHOWN** | Sheet Number:

Drawing Number: **5**

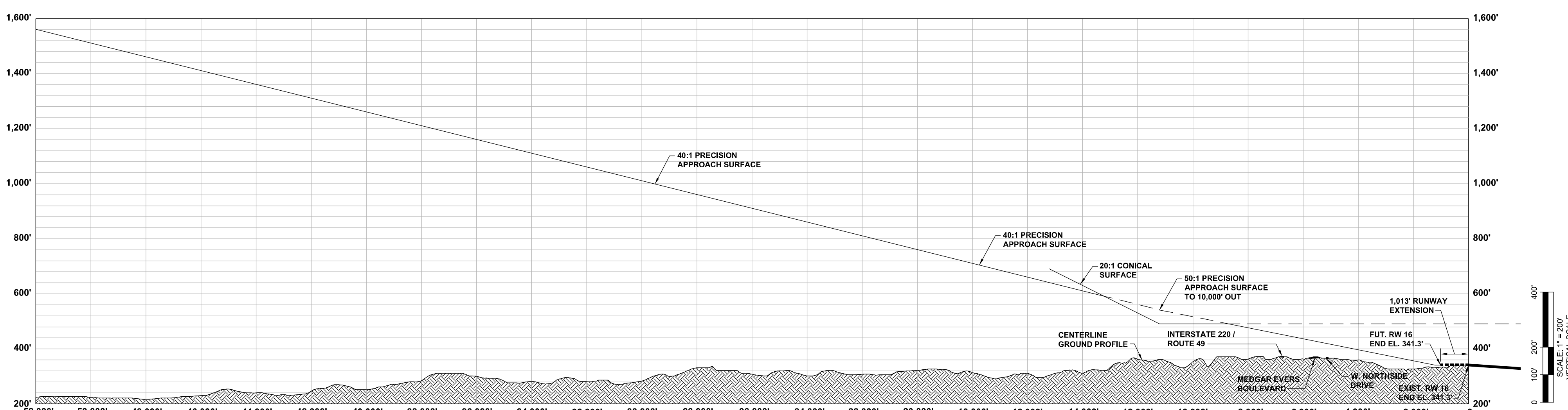


QUAD MAP SOURCE: Mississippi Automated Resource Information System (MARIS) 09/28/2009



PLAN VIEW RUNWAY 16-34

0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE



PROFILE VIEW RUNWAY 16-34

0 1,000' 2,000' 4,000'
SCALE: 1" = 2,000'
HORIZONTAL SCALE

OBSTRUCTION DATA TABLE

#	CITY	TYPE	AGL	AMSL	LIGHTING	MARKING	FAA STUDY #
9	JACKSON	TOWER	164	509	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2005ASO00184OE
10	JACKSON	TOWER	186	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	1998ASO01202OE
11	JACKSON	TOWER	150	519	OTHER, LIGHTING NOT LISTED ABOVE	NONE	
12	JACKSON	T-L TWR	52	427	NO LIGHTS	UNKNOWN	
13	JACKSON	TOWERS 3	160	526	RED LIGHTING	MARKED	1992ASO01486OE
14	JACKSON	TOWER	156	540	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	2002ASO05103OE
15	JACKSON	T-L TWR	52	437	NO LIGHTS	NONE	
16	JACKSON	TOWER	180	510	NO LIGHTS	NONE	2006ASO01589OE
17	CLINTON	TOWER	210	527	MEDIUM INTENSITY WHITE STROBE LIGHTING	MARKED	1996ASO00809OE
18	JACKSON	TOWER	348	613	MEDIUM INTENSITY WHITE STROBE LIGHTING	NONE	2000ASO02336OE
19	POCAHONTAS	TOWER	379	689	RED LIGHTING	MARKED	1998ASO00643OE
20	JACKSON	TOWER	499	729	DUAL, RED WITH MEDIUM INTENSITY WHITE STROBE	NONE	1999ASO04131OE

OBSTRUCTION DATA SOURCE: FAA DIGITAL OBSTACLE FILE (DOF), JULY 2009

HKS Hawkins Field Airport
Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer:	Checked by:
APN	PJ
Technician: APN	Project Number: PL809001

NOTES:

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REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name:
AIRPORT LAYOUT PLAN UPDATE

Drawing Name:
AIRPORT AIRSPACE DRAWING (3 OF 3)

FAA AIP Project Number: 3-28-0037-041-2008

Date: MAY 2011
Division:

Scale: (30X42) **AS SHOWN**
Sheet Number:
Drawing Number: 6

8.6 Inner Portion of the Approach Surface Drawing – Runway 11-29

The Inner Portion of Approach Surface Drawing – Runway 11-29 is depicted on Figure 8-7 and is based on Federal Aviation Regulations (FAR) Part 77, *Objects Affecting Navigable Airspace.* In order to protect the airspace and approaches to each runway end from hazards that could affect the safe and efficient operation of the airport, Federal criteria has been established to control the height of objects in the vicinity of the airport.

The dimensional standards for the approach surfaces and RPZ are determined by the classification of runways for precision and non-precision approaches. The FAA requires the establishment of runway protection zones (RPZ) at the ends of runways when federal funds are to be expended on new or existing airports. The airport owner should have positive control over development within the RPZ by either aviation easements or ownership in fee simple; thereby providing long-term positive assurance that there will be no encroachment within the critical portions of the inner approach surface.

The Inner Portion of Approach Surface Plan drawings show the runway end approach and RPZ profile in relation to any objects that fall with these surfaces.

8.7 Inner Portion of the Approach Surface Drawing – Runway 16

The Inner Portion of Approach Surface Plan – Runway 36 drawing is depicted on Figure 8-8.

8.8 Inner Portion of the Approach Surface Drawing – Runway 34

The Inner Portion of Approach Surface Plan – Runway 36 drawing is depicted on Figure 8-9.

8.9 Land Use Drawing

The Land Use Drawing, shown in Figure 8-10, depicts general guidelines for development of functional land use areas on the Airport. The purpose of preparing an airport land use drawing is to achieve an arrangement of land uses within the airport's boundaries which best utilizes available property for present and future airport needs.

Dedication of airport land must be made first to airport operations and airport support facilities. Thus, the priorities are as follows:

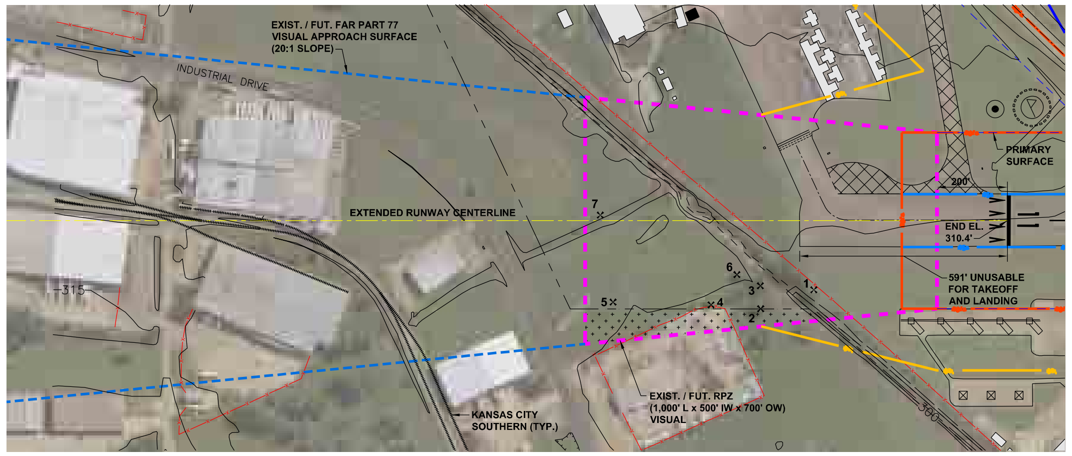
- Allocating airport land for runways and taxiways
- Provide for aviation support facilities such as terminal, apron, and hangar areas
- Aviation-related businesses development that, for various reasons, wish to locate at the airport because of dependence upon air transportation of personnel and/ or goods
- Industrial and commercial uses which are non-aviation related
- Buffer areas occupying the balance of airport property

The Airport Land Use Drawing shows the general allocation of airport property to each of these basic categories of land use.

MAGNETIC DECLINATION
0° 12' W
OCT 2010

ANNUAL RATE OF CHANGE
0° 7' W

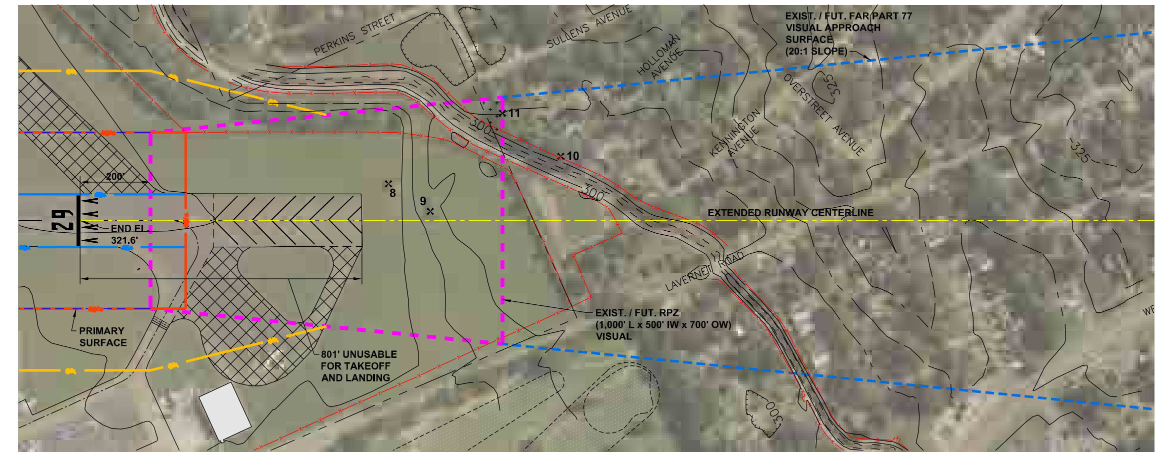
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER



AERIAL SOURCE: SOUTHERN RESOURCES MAPPING CORPORATION, JULY 2009

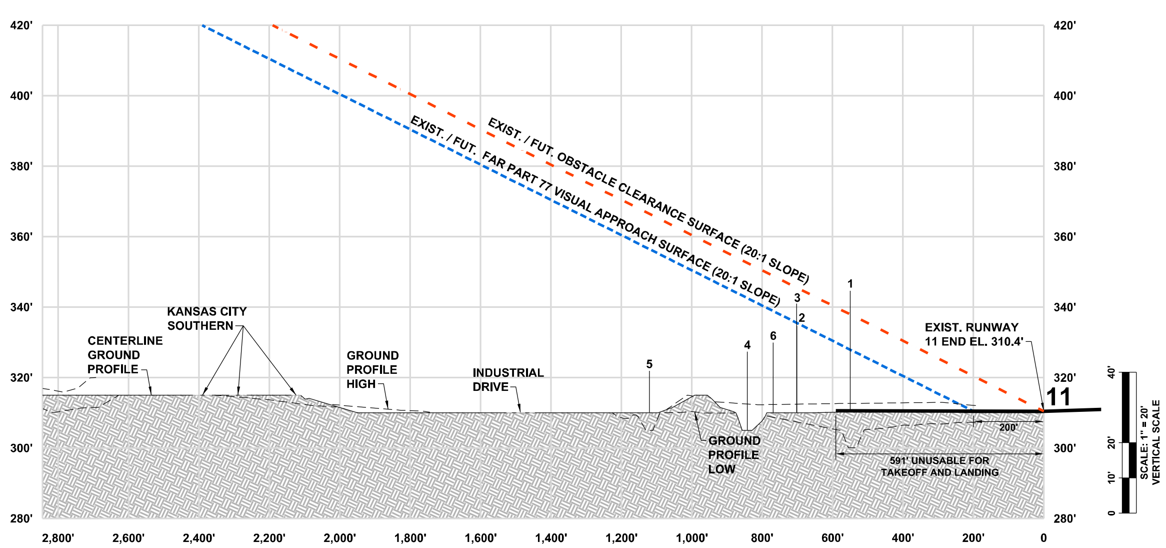
0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PLAN VIEW RUNWAY 11



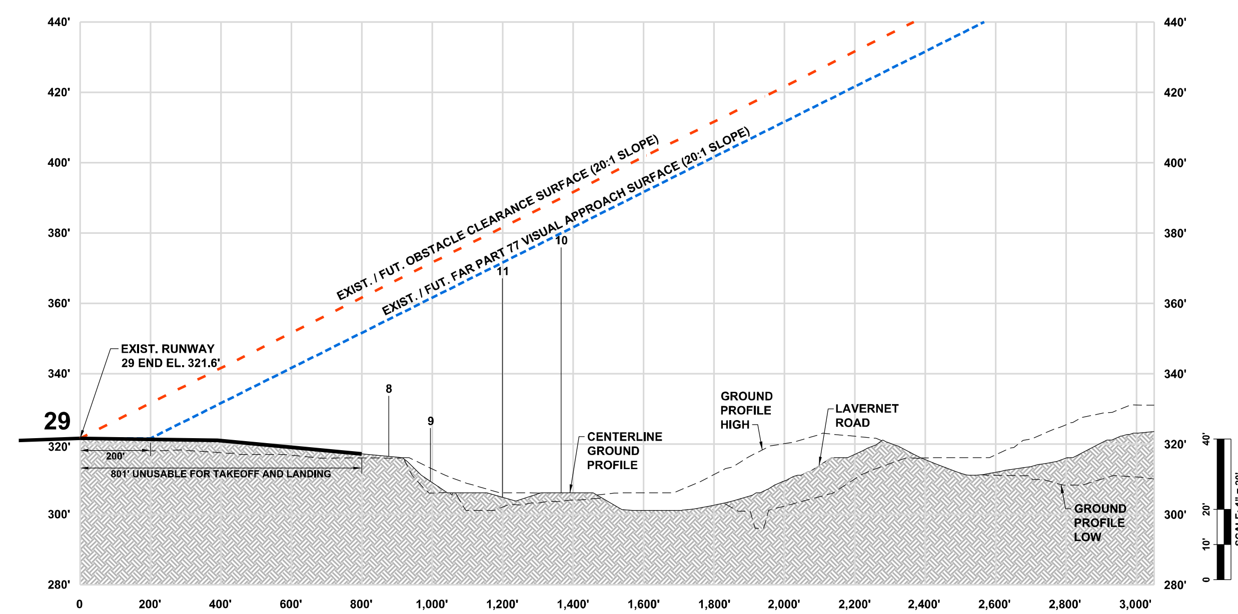
0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PLAN VIEW RUNWAY 29



0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PROFILE VIEW RUNWAY 11



0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PROFILE VIEW RUNWAY 29

OBSTRUCTION TABLE - EXIST. / FUT. RUNWAY 11 EL. 310.4' - 20:1 VISUAL

#	TYPE	OBSTRUCTION ELEVATION	EXIST. / FUT. PART 77 PENETRATION	DISPOSITION
1	TREE	344.6'	16.7'	TRIM / REMOVE
2	TREE	334.6'	-0.8'	TRIM / REMOVE
3	TREE	341.0'	5.5'	TRIM / REMOVE
4	TREE	327.3'	-15.2'	NONE
5	TREE	321.9'	-34.2'	NONE
6	TREE	329.9'	-8.9'	TRIM / REMOVE
7	TREE	319.2'	-39.0'	NONE

RUNWAY 11 END TRAVERSE WAY TABLE

#	ROADWAY ELEVATION	ROADWAY ELEVATION + PART 77.23 STANDARDS	APPROACH SURFACE ELEVATION	AMOUNT OF PENETRATION	PROPOSED ACTION
A	315.0'	330.0'	350.1'	-25.1'	NONE
B	308.0'	323.0'	339.4'	-21.4'	NONE

OBSTRUCTION TABLE - EXIST. / FUT. RUNWAY 29 EL. 321.6' - 20:1 VISUAL

#	TYPE	OBSTRUCTION ELEVATION	EXIST. / FUT. PART 77 PENETRATION	DISPOSITION
8	TREE	333.7'	-21.6'	NONE
9	TREE	324.5'	-36.9'	NONE
10	TREE	375.9'	-3.9'	TRIM / REMOVE
11	TREE	367.1'	-4.4'	TRIM / REMOVE

RUNWAY 29 END TRAVERSE WAY TABLE

#	ROADWAY ELEVATION	ROADWAY ELEVATION + PART 77.23 STANDARDS	EXIST. / FUT. APPROACH SURFACE ELEVATION	AMOUNT OF PENETRATION	PROPOSED ACTION
			NONE		

LEGEND

DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		N/A
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
DRAINAGE FEATURE		N/A
RSA		
ROFA		
BRL		
NAVAIDS / LIGHTING		
FENCE		
PAVEMENT REMOVAL	N/A	
EASEMENT		
OBSTRUCTION (PLAN VIEW)	7	N/A
OBSTRUCTION (PROFILE VIEW)	1	N/A
TRAVERSE WAY (PLAN VIEW)		N/A

HKS Hawkins Field Airport
Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.
IN ASSOCIATION WITH:
THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. OBSTRUCTION # 1 IN RUNWAY 11 PLAN VIEW PENETRATES THE EXIST. / FUT. OBSTACLE CLEARANCE SURFACE.
3. ROADWAY ELEVATIONS ARE ESTIMATED.
4. NEGATIVE PENETRATIONS INDICATE CLEARANCE TO SURFACE.

FAA CLEARANCE REQUIREMENTS NOTE

SECTION 77.23 OF FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS:

1. 17 FEET FOR AN INTERSTATE HIGHWAY THAT IS PART OF THE NATIONAL SYSTEM OF MILITARY AND INTERSTATE HIGHWAYS WHERE OVERCROSSINGS ARE DESIGNED FOR A MINIMUM OF 17 FEET VERTICAL DISTANCE.
2. 15 FEET FOR ANY OTHER PUBLIC ROADWAY.
3. 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD.
4. 23 FEET FOR A RAILROAD.
5. FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name:
AIRPORT LAYOUT PLAN UPDATE

Drawing Name:
INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 11-29

FAA AIP Project Number: 3-28-0037-041-2008

Date: MAY 2011
Division:

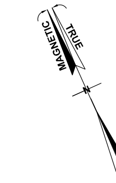
Scale: (30X42)
AS SHOWN

Sheet Number:

Drawing Number: 7

HKS Hawkins Field Airport

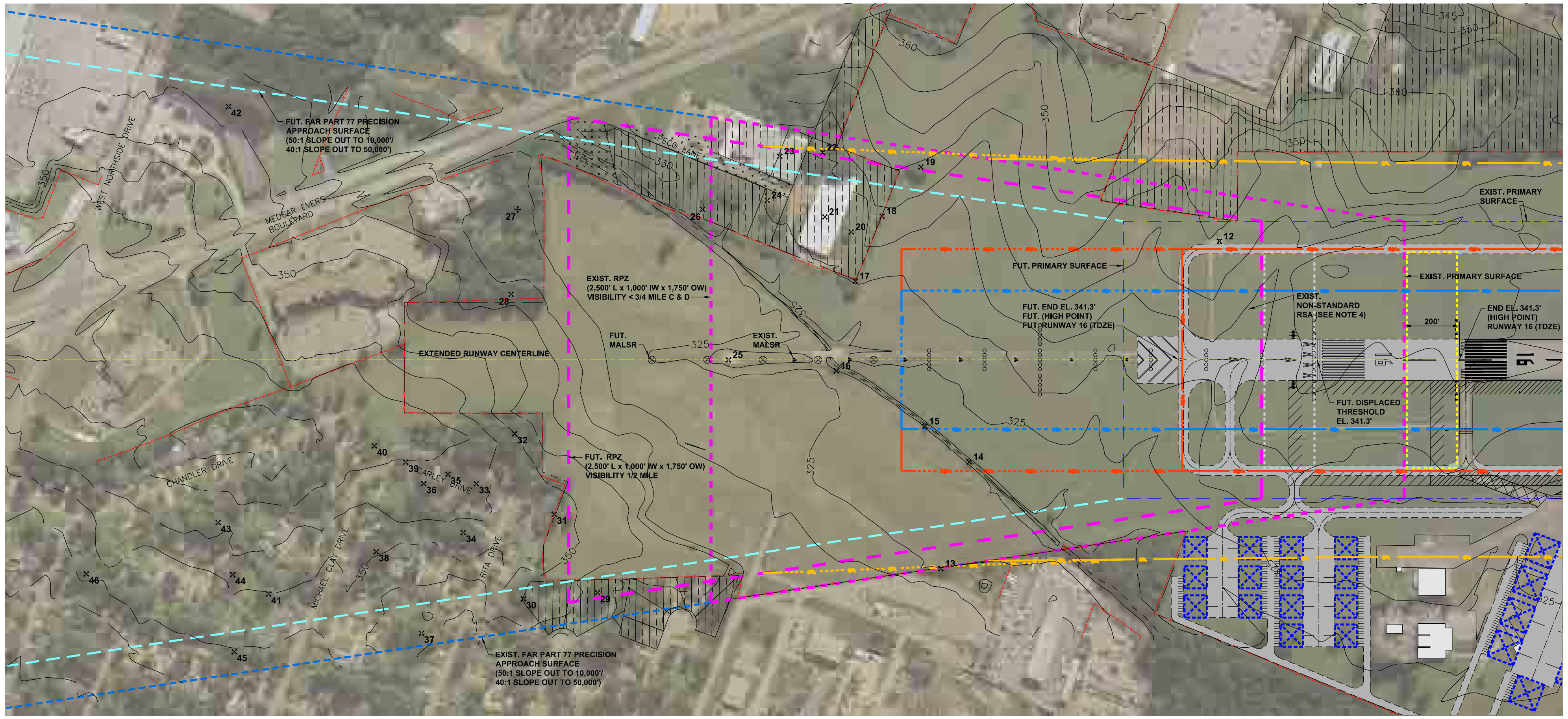
Jackson, Hinds County, Mississippi



MAGNETIC DECLINATION 0° 12' W OCT 2010

ANNUAL RATE OF CHANGE 0° 7' W

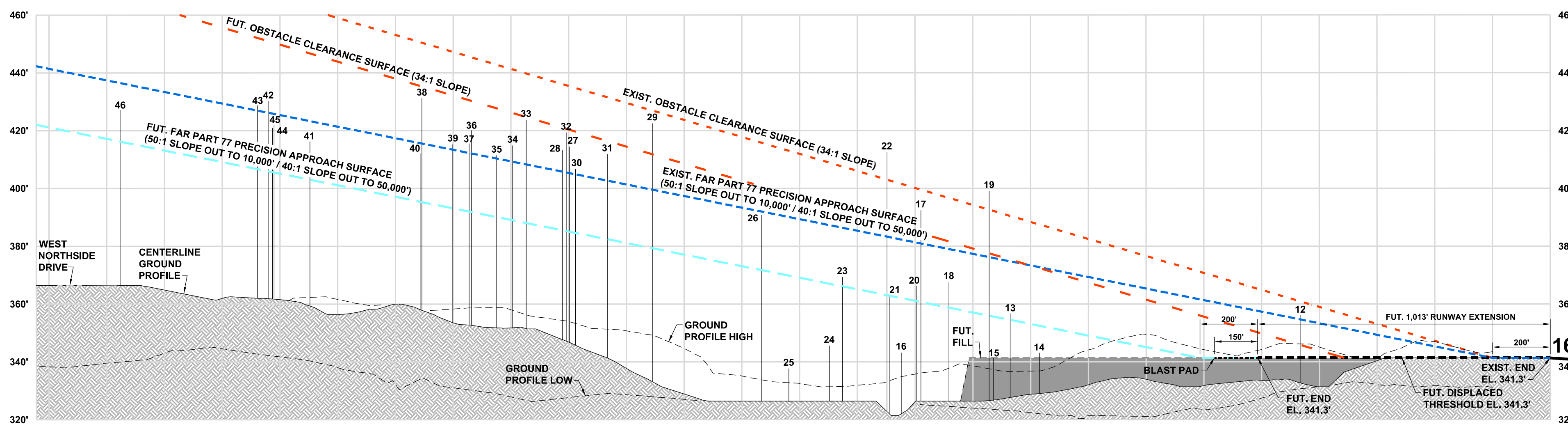
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER



AERIAL SOURCE: SOUTHERN RESOURCES MAPPING CORPORATION, JULY 2009

0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PLAN VIEW RUNWAY 16



0 100' 200' 400'
SCALE: 1" = 200'
HORIZONTAL SCALE

PROFILE VIEW RUNWAY 16

OBSTRUCTION TABLE - EXIST. / FUT. RUNWAY 16
EL. 341.3' - 50:1 PRECISION INSTRUMENT

#	TYPE	OBSTRUCTION ELEVATION	EXIST. PART 77 PENETRATION	FUT. PART 77 PENETRATION	DISPOSITION
12	BUILDING	356.2'	1.6'	PRIMARY OBST.	REMOVE / RELOCATE
13	TREE	356.7'	-18.0'	2.8'	TRIM / REMOVE
14	TREE	343.1 '	-29.6'	RSA	REMOVE
15	TREE	341.2 '	-34.6'	ROFA	REMOVE
16	TREE	343.2 '	-39.1'	-18.8'	NONE
17	TREE	392.4 '	11.5'	31.8'	TRIM / REMOVE
18	TREE	367.6 '	-11.4'	8.9'	TRIM / REMOVE
19	TREE	399.1 '	22.9'	N/A	TRIM / REMOVE
20	TREE	366.2 '	-15.0'	5.3'	TRIM / REMOVE
21	BUILDING	362.9 '	-20.2'	0.1'	TRIM / REMOVE
22	TREE	412.5 '	29.2'	N/A	TRIM / REMOVE
23	BUILDING	369.3 '	-17.0'	N/A	NONE
24	BUILDING	345.5 '	-41.7'	-21.4'	NONE
25	BUILDING	337.6 '	-52.4'	-32.2'	NONE
26	TREE	390.8 '	-1.1'	19.2'	TRIM / REMOVE
27	TREE	414.4 '	9.2'	29.5'	TRIM / REMOVE
28	TREE	413.2 '	7.5'	27.8'	TRIM / REMOVE
29	TREE	422.5 '	23.1'	N/A	TRIM / REMOVE
30	TREE	406.7 '	1.9'	N/A	TRIM / REMOVE
31	TREE	411.8 '	9.2'	29.5'	TRIM / REMOVE
32	TREE	419.3'	13.9'	34.1'	TRIM / REMOVE
33	TREE	423.7'	15.5'	35.7'	TRIM / REMOVE
34	TREE	414.8'	5.6'	25.9'	TRIM / REMOVE
35	TREE	411.4'	1.2'	21.4'	TRIM / REMOVE
36	TREE	420.1'	8.1'	28.3'	TRIM / REMOVE
37	TREE	415.5'	3.3'	N/A	TRIM / REMOVE
38	TREE	431.3'	15.8'	36.1'	TRIM / REMOVE
39	TREE	415.2'	1.9'	22.1'	TRIM / REMOVE
40	TREE	412.1'	-3.5'	16.7'	TRIM / REMOVE
41	TREE	416.2'	-7.0'	13.3'	TRIM / REMOVE
42	TREE	430.2'	4.1'	24.3'	TRIM / REMOVE
43	TREE	428.7'	1.9'	22.1'	TRIM / REMOVE
44	TREE	420.9'	-4.9'	15.3'	TRIM / REMOVE
45	TREE	421.9'	-3.8'	N/A	TRIM / REMOVE
46	TREE	427.1'	-9.3'	85.8'	TRIM / REMOVE

RUNWAY 16 END TRAVERSE WAY TABLE

#	ROADWAY ELEVATION	ROADWAY ELEVATION + PART 77.23 STANDARDS	EXIST. APPROACH SURFACE ELEVATION	FUT. APPROACH SURFACE ELEVATION	EXIST. PENETRATION	FUT. PENETRATION	PROPOSED ACTION
J	330.0'	345.6'	378.0'	357.8'	-48.0'	-27.8'	NONE
K	332.3'	347.3'	384.2'	363.9'	-51.9'	-31.6'	NONE
L	330.0'	345.0'	391.3'	371.0'	-61.3'	-41.0'	NONE

LEGEND

DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		N/A
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
DRAINAGE FEATURE		N/A
RSA		
ROFA		
BRL		
NAVAIDS / LIGHTING		
FENCE		
PAVEMENT REMOVAL	N/A	
EASEMENT		
OBSTRUCTION (PLAN VIEW)	7 x	N/A
OBSTRUCTION (PROFILE VIEW)	1	N/A
TRAVERSE WAY (PLAN VIEW)		N/A

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. ROADWAY ELEVATIONS ARE ESTIMATED
3. NEGATIVE PENETRATIONS INDICATE CLEARANCE TO SURFACE.
4. EXISTING RSA BEYOND RUNWAY 16 INCLUDES NON-STANDARD GRADE. TO BE GRADED OR CORRECTED IN CONJUNCTION WITH FUTURE EXTENSION OF RUNWAY 16.

FAA CLEARANCE REQUIREMENTS NOTE

SECTION 77.23 OF FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS:

1. 17 FEET FOR AN INTERSTATE HIGHWAY THAT IS PART OF THE NATIONAL SYSTEM OF MILITARY AND INTERSTATE HIGHWAYS WHERE OVERCROSSINGS ARE DESIGNED FOR A MINIMUM OF 17 FEET VERTICAL DISTANCE.
2. 15 FEET FOR ANY OTHER PUBLIC ROADWAY.
3. 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD.
4. 23 FEET FOR A RAILROAD.
5. FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name: **AIRPORT LAYOUT PLAN UPDATE**

Drawing Name: **INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 16**

FAA AIP Project Number: 3-28-0037-041-2008

Date: MAY 2011

Division:

Scale: (30X42) AS SHOWN

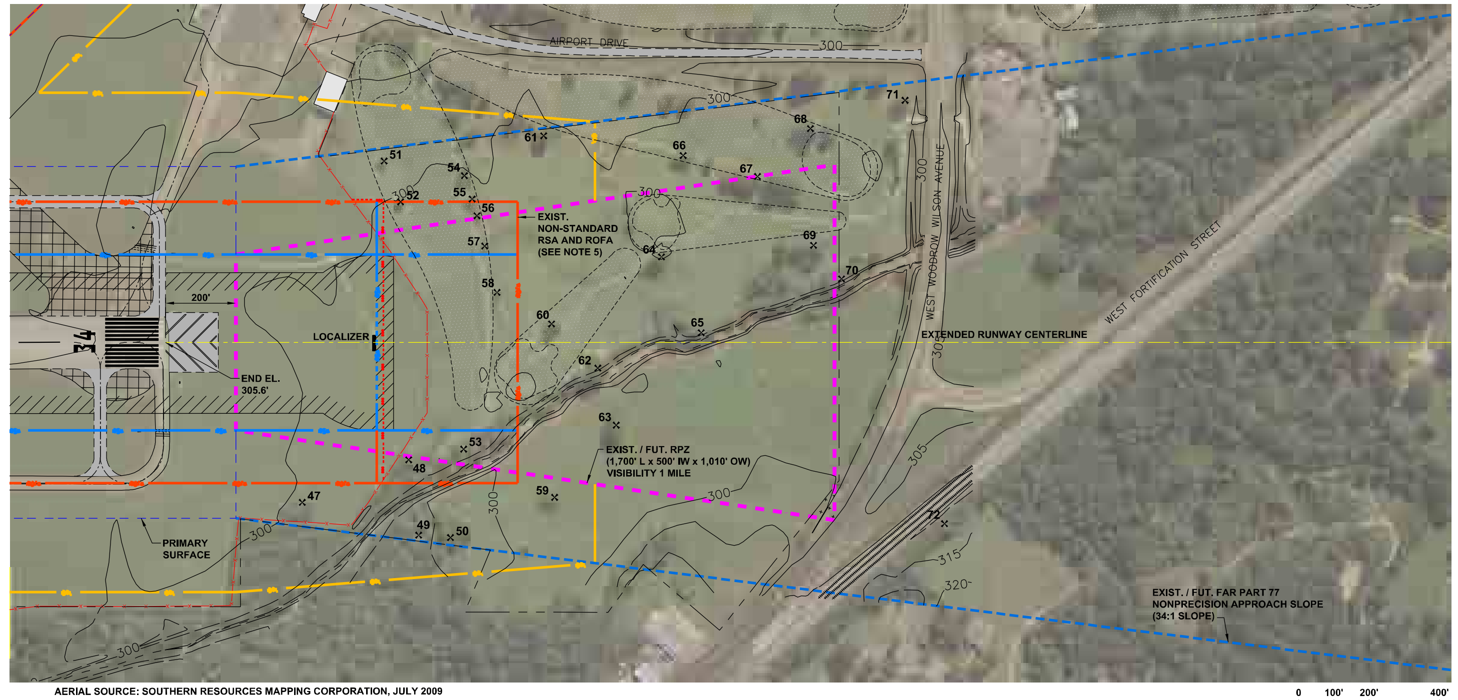
Sheet Number:

Drawing Number: 8

MAGNETIC DECLINATION
0° 12' W
OCT 2010

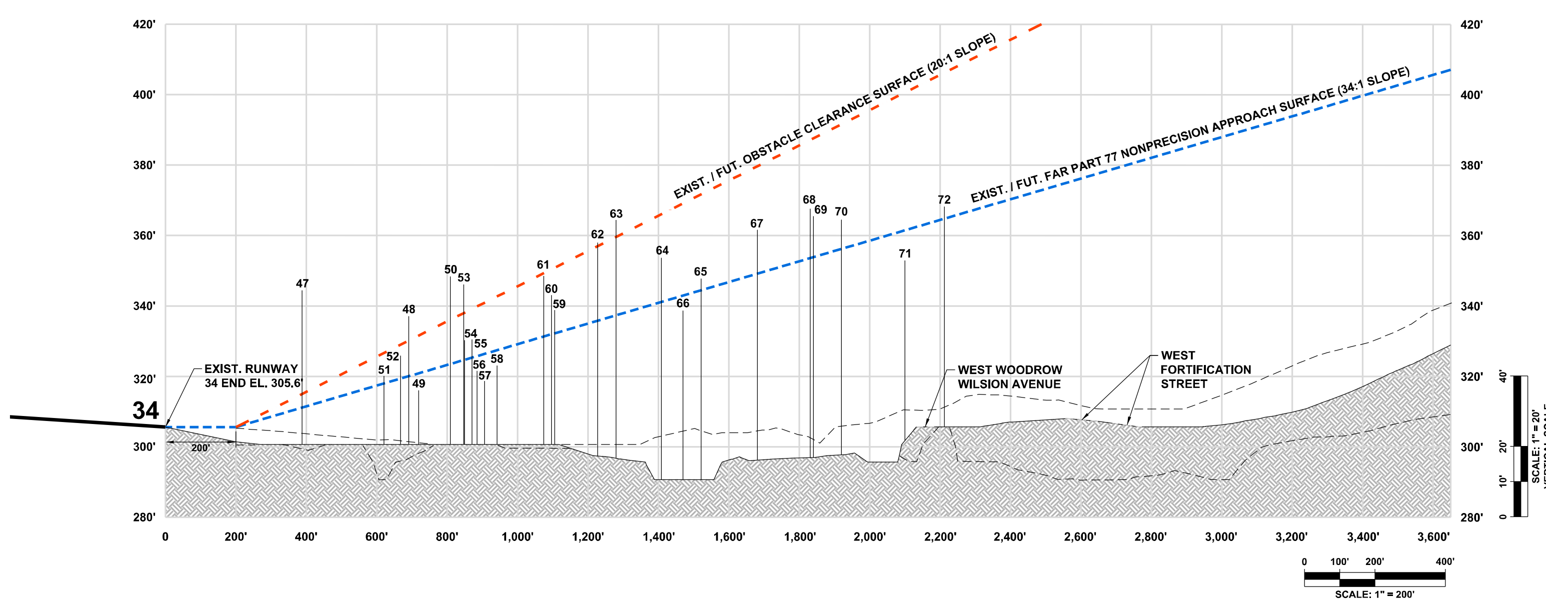
ANNUAL RATE OF CHANGE
0° 7' W

SOURCE: NATIONAL GEOPHYSICAL DATA CENTER



AERIAL SOURCE: SOUTHERN RESOURCES MAPPING CORPORATION, JULY 2009

PLAN VIEW RUNWAY 34



PROFILE VIEW RUNWAY 34

OBSTRUCTION TABLE - EXIST. / FUT. RUNWAY 34 EL. 305.6' - 34:1 NONPRECISION INSTRUMENT						
#	TYPE		OBSTRUCTION ELEVATION	EXIST. PART 77 PENETRATION	FUT. PART 77 PENETRATION	DISPOSITION
47	TREE		344.4'	33.2'	-	TRIM / REMOVE
48	TREE		337.1'	17.1'	-	TRIM / REMOVE
49	BUILDING		316.0'	-4.7'	-	NONE
50	TREE		348.4'	24.8'	-	TRIM / REMOVE
51	TREE		320.1'	2.2'	-	TRIM / REMOVE
52	TREE		325.9'	6.5'	-	TRIM / REMOVE
53	TREE		346.1'	21.5'	-	TRIM / REMOVE
54	TREE		330.3'	5.6'	-	TRIM / REMOVE
55	TREE		330.5'	5.2'	-	TRIM / REMOVE
56	TREE		321.6'	-4.2'	-	TRIM / REMOVE
57	TREE		318.7'	-7.7'	-	TRIM / REMOVE
58	TREE		323.1'	-4.3'	-	TRIM / REMOVE
59	TREE		338.8'	6.6'	-	TRIM / REMOVE
60	TREE		343.1'	11.1'	-	TRIM / REMOVE
61	TREE		348.5'	17.2'	-	TRIM / REMOVE
62	TREE		358.0'	22.2'	-	TRIM / REMOVE
63	TREE		364.4'	27.1'	-	TRIM / REMOVE
64	TREE		353.7'	12.5'	-	TRIM / REMOVE
65	TREE		347.8'	3.4'	-	TRIM / REMOVE
66	TREE		338.7'	-4.2'	-	TRIM / REMOVE
67	TREE		361.6'	12.4'	-	TRIM / REMOVE
68	TREE		367.6'	14.0'	-	TRIM / REMOVE
69	TREE		365.5'	11.7	-	TRIM / REMOVE
70	TREE		364.5'	8.4'	-	TRIM / REMOVE
71	TREE		352.9'	-8.5'	-	TRIM / REMOVE
72	TREE		368.2'	3.5'	-	TRIM / REMOVE

RUNWAY 34 END TRAVERSE WAY TABLE					
#	ROADWAY ELEVATION	ROADWAY ELEVATION + PART 77.23 STANDARDS	EXIST. / FUT. APPROACH SURFACE ELEVATION	AMOUNT OF PENETRATION	PROPOSED ACTION
C	300.2'	310.2'	326.6'	-16.4'	NONE
D	299.5'	309.5'	330.1'	-20.6'	NONE
E	299.9'	309.9'	325.1'	-15.2'	NONE
F	305.0'	304.9'	355.4'	-38.4'	NONE
G	298.5'	308.5'	355.6'	-47.1'	NONE
H	300.2'	310.2'	355.6'	-45.4'	NONE
I	301.6'	311.6'	350.0'	-38.4'	NONE

LEGEND		
DESCRIPTION	EXISTING	FUTURE
PROPERTY LINE		N/A
BUILDINGS		
PAVEMENT		
RUNWAY MARKINGS		
DRAINAGE FEATURE		N/A
RSA		
ROFA		
BRL		
NAVAIDS / LIGHTING		
FENCE		
PAVEMENT REMOVAL	N/A	
EASEMENT		
OBSTRUCTION (PLAN VIEW)	7 ×	N/A
OBSTRUCTION (PROFILE VIEW)	1	N/A
TRAVERSE WAY (PLAN VIEW)		N/A

HKS Hawkins Field Airport
Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:
THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. ALL ELEVATIONS SHOWN ARE ABOVE MEAN SEA LEVEL (AMSL).
2. OBSTRUCTIONS # 48, 53, 62 AND 63 IN RUNWAY 34 PLAN VIEW PENETRATE THE EXIST. / FUT. OBSTACLE CLEARANCE SURFACE.
3. ROADWAY ELEVATIONS ARE ESTIMATED.
4. NEGATIVE PENETRATIONS INDICATE CLEARANCE TO SURFACE.
5. EXISTING RSA AND ROFA BEYOND RUNWAY 34 EXTEND INTO GOLF COURSE. TO BE CORRECTED THROUGH DECLARED DISTANCES.

FAA CLEARANCE REQUIREMENTS NOTE

SECTION 77.23 OF FEDERAL AVIATION REGULATIONS (FAR) PART 77 SPECIFIES CLEARANCE REQUIREMENTS FOR ROADS, RAILROADS, AND WATERWAYS AS FOLLOWS:

1. 17 FEET FOR AN INTERSTATE HIGHWAY THAT IS PART OF THE NATIONAL SYSTEM OF MILITARY AND INTERSTATE HIGHWAYS WHERE OVERCROSSINGS ARE DESIGNED FOR A MINIMUM OF 17 FEET VERTICAL DISTANCE.
2. 15 FEET FOR ANY OTHER PUBLIC ROADWAY.
3. 10 FEET OR THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE THE ROAD, WHICHEVER IS GREATER, FOR A PRIVATE ROAD.
4. 23 FEET FOR A RAILROAD.
5. FOR A WATERWAY OR ANY OTHER TRAVERSE WAY NOT PREVIOUSLY MENTIONED, AN AMOUNT EQUAL TO THE HEIGHT OF THE HIGHEST MOBILE OBJECT THAT WOULD NORMALLY TRAVERSE IT.

REVISIONS			
NO.	DESCRIPTION	DATE	BY

Project Name: AIRPORT LAYOUT PLAN UPDATE

Drawing Name: INNER PORTION OF THE APPROACH SURFACE DRAWING - RUNWAY 34

FAA AIP Project Number: 3-28-0037-041-2008

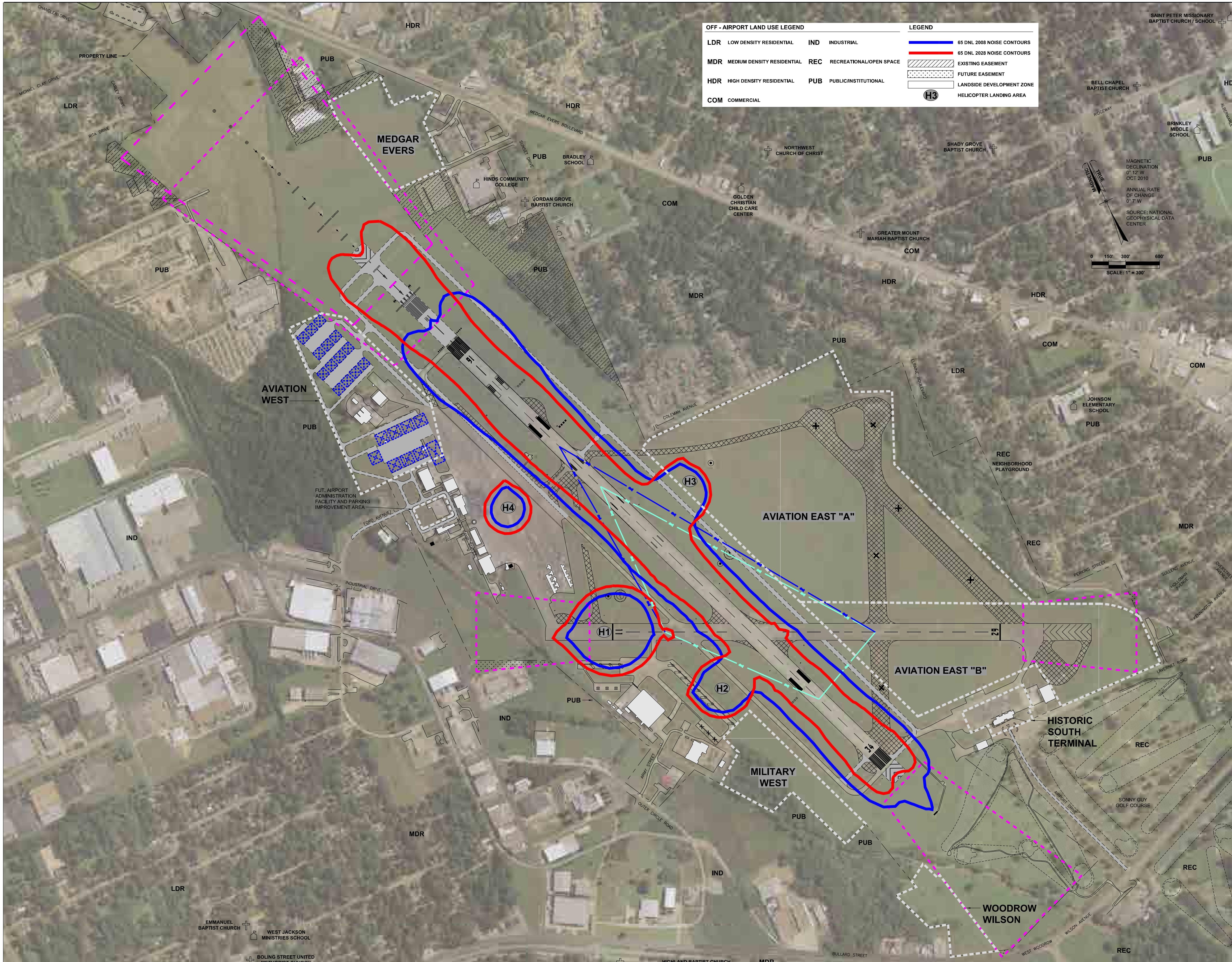
Date: MAY 2011

Division:

Scale: (30X42) AS SHOWN

Sheet Number:

Drawing Number: 9



HKS Hawkins Field Airport

Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS

A UNIT OF MICHAEL BAKER CORPORATION

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. THE AIRPORT PROPERTY IS ZONED AS A SPECIAL USE DISTRICT (SUD) WITHIN THE CITY OF JACKSON. THE JACKSON, MISSISSIPPI ZONING ORDINANCE (ADOPTED MAY 29, 1974, LAST AMENDED MARCH 8, 2006) DEFINES ZONING CLASSIFICATIONS, REGULATIONS, AND PERMITTED LAND USES WITHIN THE CITY BOUNDARIES. NO HEIGHT RESTRICTION ZONING IS CONTAINED WITHIN THE JACKSON, MISSISSIPPI ZONING ORDINANCE.

2. FUTURE LANDSIDE DEVELOPMENT ZONES ARE SHOWN WITHIN THE AIRPORT PROPERTY. THESE REPRESENT STRATEGIC DEVELOPMENT AREAS THAT WERE ESTABLISHED AS PART OF THE MASTER PLAN UPDATE. IF AND WHEN RUNWAY 11-29 IS PERMANENTLY CLOSED, THE AVIATION EAST "A" AND AVIATION EAST "B" ZONES COULD BE UTILIZED. AREAS OF THE AIRPORT PROPERTY NOT HIGHLIGHTED ARE EITHER DEVELOPED, UTILIZED FOR AIRFIELD PURPOSES, OR HAVE LITTLE DEVELOPMENT POTENTIAL.

3. OFF-AIRPORT LAND USES WERE OBTAINED FROM THE PREVIOUS AIRPORT LAYOUT PLAN. THE LABEL PLACEMENT IS APPROXIMATE AND REPRESENTS THE PREDOMINATE LAND USE WITHIN THE VICINITY.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name: **AIRPORT LAYOUT PLAN UPDATE**

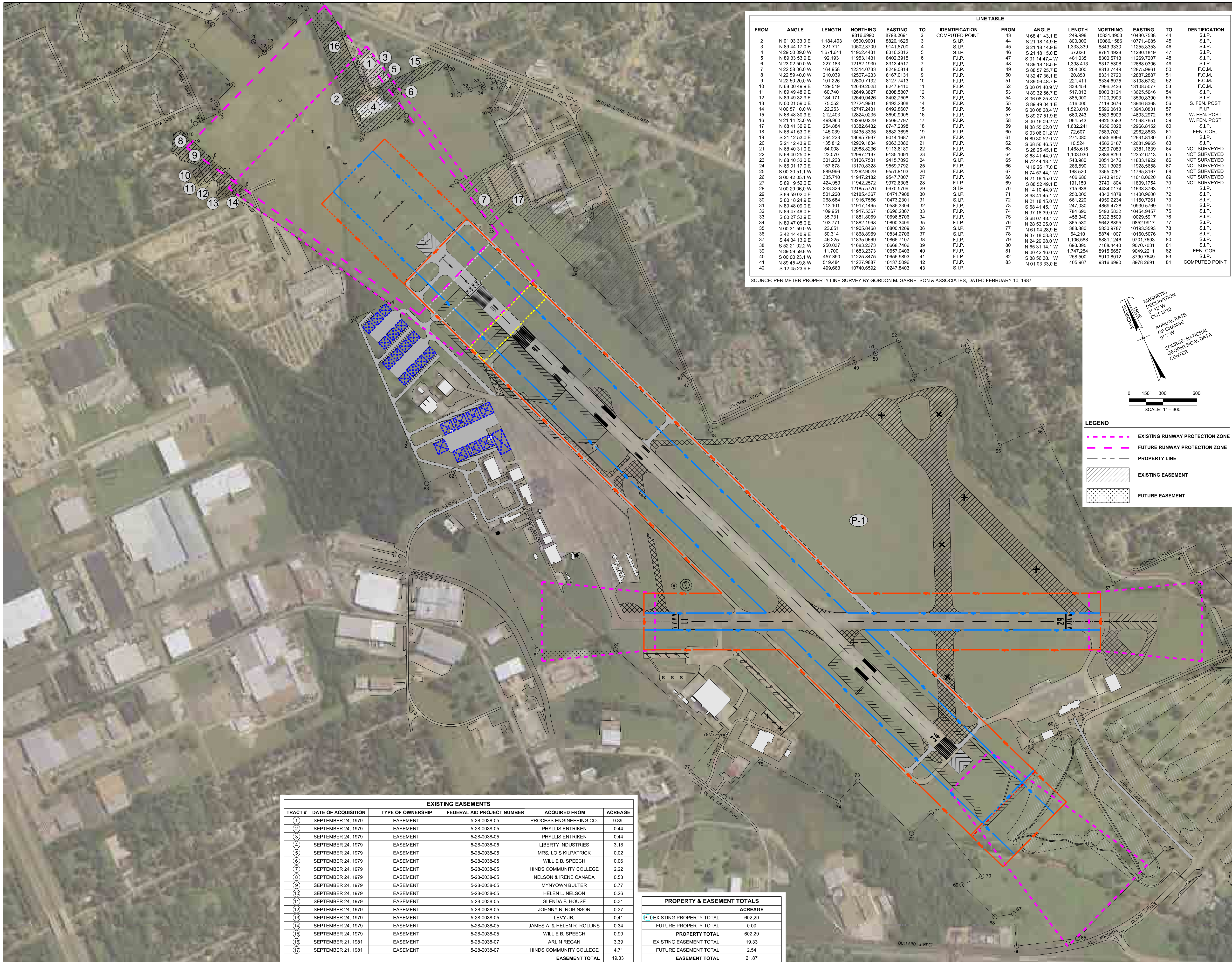
Drawing Name: **LAND USE DRAWING**

FAA AIP Project Number: 3-28-0037-041-2008

Date: MAY 2011	Division:
Scale: (30X42) 1"=300'	Sheet Number:
	Drawing Number: 10

8.10 Airport Property Map Drawing

The map of airport property, often referred to as the “Exhibit A”, defines the existing and future airport boundary for Hawkins Field in a graphical and tabular form. The purpose of this drawing is to provide information necessary for analyzing the current and future aeronautical use of land acquired. Known existing metes and bounds data are depicted; however, these data have not been field verified as part of this study. The Airport Property Map Drawing is presented in Figure 8-11.



LINE TABLE

FROM	ANGLE	LENGTH	NORTHING	EASTING	TO	IDENTIFICATION
			9316.6990	8798.2691	2	COMPUTED POINT
2	N 01 03 33.0 E	1,184.403	10500.9001	8820.1625	3	S.I.P.
3	N 89 44 17.0 E	321.711	10502.3709	9141.8700	4	S.I.P.
4	N 29 50 09.0 W	1,671.641	11952.4431	8310.2012	5	S.I.P.
5	N 89 33 53.9 E	92.193	11953.1431	8402.3915	6	F.I.P.
6	N 23 02 50.0 W	227.183	12162.1930	8313.4517	7	F.I.P.
7	N 22 58 06.0 W	164.958	12314.0733	8249.0814	8	F.I.P.
8	N 22 59 40.0 W	210.039	12507.4233	8167.0131	9	F.I.P.
9	N 22 50 20.0 W	101.226	12600.7132	8127.7413	10	F.I.P.
10	N 68 00 49.9 E	129.519	12649.2028	8247.8410	11	F.I.P.
11	N 89 49 48.9 E	60.740	12649.3827	8308.5807	12	F.I.P.
12	N 89 49 32.9 E	184.171	12649.9426	8492.7508	13	F.I.P.
13	N 00 21 59.0 E	75.052	12724.9931	8493.2308	14	F.I.P.
14	N 00 57 10.0 W	22.253	12747.2431	8492.8607	15	F.I.P.
15	N 68 48 30.9 E	212.403	12824.0235	8690.9006	16	F.I.P.
16	N 21 14 23.0 W	499.960	13290.0229	8509.7797	17	F.I.P.
17	N 68 41 30.9 E	254.884	13382.6432	8747.2398	18	F.I.P.
18	N 68 41 53.0 E	145.039	13435.3335	8882.3696	19	F.I.P.
19	S 21 12 53.0 E	364.223	13095.7937	9014.1687	20	F.I.P.
20	S 21 12 43.9 E	135.812	12969.1834	9063.3086	21	F.I.P.
21	N 68 40 31.0 E	54.008	12988.8236	9113.6189	22	F.I.P.
22	N 68 40 25.0 E	23.070	12997.2137	9135.1091	23	F.I.P.
23	N 68 40 32.0 E	301.223	13106.7531	9415.7092	24	S.I.P.
24	N 66 01 17.0 E	157.678	13170.8328	9559.7792	25	F.I.P.
25	S 00 30 51.1 W	889.966	12282.9029	9551.8103	26	F.I.P.
26	S 00 42 05.1 W	335.710	11947.2182	9547.7007	27	F.I.P.
27	S 89 19 52.0 E	424.959	11942.2572	9972.6306	28	F.I.P.
28	N 00 29 06.0 W	243.329	12185.5776	9970.5709	29	S.I.P.
29	S 89 59 02.0 E	501.220	12185.4367	10471.7908	30	S.I.P.
30	S 00 18 24.9 E	268.684	11916.7566	10473.2301	31	S.I.P.
31	N 89 48 09.0 E	113.101	11917.1465	10586.3304	32	F.I.P.
32	N 89 47 48.0 E	109.951	11917.5367	10696.2807	33	F.I.P.
33	S 00 27 53.9 E	35.731	11881.8069	10696.5706	34	F.I.P.
34	N 89 47 05.0 E	103.771	11882.1968	10800.3409	35	F.I.P.
35	N 00 31 59.0 W	23.651	11905.8468	10800.1209	36	S.I.P.
36	S 42 44 40.9 E	50.314	11868.8969	10834.2706	37	S.I.P.
37	S 44 34 13.9 E	46.225	11835.9669	10866.7107	38	F.I.P.
38	S 52 21 02.2 W	250.037	11683.2373	10668.7406	39	F.I.P.
39	N 89 59 59.8 W	11.700	11683.2373	10657.0406	40	F.I.P.
40	S 00 00 23.1 W	457.390	11225.8475	10656.9893	41	F.I.P.
41	N 89 45 49.8 W	519.484	11227.9887	10137.5096	42	F.I.P.
42	S 12 45 23.9 E	499.663	10740.6592	10247.8403	43	S.I.P.

FROM	ANGLE	LENGTH	NORTHING	EASTING	TO	IDENTIFICATION
43	N 68 41 43.1 E	249.998	10831.4903	10480.7538	44	S.I.P.
44	S 21 18 14.9 E	800.000	10086.1586	10771.4085	45	S.I.P.
45	S 21 18 14.9 E	1,333.339	8843.9330	11255.8353	46	S.I.P.
46	S 21 18 15.0 E	67.020	8781.4928	11280.1849	47	S.I.P.
47	S 01 14 47.4 W	481.035	8300.5718	11269.7207	48	S.I.P.
48	N 89 18 18.5 E	1,398.413	8317.5306	12668.0306	49	S.I.P.
49	S 88 57 25.7 E	208.000	8313.7449	12875.9961	50	F.C.M.
50	N 32 47 36.1 E	20.850	8331.2720	12887.2887	51	F.C.M.
51	N 89 06 48.7 E	221.411	8334.6975	13108.6732	52	F.C.M.
52	S 00 01 40.9 W	338.454	7996.2436	13108.5077	53	F.C.M.
53	N 89 32 56.7 E	517.013	8000.3124	13625.5046	54	S.I.P.
54	S 06 08 25.8 W	885.000	7120.3903	13530.8390	55	S.I.P.
55	S 89 49 04.1 E	416.000	7119.0676	13946.8368	56	S. FEN. POST
56	S 00 08 28.4 W	1,523.010	5596.0618	13943.0831	57	F.I.P.
57	S 89 27 51.9 E	660.243	5589.8903	14603.2972	58	W. FEN. POST
58	S 00 16 09.2 W	964.543	4625.3583	14598.7651	59	W. FEN. POST
59	N 88 55 02.0 W	1,632.241	4656.2028	12966.8152	60	S.I.P.
60	S 03 06 01.2 W	72.607	7583.7021	12962.8883	61	FEN. COR.
61	N 89 30 52.0 W	271.080	4585.9994	12691.8180	62	S.I.P.
62	S 68 56 46.5 W	10.524	4582.2187	12681.9965	63	S.I.P.
63	S 28 25 45.1 E	1,468.615	3290.7083	13381.1639	64	NOT SURVEYED
64	S 68 41 44.9 W	1,103.930	2889.6293	12352.6713	65	NOT SURVEYED
65	N 72 44 18.1 W	543.980	3051.0476	11833.1922	66	NOT SURVEYED
66	N 19 26 17.0 E	286.590	3321.3026	11928.5658	67	NOT SURVEYED
67	N 74 57 44.1 W	168.520	3365.0261	11765.8167	68	NOT SURVEYED
68	N 21 18 15.0 W	406.680	3743.9157	11618.0620	69	NOT SURVEYED
69	S 88 52 49.1 E	191.150	3740.1804	11809.1754	70	NOT SURVEYED
70	N 14 10 44.9 W	715.639	4434.0174	11633.8763	71	S.I.P.
71	S 68 41 45.1 W	250.000	4343.1878	11400.9600	72	S.I.P.
72	N 21 18 15.0 W	661.220	4959.2234	11160.7261	73	S.I.P.
73	S 68 41 45.1 W	247.030	4869.4728	10930.5769	74	S.I.P.
74	N 37 18 39.0 W	784.690	5493.5832	10454.9457	75	S.I.P.
75	S 68 07 48.1 W	458.340	5322.8509	10029.5917	76	S.I.P.
76	N 28 53 25.0 W	365.530	5642.8895	9852.9917	77	S.I.P.
77	N 61 04 28.9 E	388.880	5830.9787	10193.3593	78	S.I.P.
78	N 37 18 03.8 W	54.210	5874.1007	10160.5076	79	S.I.P.
79	N 24 29 28.0 W	1,106.588	6881.1246	9701.7693	80	S.I.P.
80	N 65 31 14.1 W	693.395	7168.4440	9070.7031	81	S.I.P.
81	N 00 42 16.0 W	1,747.254	8915.5657	9049.2211	82	FEN. COR.
82	S 88 56 38.1 W	258.500	8910.8012	8790.7649	83	S.I.P.
83	N 01 03 33.0 E	405.967	9316.6990	8978.2691	84	COMPUTED POINT

SOURCE: PERIMETER PROPERTY LINE SURVEY BY GORDON M. GARRETSON & ASSOCIATES, DATED FEBRUARY 10, 1987

MAGNETIC
TRUE
MAGNETIC DECLINATION 0° 12' W OCT 2010
ANNUAL RATE OF CHANGE 0° 7' W
SOURCE: NATIONAL GEOPHYSICAL DATA CENTER

0 150' 300' 600'
SCALE: 1" = 300'

LEGEND

- EXISTING RUNWAY PROTECTION ZONE
- FUTURE RUNWAY PROTECTION ZONE
- PROPERTY LINE
- EXISTING EASEMENT
- FUTURE EASEMENT

EXISTING EASEMENTS

TRACT #	DATE OF ACQUISITION	TYPE OF OWNERSHIP	FEDERAL AID PROJECT NUMBER	ACQUIRED FROM	ACREAGE
1	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	PROCESS ENGINEERING CO.	0.89
2	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	PHYLLIS ENTRIKEN	0.44
3	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	PHYLLIS ENTRIKEN	0.44
4	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	LIBERTY INDUSTRIES	3.18
5	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	MRS. LOIS KILPATRICK	0.02
6	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	WILLIE B. SPEECH	0.06
7	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	HINDS COMMUNITY COLLEGE	2.22
8	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	NELSON & IRENE CANADA	0.53
9	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	MYNYOWN BULTER	0.77
10	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	HELEN L. NELSON	0.26
11	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	GLENDA F. HOUSE	0.31
12	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	JOHNNY R. ROBINSON	0.37
13	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	LEVY JR.	0.41
14	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	JAMES A. & HELEN R. ROLLINS	0.34
15	SEPTEMBER 24, 1979	EASEMENT	5-28-0038-05	WILLIE B. SPEECH	0.99
16	SEPTEMBER 21, 1981	EASEMENT	5-28-0038-07	ARLIN REGAN	3.39
17	SEPTEMBER 21, 1981	EASEMENT	5-28-0038-07	HINDS COMMUNITY COLLEGE	4.71
				EASEMENT TOTAL	19.33

PROPERTY & EASEMENT TOTALS

	ACREAGE
P-1 EXISTING PROPERTY TOTAL	602.29
FUTURE PROPERTY TOTAL	0.00
PROPERTY TOTAL	602.29
EXISTING EASEMENT TOTAL	19.33
FUTURE EASEMENT TOTAL	2.54
EASEMENT TOTAL	21.87

HKS Hawkins Field Airport

Jackson, Hinds County, Mississippi

BWSC Barge Waggoner Sumner & Cannon, Inc.

IN ASSOCIATION WITH:

THE LPA GROUP AVIATION CONSULTANTS
A UNIT OF MICHAEL BAKER CORPORATION

Designer: APN	Checked by: PJ
Technician: APN	Project Number: PL809001

NOTES:

1. THE PROPERTY LINE SHOWN WAS OBTAINED FROM THE PERIMETER PROPERTY LINE SURVEY BY GORDON M. GARRETSON & ASSOCIATES, DATED FEBRUARY 10, 1987. JMAA HAS NOT ACQUIRED ADDITIONAL AIRPORT PROPERTY SINCE THAT TIME.
2. EXISTING EASEMENT DATA WAS OBTAINED FROM AIRPORT RECORDS AND THE AREAS SHOWN ARE APPROXIMATED.
3. FUTURE EASEMENTS ARE SHOWN WITHIN RPZ AREAS THAT EXTEND OFF AIRPORT PROPERTY.
4. THE FEDERAL GOVERNMENT DEEDED THE ORIGINAL 1,089.24 ACRE AIRPORT PROPERTY TO THE CITY OF JACKSON ON JANUARY 11, 1949. SINCE THAT TIME, THE CITY OF JACKSON HAS CONDUCTED SEVERAL FAA-APPROVED LAND RELEASES, THUS RESULTING IN A CURRENT PROPERTY TOTAL OF 602.29 ACRES.

REVISIONS

NO.	DESCRIPTION	DATE	BY

Project Name:

AIRPORT LAYOUT PLAN UPDATE

Drawing Name:

AIRPORT PROPERTY MAP DRAWING

FAA AIP Project Number: 3-28-0037-041-2008

Date: MAY 2011	Division:
Scale: (30X42) 1"=300'	Sheet Number:
	Drawing Number: 11

CHAPTER 9
FINANCIAL/IMPLEMENTATION PLAN

9.0 Introduction

The previous sections of this Master Plan present a logical, step-by-step explanation of how the long-range improvement plan was developed for the Airport. This implementation plan is designed to assist Airport management in achieving their primary goals to maximize revenues and minimize operating expenditures, while at the same time providing facilities to accommodate the flying public. The implementation plan presented in this section both describes the staging of proposed improvements and provides the basic capital requirements of each. Over the 20-year planning period, the implementation plan may serve as general financial guidance in making policy decisions regarding the development of the airport.

9.1 Program Staging and Cost Estimating

An initial development schedule was prepared based upon facility needs presented in Chapter 5, which in most cases were dependent upon the operations forecast. Therefore, since actual activity levels realized at the airport may vary, the staging must remain sensitive to such variations. It is quite possible for some projects to move up in priority, while at the same time, others may move down. A prioritization of improvements considered the urgency of need, ease of implementation, logic of sequence, and input received from Airport staff. The objective was to establish an efficient order for project development and implementation that satisfied forecasted activity and Aiport desires. The development schedule is divided into three general stages that represent the short (0-5 years), intermediate (6-10 years), and long-term (11-20 years). The next step focused on identifying costs associated with each capital improvement project. These project-specific development costs were then further broken down considering conventional aviation funding sources, such as FAA, Aiport, and other/private participation. Particular focus was given to detailing estimated costs for the short-term.

9.2 FAA Participation

In 1982, the passage of the Airport and Airways Improvement Act enabled the federal govement to provide financial assistance to airports in support of its broad objective, to assist in the development of a nationwide system of public-use airports adequate to meet the projected growth of civil aviation. The Act provides funding for airport planning and development projects at airports included in the National Plan of Integrated Airport Systems (NPIAS) in the form of Airport Improvement Program (AIP) grants. The fund is financed by means of taxes or user fees on various aviation activities including passenger tickets, cargo waybills, fuel, oil, etc. Grants are issued to airports under several different programs, two of which are Entitlement and Discretionary programs.

Under the Entitlement program, grants are allocated to general aviation airports based on the amount submitted on the airports five year capital improvement program. For example

Entitlement funds are provided to each airport. The amount is typically $150,000 for those airports that have over $3,000,000 in project costs identified through their Five Year Capital Improvement Program.

Discretionary funds are awarded by the FAA on a priotized basis using a point-value system. This system provides an objective means whereby the FAA can determine the highest level of need for all the airports requesting discretionary funding. It should be noted that these discretionary funds are not guaranteed to any airport and all airports nation-wide are in competition for these funds.

AIP grants may be used to pay a percentage of the total cost of each eligible project. The percentages vary with the nature of the project and the size of the airport at which the project is to be undertaken. Typically, the percentage is 95 percent for all AIP eligible projects at the Airport. The percentage not funded by the AIP is known as the "local share". Examples of the federal participation include runway extensions, which are eligible for 95 percent funding. In addition to AIP grants, the FAA may also provide funding to airports via Facilities and Equipment (F&E) funds. F&E is not part of the AIP program; however, these funds primarily support FAA constructed and maintained facilities such as runway instrumentation, weather reporting devices, and air traffic control facilities. The FAA funds the entire cost of an F&E project with no requirement for a local matching share.

9.3 Airport Participation

There are several sources the Airport has available to fund a portion of the capital improvements. General obligation bond programs can be used by Airport's to advance project implementation, which the Airport has utilized in the past on several occasions. In addition, when the Airport establishes its rates for use of certain facilities, they can allocate certain portions of the capital cost to users such as tenants and air carriers.

9.4 State Participation

The Mississippi Department of Transportation, Aeronautics Division, also provides funding for eligible project costs. In general terms, the state eligibility requirements are very similar to those of AIP projects. State participation in AIP projects is usually limited to 50 percent of the local share costs (2.5 percent of total project costs). Additionally, the state may participate in non-AIP projects at 75 percent of the total cost.

9.5 Other/Private Participation

Other potential sources of funds include non-conventional federal, state, and local government programs as well as private capital investments. For instance, the Airport has secured outside funds to begin the renovation for the Old Terminal Building.

9.6 Capital Improvement Program

The Capital Improvement Program (CIP) development schedule and cost summaries are presented in Table 9-1 and provide an itemized breakdown of the FAA, State, Local, and other/private funding for the improvements proposed by this Master Plan.

As noted, cost projections are based on 2011 dollars and include estimated engineering fees and contingencies. These projections however, should be used for planning purposes only and do not imply that funding for these will necessarily be available. Each year indicates construction initiation and therefore, any environmental/design efforts not listed in these table will need to precede construction. The total cost of the projects identified for Stage 1 (2011-2015) is $18,031,685. The FAA eligible portion is $7,522,632 which is 95 percent of the AIP Eligible total costs. The remaining $10,509,053 is the Non-Federal share. The total cost of the projects identified for Stage II (2016-2020) is $15,091,465. The FAA eligible portion is $9,706,236 which is 95 percent of the AIP Eligible total costs. The remaining $5,385,229 is the Non-Federal share. The total cost of the projects identified for Stage III (2021-2031) is $10,848,975. The FAA eligible portion is $5,675,870 which is 95 percent of the AIP Eligible total costs. The remaining $5,173,105 is the Non-Federal share.

The next step focused on identifying costs associated with each capital improvement project. These project-specific development costs were then further broken down considering conventional aviation funding sources, such as AIP Eligible and Non-AIP Eligible projects. Particular focus was given to detailing estimated costs for the short-term.

TABLE 9-1
Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
A. AIP ELIGIBLE - STAGE I (0-5 YR)								
1. Pavement Analysis R/W 11/29	1	LS	$35,000	$33,250	$875	$875	$0	$35,000
Subtotal				*$33,250*	*$875*	*$875*	*$0*	*$35,000*
Total				***$33,250***	***$875***	***$875***	***$0***	***$35,000***
2. FAA Obstruction Survey and Clearing - R/W 34								
a. Mobilization	1	LS	$1,000	$950	$25	$25	$0	$1,000
b. Clearing (non-contiguous)	5	AC	$4,000	$19,000	$500	$500	$0	$20,000
c. Seeding/Mulching	5	AC	$5,000	$23,750	$625	$625	$0	$25,000
Subtotal				*$43,700*	$1,150	$1,150	$0	*$46,000*
Engineering/Contingencies		LS		$13,110	$345	$345	$0	$13,800
FAA Obstruction Survey (identification/verification)	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
Total				***$104,310***	***$2,745***	***$2,745***	***$0***	***$109,800***
3. Environmental Assessment R/W 16 Extenstion	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
Subtotal				*$142,500*	*$3,750*	*$3,750*	*$0*	*$150,000*
Total				***$142,500***	***$3,750***	***$3,750***	***$0***	***$150,000***
4. Land Acquisition RW 16 RPZ (Fee/Easement)								
a. Surveys	3	EA	$2,000	$5,700	$150	$150	$0	$6,000
b. Appraisals	3	EA	$2,500	$7,125	$188	$188	$0	$7,500
e. Land	1.59	AC	$10,000	$15,105	$398	$398	$0	$15,900
Subtotal				*$27,930*	*$735*	*$735*	*$0*	*$29,400*
Engineering/Contingencies		LS		$5,586	$147	$147	$0	$5,880
Total				***$33,516***	***$882***	***$882***	***$0***	***$35,280***
5. Extend RW 16 1013' x 150' (includes blast pads for R/W 16 &34)								
a. Mobilization	1	LS	$250,000	$237,500	$6,250	$6,250	$0	$250,000
b. Clearing & Grubbing	20	ACRE	$2,000	$38,000	$1,000	$1,000	$0	$40,000
c. Earthwork	47,300	CY	$3	$134,805	$3,548	$3,548	$0	$141,900
d. Erosion Control	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
e. Storm Drainage	1200	LF	$85	$96,900	$2,550	$2,550	$0	$102,000
f. Sub-Base Course	19,500	SY	$15	$277,875	$7,313	$7,313	$0	$292,500
g. Base Course	19,500	SY	$18	$333,450	$8,775	$8,775	$0	$351,000
h. Bituminous Surface Course	3,500	TON	$80	$266,000	$7,000	$7,000	$0	$280,000
i. Signage	1	LS	$25,000	$23,750	$625	$625	$0	$25,000
j. High Intensity Runway Lights (HIRL)	1	LS	$250,000	$237,500	$6,250	$6,250	$0	$250,000
k. Pavement Marking	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
l. Seeding/Mulching	20	ACRE	$3,000	$57,000	$1,500	$1,500	$0	$60,000
m. Windcone	1	LS	$25,000	$23,750	$625	$625	$0	$25,000
n. Relocate PAPI-4 R/W 16	1	LS	$20,000	$19,000	$500	$500	$0	$20,000
o. Install PAPI-4 R/W 34	1	LS	$40,000	$38,000	$1,000	$1,000	$0	$40,000
p. Relocate MALSR	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
Subtotal				*$2,116,030*	*$55,685*	*$55,685*	*$0*	*$2,227,400*
Engineering/Contingencies		LS		$423,206	$11,137	$11,137	$0	$445,480
Total				***$2,539,236***	***$66,822***	***$66,822***	***$0***	***$2,672,880***

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
6. Extend Taxiway "C" and Construct Connector Taxiways								
a. Mobilization	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
b. Clearing & Grubbing	7	ACRE	$2,000	$13,300	$350	$350	$0	$14,000
c. Earthwork	15,200	CY	$3	$43,320	$1,140	$1,140	$0	$45,600
d. Erosion Control	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
e. Storm Drainage	250	LF	$85	$20,188	$531	$531	$0	$21,250
f. Sub-Base Course	6,500	SY	$15	$92,625	$2,438	$2,438	$0	$97,500
g. Base Course	6,500	SY	$18	$111,150	$2,925	$2,925	$0	$117,000
h. Bituminous Surface Course	1,200	TON	$80	$91,200	$2,400	$2,400	$0	$96,000
i. Signage	1	LS	$25,000	$23,750	$625	$625	$0	$25,000
j. Medium Intensity Taxiway Lights (MITL)	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
k. Pavement Marking	1	LS	$20,000	$19,000	$500	$500	$0	$20,000
l. Seeding/Mulching	7	ACRE	$3,000	$19,950	$525	$525	$0	$21,000
Subtotal				*$766,983*	*$20,184*	*$20,184*	*$0*	*$807,350*
Engineering/Contingencies		LS		$153,397	$4,037	$4,037	$0	$161,470
Total				***$920,379***	***$24,221***	***$24,221***	***$0***	***$968,820***
7. FAA Security Enhancements	1	LS	$150,000	$142,500	$3,750	$3,750	$0	$150,000
Subtotal				*$142,500*	*$3,750*	*$3,750*	*$0*	*$150,000*
Total				***$142,500***	***$3,750***	***$3,750***	***$0***	***$150,000***
8. Construct New Administration Complex, Maintenance Center, and Auto Parking								
a. Mobilization	1	LS	$150,000	$142,500	$0	$7,500	$0	$150,000
b. Administration Building	10,000	SF	$225	$2,137,500	$0	$112,500	$0	$2,250,000
c. Maintenance Facility	2,500	SF	$150	$356,250	$0	$18,750	$0	$375,000
d. Clearing and Grubbing	1	ACRE	$2,000	$1,900	$0	$100	$0	$2,000
e. Earthwork	5,000	CY	$3	$14,250	$0	$750	$0	$15,000
f. Erosion Control	1	LS	$30,000	$28,500	$0	$1,500	$0	$30,000
g. Sub-Base Course	1,500	SY	$15	$21,375	$0	$1,125	$0	$22,500
h. Base Course	1,500	SY	$18	$25,650	$0	$1,350	$0	$27,000
i. Bituminous Surface Course	500	TON	$80	$38,000	$0	$2,000	$0	$40,000
j. Drainage	1	LS	$15,000	$14,250	$0	$750	$0	$15,000
k. Site Lighting	1	LS	$10,000	$9,500	$0	$500	$0	$10,000
l. Pavement Marking	1	LS	$2,000	$1,900	$0	$100	$0	$2,000
m. Seeding/Mulching	1	ACRE	$3,000	$2,850	$0	$150	$0	$3,000
Subtotal				*$2,794,425*	*$0*	*$147,075*	*$0*	*$2,941,500*
Engineering/Contingencies		LS		$558,885	$0	$29,415	$0	$588,300
Total				***$3,353,310***	***$0***	***$176,490***	***$0***	***$3,529,800***
9. Vehicular Access and Signage Upgrades (Ford Ave to West Ramp)								
a. Mobilization	1	LS	$15,000	$14,250	$375	$375	$0	$15,000
b. Milling/Planing	3,500	SY	$2	$6,650	$175	$175	$0	$7,000
c. Crack Repair (Pavement Reinforcing Fabric)	200	SY	$6	$1,140	$30	$30	$0	$1,200
d. Bituminous Pavement (3")	500	TON	$80	$38,000	$1,000	$1,000	$0	$40,000
e. Pavement Marking	500	SF	$5	$2,375	$63	$63	$0	$2,500
f. Signage Upgrades	1	LS	$25,000	$23,750	$625	$625	$0	$25,000
g. Landscaping	1	LS	$100,000	$95,000	$2,500	$2,500	$0	$100,000
Subtotal				*$181,165*	*$4,768*	*$4,768*	*$0*	*$190,700*
Engineering/Contingencies		LS		$72,466	$1,907	$1,907	$0	$76,280
Total				***$253,631***	***$6,675***	***$6,675***	***$0***	***$266,980***
TOTAL - AIP ELIGIBLE - STAGE I				**$7,522,632**	**$109,719**	**$286,209**	**$0**	**$7,918,560**

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
B. NON AIP ELIGIBLE - STAGE I (0-5 YR)								
1. Hangars								
a. Hangars (73,550 SF)	73,550	SF	$125	$0	$0	$0	$9,193,750	$9,193,750
Subtotal				*$0*	*$0*	*$0*	*$9,193,750*	*$9,193,750*
Engineering/Contingencies		LS		$0	$0	$0	$919,375	$919,375
Total				***$0***	***$0***	***$0***	***$10,113,125***	***$10,113,125***
TOTAL NON-AIP ELIGIBLE - STAGE I				**$0**	**$0**	**$0**	**$10,113,125**	**$10,113,125**
TOTAL STAGE I*				**$7,522,632**	**$109,719**	**$286,209**	**$10,113,125**	**$18,031,685**

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
C. AIP ELIGIBLE - STAGE II (6-10 YR)								
1. Vehicular Access and Signage Upgrades (Airport Drive to South Ramp)								
a. Mobilization	1	LS	$20,000	$19,000	$500	$500	$0	$20,000
b. Milling/Planing	12,000	SY	$2	$22,800	$600	$600	$0	$24,000
c. Crack Repair (Pavement Reinforcing Fabric)	350	SY	$6	$1,995	$53	$53	$0	$2,100
d. Bituminous Pavement (3")	1,500	TON	$80	$114,000	$3,000	$3,000	$0	$120,000
e. Pavement Marking	1,000	SF	$5	$4,750	$125	$125	$0	$5,000
f. Signage Upgrades	1	LS	$25,000	$23,750	$625	$625	$0	$25,000
g. Landscaping	1	LS	$100,000	$95,000	$2,500	$2,500	$0	$100,000
Subtotal				*$281,295*	*$7,403*	*$7,403*	*$0*	*$296,100*
Engineering/Contingencies		LS		$98,453	$2,591	$2,591	$0	$103,635
Total				***$379,748***	***$9,993***	***$9,993***	***$0***	***$399,735***
2. South Apron Rehabilitation								
a. Mobilization	1	LS	$20,000	$19,000	$500	$500	$0	$20,000
b. Milling/Planing	19,200	SY	$2	$36,480	$960	$960	$0	$38,400
c. Crack Repair (Pavement Reinforcing Fabric)	2,100	SY	$6	$11,970	$315	$315	$0	$12,600
d. Bituminous Pavement (3")	3,500	TON	$80	$266,000	$7,000	$7,000	$0	$280,000
e. Pavement Marking	1,500	SF	$2	$2,850	$75	$75	$0	$3,000
f. Tie Downs	60	EA	$300	$17,100	$450	$450	$0	$18,000
g. Seeding/Mulching	2	AC	$3,000	$5,700	$150	$150	$0	$6,000
Subtotal				*$359,100*	*$9,450*	*$9,450*	*$0*	*$378,000*
Engineering/Contingencies		LS		$107,730	$2,835	$2,835	$0	$113,400
Total				***$466,830***	***$12,285***	***$12,285***	***$0***	***$491,400***
3. West Apron Rehabilitation								
a. Mobilization	1	LS	$300,000	$285,000	$7,500	$7,500	$0	$300,000
b. Removal of Concrete	118,500	SY	$2	$225,150	$5,925	$5,925	$0	$237,000
c. Sub-Base Course	118,500	SY	$15	$1,688,625	$44,438	$44,438	$0	$1,777,500
d. Base Course	118,500	SY	$18	$2,026,350	$53,325	$53,325	$0	$2,133,000
e. Bituminous Surface Course	41,000	TON	$80	$3,116,000	$82,000	$82,000	$0	$3,280,000
f. Pavement Marking	100,000	SF	$1	$95,000	$2,500	$2,500	$0	$100,000
g. Tie Downs	300	EA	$300	$85,500	$2,250	$2,250	$0	$90,000
h. Seeding/Mulching	3	AC	$3,000	$8,550	$225	$225	$0	$9,000
Subtotal				*$7,530,175*	*$198,163*	*$198,163*	*$0*	*$7,926,500*
Engineering/Contingencies		LS		$1,129,526	$29,724	$29,724	$0	$1,188,975
Total				***$8,659,701***	***$227,887***	***$227,887***	***$0***	***$9,115,475***
4. Connector Taxiway for Army National Guard Apron								
a. Mobilization	1	LS	$20,000	$19,000	$500	$500	$0	$20,000
b. Clearing & Grubbing	1	ACRE	$2,000	$1,900	$50	$50	$0	$2,000
c. Earthwork	500	CY	$6	$2,850	$75	$75	$0	$3,000
d. Erosion Control	1	LS	$15,000	$14,250	$375	$375	$0	$15,000
e. Sub-Base Course	1,800	SY	$15	$25,650	$675	$675	$0	$27,000
f. Base Course	1,800	SY	$18	$30,780	$810	$810	$0	$32,400
g. Bituminous Surface Course	700	TON	$80	$53,200	$1,400	$1,400	$0	$56,000
h. MITL/Lighting	1	LS	$15,000	$14,250	$375	$375	$0	$15,000
i. Pavement Marking	1	LS	$2,000	$1,900	$50	$50	$0	$2,000
j. Seeding/Mulching	1	ACRE	$3,000	$2,850	$75	$75	$0	$3,000
Subtotal				*$166,630*	*$4,385*	*$4,385*	*$0*	*$175,400*
Engineering/Contingencies		LS		$33,326	$877	$877	$0	$35,080
Total				***$199,956***	***$5,262***	***$5,262***	***$0***	***$210,480***
TOTAL - AIP ELIGIBLE - STAGE II				**$9,706,236**	**$255,427**	**$255,427**	**$0**	**$10,217,090**

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
D. NON AIP ELIGIBLE - STAGE II (6-10 YR)								
1. Hangars								
a. Hangars (35,450 SF)	35,450	SF	$125	$0	$0	$0	$4,431,250	$4,431,250
Subtotal				*$0*	*$0*	*$0*	*$4,431,250*	*$4,431,250*
Engineering/Contingencies		LS		$0	$0	$0	$443,125	$443,125
Total				***$0***	***$0***	***$0***	***$4,874,375***	***$4,874,375***
TOTAL NON-AIP ELIGIBLE - STAGE II				**$0**	**$0**	**$0**	**$4,874,375**	**$4,874,375**
TOTAL STAGE II*				**$9,706,236**	**$255,427**	**$255,427**	**$4,874,375**	**$15,091,465**

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
E. AIP ELIGIBLE - STAGE III (11-20 YR)								
1. Update Master Plan	1	LS	$200,000	$190,000	$5,000	$5,000	$0	$200,000
Subtotal				*$190,000*	*$5,000*	*$5,000*	*$0*	*$200,000*
Total				***$190,000***	***$5,000***	***$5,000***	***$0***	***$200,000***
2. Remove Existing Airfield Pavement								
a. Mobilization	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
b. Removal of Asphalt	195,000	SY	$2	$370,500	$9,750	$9,750	$0	$390,000
c. Topsoil	75,000	CY	$10	$712,500	$18,750	$18,750	$0	$750,000
d. Seeding/Mulching	6	AC	$3,000	$17,100	$450	$450	$0	$18,000
Subtotal				*$1,147,600*	*$30,200*	*$30,200*	*$0*	*$1,208,000*
Engineering/Contingencies		LS		$172,140	$4,530	$4,530	$0	$181,200
Total				***$1,319,740***	***$34,730***	***$34,730***	***$0***	***$1,389,200***
3. Overlay/Rehabilitate Runway 16/34								
a. Mobilization	1	LS	$100,000	$95,000	$2,500	$2,500	$0	$100,000
b. Milling/Planing	107,000	SY	$2	$203,300	$5,350	$5,350	$0	$214,000
c. Crack Repair (Pavement Reinforcing Fabric)	10,000	SY	$6	$57,000	$1,500	$1,500	$0	$60,000
d. Bituminous Pavement (3")	20,000	TON	$80	$1,520,000	$40,000	$40,000	$0	$1,600,000
e. Pavement Marking	1	LS	$200,000	$190,000	$5,000	$5,000	$0	$200,000
f. Pavement Grooving	94,000	SY	$1	$89,300	$2,350	$2,350	$0	$94,000
g. Seeding/Mulching	5	AC	$3,000	$14,250	$375	$375	$0	$15,000
Subtotal				*$2,168,850*	*$57,075*	*$57,075*	*$0*	*$2,283,000*
Engineering/Contingencies		LS		$433,770	$11,415	$11,415	$0	$456,600
Total				***$2,602,620***	***$68,490***	***$68,490***	***$0***	***$2,739,600***
3. Overlay/Rehabilitate Taxiway "C"								
a. Mobilization	1	LS	$100,000	$95,000	$2,500	$2,500	$0	$100,000
c. Crack Repair (Pavement Reinforcing Fabric)	5,000	SY	$6	$28,500	$750	$750	$0	$30,000
d. Bituminous Pavement (2")	2,750	TON	$80	$209,000	$5,500	$5,500	$0	$220,000
e. Pavement Marking	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
g. Seeding/Mulching	3	AC	$3,000	$8,550	$225	$225	$0	$9,000
g. Replace Medium Intensity Taxiway Lights (MITL)	1	LS	$200,000	$190,000	$5,000	$5,000	$0	$200,000
Subtotal				*$388,550*	*$10,225*	*$10,225*	*$0*	*$409,000*
Engineering/Contingencies		LS		$77,710	$2,045	$2,045	$0	$81,800
Total				***$466,260***	***$12,270***	***$12,270***	***$0***	***$490,800***
4. Additional Parallel Taxiway to RW 16/34								
a. Mobilization	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
b. Clearing & Grubbing	15	ACRE	$2,000	$28,500	$750	$750	$0	$30,000
c. Earthwork	10,000	CY	$3	$28,500	$750	$750	$0	$30,000
d. Erosion Control	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
e. Sub-Base Course	7,500	SY	$15	$106,875	$2,813	$2,813	$0	$112,500
f. Base Course	7,500	SY	$18	$128,250	$3,375	$3,375	$0	$135,000
g. Bituminous Surface Course	3,000	TON	$75	$213,750	$5,625	$5,625	$0	$225,000
h. Signage	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
i. MITL	1	LS	$200,000	$190,000	$5,000	$5,000	$0	$200,000
j. Pavement Marking	1	LS	$50,000	$47,500	$1,250	$1,250	$0	$50,000
k. Seeding/Mulching	10	ACRE	$3,000	$28,500	$750	$750	$0	$30,000
Subtotal				*$914,375*	*$24,063*	*$24,063*	*$0*	*$962,500*
Engineering/Contingencies		LS		$182,875	$4,813	$4,813	$0	$192,500
Total				***$1,097,250***	***$28,875***	***$28,875***	***$0***	***$1,155,000***
TOTAL - AIP ELIGIBLE - STAGE III				**$5,675,870**	**$149,365**	**$149,365**	**$0**	**$5,974,600**

Hawkins Field
Jackson, Mississippi
Proposed Capital Improvement Plan Projects

	Qty	Unit	Unit Cost	Federal	State	Local	Private/Other	Total
F. NON AIP ELIGIBLE - STAGE III (11-20 YR)								
1. Hangars								
a. Hangars (35,450 SF)	35,450	SF	$125	$0	$0	$0	$4,431,250	$4,431,250
Subtotal				*$0*	*$0*	*$0*	*$4,431,250*	*$4,431,250*
Engineering/Contingencies		LS		$0	$0	$0	$443,125	$443,125
Total				***$0***	***$0***	***$0***	***$4,874,375***	***$4,874,375***
TOTAL - NON AIP ELIGIBLE - STAGE III				**$0**	**$0**	**$0**	**$4,874,375**	**$4,874,375**
TOTAL STAGE III*				**$5,675,870**	**$149,365**	**$149,365**	**$4,874,375**	**$10,848,975**
TOTAL STAGES I, II, & III (AIP)*				**$22,904,738**	**$514,511**	**$691,001**	**$0**	**$24,110,250**
TOTAL STAGES I, II, & III (NON-AIP)*				**$0**	**$0**	**$0**	**$19,861,875**	**$19,861,875**
GRAND TOTAL STAGES I, II, & III*				**$22,904,738**	**$514,511**	**$691,001**	**$19,861,875**	**$43,972,125**

***All cost are shown in terms of 2011 dollars.**

APPENDIX 1

Noise Analysis

MEMORANDUM

TO: Mark Counts, Barge Waggoner Sumner & Cannon, Inc.

FROM: Phil Jufko and Mike Kotlow, The LPA Group Incorporated

SUBJECT: Hawkins Field Airport Noise Analysis

DATE: April 22, 2010

Background: As part of the Airport Master Plan Update (AMPU) for Hawkins Field Airport (HKS), an evaluation of existing and future noise exposure was conducted using the FAA's Integrated Noise Model (INM) computer program (Version 7.0b). This memo presents the assumptions, inputs, and findings of the INM analyses for the following three scenarios: 1) 2008 Existing, 2) 2028 No-Build, and 3) 2028 Build (i.e., 1,013 foot extension of the Runway 16 end).

Disclaimer: The analyses herein should be viewed as a generalized evaluation of airport noise exposure for comparative purposes only. Moreover, the associated noise contours were not developed to the precision required for Federal Aviation Regulations (FAR) Part 150 Noise Studies. Since the proposed extension of Runway 16-34 to 6,400 feet is intended to meet the operational demands of existing airport users, it was unreasonable to assume that additional activity growth would be encouraged by the project undertaking itself; rather, only natural activity growth was evaluated.

Assumptions and Inputs: The following activity assumptions were confirmed by Mr. Lanny Greenberg, Manager of the HKS Air Traffic Control Tower (ATCT):

- **Touch-and-Go Activity Flow –** 77% Runway 16, 18% Runway 34, 3% Runway 11, 2% Runway 29
- **Other Fixed-Wing Activity Flow –** 80% Runway 16, 20% Runway 34
- **Helicopter Activity Flow** (based on designators on graphic) **–** 60% H1, 15% H2, 15% H3, and 10% H4
- **Day/Night Activity Split –** 97% Day, 3% Night

The FAA-approved operations forecast presented in the AMPU were used to develop the INM inputs for years 2008 and 2028. As shown in the attached table, the 2008 inputs by aircraft type were determined by reviewing FAA flight plan records from the Enhanced Traffic Management System Counts (ETMSC) database.

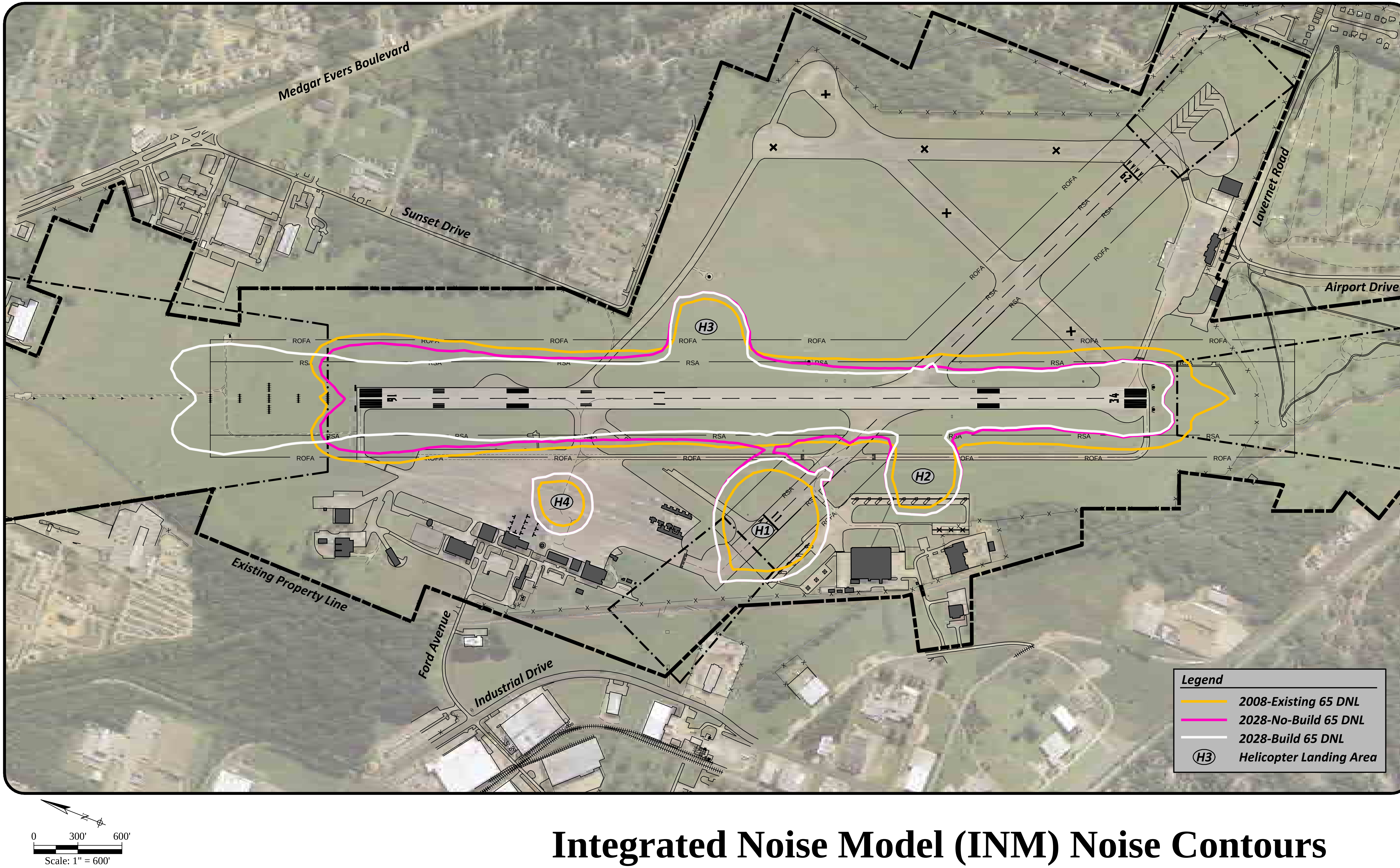
In INM, 10 aircraft were selected to represent HKS' existing and future activity mix. According to FAA flight plan records, the majority of HKS' jet activity is comprised of medium-sized jets which are best represented by the CNA55B (Citation V) aircraft. Although the airport still receives occasional operations by loud/old Stage 2 jets like the Lear 25, the frequency of Stage 2 jet operations is expected to decline year-to-year as the planes are retired from service (all new jets are subject to Stage 4 aircraft noise standards). Larger jet activity is also common at HKS by Citations, Gulfstreams, and Falcons, and a steady increase in larger jet activity is expected during the forecast years – because these longer-range jets are now the preferred option of many corporations (due to longer-range, more passengers, reduced costs, etc.). While some Very Light Jet (VLJ) activity is currently conducted at HKS, this limited effort focused on aircraft that were most representative of HKS' noise exposure. As can be seen in the table, the INM operations values are identical for both the 2028 No-Build and 2028 Build scenarios – this highlights that only natural activity growth can be evaluated for the proposed runway extension.

General Findings: The attached graphic illustrates the Day-Night Average Noise Level (DNL) 65 decibel (dB) noise contours for the three scenarios, which represents the average annualized noise exposure of HKS activity. The federal government considers noise levels below DNL 65 dB to be compatible with residential and other noise-sensitive developments (e.g., schools and places of worship). General findings of the INM analyses include:

1) **2008 Existing** – The DNL 65 dB noise contour does not extend off the airport property and does not produce any incompatible noise exposure to the surrounding residential areas.
2) **2028 No-Build –** Even though activity increased under this scenario, the number of loud/old Stage 2 jet operations decreased. Subsequently, the DNL 65 dB contour would not extend as far beyond the runway ends as it did under the 2008 Existing scenario.
3) **2028 Build –** With a 1,013 foot extension of the Runway 16 end for a total runway length of 6,400 feet (including a 500 foot displaced threshold), the DNL 65 dB contour would still remain on the airport property and would not result incompatible noise exposure. This is because the runway extension is intended to better accommodate the needs of existing users of HKS, not larger aircraft.

Overall, no incompatible noise exposure is expected from existing and forecast HKS activity, even if Runway 16-34 is ultimately extended to better accommodate the needs of existing airport users.

2008 EXISTING INM INPUTS										
INM CODE	*B260L*	*S70*	*CNA172*	*GASEPF*	*BEC58P*	*CNA441*	*LEAR25*	*CNA55B*	*CNA750*	*GV*
TYPE	HEL1	HEL2	SEP	SEP-T&G	MEP	TP	JET (STAGE 2)	JET (MED)	JET (LARGE)	JET (>60K)
AIRCRAFT	BELL 206	BLACKHAWK	CESSNA 172	SINGLE ENGINE	BEECH BARON	CONQUEST II	LEAR 25	CITATION V	CITATION X	GULFSTREAM V
TOTAL ANNUAL OPERATIONS	1,638	1,638	5,763	17,207	7,657	2,699	108	1,037	387	15
TOTAL DAILY OPERATIONS	4.4877	4.4877	15.7890	47.1425	20.9781	7.3945	0.2969	2.8415	1.0603	0.0424
INPUT DAY (ARR & DEP)	2.1765	2.1765	7.6577	45.7282 T&G	10.1744	3.5863	0.1440	1.3781	0.5142	0.0206
INPUT NIGHT (ARR & DEP)	0.0673	0.0673	0.2368	1.4143 T&G	0.3147	0.1109	0.0045	0.0426	0.0159	0.0006
2028 NO-BUILD AND BUILD INM INPUTS										
INM CODE	*B260L*	*S70*	*CNA172*	*GASEPF*	*BEC58P*	*CNA441*	*LEAR25*	*CNA55B*	*CNA750*	*GV*
TYPE	HEL1	HEL2	SEP	SEP-T&G	MEP	TP	JET (STAGE 2)	JET (MED)	JET (LARGE)	JET (>60K)
AIRCRAFT	BELL 206	BLACKHAWK	CESSNA 172	SINGLE ENGINE	BEECH BARON	CONQUEST II	LEAR 25	CITATION V	CITATION X	GULFSTREAM V
TOTAL ANNUAL OPERATIONS	2,745	2,745	7,699	21,664	9,788	3,263	0	2,535	978	109
TOTAL DAILY OPERATIONS	7.5205	7.5205	21.0932	59.3534	26.8164	8.9397	0.0000	6.9444	2.6785	0.2976
INPUT DAY (ARR & DEP)	3.6475	3.6475	10.2302	57.5728 T&G	13.0060	4.3358	0.0000	3.3680	1.2991	0.1443
INPUT NIGHT (ARR & DEP)	0.1128	0.1128	0.3164	1.7806 T&G	0.4022	0.1341	0.0000	0.1042	0.0402	0.0045



Integrated Noise Model (INM) Noise Contours

APPENDIX 2

EDR NEPACheck

Hawkins Field Airport
Airport Drive
Jackson, MS 39213

Inquiry Number: 2614984.7s
October 14, 2009

EDR NEPACheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR NEPACheck® DESCRIPTION

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions, analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

The EDR NEPACheck provides information which may be used, in conjunction with additional research, to determine whether a proposed site or action will have significant environmental effect.

The report provides maps and data for the following items (where available). Search results are provided in the Map Findings Summary on page 2 of this report.

Section	**Regulation**
Natural Areas Map	
• Federal Lands Data:	
- Officially designated wilderness areas	47 CFR 1.1307(1)
- Officially designated wildlife preserves, sanctuaries and refuges	47 CFR 1.1307(2)
- Wild and scenic rivers	40 CFR 6.302(e)
- Fish and Wildlife	40 CFR 6.302
• Threatened or Endangered Species, Fish and Wildlife, Critical Habitat Data (where available)	47 CFR 1.1307(3); 40 CFR 6.302
Historic Sites Map	
• National Register of Historic Places	47 CFR 1.1307(4); 40 CFR 6.302
• State Historic Places (where available)	
• Indian Reservations	
Flood Plain Map	
• National Flood Plain Data (where available)	47 CFR 1.1307(6); 40 CFR 6.302
Wetlands Map	
• National Wetlands Inventory Data (where available)	47 CFR 1.1307(7); 40 CFR 6.302
FCC & FAA Map	
• FCC antenna/tower sites, AM Radio Towers, FAA Markings and Obstructions, AM Radio Interference Zones, Airports, Topographic gradient	47 CFR 1.1307(8)
Key Contacts and Government Records Searched	

MAP FINDINGS SUMMARY

The databases searched in this report are listed below. Database descriptions and other agency contact information is contained in the Key Contacts and Government Records Searched section on page 32 of this report.

TARGET PROPERTY ADDRESS

HAWKINS FIELD AIRPORT
AIRPORT DRIVE
JACKSON, MS 39213

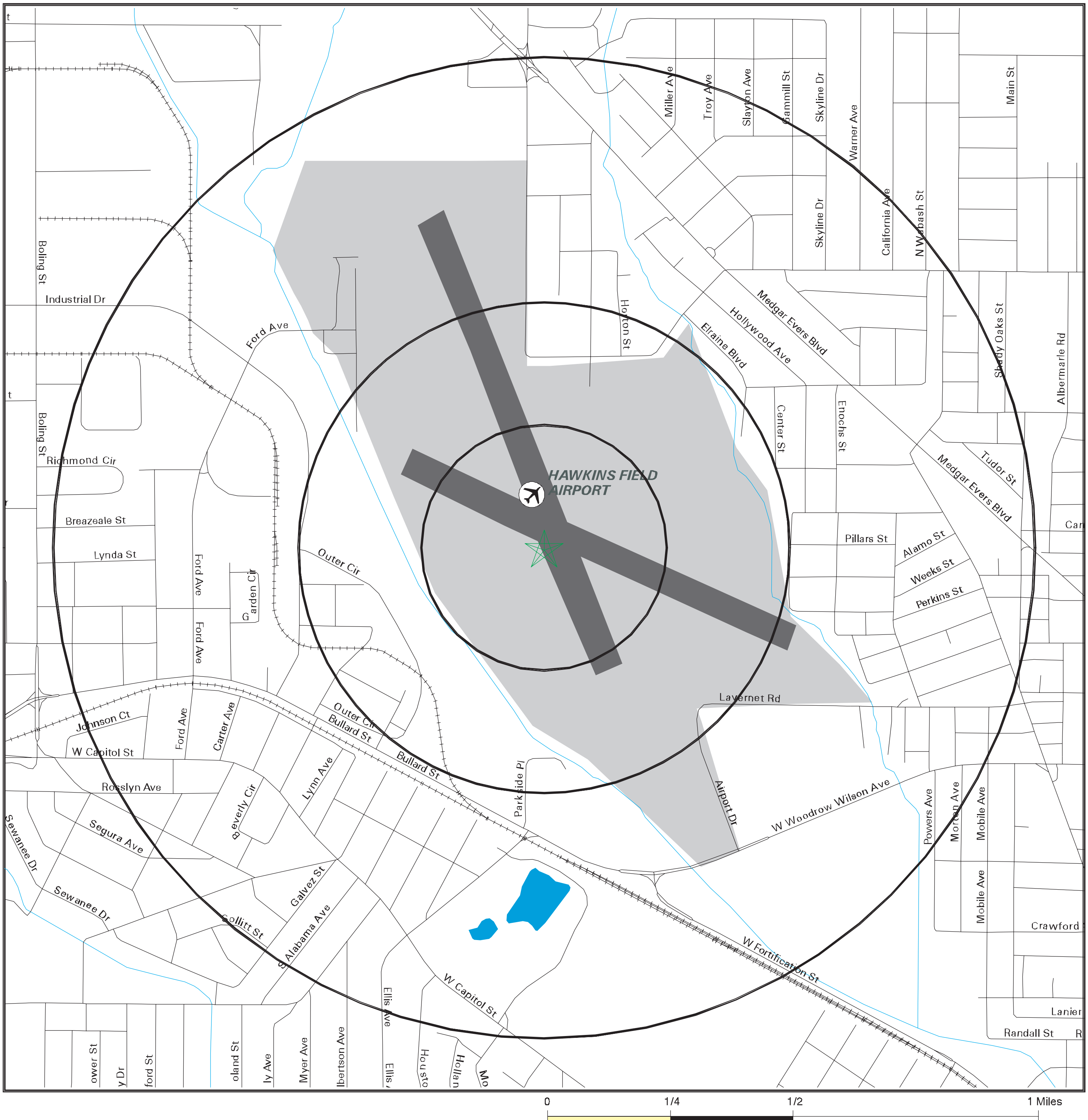
Inquiry #: 2614984.7s
Date: 10/14/9

TARGET PROPERTY COORDINATES

Latitude (North):	32.333199 - 32˚ 19’ 59.5’’
Longitude (West):	90.222099 - 90˚ 13’ 19.6’’
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	761484.0
UTM Y (Meters):	3580572.5

Applicable Regulation from 47 CFR/FCC Checklist	Database	Search Distance (Miles)	Within Search	Within 1/8 Mile
NATURAL AREAS MAP				
1.1307a (1) Officially Designated Wilderness Area	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	US Federal Lands	1.00	NO	NO
1.1307a (2) Officially Designated Wildlife Preserve	MS Wildlife Management Areas	1.00	NO	NO
1.1307a (3) Threatened or Endangered Species or Critical Habitat	MS Environmental Sensitive Are	1.00	NO	NO
1.1307a (3) Threatened or Endangered Species or Critical Habitat	County Endangered Species	County	YES	N/A
HISTORIC SITES MAP				
1.1307a (4) Listed or eligible for National Register	National Register Hist. Places	1.00	YES	NO
1.1307a (4) Listed or eligible for National Register	MS Historic Sites	1.00	NO	NO
	Indian Reservation	1.00	NO	NO
FLOODPLAIN MAP				
1.1307 (6) Located in a Flood Plain	FLOODPLAIN	1.00	YES	YES
WETLANDS MAP				
1.1307 (7) Change in surface features (wetland fill)	NWI	1.00	NO	NO
FCC & FAA SITES MAP				
	FCC Cellular	1.00	NO	NO
	FCC Antenna	1.00	YES	NO
	FCC Tower	1.00	YES	NO
	FCC AM Tower	1.00	NO	NO
	FAA DOF	1.00	YES	NO
	Airports	1.00	YES	---
	Power Lines	1.00	NO	---

Natural Areas Map



- Target Property
- Roads
- County Boundary
- Waterways
- Water
- Airports
- Locations
- Federal Areas
- Federal Linear Features
- State Areas
- State Linear Features

SITE NAME: Hawkins Field Airport	CLIENT: Environmental Management Plus
ADDRESS: Airport Drive	CONTACT: Alfred Martin
Jackson MS 39213	INQUIRY #: 2614984.7s
LAT/LONG: 32.3332 / 90.2221	DATE: October 14, 2009

NATURAL AREAS MAP FINDINGS

Endangered Species Listed for: HINDS County, MS.

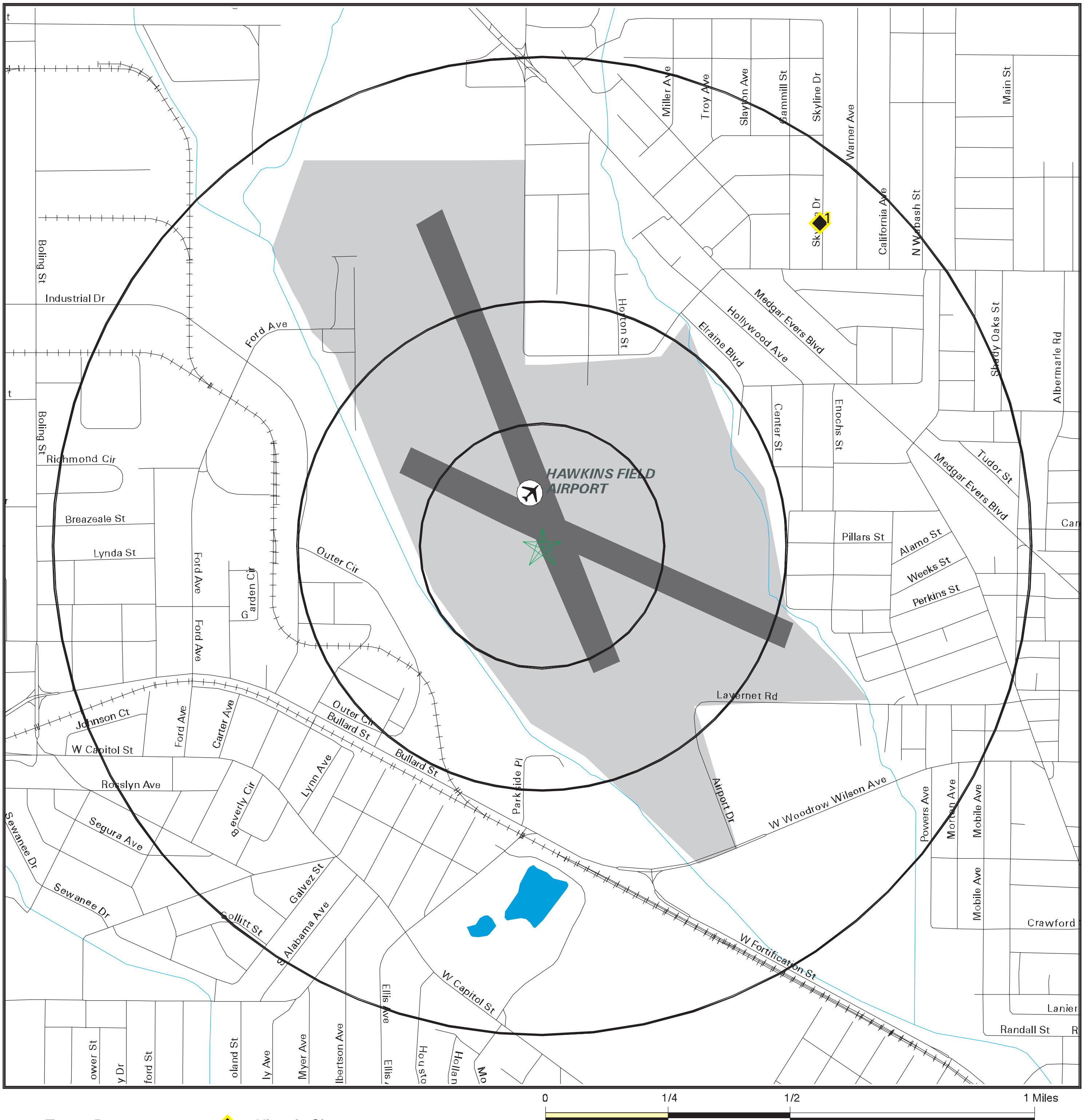
Source: EPA Endangered Species Protection Program Database

FISH:	DARTER, BAYOU
FISH:	STURGEON, GULF
MAMMAL:	BEAR, LOUISIANA BLACK
REPTILE:	TURTLE, RINGED SAWBACK

Map ID Direction Distance Distance (ft.)	EDR ID Database

No mapped sites were found in EDR's search of available government records within the search radius around the target property.

Historic Sites Map



- Target Property
- Streets
- County Boundary
- Waterways
- Water
- Airports
- Historic Sites
- Federal Historic Areas
- State Historic Areas
- US Indian Reservations
- Scenic Trail

SITE NAME:	Hawkins Field Airport	CLIENT:	Environmental Management Plus
ADDRESS:	Airport Drive	CONTACT:	Alfred Martin
	Jackson MS 39213	INQUIRY #:	2614984.7s
LAT/LONG:	32.3332 / 90.2221	DATE:	October 14, 2009

HISTORIC SITES MAP FINDINGS

Map ID Direction Distance Distance (ft.)					EDR ID Database
1	Resource Name:	Evers, Medgar, House			
NE	Alternate Name:	Not Reported			00001459
1/2-1 mi	Resource Address:	2332 Margaret Walker Alexander Dr.			National Register Hist. Places
4600	Resource Type:	Building			
	Location:	Jackson, MS			
	County:	Hinds, MS			
	Primary Certification:	Listed in the national register			
	Certification Date:	20001205	Acreage:	9	
	Number of Buildings:	1	Number of Objects:	Not Reported	
	Number of Sites:	Not Reported	Num. of Structures:	Not Reported	
	Number of non-contributing Buildings:		Not Reported		
	Number of non-contributing Objects:		Not Reported		
	Number of non-contributing Sites:		Not Reported		
	Num. of non-contributing Structures:		Not Reported		
	Applicable Criteria:	Event, Person			
	Areas of Significance:	Black, Social history			
	Current Function:	Recreation and culture			
	Building Material:	Brick, Asphalt, Wood, Asbestos			

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	ARMOUR CO SMOKEHOUSE	Unmappable
City:	JACKSON	MS30000484
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/25/1983	
Name:	AYER HALL	Unmappable
City:	JACKSON	MS30000485
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	07/14/1977	
Name:	BAILEY HILL, CIVIL WAR EARTHWORKS ON	Unmappable
City:	JACKSON	MS30000486
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	05/06/1975	
Name:	BELHAVEN HEIGHTS HISTORIC DISTRICT AMENDMENT	Unmappable
City:	JACKSON	MS30000490
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	09/03/1998	
Name:	BELHAVEN HEIGHTS HISTORIC DISTRICT	Unmappable
City:	JACKSON	MS30000489
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/25/1983	
Name:	BELLEVUE COURT APARTMENTS	Unmappable
City:	JACKSON	MS30000491
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/21/1994	
Name:	BOYD HOUSE (see THE OAKS)	Unmappable
City:	Not Reported	MS30000494
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	
Name:	BRADY HOUSE (see MCNAIR PLANTATION)	Unmappable
City:	Not Reported	MS30000495
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	CAPITOL GREEN	Unmappable
City:	JACKSON	MS30000496
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/25/1969	

Name:	CEDAR GROVE (see THE CEDARS)	Unmappable
City:	Not Reported	MS30000499
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	

Name:	CENTRAL FIRE STATION	Unmappable
City:	JACKSON	MS30000500
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/30/1975	

Name:	CITY HALL	Unmappable
City:	JACKSON	MS30000502
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/25/1969	

Name:	CITY MOUND 22-Hi-672	Unmappable
City:	JACKSON	MS30000503
County:	HINDS COUNTY	MS Historic Sites
Note:	Archeology	
Date Added:	12/01/1988	

Name:	EDWARDS HOTEL	Unmappable
City:	JACKSON	MS30000508
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/07/1976	

Name:	EVERS, MEDGAR, HOUSE	Unmappable
City:	JACKSON	MS30000509
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	12/05/2000	

Name:	FARISH ST NEIGHBORHOOD HISTORIC DISTRICT AMENDMENT	Unmappable
City:	JACKSON	MS30000511
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/08/1980	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	FARISH ST. NEIGHBORHOOD HISTORIC DISTRICT	Unmappable
City:	JACKSON	MS30000510
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	03/13/1980	
Name:	FOUNTAINHEAD (J. WILLIS HUGHES HOUSE)	Unmappable
City:	JACKSON	MS30000513
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/28/1980	
Name:	GALLOWAY-WILLIAMS HOUSE	Unmappable
City:	JACKSON	MS30000515
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/10/1985	
Name:	GREEN, GARNER WYNN, HOUSE	Unmappable
City:	JACKSON	MS30000517
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/31/1985	
Name:	GREENWOOD CEMETERY	Unmappable
City:	JACKSON	MS30000518
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	12/20/1984	
Name:	GREYSTONE HOTEL (see ALEX WILLIAMS HOUSE)	Unmappable
City:	Not Reported	MS30000519
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	
Name:	HINDS COUNTY ARMORY	Unmappable
City:	JACKSON	MS30000520
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	12/01/2000	
Name:	HINDS COUNTY COURTHOUSE	Unmappable
City:	JACKSON	MS30000521
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	07/31/1986	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	HOUSES AT 500, 505, 512, & 513 NORTH STATE ST.	Unmappable
City:	JACKSON	MS30000524
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/07/1995	
Name:	HUGHES, J. WILLIS HOUSE (see FOUNTAINHEAD)	Unmappable
City:	Not Reported	MS30000525
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	
Name:	MANSHIP HOUSE	Unmappable
City:	JACKSON	MS30000534
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/18/1972	
Name:	MANSHIP HOUSE BOUNDARY INCREASE	Unmappable
City:	JACKSON	MS30000535
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	07/17/1980	
Name:	MERRILL-MALEY HOUSE	Unmappable
City:	JACKSON	MS30000537
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	04/29/1982	
Name:	MILLSAPS-BUIE HOUSE	Unmappable
City:	JACKSON	MS30000538
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	06/19/1973	
Name:	MISSISSIPPI FEDERATION OF WOMEN'S CLUBS	Unmappable
City:	JACKSON	MS30000539
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	06/30/1988	
Name:	MISSISSIPPI GOVERNOR'S MANSION	Unmappable
City:	JACKSON	MS30000540
County:	HINDS COUNTY	MS Historic Sites
Note:	National Historic Landmark	
Date Added:	11/25/1969	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	MISSISSIPPI STATE CAPITOL	Unmappable
City:	JACKSON	MS30000541
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/25/1969	

Name:	MORRIS, JOSEPH HENRY, HOUSE	Unmappable
City:	JACKSON	MS30000542
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	08/11/1983	

Name:	NEW ORLEANS GREAT NORTHERN RR PASSENGER DEPOT	Unmappable
City:	JACKSON	MS30000543
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	03/01/1996	

Name:	NORTH MANOR APARTMENTS	Unmappable
City:	JACKSON	MS30000544
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	03/03/1995	

Name:	OAKS, THE (BOYD HOUSE)	Unmappable
City:	JACKSON	MS30000545
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	05/25/1973	

Name:	OLD STATE CAPITOL	Unmappable
City:	JACKSON	MS30000546
County:	HINDS COUNTY	MS Historic Sites
Note:	National Historic Landmark	
Date Added:	11/25/1969	

Name:	POINDEXTER PARK HISTORIC DISTRICT	Unmappable
City:	JACKSON	MS30000551
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	06/09/1995	

Name:	ROBERTSON, SMITH, ELEMENTARY SCHOOL	Unmappable
City:	JACKSON	MS30000554
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	12/13/1978	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

Status
EDR ID
Database

Name:	See Hinds/Rankin for listing	Unmappable
City:	Not Reported	MS30001323
County:	RANKIN/HINDS COUNTIES	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	

Name:	See Hinds/Warren for listing	Unmappable
City:	Not Reported	MS30001325
County:	WARREN/HINDS COUNTIES	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	

Name:	SIMS HOUSE	Unmappable
City:	JACKSON	MS30000556
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	03/31/1983	

Name:	SMITH PARK ARCHITECTURAL DISTRICT (BOUNDARY INCREASE)	Unmappable
City:	JACKSON	MS30000558
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/29/1993	

Name:	SMITH PARK ARCHITECTURAL DISTRICT	Unmappable
City:	JACKSON	MS30000557
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	04/23/1976	

Name:	SPENGLER’S CORNER	Unmappable
City:	JACKSON	MS30000559
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	10/20/1977	

Name:	SPENGLER’S CORNER HISTORIC DISTRICT	Unmappable
City:	JACKSON	MS30000560
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	11/15/1979	

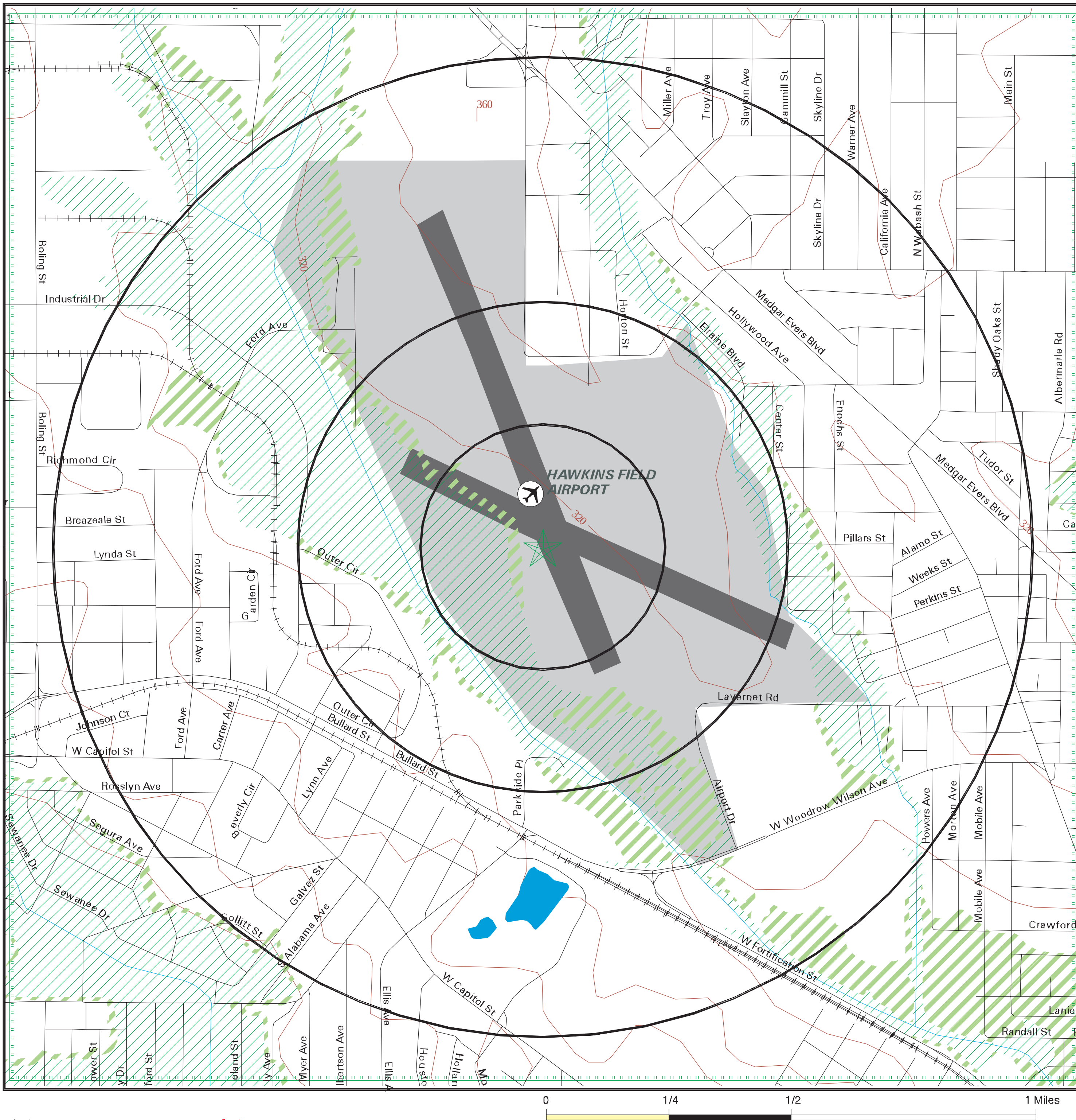
Name:	VIRDEN-PATTON HOUSE	Unmappable
City:	JACKSON	MS30000563
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	12/16/1983	

UNMAPPABLE HISTORIC SITES

Due to poor or inadequate address information, the following sites were not mapped:

		Status / EDR ID / Database
Name:	WARREN-GUILD-SIMMONS HOUSE	Unmappable
City:	JACKSON	MS30000564
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	01/11/1979	
Name:	WATKINS WILL, HOUSE	Unmappable
City:	JACKSON	MS30000481
County:	HINDS COUNTY	MS Historic Sites
Note:	(DELISTED 1987)	
Date Added:	1978	
Name:	WAVERLY (see PEYTON HOUSE)	Unmappable
City:	Not Reported	MS30000565
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	Not Reported	
Name:	WELTY HOUSE	Unmappable
City:	JACKSON	MS30000482
County:	HINDS COUNTY	MS Historic Sites
Note:	(DELISTED 1986)	
Date Added:	1980	
Name:	WEST CAPITOL ST. HISTORIC DISTRICT	Unmappable
City:	JACKSON	MS30000566
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	03/13/1980	
Name:	WILLIAMS, ALEX, HOUSE GREYSTONE HOTEL	Unmappable
City:	JACKSON	MS30000567
County:	HINDS COUNTY	MS Historic Sites
Note:	Not Reported	
Date Added:	07/03/1979	
Name:	WILSON,WOODROW,BRIDGE(HISTORIC BRIDGES OF MS TR)	Unmappable
City:	JACKSON	MS30000570
County:	HINDS/RANKIN COUNTIES	MS Historic Sites
Note:	Not Reported	
Date Added:	11/16/1988	

Flood Plain Map



- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Airports
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- 100-year flood zone
- 500-year flood zone
- Electronic FEMA data available
- Electronic FEMA data not available

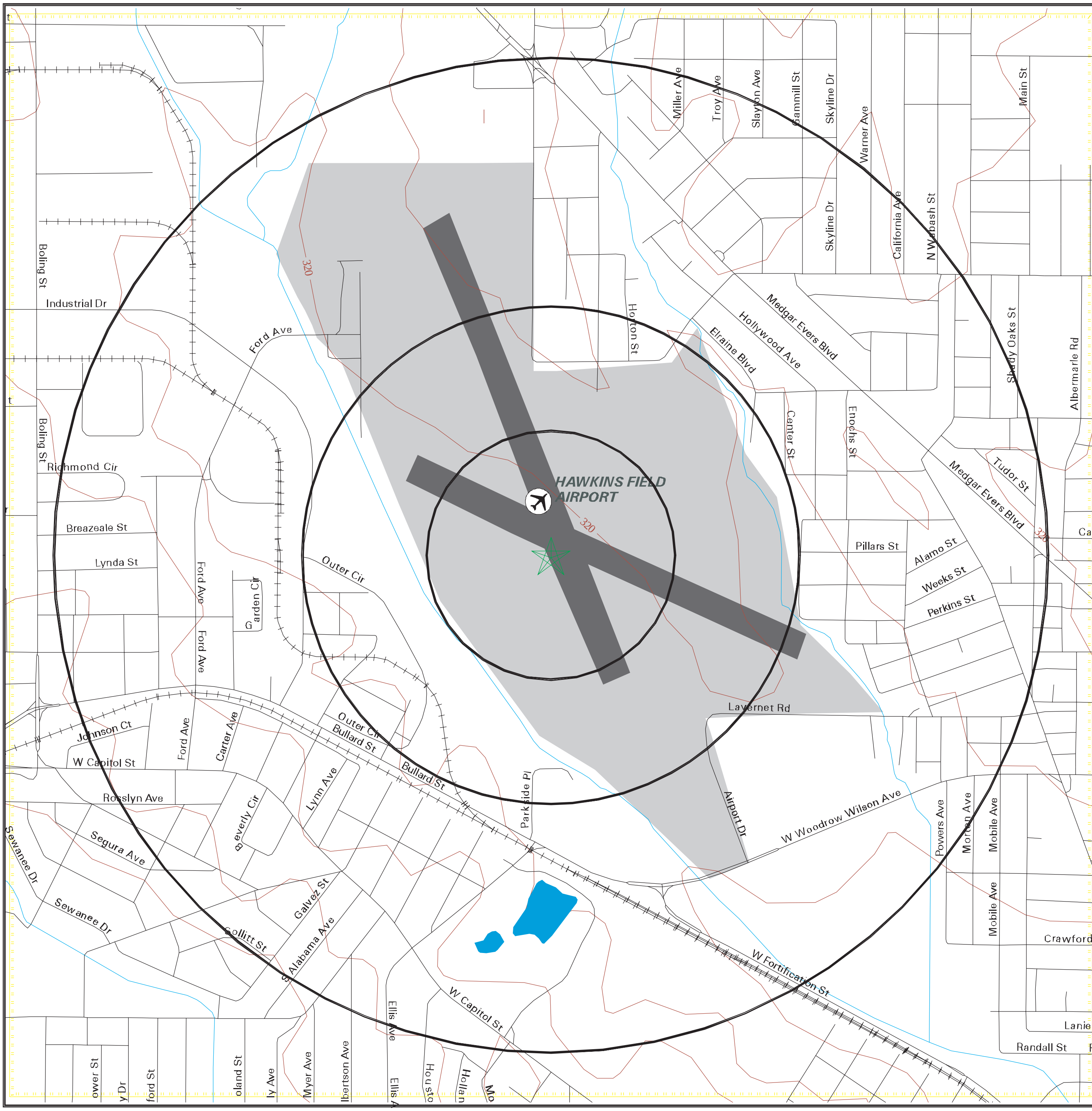
SITE NAME: Hawkins Field Airport	CLIENT: Environmental Management Plus
ADDRESS: Airport Drive	CONTACT: Alfred Martin
Jackson MS 39213	INQUIRY #: 2614984.7s
LAT/LONG: 32.3332 / 90.2221	DATE: October 14, 2009

FLOOD PLAIN MAP FINDINGS

Source: FEMA Q3 Flood Data

County	FEMA flood data electronic coverage
HINDS, MS	YES
Flood Plain panel at target property:	2800720025F
Additional Flood Plain panel(s) in search area:	
2800720010F	
2800720015F	
2800720030F	

National Wetlands Inventory Map



0 1/4 1/2 1 Miles

- Major Roads
- Contour Lines
- Waterways
- County Boundary
- Airports
- Power Lines
- Pipe Lines
- Fault Lines
- Water
- National Wetland Inventory
- Electronic NWI data available
- Electronic NWI data not available

SITE NAME: Hawkins Field Airport ADDRESS: Airport Drive Jackson MS 39213 LAT/LONG: 32.3332 / 90.2221	CLIENT: Environmental Management Plus CONTACT: Alfred Martin INQUIRY #: 2614984.7s DATE: October 14, 2009

WETLANDS MAP FINDINGS

Source: Fish and Wildlife Service NWI data

NWI hardcopy map at target property: Jackson
Additional NWI hardcopy map(s) in search area:
Not reported in source data

Map ID Direction Distance Distance (ft.)	Code and Description*	Database

No Sites Reported.

*See Wetland Classification System for additional information.

WETLANDS CLASSIFICATION SYSTEM

National Wetland Inventory Maps are produced by the U.S. Fish and Wildlife Service, a sub-department of the U.S. Department of the Interior. In 1974, the U.S. Fish and Wildlife Service developed a criteria for wetland classification with four long range objectives:

- to describe ecological units that have certain homogeneous natural attributes,
- to arrange these units in a system that will aid decisions about resource management,
- to furnish units for inventory and mapping, and
- to provide uniformity in concepts and terminology throughout the U.S.

High altitude infrared photographs, soil maps, topographic maps and site visits are the methods used to gather data for the productions of these maps. In the infrared photos, wetlands appear as different colors and these wetlands are then classified by type. Using a hierarchical classification, the maps identify wetland and deepwater habitats according to:

- system
- subsystem
- class
- subclass
- modifiers

(as defined by Cowardin, et al. U.S. Fish and Wildlife Service FWS/OBS 79/31. 1979.)

The classification system consists of five systems:

1. marine
2. estuarine
3. riverine
4. lacustrine
5. palustrine

The marine system consists of deep water tidal habitats and adjacent tidal wetlands. The riverine system consists of all wetlands contained within a channel. The lacustrine systems includes all nontidal wetlands related to swamps, bogs & marshes. The estuarine system consists of deepwater tidal habitats and where ocean water is diluted by fresh water. The palustrine system includes nontidal wetlands dominated by trees and shrubs and where salinity is below .5% in tidal areas. All of these systems are divided in subsystems and then further divided into class.

National Wetland Inventory Maps are produced by transferring gathered data on a standard 7.5 minute U.S.G.S. topographic map. Approximately 52 square miles are covered on a National Wetland Inventory map at a scale of 1:24,000. Electronic data is compiled by digitizing these National Wetland Inventory Maps.

SYSTEM **MARINE**

SUBSYSTEM **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm	

SUBSYSTEM **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE
Subclass	1 Algal 3 Rooted Vascular 5 Unknown Submergent	1 Coral 3 Worm	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic

SYSTEM **E - ESTUARINE**

SUBSYSTEM **1 - SUBTIDAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RF-REEF	OW-OPEN WATER / Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	

SUBSYSTEM **2 - INTERTIDAL**

CLASS	AB-AQUATIC BED	RF-REEF	SB - STREAMBED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	SS-SCRUB SHRUB	FO-FORESTED
Subclass	1 Algal 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	2 Mollusk 3 Worm	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble	1 Cobble- Gravel 2 Sand 3 Mud 4 Organic	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen

SYSTEM — **R - RIVERINE**

SUBSYSTEM: **1 - TIDAL** | **2 - LOWER PERENNIAL** | **3 - UPPER PERENNIAL** | **4 - INTERMITTENT** | **5 - UNKNOWN PERENNIAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	*SB-STREAMBED	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	**EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Bedrock 2 Rubble 3 Cobble-Gravel 4 Sand 5 Mud 6 Organic 7 Vegetated	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

* STREAMBED is limited to TIDAL and INTERMITTENT SUBSYSTEMS, and comprises the only CLASS in the INTERMITTENT SUBSYSTEM.
**EMERGENT is limited to TIDAL and LOWER PERENNIAL SUBSYSTEMS.

SYSTEM — **L - LACUSTRINE**

SUBSYSTEM — **1 - LIMNETIC**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	

SUBSYSTEM — **2 - LITTORAL**

CLASS	RB-ROCK BOTTOM	UB-UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	RS-ROCKY SHORE	US-UNCONSOLIDATED SHORE	EM-EMERGENT	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Bedrock 2 Rubble	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	2 Nonpersistent	

SUBSYSTEM **P - PALUSTRINE**

CLASS	RB--ROCK BOTTOM	UB--UNCONSOLIDATED BOTTOM	AB-AQUATIC BED	US--UNCONSOLIDATED SHORE	ML--MOSS-LICHEN	EM--EMERGENT	SS--SCRUB-SHRUB	FO--FORESTED	OW-OPEN WATER/ Unknown Bottom
Subclass	1 Bedrock 2 Rubble 3 Mud 4 Organic	1 Cobble-Gravel 2 Sand	1 Algal 2 Aquatic Moss 3 Rooted Vascular 4 Floating Vascular 5 Unknown Submergent 6 Unknown Surface	1 Cobble-Gravel 2 Sand 3 Mud 4 Organic 5 Vegetated	1 Moss 2 Lichen	1 Persistent 2 Nonpersistent	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6 Deciduous 7 Evergreen	1 Broad-Leaved Deciduous 2 Needle-Leaved Deciduous 3 Broad-Leaved Evergreen 4 Needle-Leaved Evergreen 5 Dead 6Deciduous 7 Evergreen	

MODIFIERS

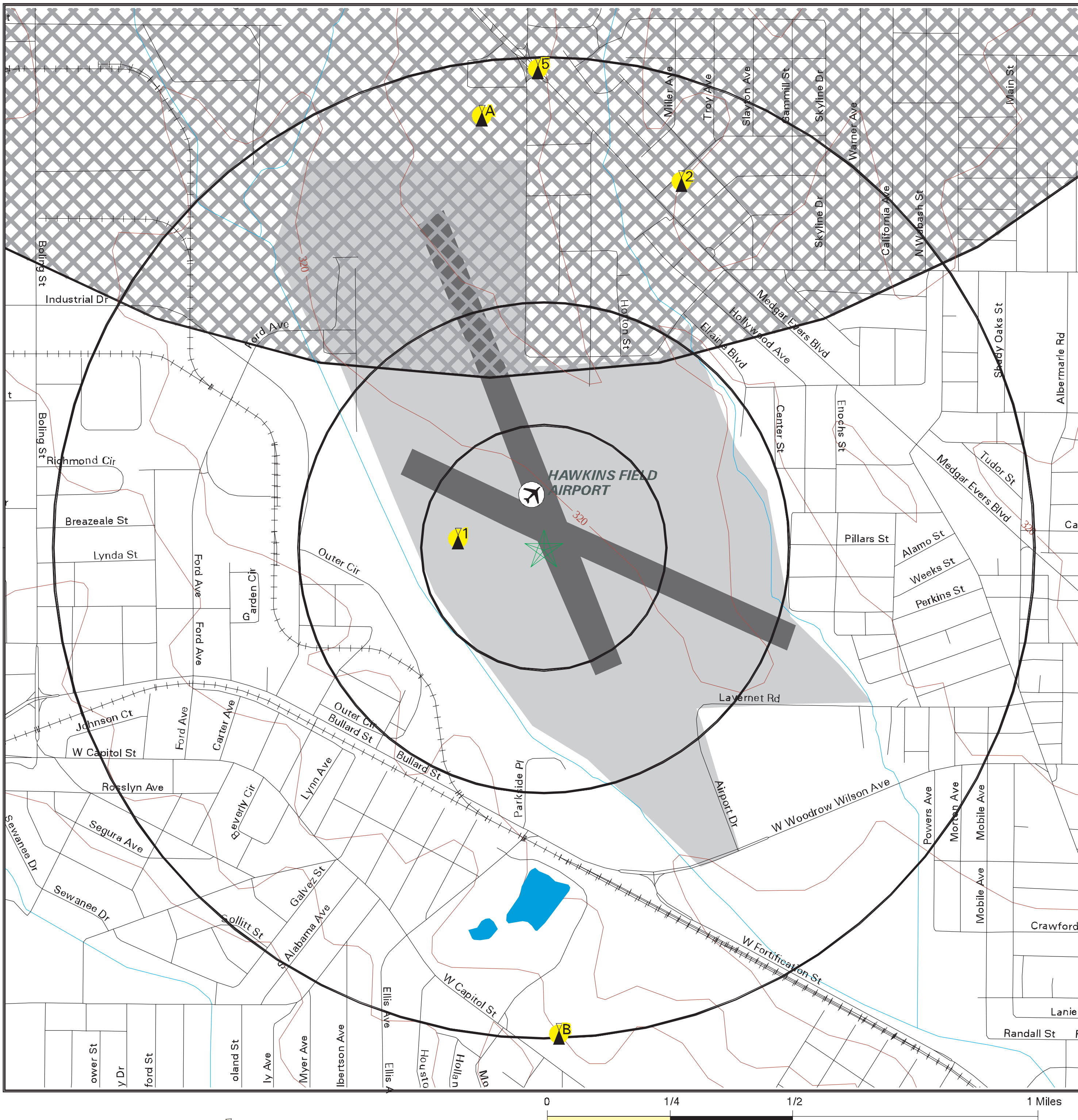
In order to more adequately describe wetland and deepwater habitats one or more of the water regime, water chemistry, soil, or special modifiers may be applied at the class or lower level in the hierarchy. The farmed modifier may also be applied to the ecological system.

WATER REGIME				WATER CHEMISTRY			SOIL	SPECIAL MODIFIERS
Non-Tidal		**Tidal**		**Coastal Halinity**	**Inland Salinity**	**pH Modifiers for all Fresh Water**		
A Temporarily Flooded B Saturated C Seasonally Flooded D Seasonally Flooded/ Well Drained E Seasonally Flooded/ Saturated F Semipermanently Flooded G Intermittently Exposed	H Permanently Flooded J Intermittently Flooded K Artificially Flooded W Intermittently Flooded/Temporary Y Saturated/Semipermanent/ Seasonal Z Intermittently Exposed/Permanent U Unknown	K Artificially Flooded L Subtidal M Irregularly Exposed N Regularly Flooded P Irregularly Flooded	*S Temporary-Tidal *R Seasonal-Tidal *T Semipermanent -Tidal V Permanent -Tidal U Unknown	1 Hyperhaline 2 Euhaline 3 Mixohaline (Brackish) 4 Polyhaline 5 Mesohaline 6 Oligohaline 0 Fresh	7 Hypersaline 8 Eusaline 9 Mixosaline 0 Fresh	a Acid t Circumneutral i Alkaline	g Organic n Mineral	b Beaver d Partially Drained/Ditched f Farmed h Diked/Impounded r Artificial Substrate s Spoil x Excavated

*These water regimes are only used in tidally influenced, freshwater systems.

Source: U.S. Department of the Interior
Fish and Wildlife Service
National Wetlands Inventory

FCC & FAA Sites Map



Streets
Contour Lines
County Boundary
Waterways
Power Lines
Water
Airports

Sites
Omni Directional AM Interference
Directional AM Interference

SITE NAME: Hawkins Field Airport ADDRESS: Airport Drive Jackson MS 39213 LAT/LONG: 32.3332 / 90.2221	CLIENT: Environmental Management Plus CONTACT: Alfred Martin INQUIRY #: 2614984.7s DATE: October 14, 2009

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
1 West 1/8-1/4 mi 928	TOW100000025547 TOWER

Tower ID: 12986
Tower Owner Name:
AIRPORT RD, JACKSON, MS

Latitude:	32 20’ 116400"	Latitude (in seconds):	116400
Longitude:	90 13’ 30"	Longitude (in seconds):	324810
Transmitter Latitude:	322000	Transmitter Longitude	0901330
Construction Date:		Activation Date:	Jul 7 1960
FAA Date:	Jun 27 1960	FCC Date:	
File Number:	15185-IB-30	FAA ID:	ASP AT.
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	403.0000	Elevation FAA:	403.0000
Elevation FAA (M):	122.8000	Elevation (M):	122.8000
Structure Height:	60.0000	Structure Height (M):	18.3000
Structure Height FAA:	60.0000	Structure Height FAA (M):	18.3000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	15316	Record Action:	OLD
ID Exam:		ID_ASB_ACC:	C

Paint and Lighting Specs:
Special Conditions/Remarks:

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
2 NNE 1/2-1 mi 4214	TOW100000025894 TOWER

Tower ID: 13020

Tower Owner Name:
3944 DELTA DR, JACKSON, MS

Latitude:	32 20’ 116438"	Latitude (in seconds):	116438
Longitude:	90 13’ 2"	Longitude (in seconds):	324782
Transmitter Latitude:	322038	Transmitter Longitude	0901302
Construction Date:		Activation Date:	Mar 19 1981
FAA Date:	Feb 9 1981	FCC Date:	Mar 2 1981
File Number:	21620-IB-031	FAA ID:	81-ASO-192-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	415.0000	Elevation FAA:	415.0000
Elevation FAA (M):	126.5000	Elevation (M):	126.5000
Structure Height:	75.0000	Structure Height (M):	22.9000
Structure Height FAA:	75.0000	Structure Height FAA (M):	22.9000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	15362	Record Action:	OLD
ID Exam:		ID_ASB_ACC:	C

Paint and Lighting Specs:

Special Conditions/Remarks:

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
A3 North 1/2-1 mi 4698	ANT100000024496 ANTREG

Tower ID:	102502		
Address:	, JACKSON, MS		
Lat (NAD 27):	322045	Lon (NAD 27):	0901327
Lat (NAD 83):		Lon (NAD 83):	
Construction Date:		Dismantled Date:	
Nepa Flag:		FAA ID:	89-ASO-1633-OE
Structure Type:	TOW	Elevation (M):	134.7000
Structure Hgt (M):	25.0000	Hgt Above Ground:	
Hgt Above Ground (M):		Hgt Above Mean Sea Level (M):	
Date Activated:	Nov 15 1989	License Issue Date:	
Date Keyed:		Date Printed:	
Date Processed:		Date Received:	
Licensee Signature			
Nature of Modification:		Purpose:	
Company (DBA) Name:			
Owner Name:	MISSISSIPPI AUTHORITY FOR EDUCATIONAL TV		
Attention:			
Owner Address:	, ,		
Owner PO Box:		Phone Number:	
E-Mail Address:			
Internet Domain:			
Painting & Lighting Specs:	2	Date of Last Remarks:	
Special Conditions #1:			
Special Conditions #2:			
Key Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
A4 North 1/2-1 mi 4698	TOW100000001294 TOWER

Tower ID:	102502		
Tower Owner Name:	MISSISSIPPI AUTHORITY FOR EDUCATIONAL TV		
, JACKSON, MS			
Latitude:	32 20’ 116445"	Latitude (in seconds):	116445
Longitude:	90 13’ 27"	Longitude (in seconds):	324807
Transmitter Latitude:	322045	Transmitter Longitude	0901327
Construction Date:		Activation Date:	Nov 15 1989
FAA Date:	Oct 11 1989	FCC Date:	Nov 9 1989
File Number:	BPLIF-890821DE	FAA ID:	89-ASO-1633-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	442.0000	Elevation FAA:	442.0000
Elevation FAA (M):	134.7000	Elevation (M):	134.7000
Structure Height:	82.0000	Structure Height (M):	25.0000
Structure Height FAA:	82.0000	Structure Height FAA (M):	25.0000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	15371	Record Action:	MOD
ID Exam:	ASB6	ID_ASB_ACC:	C
Paint and Lighting Specs:	2		
Special Conditions/Remarks:			

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database
5 North 1/2-1 mi 5157	TOW100000079560 TOWER

Tower ID: 76417
Tower Owner Name: CITY JACKSON, MS POLICE DEPT
4445 MEDGAR EVERS BLVD, JACKSON, MS

Latitude:	32 20' 116450"	Latitude (in seconds):	116450
Longitude:	90 13' 20"	Longitude (in seconds):	324800
Transmitter Latitude:	322050	Transmitter Longitude	0901320
Construction Date:	99/99/1999	Activation Date:	Jul 7 1987
FAA Date:	Apr 24 1978	FCC Date:	Jul 7 1987
File Number:	0214893	FAA ID:	78-ASO-745-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	490.0000	Elevation FAA:	490.0000
Elevation FAA (M):	149.4000	Elevation (M):	149.4000
Structure Height:	145.0000	Structure Height (M):	44.2000
Structure Height FAA:	145.0000	Structure Height FAA (M):	44.2000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	15377	Record Action:	ADD
ID Exam:	ASB7	ID_ASB_ACC:	C

Paint and Lighting Specs:
Special Conditions/Remarks:

This record is for a license, and it may or may not indicate a site which has been built.

Map ID Direction Distance Distance (ft.)	EDR ID Database
B6 South 1/2-1 mi 5210	DOF100000026687 FAA DOF

Nacg code:	25	Obs number:	0920
O or u:	O	State id:	MS
City name:	JACKSON	Latdeg:	32
Latmin:	19		
Latsec:	8		
Lat hemi:	N	Longdeg:	90
Longmin:	13		
Longsec:	18		
Long hemi:	W	Obs type:	TANK
Frequency:	Not Reported	Agl ht:	0143

FCC & FAA SITES MAP FINDINGS
TOWERS

Map ID Direction Distance Distance (ft.)	EDR ID Database

Amsl ht:	00493	Strobe ind:	R
Acc h:	1	Acc v:	A
Mark ind:	Not Reported	Faa stdy n:	99OC0206
Act acd dt:	C96302	Datchk cd:	218124
Dat file:	ASO	Site id:	DOF100000026687

B7 South 1/2-1 mi 5261	TOW100000024891 TOWER

Tower ID: 12922
Tower Owner Name:
CITY LIMITS, MID-CITY JACKSON, MS

Latitude:	32 19' 116347"	Latitude (in seconds):	116347
Longitude:	90 13' 17"	Longitude (in seconds):	324797
Transmitter Latitude:	321907	Transmitter Longitude	0901317
Construction Date:		Activation Date:	Jan 30 1980
FAA Date:	Oct 12 1979	FCC Date:	Dec 31 1979
File Number:	00963-PL-100	FAA ID:	79-ASO-2102-OE
Antenna Height:	0.0000	Antenna Height (M):	0.0000
Beacon Height:	0.0000	Beacon Height (M):	0.0000
Elevation:	475.0000	Elevation FAA:	475.0000
Elevation FAA (M):	144.8000	Elevation (M):	144.8000
Structure Height:	120.0000	Structure Height (M):	36.6000
Structure Height FAA:	120.0000	Structure Height FAA (M):	36.6000
Supporting Struct Hgt:	0.0000	Supporting Struct Hgt (M):	0.0000
Tower Height:	0.0000	Tower Height (M):	0.0000
Structure Type:	TOW	Tower Type:	E
Key Remarks:		Date:	
Key Site:	15226	Record Action:	OLD
ID Exam:		ID_ASB_ACC:	C

Paint and Lighting Specs:
Special Conditions/Remarks:

This record is for a license, and it may or may not indicate a site which has been built.

FCC & FAA SITES MAP FINDINGS
AIRPORTS

EDR ID
Database

AIR09932
AIRPORTS

Site Number:	11282.*A		
Airport Type:	AIRPORT	State:	MISSISSIPPI
County:	HINDS	City:	JACKSON
Facility Name:	HAWKINS FIELD	Owner type:	PU
Use:	PU	Owner:	CITY OF JACKSON
Owner Address	Not Reported	City/State:	JACKSON, MS 39209
Phone:	Not Reported	Mgmt Name:	PAUL WILKERSON
Mgmt Address:	PO BOX 98109	Mgmt City/St:	JACKSON, MS 39298-8109
Mgmt Phone:	601-939-5631	Latitude:	32-20-05.181N
Longitude:	090-13-21.114W	Lat Method:	E
Elev (ft):	342	Elev method:	S
Aero chart:	MEMPHIS	Dist from Business:	03
Dir from Business:	NW	Date Active:	Not Reported
Certified Date:	Not Reported	Fed agreements:	NGPY3
Is Int'l Airport?:	N	Is Customs Airport?:	N
Inspection Method:	S	Inspected by:	S
Last inspected:	06292001	Attendance:	ALL/ALL/0700-2000
Lighting:	DUSK-DAWN	Has ATC Tower:	Y
Beacon Color:	CG	Landing fee:	Not Reported
Single engine:	046	Multi engine:	037
Jet engines:	002	Helicopters:	010
Gliders:	Not Reported	Military:	040
Ultralights:	Not Reported	Commercial:	Not Reported
Air taxis:	002830	Local ops:	030681

Runway id:	11/29	Length:	3441
Width:	150	Surface:	CONC-F
Lights Intensity:	MED	Base End Id:	11
Markings:	BSC	Latitude:	32-20-05.390N
Longitude:	090-13-33.532W	Elevation:	310.8
Approach lights:	Not Reported	End Lights:	Not Reported
Centerline Lights:	Not Reported	Touchdown Lights:	Not Reported
Recip End ID:	29	Recip markings:	BSC
Recip Lat:	32-19-51.251N	Recip Long:	090-12-57.050W
Recip Elev:	322.0	Recip App Lgts:	Not Reported
Recip End Lgts:	Not Reported	Recip Ctr Lgts:	Not Reported

Runway id:	16/34	Length:	5387
Width:	150	Surface:	ASPH-G
Lights Intensity:	HIGH	Base End Id:	16
Markings:	PIR	Latitude:	32-20-34.400N
Longitude:	090-13-36.215W	Elevation:	341.6
Approach lights:	MALSR	End Lights:	Not Reported
Centerline Lights:	Not Reported	Touchdown Lights:	Not Reported
Recip End ID:	34	Recip markings:	PIR
Recip Lat:	32-19-44.726N	Recip Long:	090-13-13.452W

Recip Elev:	306.0	Recip App Lgts:	Not Reported
Recip End Lgts:	Y	Recip Ctr Lgts:	Not Reported

FCC & FAA SITES MAP FINDINGS
POWERLINES

EDR ID
Database

No Sites Reported.

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Various Federal laws and executive orders address specific environmental concerns. NEPA requires the responsible offices to integrate to the greatest practical extent the applicable procedures required by these laws and executive orders. EDR provides key contacts at agencies charged with implementing these laws and executive orders to supplement the information contained in this report.

NATURAL AREAS
Officially designated wilderness areas
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information

National Park Service, Southeast Region
100 Alabama Street SW, 1924 Building
Atlanta, GA 30303
404-562-3100

USDA Forest Service, Southern
1720 Peachtree Road, N.W.
Atlanta, GA 30367
404-347-2384

BLM - Eastern States Office
7450 Boston Blvd.
Springfield, VA 22153
703-440-1713

Fish & Wildlife Service, Region 4
Budget and Finance 1875 Century Boulevard
Atlanta, GA 30345
404-679-4096

Officially designated wildlife preserves, sanctuaries and refuges
Government Records Searched in This Report

FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

MS Wildlife Management Areas: Wildlife Management Areas
Wildlife Management Area boundaries
Source: Dept. of Wildlife, Fisheries, and Parks.
Telephone: 601-354-7303

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 4
Budget and Finance 1875 Century Boulevard
Atlanta, GA 30345
404-679-4096

State Contacts for Additional Information
Dept. of Wildlife, Fisheries & Parks 601-362-9212

Wild and scenic rivers
Government Records Searched in This Report
FED_LAND: Federal Lands
Source: USGS
Telephone: 703-648-5094
Federal data from Bureau of Land Management, National Park Service, Forest Service, and Fish and Wildlife Service.
- National Parks
- Forests
- Monuments
- Wildlife Sanctuaries, Preserves, Refuges
- Federal Wilderness Areas.

Date of Government Version: 12/31/2005

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 4
Budget and Finance 1875 Century Boulevard
Atlanta, GA 30345
404-679-4096

Endangered Species

Government Records Searched in This Report
Endangered Species Protection Program Database
A listing of endangered species by county.
Source: Environmental Protection Agency
Telephone: 703-305-5239

MS Environmental Sensitive Are: Environmentally Sensitive Areas
Approximate locations of rare and endangered species and unique ecological areas
Source: Dept. of Wildlife, Fisheries, and Parks.
Telephone: 601-354-7303

Federal Contacts for Additional Information
Fish & Wildlife Service, Region 4
Budget and Finance 1875 Century Boulevard
Atlanta, GA 30345
404-679-4096

State Contacts for Additional Information
Natural Heritage Program, Museum of Natural Science 601-354-7303

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

LANDMARKS, HISTORICAL, AND ARCHEOLOGICAL SITES
Historic Places
Government Records Searched in This Report

National Register of Historic Places:
The National Register of Historic Places is the official federal list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture. These contribute to an understanding of the historical and cultural foundations of the nation.
The National Register includes:
- All prehistoric and historic units of the National Park System;
- National Historic Landmarks, which are properties recognized by the Secretary of the Interior as possessing national significance; and
- Properties significant in American, state, or local prehistory and history that have been nominated by State Historic Preservation Officers, federal agencies, and others, and have been approved for listing by the National Park Service.

Date of Government Version: 03/23/2006

MS Historic Sites: National Historic Registry Sites
Locas of Mississippis Historic Registry Sites
Source: MARIS. Institutions for Higher Learning
Telephone: 601-432-6149

MS Historic Sites: Mississippi Landmarks Inventory
Listing of hsitoric sites included on the State Register.
Source: Department of Archives and History.
Telephone: 601-359-6850

MS Historic Sites: National Register of Historic Places
Listing of historic sites included on the National Register for Mississippi.
Source: Department of Archives and History.
Telephone: 601-359-6850

Federal Contacts for Additional Information

Park Service; Advisory Council on Historic Preservation
1849 C Street NW
Washington, DC 20240
Phone: (202) 208-6843

State Contacts for Additional Information

Mississippi Dept. of Archives & History 601-359-6850

Indian Religious Sites
Government Records Searched in This Report

Indian Reservations:
This map layer portrays Indian administrated lands of the United States that have any area equal to or greater than 640 acres.
Source: USGS
Phone: 888-275-8747
Date of Government Version: 12/31/2005

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Federal Contacts for Additional Information

Department of the Interior- Bureau of Indian Affairs
Office of Public Affairs
1849 C Street, NW
Washington, DC 20240-0001
Office: 202-208-3711
Fax: 202-501-1516

National Association of Tribal Historic Preservation Officers
1411 K Street NW, Suite 700
Washington, DC 20005
Phone: 202-628-8476
Fax: 202-628-2241

State Contacts for Additional Information

A listing of local Tribal Leaders and Bureau of Indian Affairs Representatives can be found at:
http://www.doi.gov/bia/areas/agency.html

Eastern Area Office, Bureau of Indian Affairs
3701 N. Fairfax Drive Mail Stop 260-VASQ
Arlington, VA 22203
703-235-2571

Scenic Trails

State Contacts for Additional Information

Natchez Trace National Scenic Trail
American Hiking Society 1422 Fenwick Lane
Silver Spring, Maryland 20910
301-565-6704

FLOOD PLAIN, WETLANDS AND COASTAL ZONE

Flood Plain Management

Government Records Searched in This Report

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

Federal Contacts for Additional Information

Federal Emergency Management Agency 877-3362-627

State Contacts for Additional Information

Emergency Management Agency 601-352-9100

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

Wetlands Protection
Government Records Searched in This Report
NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2004 from the U.S. Fish and Wildlife Service.

Federal Contacts for Additional Information
Fish & Wildlife Service 813-570-5412

State Contacts for Additional Information
Dept. of Fisheries, Wildlife & Parks 601-362-9212

Coastal Zone Management
Government Records Searched in This Report
CAMA Management Areas
Dept. of Env., Health & Natural Resources
919-733-2293

Federal Contacts for Additional Information
Office of Ocean and Coastal Resource Management
N/ORM, SSMC4
1305 East-West Highway
Silver Spring, Maryland 20910
301-713-3102

State Contacts for Additional Information
Department of Marine Resources 228-374-5000

FCC & FAA SITES MAP
For NEPA actions that come under the authority of the FCC, the FCC requires evaluation of Antenna towers and/or supporting structures that are to be equipped with high intensity white lights which are to be located in residential neighborhoods, as defined by the applicable zoning law.

Government Records Searched in This Report
Cellular
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

Antenna Registration
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

AM Tower
Federal Communications Commission
Mass Media Bureau
2nd Floor - 445 12th Street SW
Washington DC 20554 USA
Telephone (202) 418-2700

FAA Digital Obstacle File
Federal Aviation Administration (FAA)
1305 East-West Highway, Station 5631
Silver Sprinng, MD 20910-3281
Telephone: 301-713-2817
Describes known obstacles of interest to aviation users in the US. Used by the Federal Aviation Administration (FAA) and the National Oceanic and Atmospheric Administration to manage the National Airspace System.

Airport Landing Facilities
Federal Aviation Administration
Telephone (800) 457-6656
Private and public use landing facilities.

Electric Power Transmission Line Data
PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

Excessive Radio Frequency Emission
For NEPA actions that come under the authority of the FCC, Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the determination of whether the particular facility, operation or transmitter would cause human exposure to levels of radio frequency in excess of certain limits.

Federal Contacts for Additional Information
Office of Engineering and Technology
Federal Communications Commission
445 12th Street SW
Washington, DC 20554
Phone: 202-418-2470

OTHER CONTACT SOURCES

NEPA Single Point of Contact
State Contacts for Additional Information
Clearinghouse
Department of Finance & Administration
550 High Street
303 Walters Sillers Building
Jackson, MS 39201-3087
601-359-6762

KEY CONTACTS & GOVERNMENT RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

APPENDIX 3

Glossary of Terms

GLOSSARY OF TERMS

Included in the following pages are definitions of commonly used airport planning terms to assist the reader in understanding the technical language included in this document.

Air Taxi: an operator which: 1) performs at least five round trips per week between two or more points and publishes flight schedules which specify times, days of the week and places between which such flights are performed; or 2) transports mail by pursuant through a current contract with the U.S. Postal Service.

Airport Traffic Control Tower (ATCT): a central operations facility in the terminal air traffic control system, consisting of a tower, including an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices, to provide safe and expeditious movement of terminal traffic.

Air Route Traffic Control Center (ARTCC): a facility established to provide air traffic control service to aircraft operating on an IFR flight plan within controlled airspace and principally during the enroute phase of flight.

Approach Lighting System (ALS): an airport lighting facility which provides visual guidance to landing aircraft by radiating light beams by which the pilot aligns the aircraft with the extended centerline of the runway on his final approach and landing.

Azimuth: horizontal direction or bearing; usually measured from the reference point of 0 degrees clockwise through 360 degrees.

Base Leg: a flight path at right angles to the landing runway off its approach end. The base leg normally extends from the downwind leg to the intersection of the extended runway centerline.

Compass Locator (LOM) (LMM): a low power low/medium frequency radio-beacon installed in conjunction with the instrument landing system at one of two of the marker sights.

Control Zone: airspace extending upward from the ground which may include one or more airports and is normally a circular area of five statute miles in radius with extensions where necessary to include instrument approach and departure paths.

Displaced Threshold: a threshold that is located at one point on the runway other than the designated beginning of the runway.

Distance Measuring Equipment (DME): equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

DNL: day-night noise level. the daily average noise metric in which that noise occurring between 10:00 p.m. and 7:00 a.m. is penalized by 10 decibels.

Downwind Leg: a flight path parallel to the landing runway, opposite of the landing direction. The down wind leg normally extends to a point at which the aircraft turns to base leg.

Duration: length of time, in seconds, a noise event such as an aircraft flyover is experienced. (May refer to the length of time a noise event exceeds a specified threshold level.)

Enplaned Passengers: the total number of revenue passengers boarding aircraft, including originating, stop-over, and transfer passengers, in scheduled and non-scheduled threshold level.

FBO (Fixed Base Operator): a provider of service to users of an airport. Such services include, but are not limited to , fueling, hangaring, flight training, repair and maintenance.

General Aviation: that portion of civil aviation which encompasses all facets of aviation except air carriers holding a Certificate of Convenience and Necessity, and large aircraft commercial operators.

Glide Slope: electrical equipment that emits signals which provide vertical guidance by reference to airborne instruments during instrument approaches such as an ILS, or visual ground aids, such as VASI, which provide vertical guidance for a VFR approach or for the visual portion of an instrument approach and landing.

Global Positioning System: an instrument approach and landing system that utilizes satellites to determine aircraft position when providing non –precision and precision approach capabilities.

Ground Effect: the excess attenuation attributed to absorption or reflection of noise by man-made or natural features on the ground surface.

Instrument Approach: a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority.

Instrument Flight Rules (IFR): rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS): a precision instrument approach system which normally consists of the following electronic components and visual aids: localizer, glide slope, outer marker, middle market, and approach lights.

Localizer (LOC): providing horizontal guidance to the runway centerline for aircraft during approach and landing by radiating a directional pattern of radio waves modulated by two signals which, when received with equal intensity, are displayed by compatible airborne equipment as an "on-course" indication, and when received in unequal intensity are displayed as an "off-course" indication.

Localizer Type Directional Aid (LDA): a facility of comparable utility and accuracy to a localizer, but is not part of a complete ILS and is not aligned with the runway.

Microwave Landing System (MLS): an instrument approach and landing system that provides precision guidance in azimuth, elevation, and distance measurement.

Missed Approach: an instrument approach not completed by landing. This may be due to visual contact not established at authorized minimums or instructions from air traffic control, or other reasons.

Non-Directional Beacon (NDB): a radio beacon transmitting non-directional signals that a pilot of an aircraft equipped with direction finding equipment can determine his/her bearing to or from the radio beacon and "home" on or track to or from the station. When the radio beacon is installed in conjunction with the Instrument Landing System market, it is normally called a Compass Locator.

Nonprecision Approach Procedure: a standard instrument approach procedure in which no electronic glide slope is provided, such as VOR, TACAN, NDB, or LOC.

Operation: a take-off or a landing.

Outer Marker (OM): an ILS navigation facility in the terminal area navigation system located four to seven miles from the runway edge on the extended centerline indicating to the pilot, that he/she is passing over the facility and can begin final approach.

Precision Approach Path Indicator (PAPI): an airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical guidance to the pilot during approach and landing, by radiating a pattern of high intensity red and white focused light beams which indicate whether the aircraft is above, on , or below the glide path.
Precision Approach Procedure: a standard instrument approach procedure in which an electronic glide slope is provided, such as ILS.

Precision Instrument Runway: a runway having an existing Instrument Landing System (ILS).

Reliever Airport: an airport to serve general aviation aircraft which might otherwise use a congested air-carrier served airport.

Vector: a heading issued to an aircraft to provide navigational guidance by radar.

Victor Airway: a control area or portion thereof established in the form of a corridor, the centerline of which is defined by radio navigational aids.

Visual Approach: an approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of an air traffic facility and having an air traffic control authorization, may proceed to the airport of destination in VFR conditions.

Visual Approach Slope Indicator (VASI): an airport lighting facility in the terminal area navigation system used primarily under VFR conditions. It provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is above, on, or below the flight path.

Visual Flight Rules (VFR): rules that govern the procedures for conducting flight under visual conditions. The term VFR is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements. In addition, it is used by pilots and controllers to indicate type of flight plan.

VOR/Very High Frequency Omnidirectional Range Station: a ground-based electronic navigation aid transmitting very high frequency navigation signals, 360 degrees in azimuth, oriented from magnetic north. Used as the basis for navigation in the national airspace system. The VOR periodically identifies itself by Morse Code and may have an additional voice identification feature.

VORTAC/VHF Omnidirectional Range/Tactical Air Navigation: a navigation aid providing VOR azimuth, and TACAN distance-measuring equipment (DME) at one sight.

ABBREVIATIONS

AGL: Above ground level
AIA: Annual instrument approaches
AIP: Airport Improvement Program
ARFF: Aircraft rescue and firefighting
ARSA: Airport radar surface area
ARTCC: Air route traffic control center
ASOS: Automated Surface Observing System
ASR: Airport Surveillance Radar
ATCT: Air traffic control tower
AWOS: Automated Weather Observing System
CIP: Capital Improvement Program (5 Year CIP)
DME: Distance Measuring Equipment
DNL: Day-night noise level

DWL: Runway weight bearing capacity for aircraft with dual-wheel type landing gear
DTWL: Runway weight bearing capacity for aircraft with dual-tandem type landing gear
FAA: Federal Aviation Administration
F.A.R.: Federal Aviation Regulations
FBO: Fixed Base Operator
GADOT: Georgia Department of Transportation
GPS: Global Positioning System
GS: Glide Slope
HIRL: High Intensity Runway Lights
IFR: Instrument Flight Rules
ILS: Instrument Landing System
LMM: Compass Locator at Middle Marker
LOC: ILS Localizer
LOM: Compass Locator at Outer Marker
MIRL: Medium Intensity Runway Lights
MITL: Medium Intensity Taxiway Lights
MLS: Microwave Landing System
MM: Middle Marker
MSL: Mean Sea Level
NAVAID: Navigational Aid
NDB: Non Directional Beacon
NM: Nautical Mile
OM: Outer Marker
PAPI: Precision Approach Path Indicator
RCO: Remote Communications Outlet
REILS: Runway End Identification Lighting System
SEL: Sound Exposure Level
SM: Statute Mile
SWL: Runway weight bearing capacity for aircraft with single-wheel type landing gear
TCA: Terminal Control Area
TFR: Temporary Flight Restriction
TRACON: Terminal Radar Approach Control
VADI: Visual Approach Slope Indicator
VASI: Visual Approach Slope Indicator
VFR: Visual Flight Rules (F.A.R. Part 91)
VHF: Very High Frequency
VOR: Very High Frequency Omnidirectional Range
VORTAC: (see VOR and TACAN)

APPENDIX 4

Pavement Analysis Letter

BWSC | Barge Waggoner Sumner & Cannon, Inc.®

June 27, 2011
File 3442301

Mr. Jack B. Weldy, Jr. C.M.
Properties Manager
Jackson Municipal Airport Authority
100 International Drive, Suite 300
Jackson, MS 392978-8109

RE: Airfield Pavement Analysis
Master Plan Report Appendix #4

Dear Mr. Weldy:

At the Airport's request, Barge, Waggoner, Sumner, & Cannon, Inc. (BWSC) investigated the existing airfield pavement conditions and was tasked to determine the airfield pavement strength as part of the Airport Layout Plan (ALP) update. This letter is being submitted to provide the results of our pavement analysis for Runway 16/34 at Hawkins Field in Jackson, Mississippi.

BWSC made a site visit to the Jackson Municipal Airport in July of 2010. The entire runway was visually examined while walking along the runway centerline. The pavement surface was found to be in good shape with no raveling, cracking, rutting, or other surface deformity that would be classified as severe. BWSC was provided a geotechnical report that was completed by Burns Cooley Dennis, Inc. and is dated June 24, 1994. The data contained in this geotechnical report was the basis of BWSC's pavement analysis.

The referenced geotechnical report indicated that (4) borings had been completed and each one was of varied thicknesses. BWSC analyzed all borings and provided pavement strengths for all four boring locations. BWSC used the "thinnest" pavement section to provide the pavement strength since the airfield pavement should be rated at its weakest section. BWSC also used the CBR value of 6 that was referenced in the geotechnical report for our analysis. The Federal Aviation Administration (FAA)'s latest software package, FAARFIELD 1.302 was used to develop the pavement strength. The FAARFIELD program became the FAA standard for airfield pavement design upon publication of AC 150/5320-6E. Based off of boring R-2 in the Burns Cooley report and a varied fleet mix of general aviation and corporate aircraft, BWSC assigned Hawkins Field with the following pavement strengths:

Single Wheel Load (SWL) ~ 31,000 lbs.
Dual Wheel Load (DWL) ~ 37,000 lbs
Dual Tandem Wheel Load (DTWL) ~ 97,000 lbs.

If you need additional information, please do not hesitate to contact me at (334)-793-6266.

Sincerely,

Michael J. Cole, PE, PMP
Project Manager

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